

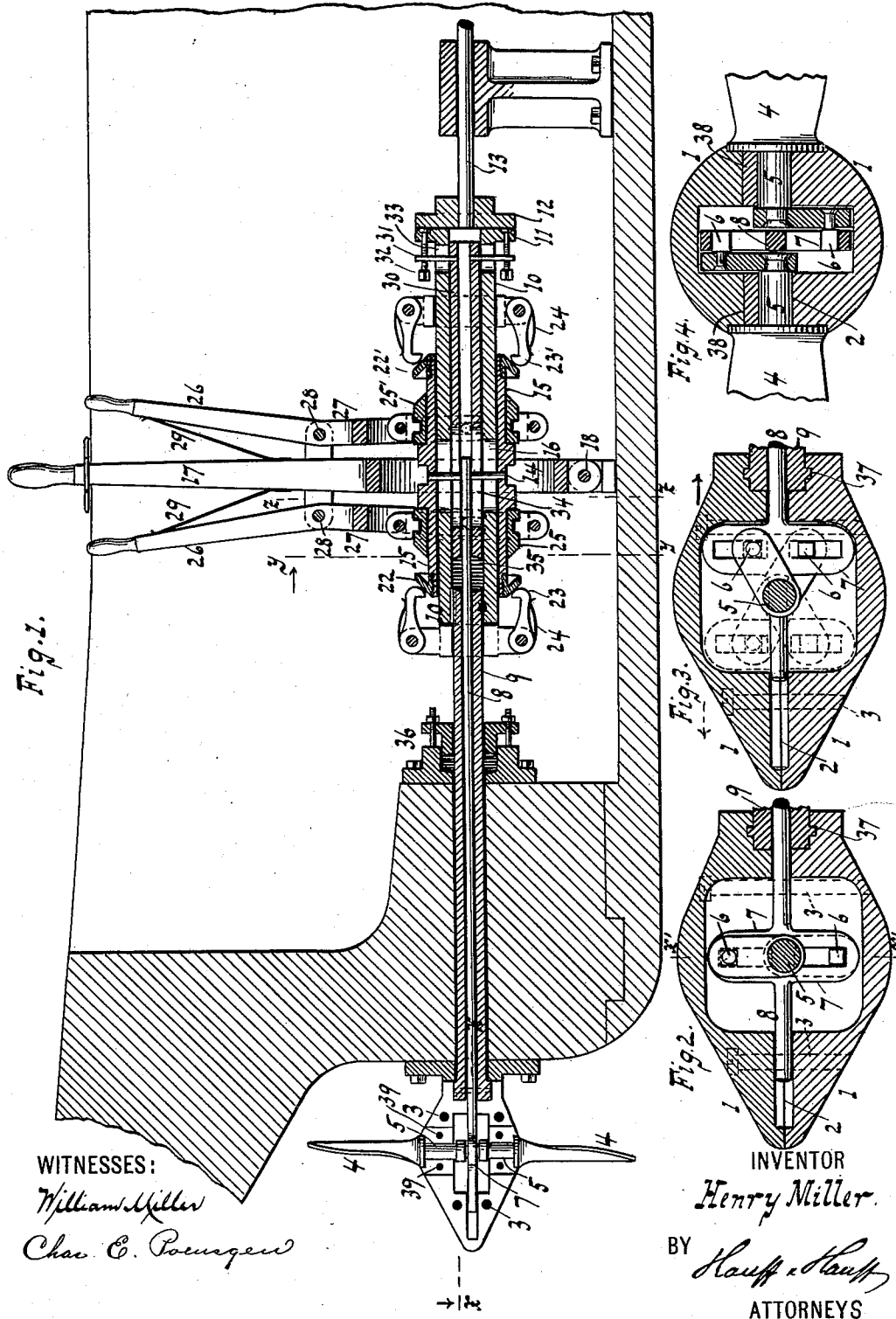
(No Model.)

2 Sheets—Sheet 1.

H. MILLER.
PROPELLER.

No. 579,889.

Patented Mar. 30, 1897.



(No Model.)

2 Sheets—Sheet 2.

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Fig. 5.

