

T. HETTLER.

PROPELLER.

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995,786.

Patented June 20, 1911.

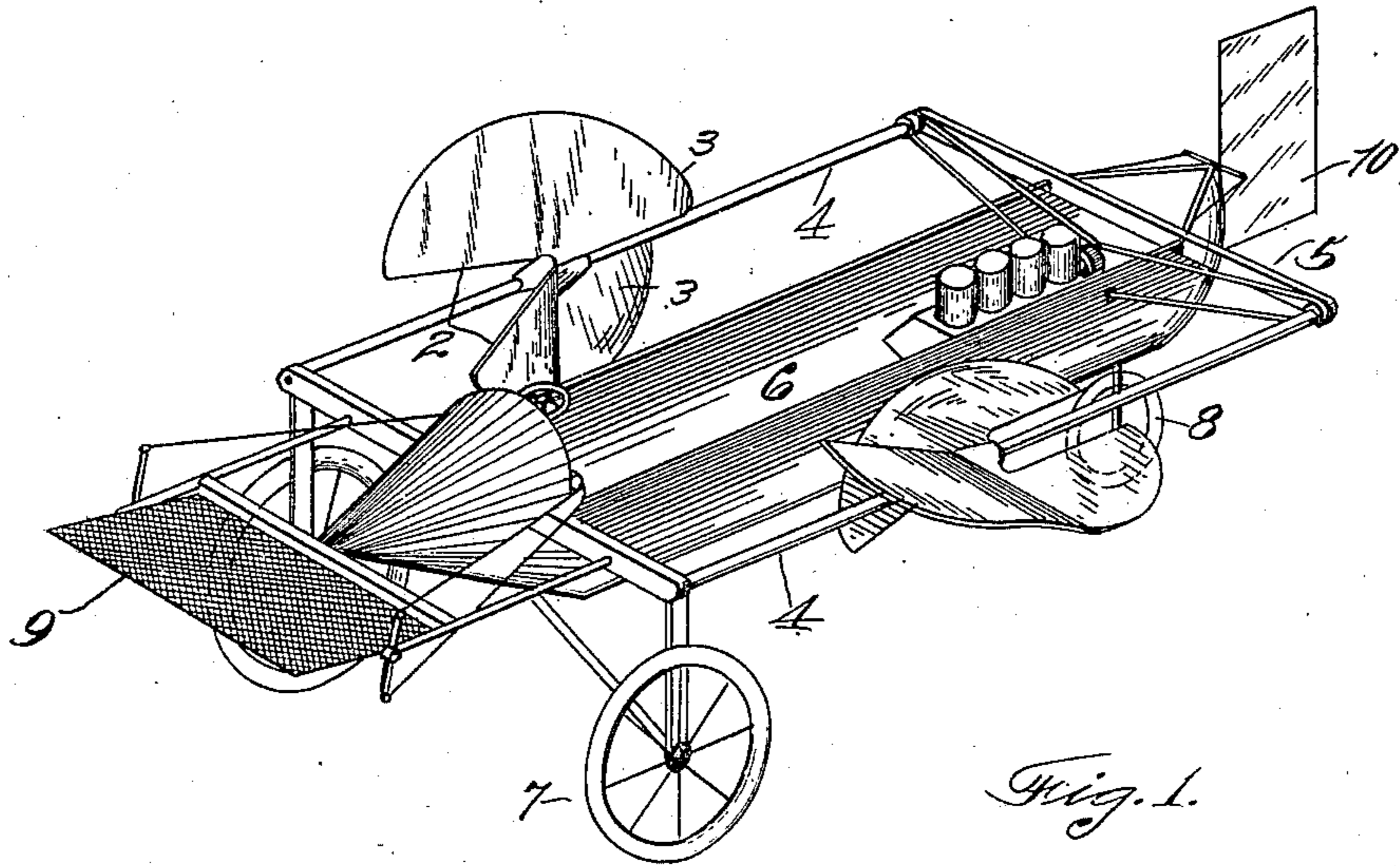


Fig. 1.

