

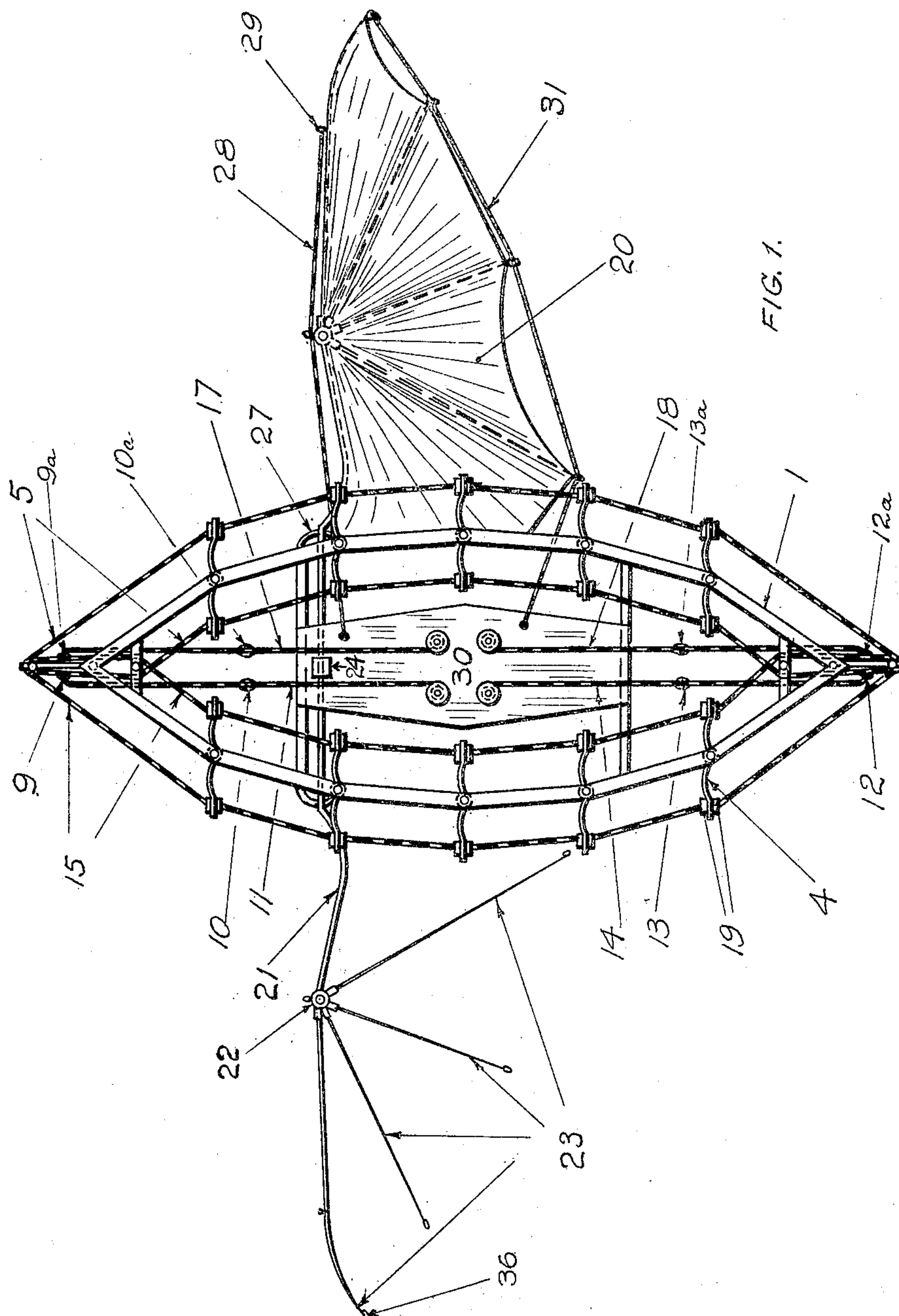
No. 877,529.

PATENTED JAN. 28, 1908.

P. T. TKATZSCHENKO.
AIR SHIP.

APPLICATION FILED JAN. 7, 1907.

4 SHEETS—SHEET 1.



Witnesses:

