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J. R. ANDREWS.
VALVE MECHANISM FOR STEAM STEERING.

APPLICATION FILED MAR. 27, 1907.

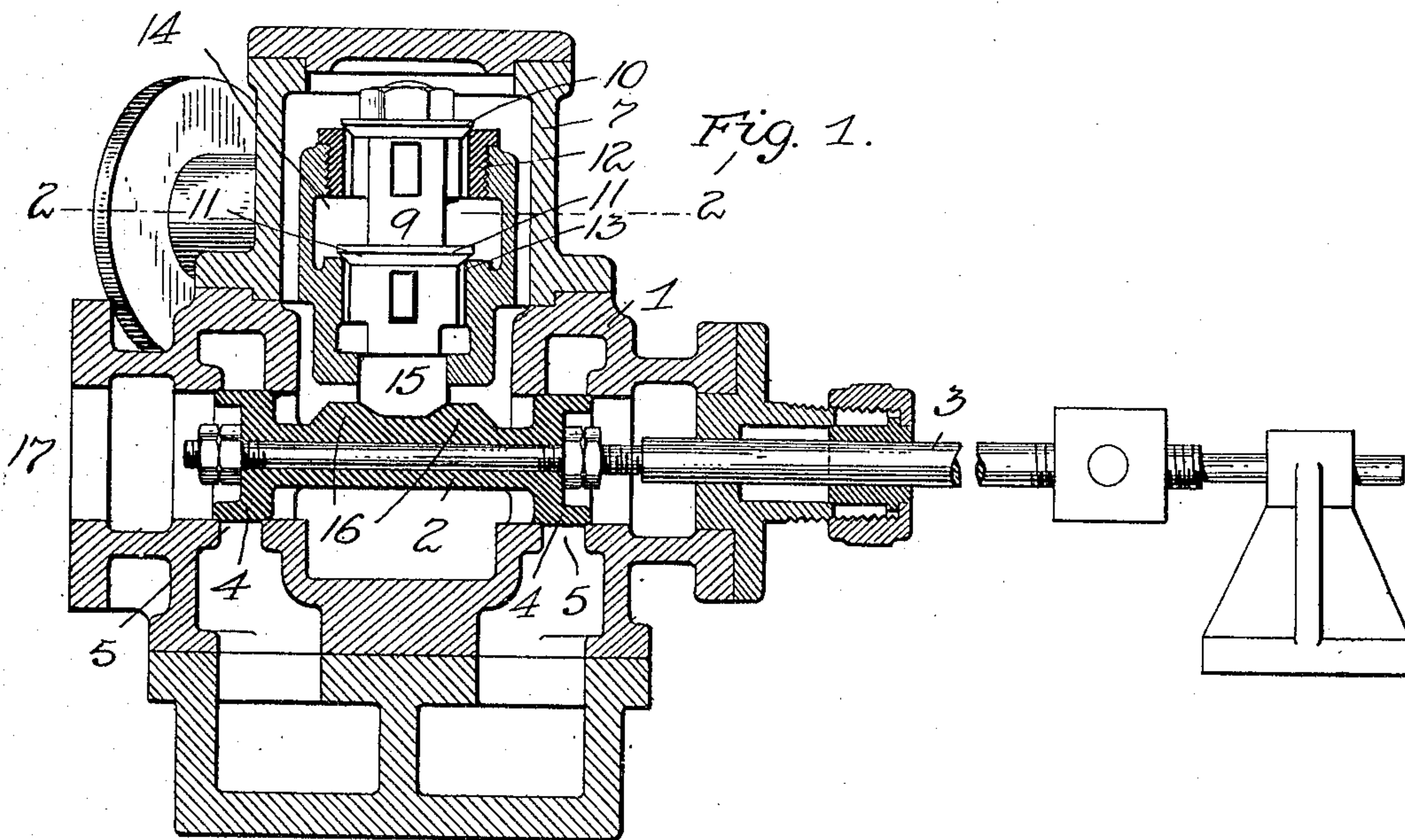


Fig. 1.

