

MEET THE B-17C

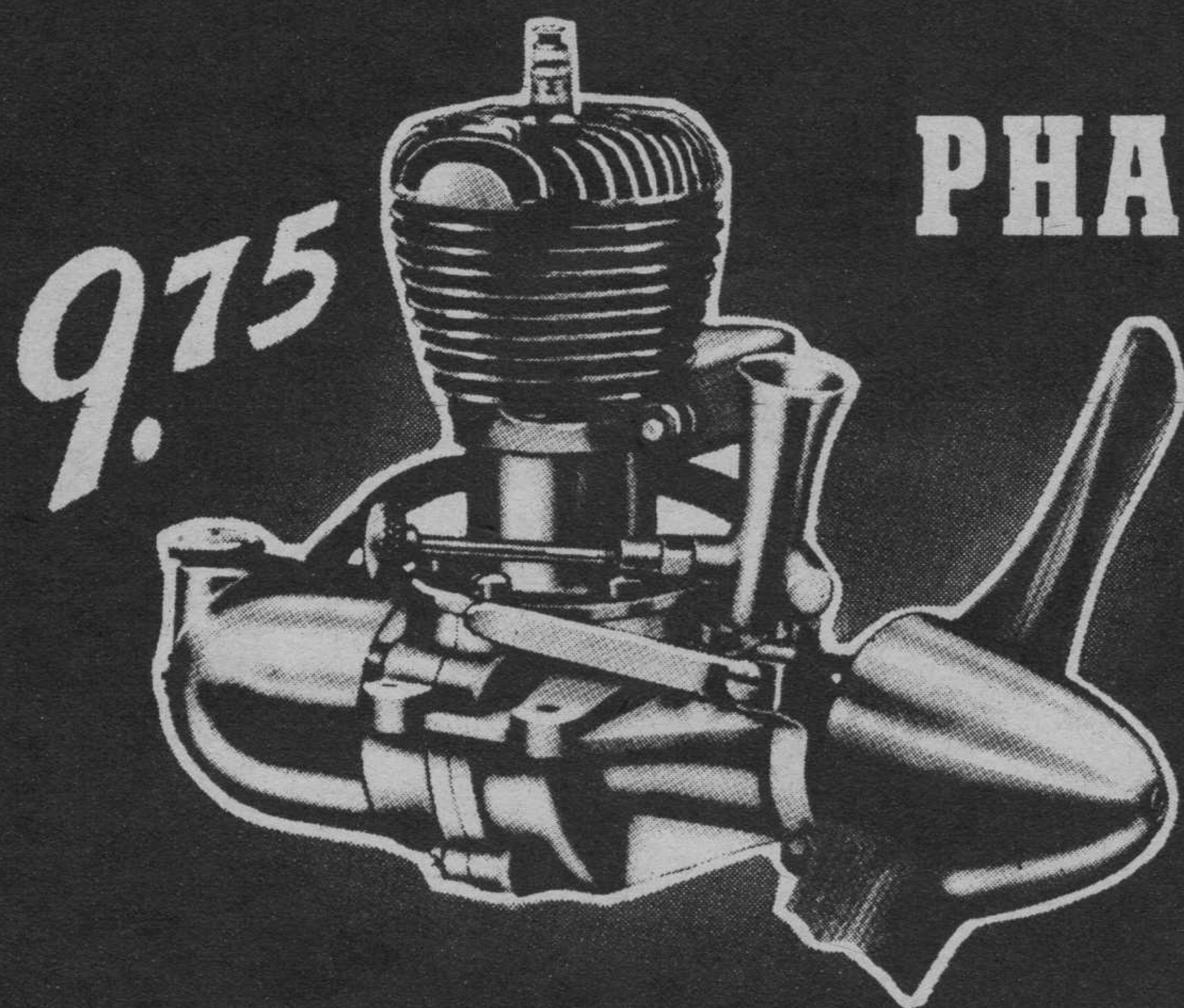




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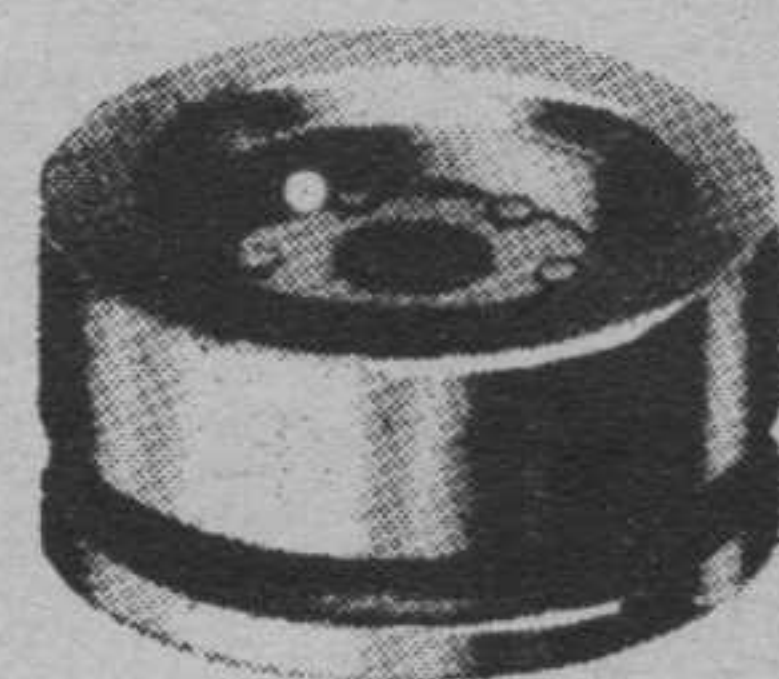
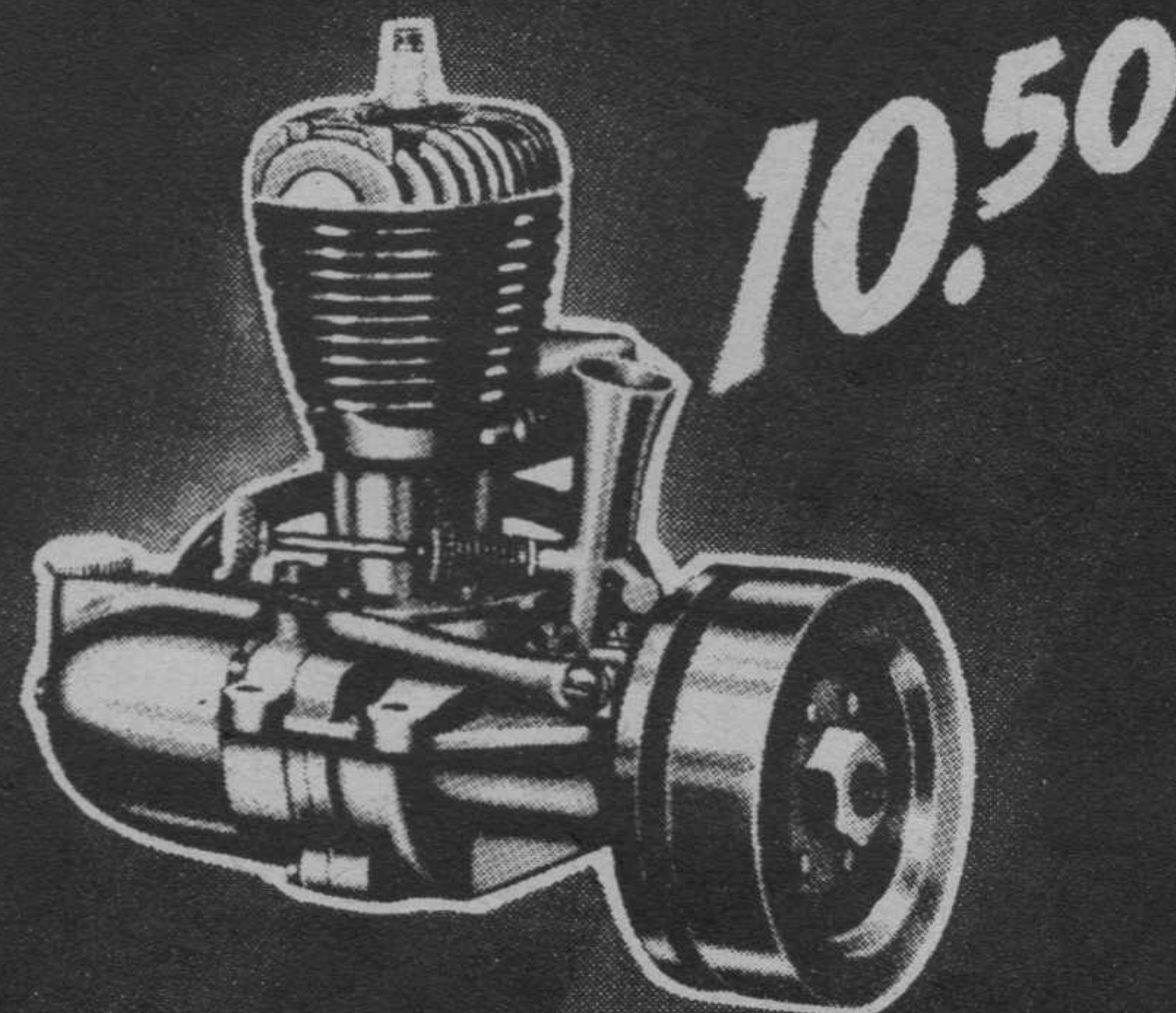
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1/5 h.p.; 2 port 2 cycle; .710 bore; .750 stroke; .295 cu. in. displacement; bare weight 5 1/4 oz. Vacuum feed downdraft carburetion, will not siphon tank dry. 1/4" crank pin; bronze bearings. Turned steel cylinder; lapped alloy steel piston; new patented principle of by-passing, eliminates piston deflector. Cylinder and by-pass one integral part; full 3/8" crankshaft; square rotary valve port; over-size anti-friction bronze bearings; lucite plastic gas tank; champion V-2 spark plug; metal enclosed condensers; die cast connecting rod. Smith coil.



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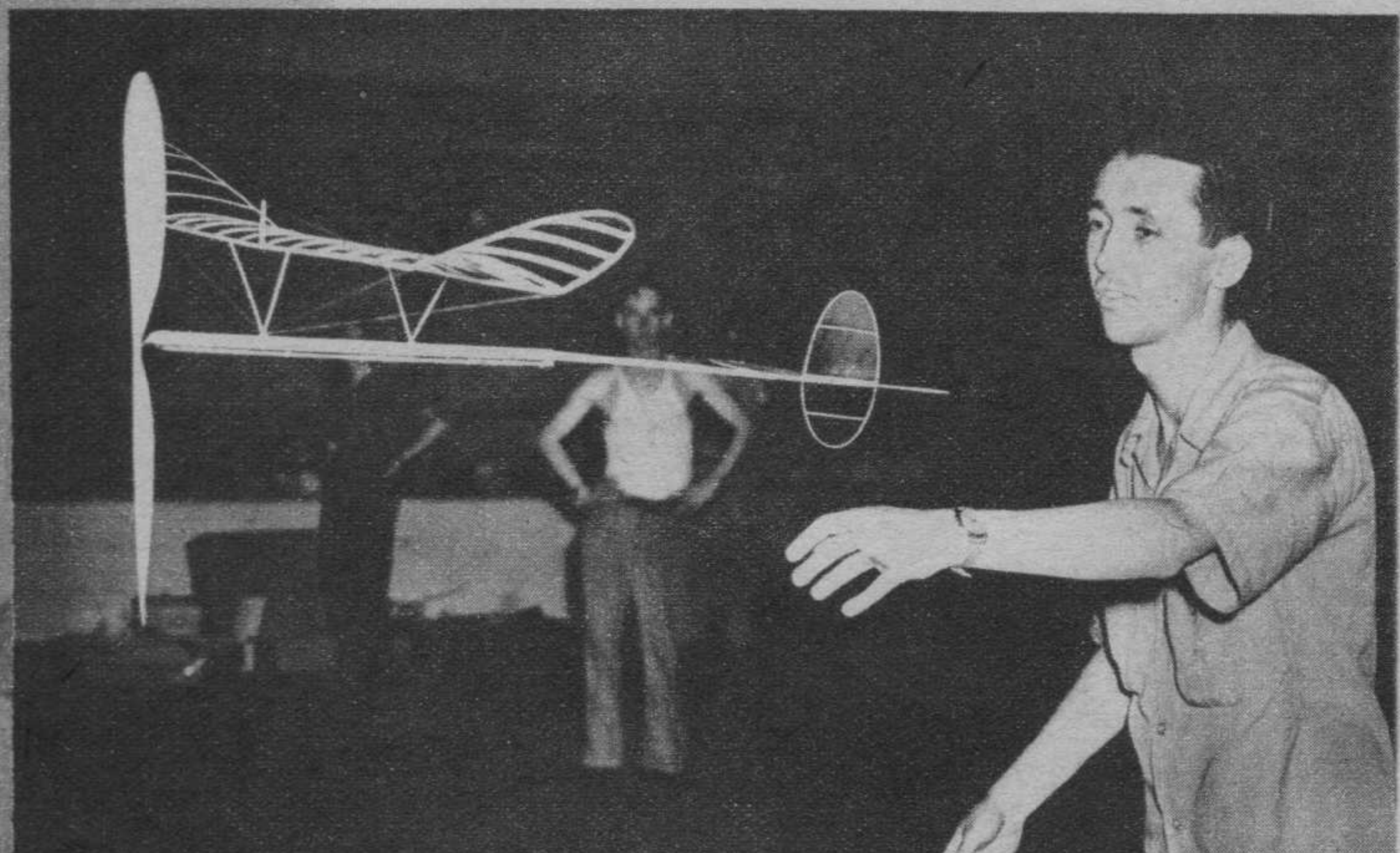
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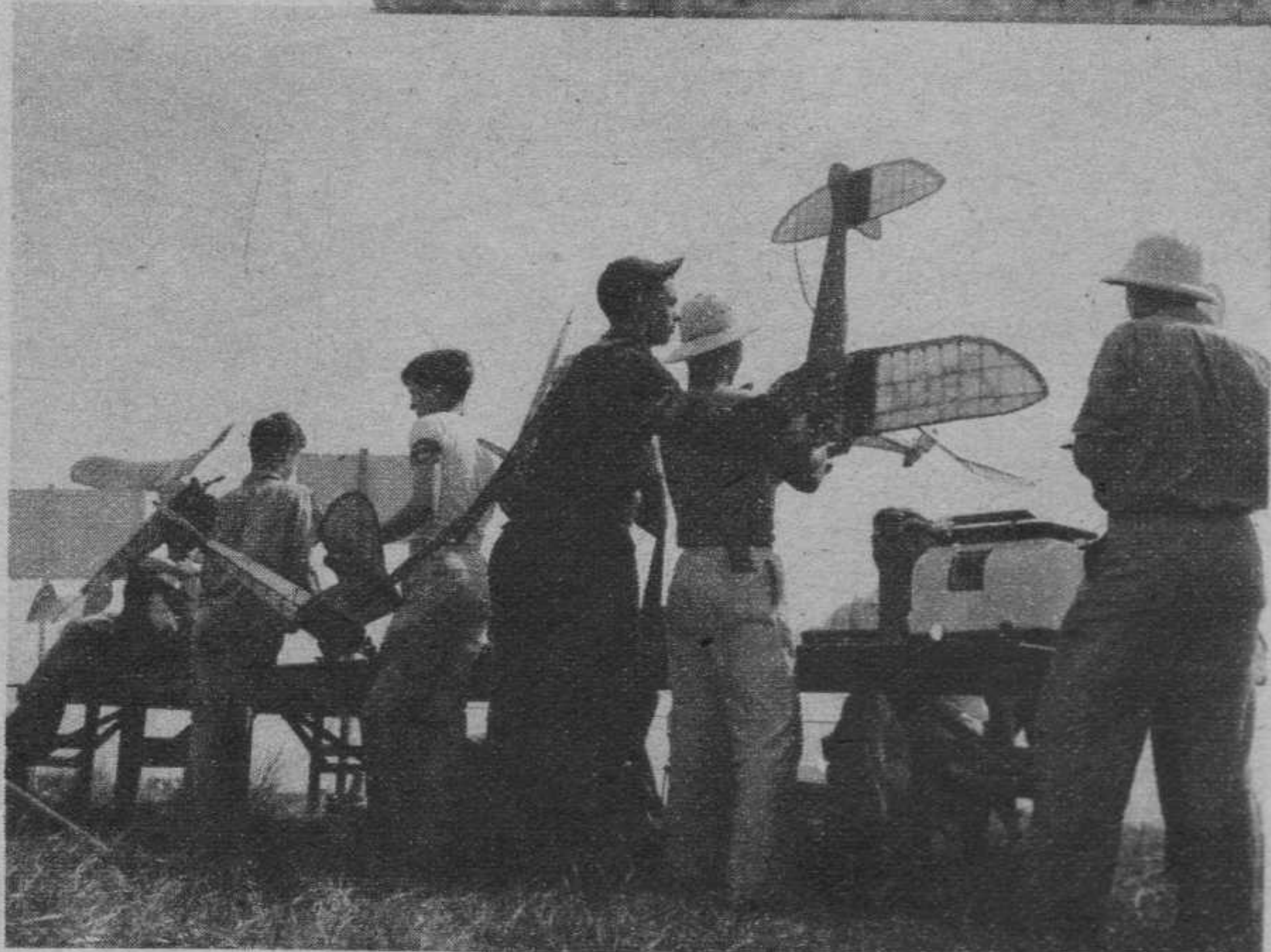
Off to a flying start! Rubber-powered fuselage model jumps off.



Indoor models like this stick were flown in Chicago Amphitheater.

# 1941 NATIONAL CHAMPIONSHIPS

Is your visit to the Chicago jamboree still a dizzy blur? Cheer up—here's what you saw and heard!

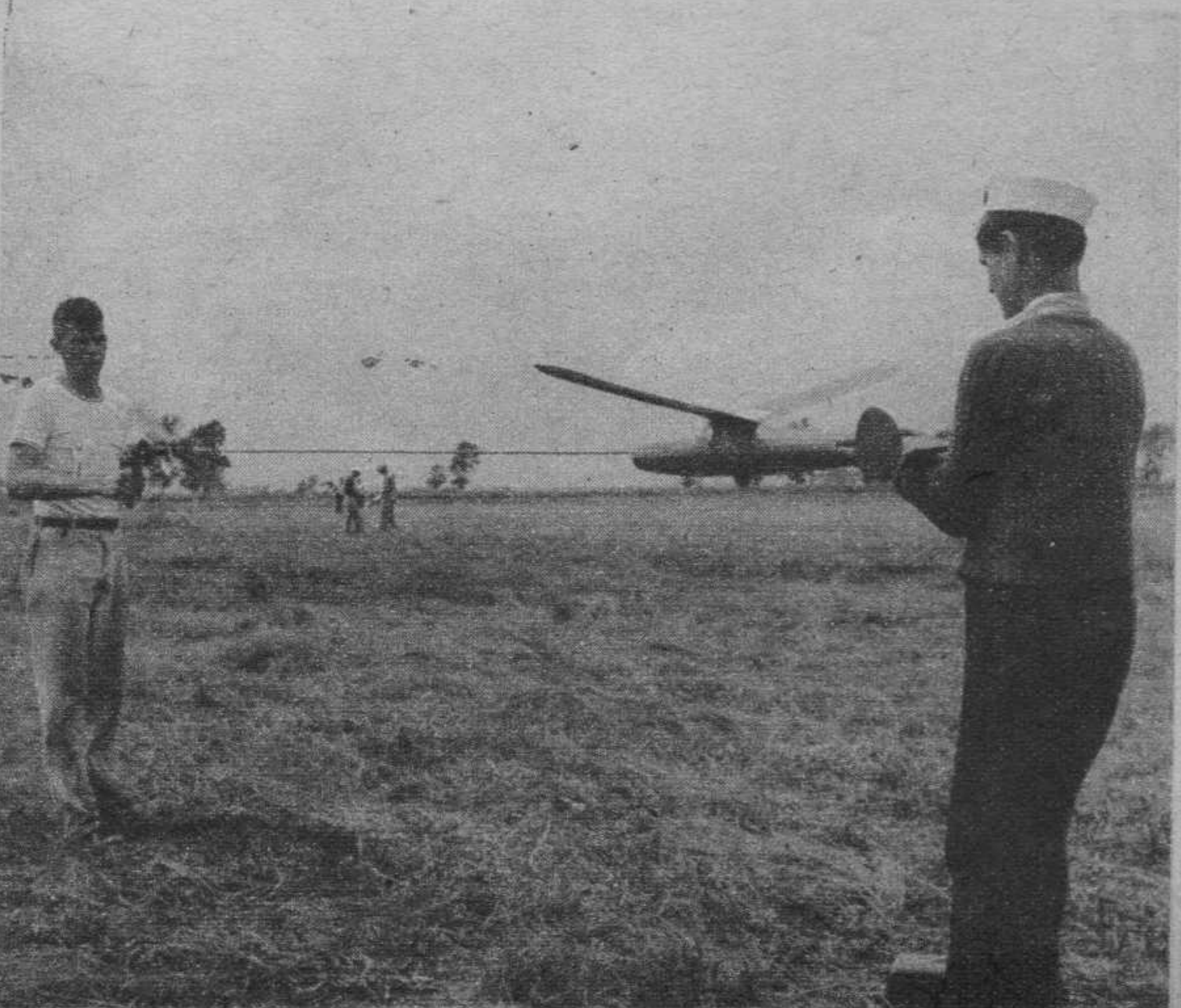


Line forms to the right. Usual queues of sunburned contestants waited at a dozen tables for processing models.

**A**BOUT 1300 model builders turned up in Chicago the first week in July for the 14th Annual National Model Airplane Contest. Army and navy service and defense work kept many others away. Currency regulation kept practically all the Canadians at home. Several model builders came up from Mexico. One of them took a second in the best-finish event. New Zealand entered several models in the Moffett Trophy event. These were entered originally in the 1940 contest. Prior to the contest this

Henry Cole of Tacoma, Washington, packs in the turns in his streamlined cabin model. Note retracted wheel.

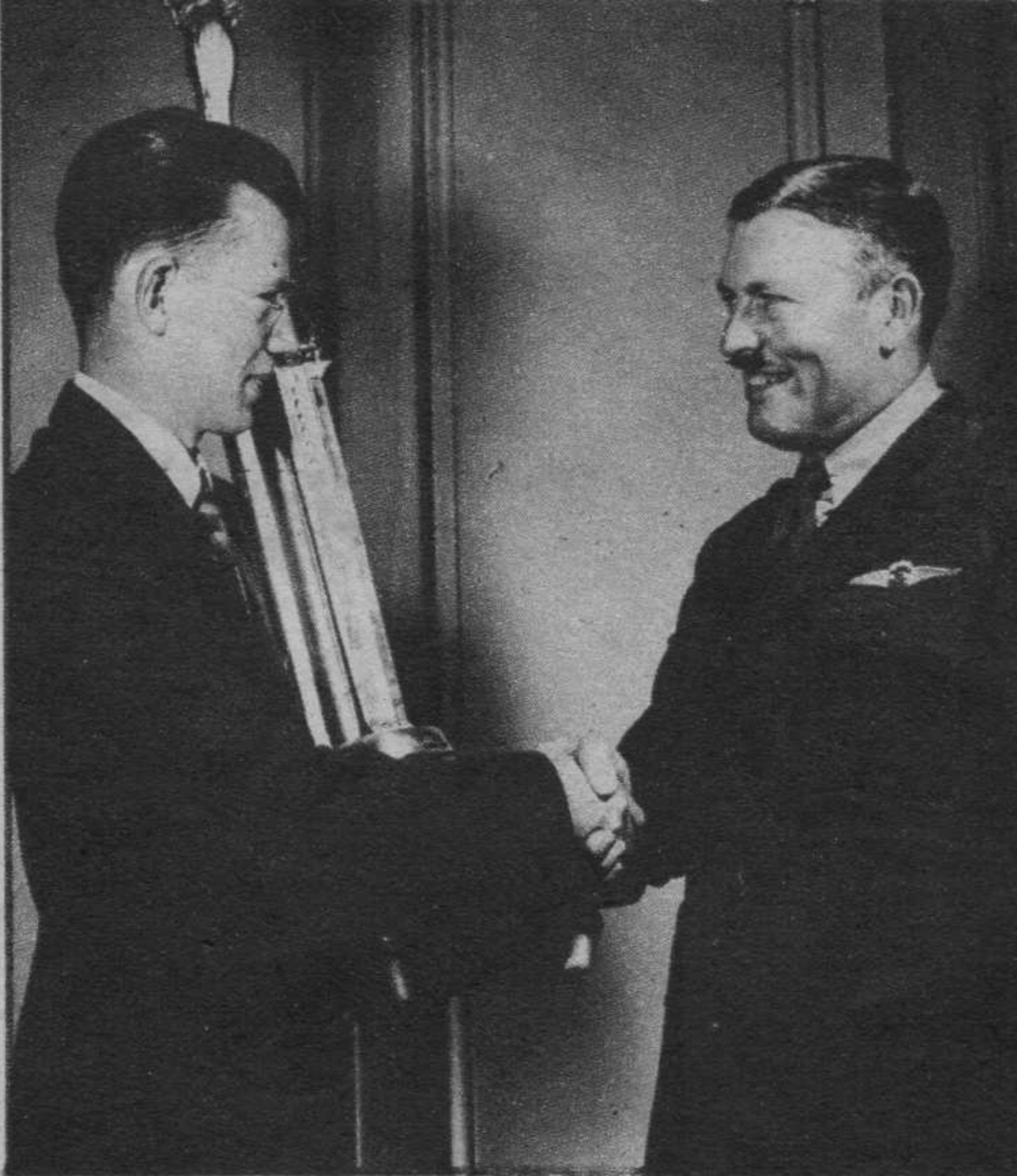
Jim Walker's crew prepares his first-place-winning Get your props here! Army of gas radio-controlled model. One radio model did a loop. contestants were well supplied.







Jerry Brofman, Brooklyn, winner of the Air Trails Trophy in gas.



Henry Struck receiving congratulations from Roscoe Turner on being the National Champ.



Ex-Moffett and Wakefield winner, Jim Cahill, was there as usual. Not a bad model, either.



Watch the birdie! Leon Schulman and his Zombie. Retracting wheel, folding prop.

## NATIONAL CHAMPIONSHIPS - 1941

year, the Chicago proxy fliers whipped them into flyable condition, but they were not up to standard.

Chicago seems to be within traveling range of most model builders. There were large delegations from distant cities such as Boston, New Orleans, St. Petersburg and Portland.

All contestants are conscientious the first few days. They register, get their official entry cards, greet a few of the other boys and then retire to do last-minute work on their models.

There was an industrious crowd whittling away at the work—won the Stout Perpetual Trophy. He also won the senior divi-

provided a steady flow of balsa and other material for the boys. The workshop was posted with a few pertinent rules. The printer might as well have saved time and effort on the one that read: "Don't run motors after 10:00 p. m." As usual, there were some who worked day and night to have a model to fly—having arrived in Chicago with only a strong mind and some material.

Wednesday (July 2nd) was the first day of flying. Indoor builders were let loose in the International Amphitheater. Gordon Cain of Boston won the Bloomingdale Trophy for the second year straight. Pete Andrews of Philadelphia added more evidence to the already-long list that he's one of the best indoor men. Stanley Stanwick did 1127.0 seconds with an indoor stick and total time of 1082 seconds. The Moffett International Trophy



Among those present, left to right—Gordon Light, Harold Kulick, Al Lewis, Bill Winter.



Sal Taibi crashed through at last, taking first in Class C Open with his popular Pacer. The Pacer is a Bay Ridge kit.



Dick Korda was the man to beat. Took first in Class C Open in rubber. 300 sq. in. job had timer dethermalizer.

Looks as if H. A. Thomas is a jitterbug in addition to his drawing and model building.



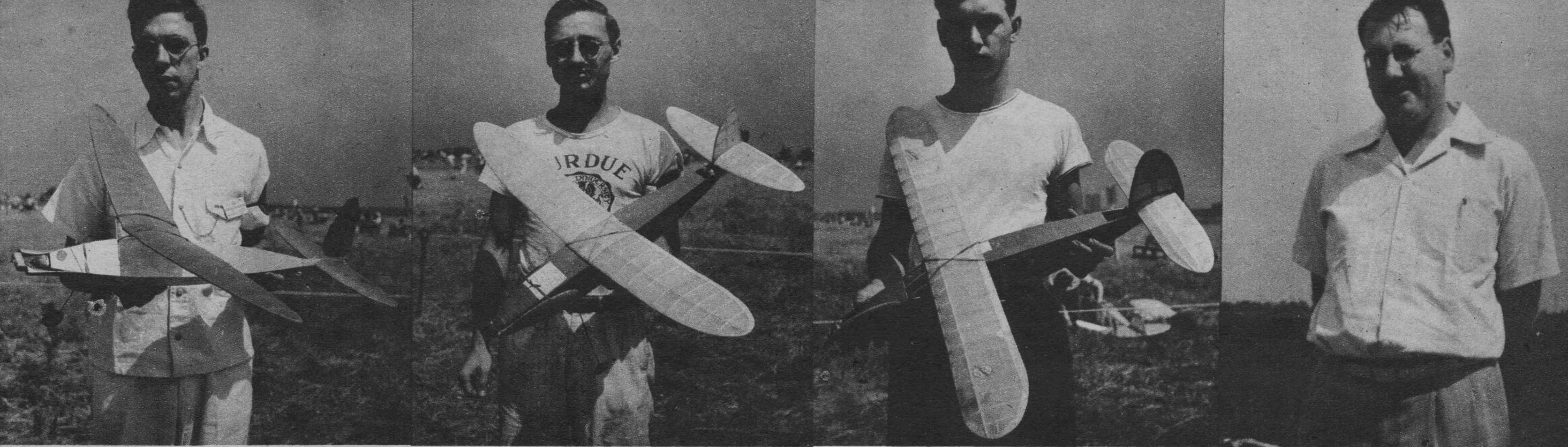
The old maestro himself, Carl Goldberg, with his latest Interceptor. Carl is famous for his Clipper, Zipper, Sailplane.



Perennial contestant, Wally Simmers, Midwest, with his new Dyna-Moe, high-climbing rubber-powered cabin.







Ed Lidgard, proxy flier for Alfred Leong, New Zealand. Model a Moffett entry.

Richard Obarski, Moffett-event proxy for W. Alexander, Auckland, New Zealand.

Bob DeBatty flew as proxy flier for N. Ricketts, of Auckland, New Zealand, in Moffett.

Meet Clinton B. DeSoto, well-known radio-control writer.

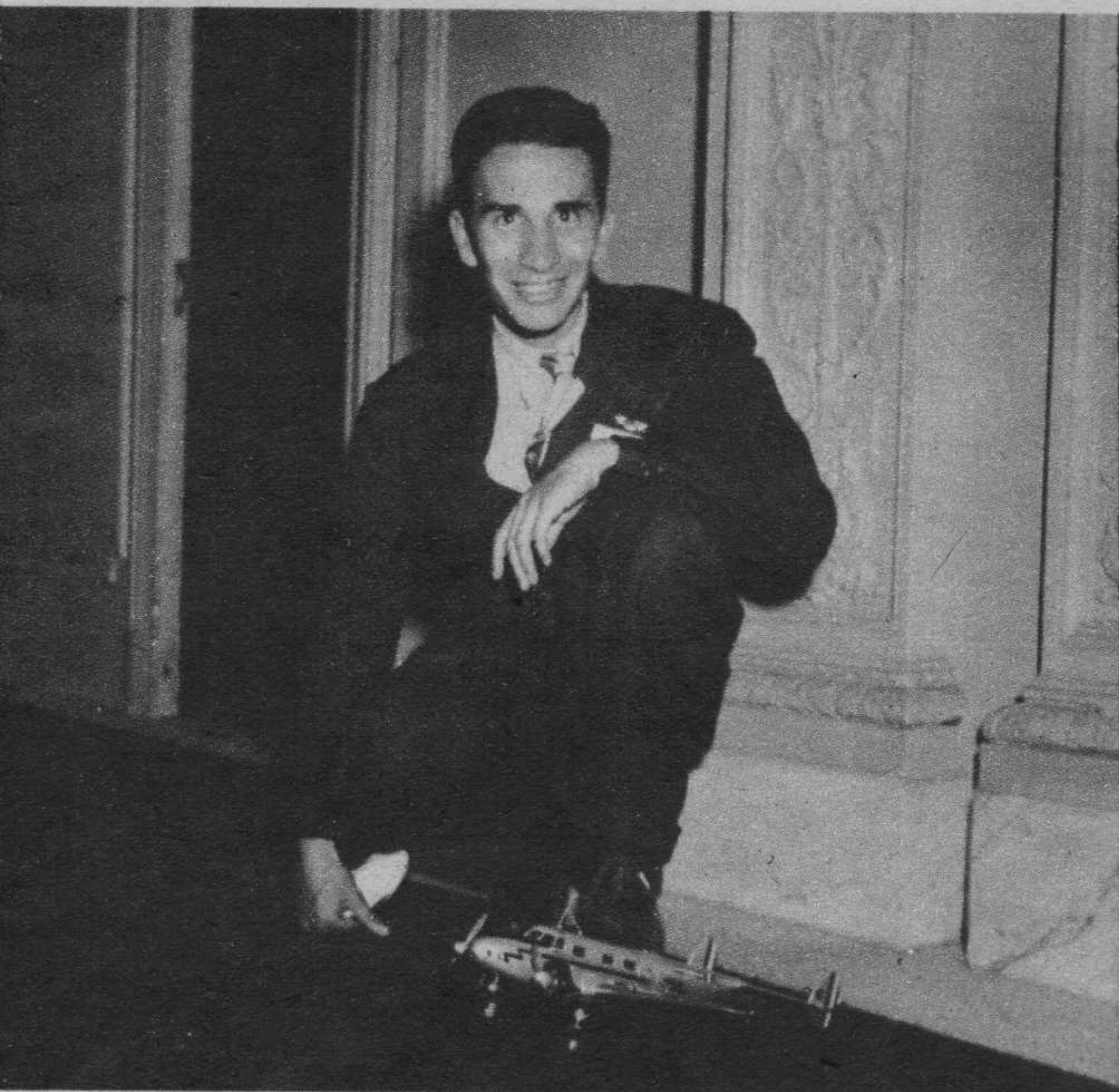
sion of the indoor cabin event—only twenty seconds back of Cain. Stanwick is an aërographer at the U. S. Naval Air Station at Pensacola, Florida. He was sent to the contest by the navy. He's a crackjack builder and did good work with the Boston group before enlisting about a year ago, and an even better job of carrying the navy's colors at this meet. He finished in a tie for second in individual points scored.

Ray Beaumont was the outstanding rubber-powered model flier of the contest. Flying in the outdoor cabin event on Thursday, he piled up a three-flight total of 1133.5 seconds for first place. This put him in the finals for the Moffett Trophy on Saturday, when he had two O. O. S. flights of 8 and 10 minutes and a benches in the Hotel Sherman. Model-shop exhibition booths

spends a year in Philadelphia in the custody of one of the country's best young modelers. Unfortunately, there were no Canadians entered in this event.

Ray Beaumont was tied with Stanley Stanwick for second place in the individual high-point scores. But Henry Struck topped their 150 points. His 175 won him the Grand Championship. Struck's list of contest victories is a mile long. He's tops in all departments of flying. He won the flying scale event (open division) with an Interstate Cadet that did over 4 minutes, got second in the indoor cabin, tenth in the indoor stick, and eleventh in the outdoor cabin.

Another New Yorker, Sal Taibi, made Saturday a great day for Brooklyn. He flew his Pacer (Class C, open (*Turn to page 54*)-



The Mexican air force invaded Chicago. Team captain Capt. Salas L. Jose, Mexico City, captured a second.

William Berry, the elder, "Elderberry" to Philly crowd, is a contest fixture. He's spry for all of seventy-some years.



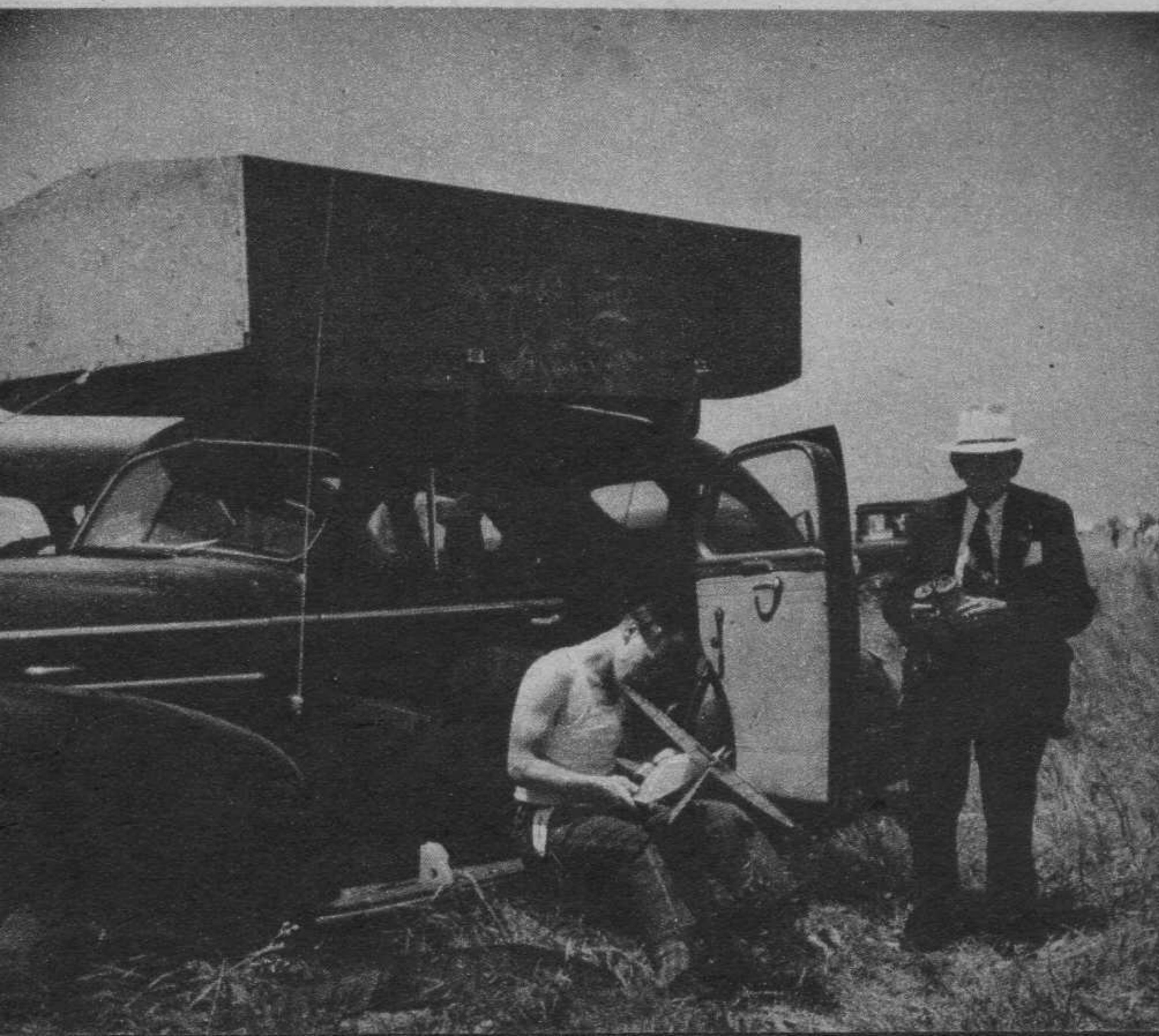
The winning smile. Jim Walker, American Junior, captured first in radio with three-wheel ship using R. C. H. equipment.

Price Roark, one of the Arkansas travelers, with another of those Little Rock low-wings. It was a good flier, too.

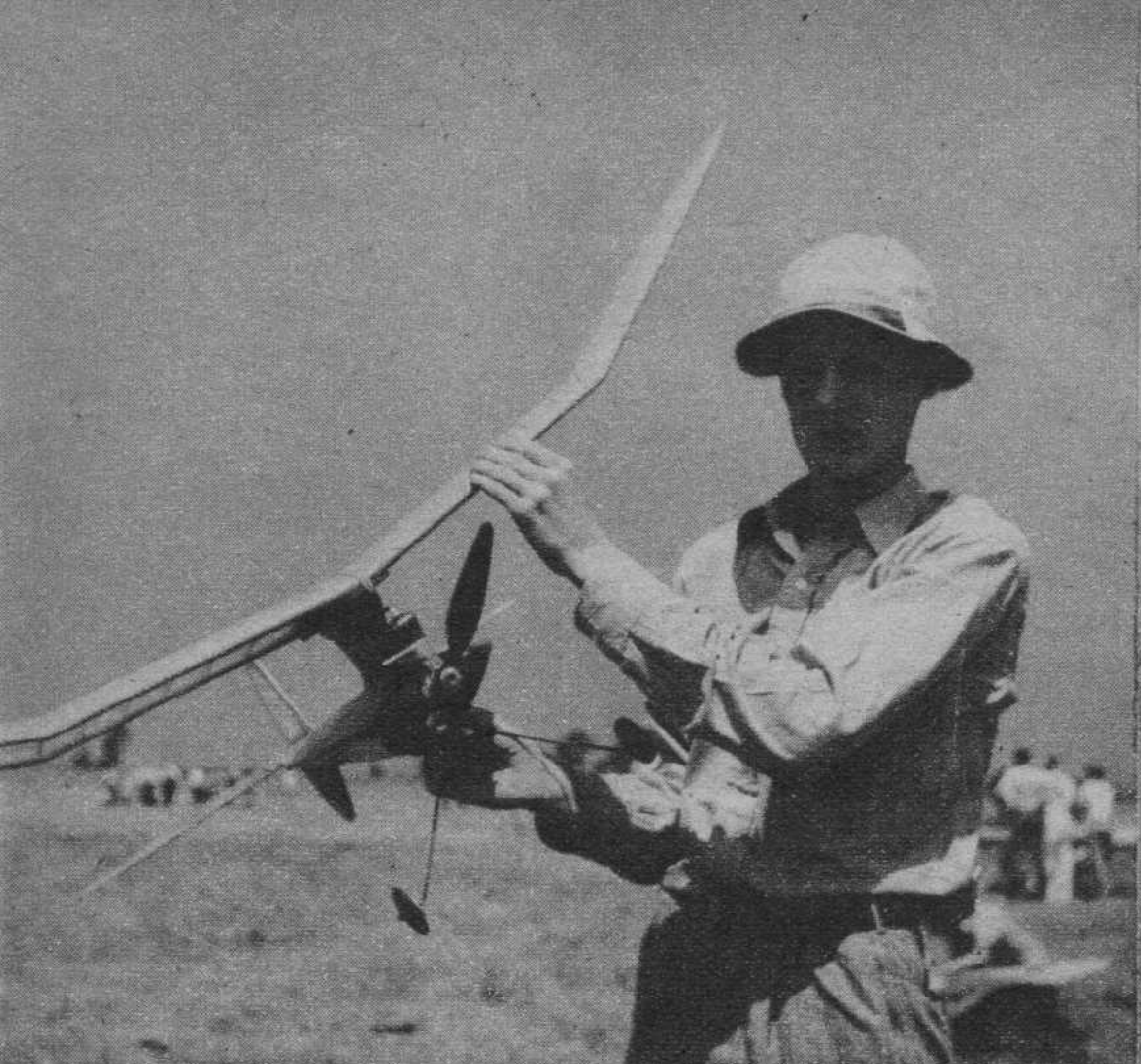


Mr. and Mrs. Bill Good haunted radio event. Good brothers did not compete this year.

Man with the magic touch, Bill Gibson, who won A and B Open in gas; A Open in '40.







Why, we don't know, but this gas model built by Rodney Chase had this flat fuselage.



One of the nicest stick jobs we've seen. Tubular stick from  $\frac{1}{32}$ -inch sheet balsa, high-aspect wing. By Caldwell Johnson.



Although its fuselage profile looks like a fish out of water, design was carefully worked out by George Gallanis.

# FROM THESE DESIGNS—

BY HENRY STRUCK

1941's National Champ analyzes and forecasts as per ships seen at Chicago.

THE Nationals are rapidly becoming a competition—in the full sense of the word—losing some of the “fair” atmosphere they used to have, when each fellow wondered what his neighbor had dreamed up. For, with the contest rules unchanged for two years (minor miracle), the general design of the contest ship has become quite stabilized. Experience demonstrated the soundness of the set-up of parasol, polydihedral wing and long tail moment arm with large stabilizer for obtaining the stability required to handle great power. Most design changes therefore ran toward the refinement of individual parts such as airfoils, pod and boom fuselages, retractable landing gears, folding props, et cetera. However, never let it be said that modelers have become stagnated in design, but only that the record number of competitors concealed what may prove to be next season's tried-and-true fliers.

The Chicago Times and the Chicago Park Department combined to make this meet the smoothest ever run. The absence of the usual long lines, with timers and runways always available, was enough to warm the heart of any long-suffering contest goer. Only the weatherman failed to co-operate fully. Before he could lock up the breezes for which the Windy City is famed, the first three days of the meet had passed, and with them the chance for wholesale record smashing. There was plenty of good flying, though, accompanied by much strenuous legwork through the deep grass. That same grass, however, saved many a ship to fly again in spite of a test crack-up.

## GAS-POWERED MODELS

Class A used to be distinguished by obvious attempts at extreme lightness to make the weight rule, Class B by harboring most of the efforts at “super-duper” design, and Class C by being the most realistic. These conditions have passed. Contest ships now seem somewhat like those tricky advertisements wherein a gentleman lounging in an easy-chair contemplates an advertisement of an identical man who in turn is doing the same thing, and so *ad infinitum*. The only real difference is size.

The new engines around .34 cubic inches have given Class C jobs fresh impetus, especially for those who have no means to transport or build six-footers. These motors also make it possi-



Robert Hildebrand likes gull wings, dihedral tail tips.



We don't know builder, but his gas-powered scale Consolidated trainer was nifty.



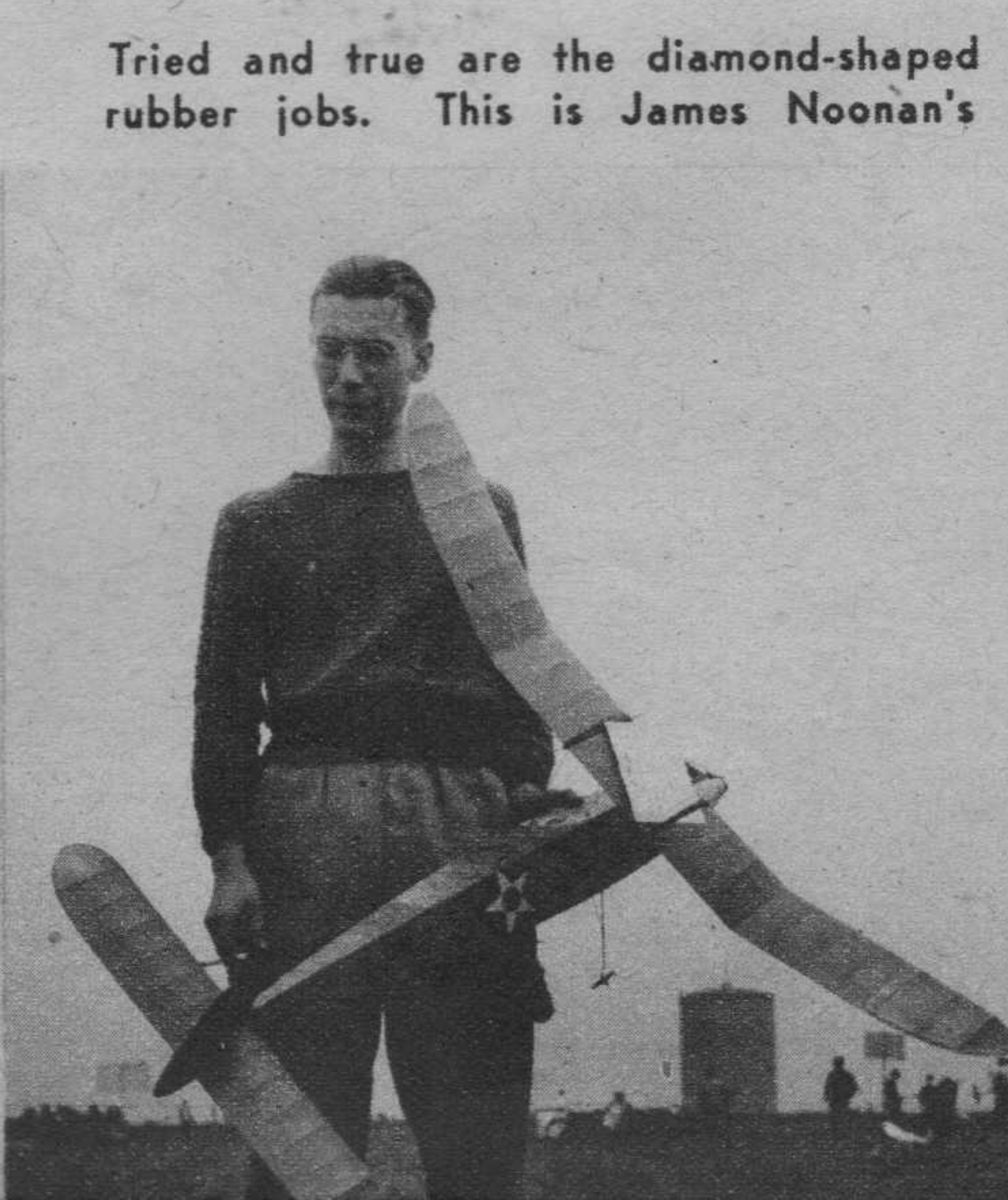
More gull wings. Proud owner is Stirling Harper.



Oversize wing ribs form end plates on wing. One-wheel pylon jobs seem to be stand-by.

