

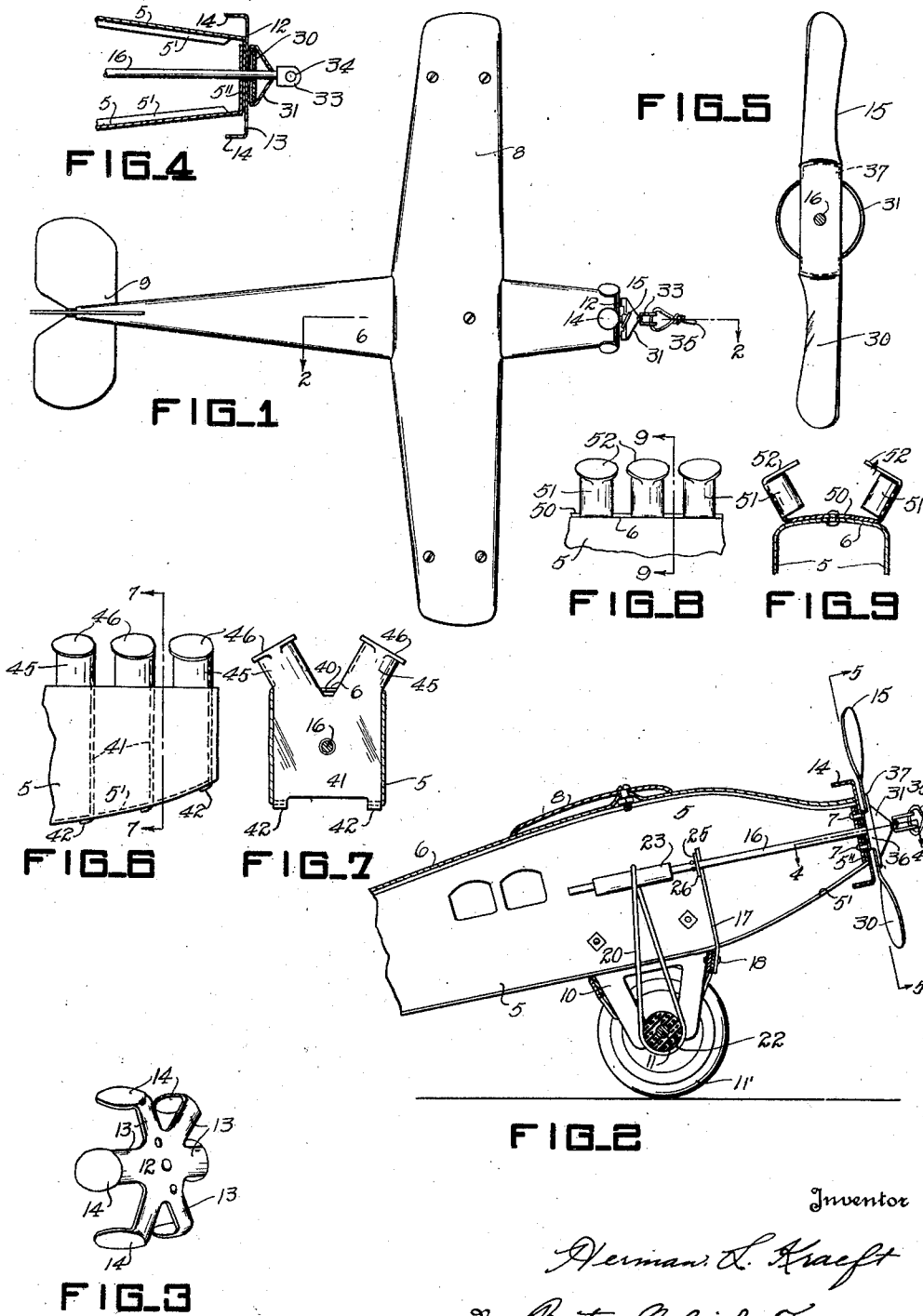
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SHEET METAL TOY CONSTRUCTION

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SHEET-METAL TOY CONSTRUCTION

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The primary object of this invention is to provide a propeller and motor arrangement for a toy aircraft which will be simple in construction, formed of substantially a minimum number of parts, capable of being easily and quickly assembled, and which arrangement will be unusually strong, considering the size of the toy and character of material used.