Elias Haggblom
Henrik H. Olsen

Peter T. Tkatzschenko Inventor

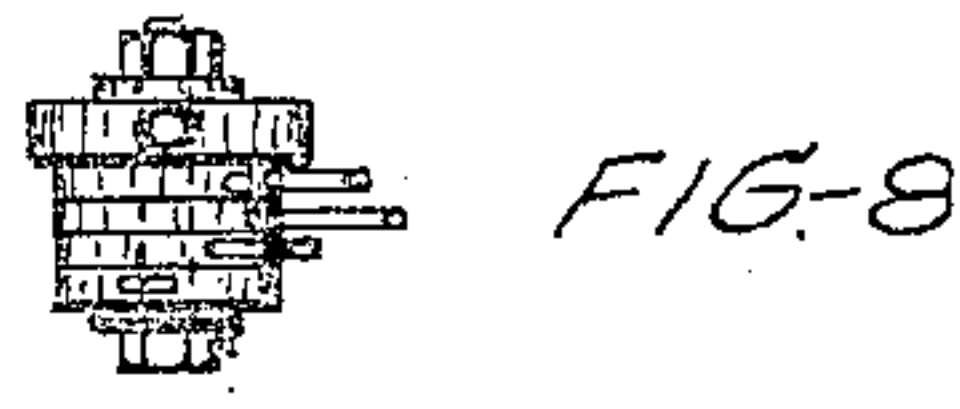