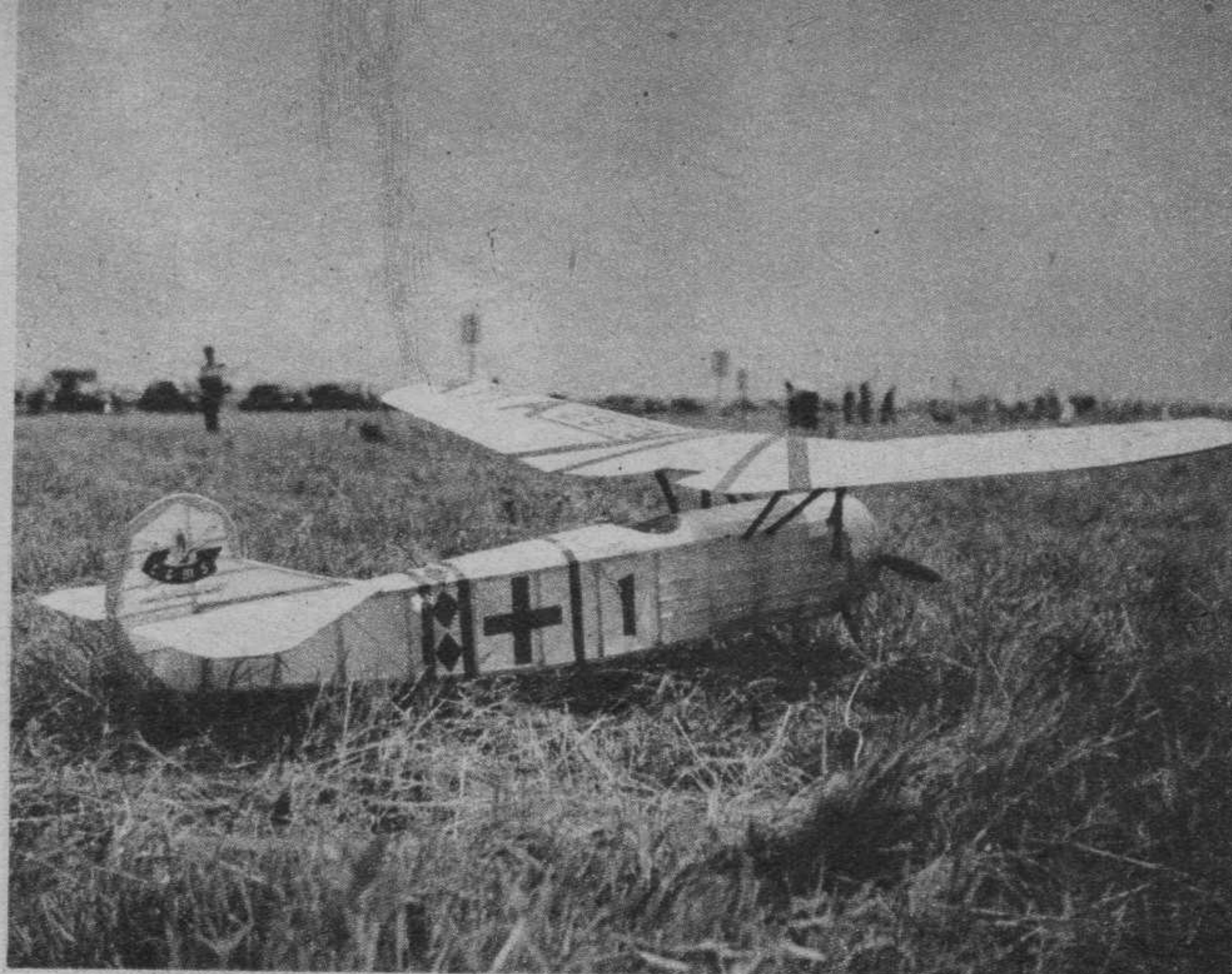


Spars by the dozen in both wing and tail featured this efficient-looking job by F. Cisco.



Tried and true are the diamond-shaped rubber jobs. This is James Noonan's





Shades of World War I, a Fokker D-8 by John Ecker. Powered by gas, it looked and performed realistically.



Old friend Bill Gough who specializes in flying scale models, entered this beautiful Ryan trainer in flying scale event.



Ray Beaumont, Moffett winner. Featured Top-per-type wing and tail ribs, folding wheel.

ble to design an "all-events" ship. It's either a very large A, or a regular B, or a small C—call it whatever your motor size may be. Bill Gibson, Hamilton, Ohio, was the leading exponent, with wins in Classes A and B, and a place in C! His ship was a parasol with an area of 400-450 square inches, and similar to his winning model of last year which was detailed in Air Trails.

With most designs settled on the parasol type, there were many variations of fuselage profile, ranging from "billboard" to "pipe." The reduced drag possible through boom and pod design (less "wetted" area) brought out numerous ships of this type which performed well. In order to further increase the climb, extra-thin airfoils such as the N. A. C. A. 6406 are being more widely used. To obtain sufficient strength in these thin wings, hard wide sheet-balsa leading-edge covering must be used. Gas props are also coming to the folding stage. This seems like an excellent idea, especially with retractable wheel jobs. The modeler can take care and carve a fine propeller without feeling that the first poor landing will destroy his work. Add to this the un-

doubted improvement of the glide and a "folder" is a good investment.

In construction, the average contest job still features a fuselage built up of longerons and uprights, usually with some sort of stringer fairing. Many wings used sheet-balsa leading-edge covering to obtain maximum strength and efficiency with lightness.

### RADIO-CONTROL MODELS

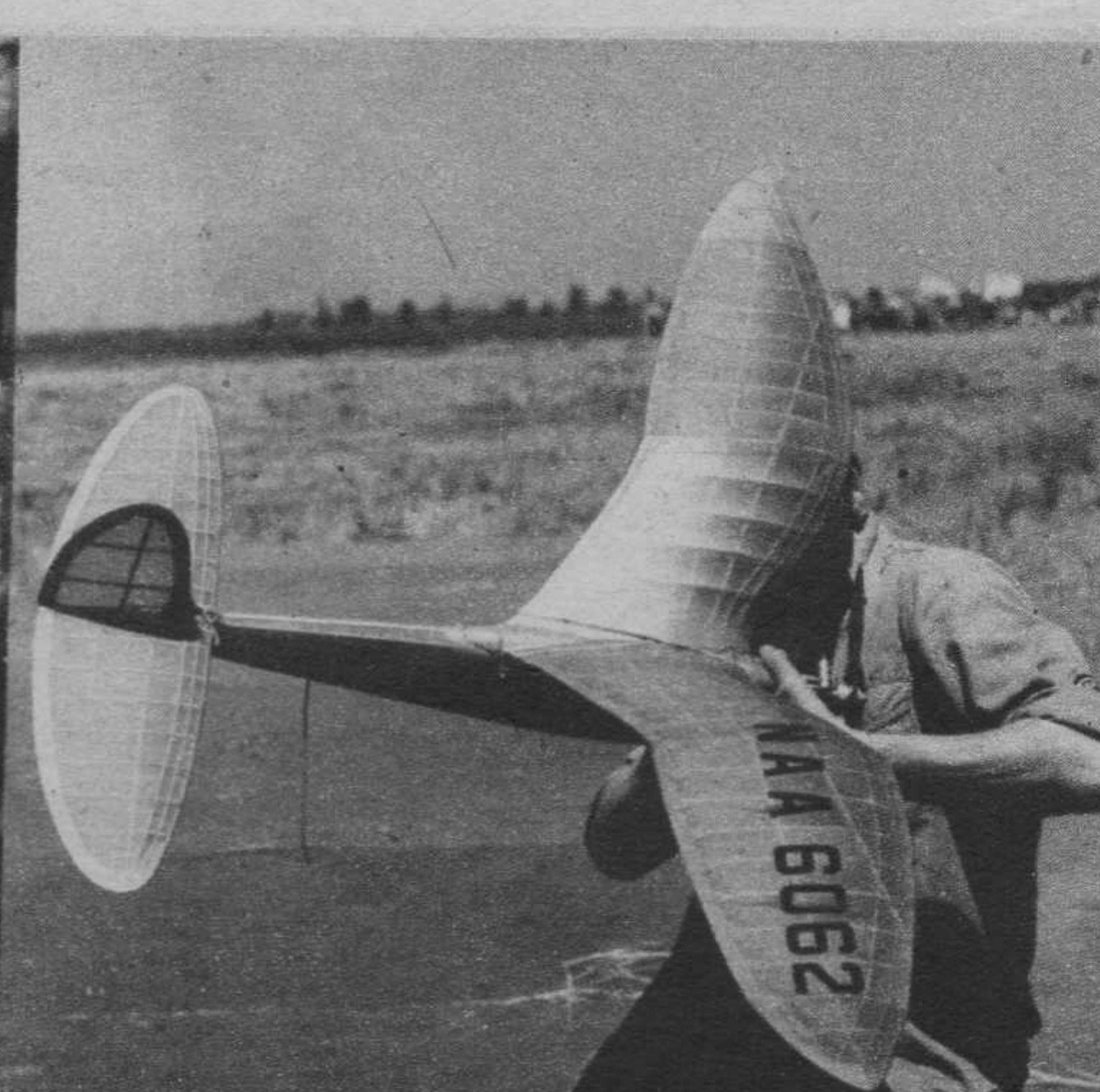
Jim Walker, developer of the U-Control racers, won this event with a compact six-foot job. The motor speed was controlled by using double spark timers—one for retard and the other for advance—while the ship was maneuvered by a rudder tab. Walker could taxi his ship onto the runway with the spark retarded, and when in position, switch to advance and take-off. Third place was won by C. H. Seigfried, who demonstrated the effectiveness of his elevator control by looping his giant twelve-foot ship. That the radio-control event has become practical is almost entirely due to the tireless efforts of a small group of (Turn to page 55)



"Clean lining" is the word for it. Planked fore fuselage, longerons aft. Schoenfeld.



Pusher canard, by Jack Leredahl, was soundly designed, well worked out. Note wing fins.



Whoops, my dear! Hoopengartner still goes in for super gull wings. Lot of work, we'd say.



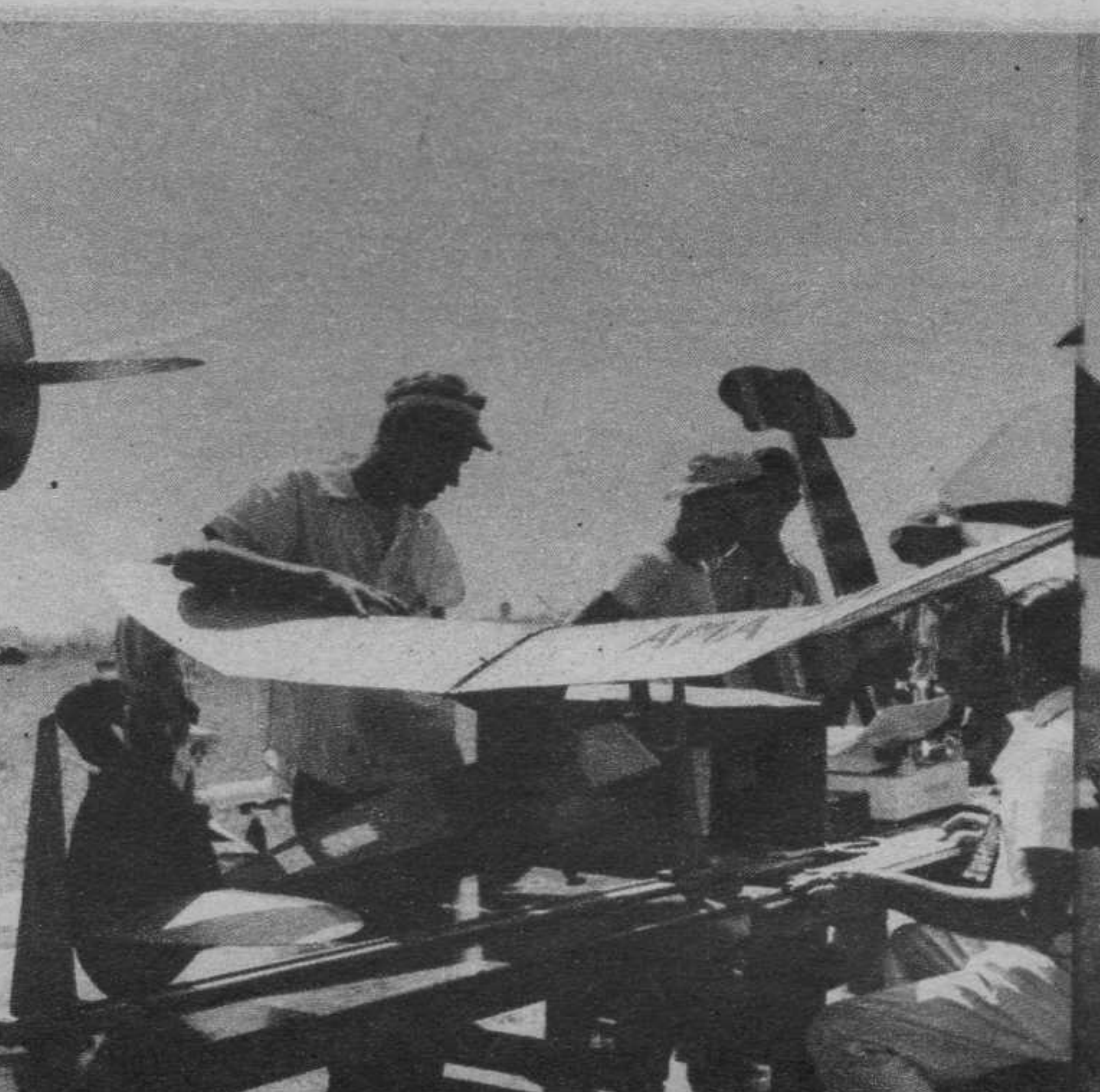
Leo Bailey mounted stab on fin to relieve monotony.

Despite queer looks, trend is toward this. Excellent construction, too. By Bob Becker.

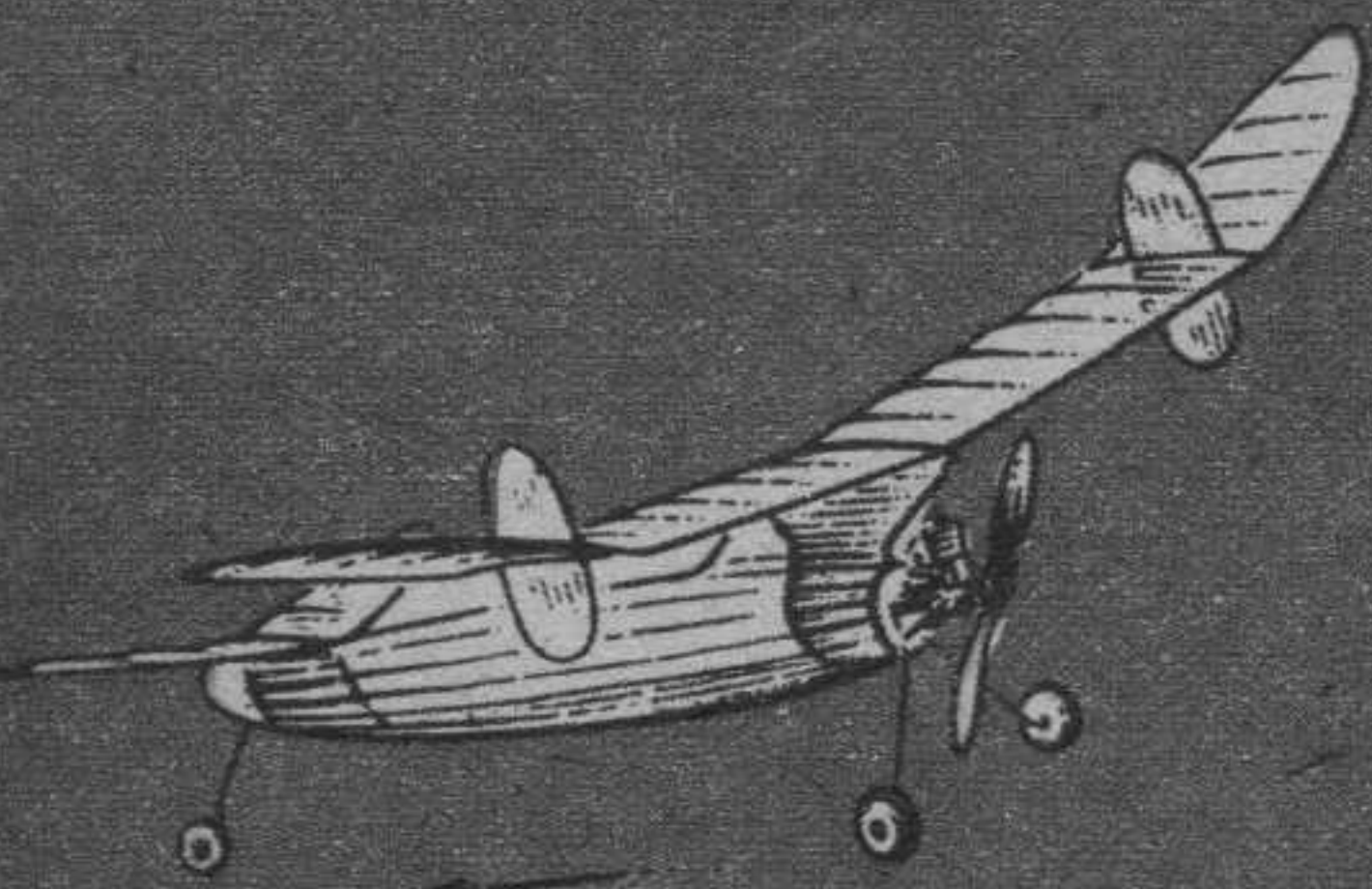
Not a big rubber job, but a practical C gas model by Jim Ryan. At processing table.

Ed Manning worked out this tailless over past few years. Climbed well, stable, fair glide.

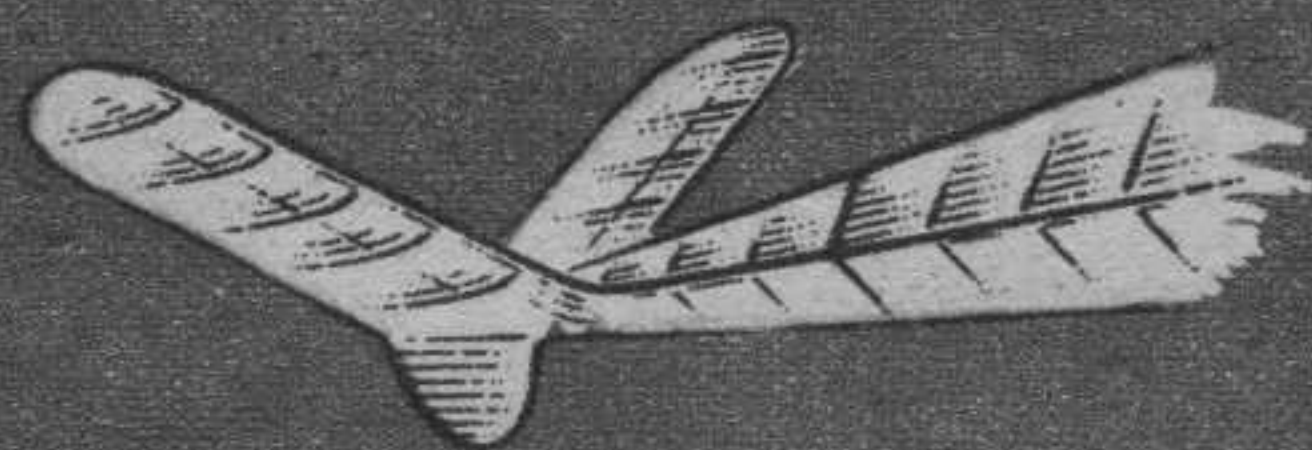
Can't beat this for streamlining. John Clemmons, Texas.



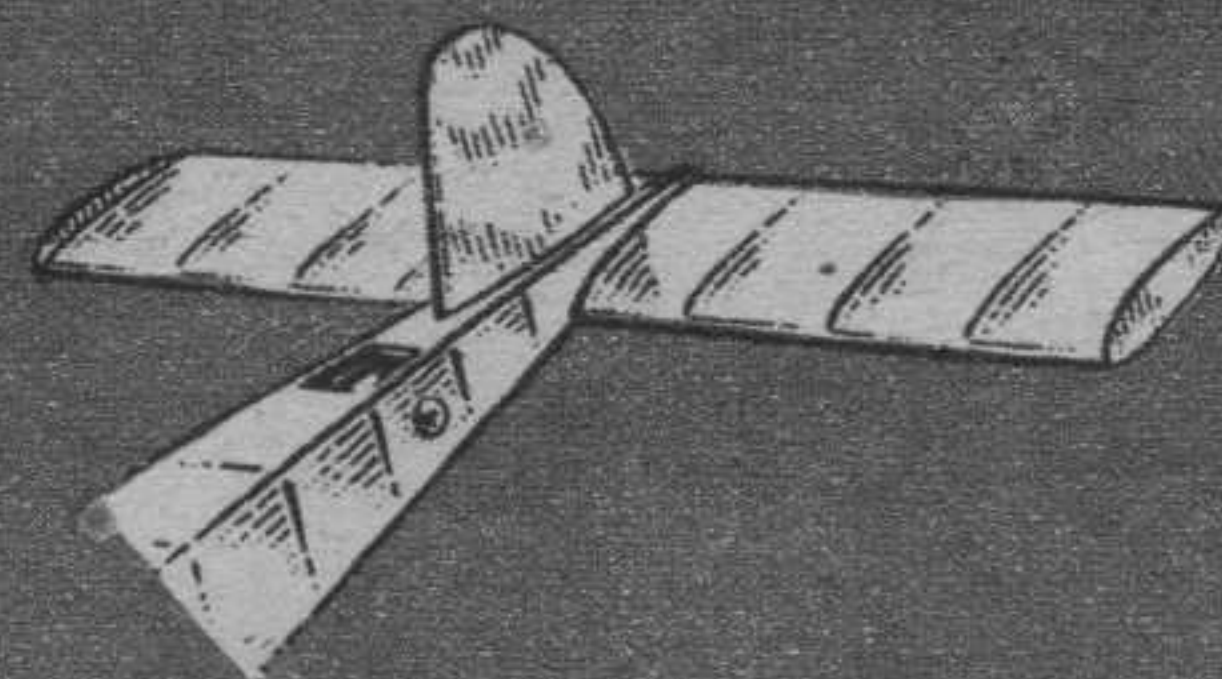




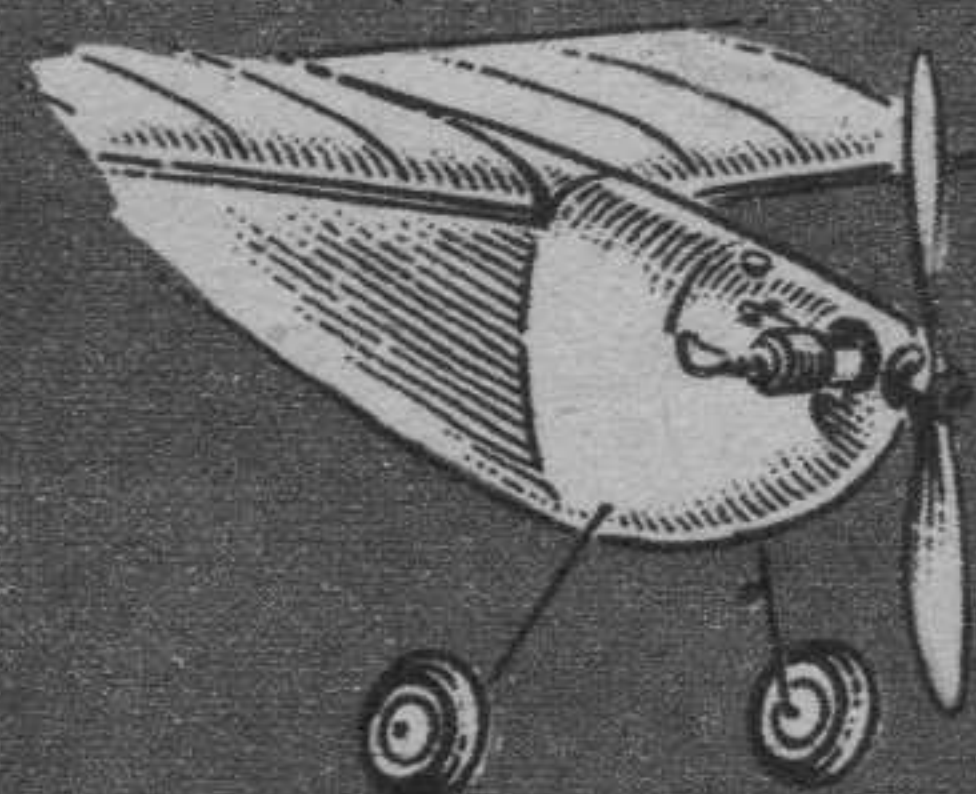
Pusher, or canard, by Jack Leredahl, flew successfully.



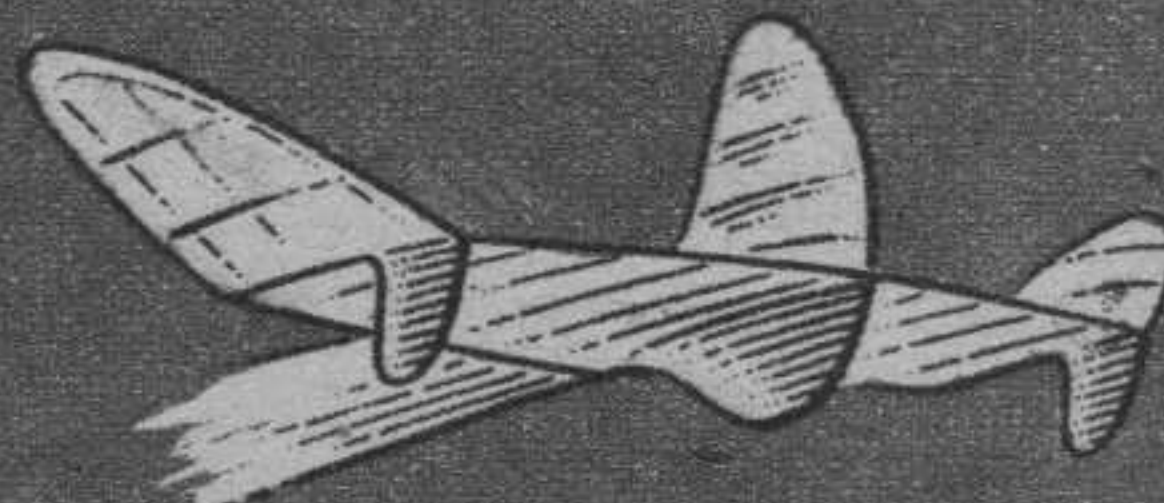
Extreme cathedral and small rudder area worked out well.



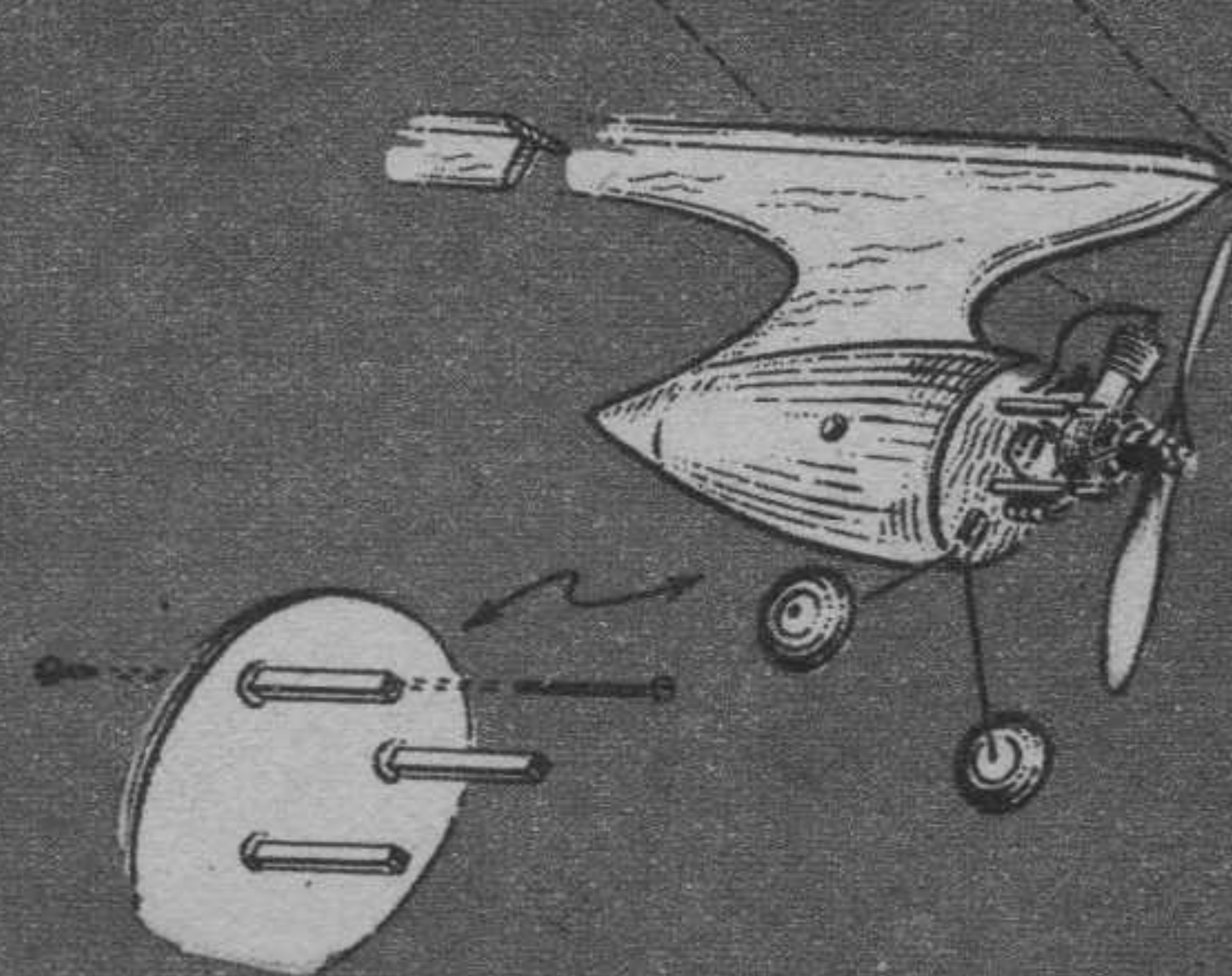
Joe Vermoch used end plates on stab, sheet balsa rudder.



Most unique motor installation was horizontal Brown.



Robert Hildebrande used tip dihedral, skids, for tail.



J. Kleinburg used threaded dural bars on motor mount.

# THE DOPE CAN

BY GORDON S. LIGHT

**The Dope Can spends a hot week at Chicago. Including Carroll Moon's "On the Field."**

**T**ECHNICAL and scientific aspects of a national meet are capably reported by the experts. But people are just as interesting as the models they build. Unless you were at the Chicago meet, you probably didn't know that Bruno Marchi of the AMA headquarters in Washington was earmarked for army service beginning shortly after the contest. The other AMA Washington powerhouse, Al Lewis, is getting married. . . . Bob Toft of Minneapolis is working in a test house at the Allison engine plant during summer vacation from the University of Minnesota. . . . Bill Good was married since we saw him in '40. Mrs. G. has the same friendly manner that always made meeting the Good brothers a treat.

Chet Lanzo of Cleveland made the trip in a house car complete with refrigerator, gas stove, and all other comforts of home. He kept his rubber motor in the icebox to prevent heating up before flying time. . . . Jimmy Metchicas and four other boys made the trip from South Carolina in an old Model A Ford. . . . Newspaperman Art Rice is a pusher with good ideas about model building. Model Manglers of Toledo are his

special interest. . . . Kresge Aero Club rallied around their director, "9G" Schulman, to win second in club scores. . . . A woman living five miles from the flying field reported that her neighbor had picked up five models and was keeping them in his house. Officers in a patrol car convinced the collector that his hobby was a trifle irregular and that the models should be returned to the boys. . . . Bob Sommers, director of Stix, Baer, and Fuller Club (St. Louis) was delayed at home by a baby who arrived just in time for the Nationals. . . . It was hard to tell if there were more kids-with-their-parents than there were parents-with-their-kids.

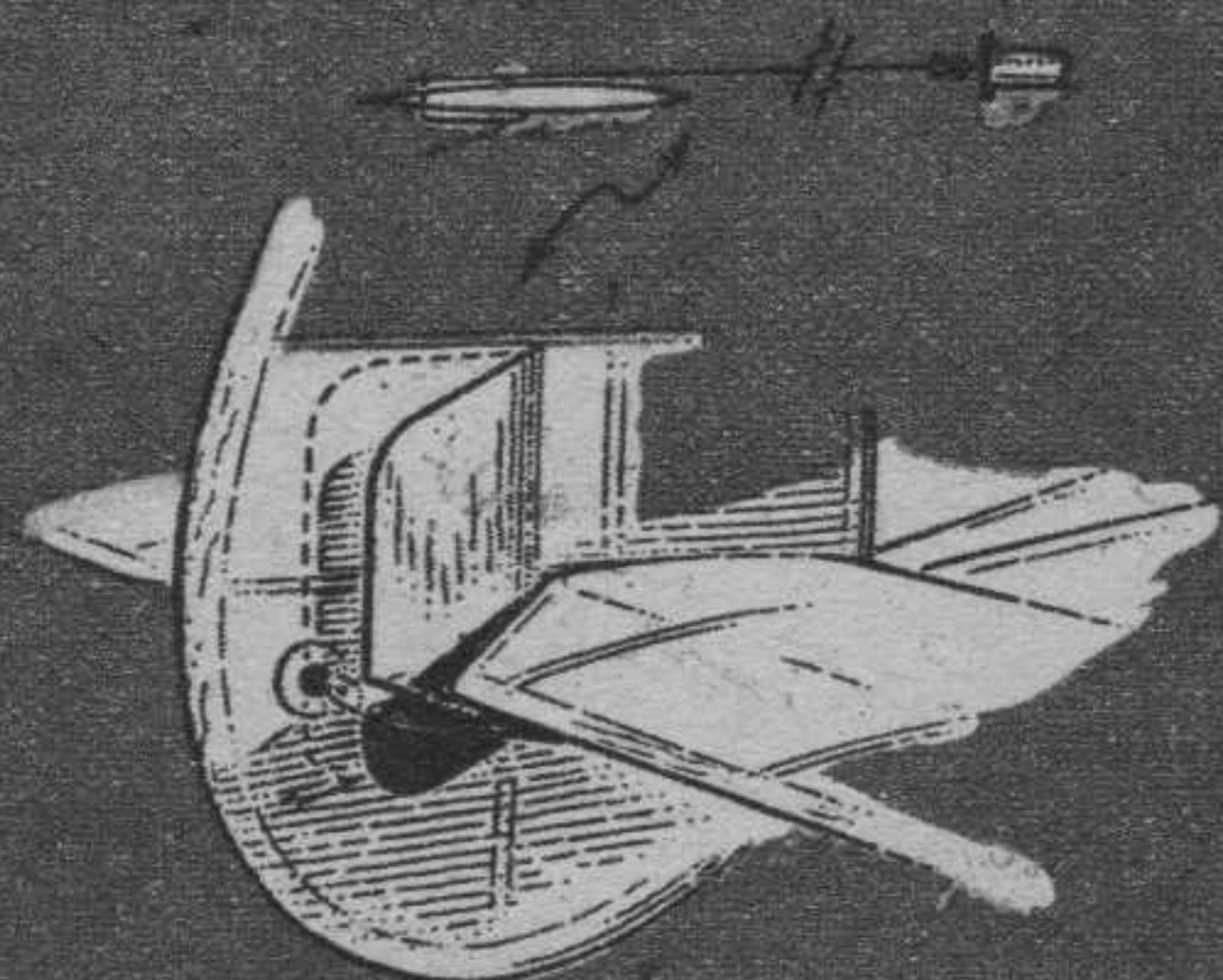
Wally Simmers (Chicago) and Charles Hollinger (Tacoma, Wash.) consoled each other about the troubles model shop operators have getting ready for a contest. To lock up the shop, pull down the shades, and try to do some building is useless—the phone rings, someone tries the back door, there's always a model builder who needs material for his own contest models waiting to interrupt you.

Commenting on the human element involved in timing a model, Bill Berry, Sr., of Philadelphia, told about a timer at a Trenton meet still timing the model after the youngster had brought it back—he had his eye on a buzzard soaring in the distance.

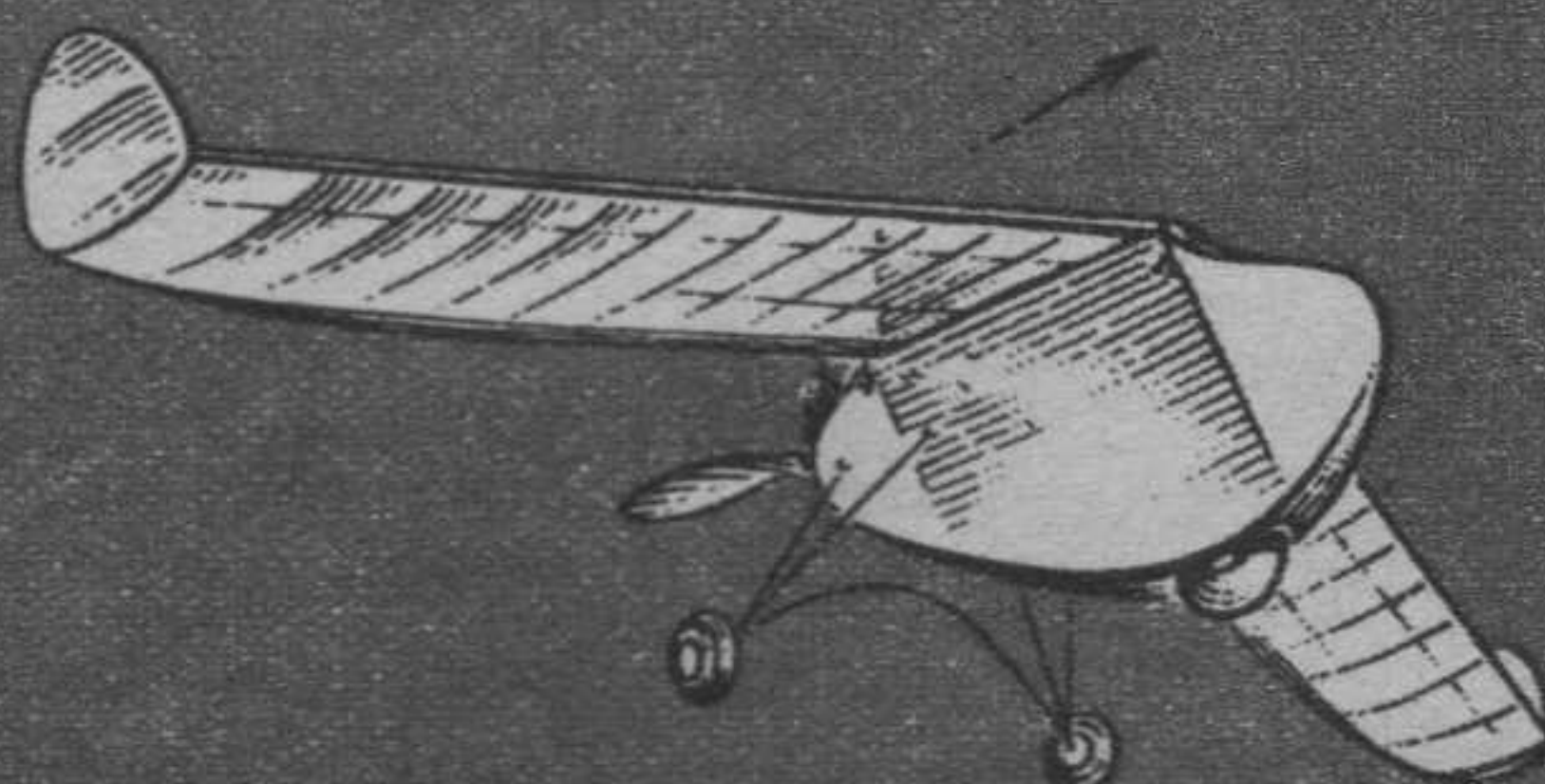
The entire first page of the July 20th Philadelphia *Inquirer* was full-color shots of models and builders. Photos by Staff Photographer Larry P. Keighley were striking.

W. A. Gibson of Hamilton, Ohio, lost his model in Kentucky during a contest this year. The hillbillies wanted five dollars. When he finally paid the ransom, parts of the model were brought out of three different homes. This year Gibson won two firsts—Class A and B Open.

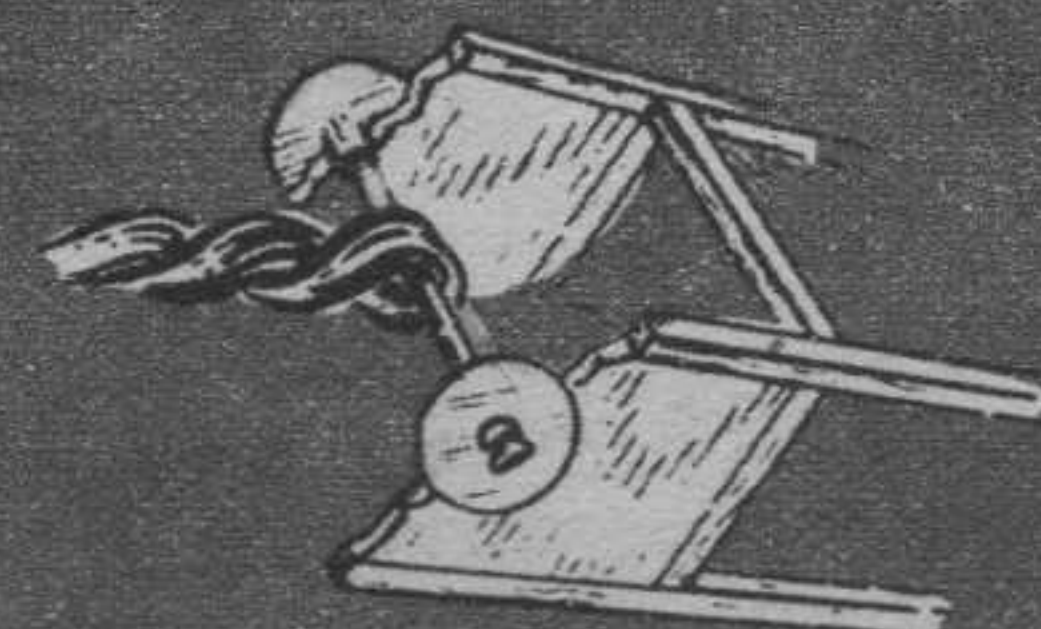
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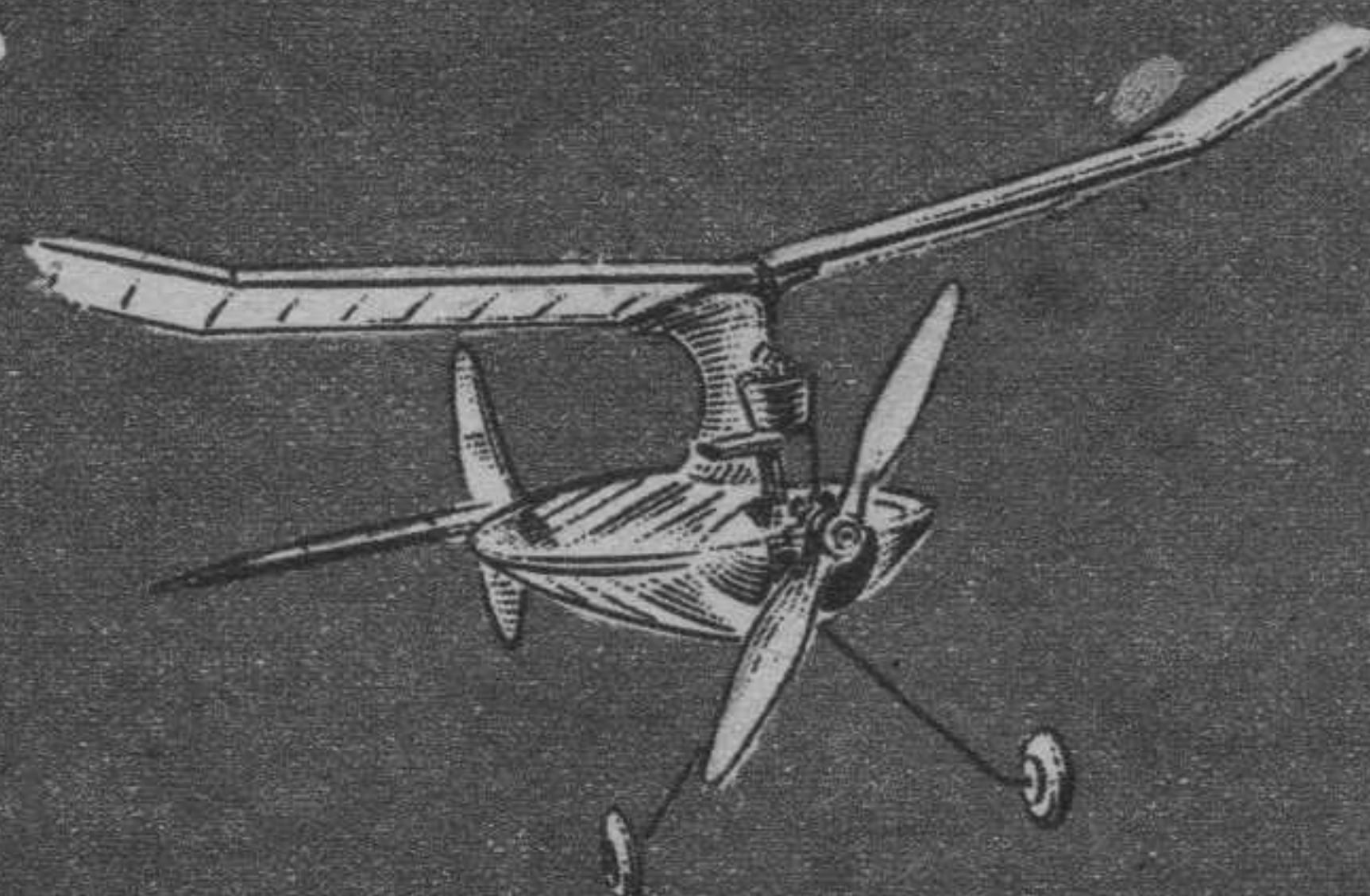
Austin timer released tab after motor run. Dick Korda.



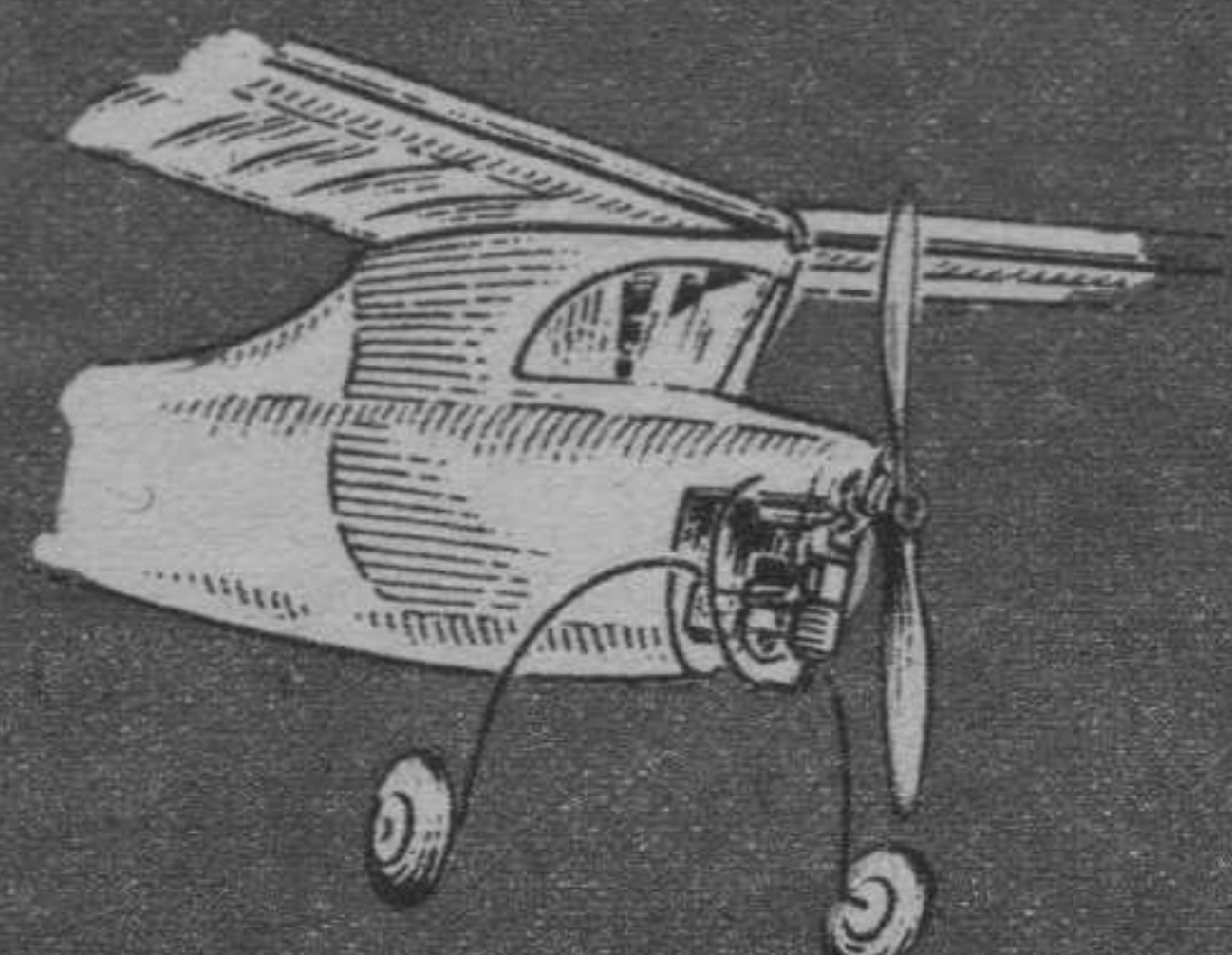
Successful flying wing gas model entered by Manning.