A specific object is to provide a motor simulating device for a toy, which device may be made in one piece yet fairly closely represent or produce the optical effect of a full sized mechanism.

Further objects and features of the invention will become apparent from the following description relating to the accompanying drawings. The essential characteristics are summarized in the claim.

In the drawings, Fig. 1 is a plan view of a toy airplane incorporating my invention; Fig. 2 is a longitudinal central cross sectional view of the forward portion of the airplane; Fig. 3 is a perspective view of the motor simulating part; Fig. 4 is a longitudinal sectional view taken substantially along the line 4-4 on Fig. 2; Fig. 5 is a rear end elevation of the propeller; Figs. 6 and 8 are fragmentary side elevations of the forward portions of toy airplane or like bodies showing modified arrangements of motor simulating parts, and Figs. 7 and 9 are cross sectional views indicated by corresponding lines on Figs. 6 and 8 respectively.

The structure and arrangement of parts in this application is substantially in accordance with the showing of application Serial No. 284,389, filed July 21, 1928, of which this application is a continuation in part.

Referring in detail to the drawings, the fuselage 1 of the airplane may comprise side members 5, preferably sheet metal, and a top closure 6 of similar material joined to the side members as by spot or line welding. The fuselage may of course comprise a single sheet of pressed metal, insofar as the present invention is concerned, and may be of any desired shape. The side members 5 may be strengthened at their lower edges by in-

turned flanges 5'. At the front of the body, the side members 5 are brought together into overlying relationship, as shown at 5'' in Fig. 4. These overlapping portions 5'' may be joined by suitable rivets 7 passing through the overlapping portions (see Fig. 2). A suitable wing structure is shown at 8, and tail structure at 9.

The landing gear preferably includes a suitably braced under frame 10 suitably secured to the fuselage on its under side and which carries a suitable axle 11 for a pair of supporting wheels 11'.

In the form shown in Figs. 1 to 4, the motor simulating device comprises a circular piece of sheet metal having a central body 12, radially projecting extensions 13 and rearwardly turned, preferably circular, portions 14 integral with the extensions 13.

If desired for closer simulation of a radial motor, the extensions 13 may be rounder in substantial conformity to the marginal edges of the cylinder head forming parts 14, as illustrated in the perspective view. Any suitable means may be provided to hold the motor simulating device on the fuselage, but preferably screws or rivets, the latter being shown, extend through registering openings in the motor body part 12 and the overlying portions 5'' of the side members 5.

The propeller is designated generally at 15 and is supported on a suitable shaft 16 which engages a fairly close fitting opening in the member 12, as a bearing support but passes loosely through openings in the members 5'' into the interior of the fuselage. The enlarged openings in the members 5'' permit some variation in the assembly, since the openings for the shaft in the members 5'' may be considerably out of registration without dragging on the shaft and preventing free turning thereof. As shown, there is a bracket 17 supporting the end of the shaft which terminates within the fuselage and this bracket 17 is secured to the running gear frame 10 as by rivets 18. Suitable means to drive the shaft from the landing gear axle 11 may comprise an elastic belt 20 extending over pulley forming members 22 and 23 on the axle 11 and shaft 16 respectively.

Endwise forward movement of the shaft

16 is prevented by reason of a suitable washer 25 which may be held in place by upset lugs 26 on the shaft 16, the lugs being behind the washer and the washer engaging the bracket 17.

