

No. 667,223.

Patented Feb. 5, 1901.

C. D. KELLER.
PROPELLER.

(Application filed July 2, 1900.)

(No Model.)

Fig. 1.

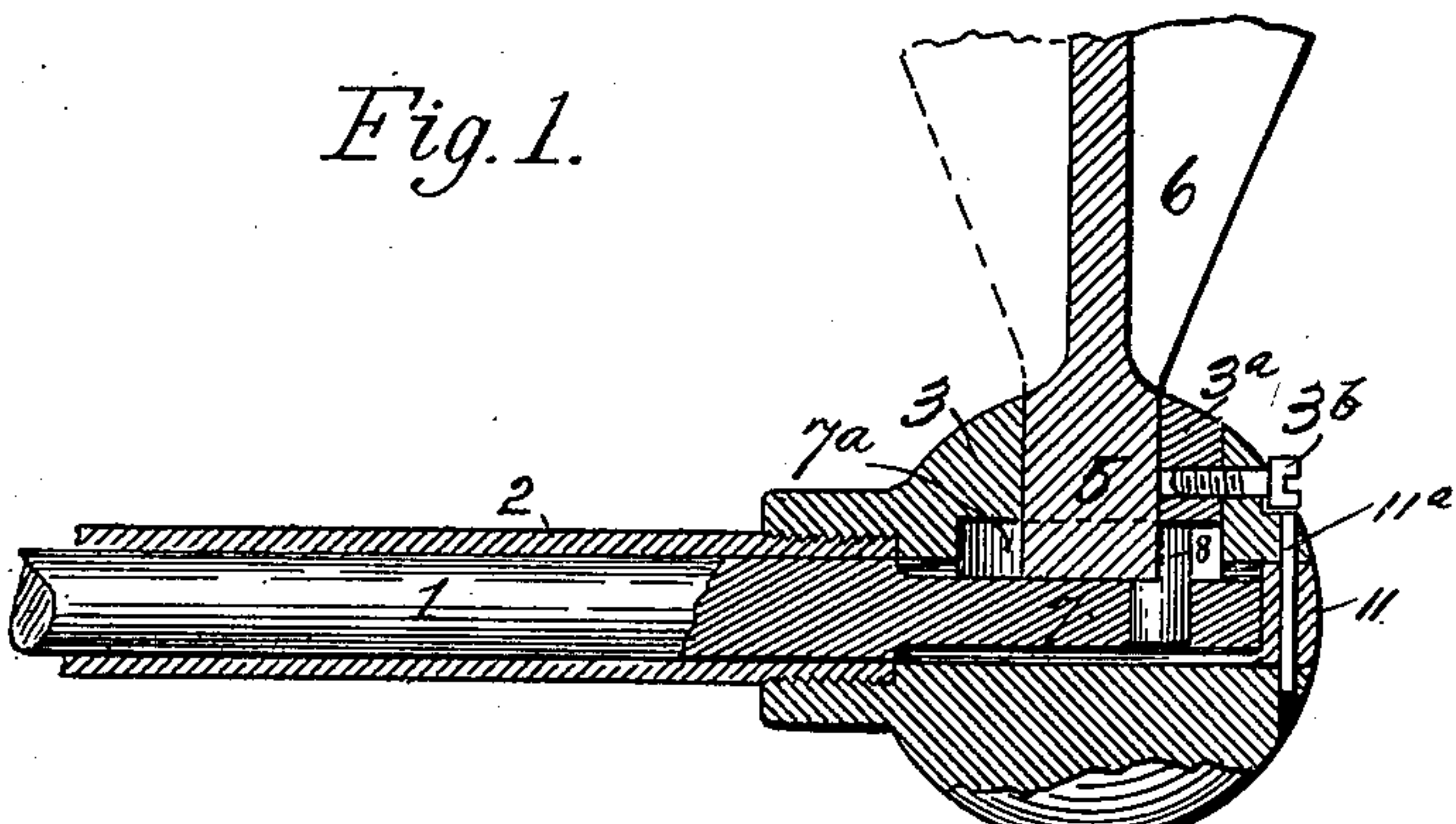


Fig. 2.