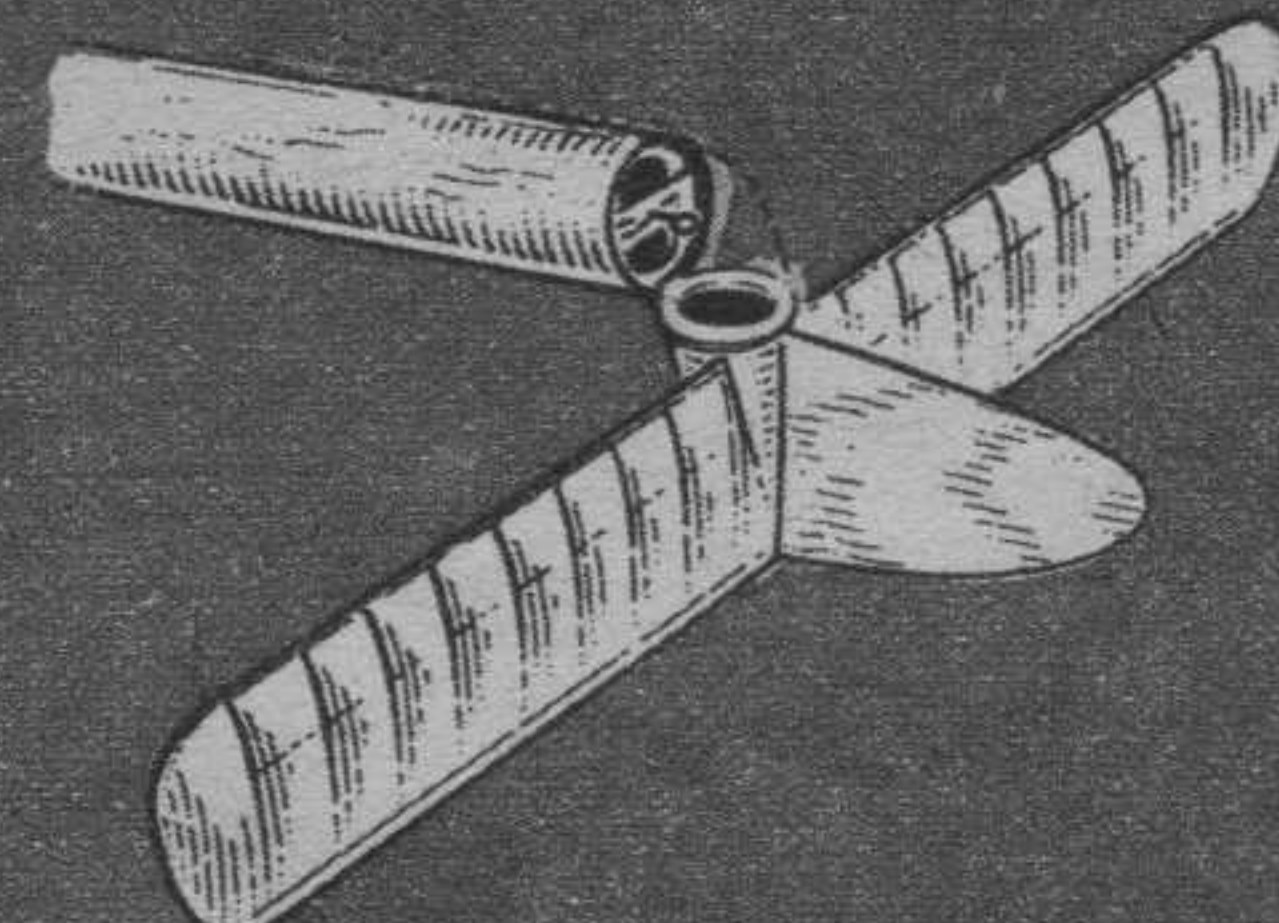
Large flanged bushings and tube for rubber. By Vermoch.



Flattened diamond fuselage cross section by R. Chase.

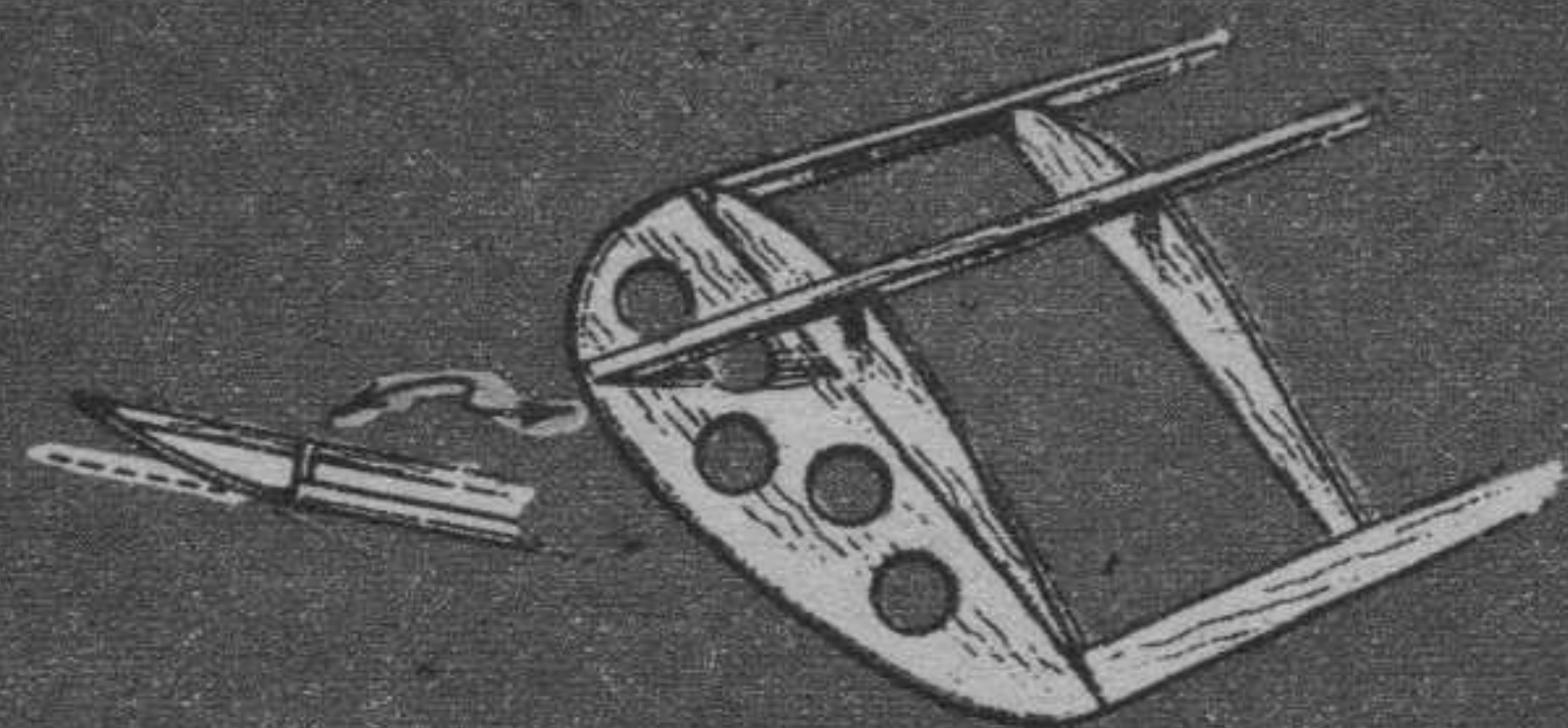


Cabin and bowlegged landing gear. Model by H. Jordan.

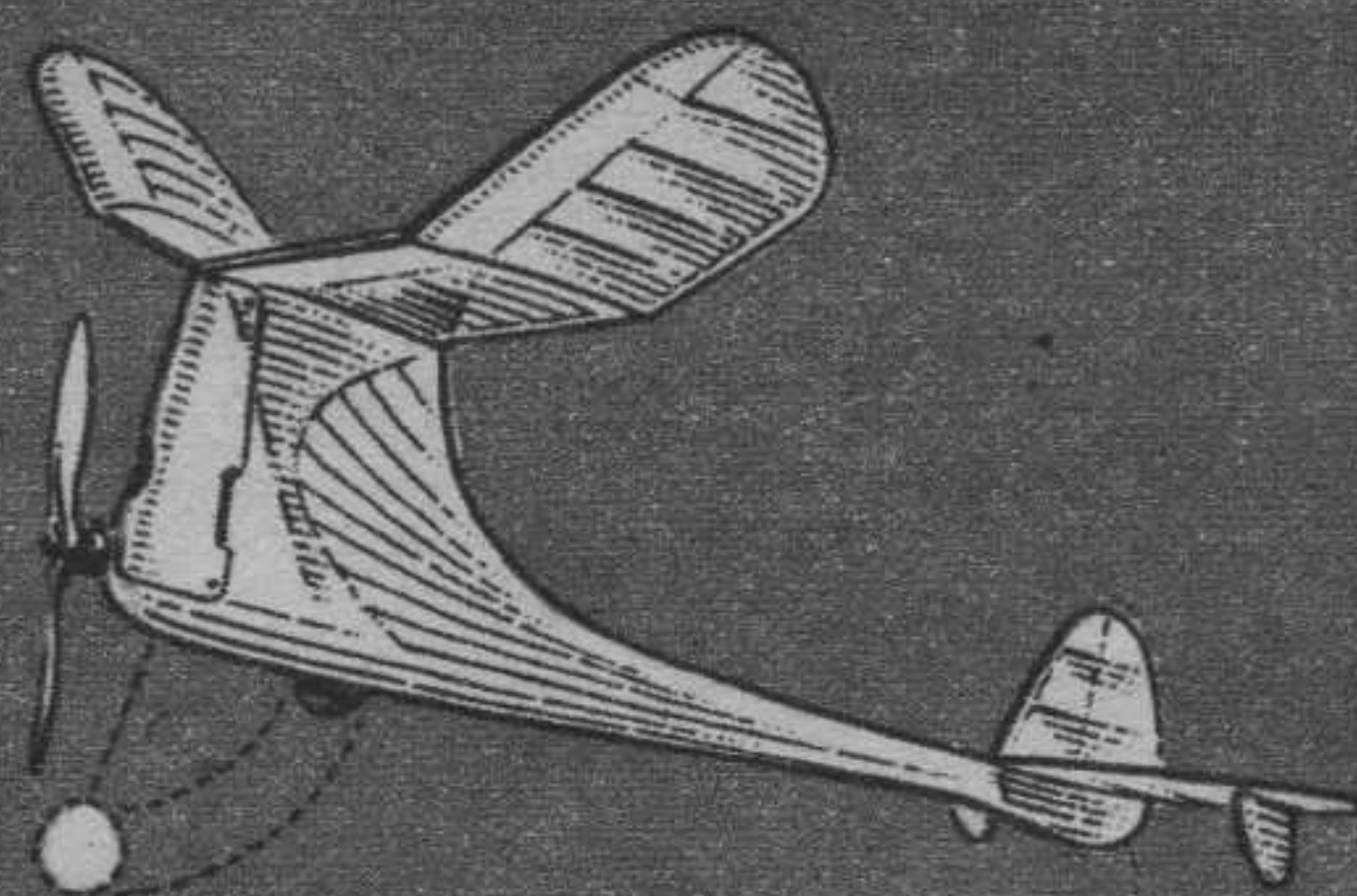


Caldwell Johnson hinged tail group to facilitate winding.

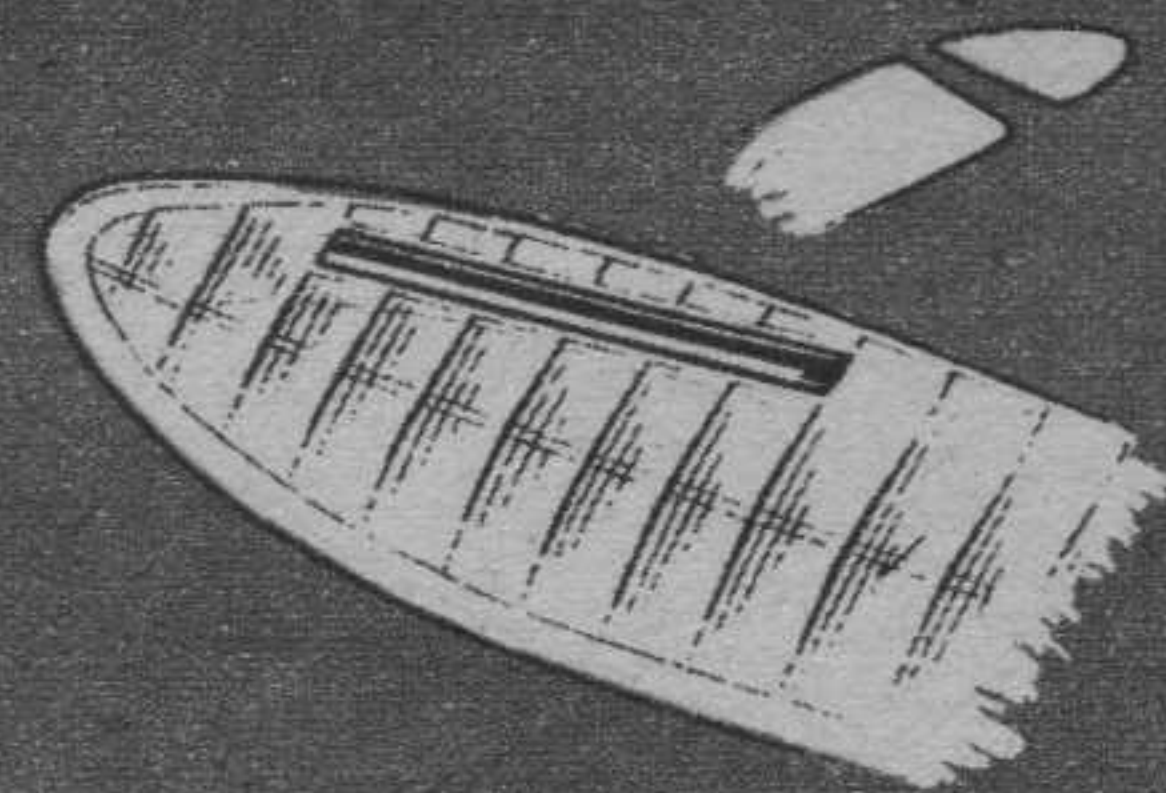




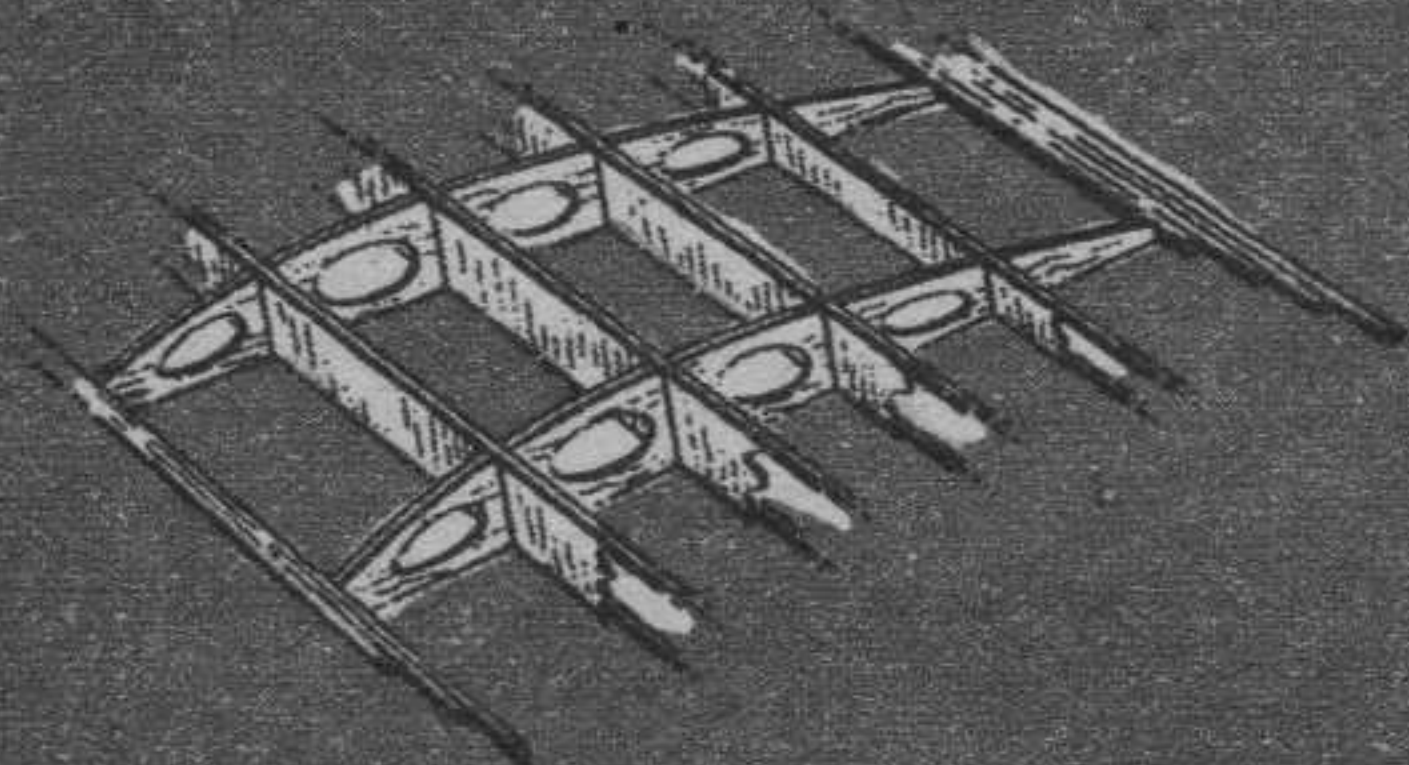
Simplified turned-up wing tip construction by Vermoch.



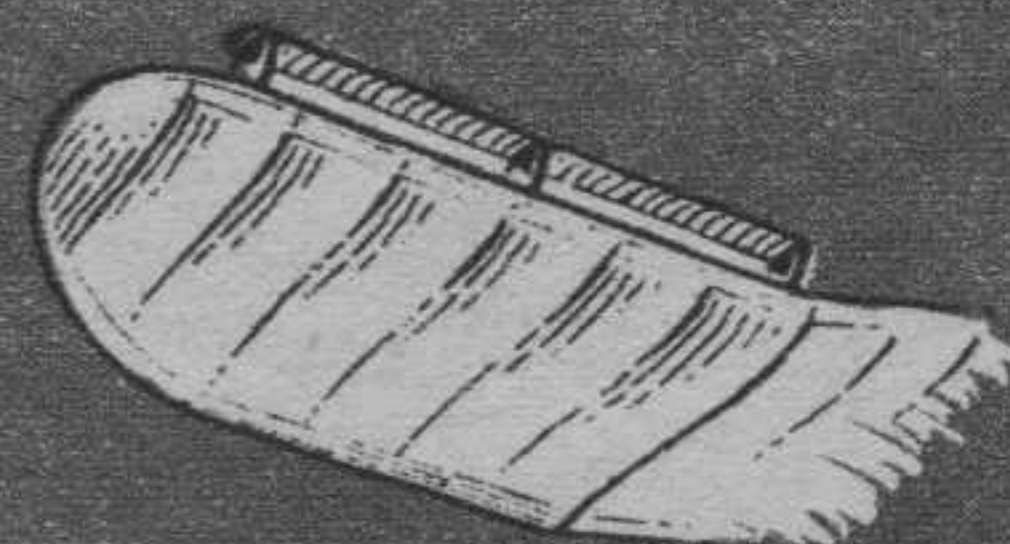
High aspect, high-wing mount, retractable wheel. Beckler.



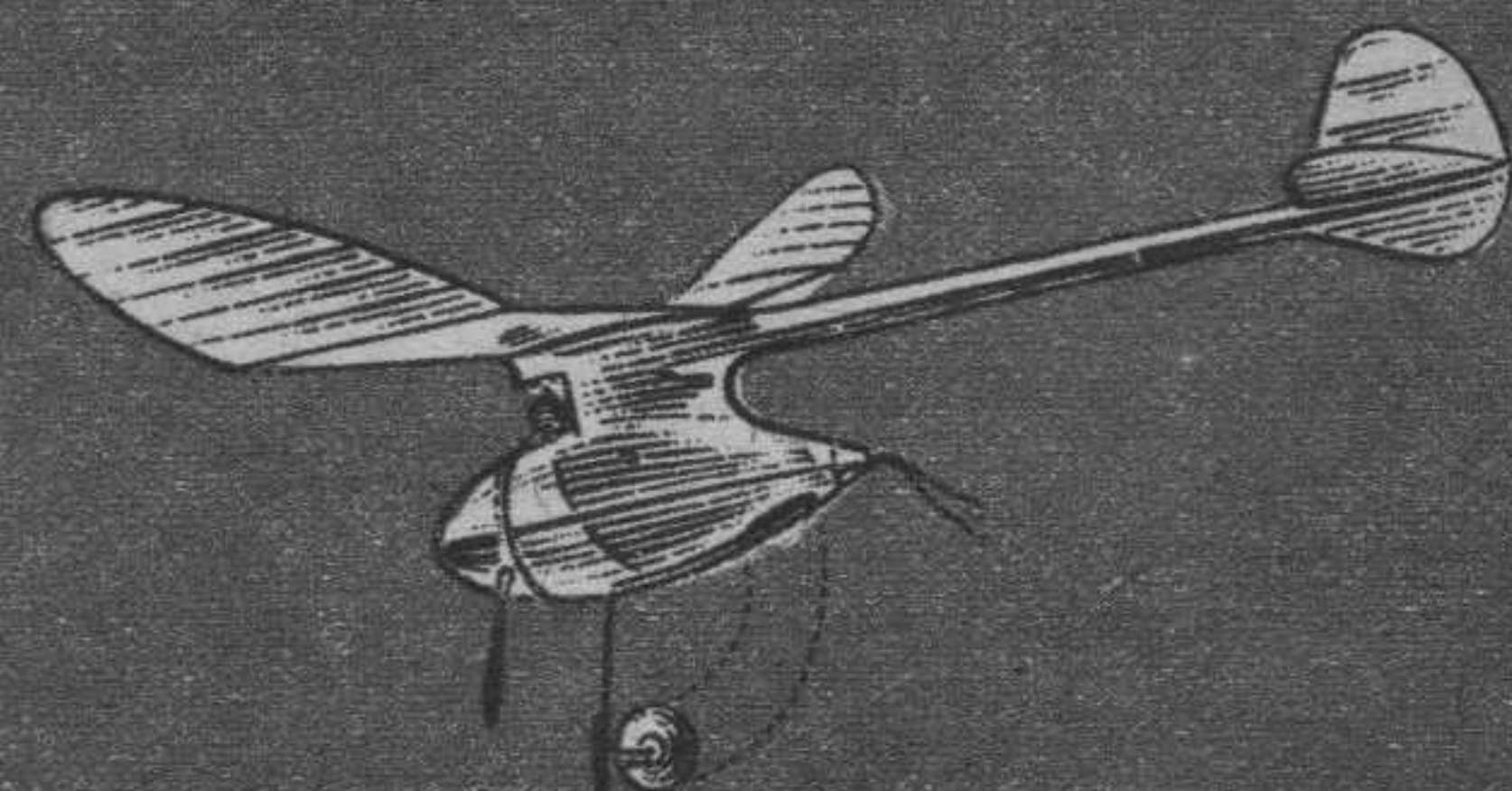
Leading edge wing slofs. Tried by H. W. Benson.



Light multispar wing by Jack Gerloff. Sheet between spars.



"Eyebrow" wing tip slots used by P. MacCready. Practical.



Clemmons had string to keep wheel down and timer open.

Alan Preston, Ned Rice and George Karpovich came from Springfield, Mass., to enter the radio-control event. They were the youngest. Karpovich is a graduate of high school, the other two are seniors. They took sixth place. Members of the faculty of the Technical High School and other local people helped them with the radio equipment and gave them a financial boost. The boys piled in their Cavalier-type model the first day, but managed a repair job in time to make several good control flights before the contest closed.

Clinton B. DeSoto of the American Radio Relay League was on hand for the R. C. event. He helped out several of the boys who weren't licensed amateurs. Clint has a complete knowledge of the radio side and has done enough model work to make him familiar with all aspects of the R. C. subject. We cornered him and he promised articles on the subject. He just finished a book "Calling CQ," a collection of adventure yarns turned in by "ham" radio operators.

We had a letter from an Australian builder who was particularly enthusiastic about the low-wing models of Kingfish Sadler. The letter was unsigned, so in the May issue we printed part of it and included an S O S for the writer's name. He supplied it promptly after reading the May issue—all of which was a fortunate set of circumstances since he'd been having trouble getting copies of A. T. He is H. E. E. Brock, geologist at the university, Adelaide. He says failure to sign his name to the first letter is further proof that all university people are absent-minded. Model building in Australia moves right along despite shortages of wood, rubber and motors. A Brown motor costs from forty to fifty dollars.

L. Wright of New South Wales, Australia, flew his gas job

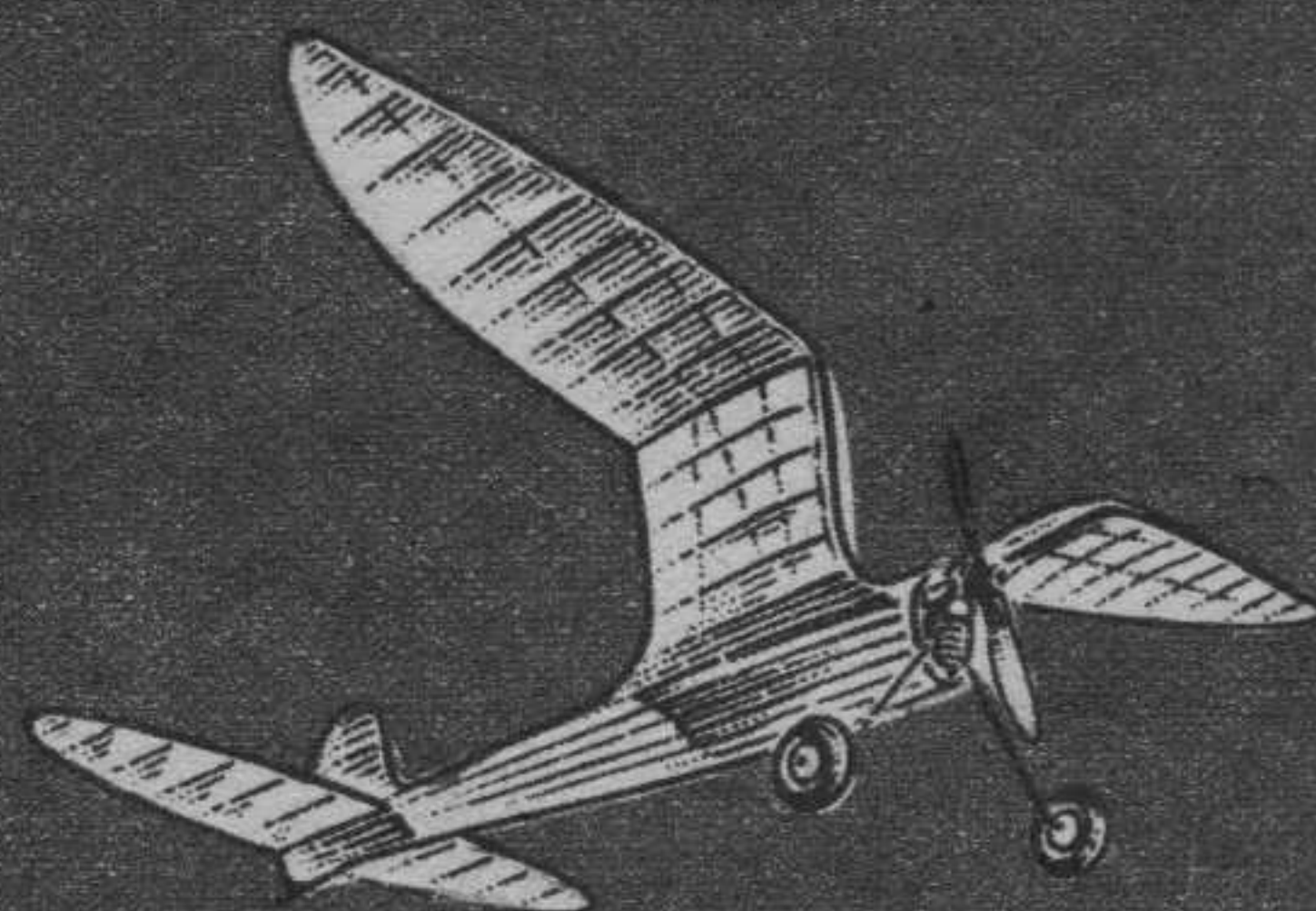
19:47 officially O. O. S. on 12 seconds' power. He followed it on foot for three-quarters of an hour. A month later it was found about five miles away. The wing had started to mildew, the balsa was rotting in places, and when he cleaned out the engine he found ants in the cylinder! O. O. S. flights are too common and the rules have been revised. Eight ounces per square foot has been boosted to 12; power loading has been increased from 80 to 120 ounces per cubic-inch piston displacement; engine run has been increased to 30 seconds. Contest attendance in Australia has been cut by enlistments and conscription. Nevertheless the flight times go up and up.

In the Linden, N. J., *Gazette*, Ed Gerhardt writes his thanks to the boys who brought their girl friends to the last contest. Said it gave the noncombatants something to do while the boys were busy making flights. The wolf! The club held a twilight meet last June that would have been perfect in all respects but for the notorious Jersey mosquitoes that mobilize for their night maneuvers just about the same time.

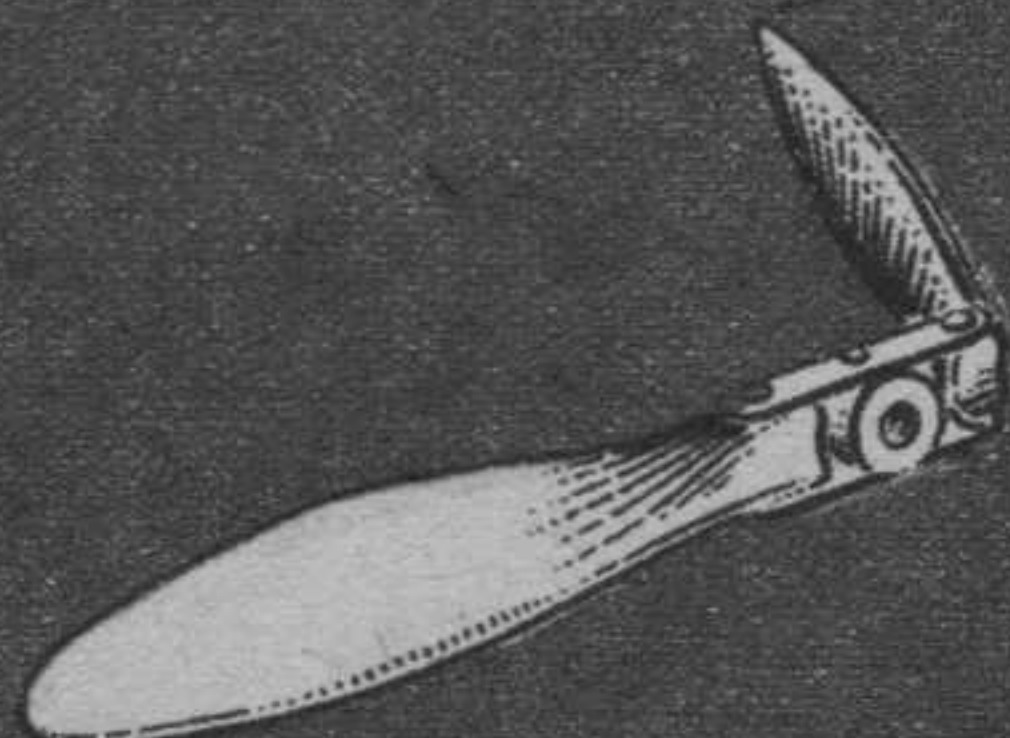
F. A. Ledward of the Blue Mound Model Club of Milwaukee sent instructions for making a rubber "lube." Listen carefully, boys and girls. Mix two parts castor oil, one and one-half parts soap chips, and two parts glycerin. Heat over a low flame until the mixture is smooth and thoroughly dissolved. When cooled the lube is ready for use and resembles a heavy cold cream. Take a little on your fingertips and draw it over the rubber and rub vigorously so the friction melts the lube and forces it into the pores of the rubber. Do this for the entire length of your motor. Shake off the loose particles of lube and the motor is ready for use. Thanks, F. A.; builders are always asking for a good rubber lube.

(Turn to page 62)

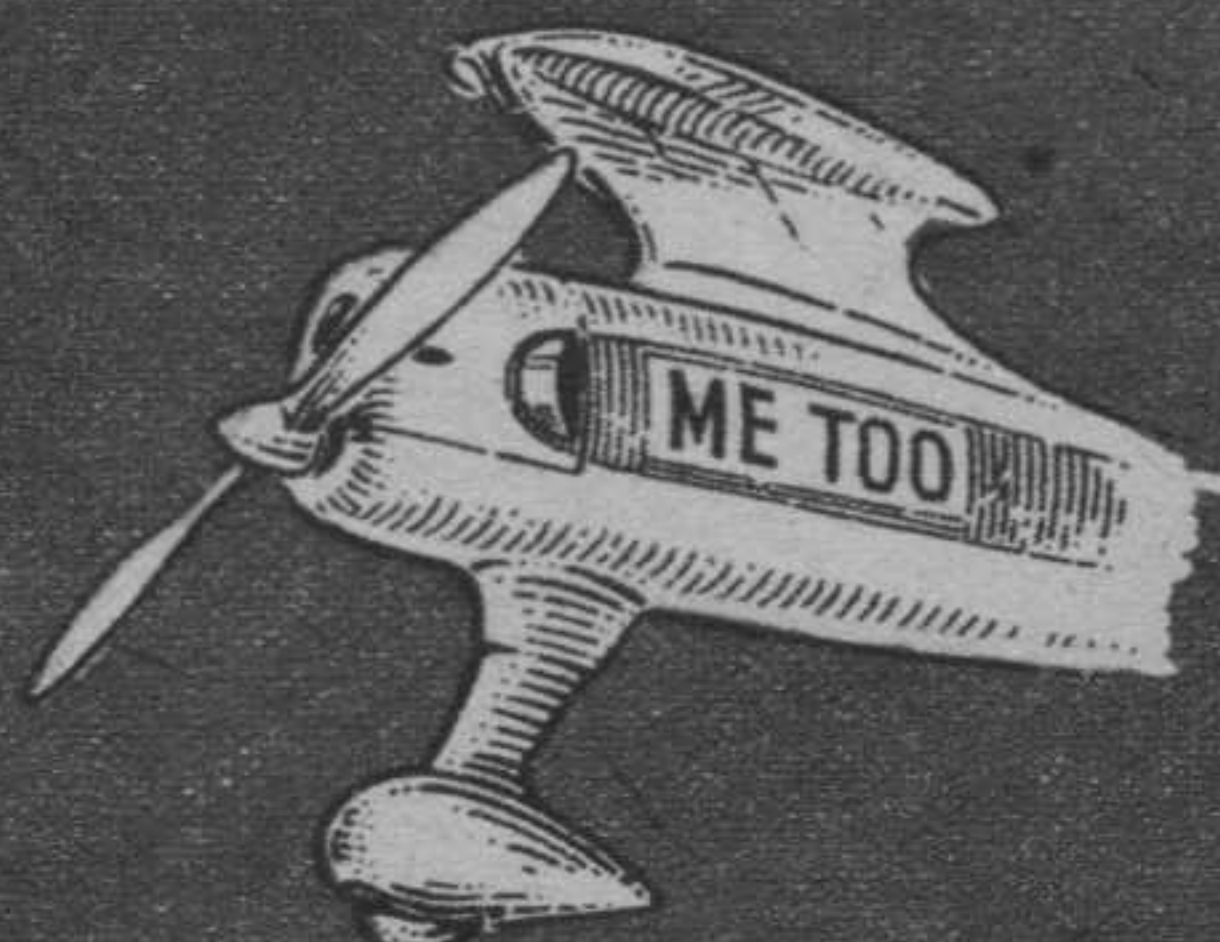
PAGE 43



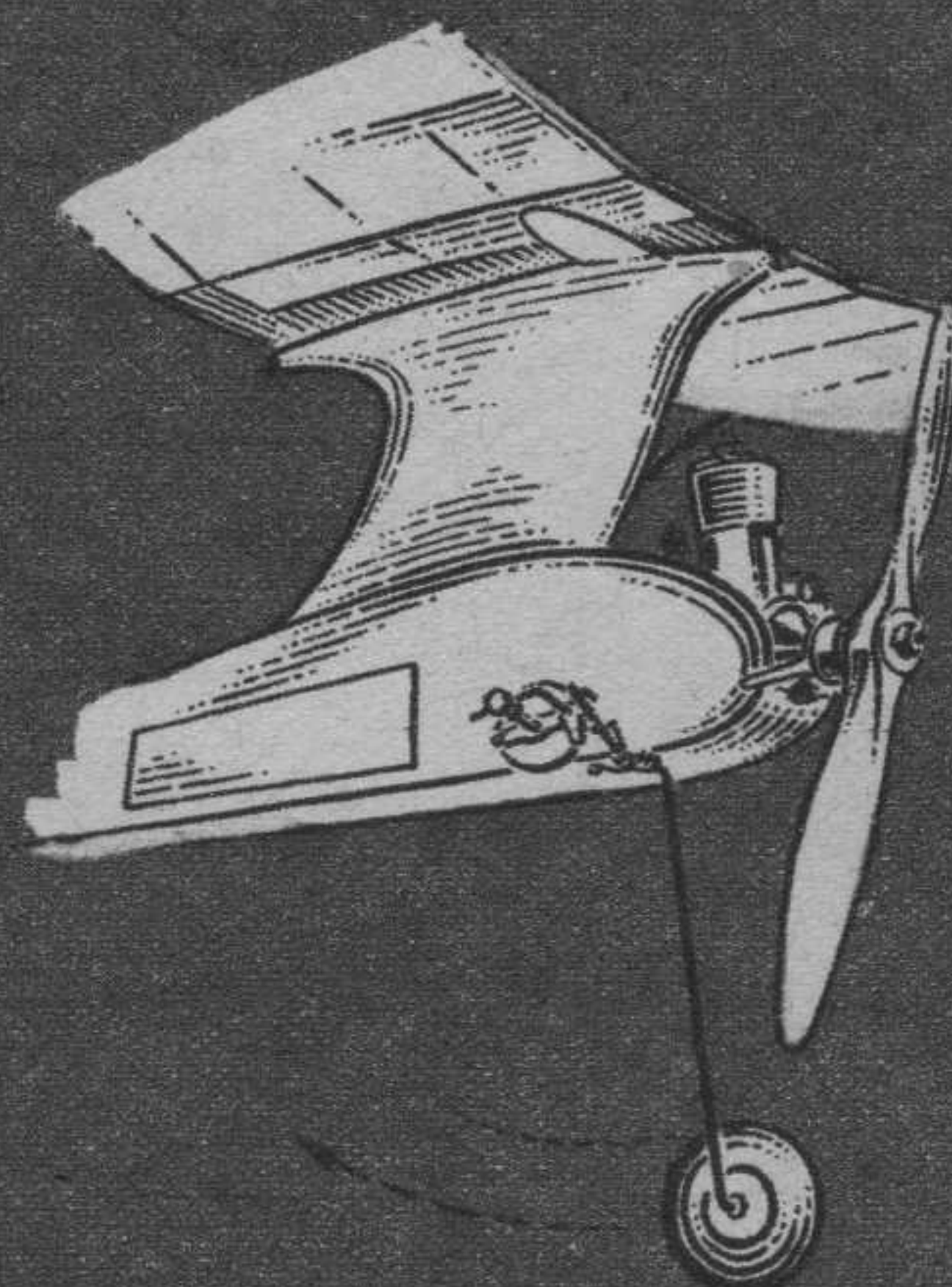
Deep-gulled wings achieved pylon effect. Hoopengartner.



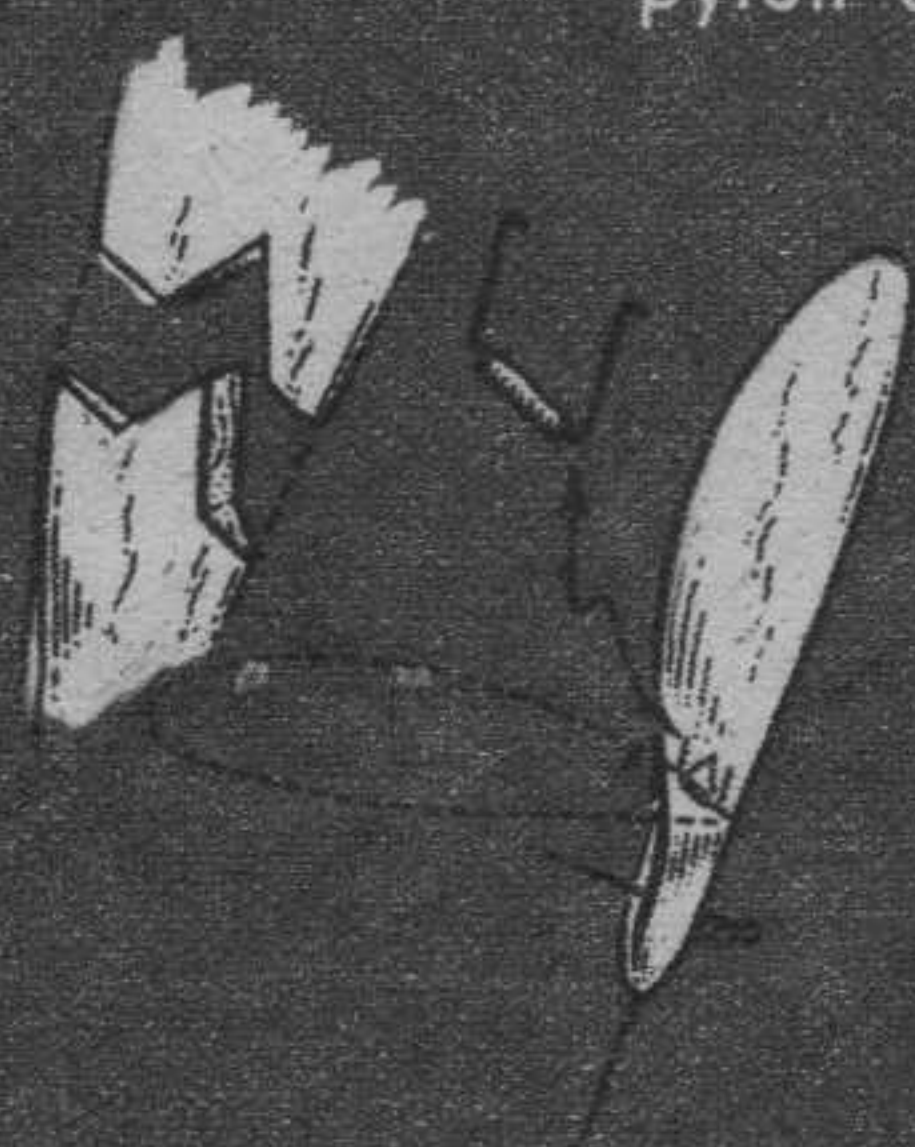
Folding gas prop by Tom Meiklejohn was one type.



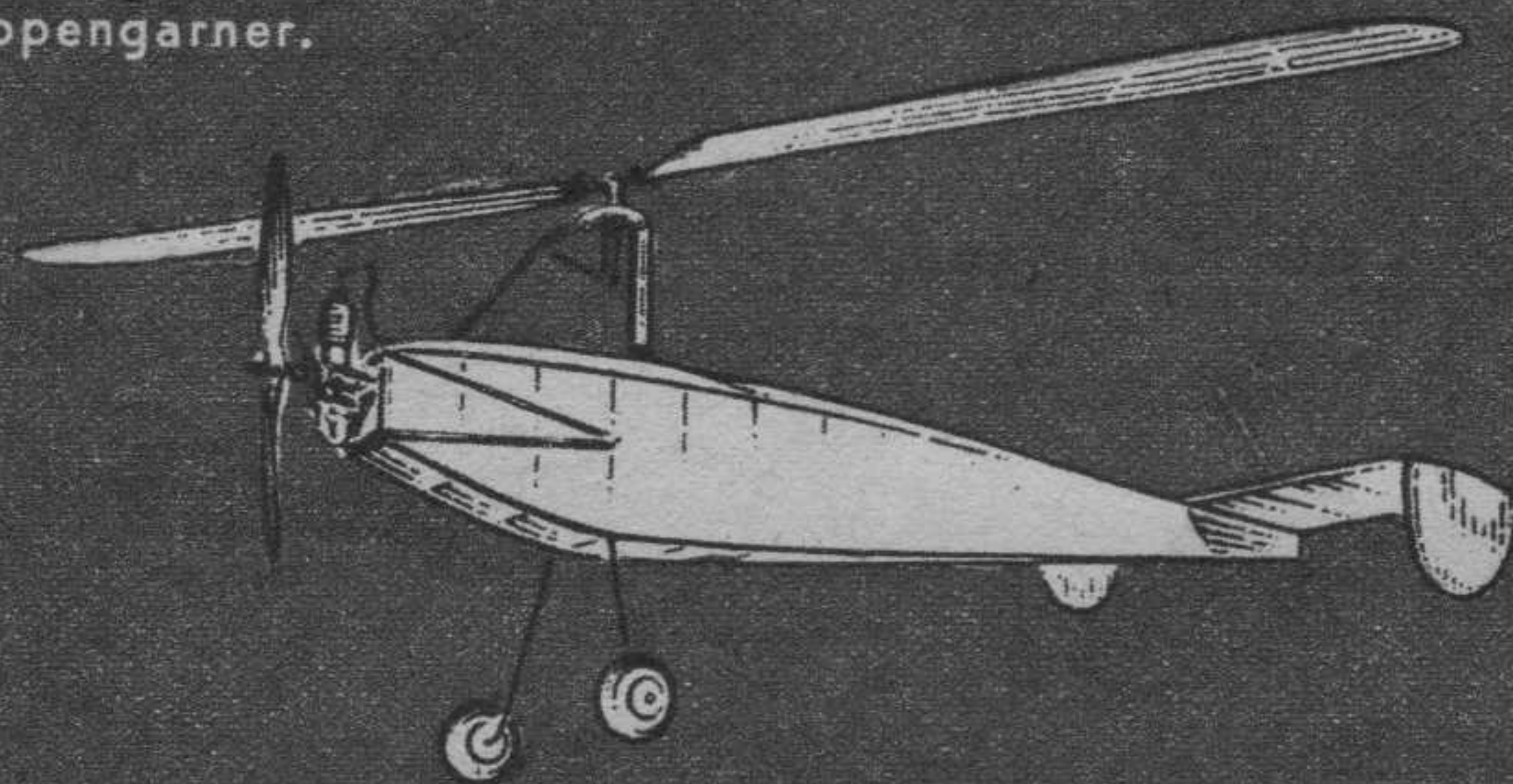
Modified Sailplane, by Ellis; planked, and faired wheel.



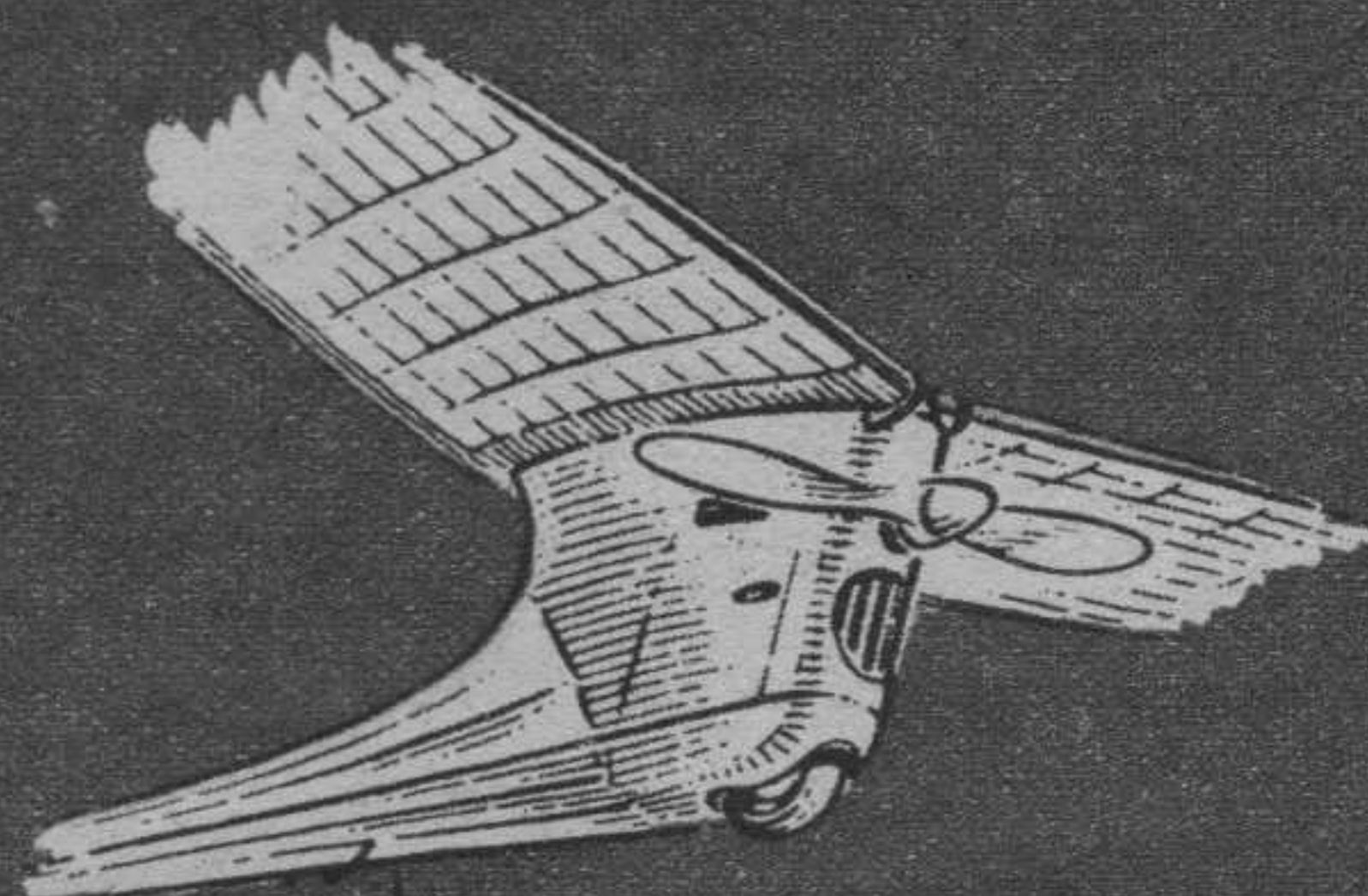
Goldberg's Interceptor had timed retracting wheel.



Lefebre's folding prop hinger. Used by Irving.



