

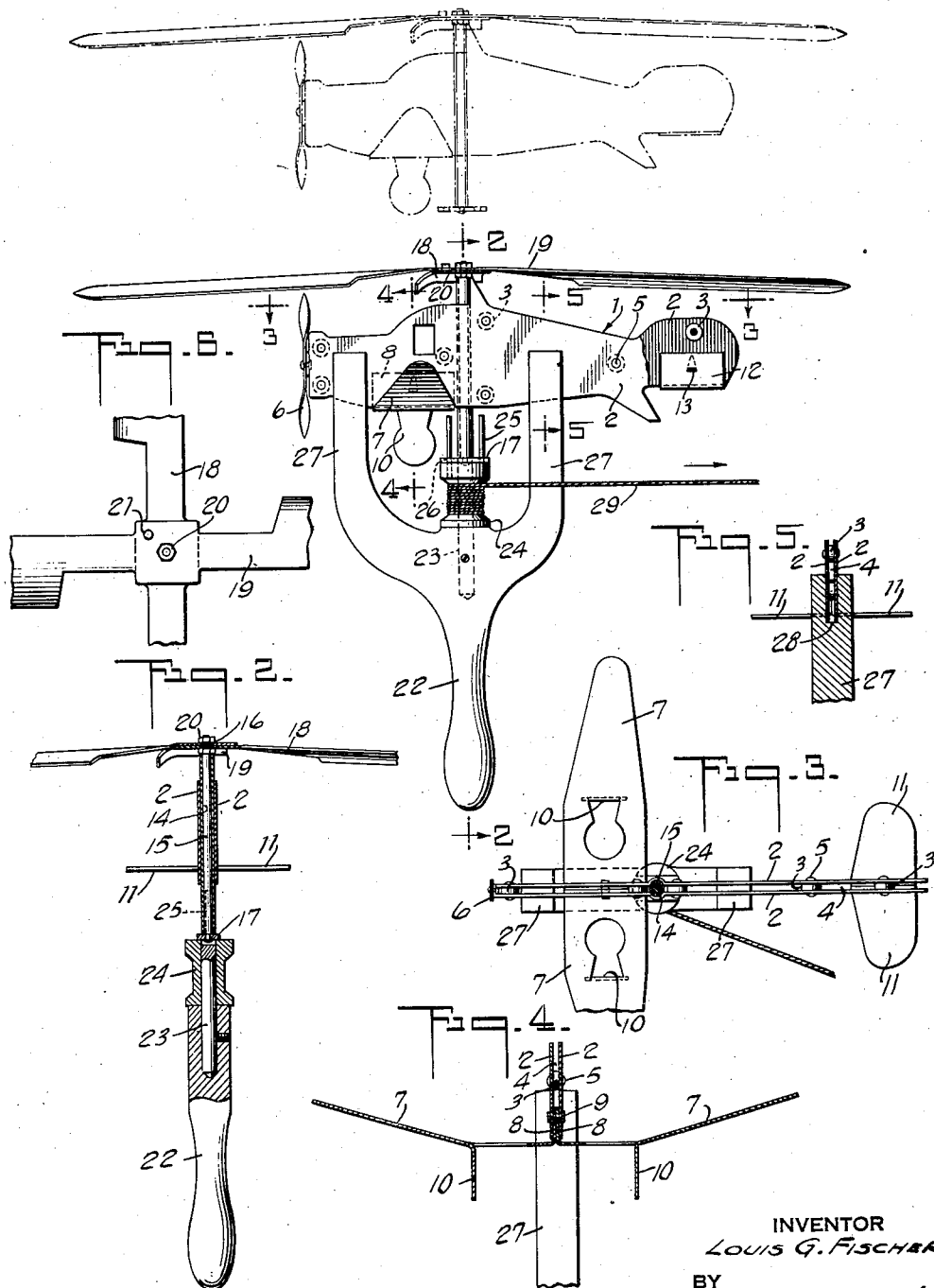
Aug. 27, 1935.

L. G. FISCHER
TOY AUTOGYRO

2,012,600

Filed May 11, 1934

Fig. 1.



INVENTOR
LOUIS G. FISCHER
BY *Arthur W. Smith*
ATTORNEY

UNITED STATES PATENT OFFICE

2,012,600

TOY AUTOGYRO

Louis G. Fischer, Warsaw, N. Y.

Application May 11, 1934, Serial No. 725,031

5 Claims. (Cl. 46—51)

This invention relates to a toy, and more particularly to a toy autogyro or helicopter.

One object of the invention is to provide a toy having a body formed to simulate an autogyro and having a horizontal air-screw propeller which is adapted to be rotated rapidly by manually operated means so as to cause the toy to rise vertically in the air a considerable height.

Another object is to provide a device of this character which is composed of few and simple parts so that the device may be inexpensively manufactured in large quantities on a high production basis.

A further object is to provide a toy of this type of knock-down construction which will permit of its being easily put together or taken apart by a child of ordinary intelligence, and which will permit of its being shipped and stored in flat condition.

Other objects and advantages of the invention will appear from the following description thereof, it being understood that various modifications in the details of construction and arrangement of parts hereinafter described may be made without departing from the spirit or scope of the invention as defined in the claims.

The accompanying drawing illustrates a preferred embodiment of the invention, in which:—

Figure 1 is a side view, partly broken of my toy autogyro held in the handle member, in position to be operated, and showing, in dash-and-dot lines, the body member raised from the handle member;

Fig. 2 is a vertical cross-section taken on the line 2—2 of Figure 1;

Fig. 3 is a horizontal cross-section taken on the line 3—3 of Figure 1;

Fig. 4 is a vertical cross-section taken on the line 4—4 of Figure 1;

Fig. 5 is a vertical cross-section taken on the line 5—5 of Figure 1; and

Fig. 6 is a fragmentary plan view of the horizontal propellers.