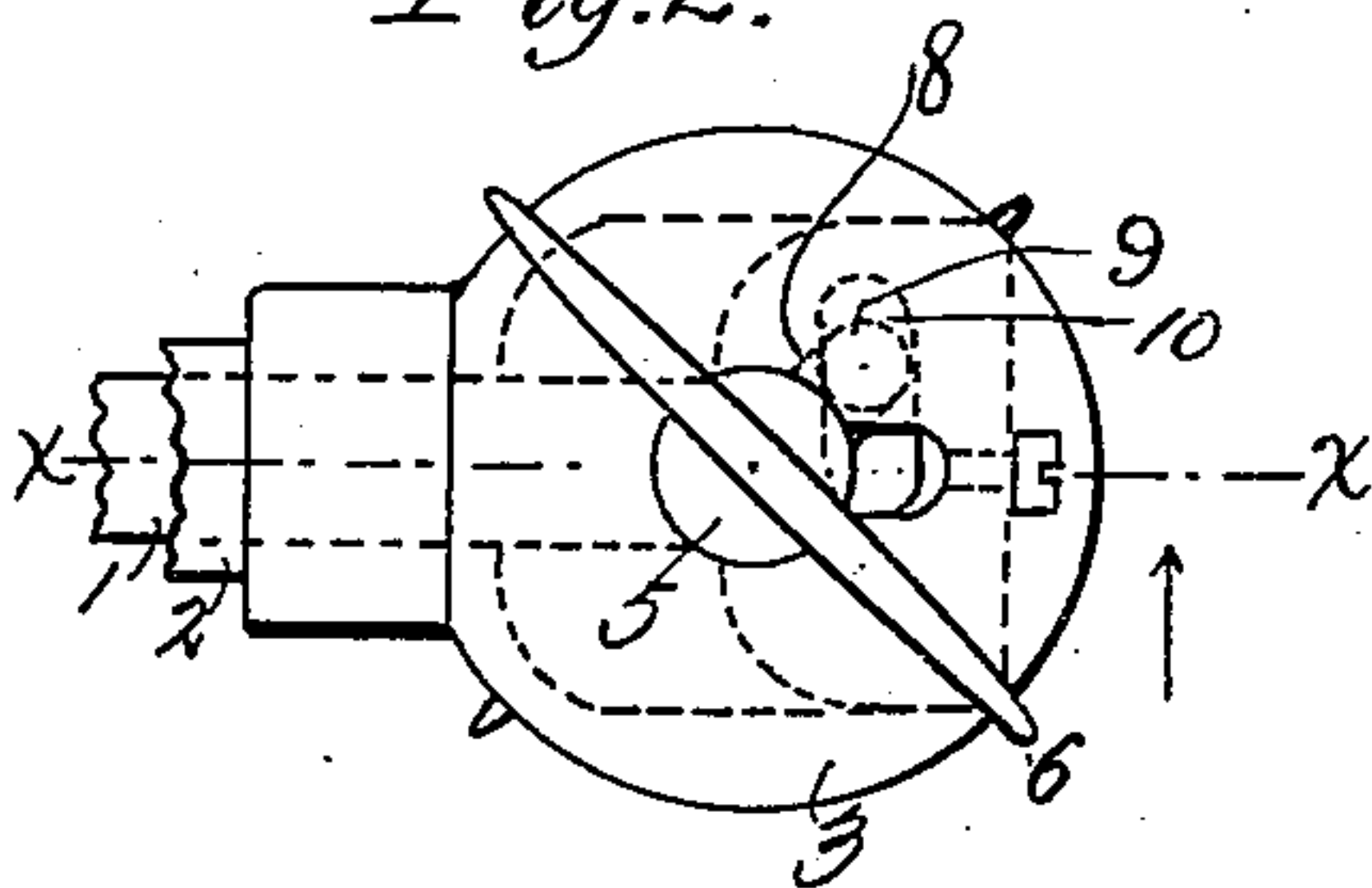


Fig. 3.