Works from autogyro kite tried by Burling on Atom.



F. Cisco used high thrust, one wheel, multispar wing.





A remarkable action shot catches a Tiger Shark just before "busting" a captive balloon.

# LIGHTNING

Speed events, dive bombing and aerobatic meets, smoke screens, hedgehopping are a few of the things you can do with control-line flying.

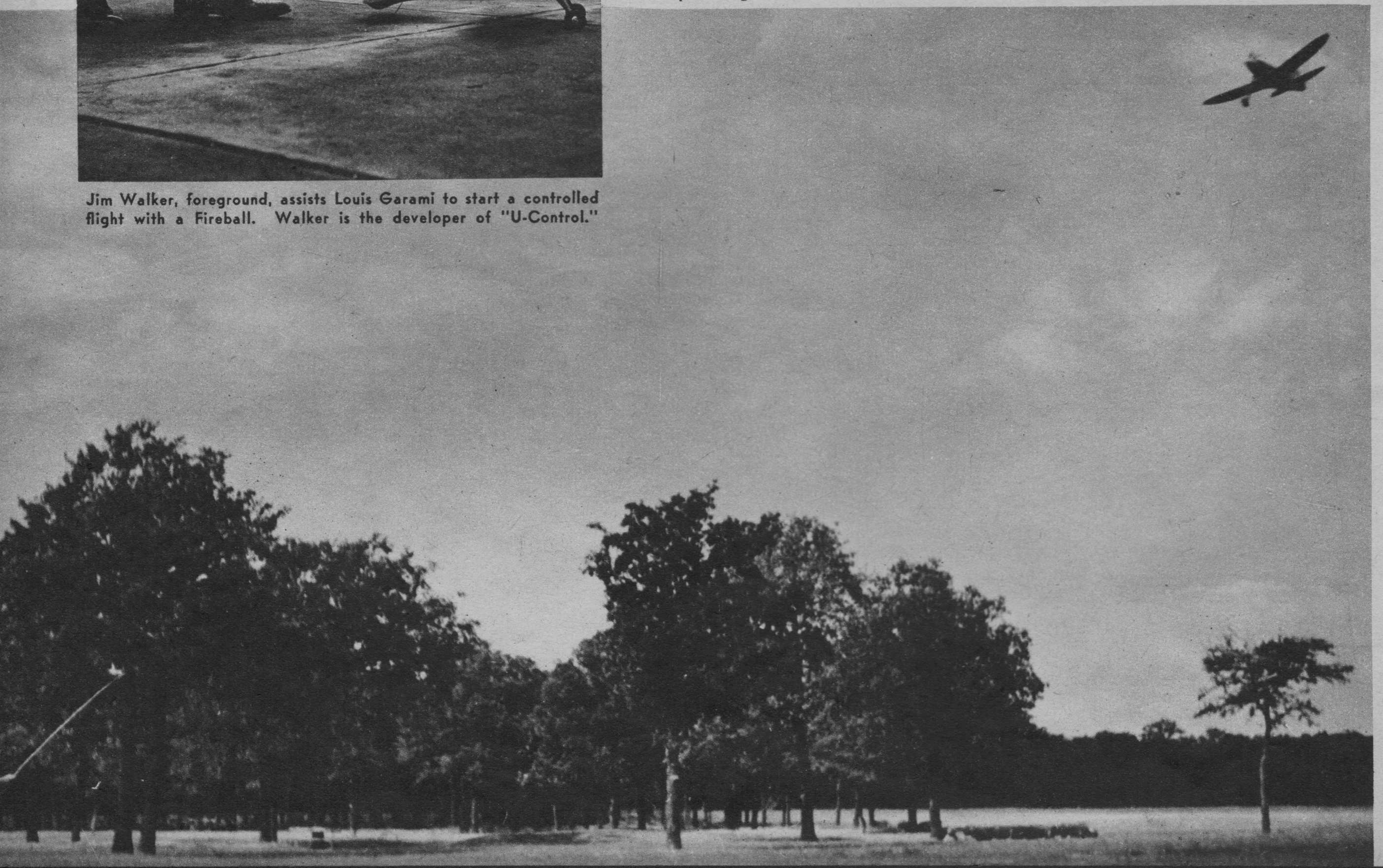
*Editor's Note—This article and the following article and plan were worked out with the special permission and co-operation of American Junior Aircraft and Victor Stanzel & Co. Both "G-Line" and "U-Control" flying are made possible by special patented apparatus available in the construction kits. The plan that follows is presented for the use of individual builders.*

**D**ID you ever see a gas job fly in circles of about one hundred feet in diameter, diving, zooming, looping and virtually darting all over the sky—just like one of Uncle Sam's pursuit jobs in a dogfight? Oh, no we're not referring to contest models on their first test flight; we're talking about gas jobs flying on the end of a length of wire, or line, climbing up and diving down with you



Jim Walker, foreground, assists Louis Garami to start a controlled flight with a Fireball. Walker is the developer of "U-Control."

Wide open! Tiger Shark is being flown by "G-Line" method, one line from ship to pole in hand.





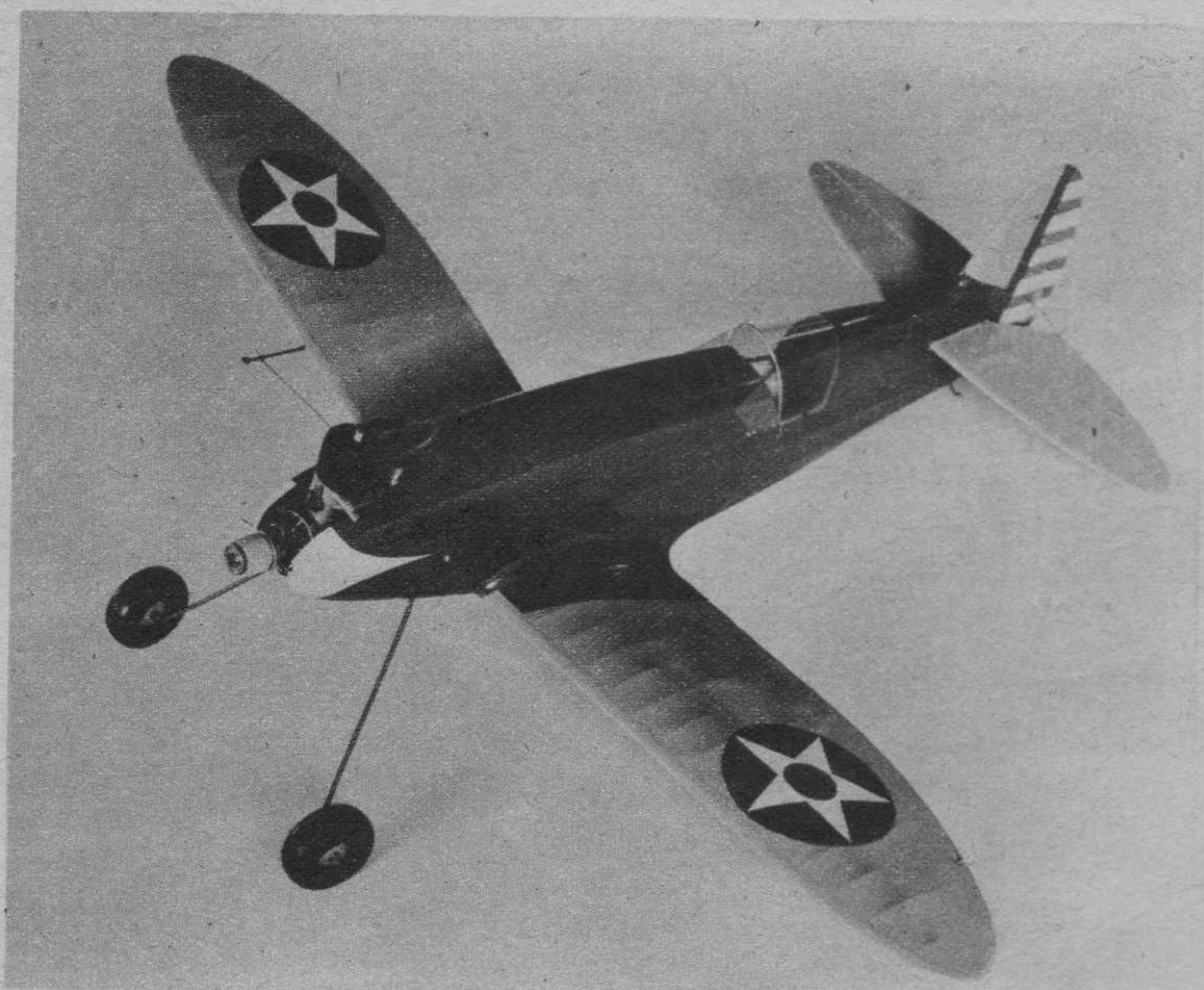
# ON A LEASH

BY FRANK REINHOLD

controlling every maneuver! Although still in its state of infancy, "control-line flying" is destined to become the greatest phase of gas model flying! We model builders are getting rather downhearted (and financially down, too) by having our latest creation fly out of sight—and with that new engine, too! What should we do? Well, here's the answer—attach a wire or line to your job and fly it in circles ten or fifteen minutes at a time!

Not only is control-line flying the answer to the out-of-sight problem, but it is the solution to the space problem which confronts eighty percent of all gas-model fliers. You don't need a mile-square airport—just a one or two-hundred-foot square—a playground, baseball or football field. Another outstanding feature control-line flying offers the model builder is the fact that *you* are the pilot. With a simple twist of the wrist *you* can make your job take off, climb, loop, dive and even fly upside down!

Controlled flying offers infinite possibilities for new wrinkles in model flying. Balloon busting, hedge-hopping, stunts, smoke screens, racing, and dive bombing are just a few of the ideas already tried.



This P-60 typifies kind of model made possible by control-line flying. Flying-scale models of real fighting ships can now be flown without crashes.

The Lakewood Model Airplane Race Association, California, holds special controlled-flying contests. Competition is held in five classes, depending on qualifying speeds, 40 to 50 m. p. h., 50 to 60, 60 to 70, 70 to 80, and over 80. Qualifying laps are held over a quarter-mile distance, the real thing over a mile.

But the best one we've heard of was a fifteen-foot controlled gas model for a circus. It carried a monkey.

Aside from the flying advantages control-line models possess,



You can fly your pet gas buggies without losing them in thermals. With "U-Control" pilot works elevators; with "G-Line," dips or raises pole.

they are opening up a new field in gas-model building and flying—*prototype* gas jobs! Vultee Vanguards, Ryan S. T.'s, Curtiss P-40s, Bell P-39s—in fact, almost every army or navy fighter, to say nothing of the many speedy sport planes, lend themselves perfectly to this type of flying. You can't very well build a gas-powered replica of a speedy army or navy fighter and expect it to fly more than once in free flight, but you can equip that very same model for control-line flying and fly it to your heart's content without the slightest chance of having a major crack-up! And what's more, you have an airplane that looks like an airplane.

The actual working mechanism which makes it possible to control the flight path of our control-line model, a Vultee Vanguard, described in the article following, consists of hinged elevators, the movement of which is controlled by two lengths of piano wire. The two wires are attached to a simple mechanism located directly at the center of gravity of the model and, by pulling one wire the elevators move downward, causing the model to dive. By pulling the second wire the elevators move upward, causing the model to climb and eventually loop. The end of each wire line is attached to a handle which the pilot (that's you) holds. By bending the wrist toward or away from you slightly, pressure is exerted on each line, which in turn moves the elevators either up or down. The use of two control lines minimizes danger of injury to spectators due to line breakage. In the event one line breaks, the other will either dive the plane into the ground or throw it into a series of loops, either of which prevents its flying off into space.

The mechanism inclosed within the fuselage of the model to convert the "pull" of the two control lines into up-and-down elevator movements is merely a combination of two levers. (See Diagram A in following article, "Pilot this Vanguard!") By pulling the front wire the control plate is moved, causing the elevator-control rod to move forward, thereby moving the elevators down. Pressure on the rear line causes the control rod to move backward, moving the elevators up. The control rod is attached to the elevator horn which, for our specific example, is located on the bottom of the stabilizer. To limit the movement of the control plate, which in turn regulates the angle of movement of the elevator, a slide rail is anchored securely in the position shown in Diagram A. By inserting pins in various positions along the slide rail, the angle of elevator movement may be easily controlled.

This particular system is called "U-Control," and was developed by Jim Walker of American Junior Aircraft, Portland, Oregon. American Junior kits also provide for a throttle control.

(Turn to page 63)

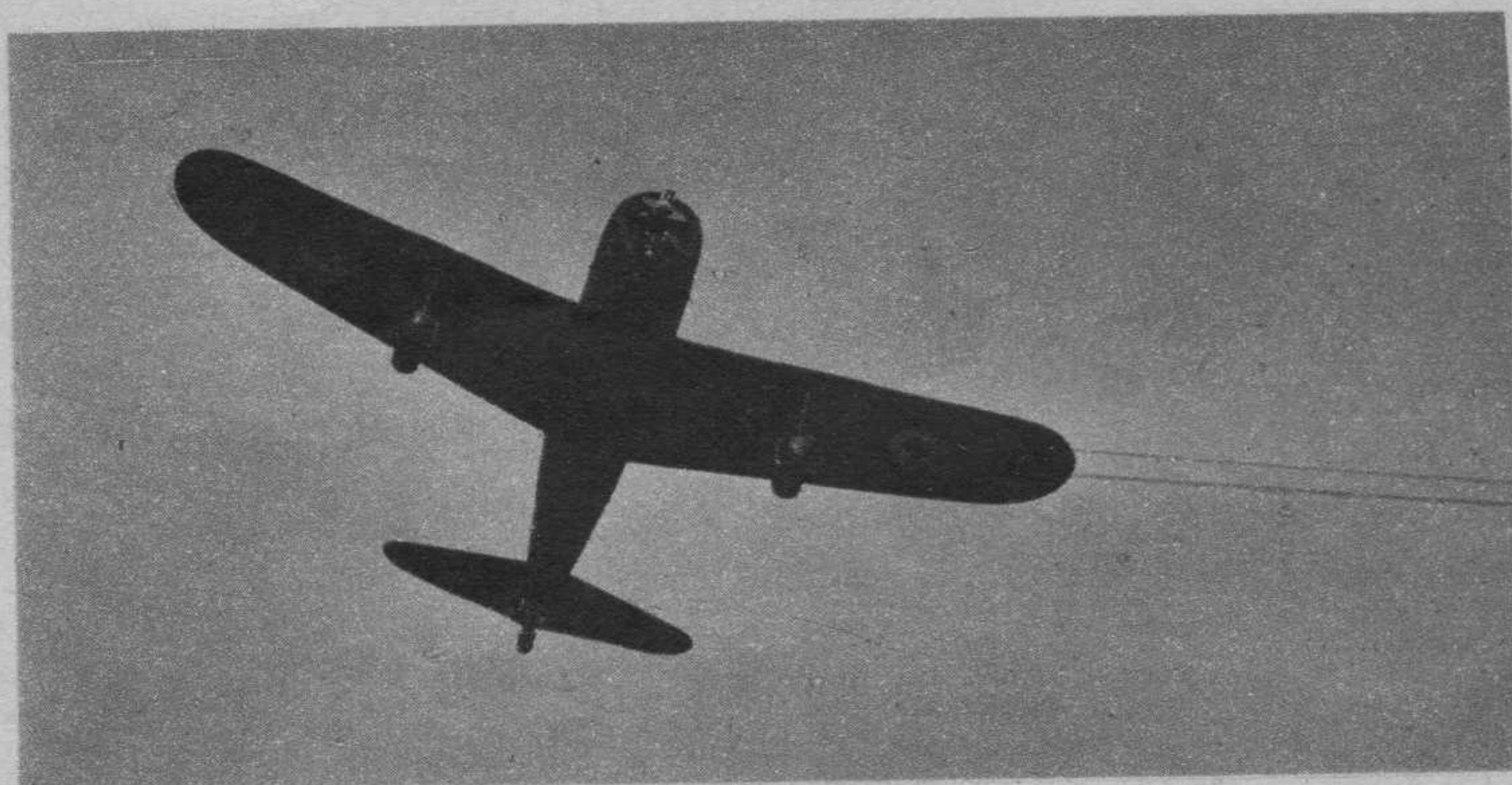


# PILOT THIS

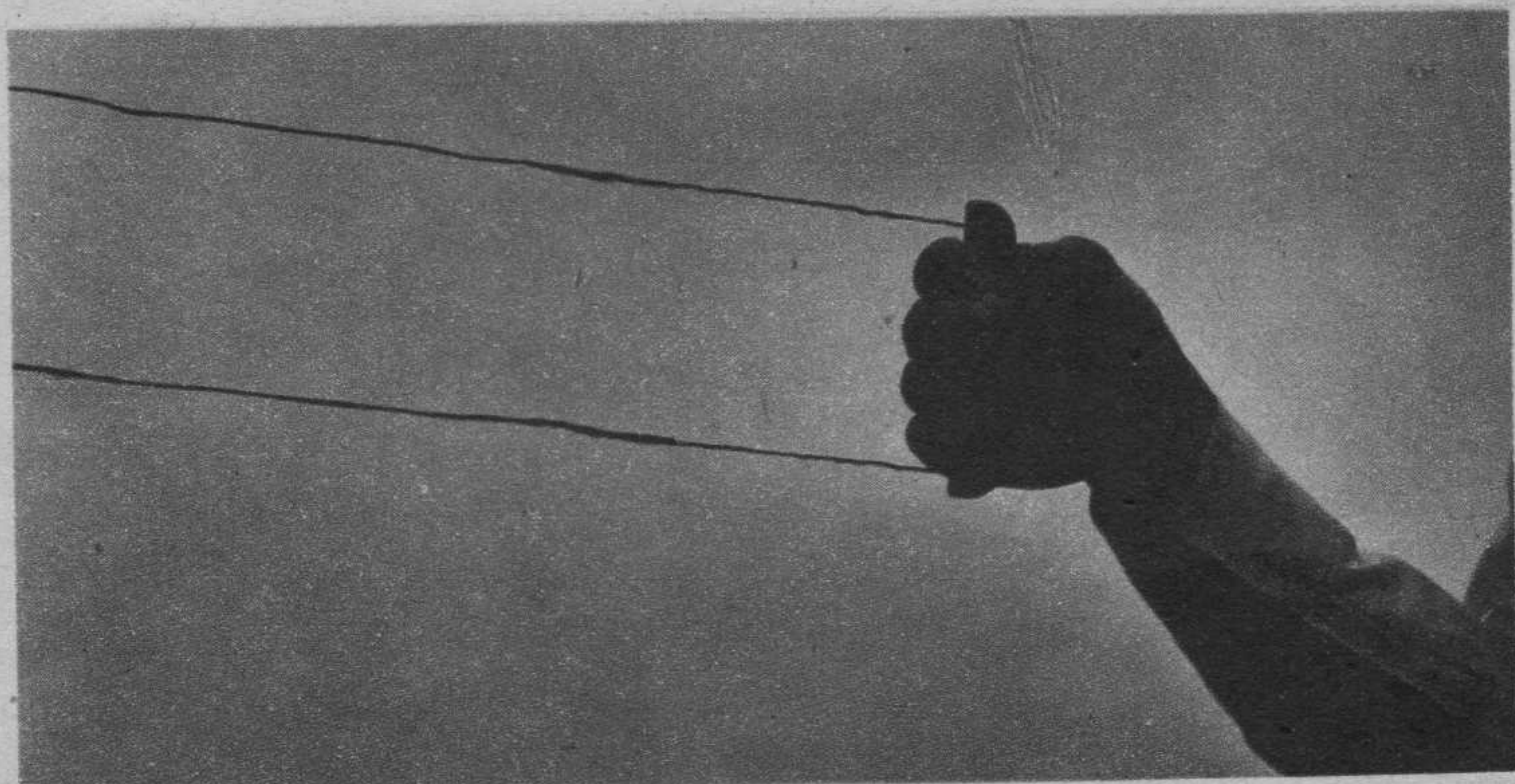
BY FRANK REINHOLD



Flying scale models like the author's Vanguard can be made to dive, zoom, and even loop, all in response to the pilot's manipulation of the elevator wires.



Roaring overhead at 50 m. p. h., our model Vanguard reveals control wires that run from operator's hand grip to the ship's control mechanism.



The control method is adapted from the patented "U-Control." Tipping the top of stick forward causes ship to dive; pulled back, model climbs.



A homemade wooden hand reel is needed for winding the control wires when not in use. Unless such a reel is used music-wire lines may snarl.

**T**HE Vultee Vanguard presented this month, adapted for "control-line flying," is a one-inch-to-the-foot scale replica of the type now doing yeoman duty across the puddle. The original model had the total weight of twelve ounces, and was powered with the new Super Atom engine, but any Class A or B engine may be satisfactorily used. Oddly enough, the engine displacement for control-line flying does not alter the flying qualities of the model to any great degree, the only noticeable effect being an increase in speed.

## CONSTRUCTION

The fuselage of our Vultee Vanguard is carved from soft solid balsa because this type of construction not only results in an extremely strong, durable, and easily repairable unit, but requires much less time than the bulkhead-type construction. First obtain two blocks of very soft balsa each measuring 25" long, 6" deep and 2 1/4" wide. Trace the side view on each block and cut out with a coping saw. Cement both halves lightly together and shape the outside with the aid of the cross-section fuselage contours. After the outline is fully shaped and sandpapered, cut away the glue joints and hollow out each half with a gouge or similar instrument. After hollowing out each section to correspond with the



This baby Vanguard is built one-inch-to-the-foot. A Super Atom engine is used, but any Class A or B motor will do. Size of engine affects speed accordingly.



# VANGUARD!



You can fly this scaled-down British fighter by direct elevator control. Speed dashes, power dives, and zooms!

wall thickness shown in the fuselage cross sections both halves should be permanently cemented together and allowed to dry.

To install the motor mounts and make possible installation of the wiring and control systems, the upper portion of the fuselage is cut away as shown on the drawings. After this section is cut away, cementing of the motor mounts to suit your particular engine is greatly simplified.

The stabilizer is made in one section and cemented to the fuselage at zero degrees incidence. Cut from  $\frac{1}{8}$ " sheet balsa the main spar, which tapers from  $\frac{1}{4}$ " at the center to  $\frac{1}{8}$ " at the tip, and cement rectangular sections of  $\frac{1}{16}$ " sheet balsa to represent the ribs. Each rectangular section rib tapers to fit the spar. The center rib is  $\frac{3}{8}$ " deep while the extreme end rib is  $\frac{3}{16}$ " deep. After the  $\frac{1}{8} \times \frac{3}{16}$ " leading edge is cemented to the center of each rectangular rib section, the corners are trimmed and sandpapered until the desired symmetrical section results.

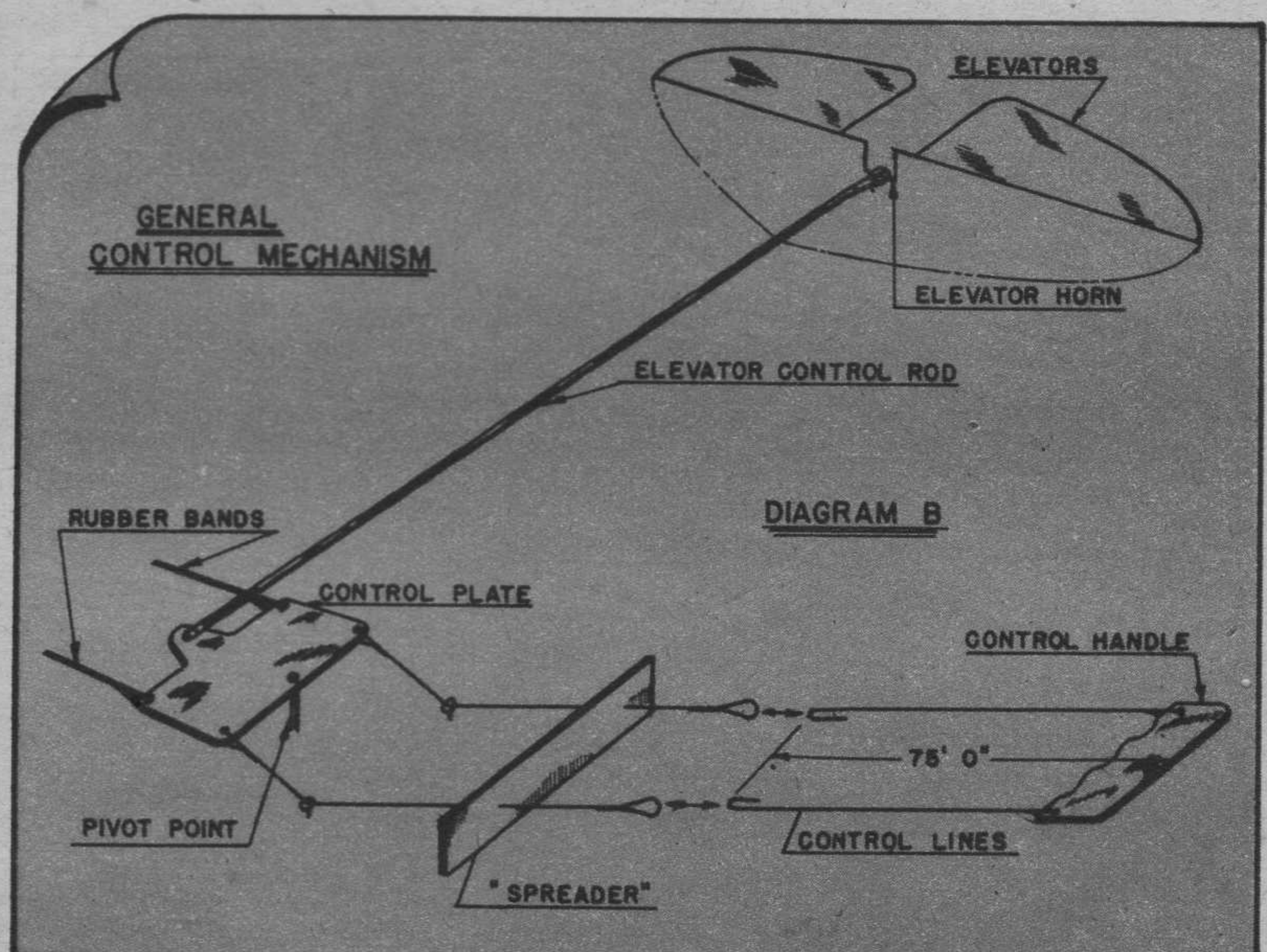
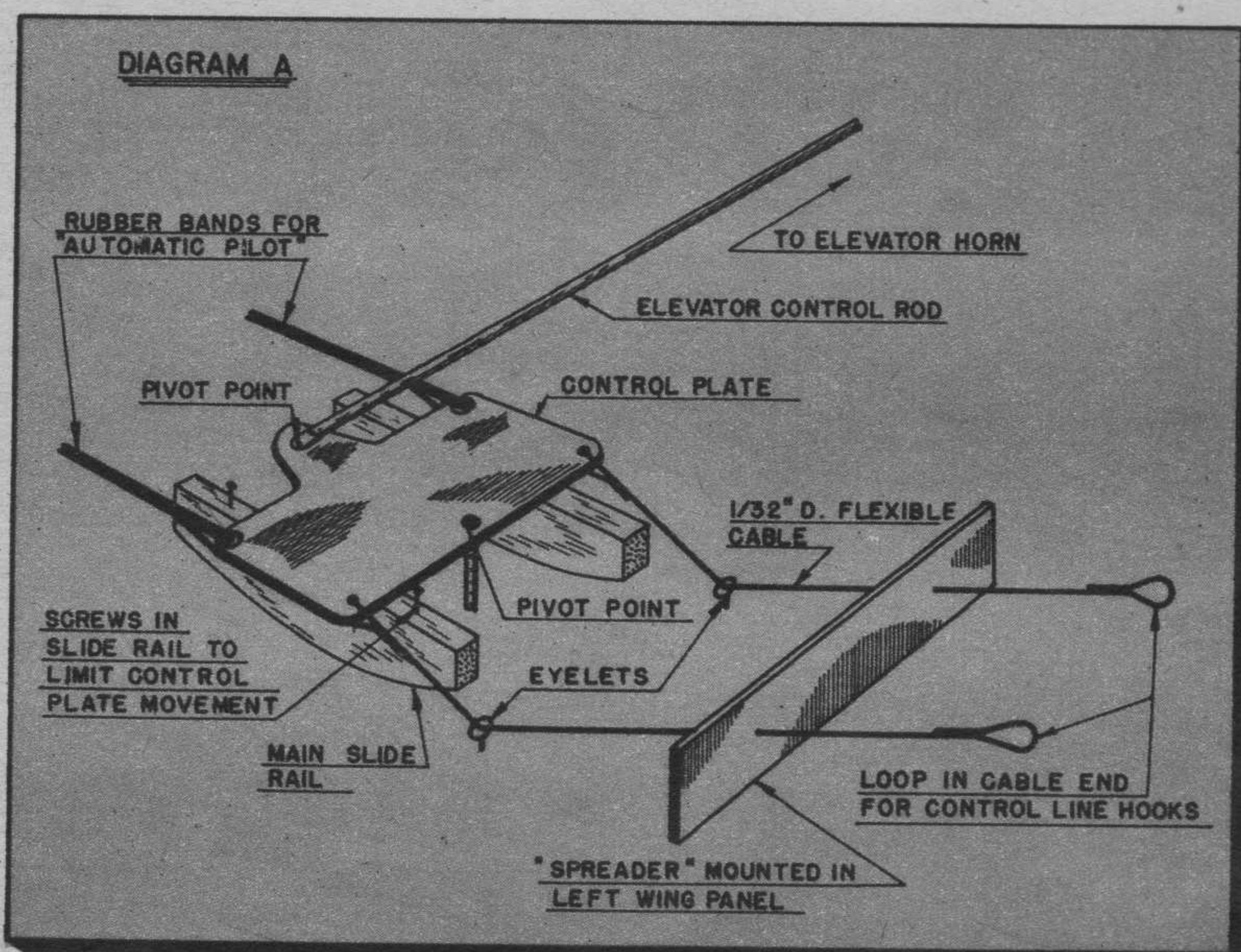
The elevators should next be carved from  $\frac{3}{16}$ " sheet balsa and carefully mounted in place. The tip elevator hinge of each half consists of a section of .035 wire fitting into a  $\frac{3}{8}$ " length of  $\frac{1}{16}$ " O. D. aluminum tubing which is embedded into the stabilizer tip. For the center stabilizer hinge effect we employ a single section of .035 piano wire bent in such a form that it also acts as the

control horn as shown in the drawing. For a bearing, drill and cement a small piece of .035 sheet aluminum tubing to the inside of both center ribs as shown. To mount the stabilizer, the rear portion of the fuselage is cut away where indicated.

The rudder is extremely simple because it is carved from a stiff sheet of  $\frac{3}{16}$ " sheet, tapering to  $\frac{1}{16}$ " at the tip and having a symmetrical airfoil. The trimming tab is built into place and has a hinge consisting of a section of .035 sheet aluminum. The rudder is cemented in place after the stabilizer and control mechanism are installed.

In making the wing, first cut all the ribs from  $\frac{1}{16}$ " stiff sheet balsa and cement in place along the spars, which are cut from  $\frac{1}{8}$ " sheet to fit the rib notches. Add the  $\frac{3}{16}$ " sheet leading and trailing edges and cement both wing halves together, care being taken so each tip has the required 3" dihedral. Reinforce the center section by cementing sheets of hard  $\frac{1}{8}$ " sheet to the sides of each spar.

Before the wing is cemented to the fuselage, the landing gear, which is bent from  $\frac{1}{16}$ " steel wire, is securely cemented into place along the front wing spar. After the gear is in place, cover the bottom of the wing where indicated with  $\frac{1}{16}$ " sheet balsa and cement the wing to the fuselage. To insure a (Turn to page 64)



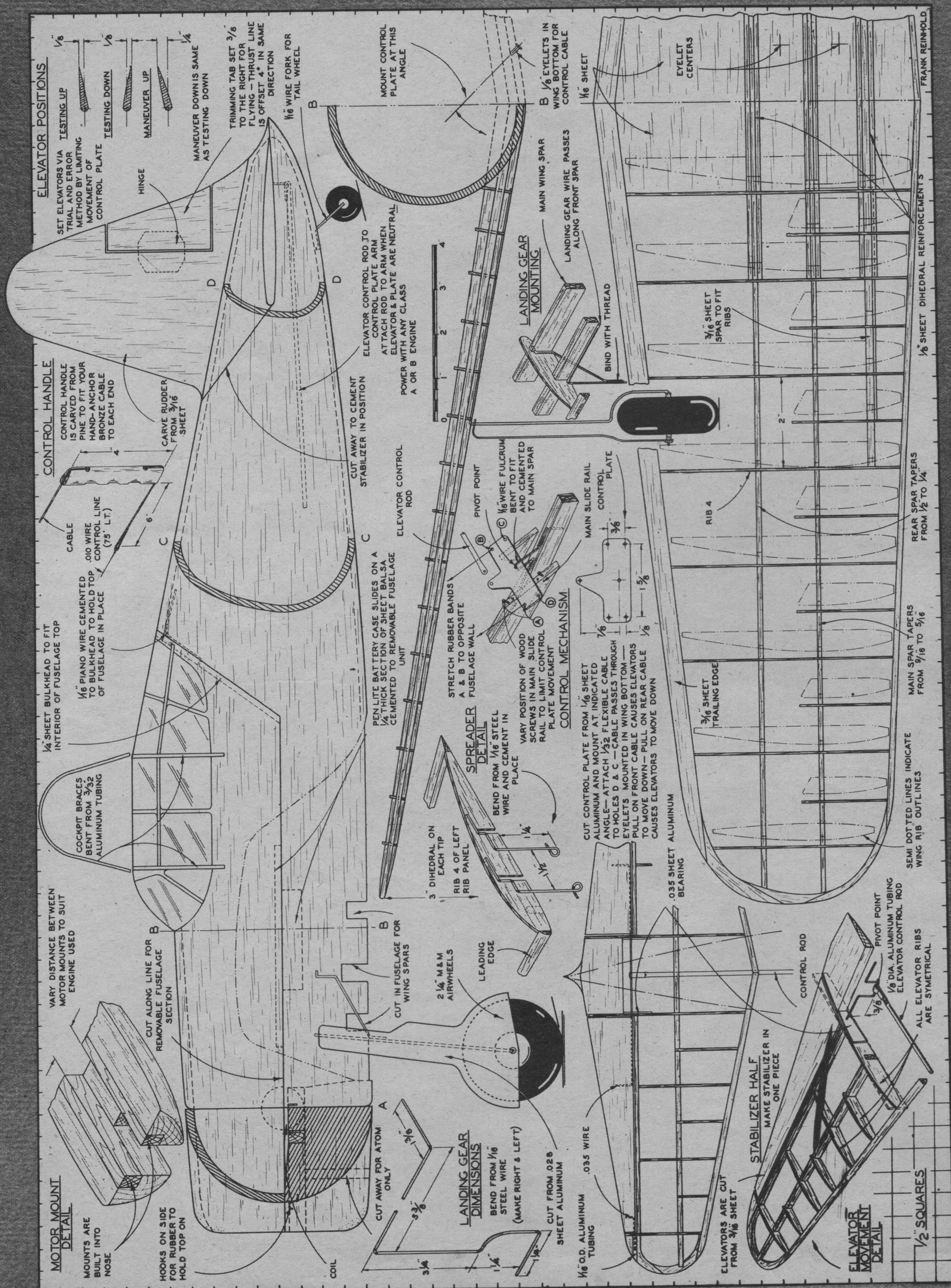
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**FULL-SIZE PLANS** one sheet 20 inches x 28 inches

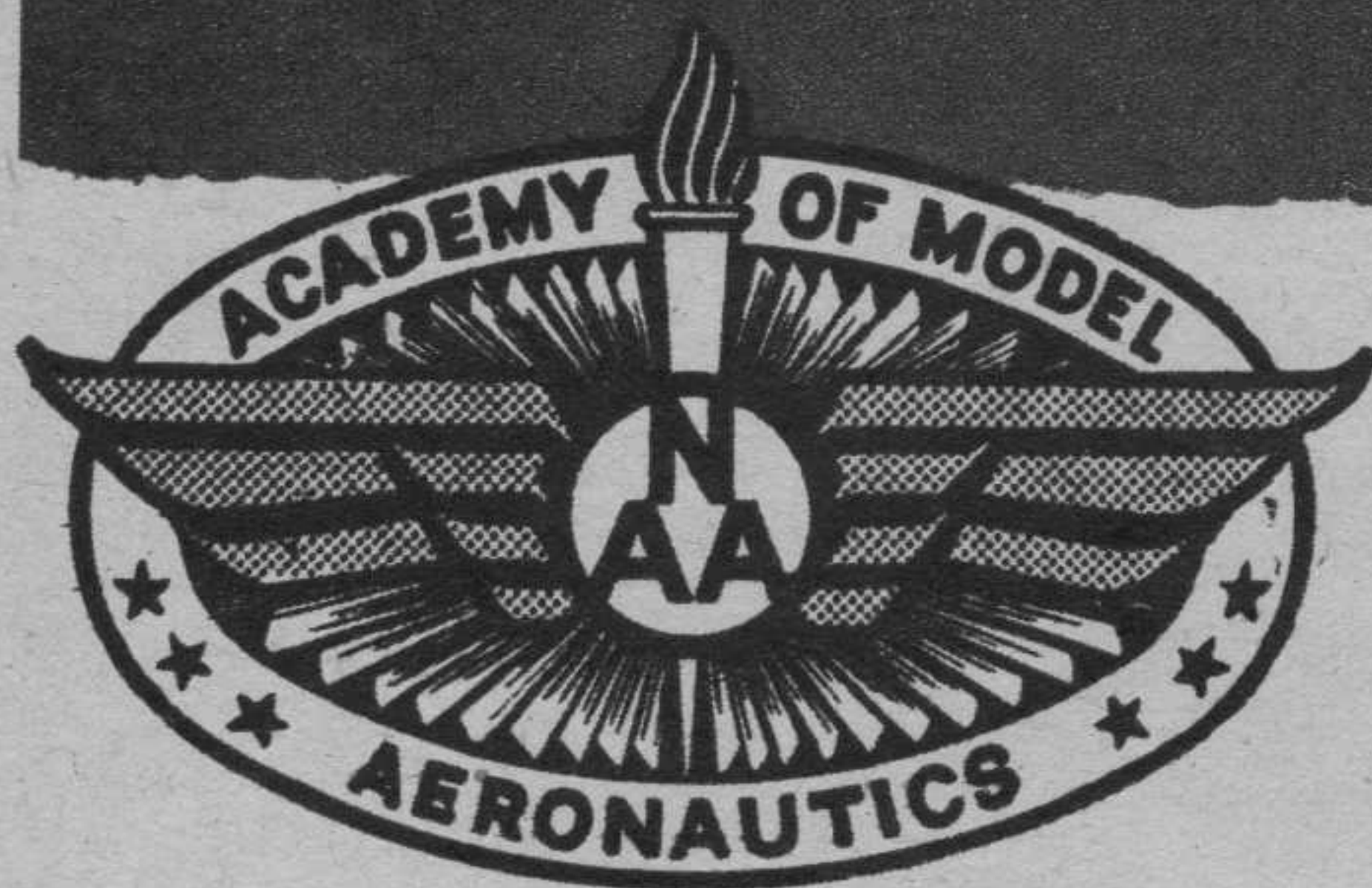
No more need to enlarge plans or to make your own working drawings. Now you can get full-size plans identical in detail to the scaled-down drawing on this page. This is one of a series. Be sure to tell your friends and fellow club members. Only a limited number of these full-size plans will be printed, so order immediately. Send ten cents per plan to

**AIR TRAILS FULL-SIZE PLANS, 79 Seventh Avenue, New York, N. Y.**





# DOWN THE RUNWAY



So you would like to run a contest. Well, before you do, take our advice and follow these valuable tips.

CONDUCTED BY AL LEWIS • EXECUTIVE DIRECTOR

**R**ECENTLY we had the opportunity to present a few suggestions in these columns on how to start a model airplane club and keep it functioning. Since the main objective of any club is to run contests, we are going to outline a few suggestions on how to plan and conduct a model airplane competition.

Model airplane meets should be fun—fun for the contestants, for the spectators and for the officials. The only way you can really get enjoyment out of an aëromodeling competition is to have it well planned in advance and smartly executed. When your club decides to put on an invitation contest, the first thing you should do is to call in all the experienced contestants and leaders in your vicinity and have a “bull session,” so that you can get their ideas on how best to run your meet. In these days of thousands of contests being held every season, we must not forget that any airplane meet, regardless of size, is a big undertaking, and not lightly to be entered upon.

The best way to insure a successful competition is to provide

plenty of officials, for, regardless of how imposing an array of prizes you can promote, unless each entrant can get in all his official flights without delay and without quibbling, your meet will not reflect credit on your club.

Do you have plenty of stop watches? Can you secure the services of technically minded adults who can quickly “process” the models? Is it clearly understood where the limits of flying will be established at your field? Has someone arranged for spectator control, policing of the field and attendants to direct the parking of automobiles?

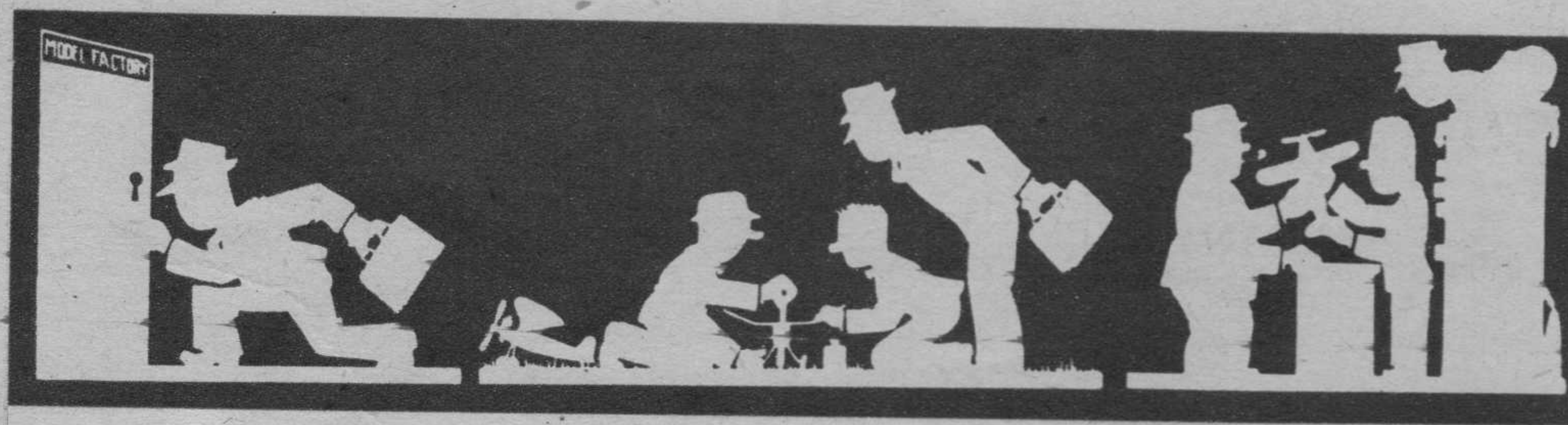
In making all arrangements for your competition, think things through from both the contestants’ and spectators’ angle. In other words, if the contestant parks at such a spot, how far will he have to walk to set up his models? Is the spectator parking located convenient to the refreshment stand and toilet facilities? Has a lane been left open for the contestants to pursue their far-flying models by automobile?

There is no need for us to go further. These (Turn to page 57)



## “DON’T QUOTE ME!”

Talk of the trade as overheard in factory, field, store.



**C**ARL GOLDBERG (Comet’s fair-haired boy) and his wife came East vacationing. It turned out a busman’s holiday, since Carl spent all his time visiting hobby shops, model personalities and contests.

Harry Rice flew to the Nationals in his Waco while Irwin Ohlsson “flew” out in his Cadillac and got there first! . . . Comet lavishly entertained its distributors and representatives who attended the meet. . . . The Rogers 29 and 35 got a big hand through the Nationals grapevine when the Virginia contingent tested them and found them super. When they get into production we’ll see!

While only accessories and B & D Browns roll out of Jr. Motors Corp. plant, lights burn late into the night and it won’t be long now! . . .

Clyde Austin, with Mrs. Austin and his star salesman attended the Nationals and toured the country to the East coast, visiting his customers. Austin is credited with brightening the manufacturers’ meeting with his remark, “All you fellows owe me money,” to which Presiding Chairman Louis Kapp of Comet retorted, “We can’t very well pass a resolution to pay you!” . . . During his trip East, Irwin Ohlsson demonstrated his Sixty Special for the signal corps in—30° temperature.

N. E. (Jim) Walker, manufacturer of American Junior ready-to-fly model airplanes and the U-Control Fireball, builds and flies radio-control gas models as a hobby. This year he won that event at the Nationals. To our mind, his model was one of the most practical there. It controlled perfectly (Jim would “gun” her on the banks), had about a six-foot span and a stock Brown Jr. engine with two timers. Can this be the beginning of radio control for the advanced gas modelers?

Congratulations to Mike Trost of Trost’s Model Shops, Chicago, upon his marriage September 6th.

The Model Industry Association has allotted a certain sum for the use of the Academy of Model Aëronautics in awarding prizes at the leading model meets. Contest directors soliciting prizes from manufacturers will be referred back to the AMA. . . . The Academy will soon launch a nationwide competition using one specific type of rubber model to revive, stimulate and promote interest in rubber-powered model airplane building.

International Models of New York have hit the market with plastic prop spinners for gas models (to be available for Class A, B and C) in (Turn to page 59)



# WAKEFIELD

# DESIGN

BY AL CASANO

## FULL-SIZE PLANS

one sheet 38 inches x 50 inches

No more need to enlarge plans or to make your own working drawings. Now you can get full-size plans identical in detail to the scaled-down drawing on the opposite page. This is just one of a series. Be sure to tell your friends and fellow club members. Only a limited number of these full-size plans will be printed, so order immediately. Send ten cents per plan to

AIR TRAILS FULL-SIZE PLANS  
79 Seventh Avenue, New York, N. Y.

Not a "box," yet easily built, this rugged competitor features consistent flights and long contest life.

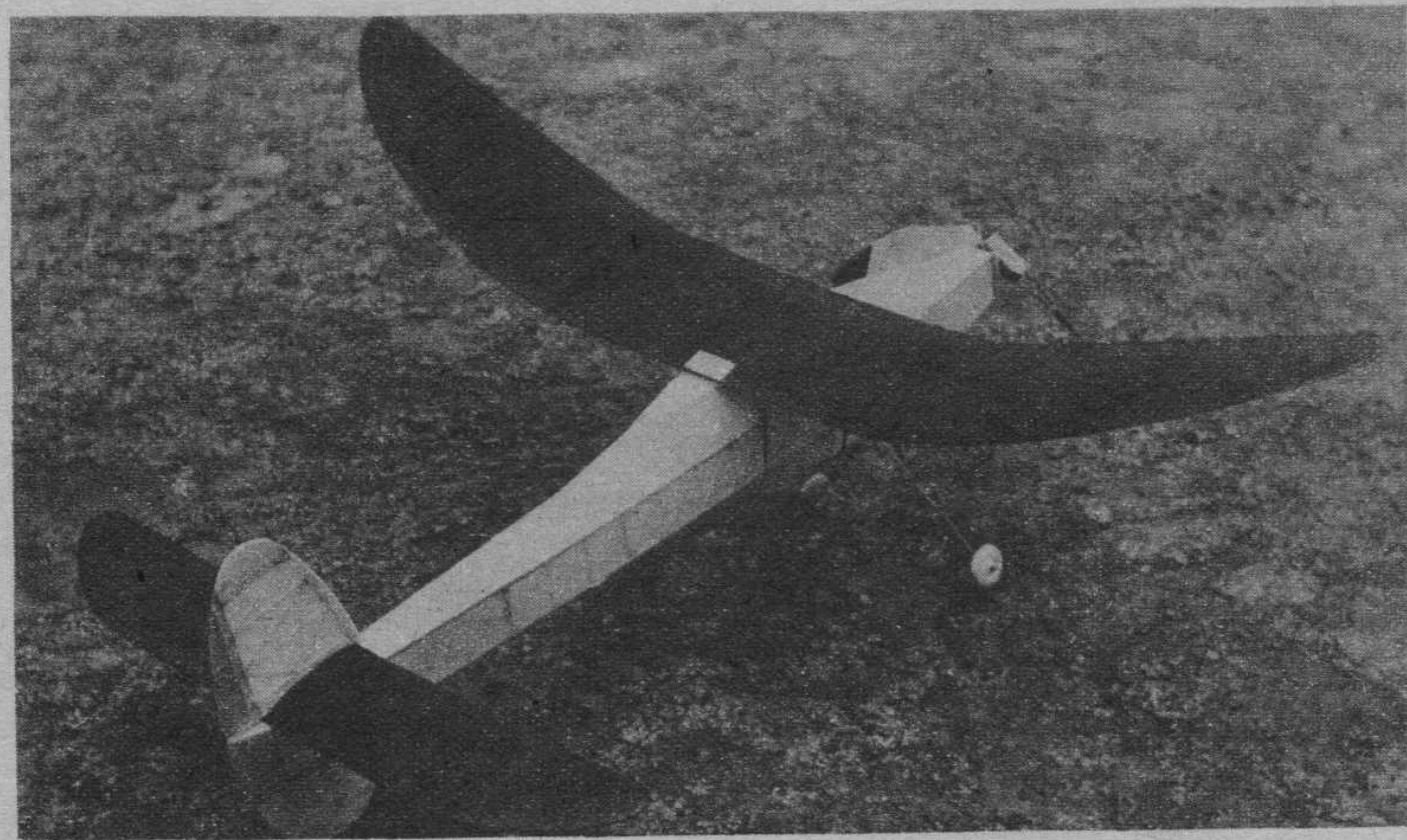
THIS ship, built to Wakefield specifications, has been named Glamour Girl, because of the many curves in the right places. Tested in a number of contests, Glamour Girl has left little to be desired as far as performance is concerned. The ship has a very fast spiral climb, and a slow, lazy glide. Both climb and glide are to the right. Well, since talking about it will not get it built, let's get started.