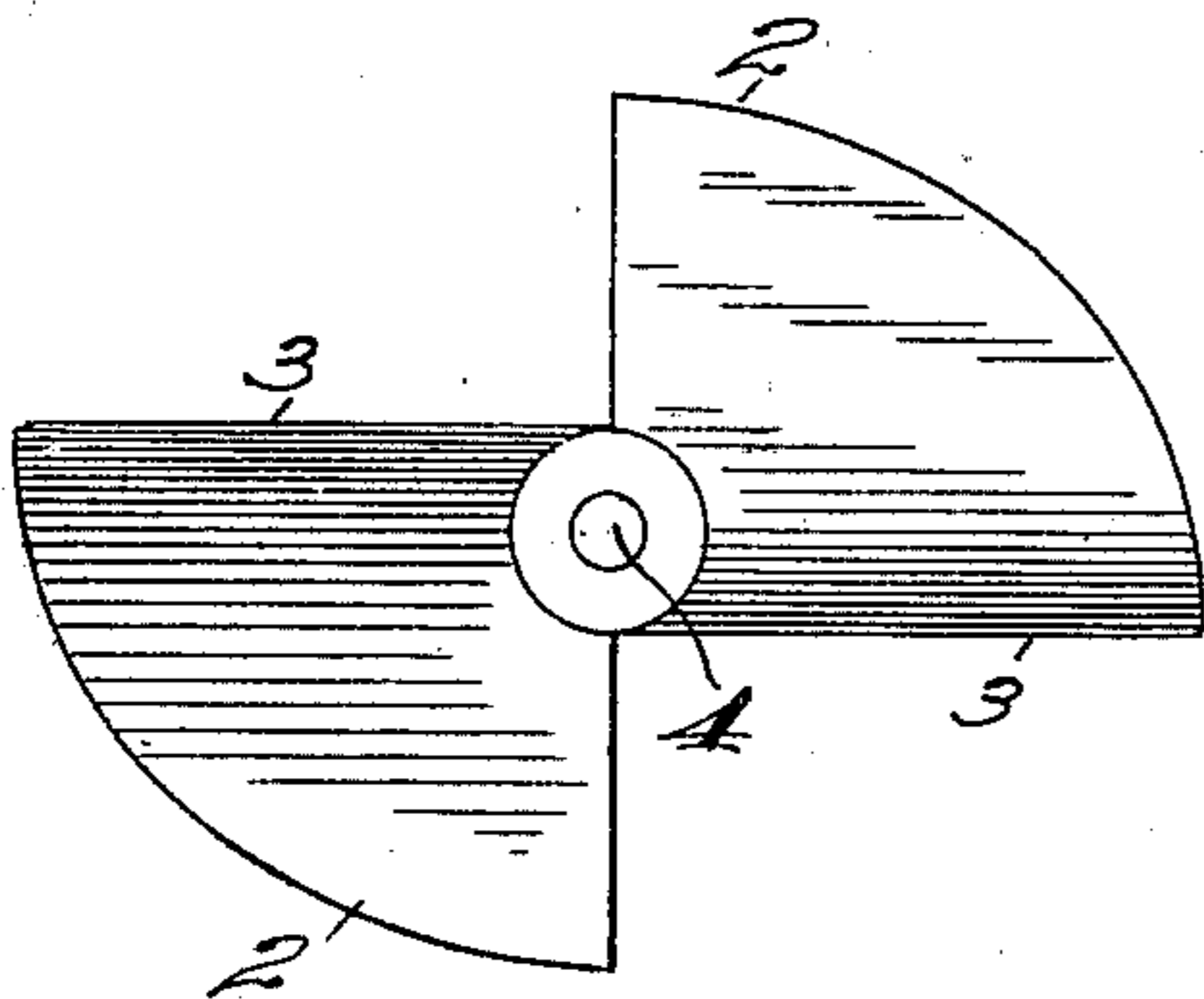


Fig. 2.

