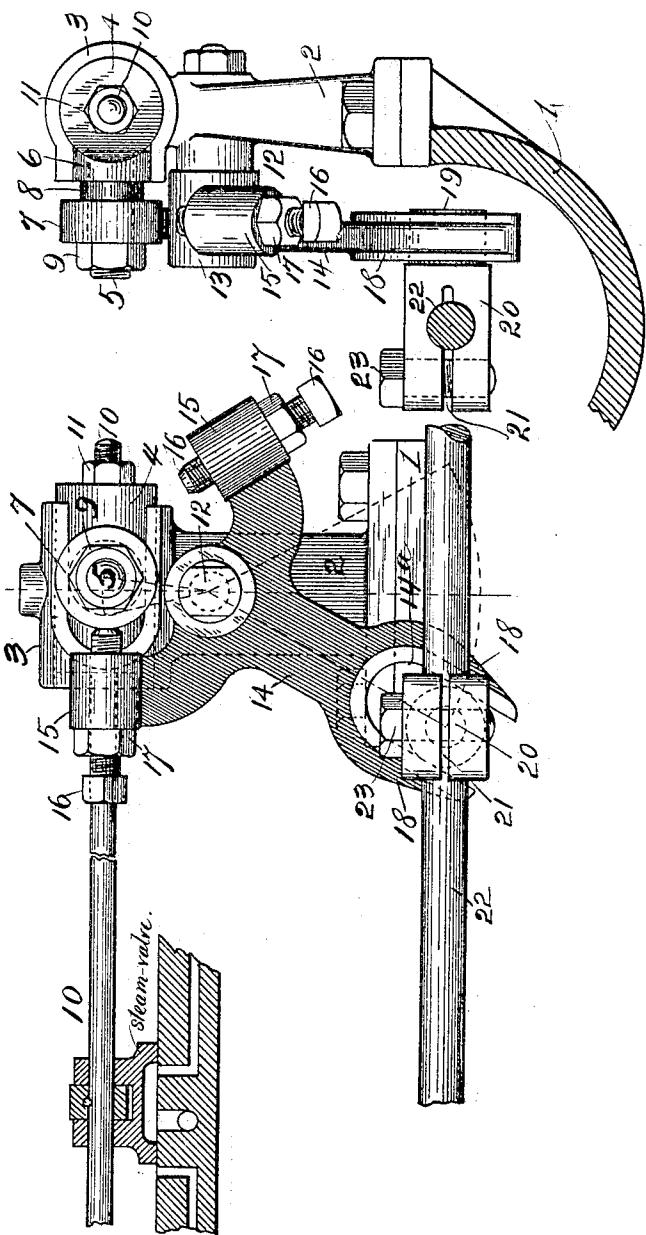


No. 782,002.

PATENTED FEB. 7, 1905.

F. D. CABLE,
STEAM PUMP.

Fig. 1. *Fig. 2.*



WITNESSES:

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UNITED STATES PATENT OFFICE.

FRANK D. CABLE, OF TOLEDO, OHIO, ASSIGNOR TO LEANDER C. COLE,
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STEAM-PUMP.

SPECIFICATION forming part of Letters Patent No. 782,002, dated February 7, 1905.

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To all whom it may concern:

Be it known that I, FRANK D. CABLE, 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 Valve Mechanism for Steam-Pumps; 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

5 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.

15 My invention relates to means in a steam-pump for transmitting motion from the pump-rod to the steam-valve stem; and its object is to provide in such a mechanism a device which shall reduce the friction and the wear of parts

20 to a minimum.

25 A further object of my invention is to provide in a machine of the class referred to means for the accurate adjustment of the throw of the valve, and consequently the length of the pump-stroke, together with means for the accurate adjustment of the valve-stem and its actuating mechanism in relation to each other.

30 I attain these objects by means of the devices and arrangement of parts hereinafter described, and shown and illustrated in the accompanying drawings, in which—

35 Figure 1 is a side elevation of my device, and Fig. 2 an end elevation of the same seen from the right in Fig. 1.

Like numerals of reference indicate like parts throughout the drawings.