### CONSTRUCTION

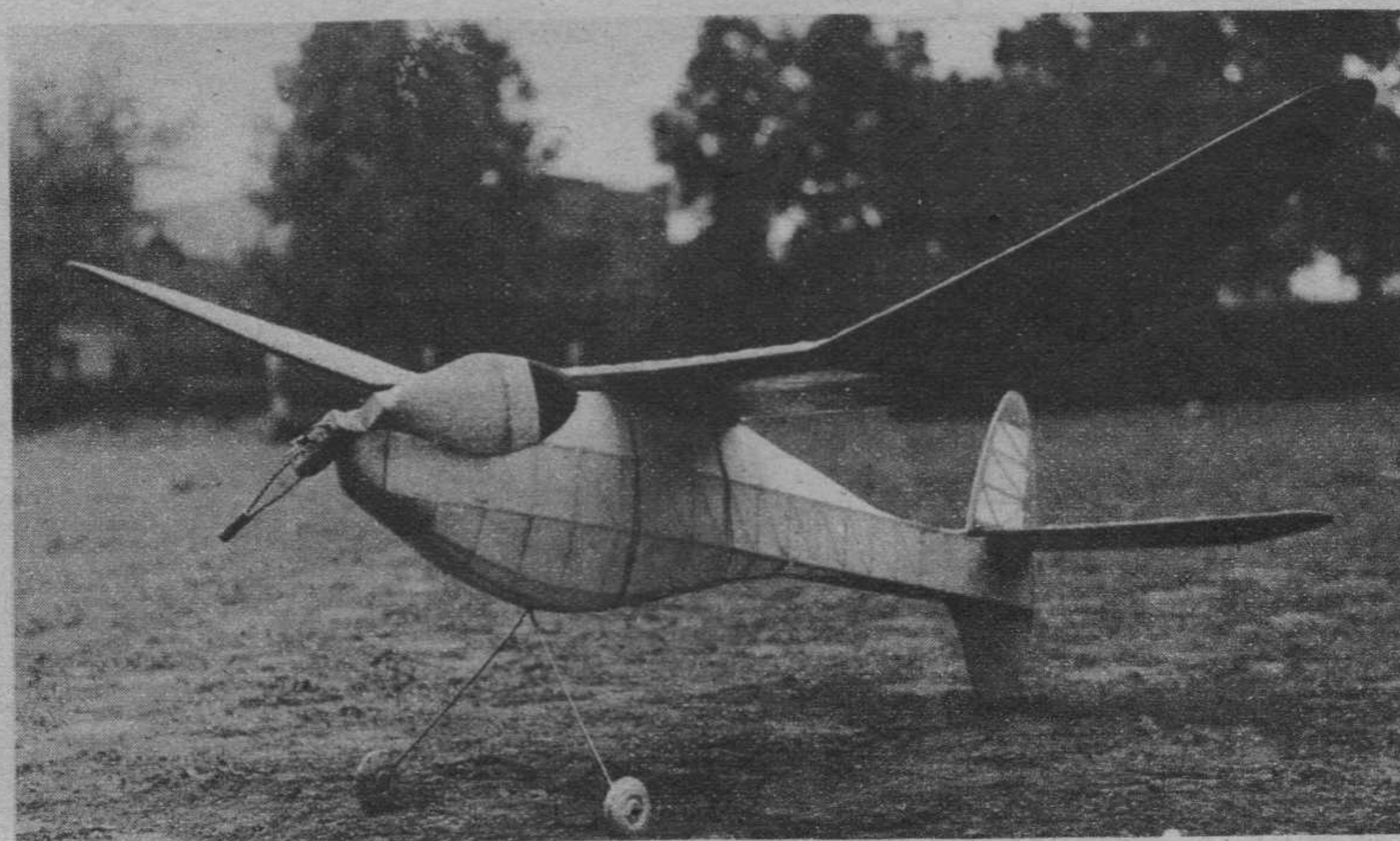
The fuselage is built up of the two main sides, with  $\frac{1}{8}$ " square longerons and cross braces, and  $\frac{1}{16}$  x  $\frac{1}{8}$ " diagonals. The diagonals add little weight but give perfect bracing against the twisting strains encountered in high-powered rubber jobs. The diagonals also take up the strain when a longeron snaps in the heat of competition. Choose your material carefully, using hard stock throughout the entire fuselage, as this is where most of the hard knocks will be absorbed. After making the two sides, join together as per plan view of the fuselage. Be sure to use accuracy in scaling up the plans, and follow the dimensions given. After the two sides are joined and dry, sand this part of the fuselage thoroughly, first (Turn to page 60)



The author demonstrates "unassisted" take-off under Wakefield rules.

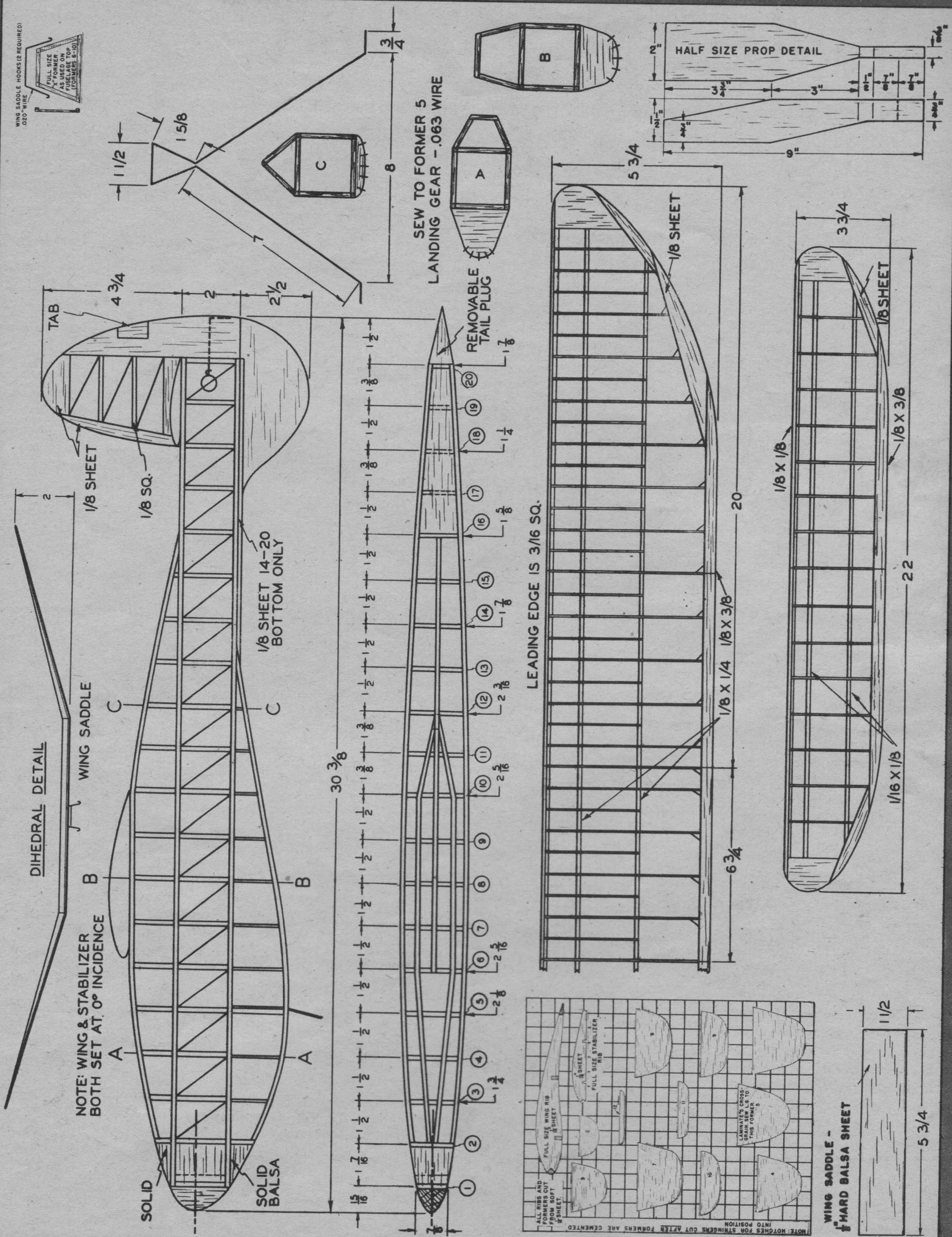


Casano's models are noted for carefully built wings for high efficiency.



Fuselage is made of primary frame, faired top and bottom with formers.







# CUT THAT SKIN FRICTION!

BY MAURICE  
SCHOENBRUN

The designer of the Rocketeer, Gladiator and Tomahawk suggests a few ways of stepping up aerodynamic efficiency of your gas model. His comments are worth listening to.

TO many builders the reduction of skin friction may seem a very minute factor, but experiments have proven that thirty percent of all resistance in the entire ship is caused by the faults of covering.

Stop a moment and think what makes a streamlined model "streamlined." We find that streamlining consists in clean fairings for the tail surfaces and the wing, for the most part. By that we mean that all incidences should be faired so that they afford a minimum of drag. Too, the landing gear should be as short as possible. This may seem another very incidental matter, but again research has found that a one-wheel landing gear, or one that may be fully retracted, will add greatly to a ship's performance.

Those are fundamentals in streamlining. In looking over innumerable articles on so-called streamlined ships, it was found that a majority of the ships described had clean fairings of all surfaces and that ninety percent of them had elliptical or oval cross sections. They were, for the most part, either planked or of former-stringer construction; and without doubt their construction took many hours of work in plotting bulkheads, planking and sanding, to say nothing of using dope, wood filler, et-cetera. When the models were completed they looked very beautiful, but close study revealed that sag between the bulkheads and irregularities in planking had ruined the entire effect and had, actually, built up rather than eliminated drag.

There are a dozen and one ways of cutting down skin friction on a fuselage. Take an ordinary box fuselage and place stringers around it. Se-lah! A lot of drag has been eliminated and the ship looks better. The stringers keep the covering from sagging between the uprights, and aside from the fact that fellow modelers will remark on the improvement, the ship will be noticeably more efficient.

Although most gas modelers avoid diamond fuselages, they present an even better approach to streamlining. A diamond fuselage, plus stringers placed on all four sides, gives an octagon effect, which particular form is well known to rubber builders. The form is efficient and remarkably easy to build.

After we had built many of the above-described models, we discovered that they were structurally strong enough for a light impact, but under the rigors of a real "splatterish" crack-up, as the result of a loop or spiral, they couldn't take it. Of course, the streamlined diamonds made a fine-looking crack-up, but we decided to improve on the design and make a fuselage that would really stand up. The actual working time on such a fuselage con-

sumed from seven to ten hours, and we decided that there must be a faster method of turning out a fuselage with a higher strength factor.

Above all, in our designing, we kept to our idea of reducing skin friction to a minimum. The ultimate result was the ship illustrated herewith. Note the strength of the fuselage, at the same time the efficient low-loss design.

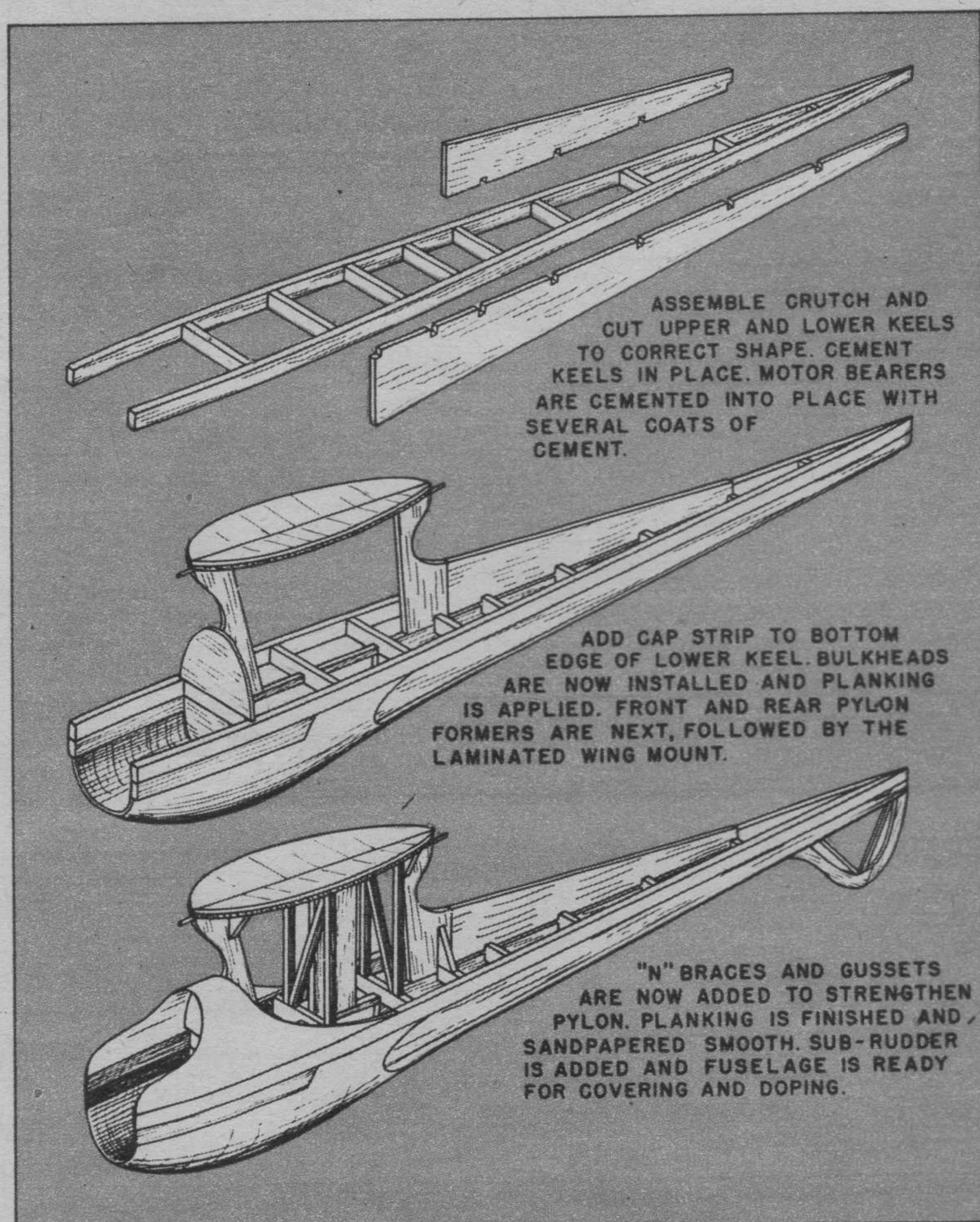
The fuselage of this ship is constructed around a "crutch," as was the Rocketeer (Air Trails, Nov., 1939). This system of construction has proven to be very popular with Eastern builders and entails a minimum of work with a maximum of strength. In this particular instance the crutch was built of  $\frac{3}{4} \times \frac{3}{16}$ " medium balsa, and aside from this construction the fuselage has no cross members whatsoever, thereby establishing an almost unheard-of precedent in modeling.

Our original premise of eliminating (or reducing) drag hinges on the "smoothing" of the air passage over the body. Without cross members, there are no barriers to the flow of air, and thus a very efficient section is evolved.

In a Class C model, such as this, the upper and lower keels of the ship are constructed of  $\frac{1}{4}$ " sheet balsa and are cemented to the cross pieces of the crutch. Notches further secure these keels in their proper places as shown in the drawings. In this particular model, a further innovation is the simplicity of the pylon design. The pylon leading and trailing edges are of  $\frac{1}{4}$ " sheet balsa notched into the crutch. The wing platform, which is of  $\frac{1}{8}$ " laminated balsa, is placed

above the leading and trailing edges and cemented in place. Additional strength is provided by  $\frac{1}{4}$ " square spars which are cemented at proper intervals (one third and two thirds of the distance along the wing platform) to give greater bracing. These are cemented in place and run from the wing platform again to the crutch cross piece. These do not intersect the crutch, but must be at least a half inch in from the crutch on the cross pieces to give a better sag effect to the silk covering.

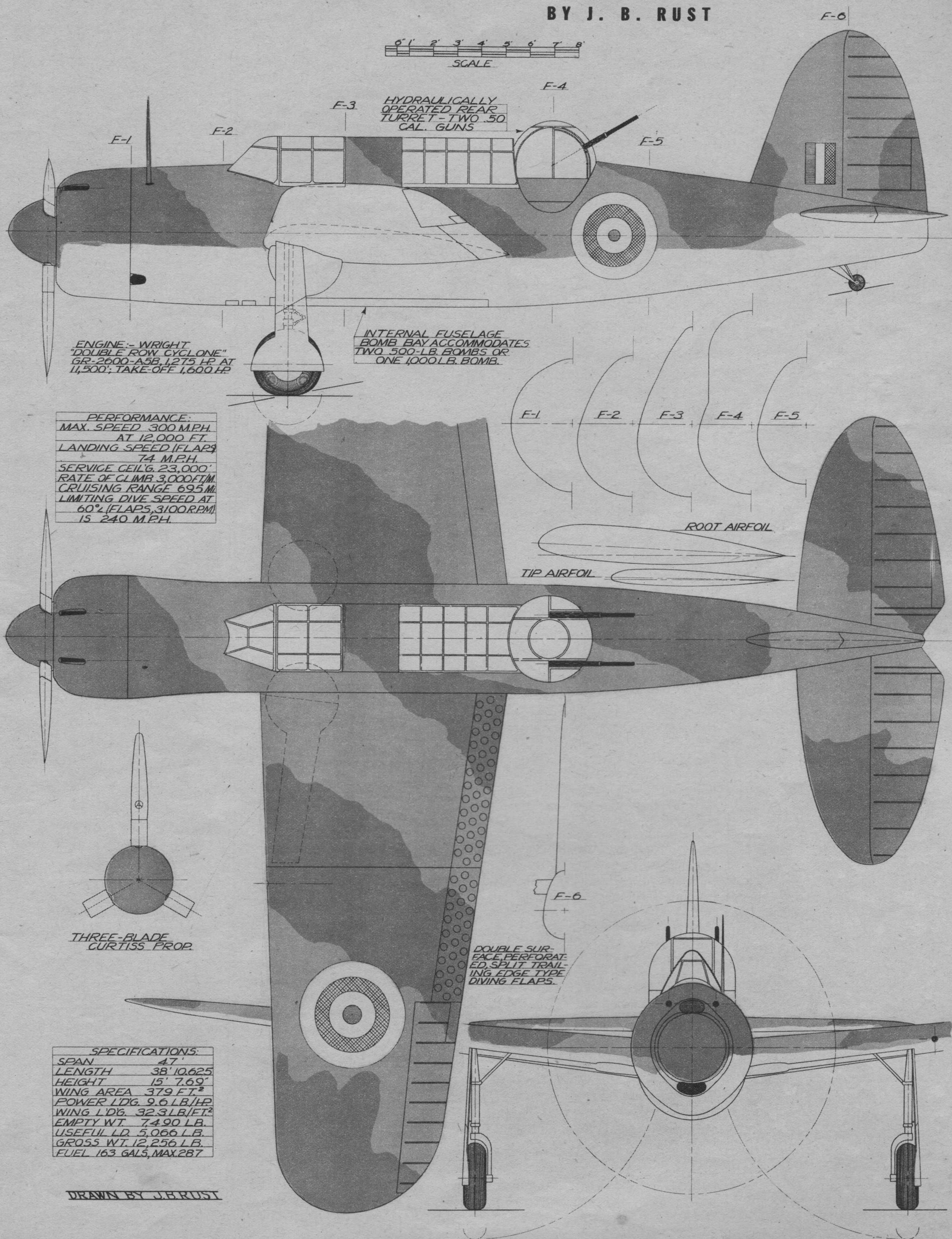
One of the most important features of the ship (which has been named the Theoradical) is the firewall and nose-block construction. To maintain the low-drag idea, the nose is rounded into a semibulb shape by the cowling. From the firewall to a point about four inches toward the rear, the fuselage is covered with  $\frac{1}{16}$ " sheet balsa. Note the special hatch which houses the batteries and the Austin timer. This bulb effect, you may note by study, merely emphasizes the streamlining, and (Turn to page 64)





# BREWSTER BERMUDA - British Dive-Bomber

BY J. B. RUST



ENGINE - WRIGHT  
"DOUBLE ROW CYCLONE"  
GR-2600-A5B, 1,275 HP AT  
11,500'; TAKE-OFF 1,600 HP

PERFORMANCE:  
MAX. SPEED 300 M.P.H.  
AT 12,000 FT.  
LANDING SPEED (FLAPS)  
74 M.P.H.  
SERVICE CEILING 23,000'  
RATE OF CLIMB 3,000 FT./M.  
CRUISING RANGE 695 M.  
LIMITING DIVE SPEED AT  
60° (FLAPS, 3,100 R.P.M.)  
IS 240 M.P.H.

SPECIFICATIONS:  
SPAN 47'  
LENGTH 38' 10.625"  
HEIGHT 15' 7.69"  
WING AREA 379 FT.<sup>2</sup>  
POWER L'DG. 9.6 LB./HP  
WING L'DG. 32.3 LB./FT.<sup>2</sup>  
EMPTY WT. 7,490 LB.  
USEFUL L.D. 5,066 LB.  
GROSS WT. 12,256 LB.  
FUEL 163 GALS, MAX. 287

DRAWN BY J. B. RUST

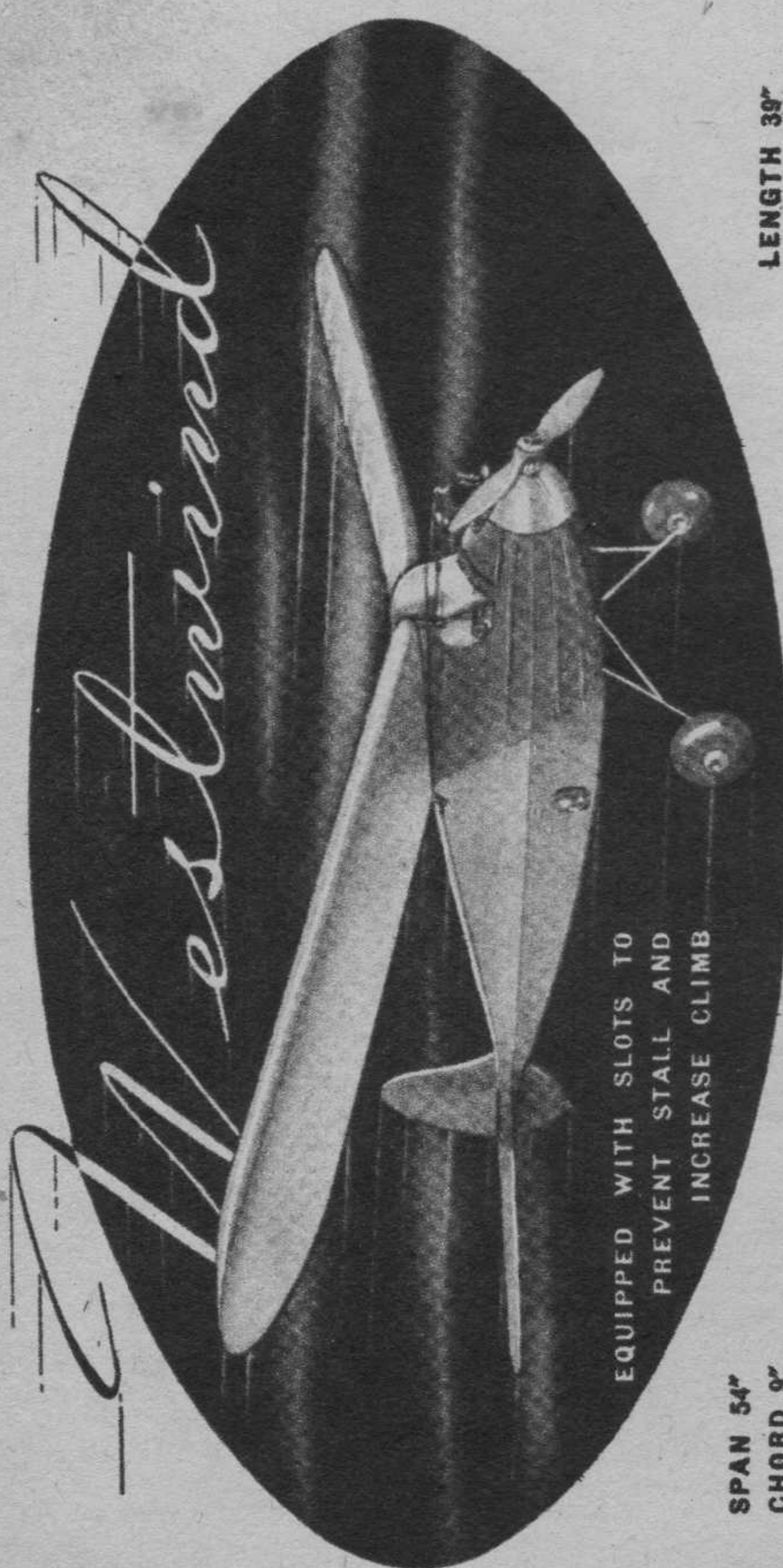


# MODEL CRAFT'S NEW SCALE-TYPE GAS MODEL THAT WILL FLY AGAINST PEDESTAL-TYPE SHIPS!

So perfectly balanced that you have to carry the BEST BATTERY on the market to bring the weight up to 8 oz. per sq. ft. a Westwind (for Class B or any small Class C engine) is nevertheless as STRONG as any gas model ever built. Like all Modelcraft models it is easy to build from complete, well-made kit. Order from your dealer or the West's \$3.85 Largest Model Supply House. Price.....

The trend is to real DESIGN in gas models... away from mere contest "freaks". For years some "experts" have been saying that you couldn't get high performance in a cabin-type airplane. However, Modelcraft designers have been more interested in finding out what COULD BE DONE. After exhaustive test-flights, we announce the new "Westwind", a true "aviator's model", with scientifically slotted wings... and performance that challenges any pedestal model on the field.

MODEL CRAFT 7308 S. VERMONT AVE • LOS ANGELES, CALIF.



EQUIPPED WITH SLOTS TO PREVENT STALL AND INCREASE CLIMB

LENGTH 39"

SPAN 34" CHORD 9"

## 1941 National Championships

(Continued from page 39)

division) for two flights and a Schulman-designed Zombie for one flight for a total of 1482.7, which was high for all three divisions of Class C. Second place went to Ray Acord of Hollywood with 1481.6. Sal must have perspired freely until the official results were announced.

Veteran contest builders didn't lose their grip on the winning spots—actually they seemed to tighten their hold. One of the 1940 gas champs; W. A. Gibson of Hamilton, Ohio, took two firsts—Class A and B gas, open division. He totaled 1297.2 for A and 900.3 for B. Another old champ, Dick Korda, won the outdoor cabin open division with 1082.7, fourth in the Moffett, and several other high places. Previous winners who were right up there again this year were Jim Cahill, Pete Andrews, Gordon Cain, Hank Thomas, Carl Goldberg, Chester Lanzo, Dick Everett, C. C. Johnson, and others.

Director Gunnar Munnick had a team of eleven boys from the Junior Aviation League of Boston. For several years he's been banging away at the Megow Team Championship Trophy. Last year Boston was runner-up. This year the trophy went back with the Boston crowd. Their 150 points were well out in front. Kresge Aero Club of Newark, N. J., was second with 112. The Skyrockets from New Haven, Conn., racked up 47 points to win fourth with only three members entered.

The army and navy have claimed many older model builders. Many have enlisted, others have been conscripted. Bob Roberts of Gary, Indiana, is having a tough time keeping club work moving since practically all the older and experienced builders are in the air corps. A few Chicago boys managed to get home for some of the contest. Their complaint about army life was that cramped living quarters gave them little space to build models. Improvising an army cot into a sort of workbench seems rather inadequate. But there were encouraging signs that the army and navy are thinking seriously of model building as a recreational feature of camp life.

Jim Walker of Portland, Oregon, had things pretty well under control. He gave demonstrations with his U-Controlled Fireball. Flying on the end of fifty-foot control wires, the Fireball is a fast-moving, maneuverable airplane. It can be zoomed, dived, and looped. Walker's other model was radio-controlled. It was a 5½-foot tricycle-gear job with several controls including throttle which he used in making unassisted take-offs from a standstill. During Friday's flying he had a nasty crack-up that called for some fast work to prepare for the next day. The boys from California pitched in, and at two a. m. they were still going strong. When a photographer let go a flash bulb, Walker looked up with a worried frown. Said he thought it was sunrise and they wouldn't have time to finish the repair job. But they did it well enough to bag a first in the R. C. event in a field of thirteen

entries that gets tougher every year.

Defense has claimed much of the brain power and mechanical ability that in ordinary times would be tackling the interesting problem of radio control. There are still many features to be licked. For example, shock-mounting the receiver unit in the model. Vibration must be damped at all engine speeds—a point which has caused more than one apparently tuned receiver to go dead when the engine was revved up for the take-off.

Bill and Walt Good didn't fly their radio-control job this year. It was in shape, all set to fly, but the boys were too busy. Bill has finished college and is working in Pittsburgh. Walt is just winding up his college work at Iowa City and getting ready to move to a new job in Washington, D. C. Both of them managed to get to Chicago as spectators.

Weather was good for the three days of outdoor flying (Thursday, Friday, and Saturday). As usual, the boys flew their ships into all parts of Cook County. Dick Everett of Hampton, Va., followed his gas job thirty-nine miles before losing it out of sight. Dick Korda of Cleveland has the answer to this problem. He equipped his 300-square-inch rubber-powered cabin fuselage with a dethermalizer. After fifteen minutes or any other desired length of time a mechanical timer works a little tab on the rudder which kicks the model into a tight spiral and brings it down out of the thermal.

Seems as though dethermalizers or new rules will soon be necessary. Short-wave patrol cars, diligent chasing, and honest citizens returned many of the roving models. But even so, many of them were lost. Modelers are getting tired of losing models. But how the rules could be changed is something few agree on.

Allen Vopal of Cleveland won the best-finish event with a beautiful solid-scale Waco. This was one of the several models flown to Chicago from Cleveland, along with their builders, by Arlene Davis, the only woman holding a pilot's rating for the heaviest type transport airplane. Telling about her trip, she said they flew at different altitudes from time to time hunting the smoothest air to prevent damage to the models. In fact, they seemed more concerned about the models than themselves. When the results of the judging were announced late Thursday night, Vopal said the first thing he'd do would be to wire Miss Davis in Cleveland that the model they'd worried about had justified their attention.

The Model Industry Association banquet Thursday night was one of the high spots of contest social life. The Terrace Room of the Morrison Hotel was well filled, food was good, speeches short, and vaudeville entertainment amusing. MIA is a thriving outfit, and the good it's doing for the hobby carries into lasting and worth-while channels—in addition to promoting pleasant banquets.

Airplane model builders were not

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10 CENTS EACH



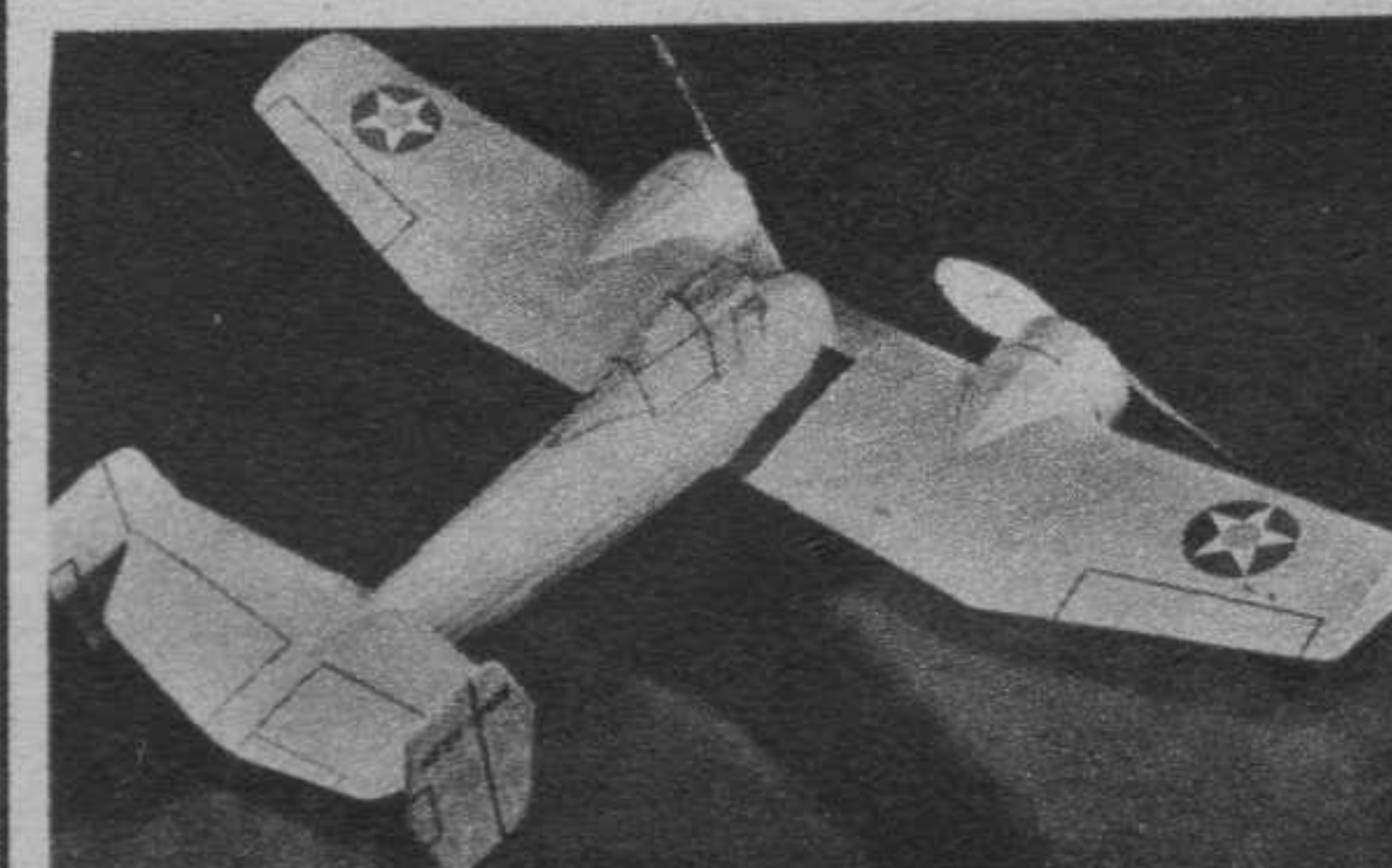
NOMAD GAS MODEL \*



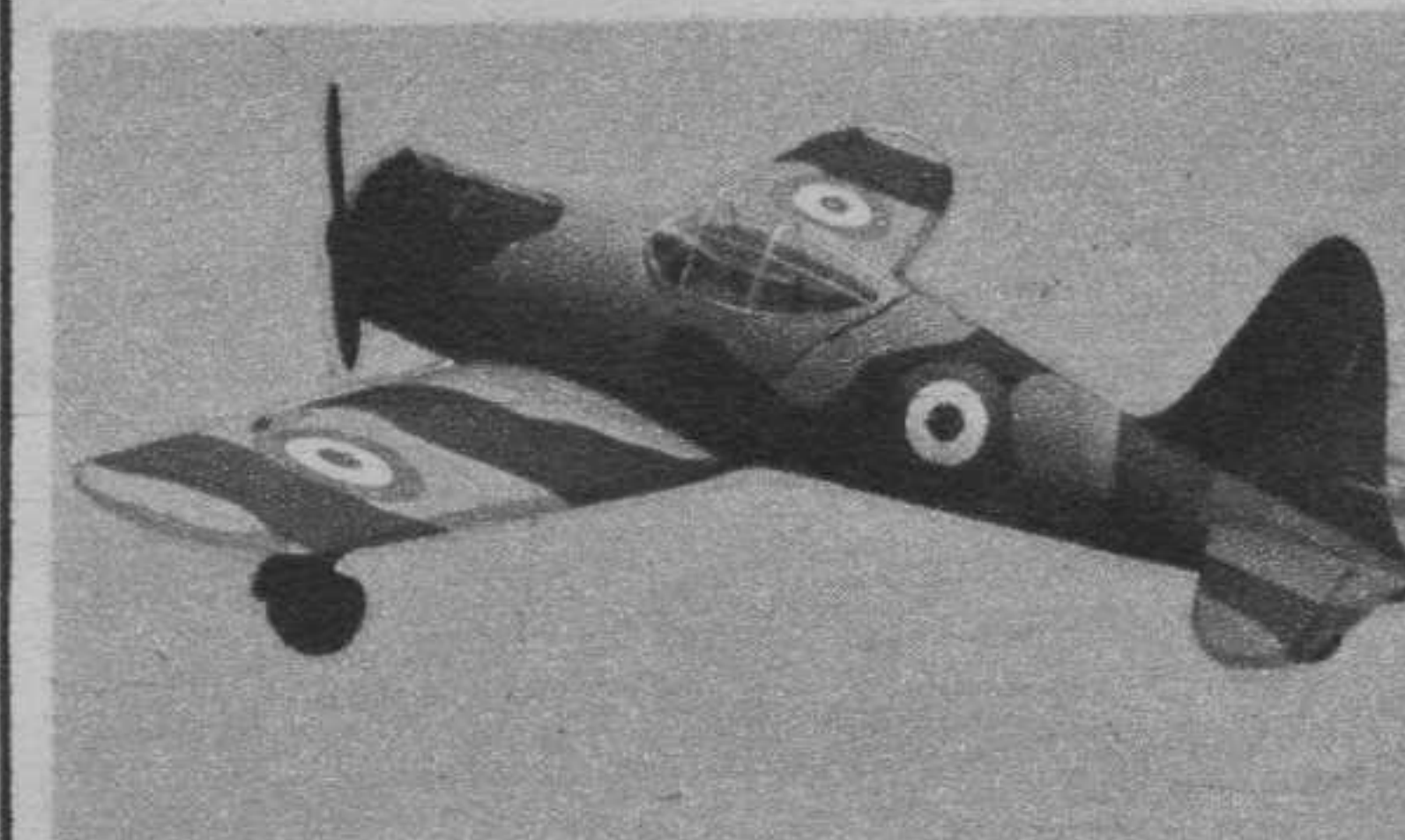
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alone in Chicago—the race car and model railroad boys were holding their meetings and contests the same week. Their headquarters were at the Morrison—just a few blocks from the Hotel Sherman. But the airplane boys dominated the show even at the exhibition of the model companies in the Morrison.

Contestant banquets always wind up the meet. Builders relax after a strenuous week and discard their inhibitions and repressions. They really whooped it up. Each year there are more people at the banquet, and each year the banquets become more hectic. Saturday evening the Grand Ballroom of the Sherman was taken over by the model builders. Exploding firecrackers and squadrons of paper airplanes ruled out any dull moments. Roscoe Turner was master of ceremonies. (Col. Turner started the trip to Chicago in an automobile

but it threw a wheel, so he carried on in a safer way—by Taylorcraft.)

The Chicago Park District and the Chicago Times did a good job again this year. They kept 1300 model builders happy with ample timers, officials, and judges. Flying conditions were good. At the beginning of the meet Maurice Roddy looked as though he had gone without sleep for a week. As the contest moved along, the reason for this became clearer. Roddy and his crew had done a thorough job of planning beforehand. Every feature of the meet seemed to unfold in its place without confusion or delay. It was a smooth-running Nationals, and shows that experience and enthusiasm are an unbeatable combination. Maurice Roddy and the Chicago bunch have both. If they extend an invitation to the Nationals again in '42, there will be more than 1300 takers.

## From These Designs

(Continued from page 41)

enthusiasts. It's necessary for the entrant to devote his time exclusively to his radio job, as witnessed by the fact that three days were set aside for this event.

### OUTDOOR RUBBER MODELS

The old standby of light, simple construction was again the keynote of successful rubber model design. In this way the ship can be brought up to weight with valuable rubber motor, permitting plenty of slack and plenty of strands, a combination which will give a powerful climb for at least fifty seconds. Folding propellers were universal, with free-wheelers nowhere to be seen. Stick and cabin models were identical in design and construction. Consequently a number of practical souls built "sticabins"—models whose fuselage cross section was under  $L^2/200$  to qualify as a stick, but upon the addition of a "cabin" could be made to meet the cabin requirement of over  $L^2/100$ .

In order to reduce the chances of losing their ships on their first flights, the Cleveland fellows (Korda, Lanzo, Reich) developed "thermal busters." These consisted of Austin air timers rigged to pull a wire pin, permitting a spring-loaded tab to swing over, forcing the ship down in a tight spiral after the lapse of a predetermined time.

The flying scale event was run off beautifully, thanks to a group of sleep-scorning judges. These men began the grading of the ships 6 p. m. Friday and continued without interruption until 5 a. m. Saturday. In this way the ships had only to be weighed at the field, and they could be flown with no more delay than any other contest model. Duration of the flying scale has been increasing steadily since this event was introduced at the 1937 Nationals, chiefly because modelers are using more discretion in their choice of designs by applying their knowledge of the setups that offer stability and avoiding mere pretty appearance.

### INDOOR MODELS

The indoor events are sort of looked down upon by the majority of the "action" men—but their very deliberation and certainty of a long flight builds up that old stage suspense, leaving most of the entrants limp at the end of the day. Every flight seems to be up for a record, and all you can do is try to count the prop revs per minute and wonder how many turns the heroic winder dared pack in his single loop of  $3/32$ " rubber, and so guess at the final time. Then, again, the whole meet is going on in a comparatively small area and under similar conditions. Everyone can keep track of the best times and know exactly where he stands.

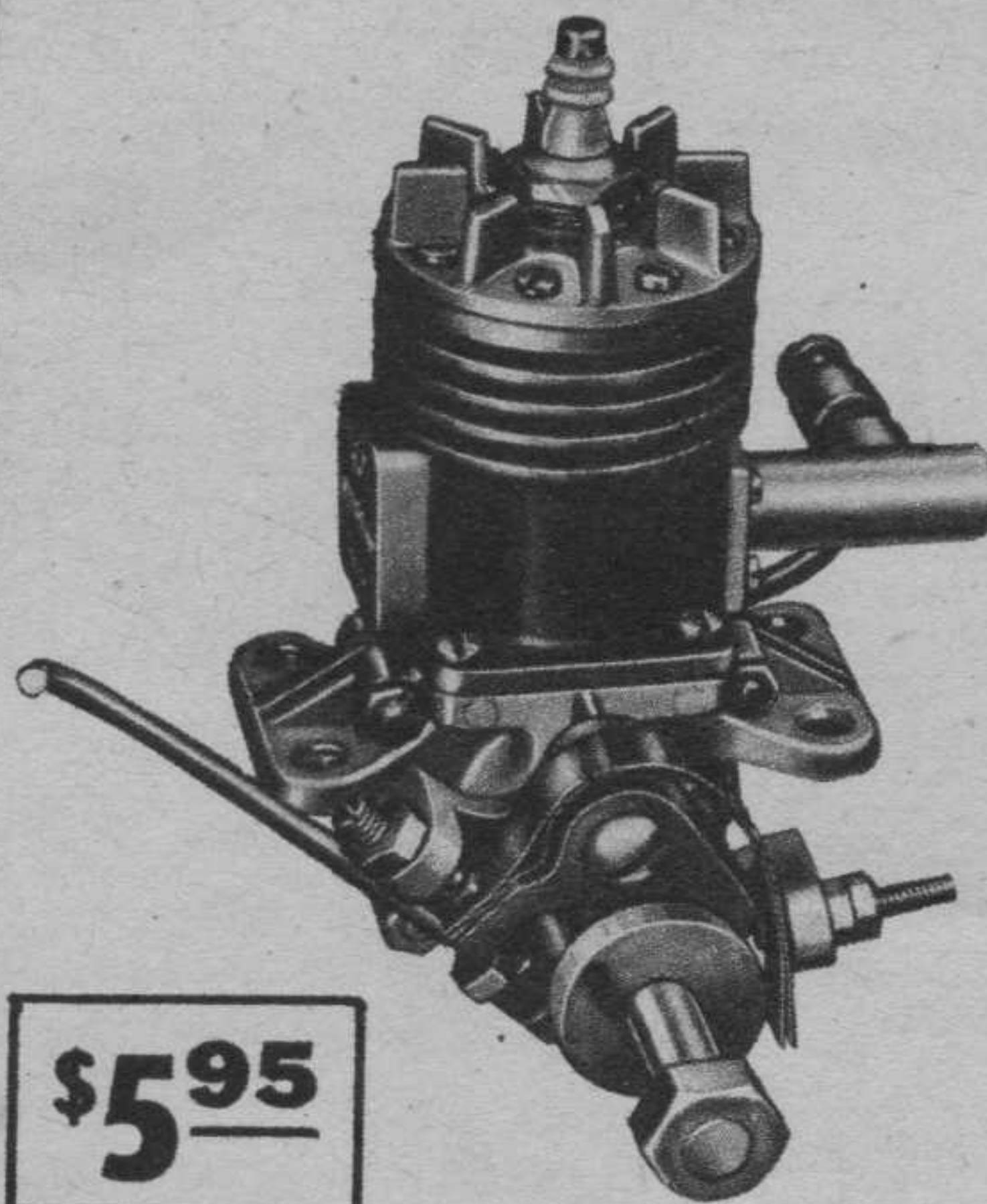
As both events were held on the same day this year, the stick jobs were spared the pain of strange growths in an effort suddenly to meet the cabin requirements. The arena was rather drafty, and once again it was the sturdier ship that could stand buffeting the rafters and lights under the arch of the International Amphitheater (down in the center of the stockyards, but a fine place to fly).

### A SUGGESTION

The National Meet already has plenty of events, but the addition of a seaplane category would be of great value and interest. Little is available at present to guide the increasing number of modelers who like to "take a hydro up to the lake" on their vacation. With the competition found at the Nationals, proper float and hull design would soon be accumulated. All that would be required would be a wood frame of ample size with a canvas lining to hold the water. If necessary, the ships might be limited to Class A and B to keep the take-off area at a minimum.

We-ell, maybe it wouldn't work, because with the heat usually found in July, the tank would probably be filled with splashing modelers, with no room to duck the models.

# A REAL GASOLINE ENGINE \$5.95



\$5.95

The only nationally advertised \$5.95 kit that includes a coil, condenser and wires.

Identical Engine Less Coil and Condenser \$4.25

Here is your opportunity to buy a kit of the famous G.H.Q. Gasoline Motor. **ABSOLUTELY COMPLETE — ALL MACHINING DONE — READY TO ASSEMBLE.** All you need is a screwdriver. No mechanical knowledge required.

Everything is in the kit including Champion spark plug, COIL, CONDENSER, tank and cap, ignition wire, cylinder, piston, connecting rod, timer, crankshaft, all screws, nuts, bolts, simple illustrated instructions, etc. Every part is fully machined and finished. A SCREWDRIVER IS THE ONLY TOOL YOU NEED.

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EVERY PART FINISHED

## 30 MINUTES TO ASSEMBLE • ALL PARTS WARRANTED

Imagine operating your own G.H.Q. 1/5 Horse Power gasoline engine—small enough to fit in the palm of your hand—yet turning up over 7,000 revolutions per minute and powerful enough to fly model airplanes of from 4 to 10 foot wingspan, and propel model boats from one to six feet in length and midget cars that travel over fifty miles an hour! There are also hundreds of other ways you can enjoy using this miniature yet powerful power plant—for small pumps, generators, compressors, blowers, fans, grinders and countless other experimental purposes.

Your G.H.Q. gasoline engine will be far more than just a toy for your spare moments. It is a scientifically constructed mechanical marvel that will thrill you with thousands of hours of pleasure. You will get a real kick out of controlling with your finger tip the surge of power your engine develops.

This engine has been tested and proven over the last eight years. Over fifty thousand of these powerful little G.H.Q. engines are now in actual daily use. Why not join the ranks of these hobbyists?

## ENGINE IS COMPLETE AND READY TO ASSEMBLE!

Your engine comes to you with every part completely finished. Our factory-trained skilled mechanics, using the latest automatic precision machinery, have finished each and every part to the last detail. You merely assemble the parts in accordance with the few simple instructions given, using only an ordinary screw driver, and inside of thirty minutes, your engine is ready to operate.

Not only will you and your friends have the thrill of seeing an engine ASSEMBLED BY YOURSELF operating, but you will gain a knowledge of gasoline engine theory and practice that will be of real practical value to you.

**FACTORY ASSEMBLED** **READY TO RUN** **\$6.25**  
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## G. H. Q.'s Eighth Year! Read What Users Say:

J. B., Providence, R. I.—"A few weeks ago I received the G.H.Q. motor kit and it is running perfectly. I hope to write you soon and tell you about some excellent flights."

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W. W. M., Russellville, Ark.—"I received my G.H.Q. Motor Kit and am very well pleased."

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A. K., Hillside, N. J.—"I still can't understand

how you can put such a dependable and rugged engine on the market at such a low price."

E. T., Sayville, N. Y.—"Received my G.H.Q. Kit okay and am more than delighted with same. You've got 'em all beat for price and performance."

R. P., Hamburg, N. Y.—"I want to extend my personal thanks to G.H.Q. for their prompt service. The motor I ordered was received within 24 hours. Such service cannot be surpassed. I also want to say that I have the motor running perfectly. I shall do all I can to help promote the success of G.H.Q."