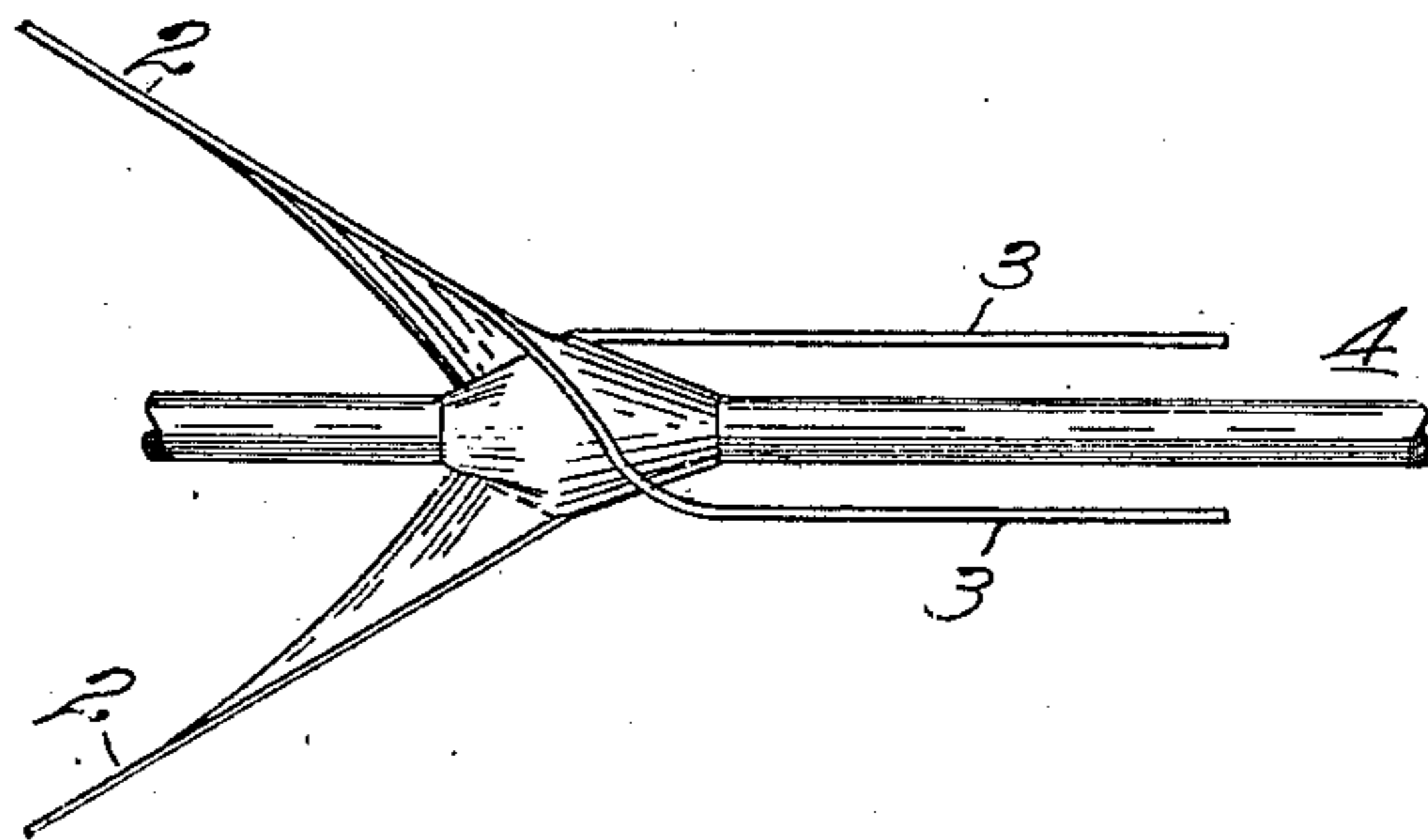


Fig. 3.

Witnesses;
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UNITED STATES PATENT OFFICE.

THEODORE HETTLER, OF ROSELAWN, CALIFORNIA.

PROPELLER.

995,786.

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To all whom it may concern:

Be it known that I, THEODORE HETTLER, citizen of the United States, residing at Roselawn, in the county of Siskiyou and State of California, have invented new and useful Improvements in Propellers, of which the following is a specification.

My invention relates to a device for propelling vessels through fluids, or of moving fluids with relation to the apparatus.

It consists of a propeller having peculiarly shaped blades and mounted to revolve with relation to the apparatus with which it is combined.

It also comprises details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of the propeller as applied to an airship. Fig. 2 is a front view of the propeller. Fig. 3 is a side view.

My propeller consists of the blades 2 and 3 mounted upon a shaft 4 in such manner that the revolving of the shaft will revolve the propeller.