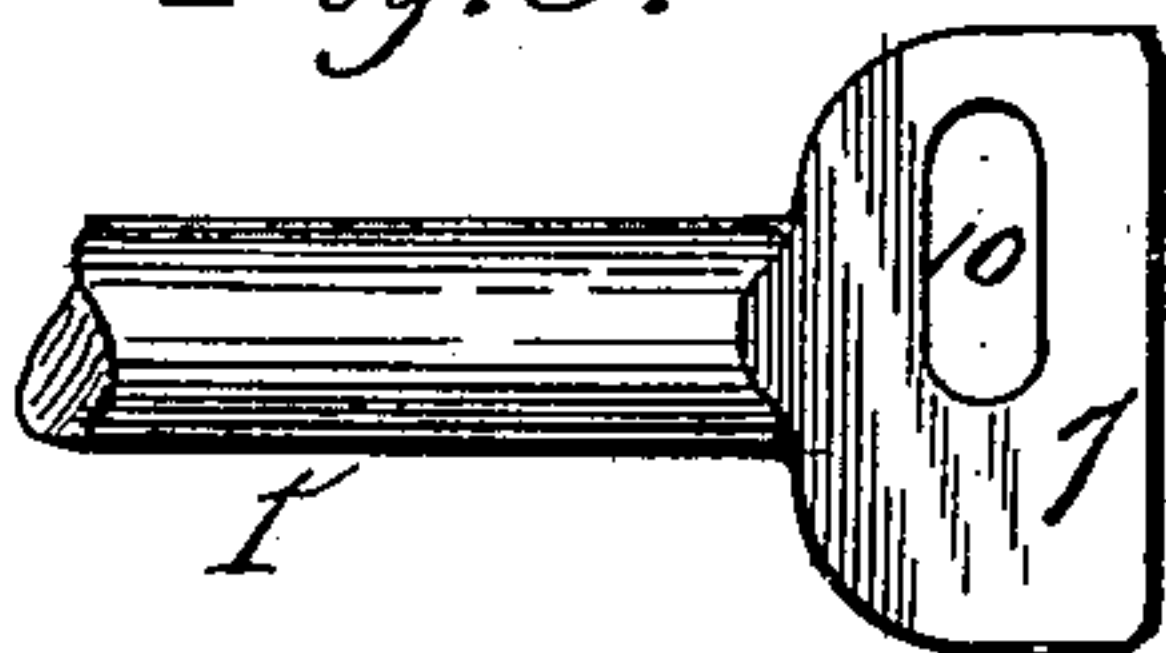


Fig. 5.