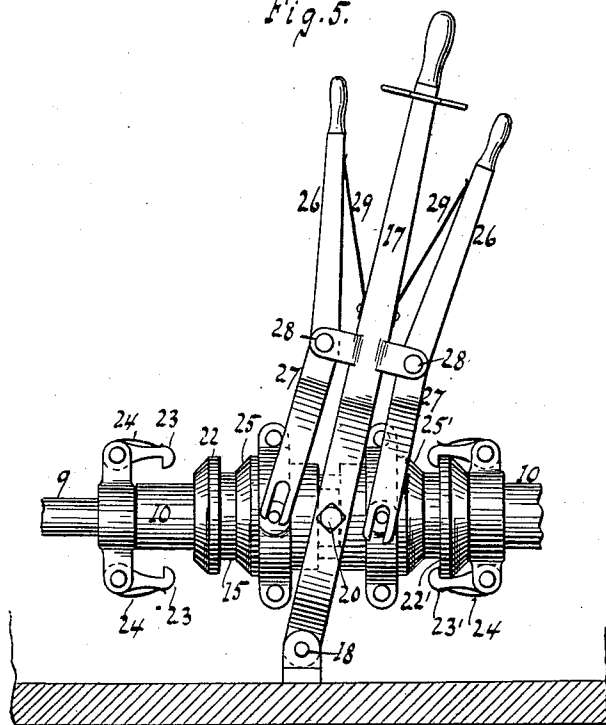
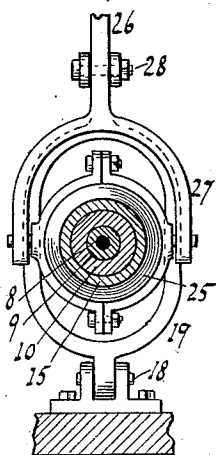


Fig. 6.

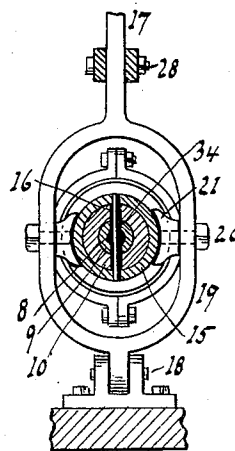


WITNESSES:

William Miller

Chas. E. Poesgen

Fig. 7.



INVENTOR

Henry Miller

BY *Hauff & Hauff*

ATTORNEYS

UNITED STATES PATENT OFFICE.

HENRY MILLER, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO CARL GOERG, OF SAME PLACE.

PROPELLER.

SPECIFICATION forming part of Letters Patent No. 579,889, dated March 30, 1897.

Application filed December 31, 1896. Serial No. 617,635. (No model.)

To all whom it may concern:

Be it known that I, HENRY MILLER, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Propellers, of which the following is a specification.

This invention relates to a propeller with reversible or adjustable blades which can be locked to the propeller-shaft; and the invention provides a practical propeller with reversible or adjustable blades in which the power tending to set the blades to neutral or inactive position is taken off the adjusting-lever and transferred to the shaft.

This invention is illustrated in the annexed drawings, in which—

Figure 1 is a sectional side elevation of a propeller-hub with blades and shaft. Fig. 2 is a section along *xx*, Fig. 1. Fig. 3 is a view like Fig. 2 with parts in a different position than in Fig. 2. Fig. 4 is a section along *x'x'*, Fig. 2. Fig. 5 is a detail view of a reversing or adjusting lever. Fig. 6 is a section along *yy*, Fig. 1. Fig. 7 is a section along *zz*, Fig. 1.

The propeller-hub is made in sections 1, longitudinally separated, as along line or division 2, Fig. 2, said sections being suitably connected, as by bolts or fastenings 3. The propeller consists of this hub with the blades 4, any suitable number of the latter being applied. These blades are shiftable or reversible, each blade having a stem 5, rotatively journaled or seated in hub 1. Each stem 5 connects by a crank-pin 6 with slotted arms or lugs 7, extending from or forming part of a shifter or rod 8, extending through or seated in the tubular propeller-shaft 9. The hub 1 is secured to shaft 9, so as to turn with the latter and to be immovable or fixed to such shaft. The shifter 8 can be moved longitudinally in the shaft, as presently explained.

The shaft 9 has secured thereto a tube or tubular coupling 10, Fig. 1, secured, as by flanges 11 and 12, to the driving-shaft 13, receiving power or motion in any suitable way. The shifter 8 is connected by arms or pieces 14 with a sliding sleeve or collar 15. The coupling 10 being suitably slitted, as at 16,

the shifter 8, with its arms 14 and sleeve 15, is free to be slid or shifted back and forth.

The sleeve 15 can be shifted by handle or lever 17, suitably fulcrumed, as at 18. The lever 17 is suitably connected to the sleeve 15, this lever being shown with a loop 19, Fig. 7, to which at 20 are pivoted lugs 21, engaging in a suitable recess or between shoulders on sleeve 15, so that the latter is free to turn, but cannot shift independently of this primary lever 17. When the sleeve 15 is shifted in one direction, its shoulder 22 is engaged by catch or hooks 23, held or moved by springs 24 to engaging position. When shifted in the other direction, the sleeve 15 has its shoulder 22' engaged by catch or hooks 23'.