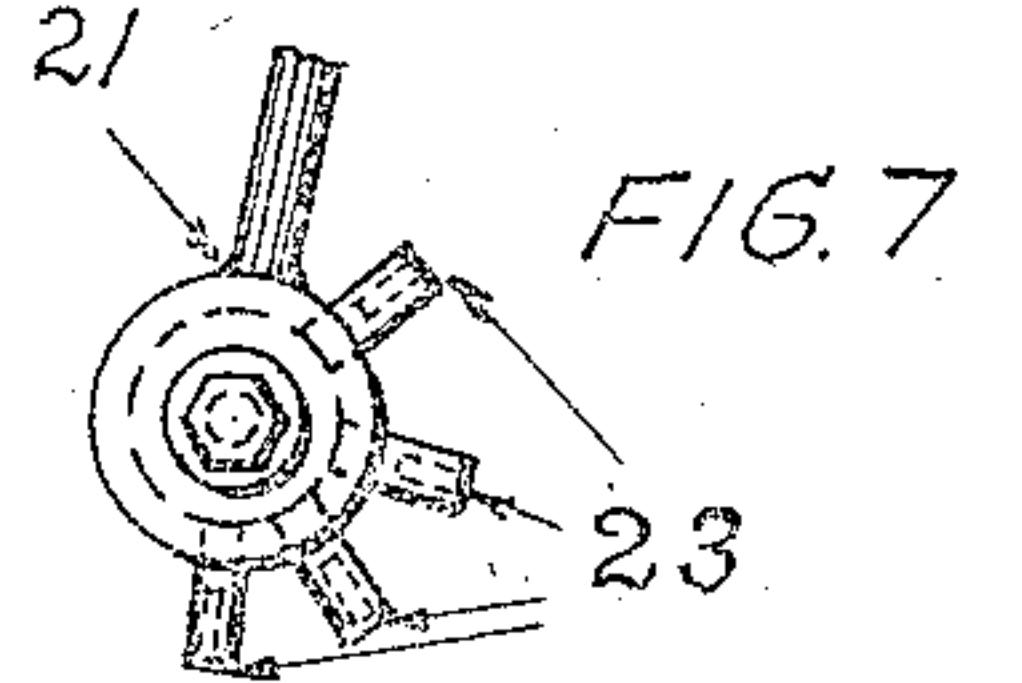
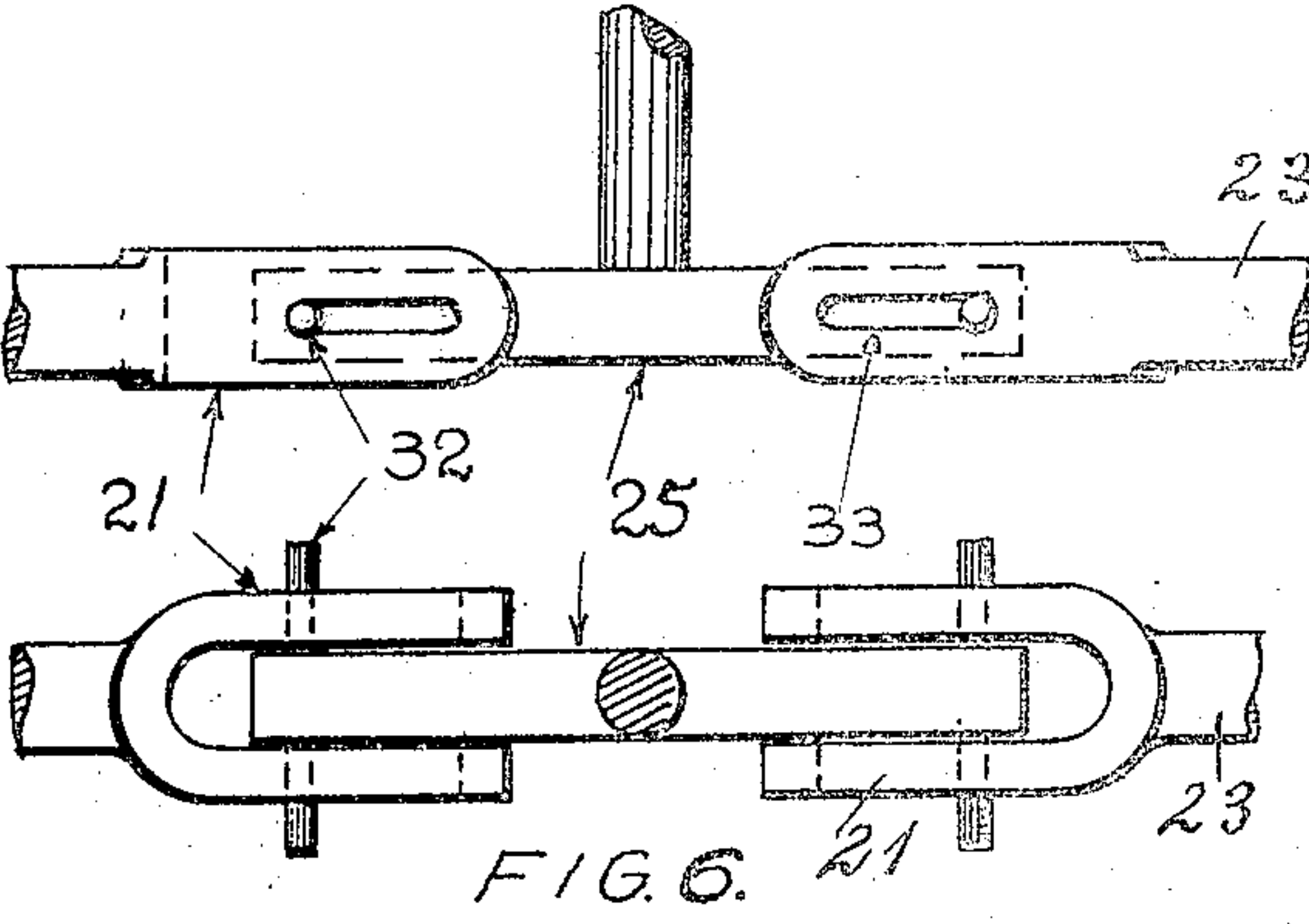