Referring to the drawing, the device comprises a body member indicated generally by the reference character 1, which body member may be made of any suitable material, preferably stamped sheet metal, shaped to simulate the appearance of the fuselage and appurtenant parts of an autogyro. The body as shown consists of two parallel side members 2—2 spaced slightly apart by spacers 3, to form a longitudinal slot 4 between said members, and fastened together by rivets 5 or other fasteners. An imitation tractor air-

screw 6 is suitably mounted at the front end of the body to spin idly.

Near the front end, and projecting outwardly from opposite sides of the body, are a pair of wings 7—7 which may be conveniently made of sheet metal stampings. Each wing is formed with an upwardly bent portion 8 at its inner end. The upwardly bent portions of the two wings are inserted in the slot 4, from the bottom, and are detachably fastened in place by means of a metal clip 9 or other fastener which passes through registered openings in the body and the wings and has its ends bent upwardly as best seen in Fig. 4. If desired, the wings may have tongues 10 stamped therein of such shape that when bent downwardly they will simulate landing-gear wheels. At the rear end of the body, below the imitation vertical rudder, are a pair of imitation horizontal rudders 11—11, each formed with an upwardly bent portion 12 at its inner end. These horizontal rudder members are detachably secured to the body, as best seen in Fig. 1, by a metal clip or fastener 13, in a manner similar to the fastening of the wings 7. This provides a knock-down construction so that the parts may be easily put together or taken apart.

Extending vertically through, and clamped to the body 1, at a point intermediate its ends, is a sleeve 14 which houses a vertical rotary spindle 15. The spindle is screw-threaded at its upper end 16 and has a plate 17 affixed to its lower end.

Horizontal lifting screw-propeller members 18 and 19 are fastened by nuts 20 to the upper threaded end of the spindle 15. Each propeller member has two blades and may be conveniently made of a single piece of sheet metal stamped to the desired shape. The two propeller members cross each other in the center and are pivoted together, off center, by a headed pin 21, as seen in Fig. 6. This pivot pin permits one member to be turned towards the other so that they may be folded compactly for shipping but holds them at an angle of ninety degrees to each other when they are fastened in operative position on the spindle 15.

22 is a handle member provided with upwardly extending fixed rod 23. A spool 24, of any desired form and construction, is mounted to rotate freely on the rod. The spool carries a pair of upwardly projecting pins 25 which are adapted to extend through holes 26 in the plate 17 fixed to the foot of the spindle 15. These pins, as shown, are sufficiently long so that when, in operation, the body 1 rises from the handle, it will not be raised completely off the pins until 55

the horizontal propellers have been rotated to full speed. The handle has two forks 27 which may be formed integral or of separate parts. Each fork has a longitudinal slot 28, best seen in Fig. 5, for receiving and supporting the body member 1.

In the operation of the device, a cord or string 29 is wound on the spool 24. When the cord is rapidly withdrawn from the spool a rotary motion will be given to the latter which motion, transmitted through the pins 25 to the driving plate 17 and spindle 18, will cause the horizontal propeller assembly 18-19 to spin on its vertical axis.

Spinning of the propellers will cause the body 1 to rise from the handle and project itself upwardly in the air as indicated by the dash-and-dot lines in Fig. 1.

What I claim is:

1. A toy autogyro comprising a body member, a vertical rotary spindle carried by the body member, a horizontal screw-propeller secured to the upper end of the spindle, a driving plate on the lower end of the spindle, a forked handle member having slots in the forks for receiving and supporting the body member at rest, a rotary spool mounted on the handle member intermediate the forks, and pins projecting upwardly from the spool through holes in the driving plate whereby rotation of said spool will impart rotary motion to the horizontal propellers and cause the body member to rise clear of the handle member.

2. A toy autogyro of knock-down construction comprising a body member having two parallel side pieces fastened together in spaced relation to provide a longitudinal slot therebetween, a pair of planes, one projecting outwardly from each side of the body, each plane having its inner end bent upward, the upwardly bent portions of the two planes being inserted in juxtaposition in the slot and being detachably secured

to the body member by a removable fastener, a vertical rotary spindle carried by the body member, and a horizontal screw-propeller detachably secured to the upper end of the spindle.

3. A toy autogyro of knock-down construction comprising a body member having two parallel side pieces fastened together in spaced relation to provide a longitudinal slot therebetween, a pair of imitation wings, one projecting outwardly from each side of the body adjacent the front end thereof, each wing having its inner end bent upward and detachably secured in the slot, a pair of imitation horizontal rudders, one projecting outwardly from each side of the rear end of the body, each of said imitation rudder members having its inner end bent upward and detachably secured in the slot, a vertical rotary spindle carried by the body member, and a horizontal screw-propeller detachably secured to the upper end of the spindle.

4. A toy autogyro comprising a body member, planes projecting from the sides thereof and detachably secured thereto, a vertical sleeve secured to the body member intermediate its ends, a revoluble spindle in said sleeve, a horizontal screw-propeller detachably mounted on said spindle, a handle member supporting the body member at spaced points, and means on the handle member for rotating the spindle to cause the horizontal propeller to spin.

5. In a toy autogyro, a vertical revoluble spindle, a horizontal screw-propeller adapted to be demountably fastened to the spindle, said propeller comprising two members crossing each other at the center and extending at right angles to each other when mounted on the spindle, and means pivotally connecting said members together at a point off center to permit of compactly folding said members when demounted from the spindle.

LOUIS G. FISCHER.