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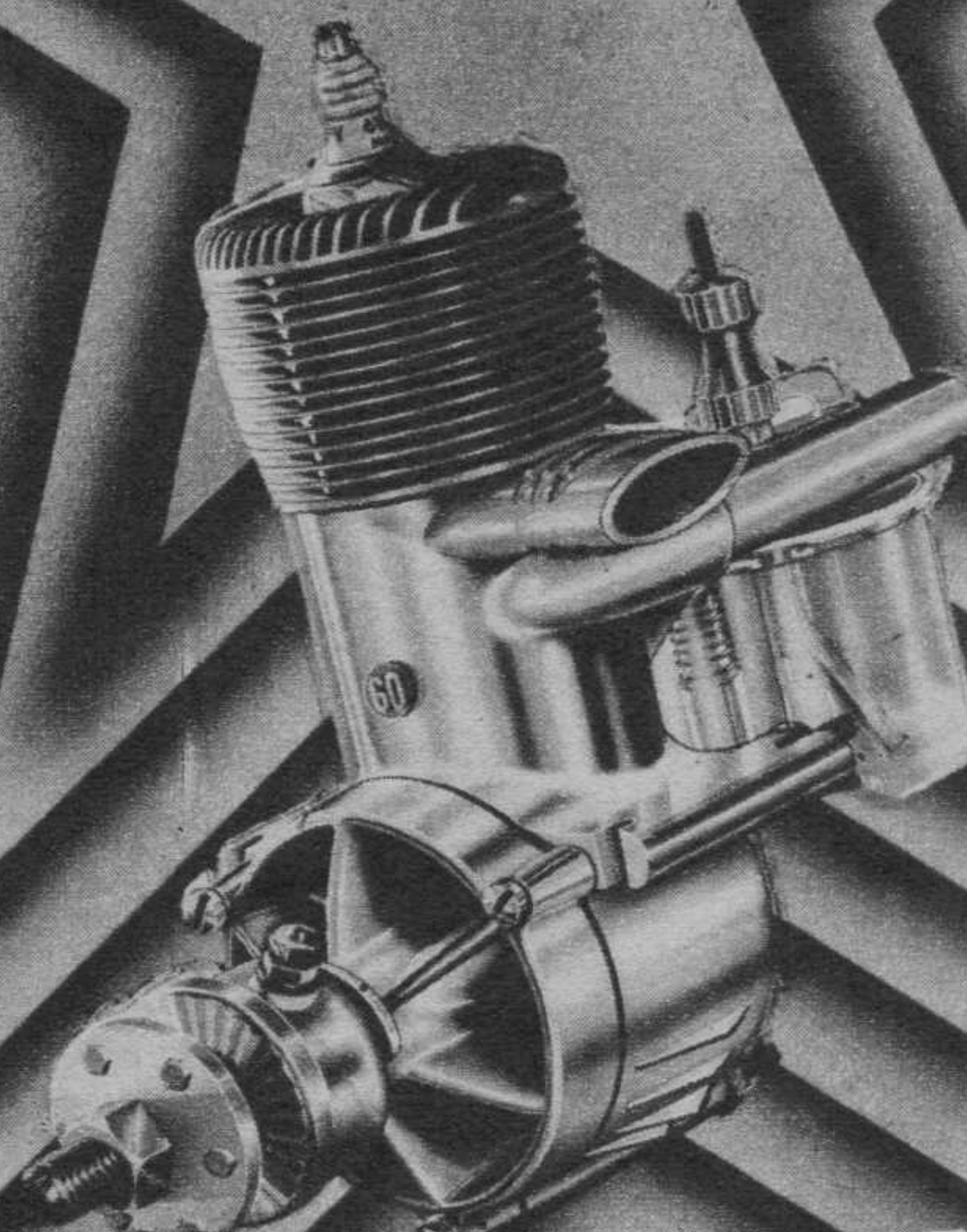
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Have you seen it? .60 cubic inches of pure power.

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The efficiency of this basic design has been established beyond any question, and the "60 Special" has been proved by flight and wear tests to measure up in every respect to the name it bears.

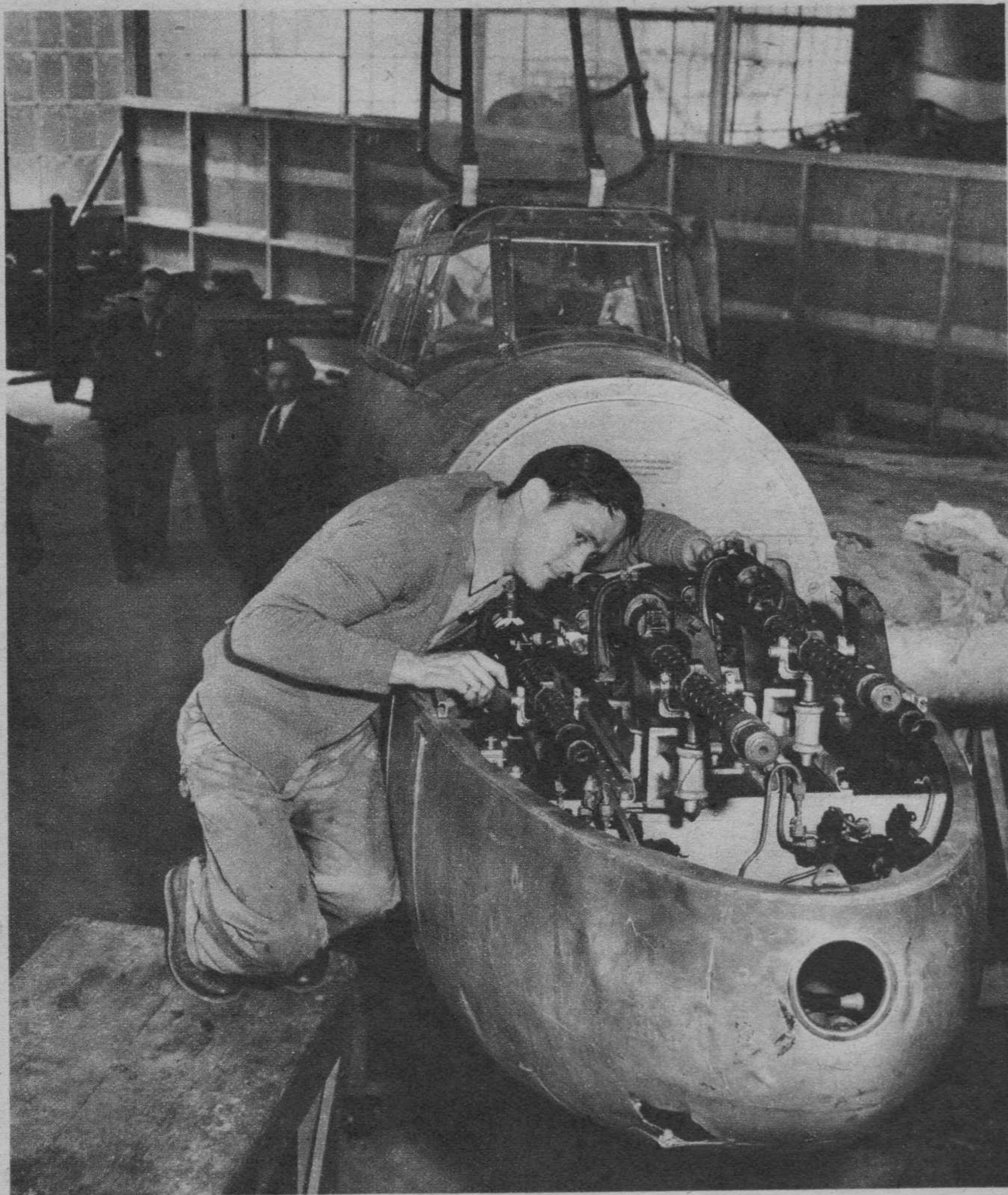
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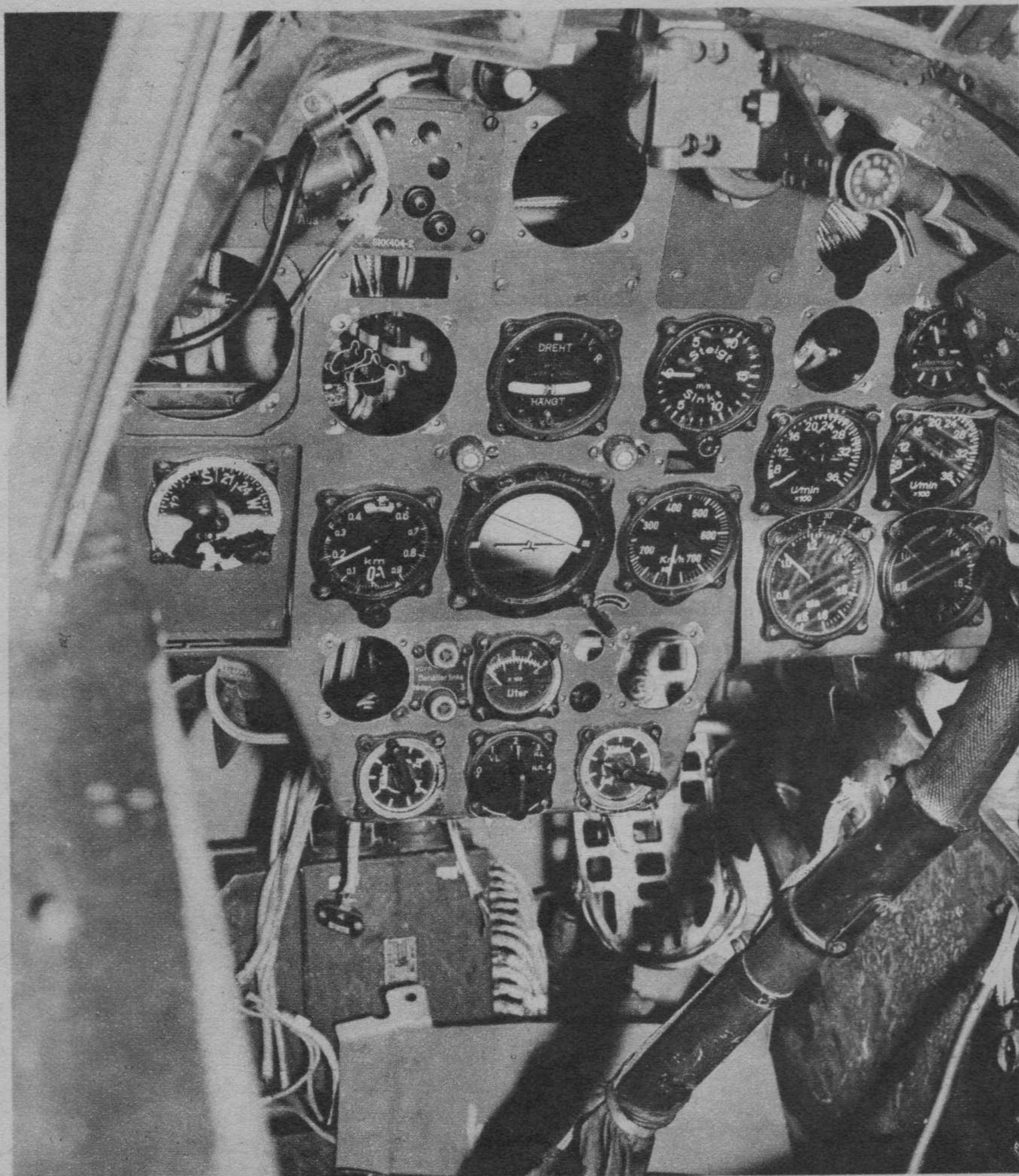
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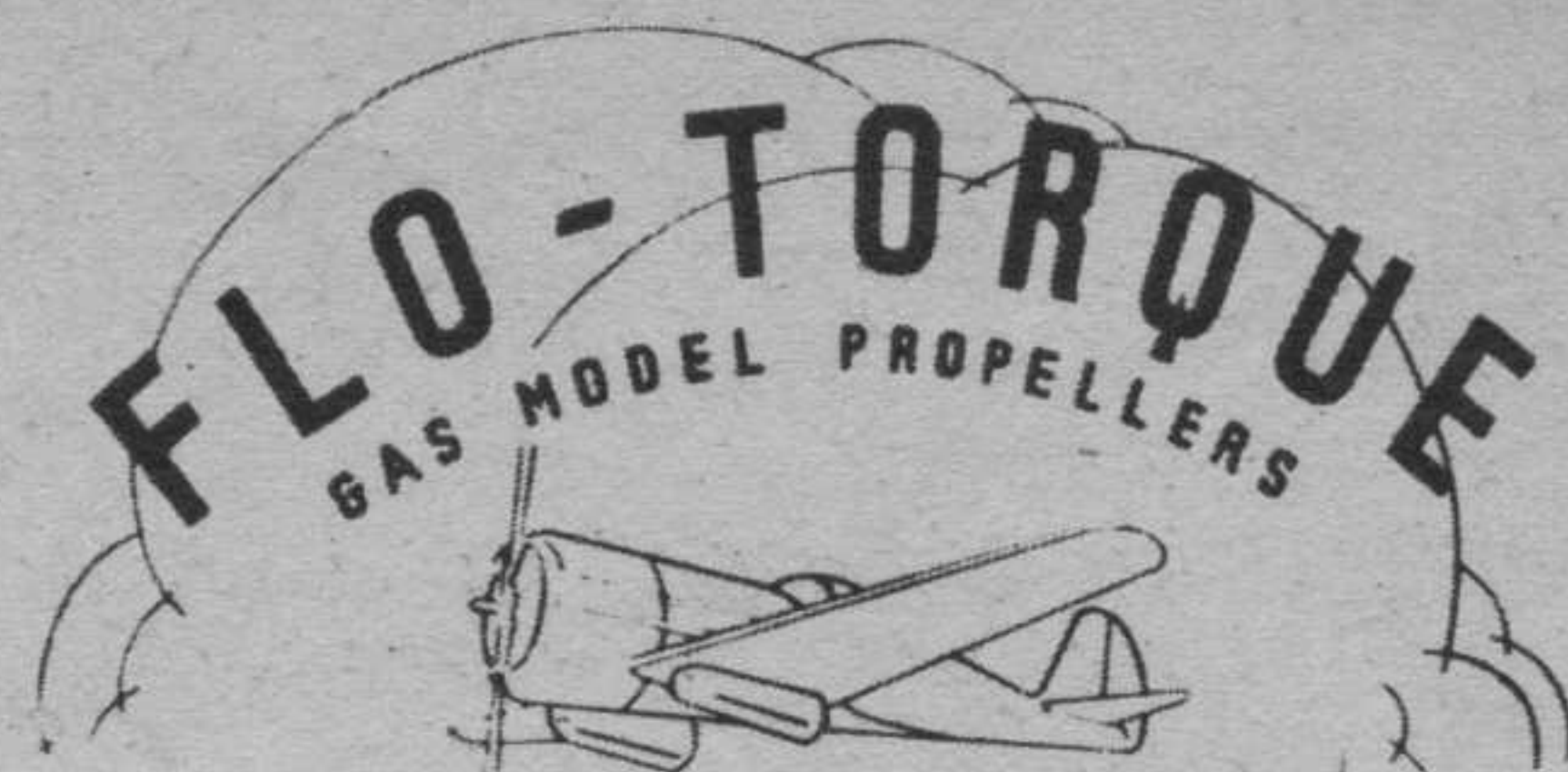
## WE STUDY NAZI VISITOR



Vultee worker examines fallen Messerschmitt 110 shipped here by British. Four guns shown are .30 cal. Hole in nose is for camera. Two 20-mm. cannons fit under nose.



Authorities agree German planes are well made, despite stories. Fault in 110 was lone swivel gun for rear protection. Holes indicate instruments removed for study.



### CHOICE OF CHAMPIONS

Another champion, Sal Taibi, First Place Winner in Class "C", Open Division 1941 National Championship Meet, used FLO-TORQUE props on his winning flights.

Sal is a consistent user of FLO-TORQUE props and has this to say:

"I am writing this letter because I am sure you would like to know that I was using FLO-TORQUE props on my winning flights in Class 'C', Open at the 1941 Nationals.

I think FLO-TORQUE props are the best that can be obtained for flying gas models.

Aeronautically yours,

Sal Taibi"

FLO-TORQUE'S are available at three popular prices.

The INVADER at 15c and 25c

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SO

*You Think You  
Know It All?*

*Read*

**HINTS FROM  
THE STICKS**

*in the*  
**NOVEMBER  
AIR TRAILS**



## Down The Runway

(Continued from page 49)

and hundreds of other questions will be apparent to anyone who mentally plans a contest in advance. Don't forget that your best bet is the contestant himself. Despite a lot of hard work on the part of hundreds of contest officials, there have been few, if any, perfect contests. We should capitalize on the efforts of others and learn by what has been done before. For instance, the usual "gripe" to be encountered is that it is difficult to get official flights in at all of the meets. If there have been enough processors, there may not have been enough timers. Or, if there have been enough timers, there were not enough recorders to keep the business of the meet flowing along smoothly.

After you have catered to the contestant's wants and provided ample facilities to insure his having a good time and competing in the first perfect contest of his career, give a little attention to your spectators. The reason most spectators crowd on the field of battle is to see what is going on—for how can you expect them to appreciate the activity if they are kept far behind some side lines?

Arrange special demonstrations for your eyewitnesses to keep them content. By means of a loud-speaker system have some of your contestants wind up a rubber model with accompanying rapid-fire sportslike description by the commentator. In the same manner, it is possible to put on a demonstration with a gas model. Show your visitors how a motor is fueled, how the timer is checked, the official and accepted method of launching the ship, and how the motor is tested. A raised platform is most excellent for this purpose and can serve as the announcer's stand as well. If you provide a lunch hour, take a tip from the Detroit clubs and stage mass flights with hand-launched gliders, or put on an "in the good old days" demonstration of twin-pusher flying.

In addition to novelty events which always lend sparkle and diversity to any meet program, you can also hold record trials for models not entered in your regular events. In this manner, it is possible to whip up contestant and spectator interest by announcing that Joe So-and-so will attempt a new national record with his outdoor helicopter—the only one of its type in captivity. Contestants, too, will appreciate the opportunity to try for new national records, providing you let them know about this plenty of time in advance, so they can make proper preparations for entering their unorthodox craft.

It would be highly improper if we did not seize this opportunity to stress the importance of having your competition sanctioned by the Contest Board of the Academy of Model Aeronautics. This will give national recognition to your competition and serve to demonstrate to prospective entrants that the meet is being conducted by reliable authorities under the official regulations which the

model builders themselves have assisted in writing. With so many hundreds of meets being held throughout the country, the designation as an official sanctioned affair will focus greater attention on the meet than if it were unsanctioned.

Besides, it sounds awfully good in your newspaper publicity to be able to say that the Academy of Model Aeronautics in Washington, D. C., the governing body for model aviation in America, has placed its stamp of approval on the contest and will recognize as official any new national duration records which may be set during the course of the competition.

Running a meet is like running a business, or better still, a horse race. The idea is to start out ahead of the contestant and spectator and to improve your position from there on. In this manner, you will finish ahead of these two characters to bring new laurels to your club and to yourself.

Before closing up shop for this month, we would like to say a word or two about prizes—those very attractive inducements which were originally designed to add zest to the fray and to denote the mark of championship. Today, however, the prizes have come to assume a position of paramount interest in the mind of every aeromodeler, and it is prizes that may prove your greatest stumbling block. What to give—merchandise, medals or money? To each and every contest director we have only this to say: The more you do the less people appreciate it. You can just build your prize list up to a point where it has no real significance to the average flier. And remember this, too. Cups, trophies, plaques and medals cannot be sold, swapped or flown out of sight like merchandise prizes.

We well recall a Louisville, Kentucky, meet which we attended this summer in which genial Bill Gibson of Hamilton, Ohio, the winner of the Class A and Class B open division gas model championships at the 1941 National Meet, placed fourth or fifth to receive a medal. Said Mr. G.: "In all my competition flying, this is the first time I ever won an honest-to-goodness medal and I value this just as much as I would a kit or inexpensive motor."

So you can see it is all very simple this running of meets. All you have to do is make your arrangements in advance, overlooking not a single detail, and then make sure everyone carries out his or her duties. Of course, on the day of the meet you will probably find that the chief timer left all the stop watches at home, or the chief recorder forgot to bring any pencils. But this is old stuff in the life of any experienced contest director—which you soon should be. Remember that the Academy was created to serve you, and if it can be of any help in your undertakings, just drop headquarters folks a line at the Willard Hotel in Washington, D. C. Timer!

### CONTEST CALENDAR ADDITIONS

August 31st-September 1st. Atlanta, Ga. Class AAA Labor Day meet for

# 3 GREAT FLITES

## Ultima

### FIRST

#### Pacer 'C'

**CHAMPION OF CHAMPIONS**

**SAL TAIBI'S**  
*Sensational*  
**TIME RUNS**  
Total 24 mins., 42 sec.  
Individual flights: 1:22  
(7 second motor run)  
13:15 and 10:05.



**60" WING SPAN**  
**32 OZS. (With Engine)**  
**4 SQ. FT. AREA**  
**45" LENGTH**

**4.95**  
POST PAID

*Conquered*

**MORE THAN 1000**  
COMPETITORS IN THE *Nationals*

The cream of America's Modelers competed in this \*\*\*\* feature event of the Nationals—THE PACER 'C' Established itself as the Champion of Champions—carving out the most brilliant flight performance against all competition! PACER 'C' is a faithful adaptation (slightly larger) of the original, record-making PACER!

**Field Proven With Over 2000 Flights**

This prize-winning achievement is no 'flash-in-the-pan' performance! This aerodynamically perfected model demonstrated its consistency and stability when checked against more than 2000 field flights! It's 'bugproof' 'foolproof'—a thrilling sky performance every time you send 'er up! For contest or sheer pleasure flying—you set the pace with PACER 'C'.

**Strength in Every Line**  
**Easy to Build and Transport**

Complete kit contains detailed, full-size plans: Easy to follow and construct! Formed landing gear, Streamlite wheels, printed sheets, Silkspar covering. Finest materials thruout! YOU MAY PAY MORE, BUT YOU CAN'T GET MORE!

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**FAMED GORDON MURRAY WINNER**

A slightly reduced adaptation of Murray's 1939 Nationals Winner! Climbs like a rocket!

**Super deluxe kit with many extras. \$3.50**  
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The sleek, original Gordon Murray 50" wingspan plane which went to new records after winning the '39 Nationals for any 'B' motor. Deluxe kit, wheels, etc. .... \$4.95

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**DEALERS:** Write for attractive proposition on your letterhead.

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Send complete, deluxe kit checked below. I enclose (Cash, Check, Money-Order) (Check which.) For COD service, send only \$1 with order, pay balance when kit reaches you.

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The A-C Timer is the first and only timer designed exclusively for gas models.

Works on airhydraulic principle with only one moving part. Impossible for unit to jam or be affected by motor vibration.

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gas and rubber models sponsored by Atlanta Aero Engineers. Contact W. F. Roberts, 1115 Ponce de Leon Ave., N. E., Atlanta, for entry blanks. Prizes totaling \$200.

**September 1st.** Melbourne, Iowa. Class AA contest for gas models and rubber-powered entries sponsored by fire department of Melbourne. Merchandise awards totaling \$150. Wallace R. Blake, directing official, 321 N. 3rd St., Marshalltown, Iowa.

**September 6th.** Boston, Mass. Class A outdoor rubber-powered model meet of Junior Aviation League at Smith Playground, Allston (Boston). Club awards and points toward trips to Nationals. Gunnar Munnick, in charge, J. A. L., Jordan Marsh Co., Boston, Mass.

**September 7th.** Steubenville, Ohio. Class AA invitation meet for gas and rubber-powered models sponsored by Sky Hawks at model airport nine miles west of Steubenville on Highway 43. Motors and merchandise prizes. Frank Barilla, 422 Maxwell Ave., Steubenville, Ohio.

**September 7th.** New Haven, Conn. Class AA Northwestern States gas model meets at New Haven municipal airport, sponsored by Elm City Gas Bugs. Trophy and merchandise prizes. William Paulson, contest director, 529 Quinpiac Ave., New Haven, Conn.

**September 7th.** Richmond, Va. Here's one you won't want to miss! Class AAA National Exchange Club Convention meet with more than \$200 in prizes. Technical end will be handled by modelers and leaders from N. A. C. A. Gas and rubber-powered events open to all and Virginia State Championship events for members of the Virginia Model Association. Richmond Exchange Club will assist under direction of R. A. Burton, Jr., 111 E. Broad St., Richmond, Va.

**September 7th.** Salt Lake City, Utah. Class AA Gas Model Meet at Gas-Hoppers Model Airport, sponsored by Douglas Models Co. For all classes of gas models. The gold Douglas Trophy and smaller cup together with merchandise awards will be offered in this Third Annual Douglas Trophy Contest. CD: Jack Douglas, 105 West 2nd St., S., Salt Lake City, Utah.

**September 7th.** Scranton, Pa. Class AA Northeastern Pa. Gas Modelers Ass'n. Fall Meet. At Scranton Airport for all classes of gas and stunt event. Trophies, motors, and merchandise valued at \$200. CD: William Devis, 1022 River St., Scranton, Pa.

**September 7th.** Philadelphia, Pa. Quaker City Class AAA Annual Invitation Model Airplane Contest for gas all classes and stunt event. Location to be announced. Sponsored by Quaker City Gas Model Airplane Ass'n. Approximately 250 entrants are expected to compete for trophies, merchandise and cash totaling about \$300. Joseph C. French, 2126 County Line Rd., Ardmore, Pa.

**September 7th.** Allentown, Pa. Class A Allentown Model Cadets Meet at Leh Farms (Lehigh Parkway) for rubber-powered models and gliders. Ernest Schaffhauser, 636 N. 10th St., Allentown, Pa.

**September 7th.** Albany, N. Y. Class AA. Capitol District Aeronautic Ass'n. Invitation Meet. For gas and rubber. At Albany Airport. Trophy and merchandise prizes. CD: Albert L. Hurd, 17 Locust St., Stop 29, Schenectady Road, Albany, N. Y.

**September 7th.** Akron, Ohio. Class A Edith Van Orman Chapter Outdoor Contest, at Municipal Airport. For gas: Class A, B and C; rubber; stick and fuselage. CD: H. M. Jellison, vocational director, board of education, Akron, Ohio.

**September 7th.** Pittsburgh, Pa. Model Wings Class A Meet at Model Wings Field, for gas, rubber and T. L. gliders. Sponsored by Model Wings. Merchandise awards, 50 expected to compete. M. J. Thomas, 246 Morrison Dr., Pittsburgh, Pa.

**September 14th.** Pittsburgh, Pa. Sixth Allegheny Mountain Area Model Meet, sponsored by Aero Club of Pittsburgh and Boys Club of Pittsburgh, for gas, rubber, cabin and stick and gliders. There will be merchandise prizes. Harry G. Vogler, CD, 1633 Duffield St., Pittsburgh, Pa.

**September 14th.** Harrisburg, Pa. Class AA Capital City Cloud Chasers' Fall Contest. Dr. J. Clarence Bachman, 2121 Derry St., Harrisburg, Pa.

**September 14th.** Denver, Colo. Record Trials for the Exchange Gas Model Club of Denver. No prizes to be awarded. Harry W. Bennett, CD, 3405-07 East Colfax Ave., Denver, Colo.

**September 14th.** Silver Spring, Md. Silver Spring Aeronauts 2nd Annual Class AAA Meet, for gas all classes, rubber and gliders. Trophies and merchandise awards. Sponsored by Silver Spring Aeronauts Model Club. 200 contestants expected. Stewart Culp, 729 Silver Spring Ave., Silver Spring, Md.

**September 14th.** Philadelphia, Pa. Class AA Philadelphia Metropolitan A. M. A. Council Round Robin Gas Meet. Sponsored by one of the member clubs of the Metropolitan Council. CD: Joseph C. French, 2126 County Line Road, Ardmore, Pa.

**September 14th.** Holyoke, Mass. Class A Holyoke Gas Model Club Meet, sponsored by C. E. Walker & Co., Sport Shop, at Tobacco Fields near boundary of Holyoke and Westfield, just off Route No. 202. All classes of gas and events for rubber if enough in-

terest shown. CD: Robert E. Ezold, 37 Lynwood Ave., Holyoke, Mass.

**September 20th.** Atlanta, Ga., Class AA Atlanta Aero Engineers Night Flying Contest between the hours of 8:30 and 9:30 p. m. Prizes to be announced. Steak fry after contest. CD: W. F. Roberts, 1115 Ponce de Leon Ave., N. E., Atlanta, Ga.

**September 20th.** E. Hartford, Conn. Class AA Conn. Model Aircraft Meet at Rentschler Field for rubber, R. O. G. and stick; gliders and solid scale. Sponsored by United Aircraft Corp. and Y. M. C. A. (Hartford). Eighty to 100 entrants expected to compete for eight cups, medals and high point cups for both senior and junior events. Frank W. Schade, Room 510, City Hall, 27 W. Main St., New Britain, Conn.

**September 20th.** Boston, Mass. Class A Indoor Contest for Jordan Marsh-Boston Traveler Junior Aviation League members at South Armory, Irvington St., for stick hand-launched and stick R. O. G. models. Point system and club awards. CD: Gunnar Munnick, director, Junior Aviation League, Jordan Marsh Co., Boston, Mass.

**September 21st.** Pawtucket, R. I. Class AAA Second All Rhode Island Model Airplane Meet at Narragansett Race Track, Newport Ave., for gas, rubber and gliders. Trophies and merchandise. Sponsored by Pawtucket W. P. A. Recreation Center. Emile L. Dubuc, 681 Broadway, Pawtucket, R. I.

**September 21st.** Steubenville, Ohio. Class AA Sky Hawks Model Airplane Invitation Meet sponsored by Sky Hawks Model Airplane Club at Model Airport nine miles west of Steubenville on Highway 43. All classes of gas and rubber-powered stick and fuselage for motors and merchandise prizes. CD: Frank Barilla, 422 Maxwell Ave., Steubenville, Ohio.

**September 21st.** Pine Valley, N. J. Pine Valley Fall Gas Meet at Pine Valley Airport for gas all classes, plus a beauty and stunt event. Over \$400 in prizes will be awarded. Approximately 240 contestants expected, based on last year's attendance. E. N. Angus, CD, 24 Ormond St., Oaklyn, N. J.

**September 21st.** Springfield, Mass. Class A Springfield Monthly Model Meet at Westfield Model Field. Benjamin R. Bushey, 16 Carlisle St., Springfield, Mass.

**September 21st.** Allentown, Pa. Class A Allentown Model Cadets Meet at Leh Farms (Lehigh Parkway) for rubber-powered models and gliders. Ernest Schaffhauser, 636 N. 10th St., Allentown, Pa.

**September 21st.** Hampton, Va. Class A Hampton Roads Model Ass'n. monthly rubber model and glider meet at Morgan Field. CD: Dick Everett, R. F. D. No. 3, Box 111, Hampton, Va.

**September 21st.** Schenectady, N. Y. Record Trials. Capitol District Aeronautic Ass'n., Schenectady Aeronauts Division. For all classes rubber, gas and glider models. At Schenectady, N. Y. CD: Albert L. Hurd, 17 Locust St., Stop 29, Schenectady Road, Albany, N. Y.

**September 21st.** Yeadon, Pa. Class A monthly meet of Mainliners Aero Club for rubber and gas models. Kits and merchandise awards. CD: William D. Coverdale, Jr., 85 Lincoln Ave., Yeadon, Pa.

**September 21st.** Pittsburgh, Pa. Model Wings Class A Meet at Model Wings field for gas, rubber and T. L. gliders, sponsored by South Hill's Hobby Shop. Merchandise awards. Fifty to compete. M. J. Thomas, 246 Morrison Drive, Pittsburgh, Pa.

**September 27th.** New York City Academy Record Trials for all outdoor events except gas. Frank Zaic, 100 East 10th St., New York City.

**September 28th.** Akron, Ohio. Class A Edith Van Orman Chapter Outdoor Contest at Municipal Airport for gas: Class A, B and C; rubber; stick and fuselage. CD: H. M. Jellison.

**September 28th.** Philadelphia, Pa. Class AA Philadelphia Metropolitan A. M. A. Council Round Robin Gas Meet. Sponsored by one of the member clubs of the Metropolitan Council. CD: Joseph C. French, 2126 County Line Rd., Ardmore, Pa.

**October 4th.** Elkins, W. Va. Class AA Outdoor Contest at Smith Playground, Allston (Boston) for Jordan Marsh-Boston Traveler Junior Aviation League members. For rubber-powered models. Point system and club awards. CD: Gunnar Munnick, director, Junior Aviation League, Jordan Marsh Co., Boston, Mass.

**October 4th.** Elkins, W. V. Class AA Mountain State Forest Festival Championship Model Aviation Meet. At Municipal Airport. Sponsored by Mountain State Forest Festival for all classes gas and junior and senior rubber-powered stick and cabin models. Trophies and merchandise awards. CD: Carl Hopkins, 140 Thompson St., Clarksburg, W. Va.

**October 5th.** Pittsburgh, Pa. Allegheny Mountain Aero Model Championships, sponsored by Aero Club of Pittsburgh and Boys Club of Pittsburgh, for gas, rubber, cabin and stick and gliders. Merchandise awards. Harry G. Vogler, CD, 1633 Duffield St., Pittsburgh, Pa.

**October 5th.** Denver, Colo. Record Trials for the Exchange Gas Model Club of Denver. No prizes to be awarded. Harry W. Bennett, CD, 3405-07 East Colfax Ave., Denver, Colo.

**October 5th.** Atlanta Ga. Class A Atlanta Aero Engineers Club Contest.

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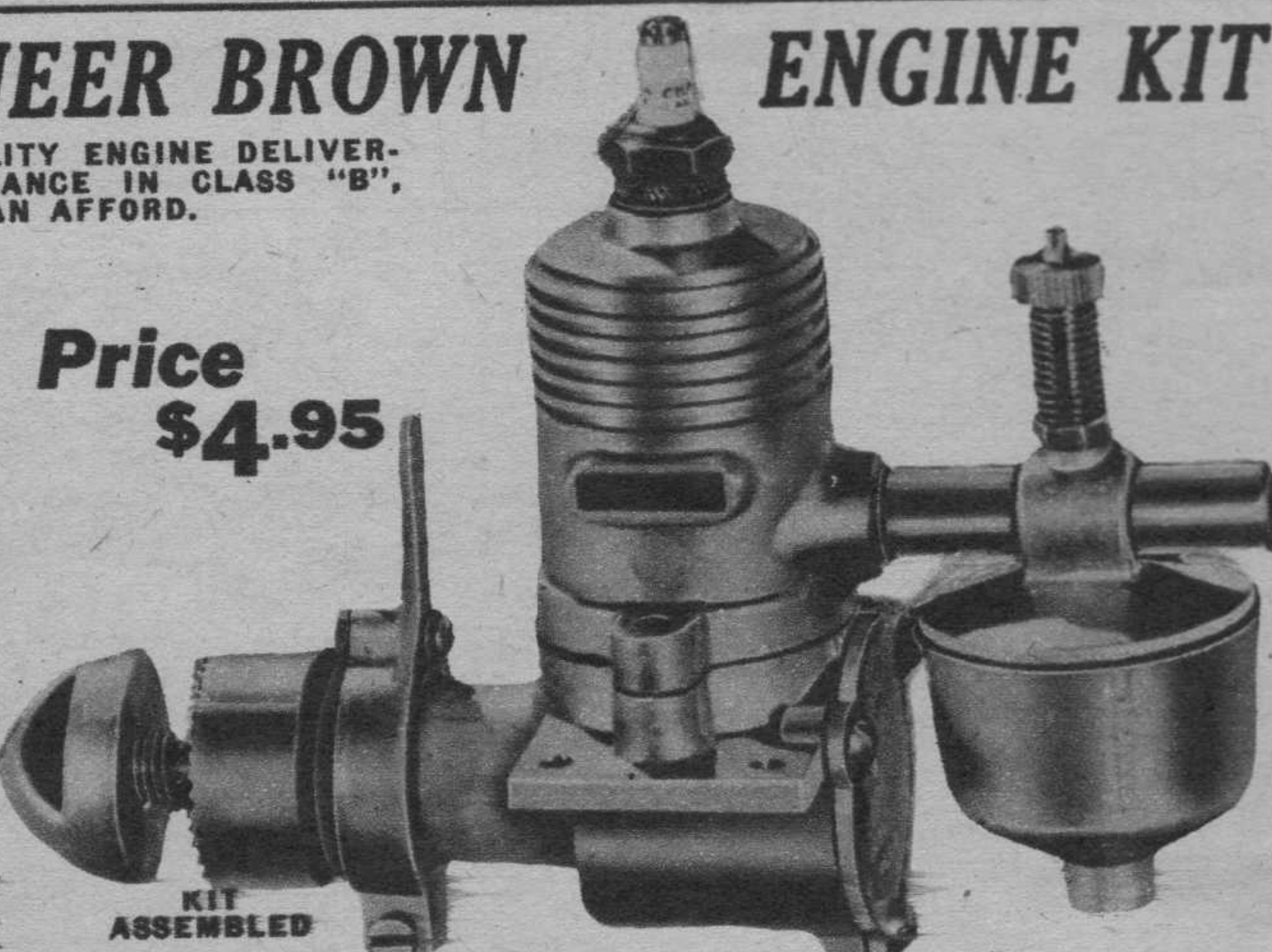
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**October 5th.** Yeadon, Pa. Class A Monthly Meet of Mainliners Aero Club for rubber and gas models. Kits and merchandise awards. CD: William D. Coverdale, Jr., 85 Lincoln Ave., Yeadon, Pa.

**October 12th.** Philadelphia, Pa. Class AA Philadelphia Metropolitan A. M. A. Council Round Robin Gas Meet. Sponsored by one of the member clubs of the Metropolitan Council. CD: Joseph C. French, 2126 County Line Rd., Ardmore, Pa.

**October 12th.** Steubenville, Ohio. Class AA Sky Hawks Model Airplane Invitation Meet sponsored by Sky Hawks Model Airplane Club at Model Airport nine miles west of Steubenville on Highway 43. All classes of gas and rubber-powered stick and fuselage for motors and merchandise prizes. CD: Frank Barilla, 422 Maxwell Ave., Steubenville, Ohio.

**October 12th.** Pittsburgh, Pa. Class AA Tri-State Championship Meet at Model Wings Field, for gas, rubber and T. L. gliders, sponsored by So. Hills Hobby Shop. Merchandise awards. Fifty expected to enter. M. J. Thomas, 246 Morrison Drive, Pittsburgh, Pa.

**October 18th.** Boston, Mass. Class A Indoor Contest for Jordan Marsh-Boston Traveler Junior Aviation League members at South Armory, Irvington St., for flying scale models, hand-launched gliders, and Paul Guillow kit models. Point system and club awards. CD: Gunnar Munnick, director, Junior Aviation League, Jordan Marsh Co., Boston, Mass.

**October 19th.** Hampton, Va. Class A Hampton Roads Model Ass'n. monthly

rubber model and glider meet at Morgan Field. CD: Dick Everett, R. F. D. No. 3, Box 111, Hampton, Va.

**October 25th.** New York City. Academy Record Trials for all classes outdoors except gas. Frank Zaic, 100 East 10th St., New York City.

**November 1st.** Boston, Mass. Class A Indoor Contest for Jordan Marsh-Boston Traveler Junior Aviation League members at South Armory, Irvington St., for stick hand-launched and fuselage R. O. G. models. Point system and club awards. CD: Gunnar Munnick, director, Junior Aviation League, Jordan Marsh Co., Boston, Mass.

**November 15th.** Boston, Mass. Class A Indoor Contest for Jordan Marsh-Boston Traveler Junior Aviation League members at South Armory, Irvington St., for flying scale models, hand-launched gliders and Paul Guillow kit models. Point system and club awards. CD: Gunnar Munnick, director, Junior Aviation League, Jordan Marsh Co., Boston, Mass.

**December 6th.** Boston, Mass. Class A Indoor Contest for Jordan Marsh-Boston Traveler Junior Aviation League members at South Armory, Irvington St., for stick hand-launched and stick R. O. G. models. Point system and club awards. CD: Gunnar Munnick, director, Junior Aviation League, Jordan Marsh Co., Boston, Mass.

**December 20th.** Boston, Mass. Class A Indoor Contest for Jordan Marsh-Boston Traveler Junior Aviation League members at South Armory, Irvington St., for flying scale models, hand-launched gliders and Paul Guillow kit models. Point system and club awards. CD: Gunnar Munnick, director, Junior Aviation League, Jordan Marsh Co., Boston, Mass.

## "Don't Quote Me!"

(Continued from page 49)

seven delicious flavors. Lewis Barnett calls them "Nuts in Technicolor." Now that the import business has gone with the wind, we can look for many interesting items from International.

Berkeley Models are whispering about a radically different type of construction for a new line of gas models. Plastics! (What else?)

Joe Ott's new line of models will positively be the easiest to build ever. At least seven patents cover the jig type of construction by means of which the models are assembled. The plan makes the jigs and bond paper substitutes for balsa in many structural parts. The whole set-up looks very good and is the first new development in model construction in years! Joe Ott knows how to merchandise. His boxes were always superb, and his plans so good we are surprised other manufacturers haven't followed suit long ago!

Flying scale fans will get a break about the time you read this when Cleveland brings out their two new three-quarter-inch scale models, a Curtiss P-40 at \$2.50 and a Lockheed "Lightning" Interceptor at \$3.50. Cleveland's redesigned gliders are in production. "Built-up" construction has been substituted for the solid pod on the Eaglet and the nose on the Condor. Cleveland is justly proud of its gliders. Even the Class A indoor Dart has been flown out of sight outdoors.

What's this about priorities hurting gas engine production? Phil Zechitella, sales manager for Junior Motors, tells us his firm is going ahead full steam on development and

production of a new Class B engine. Other production has been shut down while extensive tooling is being rushed. The new motor is a vast improvement over the old Brownie, which has been redesigned, with new dies and castings for all parts. A new type fuel feed control, new ignition timer, improved cylinder scavenging, increased port area, new type lapped piston, and new type connecting rod are some of the features. No delivery dates are available as yet, depending on deliveries of raw materials.

Barker Engineering Co., whose Spitfire engine received high praise from owners, reports that due to the present priorities system raw material shortages prevent immediate deliveries of orders. However, precision machinery used by model engine manufacturers is fitted for defense orders and Barker holds contracts for small aircraft parts.

Burkard Model Engineering Co. is expanding plant facilities to a modern two-story building where they will occupy the entire premises. A new line of giant metal-covered scale models is planned. A navy seaplane trainer (Ryan STM-2) will be added to the regular line. . . . H. & F. will introduce within a month a forty-two-inch wing span Grumman Skyrocket similar to the flying scale job by Sidney Struhl in a recent issue of Air Trails.

The C. Z. Model Airplane Co., Chicago, originators of metal-covered model airplanes, now have nine models in their line and will announce several new ones shortly. These come in kit form and retail from 50 cents up. This company started to manufacture metal-covered model kits about two years ago and has several times moved to larger quarters.

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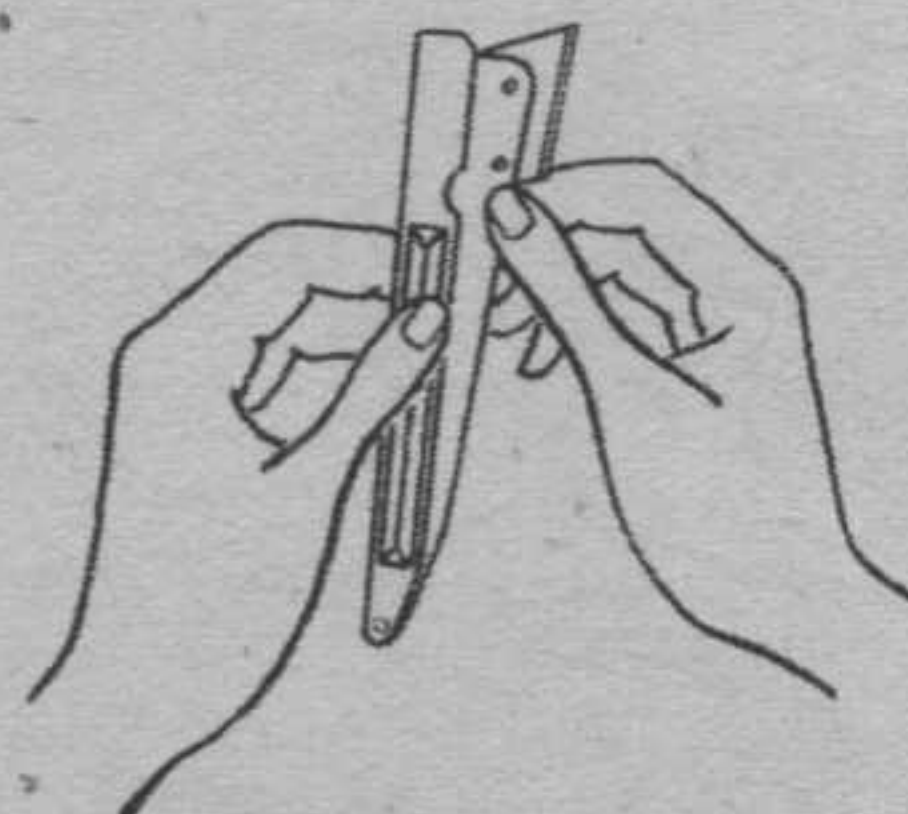
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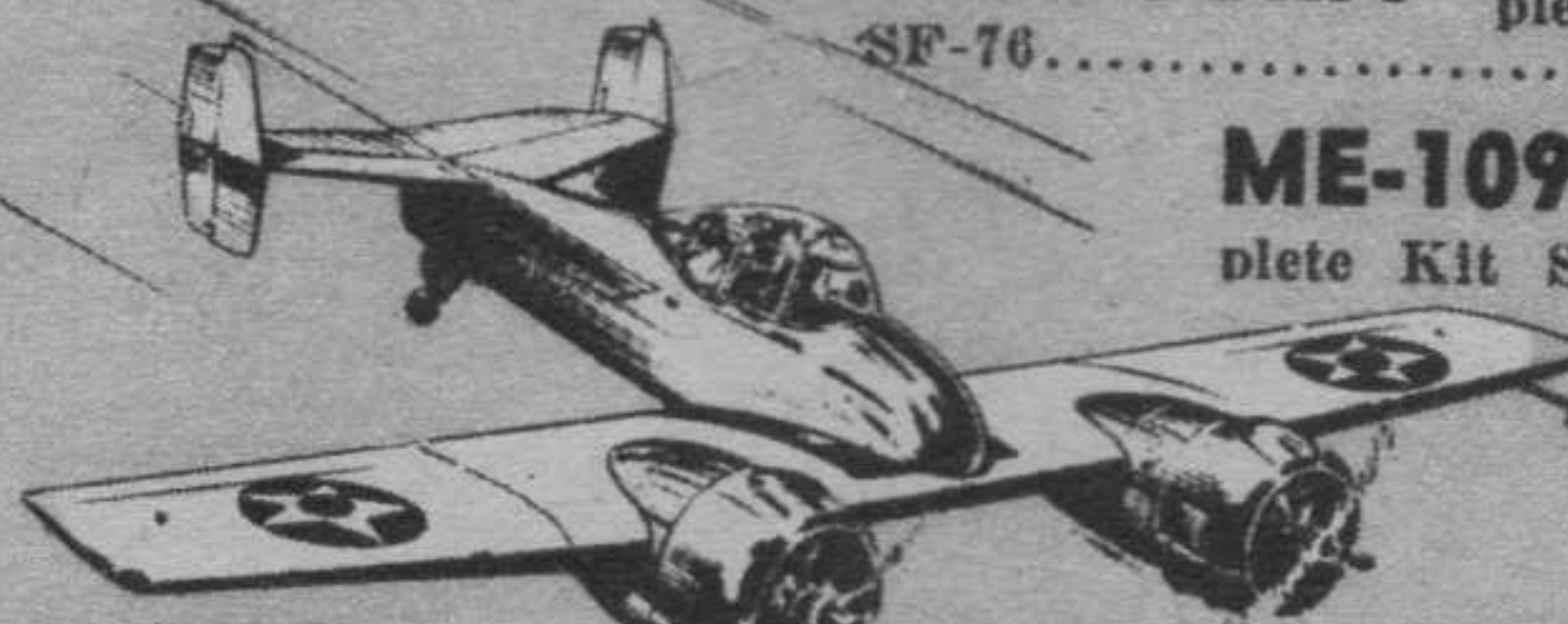
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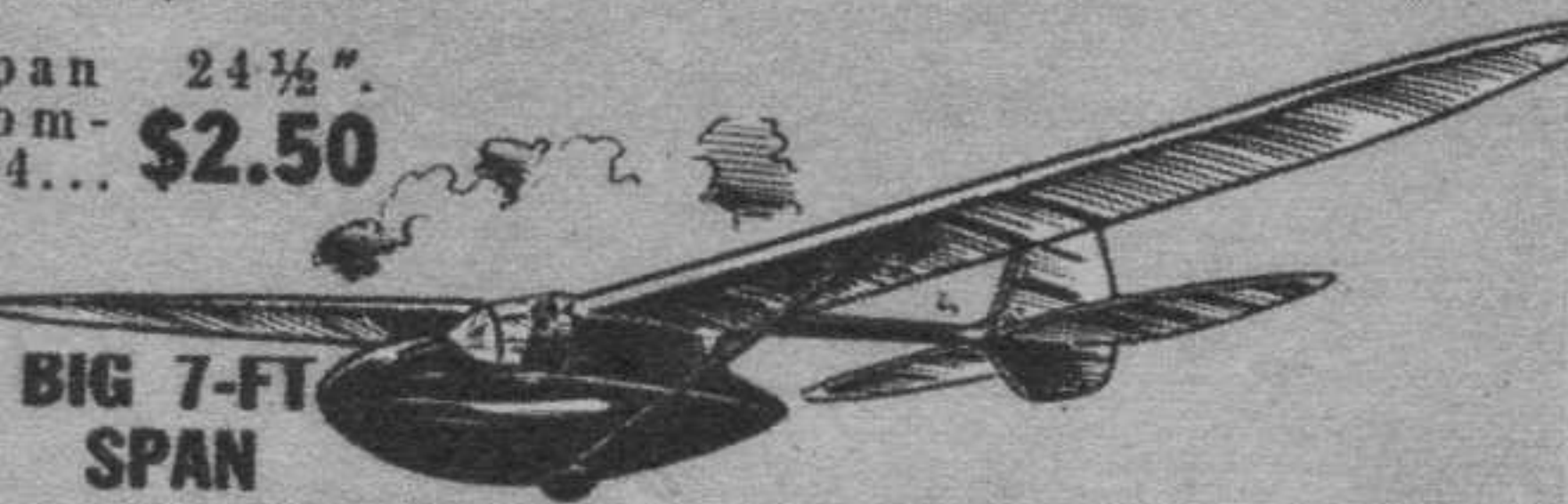
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## Wakefield Design

(Continued from page 50)

with medium and then with fine sandpaper. This removes unnecessary weight, and also insures a smooth covering job. Now cut out and cement into place the twelve bottom formers, all of which are cut from  $\frac{1}{16}$ " sheet, medium stock. Former 5 is cross-grained, and made  $\frac{1}{8}$ " thick, as the landing gear is sewed and cemented to it. Do not cut notches for the five stringers on the formers until the formers are cemented into place. You are thus assured of a perfectly lined-up set of stringers, as compared with the usual way of first notching the work. The stringers are  $\frac{3}{32}$ " square, hard stock. At Station 13, the stringers butt against  $\frac{1}{8}$ " sheet cemented to the bottom of the fuselage.