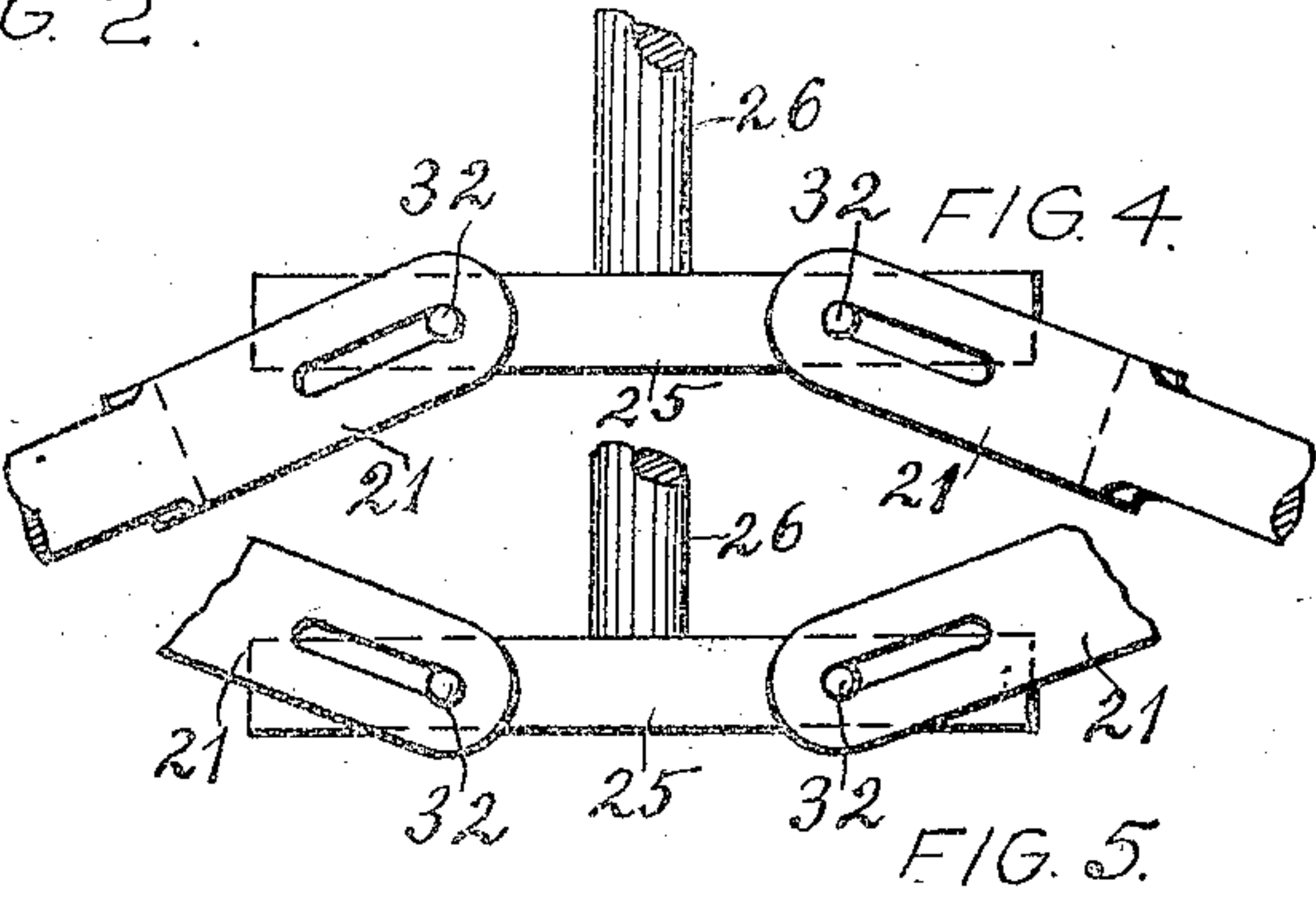
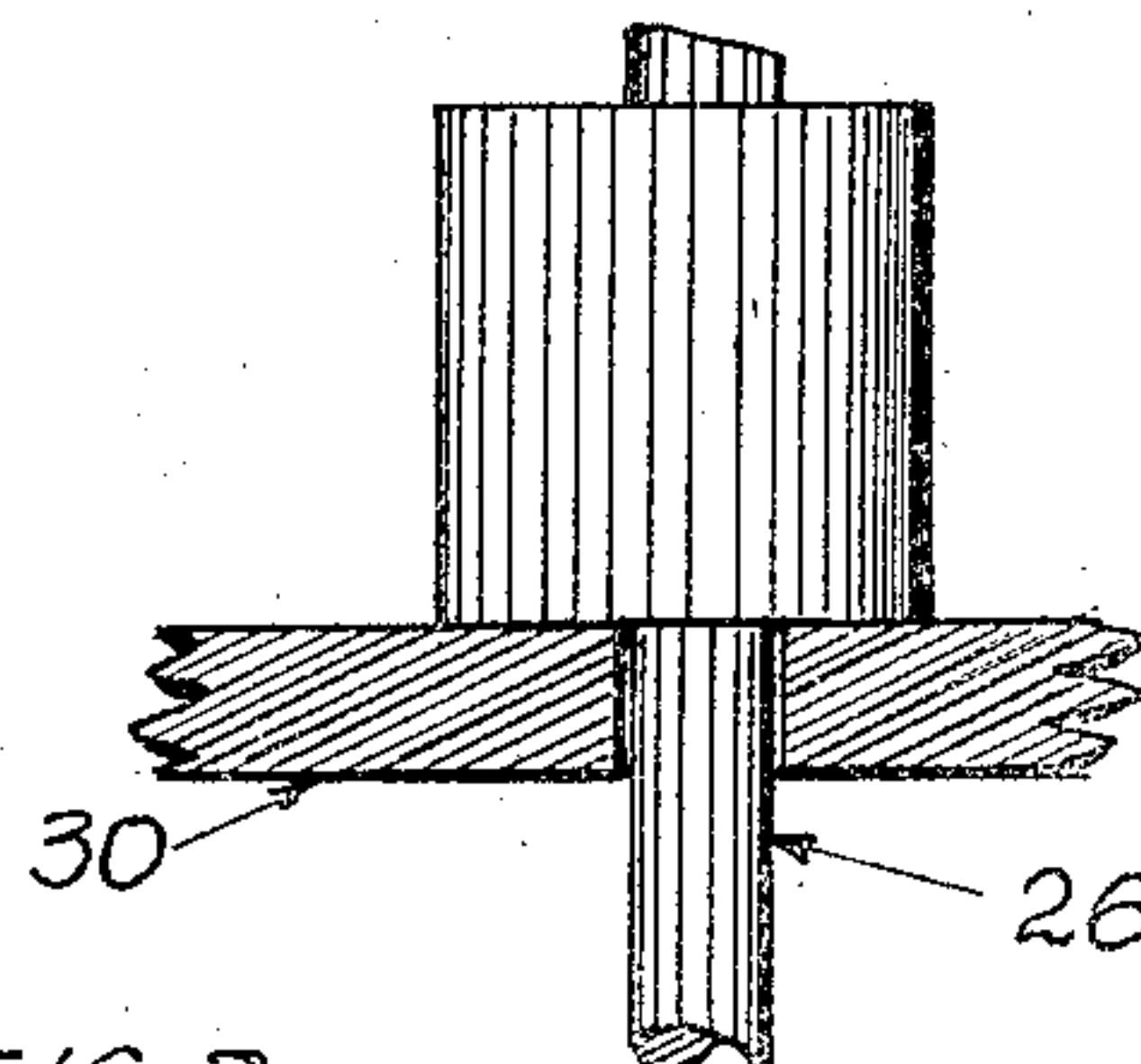