5 The preferred construction of the propeller comprises a blade stamping 30 centrally perforated to receive the shaft, and a cup-shaped nose member 31 also formed in one piece and
10 suitably fastened to the blade as by spot welding. The blade and nose member 31 provide spaced supporting contact of the propeller with the shaft, as may be best appreciated from Fig. 4. Here the blade lies close to the
15 motor simulating part at 31 and the nose member extends forwardly along the shaft in spaced relation to the blade, thereby lending considerable rigidity to the propeller. If desired, the propeller may be soldered to the
20 shaft to prevent relative turning between the propeller and shaft. Usually press fits between the shaft and the openings in the nose member and blade are sufficient to prevent such relative turning. To align the shaft receiving openings in the propeller strip and
25 nose member, as well as to form attaching means between these propeller parts, the rear parts of the nose member are flanged outwardly as at 36 to overlie and be secured to the blade strip 30 while at 37 there are flanges
30 which extend alongside the blade strip, straddling the latter to space the blade strip from the adjacent front surface of the motor body portion 12. The outer end of the shaft
35 16 carries a U-shaped swivel clip 33 suitably formed to permit the attachment of a string, such as 35, for drawing the toy along the floor.

If desired, the essential characteristics of
40 the motor simulating stamping may be retained in forming V or other types of motors. For example, in Figs. 6 and 7 I have shown motor simulating arrangements in which there are only two cylinders and a body portion for each single stamping. In these figures, the side members 5 and top member 6
45 are shown as integral and the top member has a transverse slot as at 40 for receiving the flat body portions 41 of the motor simulating stampings. These body portions may have
50 lugs 42 which enter slots in the flange formation 5' of the body sides, which lugs may be bent over to underlie the flange formations as a securing means. The cylinder simulating
55 parts of the stamping are, as shown, substantially similar to the illustrated embodiments of the radial type motor, there being elongated extensions 45 and rearwardly
60 turned cylinder head simulating portions 46. If desired, the elongated cylinder simulating extension portions 45 may be curved to underlie all the lower edges of the head portions 46. As shown, the curved parts of the portions 45 extend only part way around.

65 Figs. 8 and 9 illustrate a further modifica-

tion of the single stamping motor simulating device also arranged to represent a V type motor. Here there is a motor body portion 50 which may be secured flatwise against the top member 6 of the fuselage. The motor
70 body 50 has upstanding elongated extensions 51 curved as before to underlie the bent-over cylinder head simulating portions 52.

In any form illustrated, it will be seen that the essential lines of a motor as it would be
75 seen from the outside of an aircraft, are carried out with a single stamping, the number and arrangement of cylinders being largely a matter of selection.

From the above description it will be seen
80 that I have provided a propeller and motor construction and propeller driving device which is extremely simple, easy to manufacture and assemble. The motor simulating device is a very simple one piece stamping; like-
85 wise the propeller blade is a simple one piece stamping. The motor simulating device may be secured in place by fastening members which comprise part of the body or fuselage assembly, thus obviating the necessity for
90 special attaching means. The propeller driving arrangement is simple and compact, easily assembled into the finished toy and results in a very effective propeller drive which will operate to turn the propeller whenever the toy
95 is drawn over the floor.

It will be understood that the motor simulating device and propeller may be used in toys differing greatly in character; for example, this construction lends itself equally
100 well to dirigible balloon types of toys and may be adapted for use in toy motor boats. It will be further understood that the size of the toy is, in general, immaterial, the parts without substantial modification being adapt-
105 able for use in connection with vehicles of the child propelled type, which are of course, materially larger.

I claim:

In a toy airplane, a body, a single sheet
110 metal stamping secured thereto, said stamping having a disc-like central portion, a plurality of spoke-like portions extending radially therefrom, and a corresponding plu-
115 rality of cylinder head simulating portions transverse to said spoke-like portions at their extremities, said spoke-like portions being arcuate in cross section, whereby the outward appearance of an airplane motor is effected.

In testimony whereof, I hereunto affix my
120 signature.

HERMAN L. KRAEFT.