The only formers used on the top of the fuselage are at Stations 6 to 10 inclusive. These formers are all exactly alike, and a jig can be used to make them. Cement these five into place; then cement a strip of  $\frac{1}{8}$ " square over the center of the formers, curving it down to meet Station 1 in the front and Station 16 in the back. Fill in with  $\frac{1}{8}$ " cross braces to meet this "spine," as per the plans. A solid block is used in the front, top and bottom, to make the front of the ship more solid and bring out the right balance. Plank the top of the triangle from Station 2 to 6, and from 16 to 20, with  $\frac{1}{16}$ " sheet. The tail plug is unusual only in that it is part of the rudder. It is made with a  $\frac{1}{4}$ " hard balsa cork fitting into the rear of the fuselage to prevent turning. Both front and rear hooks are .050 music wire, bent into safety hooks. Cambric spaghetti is used on both hooks to prevent rubber cuts in the motor. The nose block also has a  $\frac{1}{4}$ " cork into the front of the ship, and is streamlined to the contour of the ship. One degree right and one degree downthrust is used in the nose block. Brass eyelets, .050 I. D., keep this adjustment permanent. The landing gear, made from .063 wire, is sewed and cemented to Former 5, and the wheels used are 2" diameter, of  $\frac{1}{8}$ " cross-grained sheet balsa. Bushings at the hubs prevent any sloppiness. The fuselage can now be covered with Jap tissue, water-sprayed, and when dry, clear-doped twice.

The prop is cut from a  $1\frac{1}{2} \times 2 \times 9$ " block, and is a single-bladed folding affair. Most modelers have their own

pet way for making a folding prop, so go to it, only be sure to use the dimensions given. Although the prop seems small, it gives a forty-five-second motor run, powered with eighteen strands of  $\frac{3}{16} \times \frac{1}{30}$ ", forty-four inches long. The crate really climbs during these precious seconds, and flirts with the angels.

The stabilizer is made thirty-two percent of the wing area, and is of a high-lift section. No trouble should be encountered in making the stab, as the construction is very simple. After covering and doping, cement to fuselage as per plans at zero incidence.

The rudder is built up entirely of  $\frac{1}{8}$ " stock, with  $\frac{1}{16} \times \frac{1}{18}$ " cross braces and diagonals. A tab is used for rudder control. The under rudder, cut from  $\frac{1}{8}$ " hard sheet, is cemented directly to the bottom of the fuselage. The tail plug fills in the gap between upper and lower rudder and preserves the contour.

The wing is of simple construction, with two  $\frac{1}{8} \times \frac{1}{4}$ " hard balsa spars at the bottom of the wing. This allows quite some flexing, and a wing of this type can take a beating. The half ribs make for a better airfoil section and add little weight. The ribs at the tips are cut down in the usual manner and are plotted from the main rib pattern. Actual tip ribs are not given. Most model builders are able to plot tapered ribs to this station anyway. Sand the wing well, cover with Jap tissue, and spray and dope. Cement the wing hooks and saddle at the center section and place wing on fuselage at position shown on plans by elastic bands running under the fuselage between the two hooks.

### FLYING

The ship should show a nice glide. Adjust for a flat glide with a slight right turn. Do this by shifting the wing forward or backward for balance and moving the rudder tab for turn. When the glide is satisfactory, put in three hundred turns and hand launch. If the ship stalls, add a little downthrust. Keep adding turns in the motor as satisfactory flights are obtained, until full-power flights are made. On one thousand turns the ship will climb in right spirals very fast. The glide is slow, with a wide right turn.

## Photo Credit List

The following list shows the sources from which credited photos were obtained. Abbreviations: Bot., bottom; T., top; U.L., upper left; U.R., upper right; L.C., left center; R.C., right center; L.L., lower left; L.R., lower right; Cen., center; T.C., top center; B.C., bottom center.

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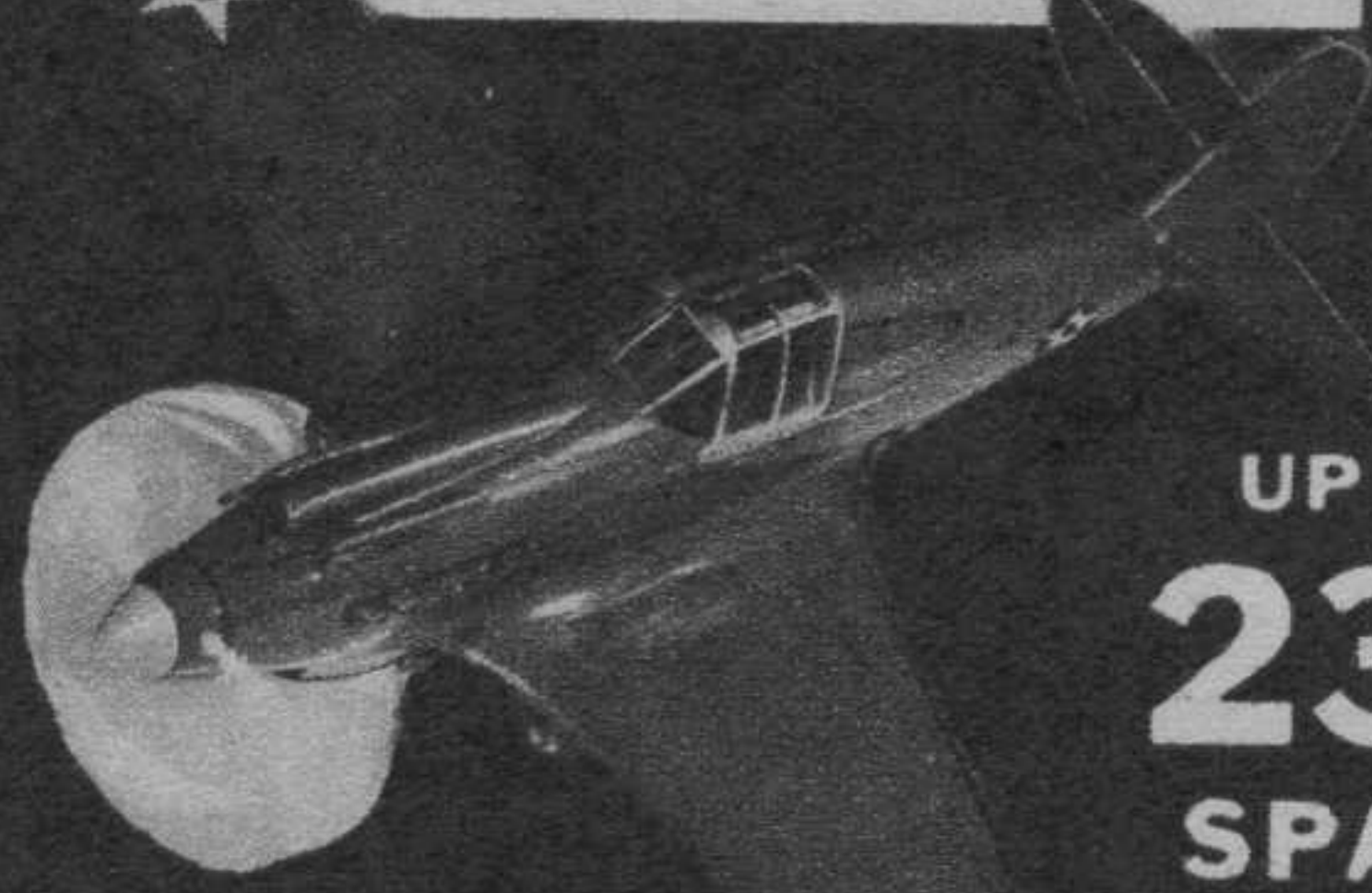
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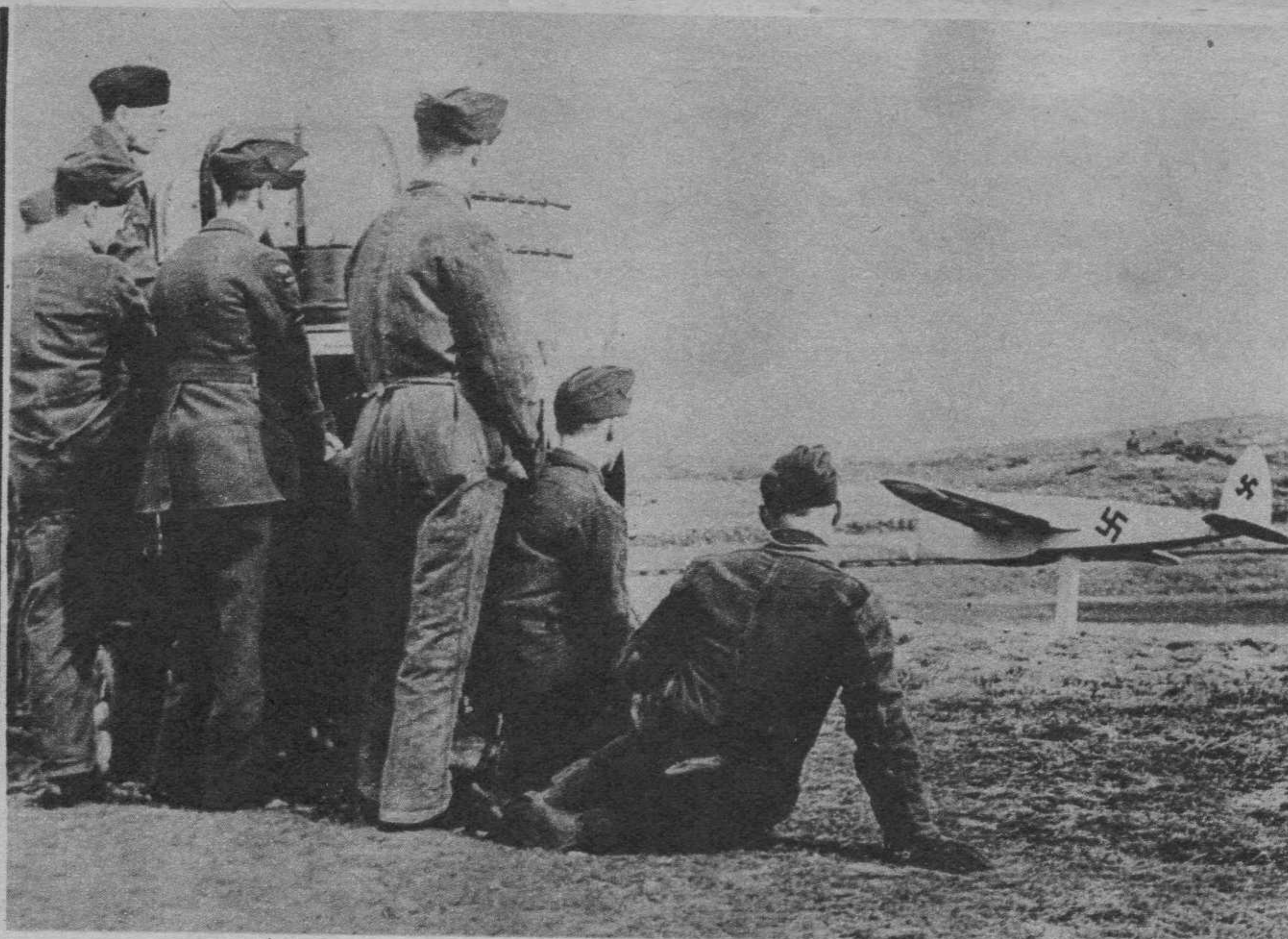
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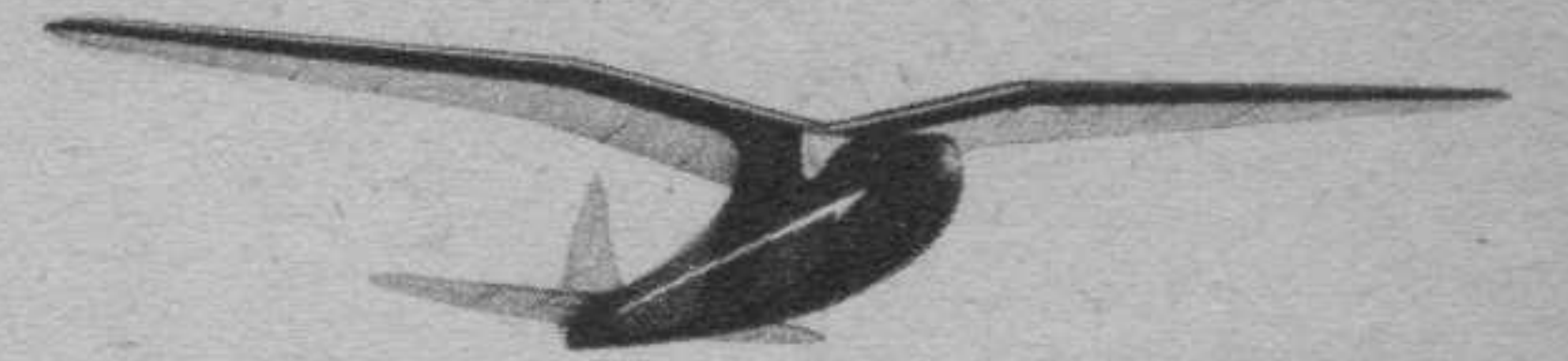
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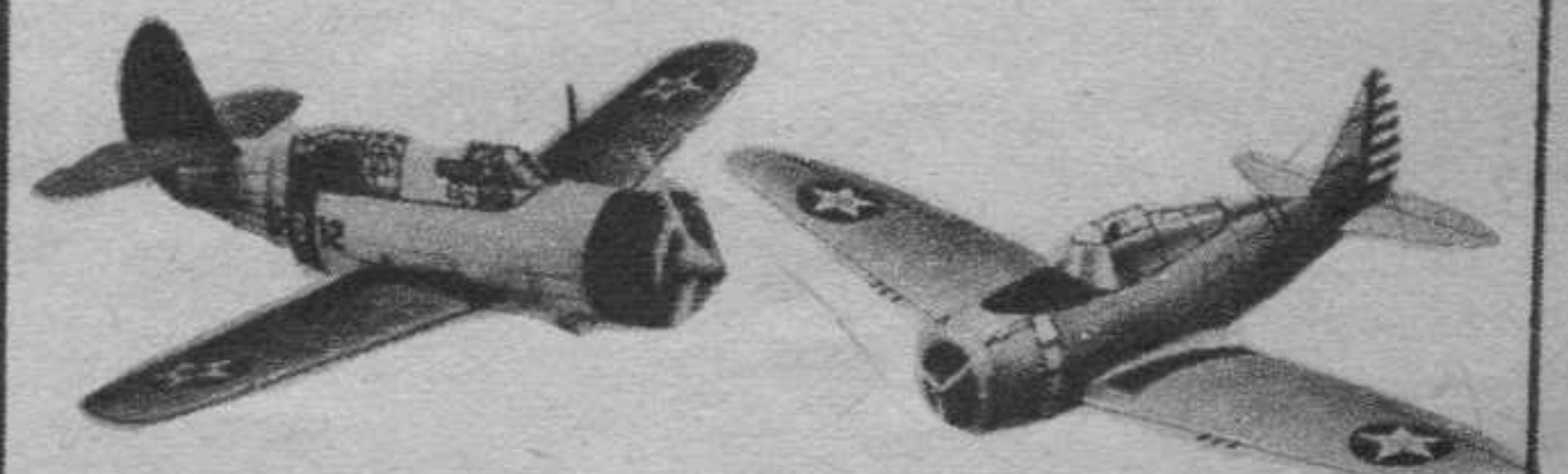
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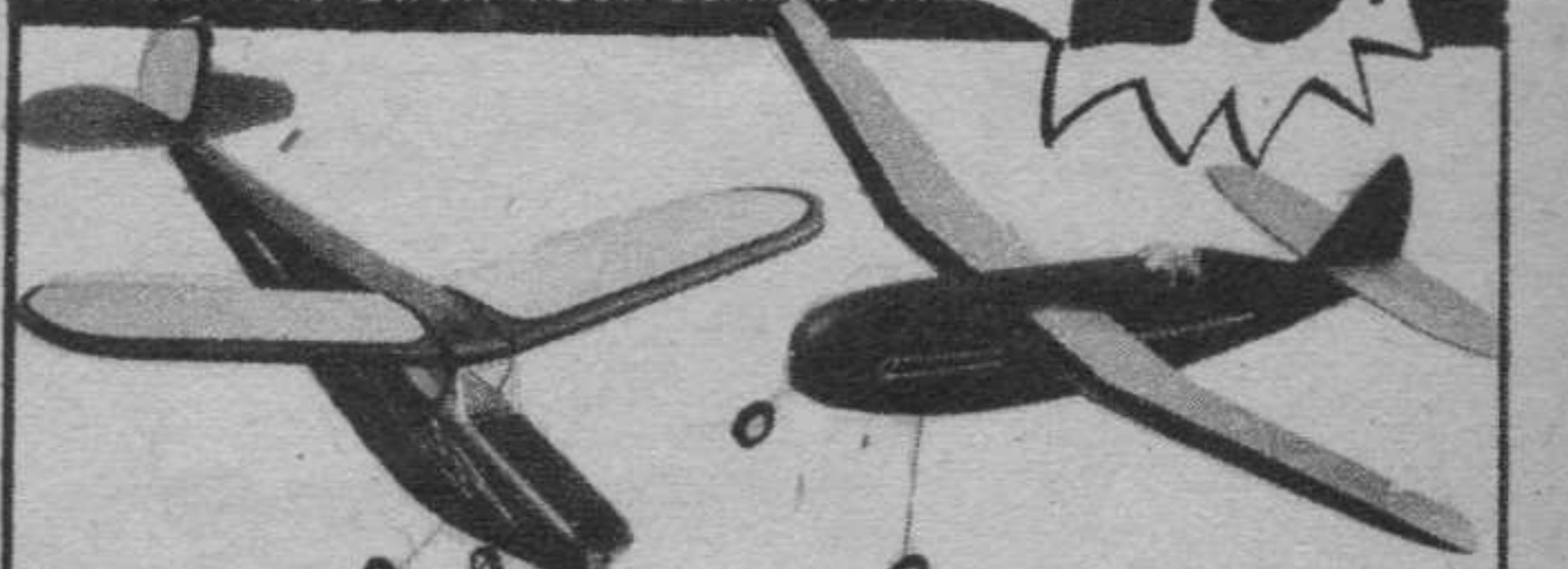
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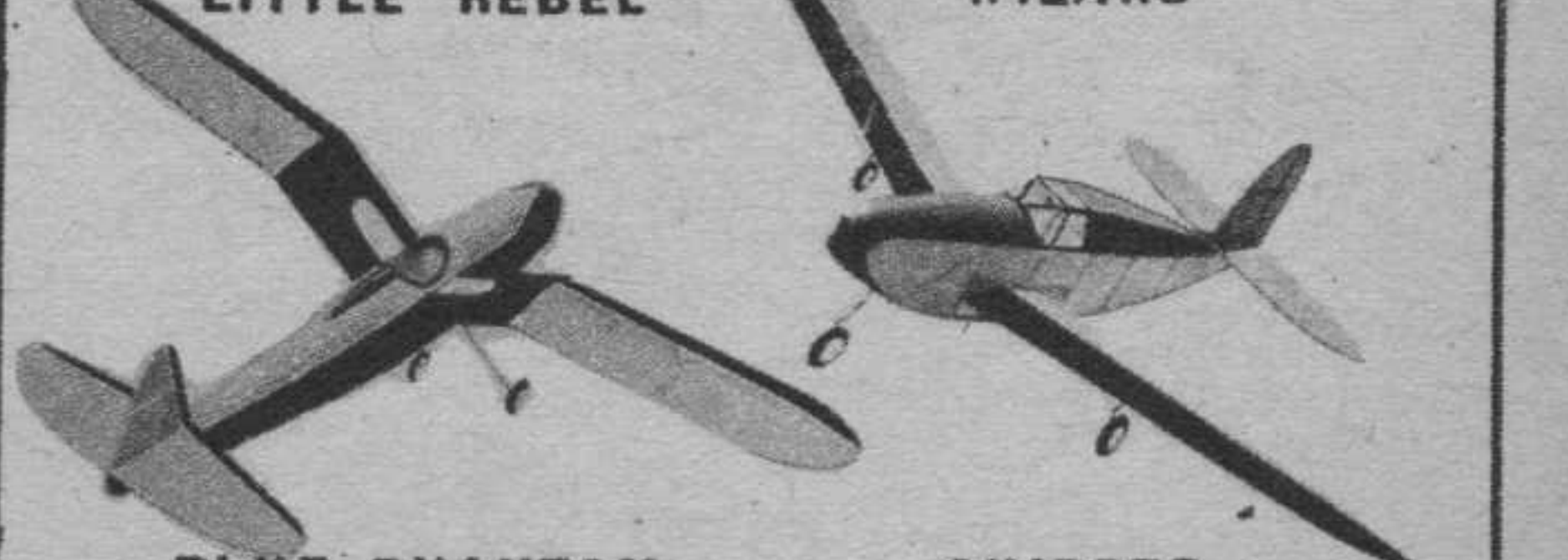
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### Super Quaker

Gas Model **\$4.50**

(By mail, postage 20c extra)

The new SUPER-QUAKER attracts attention everywhere it appears. It is a REAL airplane . . . a thoroughbred in every line that makes winners of the fellows who build and fly it. With automatic Retractable Landing Gear and ultra-streamlining, this new Megow gas model climbs like a frightened hawk. It is brand-new—and already has won top prizes in contest flights. The new Megow SUPER-QUAKER has many of the features that made the Flying Quaker and the Quaker Flash so famous . . . but new ideas have been developed, and improvements added that surpass all previous designs. It has shown consistent performance of five-minute flights or more on twenty-second engine runs. The SUPER-QUAKER is a Class C, six-foot, four-inch wingspan model. The kit is complete except for liquids, wheel and power plant. Full size plans are included, and all materials carefully selected.



## Ranger

**\$1.50**

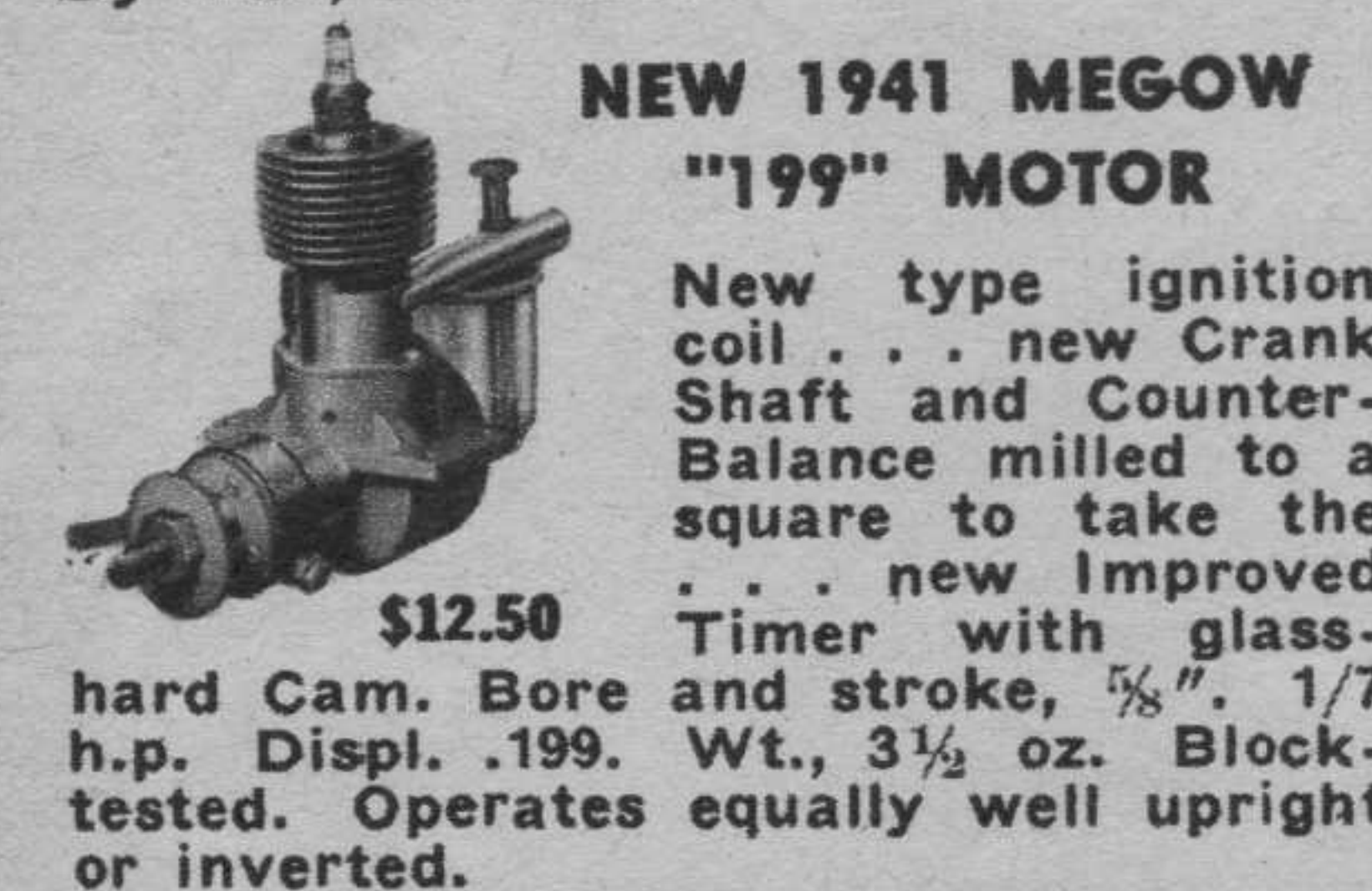
Primarily a Class B, the Ranger is a Class A when used with the "199" motor shown below. Span 46". Weight, ready to fly, 18½ Oz. Comp. with motor, wheels, propeller, flight timer and kit, \$15.75. Kit only, \$1.50. By mail, 20c extra.



## Aero Champ

95c

New type designed to take the "199" engine. Easy to build. Small, light, and sturdy for safe landings. Span 46". Kit E-21, less wheels and propeller, 95c. Complete with engine, wheels, propeller, kit and flight timer, \$14.95. By mail, 20c extra.



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# Megow

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PHILADELPHIA, PENNSYLVANIA

With all the talk about increasing the weight rule for gas models, the remarks in the Fresno (Calif.) Gas Model Association *News* (June) are especially pertinent. Thermals on the West coast are both powerful and plentiful. At a recent Bakersfield contest the first five places were over 30 minutes. Many ships fly out of sight and are never found. Recently Vernon Oldershaw launched his job at Coalinga; it was found in Salinas, eighty-five miles away. Al Bissonett recovered his some forty miles from the take-off. The West coasters would like to see the AMA form a Western division to formulate suitable rules for holding the models under control. Suggestions are invited by the editor of the *News*, Route 2, Box 89, Fresno, Calif. Considering what has happened at Chicago and contests in the East, model builders in all parts of the country should be willing to go along with any rule changes that would eliminate the bulk of O. O. S. flights.

Milwaukee Gas Model Club has changed its name to the Milwaukee Model Aviation Club so the members who build rubber models wouldn't feel neglected. There's a corresponding change in policy encouraging rubber modeling with a hydro contest as one of the first projects. The Third Annual Wisconsin State Meet was a success despite the weatherman and a tough time finding a suitable field. Older builders should be happy about Henry Gebhard who is in his late forties but can still teach the youngsters a few tricks. He won the finish and workmanship award. James R. Custin is publicity man for the MMAC. He ends his letter about their activities this way: "Just as last year, this contest report comes in late because Custin has to monkey with radio control instead of tending to business." How can you get sore at a guy like that!

**ON THE FIELD.** (By Carroll Moon.)  
**Verdun, Canada.** Aero enthusiasts, aside from those in the R. C. A. F., fly in the model airports of the North, according to our correspondent in this section. Lawrence Flood, proprietor of the Verdun Stamp and Hobby Shop, promoted the contest and acted as contest director at the meet held July 13th, and reports that several thousand witnessed the flying events. In Class A, rubber event, Marshall Green won with 2 minutes, 24 seconds. In the Moffett event, Green was first with 1:32, with his second ship taking second. Eric McIntyre took the Class E glider event with :40 3.5. Yvon Cerat took the gas model event with 1:41. Grand prize for the day was an O. K. motor. H. Pound was announcer while Charles Eastman, W. Main and W. Freshner were assisting officials.

**Linden, N. J.** We have received (via fast dog team) the June issue of the LMAC (Linden) *Gazette*, and it's a right smart mimeographed paper of several interesting pages. The Linden group is exceedingly active and members of the club are always among the

top winners in any Eastern contest. We congratulate the publishers, the club and Mary Walker. Oh, yes, they also fly airplanes.

**Lincoln, Neb.** July 22nd was the date of the Four-State Model Meet held at Fairburg, Neb., which was attended by some 150 of the top modelers in the area. Jack Moralez directed, and reported that a "swell time was had by all," despite a prevailing wind. Ed Manion, of Lincoln, took first in Class A with an average of 99.3. Parmenter took first in Class B with a three-flight average of 354.9. In Class C, Don Woods of Omaha took top honors with 261.3 average. In the Class C rubber event (junior), Jimmy Pierce of St. Joseph, Mo., was first with 234 seconds. In the senior event of this group, Gerhard Onnen, Jr., of Gladstone, Neb., took first with 256.3. The tow-line glider event was won by Jack Spaulding, of Lincoln, with :39.3. In the HL glider event, Bob Fox was first. Don Woods, who won the Class C gas event, had the best single flight of the day, which was 13:04.2.

**National City, Calif.** The first annual meet of the San Diego Aëroneers, held June 1st at the club's field, proved such a success that the Model-Air's Rubber-powered Club (which we gather was the power behind the event) is now pointing to bigger and better things in the future. For one thing, the meet proved the widespread interest in rubber events, attracting entrants from San Bernardino, Los Angeles, El Centro and Santa Barbara and other California centers. Harold Strawn acted as contest director and cash awards totaling \$25 were offered as prizes as well as trophies and merchandise. Oh, yes, Bob Schniedling of Chula Vista reported the event. Congrats, Bob, and what this country needs is more rubber builders who know an airfoil from a prop and when to build in adjustments and when to call it just a plain warp of the wing.

**Daytona Beach, Fla.** Question: Did anyone see Bill Ramsey of Daytona Beach at the Nationals? Well, he was there traveling free on top honors won June 14th-15th at the Florida State Model Airplane Meet held in Daytona Beach. The meet was attended by seventy of Florida's best modelers, and Bill took the top prize of a \$150 trip to the Nationals. The event was sponsored by the Daytona Beach Exchange Club. W. T. Thomas, AMA contest director for Florida, was chief official and he was assisted by members of the city recreation department. Trophies posted by Eastern Airlines and a Class C cup donated by Eddie Rickenbacker were among the top prizes. Gene Chaille (a prominent Air Trails contributor) was up from Miami with a large delegation, and Gene finished second in the State competition. Because of wind, motor runs were cut to 15 seconds.

John Foley of Daytona Beach won the junior glider event with :56 sec-

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onds. Gene Chaille won the senior and open glider event with 1:38.5. Gene also won the fuselage (rubber) event with 2:14.6. In the stick event, Tony Sylvia of DeLand was first with 1:48.7. Ramsey won the fuselage event with 3:27.6. Ramsey also won the stick event with 4:10.1. In the Class A gas event, Charles Johnson of Jacksonville was first with 2:25.6. Ramsey was first in Class B gas with 2:27.4. W. D. Hoffman of Sanford took Class C gas with 6:07.4.

**New York City.** As predicted, the flight center for modeling in the New York area has moved eastward to Hicksville, L. I., approximately twenty-five miles from Times Square. There, on July 5th, the Sky-Chiefs held their first contest, and, although times were not high, it proved that

interest had not lagged in the metropolitan area—almost seventy-five enthusiasts participated in a little-advertised contest. Bernie Licquorman, of the Sky-Scrapers, with a scaled-up Diamond Demon, took first in Class C with an average of 2:36, narrowly nosing out Max Jurist who averaged 3 seconds less. Licquorman's plane used a Brown motor and achieved its time by its consistent flights. Jurist had a plane of his own design powered by a Comet 35. The ship was terrific, employing a retractable gear and achieving a terrific climb. Although the first two flights were not sensational, a flight of over 4 minutes O. O. S. proved the plane's worth on the third attempt. Cliff Travis, flying a Bantam-powered ship of his own design, took first in the combined A-B Class.

## Lightning On A Leash

(Continued from page 45)

Another variation of controlled gas-model flying, developed by Victor Stanzel & Co., Schulenberg, Texas, is known as "G-Line" flying. Stanzel's system is simplicity itself. The model is flown on the end of a single silk or linen line (18 to 45 pounds test) attached to a rigid eight-foot pole, preferably a fishing pole. Elevators and rudder are adjustable for trim, but are not actually controllable. The pilot controls the model by dipping the stick to cause a dive, or raising it for climb. A regulation casting-rod tip through which the G-Line passes prevents entanglement of the line around the pole tip. Average length of the line is 35 to 50 feet, the shorter length being recommended in windy weather. The same flying precautions apply to both U-Control and G-Line flying.

Naturally, in order that the pilot have complete control of the model at all times, the control lines must be taut. To insure this, the model is adjusted to fly "against the circle." When flying in the usual counter-clockwise direction, the rudder should be set at least ten degrees to the right (looking at the model from rear to front) and the thrust line be offset about four to six degrees in the same direction. These adjustments along with the centrifugal force the model creates while flying will definitely keep the control lines taut at all times—when the wind velocity is low. However, when a fairly strong wind is blowing, the wind very often forces the model off its usual path of flight and consequently the control lines slacken. Slackening of the control lines is very dangerous and should be avoided by keeping the model low and in an even or slightly downward path of flight. In other words, *never* have the model climb into the wind, and *always* loop with the wind at your back.

Following is a list of safety suggestions outlined by Jim Walker, of American Junior, for Mr. I. V. Packard of the Nebraska Aeronautics Commission, for Fireball flying:

1. The boundaries of the circular flight should first be determined and all spectators kept at least twenty-five feet back of this area.

2. It is preferable that all spectators stand on the windward side of the pilot, since at this point centrifugal force is minimized and ground speed of plane is decreased.

3. Before making flight, the operator should make strength test by exerting at least a fifteen-pound pull on control lines.

4. Flying area should not be adjacent to take-off point of free-flying model craft.

5. Care should be taken that spectators do not enter flying circle while plane is in air. In the event of spectators entering the ring while plane is in the air, the landing spot can be selected by the pilot running away from the plane in a circle. This will keep it in the air until it is desired to bring it in.

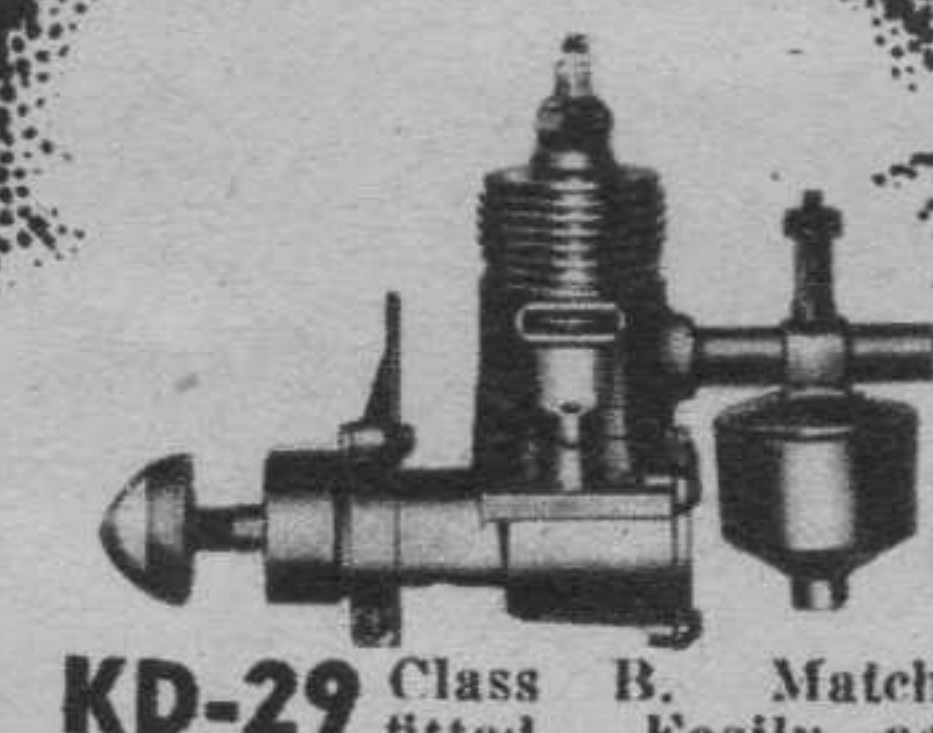
6. During speed events, all diving starts should be made against the wind. Timer and timing point should be directly to windward of pilot.

7. All loops and high maneuvers should take place downwind from pilot in order to prevent slackening of lines and the possibility of losing control.

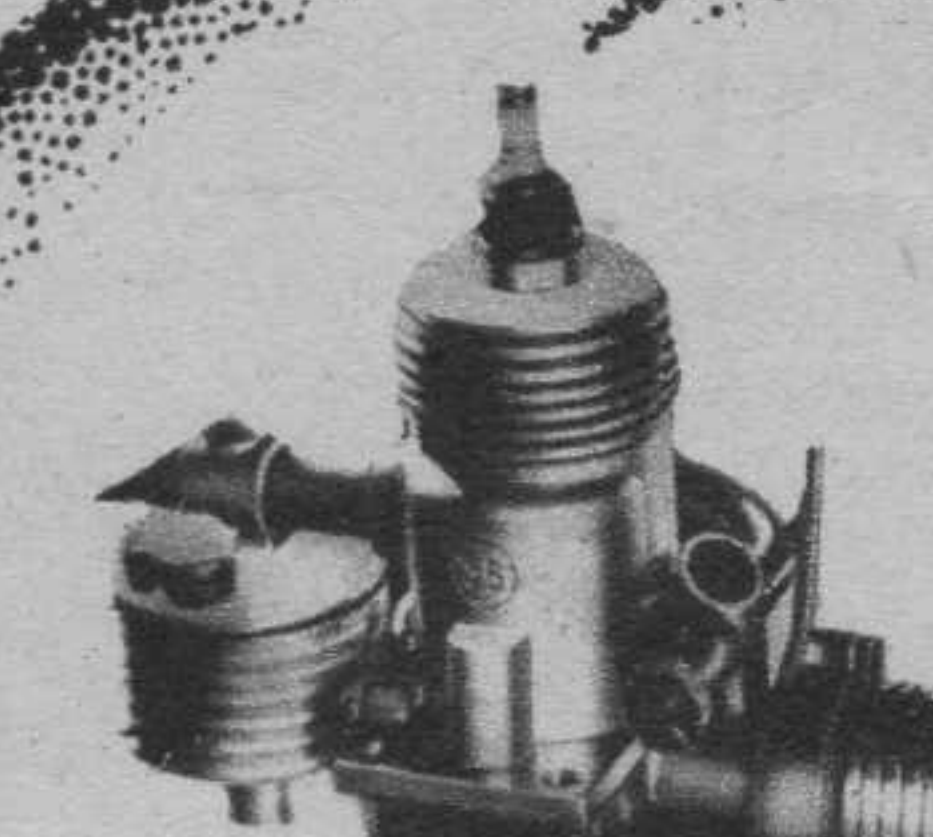
Since the control lines slacken slightly now and then, just enough to cause the model to become erratic because of the flimsy elevators, we resort to a little trick which will automatically return the control plate to the neutral position. Our "automatic pilot" consists of two rubber bands attached to each end of the control plate. The tension of each should be slight but *equal*, so that when no pressure is exerted on any of the control lines, the control plate is pulled back to the neutral position. Thus, when the wind forces the lines to slacken, the rubber bands pull the control plate into the neutral position, thereby stabilizing the model until the lines become taut again.

To prevent the model from side-slipping to the right in case of too much rudder and right thrust-line adjustment, a "spreader" is attached to the center of the left wing half. The spreader should guide the control lines so they are perpendicular to the center vertical fuselage line. In general, the distance between the two spreader line guides should be about half the average wing chord.

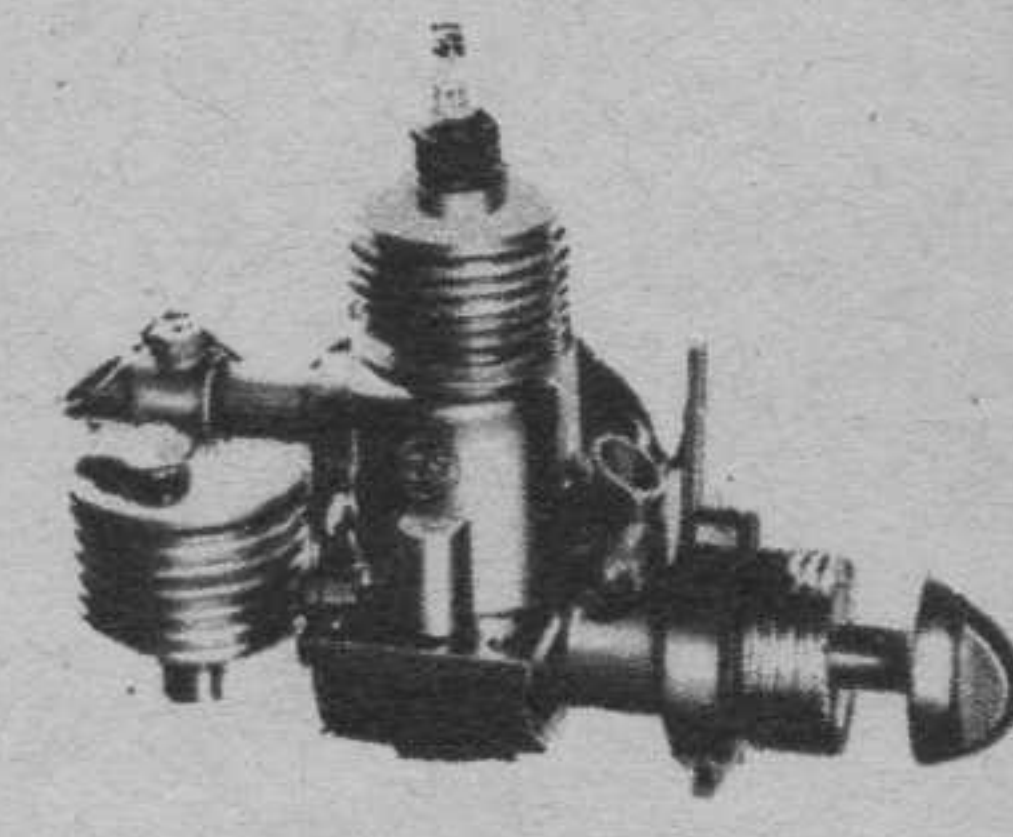
When we come to adjusting the elevator movement for a slight climb or, as the case may be, loop, we are more or less stumped because the elevator setting varies with each particular model. For this reason the "trial and error" method of adjustment is the most widely practiced. Determining the correct elevator area is also a great problem because the



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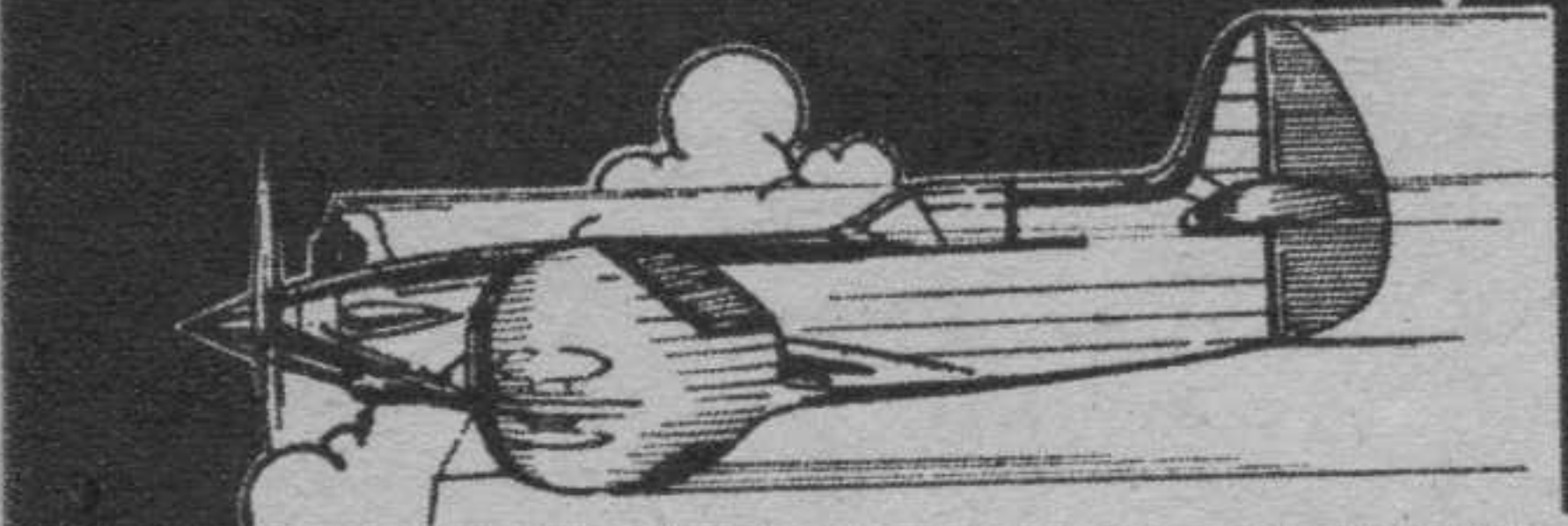
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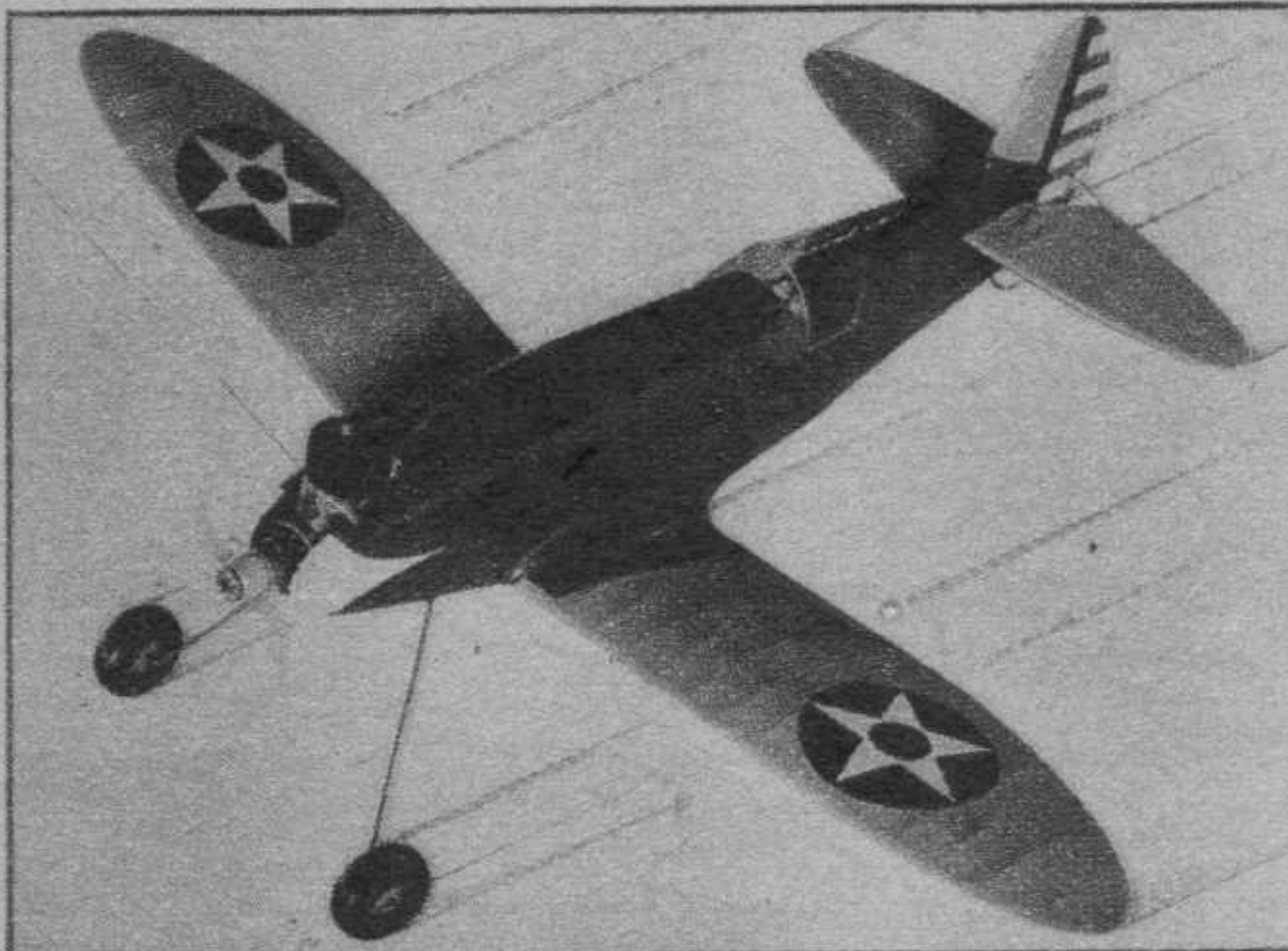