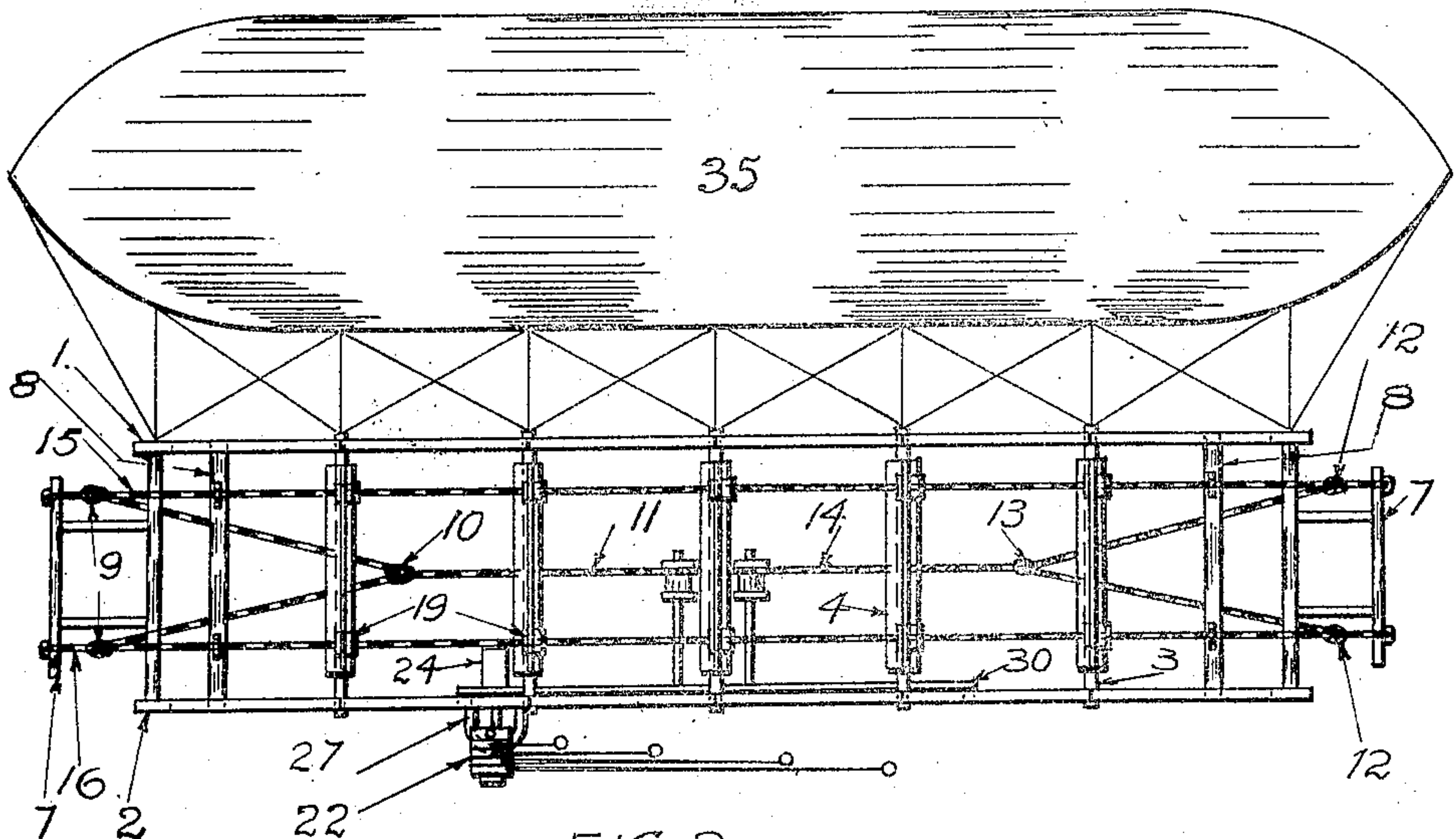
By his Attorney *J. M. Böhm.*