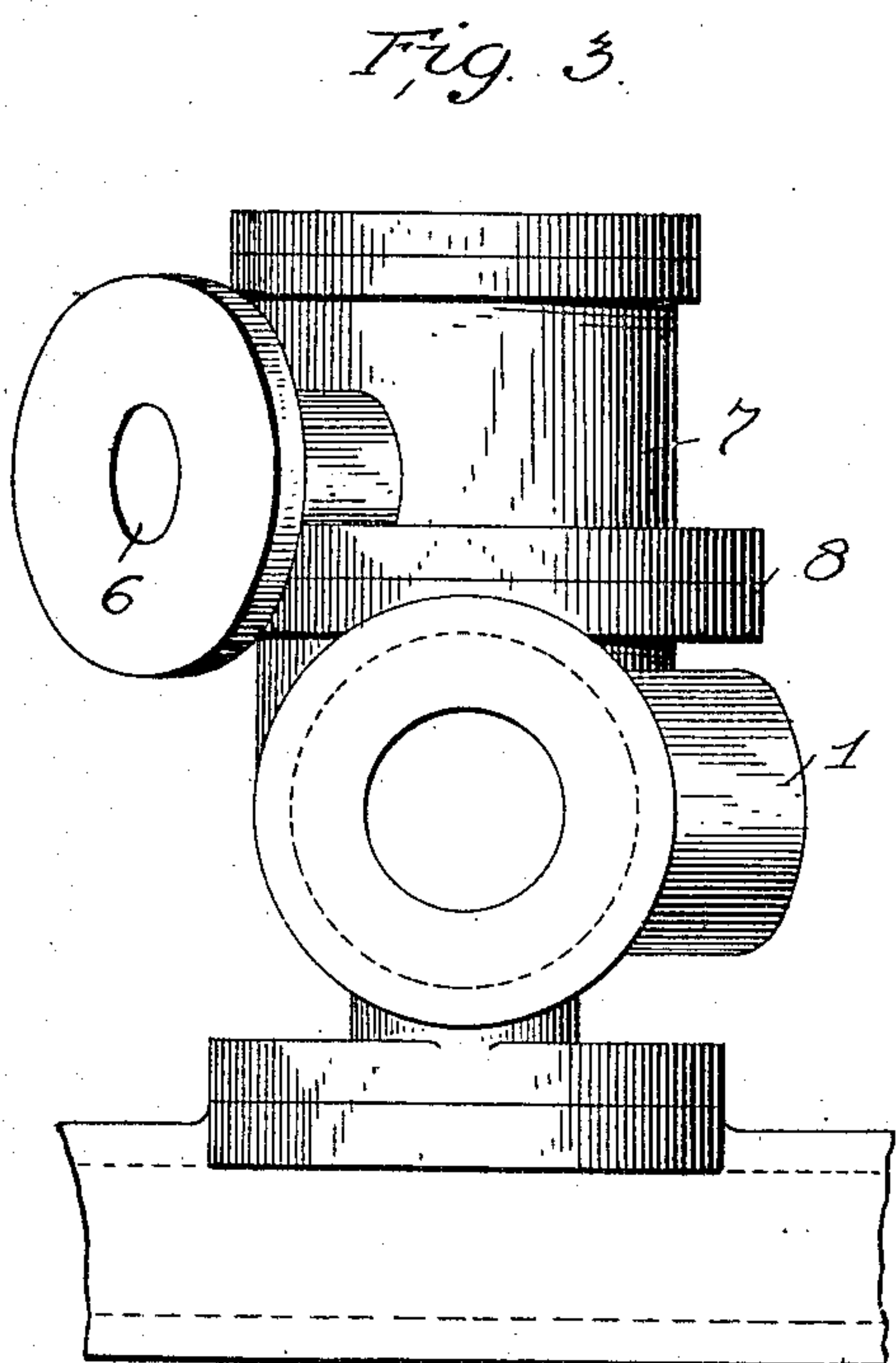


Fig. 3.