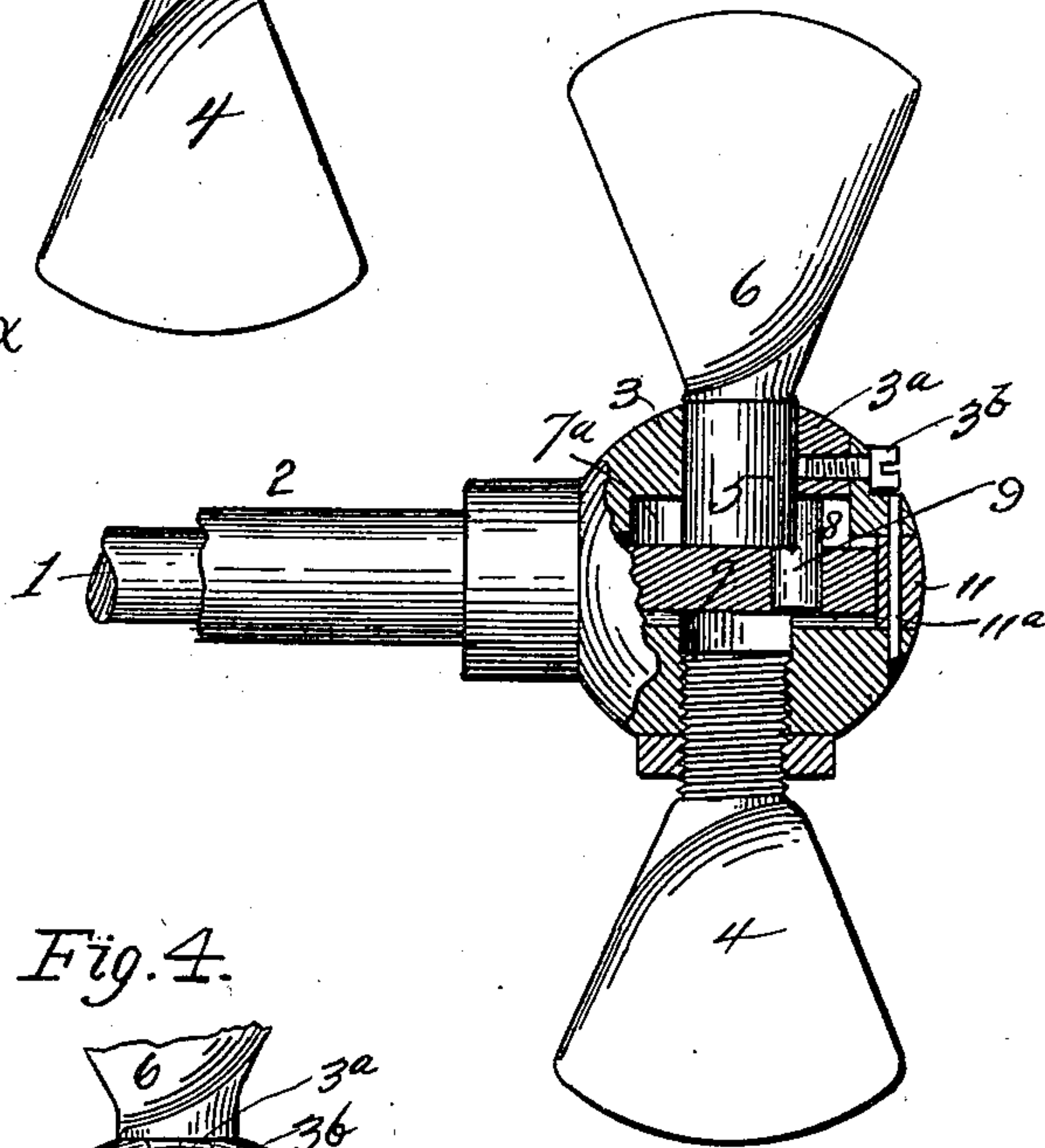
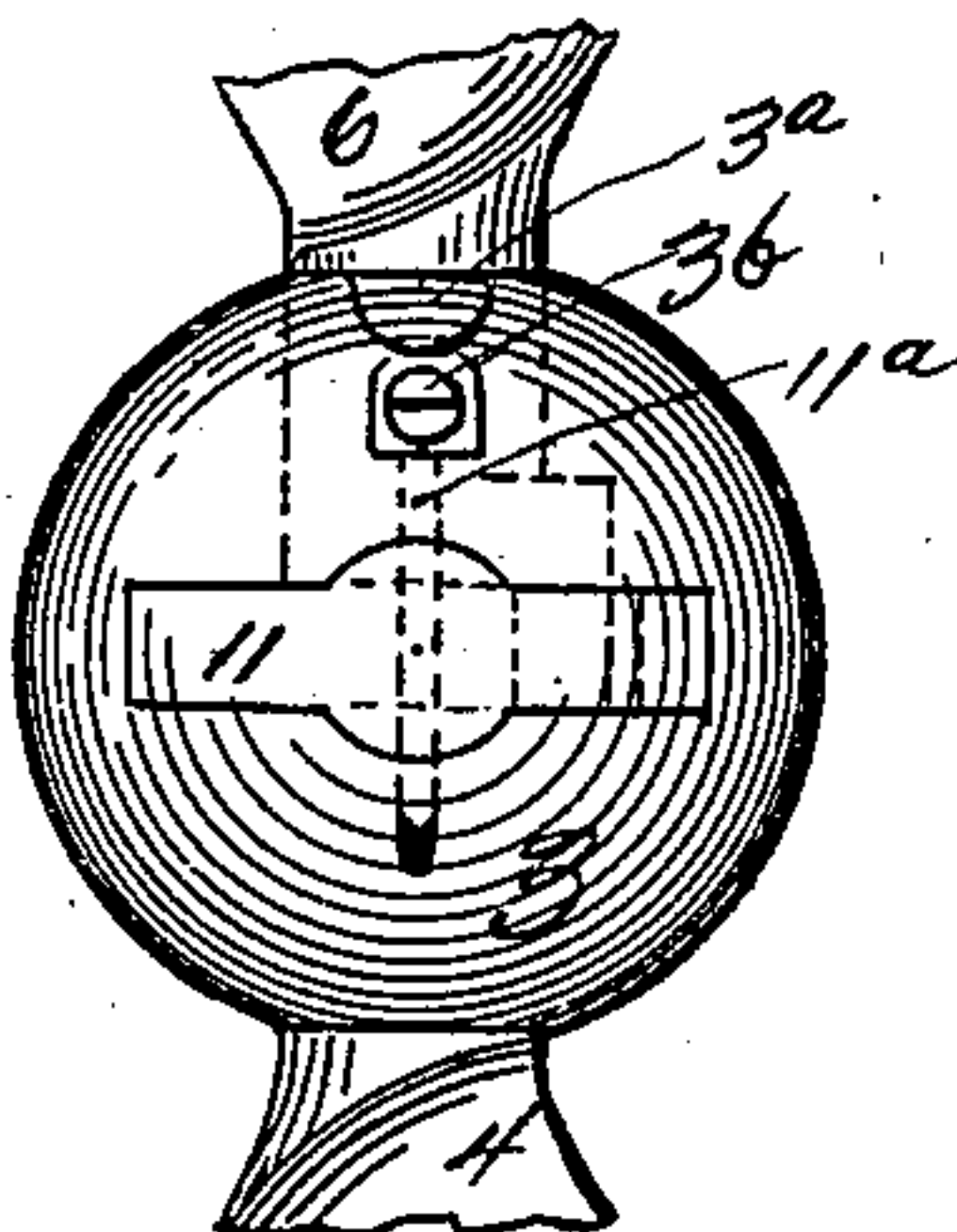


Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CLARENCE D. KELLER, OF TOLEDO, OHIO.