40 In the drawings, 1 is the frame of the pumping-engine, to which frame is rigidly secured the upright standard 2. At top this standard is provided with a bearing 3, in which slides a cylindrical block 4. Projecting laterally from the sliding block 4 is a stud 5. Revolvably mounted upon this stud are two rollers 6 and 7, separated by a washer 8 and secured in place by a nut 9 on the threaded extremity of the stud 5. In the side of the part 3 is an opening in which the roller 6 loosely fits, forming a guide in which this roller travels.

45 Through the longitudinal axis of the block 4 is a hole which receives the valve-stem or valve-rod 10. The valve-rod at each end of the block 4 is threaded, and upon the threaded portion at each end of the sliding block is a nut 11, (only one of which appears in the drawings,) by means of which the valve-rod may be adjusted in relation to the sliding block, as may be desired.

50 Projecting laterally from the standard 2 is a stud 12, upon which is journaled, as at 13, 60 a rock-arm 14. At top the rock-arm is bifurcated, as shown, the ends of the forks terminating in enlarged portions 15. The portions 15 have screw-threaded bores provided with set-screws 16, which are furnished with jam-nuts 17. The inwardly-projecting ends of the set-nuts 16 are arranged to contact alternately with the roller 7 as the rock-arm is swung to and fro upon its pivotal support. At bottom the rock-arm 14 is bifurcated, as at 14^a. The 65 two arms of this part straddle and engage a roller 19, journaled on a stud projecting laterally from a clamping-block 20, split, as at 21, and bored to receive the pump-rod 22. The block is clamped upon the pumping-rod 70 by means of a screw-bolt 23 engaging the two opposing separated portions of the block.

75 The operation of my device is as follows: Assuming that the parts are assembled as illustrated and as above described and that the 80 pumping-rod 22 is given reciprocal motion by its steam-engine, the rock-arm 14 through its engagement with roller 19 is swung to and fro upon its pivotal support, the blunt ends of the set-screws 16 coming alternately at the 85 end of each stroke of the pump-rod in contact with the roller 7. Thus the sliding block 4 and the valve-rod 10, which are rigidly secured together, are given a reciprocal motion opposite to the motion of the pump-rod. The 90 roller 7 being loose on its bearings will at each contact with the inner end of the set-screws 16 revolve slightly, thus constantly presenting a new surface to the impact of the set-screws, lessening the noise, and reducing the friction and wear to a minimum. As the set-screws 16 alternately press upwardly 95 against the under side of the roller 7 the roller

6 is likewise pressed upwardly and travels upon the upper side of the opening in the bearing 3, which forms the guide and way for the roller. By means of this arrangement 5 the block 4 and the pump-rod 10, together with the parts secured to the valve-rod at its other end, are prevented from axial rotation and are held in proper alignment. The roller 19 constantly presents new surfaces to 10 contact with inner surface of the jaws 18, thus at this point reducing friction and wear to a minimum.

Having described my invention, what I claim, and desire to secure by Letters Patent, 15 is—

1. In a valve mechanism for pumps, a sliding block, a screw-threaded valve-stem, set-nuts on the valve-stem which adjustably engage said valve-stem with said sliding block, a rock-arm, a pump-rod engaged with said rock-arm, 20

and means upon the rock-arm for actuating the sliding block.

2. In a valve mechanism for pumps, a sliding block, a valve-stem engaged with said block, bearings for the block, a laterally-projecting 25 stud upon the block extending through a longitudinal opening in the side of said bearings, a roller on said stud which travels in said opening, another roller on said stud, a rock-arm, means upon said rock-arm for engaging 30 alternately-opposite sides of said latter roller, a pump-rod, and means for engaging said rock-arm with said pump-rod.

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

FRANK D. CABLE.

Witnesses:

M. D. MERRICK,
S. A. DORLAND.