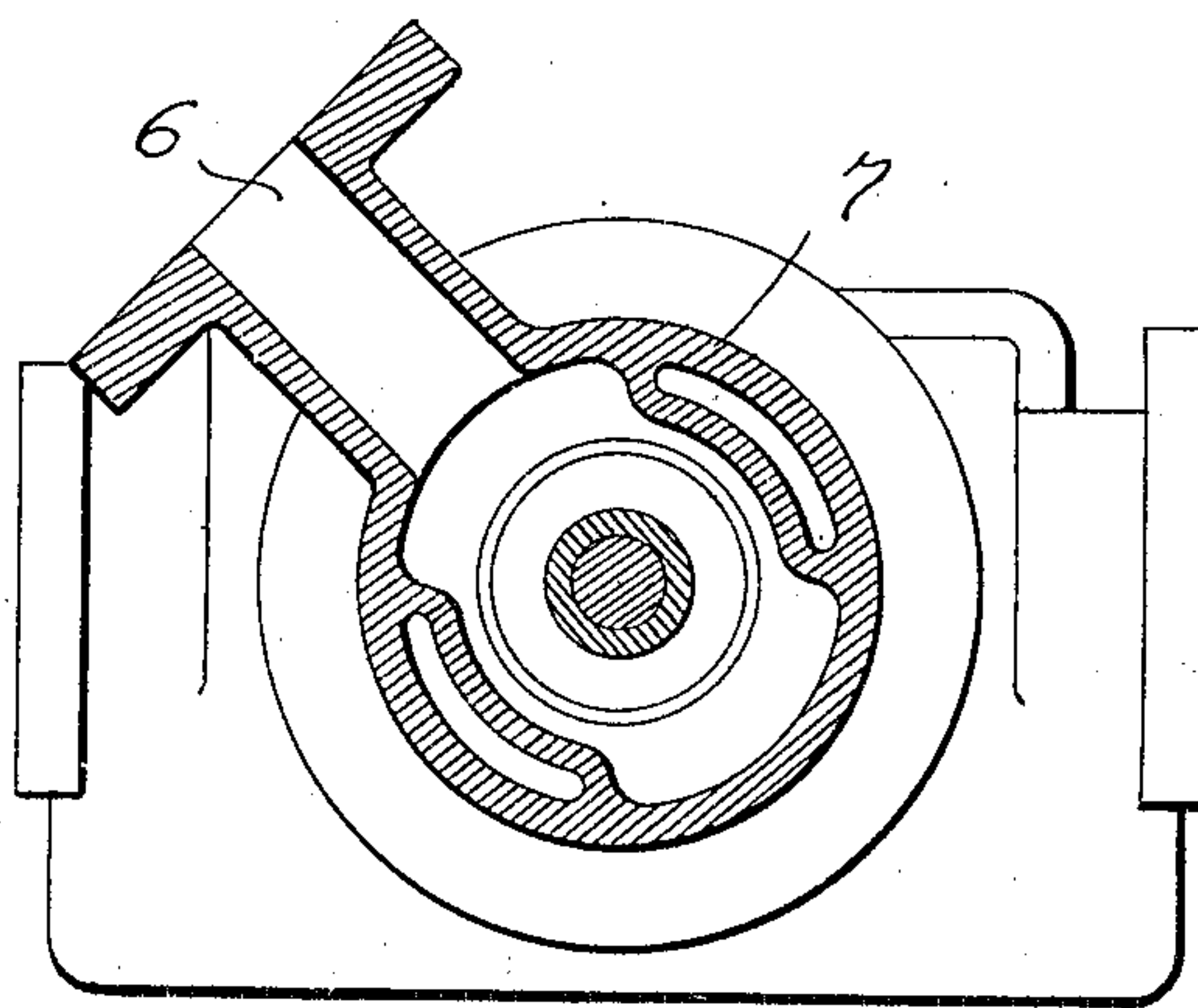


Fig. 2.

Attest:

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UNITED STATES PATENT OFFICE.

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VALVE MECHANISM FOR STEAM-STEERING.

No. 871,157.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed March 27, 1907. Serial No. 364,950.

To all whom it may concern:

Be it known that I, JACOB ROBINSON ANDREWS, a citizen of the United States, residing at Bath, Maine, have invented certain new and useful Improvements in Valve Mechanism for Steam Steering or other Apparatus, of which the following is a specification.

My invention relates to steam steering or other apparatus of the class in which the operation of the engine is controlled by a reversing or controlling valve.

In apparatus of this character in which the supply of steam to the engine is controlled by a reversing valve a serious objection has heretofore existed, giving rise to great loss of steam. This has been due to the steam blowing by or leaking past the reversing or controlling valve, which from the very nature of the work it is required to perform, can have very little lap. I have therefore associated with the reversing or controlling valve a stop or check valve operating automatically to completely shut off the steam as soon as the reversing valve returns to its neutral or central position, and which as soon as the reversing valve is moved from its central position will admit steam to the casing of the reversing valve to be distributed or directed thereby.