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AIR SHIP.

APPLICATION FILED JAN. 7, 1907.

4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

FIG.-9

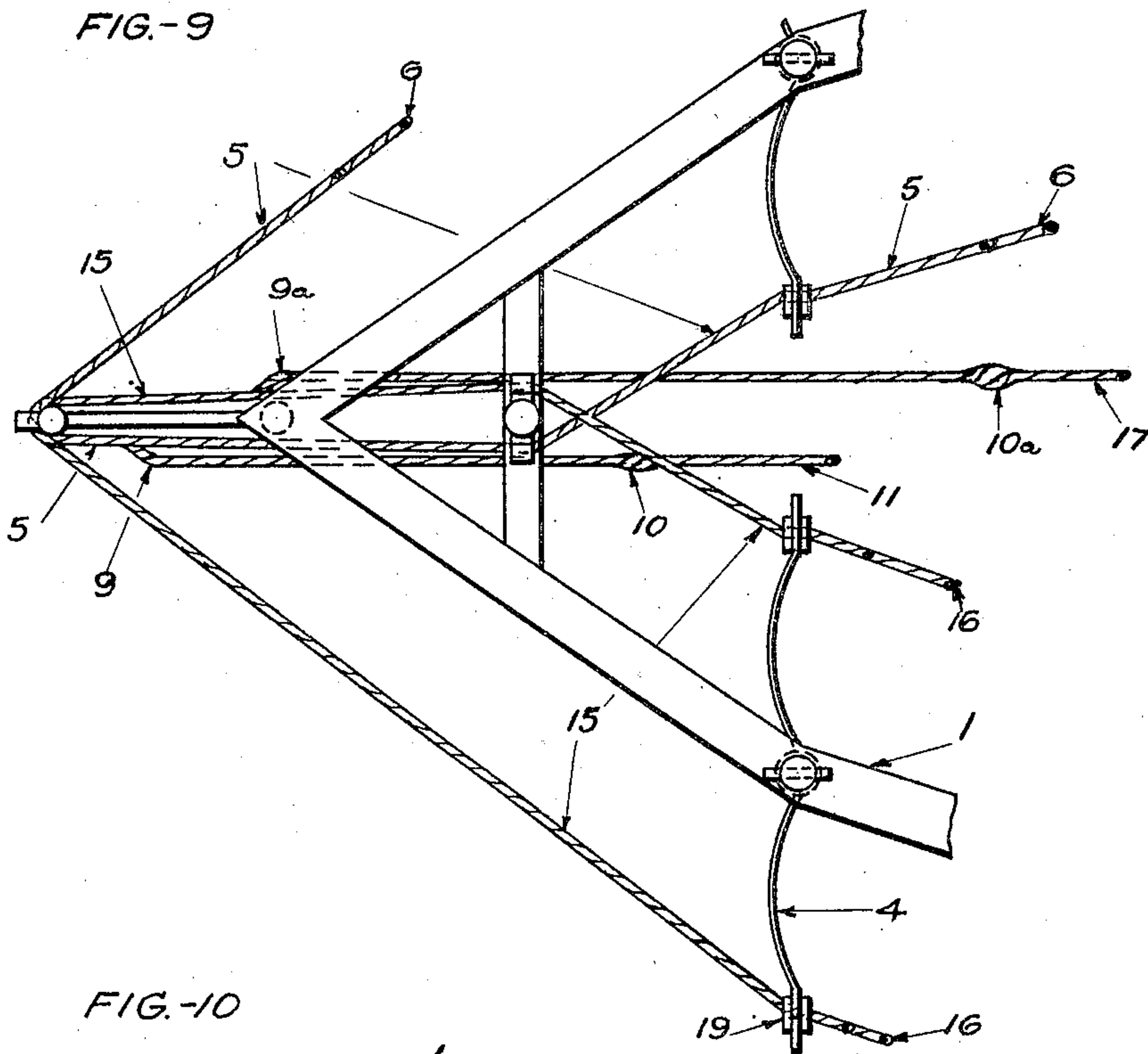
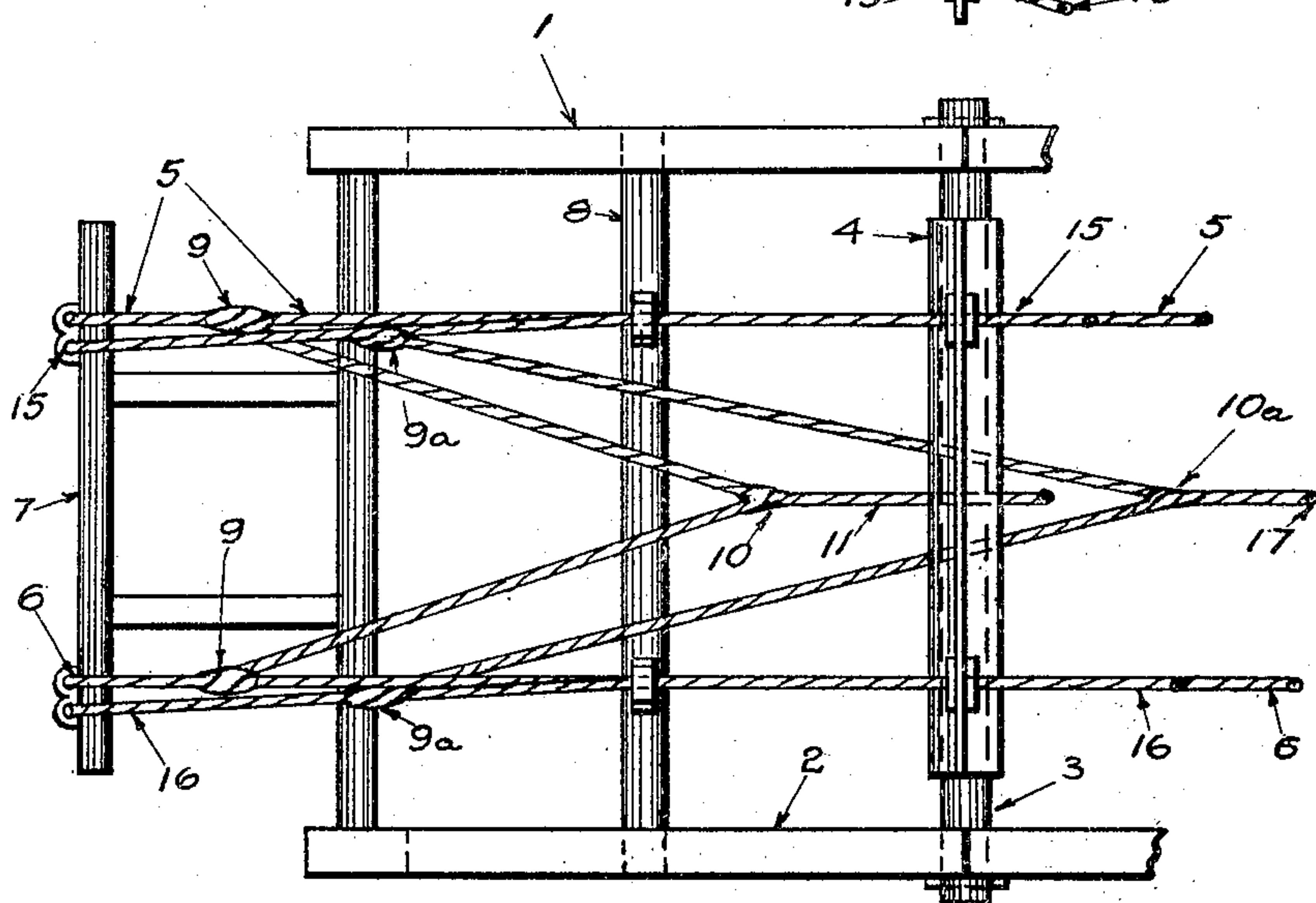


FIG.-10



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Henry H. Gpector.

Inventor
Peter T. Tkatzschenko
By his Attorney
L. K. Schmitt.

No. 877,529.