The construction of the propeller may be well illustrated by cutting or otherwise forming a substantially circular disk, then cutting said disk radially from opposite edges toward the center, leaving a sufficient portion at the center for proper support and mounting of the device. The cut-away portions are then bent so that one of the blades 2 projects as shown, and the companion portion 3 is bent in the opposite direction. I have then the blades 2 formed by bending the diagonally opposite members to the front, and the blades 3 formed by bending the opposed members to the rear. The central portion of the disk from which the blades are formed serves to attach the device to a shaft.

It will be understood that the foregoing illustrates the manner in which the blades may be formed, but upon a large scale such a propeller would be built by forming a properly shaped frame and mounting upon it a material which would form the propeller blades 2 and 3. If the propeller is to be used with an aerial machine, as here shown, the blades might be made of laminated wood or of fabric stretched over a frame, or any other known or suitable manner. If to be used in liquid, the blades would necessarily be of a more rigid and unyielding character.

As shown in the drawing, the blades 2 project forwardly and at an angle diverging from each other so that when the shaft is revolved these blades turning in the medium in which they are being used, will, by their inclination, act to pull the medium toward the rear, or, if the medium be considered as a resistance through which the propeller is moved, it will act to force the propeller to the front. The rear blades 3 are formed, as shown, by bringing them nearer to a parallelism with the axis of rotation, and the blades 3 are practically a continuation rearwardly of the blades 2, but standing in such relation therewith that the medium in which the propeller is revolved is prevented from being drawn outwardly, and is rather thrown rearwardly and parallel with the axis of revolution. As shown in Fig. 1, there are two of these propellers mounted upon each side of a framework 5, which represents the aerial machine.

This machine may have any suitable form of body, as at 6, and I have here shown the frame as mounted upon light wheels 7 and 8, the larger wheels 7 being at the front and the smaller one at the rear, so that if the apparatus stands upon a level surface it will be tilted upwardly and the axis of the propeller will stand practically at the same angle of inclination; thus when the propellers are set in motion, revolving rapidly, their action will be to pull the machine through the air at the angle at which it is placed, and eventually raise it from the surface. The future movements of the apparatus and the angle of elevation will be determined by means of suitable tilting planes, as at 9, which may be disposed at the front or sides of the machine, and the other movements of the apparatus may be guided by any suitable rudder, as at 10. If the propeller is to be applied to a vessel movable in liquid, the propeller shaft may stand substantially horizontal, and the propellers may be rotated in open water, or, if found desirable they may be wholly or partially inclosed in a tubular open-ended casing through which the water will be forced by the action of the propellers. It will be manifest that propellers of this description may also be employed to move a body of air or water through the cylindrical containing-tube, the operation in any case being the same.

The peculiar form of these propellers is such that the blades 2 projecting in front of

an imaginary transverse axis or line which cuts the center of the propeller will form two inclined planes diverging from said axis toward the front. When these blades are
5 revolved they act upon the medium through which they are being revolved to draw the said medium toward the rear until it has passed this transverse axis.

The rear blades 3 are in the form of planes
10 similar to 2, but extending rearwardly from this imaginary transverse axis, and these blades are drawn inwardly to a position more nearly parallel with the axis of rotation of the propeller. The medium within
15 which the propeller is being revolved will thus, after passing to the rear of the blades 2, be caught by the blades 3 and its tendency to be thrown outwardly by centrifugal force will be to a great extent prevented, these
20 rearward planes acting to direct the column of the medium toward the rear with relation to the propeller.

Having thus described my invention, what I claim and desire to secure by Letters-Patent, is—
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1. A propeller consisting of blades having

a circular peripheral outline, a revoluble shaft to which the blades are secured, said blades forming planes diverging forwardly of a line transverse of the axis of revolution 30 and which cuts substantially the transverse center of the propeller, and continuations forming planes to the rear of said transverse line.

2. A propeller consisting of blades having 35 a circular peripheral outline, a revoluble shaft to which the center or hub is secured, said blades having forwardly projecting planes diverging from a line transverse to the axis and which line cuts substantially 40 the transverse center of the propeller, and rearwardly extending continuations forming planes of less divergence than the forward planes.

In testimony whereof I have hereunto set 45 my hand in the presence of two subscribing witnesses.

THEODORE HETTLER.

Witnesses:

JOHN M. O'NEILL,
CLIFFORD E. BUTLER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