To disengage a catch or set of catches 22 or 22', a releasing ring or wedge 25 or 25' is moved toward its respective catch 23 or 23' to move the latter against the action of spring 24 to release the shoulder 22 or 22' and allow the sleeve 15 to shift. These rings 25 and 25' are slidably mounted on sleeve 15 and can be shifted or slid by levers 26 and 27, fulcrumed at 28 to lever 17. The springs 29 normally hold the secondary levers 26 27 to take the releaser or rings 25 and 25' away from the catches or locks 23 and 23'.

The catches 23 and 23' are secured to or carried by the propeller-shaft 9 or coupling 10, and when sleeve 15 is engaged by one catch or another said sleeve, with shifter 8, is locked to the shaft 9, so that the strain or force exerted by the propeller-blades 4, tending to shift to neutral or inactive position, is taken off the handle or lever 17 and is taken up by the shaft 9 and catches or locks 23 and 23'.

In the coupling 10, Fig. 1, is a tube 30, having arms or lugs 31, which by means of screws 32 enable the tube 30 to be set or forced toward the shaft 9. The coupling 10 is suitably slotted, as at 33, to allow for the movement or shift of lugs 31, and the sleeve or tube 30 is suitably slotted, as at 34, to allow for the movement or shift of the lugs 14 of shifter 8. Between the tube 30 and shaft 9 is interposed packing 35. By tightening the packing 35 by the adjustment of packing-tube 30 leak or escape from the inside of

shaft 9 is prevented. The packing-tube 30, with packing 35, thus forms a stuffing-box. Leak along the outside of shaft 9 can be prevented by suitable well-known means, as a stuffing-box. (Shown at 36.) The propeller-shaft 9, with tubular coupling or sleeve 10 and driving-shaft 13, can be secured against longitudinal motion in well-known way.

By providing the shaft 9 with lugs 37, Fig. 2, and suitably or correspondingly recessing the sections of hub 1 the hub-sections when clasped and secured about shaft 9 will be held by lugs 37 against shifting or turning on said shaft. The lugs 37 can be replaced by a circular rim or shoulder, preventing longitudinal shift of hub 1, a well-known key being used to lock the hub against rotation.

The lugs or key 14 must of course be made of sufficient strength to withstand the strain or tendency of the blades or wings 4 to shift.

The rings 25 and 25' are not only shiftable, but also rotary, on the sleeve 15, and said rings shift with, but can rotate independently of, the levers 26.

Any hook or catch, as well known, can be provided to keep a lever or levers 26 locked to lever 17 against the action of spring 29. By having the catches 23 23' or the collars bearing such catches adjustably fixed to shaft 9 or coupling 10, as by set-screws, such collars or catches can be set for any desired pitch of the blades 4.

By having straps or caps 38, Fig. 4, connected by screws or fastenings 39, Fig. 1, to a hub-section 1 and allowing the blade-stems 5 to rotate between such hub-section and cap any wear can be taken up by a tightening of such cap.

What I claim as new, and desire to secure by Letters Patent, is—

1. A propeller provided with shiftable or reversible blades, a shifter or rod for said blades, a shaft for the propeller and a lock

or catch for locking the shifter to the shaft substantially as described.

2. A propeller provided with shiftable or reversible blades, a shifter or rod for said blades, a tubular shaft through which the rod extends, a lever or handle for the shifter, and a lock or catch for locking the shifter to the shaft.

3. A propeller provided with shiftable blades, a shifter or rod for said blades, and a lever or actuating-handle for the shifter, combined with a shouldered sleeve moved by said lever, a catch or lock for the sleeve, a releasing collar or wedge on the sleeve for disengaging the catch, and a lever or handle for said releasing-collar substantially as described.

4. A propeller provided with shiftable blades, a shifter or rod for said blades, and a primary lever or actuating-handle for the shifter, combined with a shouldered sleeve moved by said lever, a catch or lock for the sleeve, a releasing collar or wedge on the sleeve for disengaging the catch, and a secondary lever or handle for said releasing-collar, said secondary lever being fulcrumed to the primary lever substantially as described.

5. A propeller-hub comprising longitudinally-separable sections and a shaft about which the hub-sections are clasped, said shaft being provided with a rim or lugs and said hub-sections being correspondingly recessed to fix themselves to the shaft when clasped about the latter substantially as described.

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

HENRY MILLER.

Witnesses:

WM. C. HAUFF,
E. F. KASTENHUBER.