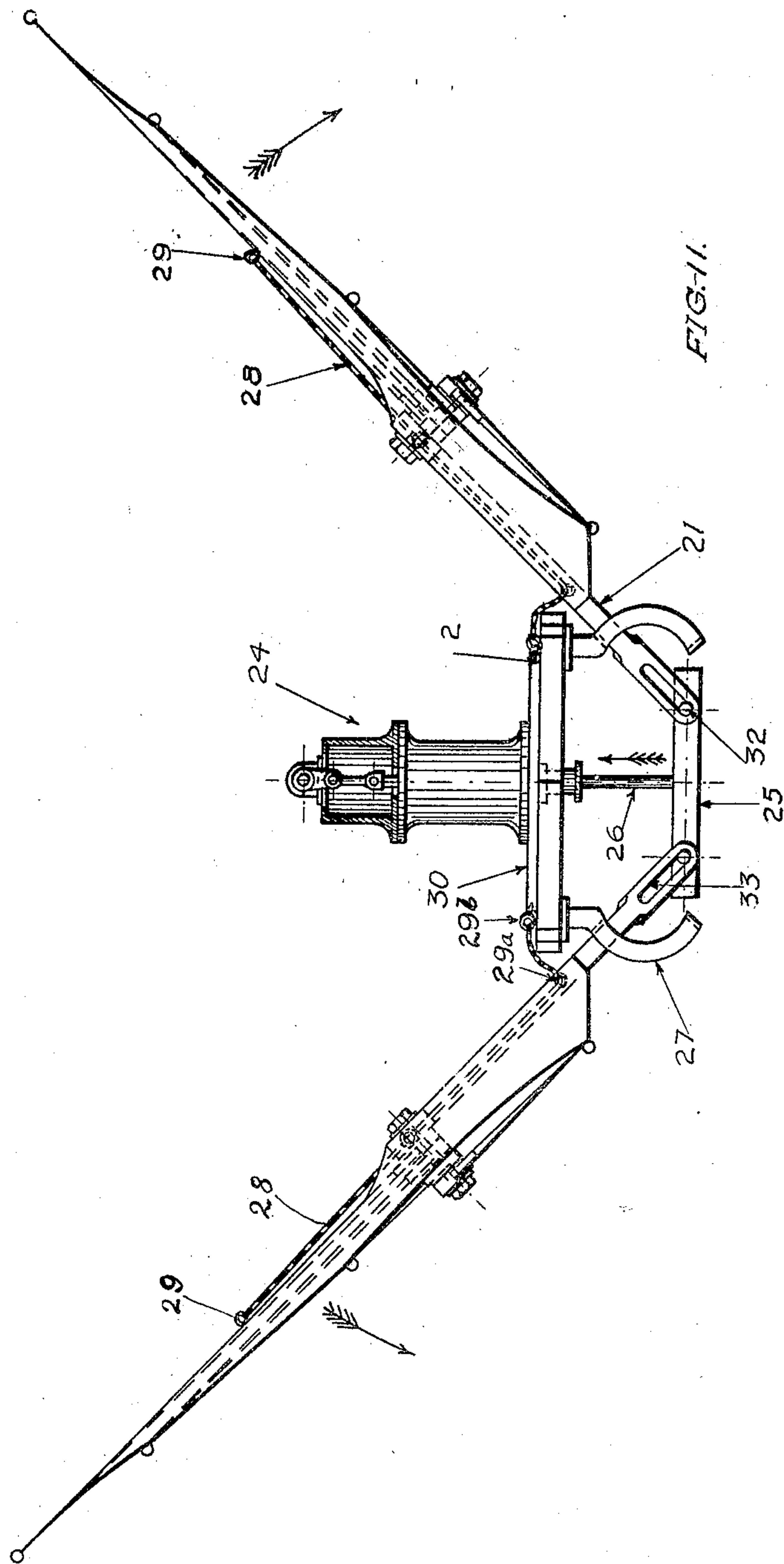
PATENTED JAN. 28, 1908.

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APPLICATION FILED JAN. 7, 1907.

4 SHEETS—SHEET 4.



Witnesses:
Louise M. Boerlage.
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Peter T. Tkatzschenko Inventor
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UNITED STATES PATENT OFFICE.

PETER THEODOR TKATZSCHENKO, OF SCHENECTADY, NEW YORK.

AIR-SHIP.

No. 877,529.

Specification of Letters Patent.

Patented Jan. 28, 1908.

Application filed January 7, 1907. Serial No. 351,265.

To all whom it may concern:

Be it known that I, PETER THEODOR TKATZSCHENKO, a subject of the Emperor of Russia, residing at Schenectady, county of Schenectady, and State of New York, have invented certain new and useful Improvements in Air-Ships of which the following is a specification.

My invention relates to improvements in air-ships of that type which are provided with a balloon and pertains particularly to a novel arrangement of wings and sails moving the same forward. The wings perform a flying motion and may be folded and unfolded and aid in the propulsion and maneuvering of the airship as will be fully described further down.

The invention is illustrated in the accompanying drawings in which:

Figure 1 represents in top plan view an airship which embodies in desirable form the present improvements with the wings spread toward the wind having the balloon removed. Fig. 2 shows the airship in side elevation with the balloon attached. Fig. 3 illustrates a coupling with shaft and cylinder of the motor attached thereto. Figs. 4 and 5 show the coupling in other positions. Fig. 6 is a side elevation of the coupling as shown in Fig. 3 without the cylinder. Figs. 7 and 8 show in detail the support or bearings of the arms of the wings. Fig. 9 shows on an enlarged scale the front end of the airship. Fig. 10 is a side elevation of same, and Fig. 11 is a detail view showing in rear elevation the connection of the wings with the motor shaft.