PROPELLER.

SPECIFICATION forming part of Letters Patent No. 667,223, dated February 5, 1901.

Application filed July 2, 1900. Serial No. 22,253. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE D. KELLER, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Propellers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

In the propulsion of small craft gas and gasoline engines have been found a most desirable form of motor. In the use of such engines, however, the time, labor, and skill required in stopping and starting them are such as to nearly preclude their use except where special appliances are employed for reversing the driving mechanism without stopping the engine.

My invention relates to and its object is to provide a propeller to be used preferably in connection with an engine of the type referred to, which propeller shall obviate the objections here indicated. It should be understood that in a boat driven, for instance, by a propeller having two propeller-blades if one of the blades be reversed and if the propeller be now revolved with its shaft the boat will stand motionless and that if both blades are in normal position the boat will be driven ahead. It will be understood also that with this arrangement for changing the angle of one of the propeller-blades the boat may be stopped and started without stopping the engine. I attain these objects here referred to by means of the devices hereinafter described, and shown and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my device, partly in central vertical longitudinal section; Fig. 2, a top plan view of the same; Fig. 3, a side elevation of the end of the inner shaft hereinafter referred to; Fig. 4, a rear end elevation of my device with a part of the propeller-blades broken away; and Fig. 5, a side elevation of my device, partly in section, showing a modification thereof.

Like numerals of reference indicate like parts throughout the drawings.

In the drawings, 1 is the propeller-shaft, designed to be driven by any suitable power and projecting through the stern of the boat and supported in relation to the boat in the usual manner. Surrounding the shaft is a loosely-fitting cylindrical sleeve 2. At its outer end this sleeve carries a collar or housing 3, of nearly spherical form, rigidly secured to the sleeve. At one side of this collar is formed, integral therewith, as shown in Fig. 1, or rigidly and removably secured, as in Fig. 5, a propeller-blade 4. At the opposite side of the collar or housing is formed a socket, into which loosely fits the stub-shaft 5, forming the inner end of the propeller-blade 6.

The shaft 1 at its outer end is flattened, as at 7, (see Fig. 3,) the flattened portion occupying a recess 7^a in the housing 3. The sleeve 2 is revoluble with the shaft 1 and is also movable longitudinally thereon, the recess within the housing 3 being enlarged in the direction of the length of the shaft to permit longitudinal movement of the sleeve and of the housing.

The socket-piece or stub-shaft 5 of the propeller-blade 6 is provided with a radial arm 8, which at its outer extremity carries a lug or pin 9, which projects parallel with the part 5 into a slot 10 in the flattened portion 7 of the shaft. The slot 10 is at a right angle to the axis of the shaft. The pocket or recess 7^a, which receives the flattened portion 7, the arm 8, and lug 9, is made accessible from the rear through an opening which is closed by means of a closely-fitting piece 11, secured in place by bolt or pin 11^a.

The propeller-blade 6 is held against radial displacement by means of the arm 8, which engages the outer wall of the recess 7^a. The arm 8 and the socket-piece 5 are assembled in operative relation with the other parts by passing the arm through an opening leading from the exterior of the housing 3 into the chamber 7^a, which opening is closed by a plug 3^a, which is firmly secured in place by means of set-screws 3^b.

When it is desired to stop the boat, the movable blade is swung upon its axis by reciprocating the sleeve 2, which through the opening 10 engages the radial arm 8 of the propeller-blade 6. The reciprocation of the sleeve may be accomplished in any desired manner—

as, for instance, by the lever mechanism illustrated and described in United States Letters Patent granted to me May 8, 1900, No. 649,248.

5 The mechanism above described will be found sufficient for the management of small craft under ordinary circumstances; but if it is desired to arrange for running the boat backward a reversing mechanism consisting of a suitable clutch and reversing-gear may
10 be connected with the driving-shaft. As such clutch and reversing-gear are common and well understood and as they constitute no part of this invention they will not be here further described.

15 Having described my invention, what I claim, and desire to secure by Letters Patent, is—
In a propeller, a shaft, a sleeve longitudi-

nally movable upon the shaft, a housing rigidly secured to the outer end of the sleeve, a propeller-blade rigidly secured to said housing, another propeller-blade loosely socketed in said housing, a radial arm at the inner end of said latter propeller-blade, and connections intermediate said shaft and said radial arm whereby, by the movement of the sleeve
25 lengthwise, the movable propeller-blade is given a part turn on its axis.

In testimony whereof I affix my signature in presence of two witnesses.

CLARENCE D. KELLER.

Witnesses:

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L. BROWN.