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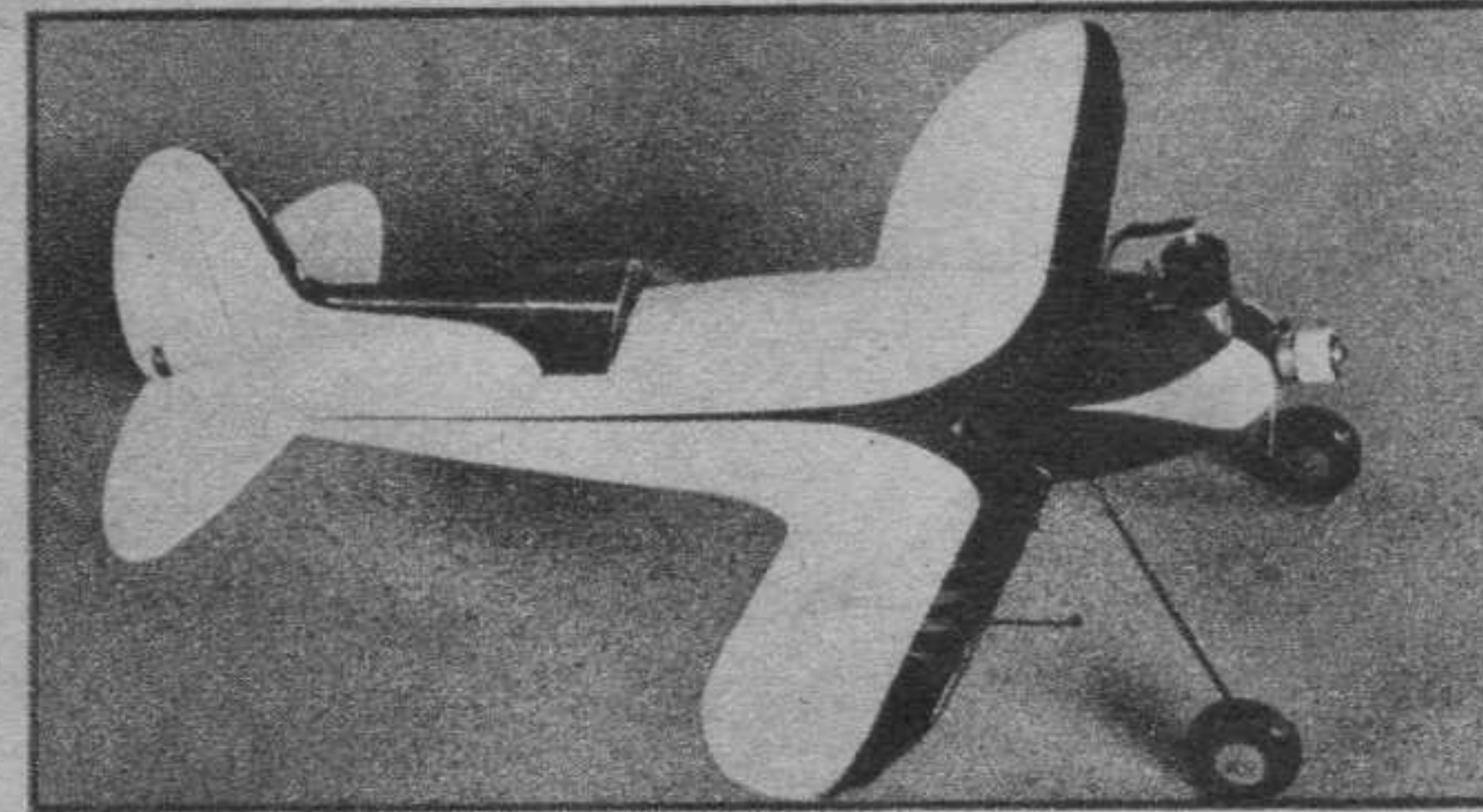
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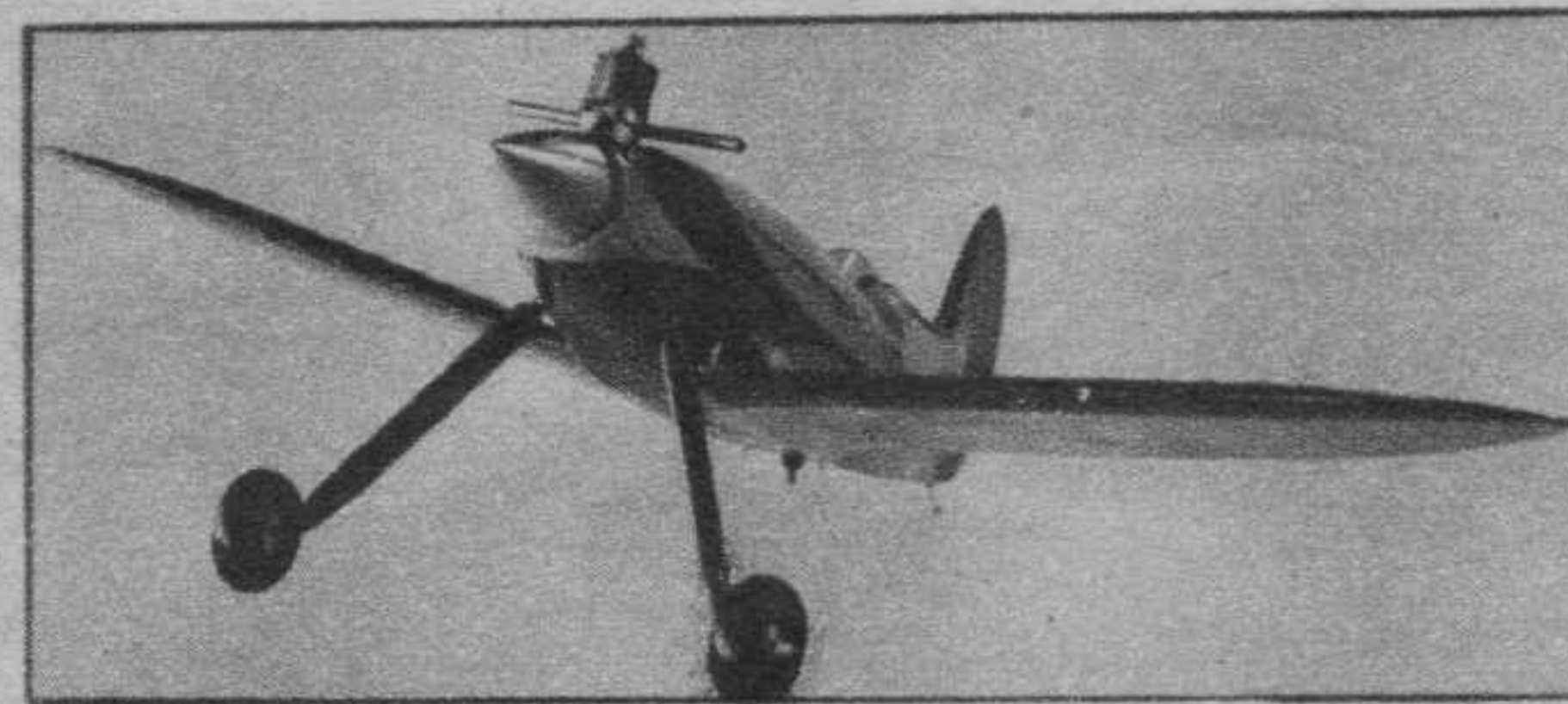
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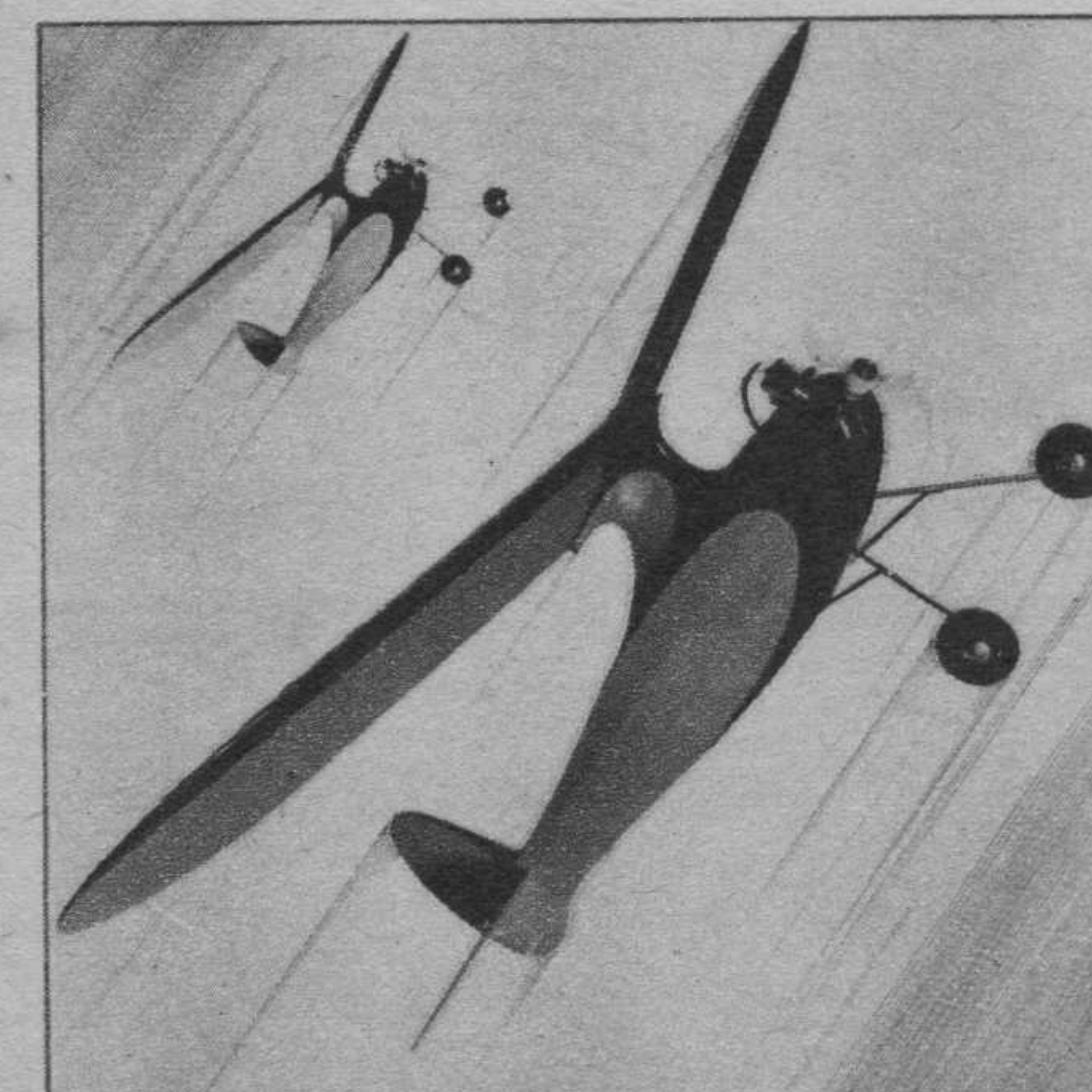


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greater the elevator area the more reactive the model. In general, it is safe to make the elevator area about one fifth the total stabilizer area, the aspect ratio of both being the same. To help prevent a major crack-up on the first test flight, the elevator movement should be not greater than two degrees in both up and down directions, all measurements being taken from the neutral position. After you have a half-hour of "time" with the elevators in the "training" position, you should adjust the control-plate movement so the upward elevator movement is twice that of the downward angle. This will permit you to start stunting without the fear of not having your job forget to pull out of a loop.

The choice and upkeep of control lines is a major factor in successful control-line flying, and only the best steel piano wire should be used. (Silk or linen line for "G-Line" flying.) For models having a weight up to 24 ounces and flying in a one-hundred-foot circle, .010-diameter steel wire is ideal. Models in the 24 to 30 ounce class should fly with .012-diameter piano wire lines, while any other job up to 4 pounds should fly on .018-diameter stock. The condition of the control line is just as im-

portant as the condition of the model, so be certain your control lines are free from rust and kinks. You never know when a sudden jerk will be exerted on the lines, and should they be weakened by rust or a kink—well, you fill in from there on.

Before and after flying, your "control lines" should be always kept on a spool because, as you probably know or else will find out, a roll of tangled, springy piano wire is better than the best jigsaw puzzle ever worked out!

The diameter of circle you wish to fly in varies anywhere from 100 to 600 feet. Of course, stunting with a 50-foot control line is apt to be dangerous, unless you are certain of the elevator setting and the maneuverability of the model in general. The diameter of circle for all-around flying is about 150 feet, which calls for a 75-foot line. But after a bit of experimentation, which will include some rough landings, you'll be able to handle your model as an army pilot handles his pursuit plane. And talk about getting dizzy as you twist with your model lap after lap—well, all we model builders are more or less inclined to be that way, anyway, so we shouldn't mind it too much!

## Cut That Skin Friction

(Continued from page 52)

since it fairs directly into the pylon, it detracts not a bit from the symmetrical airflow, and in fact adds not only to appearance, but to performance.

An additional feature on the ship was a pants on the single wheel. Experts have figured that a single wheel may add as much as ten percent drag, but the pants reduces this by at least fifty percent. Strange as it may seem, this pants actually adds strength to the landing gear, for its rigidity helps hold the ship in an upright position during those hard landings.

The writer has designed many ships, both gas and rubber, in his years of modeling. Among these was

the Rocketeer, which last year took the California Championship. But no ship ever to emerge from his workshop showed the promise of the Theoradical, in any way. Thanks to the reduction of all drag forces, the ship has an astounding climb, very fast and almost vertical in angle. It has averaged better than five minutes in its first two days of tests, despite poor weather and lack of thermals. Hitherto the writer had considered it impossible to do better than two or three minutes without thermals, but the Theoradical proved the theory wrong. But it did prove one theory to be right—that reduced skin friction makes for flight efficiency.

## Pilot This Vanguard!

(Continued from page 47)

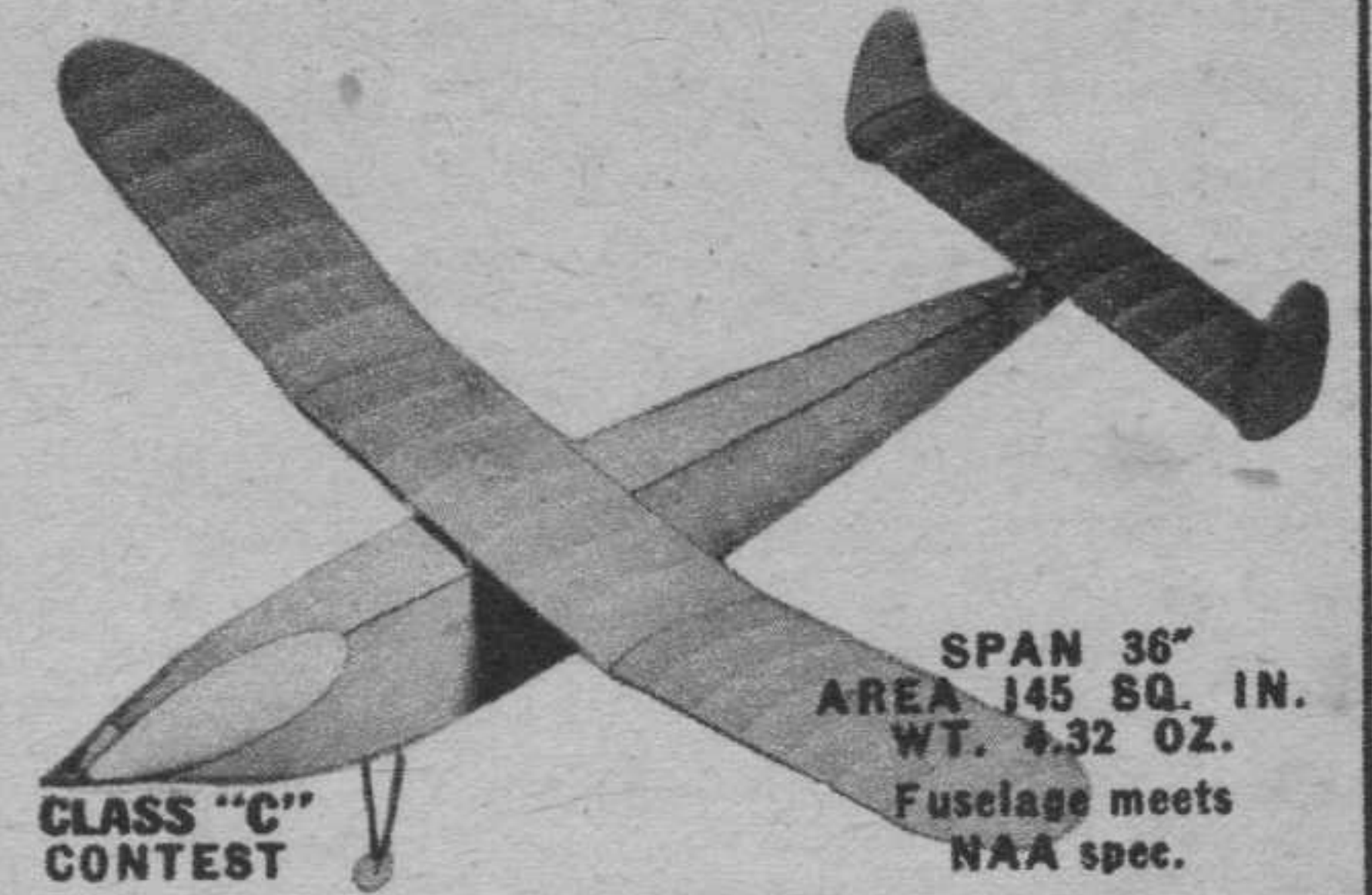
smooth joint between the wing and fuselage, cut away the bottom of the fuselage to fit the wing spars, and, after the rib bottom blends into the fuselage bottom contour, cement the wing into place at zero degrees incidence.

The control mechanism we employ is very similar to that used by Jim Walker on his U-control Fireball model. The control plate is cut from 1/16" sheet aluminum and mounted on a 1/16" piano-wire pivot point which in turn is securely anchored to the main (center) wing spar. To smoothen the movement of the control plate, two "slide rails" on which the control plate rests are cut from hard 1/4" sheet balsa and cemented in position where shown. After the 1/8"-diameter elevator control rod is attached to the arm of the control

plate, loop a 2" length of 1/8" flat rubber from hole A to the opposite fuselage wall and a similar length from hole B to the fuselage wall opposite. The tension of both rubber bands should be rather slight but equal. This acts as an "automatic pilot" because it will automatically return the control plate to the neutral position should the control lines become slack.

To both holes labeled C and D we attach a 12" length of flexible cable 1/32" in diameter which passes through the 1/8" brass bushings cemented to the sheet-covered section of the wing bottom. The cable attached to both ends of the control plate passes through the bushings, through the piano-wire "spreader" located on wing rib 4 of the left panel, and then is hooked to the .010 piano-

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wire control lines. Thus, when the front wire is pulled the control-plate arm moves forward, causing the elevators to move down. When the rear wire is pulled, the movement is opposite and the elevators move up. To control the angular movement of the elevators, a wood screw or pin is inserted in the main slide rail to limit the movement of the control plate. To set the elevators for the "testing" and "maneuver" positions, as indicated on the drawings, the trial-and-error method is used. Thus, if you want the testing elevator position, you set the elevators at the correct angle and insert a wood screw or pin in the main "slide rail" which prevents the control plate from moving any farther.

After the control mechanism is installed, the ignition system should be permanently mounted in place. The coil rests on the rear of the motor mounts and the batteries are set in the fuselage to balance the model. Since nearly all motors and coils do not have the same weight, the pen-lite batteries should be mounted so the model balances at a point one third back from the wing leading edge, measured at the average chord point. To act as a battery-box mount, cement a section of 1/4" sheet to the underside of the removable fuselage section. This not only reinforces the section, but makes it easy to bolt the pen-lite battery case into place.

### COMPLETION AND FLYING

After the ignition and control systems are tested, the model should be covered—and if you like the appearance of the original job in its English attire, cover the surfaces with

white Silkspar and apply two coats of "sand and spinach" dope. Incidentally, if you have never camouflaged a model before you're in for a swell time, because all lines should be irregular—just as when you're trying to paint straight ones!

For the first test hop, turn the rudder tab about 3/8" to the right and slant the thrust line about 4 degrees in the same direction. These adjustments will insure the model turning "against the circle," which is absolutely necessary since the lines should always be taut. The control lines consist of two 75-foot lengths of .010 steel piano wire attached to a pine control handle, the dimensions of which are shown on the plans. On the first test flight the engine should be run at half throttle, and not until you can easily handle climbing and diving maneuvers should the engine be run at full speed. If a slight breeze exists while test-hopping your ship, take off *with the wind*, since climbing against the wind will, in most cases, slacken the control lines. After you've added twenty or thirty minutes to your log book you're ready for stunting—and then you'll know why control-line flying is destined to become the greatest phase of gas modeling!

*Editor's Note—Constructional details of the "U-control" type of control used in this Vultee Vanguard are intended for the individual builder only. Commercial use of this control system is patented by the American Junior Aircraft Co. Both "Pilot This Vanguard!" and "Lightning on a Leash" were prepared with the co-operation and permission of American Junior and Victor Stanzel & Co., who patented "G-Line" flying.*

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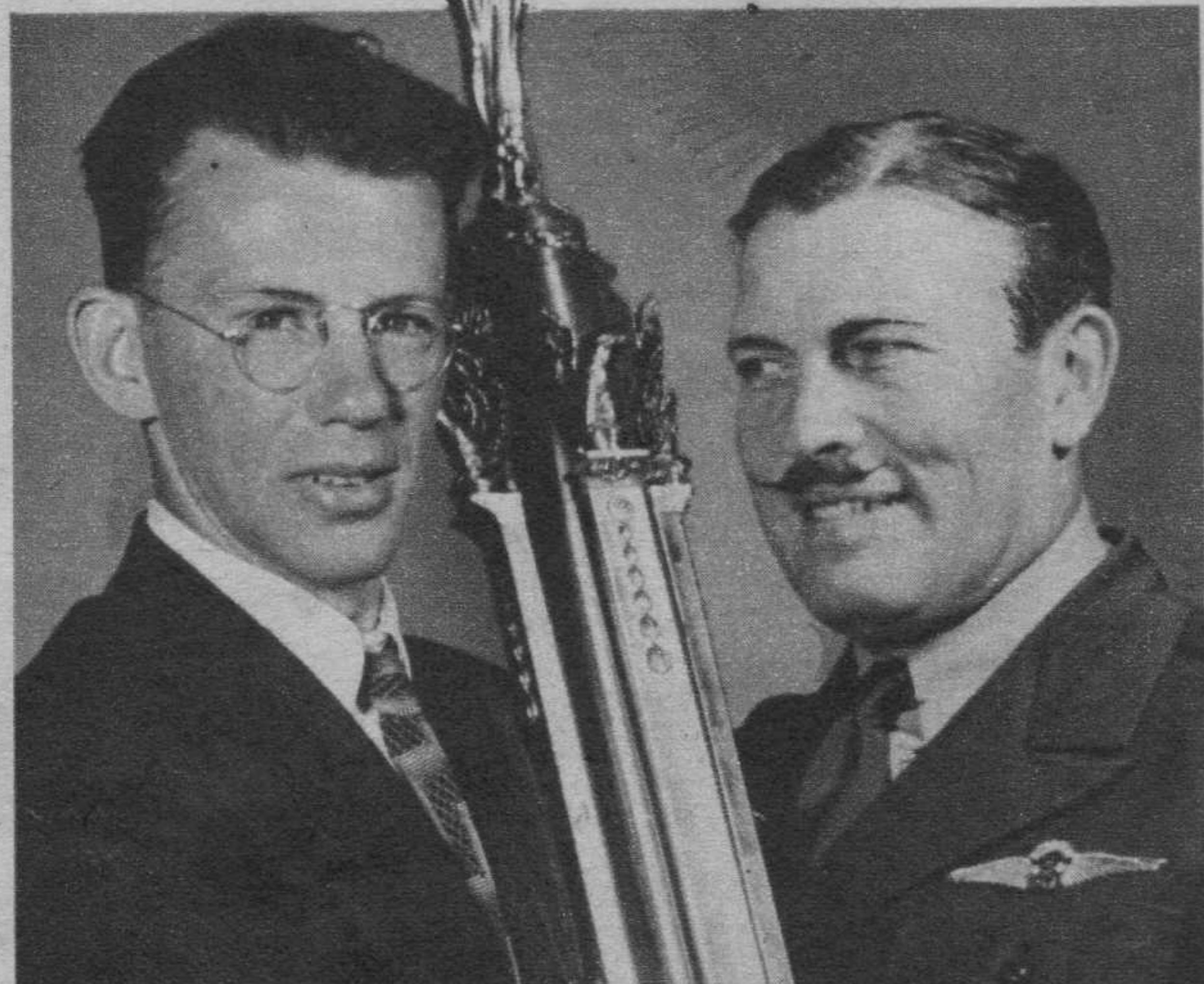
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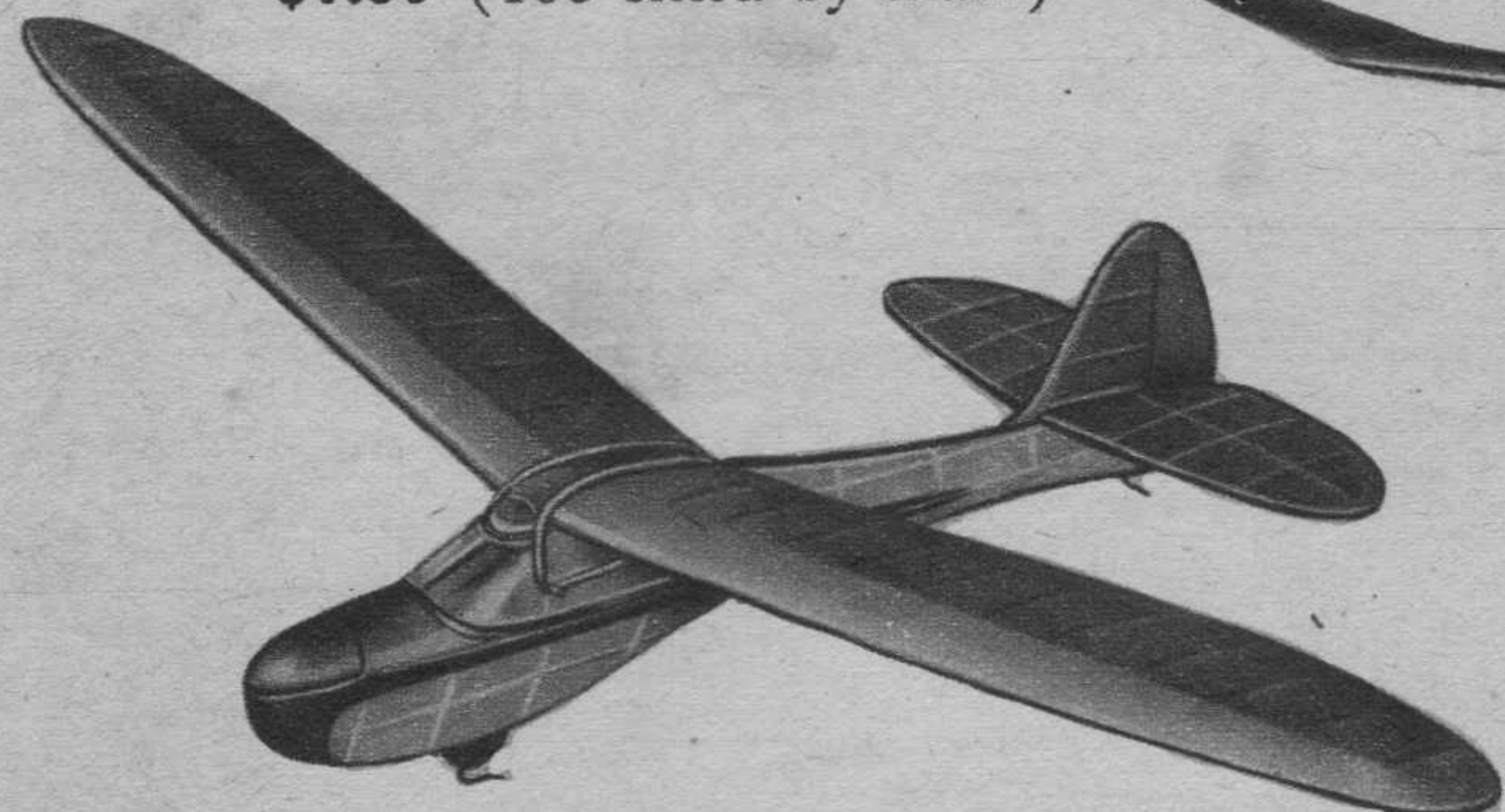
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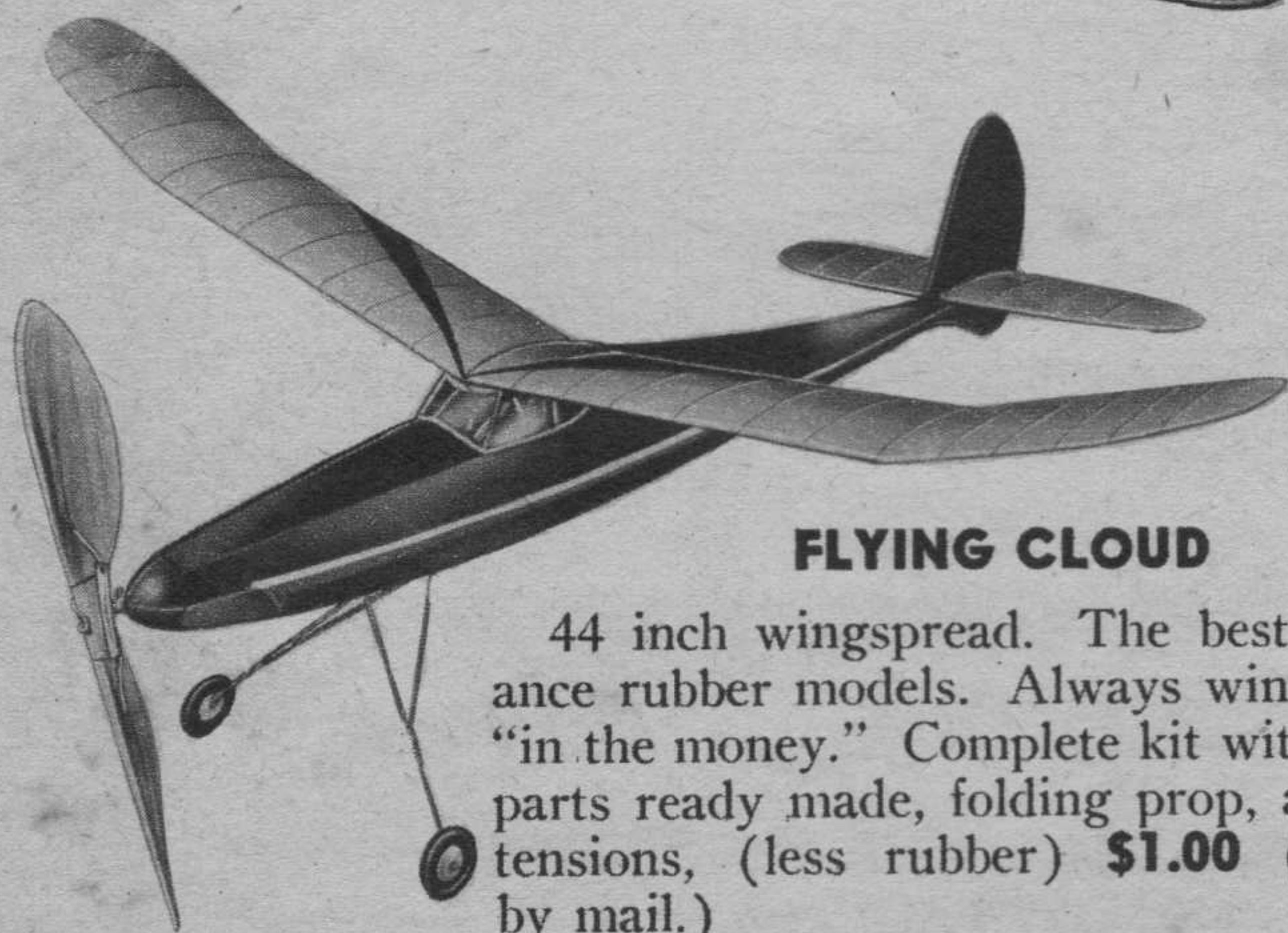


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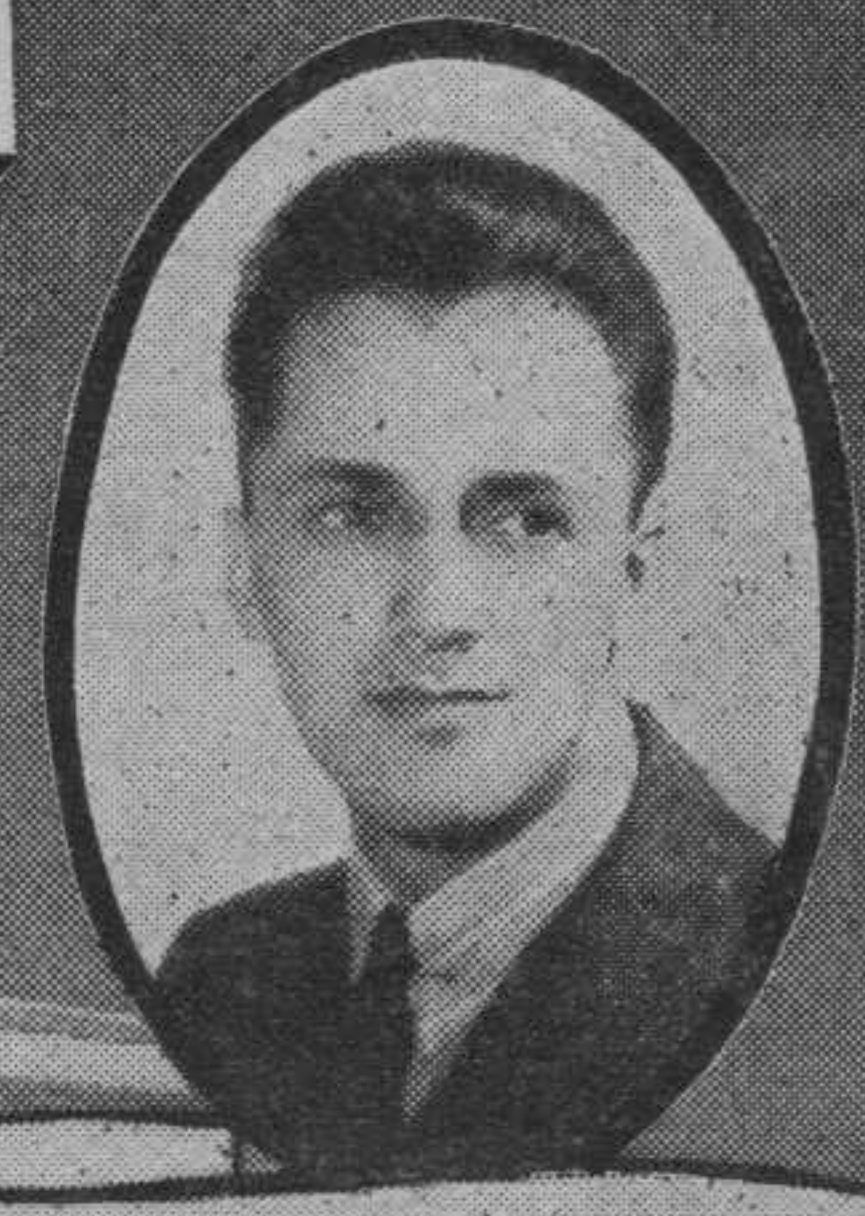
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	Class B—Senior	P. W. Klintworth.....	Zipper
	Class B—Open	W. A. Gibson.....	Zipper
	Class A—Open	W. A. Gibson.....	Zipper
<b>Second Places</b>	Class C—Junior	Charles Alsdorf.....	Zipper
	Class C—Senior	Bud DeBolt.....	Zipper
	Class C—Open	Ray Acord.....	Sailplane
	Class B—Open	Karl Girten Jr.....	Zipper & Interceptor
<b>Third Places</b>	Class C—Open	Herbert P. Andrews.....	Sailplane
	Class B—Senior	Bill Lutz.....	Interceptor
	Class B—Open	Herbert P. Andrews.....	Zipper

- Longest single flight any gas event: Ray Acord—Sailplane—19 minutes 53.6 seconds.
- Sailplane also placed in Radio Control Contest. Ship weighed 4 lbs. 14 oz. complete.
- Above information obtained from official contest records.

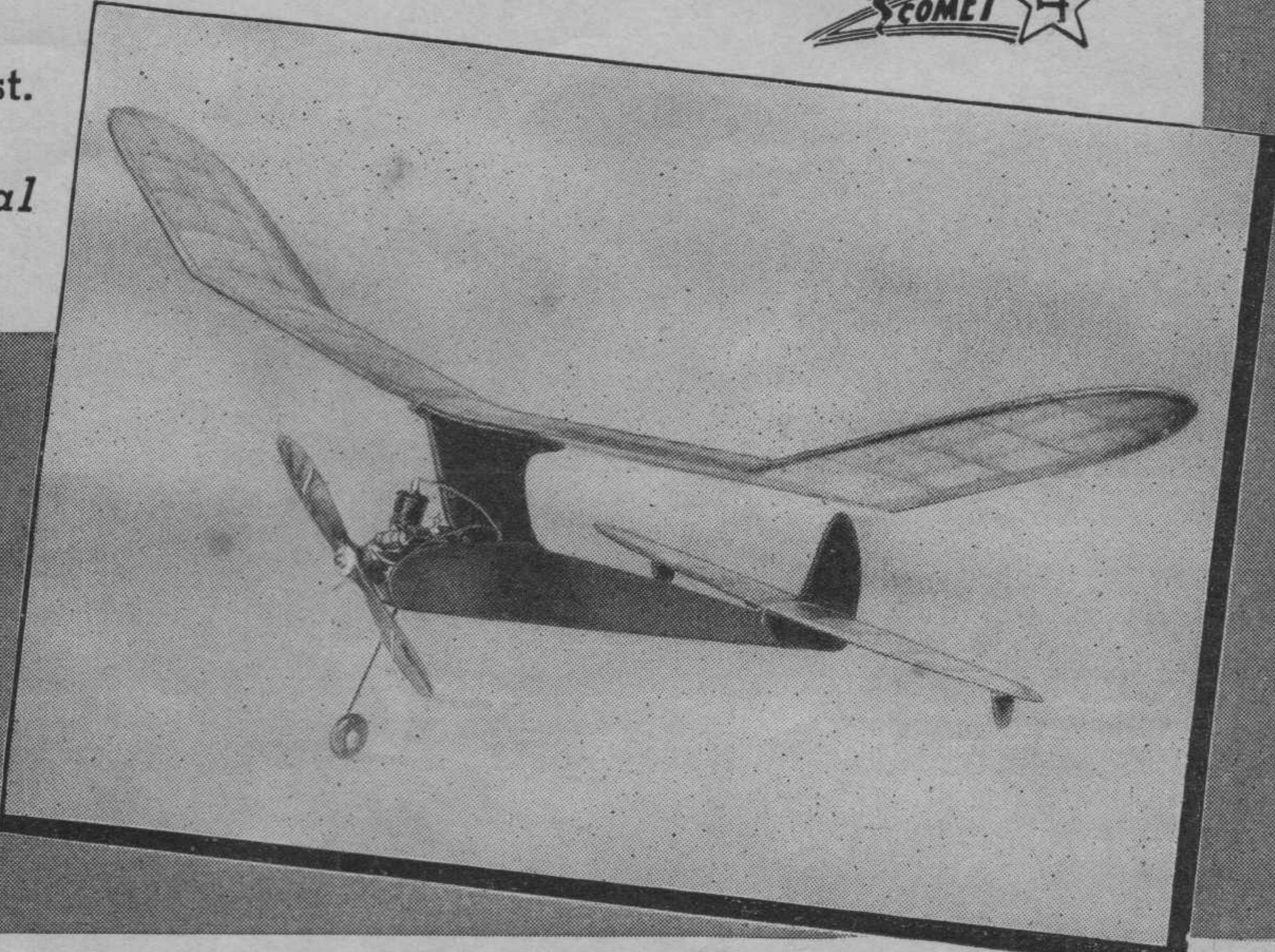


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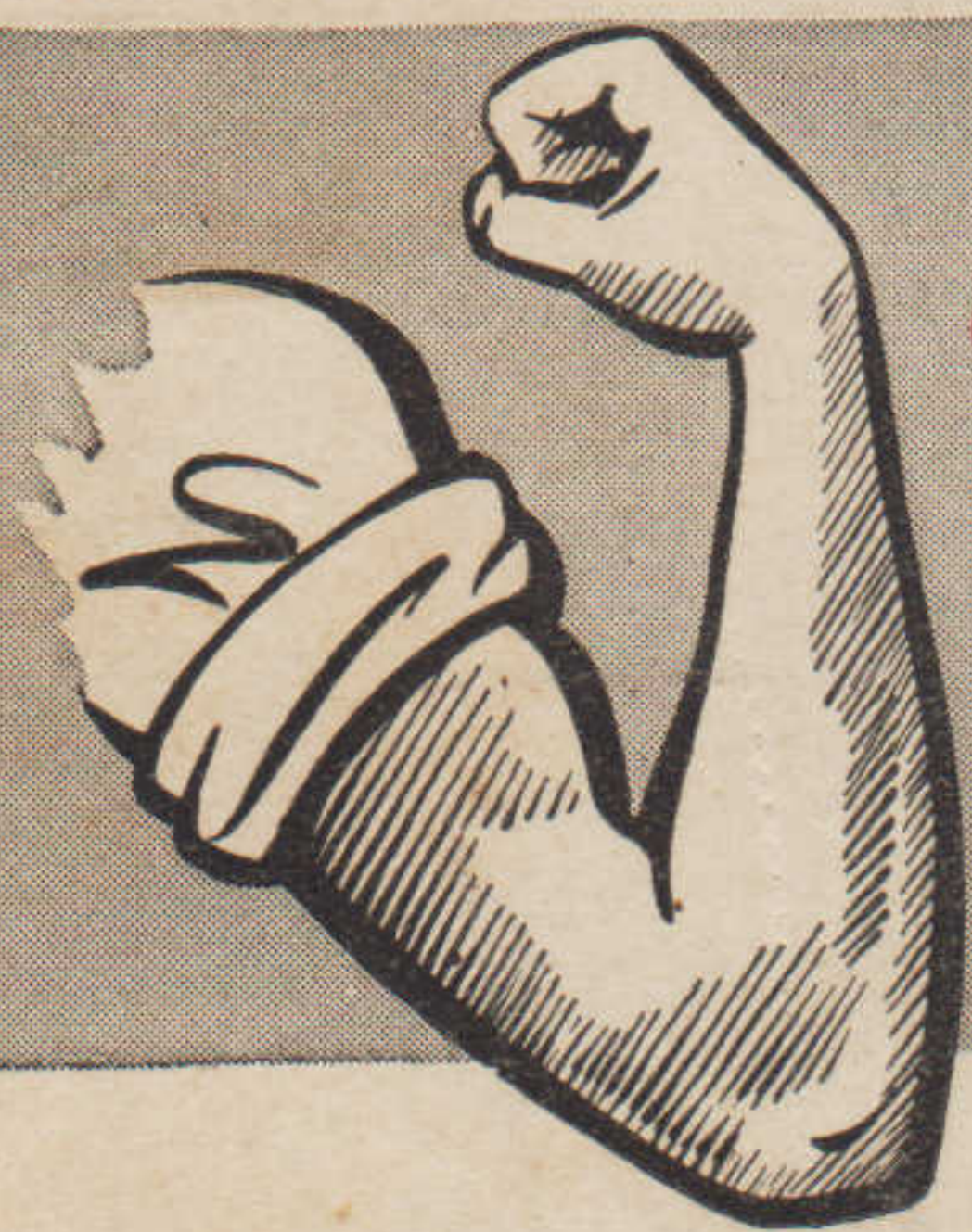
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# BRAWN

OR



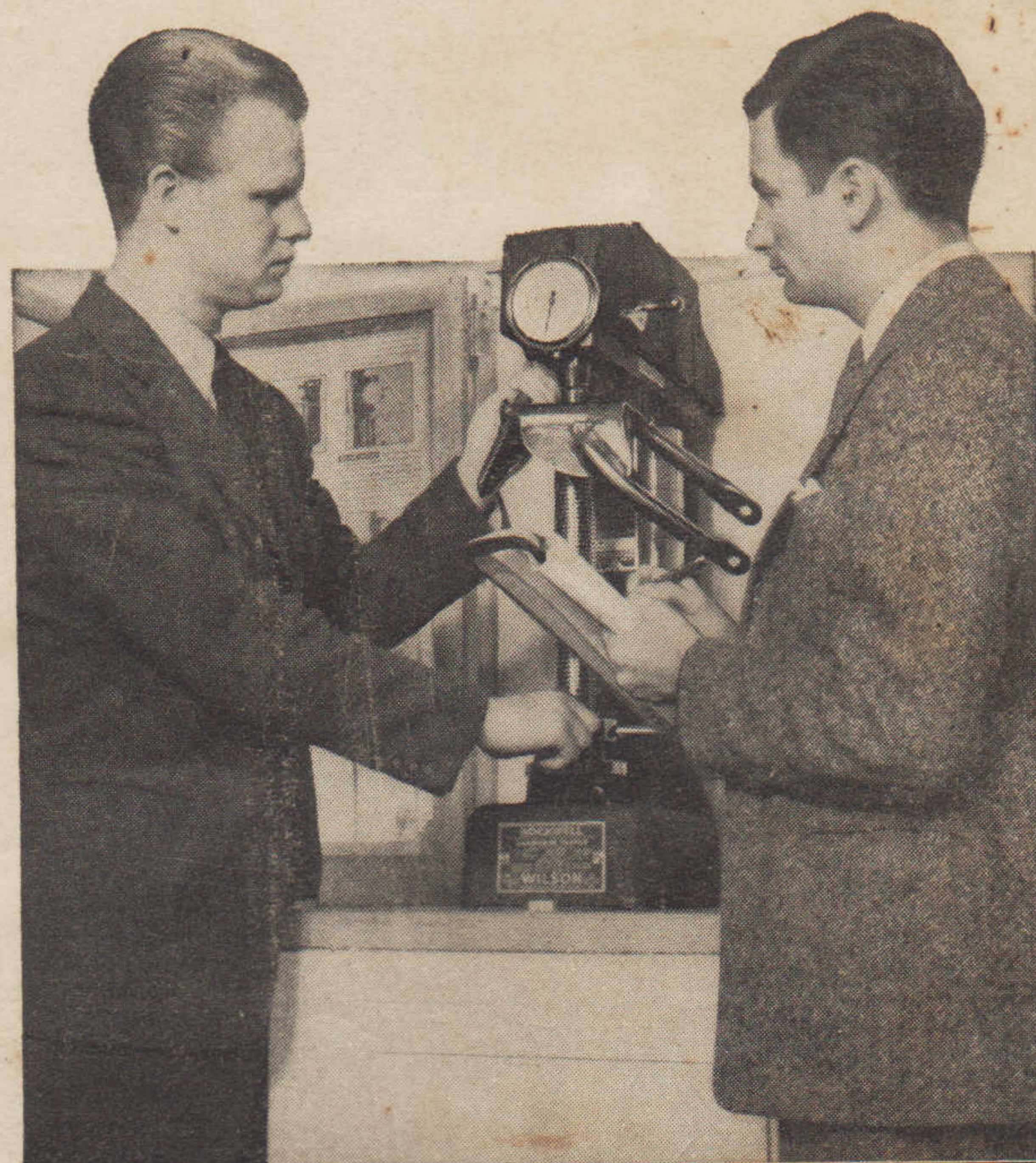
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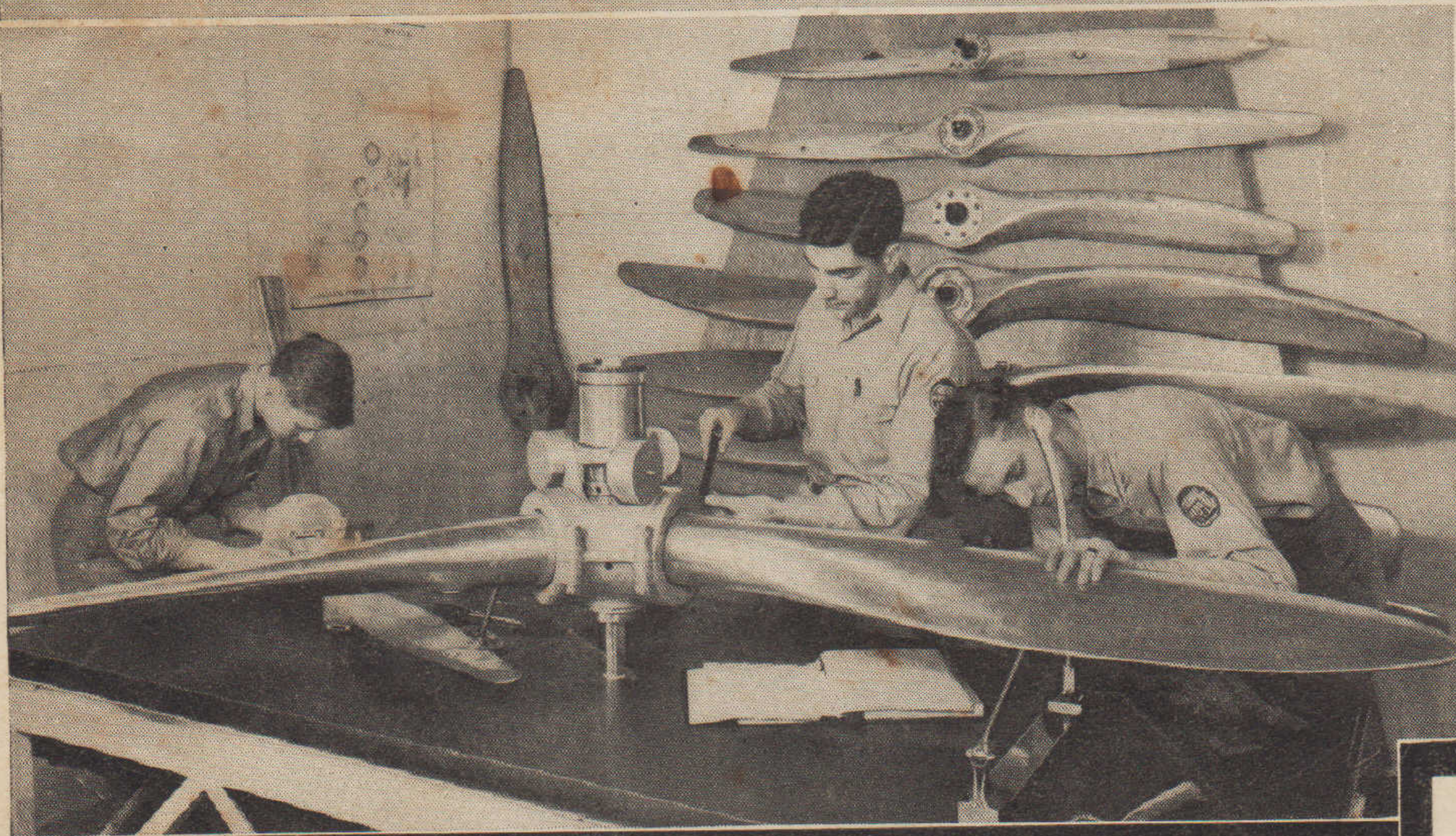
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