Similar characters of reference denote like parts in all the figures.

The airship consists essentially of an airship proper and a balloon attached thereto which raises same.

The airship consists of a frame work, sails and wings. The frame work consists of two parts, 1 and 2, connected by cross rods 3 on which revolve the sails 4. Through the sails on both sides of the airship pass cables. The cables 5 shown on the right side of Fig. 1 are parallel to each other as well as the cables 6 below. Likewise, cables 15 shown on the left side of Fig. 1 are parallel to each other as well as the cables 16 below. Each cable forms a loop and passes through the rollers 7 and 8 located between the frame parts 1 and 2. The cables of the same denomination pass through the sails one at each end. The cable loops are joined in the

front in parts 9 and 10 to form one cable 11. In the rear they are joined in the points 12 and 13 to form one cable 14. When cable 14 is loosened and cable 11 correspondingly pulled, or vice versa, the cable loops 5 and 6 perform a synchronous motion. The cables 15 and 16 which are also parallel to each other located on the left side in accordance with Fig. 1 are likewise joined into the cables 17 and 18 and may be operated in the same manner as described relative to the cables 11 and 14.

All the cable loops 5, 6, 15, and 16 are fastened to the sails in the points 19 so that, when the one end of the cable loop is loosened and the other pulled, the sails move in one or the other direction following the motion of the cables by means of said catches 19. Consequently when the ends of cables 14 and 17 are loosened and the ends of cables 14 and 18 are pulled and tightened, the sails of the airship may be placed in any desired angle with the object of making use of the wind coming from various directions.

In order to put the airship in motion when there is no wind, the folding wings 20 are applied. The one shown to the right of Fig. 1 is covered with canvas while from the left one the canvas has been removed. The wings 20 are supported in a bearing 22. On the shaft 26 of the motor 24 a bar 25 is secured to which is attached on each side a coupling 21. This coupling is shown in detail in Figs. 3 and 6 when in line with the bar 25 and in Figs. 4 and 5 when in downward and upward position thereto. The couplings are secured to the bar 25 by means of pins 32. The couplings are connected with the arms 23 which carry the canvas by means of the bearing 22. The wings are connected to the ropes 28 and 31, see Fig. 1 and Fig. 11 on which the rope 28 is shown; these ropes pass through the frame work and are secured on the plane 30. It is plainly seen from the above that the wings may be actuated and adjusted in any desired position on the pins.

To the supports of the wings moving rings 27 are secured which are fastened with the upper end to the lower end of the frame part 2 as shown in Fig. 1 and in detail in Fig. 11. Consequently the shaft 26 with the bar 25 and the couplings 21 moves up and down in a straight vertical line while the end of the couplings move on the pins 32 by virtue of its grooves 33. Hereby an upward and downward movement of the extended wings

is attained. The ends of the ropes 28 are fastened on one side to the rings 29 while the other ends are secured in rings 29^a. The ropes 28 and 31 are connected to the skeleton or ribs 23 of the wings 20. The ropes 28 are tight between the rings 29 and 29^a from where they pass through the rings 29^b located on the plane 30. Between the rings 29^a and 29^b the ropes 28 are loose in order to give the wings full movement on the plane 30. In order to fold the wings, the ropes 28 are loosened and the ropes 31 are drawn in whereby the wings will fold.

Having thus described my invention I claim as new and desire to secure by Letters Patent—

1. An airship, comprising a balloon, a frame connected to said balloon, a number of adjustable sails secured in said frame, and two adjustable wings below the sails adapted to be folded and unfolded.

2. An airship comprising a balloon, a frame secured thereto, a multiple of sails secured in said frame, a system of rope loops passing through the sails so arranged that by loosening one set of same and tightening the other, all the sails may be adjusted uniformly and parallel to each other towards the wind.

3. An airship, comprising a balloon, a frame in connection with the balloon, sails secured within said frame, a system of rope loops passing through the sails adapted to adjust same in any desired direction toward the wind, and two adjustable wings below the frame and secured thereto adapted to be folded and unfolded.

4. An airship, comprising a balloon, a frame, in connection with said balloon, sails secured within the frame, a system of rope

loops passing through the sails adapted to be actuated so that the sails are set in any desired position toward the wind, a motor mounted in the frame, a shaft, and a pair of adjustable wings connected with said shaft secured to the lower part of the frame and adapted to be folded and unfolded.

5. In an airship of the type described, a frame, sails secured therein, a system of parallel rope loops passing through said sails and turning inwardly so arranged that by loosening one set of loops and tightening the other the sails may be adjusted in any desired position.

6. In an airship of the type described a frame, a plane in said frame, a motor secured therein, a motor shaft adapted to be moved vertically up and down, a bar on the lower end of said shaft, slotted couplings movably secured to the bar, one on each side, a movable ring secured on each side of the lower frame part, a bearing on the outer end of each coupling, a wing skeleton or ribs secured in said bearing, canvas on said wing skeleton, a rope on the front of the wing a second rope on the rear of the wing for folding and extending the wings, all so arranged that by the upward and downward movement of the shaft the wings are moved up and down like the wings of a flying bird.

In testimony whereof I have signed my name to the specification, in the presence of two subscribing witnesses, this 31 day of Dec. 1906.

PETER THEODOR TKATZSCHENKO.

Witnesses:

HERMAN URY,
MILTON URY.