My invention consists in the features, combination and arrangement of parts herein-after described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a sectional view of a reversing valve mechanism with my improved arrangement of check or stop valve in place. Fig. 2 is a sectional view on the line 2—2 of Fig. 1. Fig. 3 is a side view of the casings for the valves.

In these drawings, 1 indicates the casing of the reversing valve 2 which latter is of the piston type, being carried by a stem or rod 3, which is adapted to be moved longitudinally in any suitable manner. The heads 4 of this valve control the ports 5 leading to the engine. Steam is supplied through the port 6 into a stop or check valve casing 7 secured at 8 to the reversing valve casing. In this casing the check or stop valve 9 is arranged, it being in the form of a double puppet valve having upper and lower flanges or disks 10, 11, the lower one of which is of slightly larger diameter than the upper disk. This puppet or stop valve is guided in a frame 12 and the lower disk of the valve is adapted to rest upon the valve seat 13 and

cut off the steam entirely from the reversing valve. The steam, as before stated, enters through the port 6 and reaches freely the space 14 where acting upon the upper and lower disks or flanges of the check valve exerts a balancing pressure thereon, though it will be understood that the valve seats itself automatically, except when acted on by an outside force.

The valve has an extension 15 projecting downwardly and resting on the reversing valve between inclined shoulders 16 thereon, when said valve is in its central position and the engine is not in use. At this time the check or stop valve is fully seated and the passage of the steam to the reversing valve is completely cut off, but if the reversing or controlling valve is moved from its central position in either direction the incline on said valve will lift the check valve by acting upon the projection 15 thereof so that the steam will then pass freely to the reversing valve and under control thereof to the engine. As soon however, as the reversing or controlling valve is returned to its central position the incline thereon is removed from beneath the extension 15 on the check valve and said check valve returns to its seat and absolutely cuts off steam to the reversing valve, and thus while the engine is out of use and the reversing valve is at rest in its neutral position the leakage of steam past the same will be prevented.

I do not limit myself to the precise means described herein for operating the stop or check valve as other devices may be employed to control the said check valve by the movement of the reversing or controlling valve. Neither do I limit myself to a sliding reversing valve.

In my arrangement it will be noticed that I employ means whereby the movement of the reversing valve is imparted to the check valve by a transmitting connection between them.

The exhaust passage is shown at 17.

I claim as my invention:

1. In steam steering or other apparatus the combination of a reversing or controlling valve and its casing, a check or stop valve controlling the supply of steam to said reversing valve, and means for transmitting mechanically the movement of the reversing or controlling valve to the check valve, said check valve closing automatically to cut off steam from the reversing valve when the lat-

ter returns to neutral position, substantially as described.

2. In steam steering or other apparatus, the combination of a reversing or controlling valve and its casing, a balanced check or stop valve and means for operating the same mechanically from the movement of the reversing valve, said check valve acting to cut off steam from said reversing valve, substantially as described.

3. In steam steering or other apparatus, the combination of a reversing or controlling valve and its casing, a check or stop valve for controlling the steam supply to said reversing valve, and a mechanical power transmitting connection between the said reversing valve and the check valve for imparting motion to the check valve.

4. In steam steering or other apparatus, the combination of a reversing or controlling valve and its casing, a check or stop valve for controlling the supply of steam to the reversing valve, and the cam inclines on the reversing valve for operating the check valve, substantially as described.

5. In steam steering or other apparatus, the combination of a reversing or controlling valve and its casing, a check or stop valve having a portion contacting directly with a portion of the reversing valve to be operated thereby, said check valve controlling the supply of steam to the reversing valve, substantially as described.

6. In combination in steam steering or other apparatus, a reversing valve, a check or stop valve having the two flanges or disks, with one larger than the other, means for admitting steam to a point between the disks to hold the valve on its seat and means whereby the check valve is operated when the reversing valve is moved from neutral position.

7. In steam steering or other apparatus, the combination of a reversing or controlling valve, a check valve for controlling the steam supply to said reversing valve, and a mechanical power transmitting connection between the controlling valve and the check valve for operating the check valve when the reversing valve is moved from its control position of rest, substantially as described.

8. In steam steering or other apparatus, the combination of a reversing or controlling valve and its casing, a check valve controlling the supply of steam to said reversing valve and means for transmitting the movements to the check valve when the reversing valve is operated, said means being independent of steam pressure on the said check valve, substantially as described.

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

JACOB ROBINSON ANDREWS.

Witnesses:

S. A. MORSE,
F. H. TURNER.