No. 649,475. Patented May 15, 1900.

P. PAULSEN.

VALVE MECHANISM.

(Application filed Aug. 1, 1899.)

(No Model.)

FIG. 1.

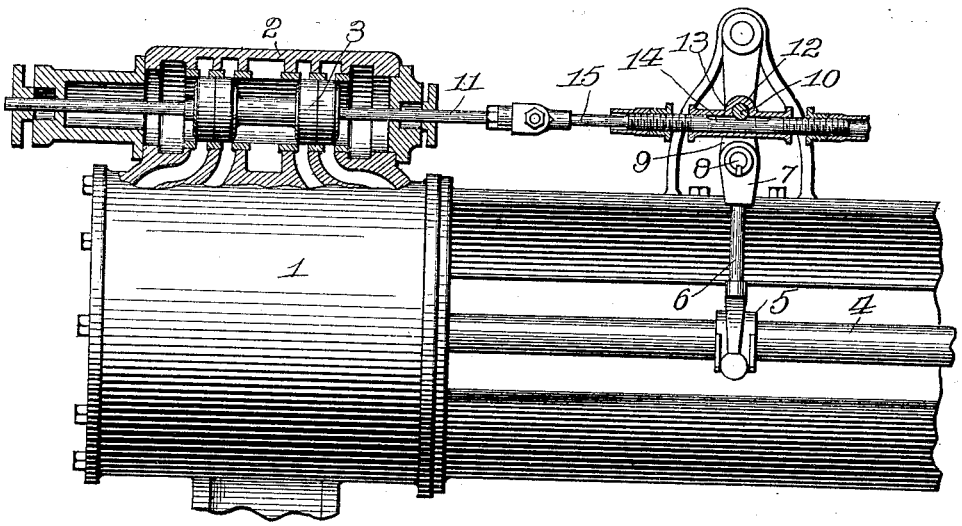
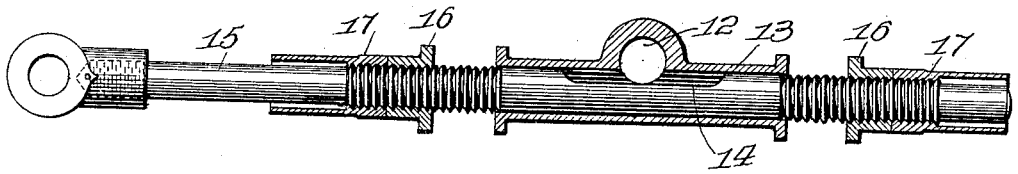


FIG. 2.



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UNITED STATES PATENT OFFICE.

PEDER PAULSEN, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE EPPING-CARPENTER COMPANY, OF SAME PLACE.

VALVE MECHANISM.

SPECIFICATION forming part of Letters Patent No. 649,475, dated May 15, 1900.

Application filed August 1, 1899. Serial No. 725,756. (No model.)

To all whom it may concern:

Be it known that I, PEDER PAULSEN, a citizen of Norway, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Valve Mechanism, of which improvements the following is a specification.

The invention described herein relates to certain improvements in valve mechanism for steam-pumps.

Considerable difficulty has been heretofore experienced in the use of piston-valves controlling the flow of steam to the cylinder on account of the tendency of the valve to rotate, and thereby cause a twisting or straining of the valve-stem connections.

The object of the present invention is to provide a lock which will hold the valve and connections as against any rotary or angular movement.

The invention is hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a sectional elevation of the motor portion of a steam-pump, showing my improvement applied thereto; and Fig. 2 is a sectional view, on an enlarged scale, of my improved valve-rod.

In the practice of my invention the steam-cylinder 1, valve-case 2, and valve 3 are constructed in the usual or any suitable manner, the valve being of the piston type. In this class of pumps it is customary to actuate the valve by the piston-rod 4, connecting the pistons in the steam and water cylinders. To this end a collar 5 is secured to the rod 4, and a rod 6 has one end loosely connected to the collar and its opposite end secured to an arm 7 on the rock-shaft 8, which has secured thereto a second arm 9. This arm is provided at its free end with a laterally-projecting pin 10. The connection between this pin 10 and the valve-rod has heretofore been formed by a sleeve provided with a lug or projection having a hole therethrough in which the pin 10 would fit loosely. The sleeve is loosely mounted on the valve-rod, so as to slide freely along the same between adjustable shoulders or tappets. As the sleeve and valve-rod are shifted back and forth by an arm moving in the arc of a circle, the valve-rod will not move in a straight line, and hence is pivotally connected to the valve-stem 11, the axis of such pivotal connection being parallel with the axis of the rock-shaft 7. The valve-rod being round and the sleeve correspondingly shaped, it is evident that the piston-valve would be free to rotate on its axis and similarly shift the valve-rod. It will be readily understood that any rotary movement of the valve would shift the axis of the pivotal connection between the valve stem and rod out of parallelism with the axis of the rock-shaft 7. As a result of such a movement the valve stem and rod would form a practically rigid connection between the valve and arm 8 and would be strained or sprung by movement of the arm 8. In order to overcome this objectionable feature, I provide means for so locking the valve-rod within the sleeve as to prevent any rotary movement of the rod without interfering with the sliding of the sleeve along the rod. A desirable construction for this purpose consists in so forming a bearing or seat 12 for the pin 10 in the sleeve 13 that the pin 10 will project a short distance into the longitudinal opening through the sleeve and will bear upon a flattened portion or seat 14, formed on one side of the valve-rod 15, and thereby lock the latter as against rotation in the sleeve. The tappets 16 are formed by nuts screwing onto threaded portions of the valve and are held in position by jam-nuts 17. The seat or locking portion 14 of the valve-rod is made of a length a little greater than the maximum movement of the sleeve independent of the valve-rod, which is pivotally connected by a pin 18 to the valve-stem 11.

I claim herein as my invention—

The combination of a piston-valve, a valve-stem having a flattened portion, a sleeve slidable along the rod, means for reciprocating the sleeve between the tappets and a pin for actuating the sleeve projecting through the latter and bearing on the flattened portion of the rod, substantially as set forth.

In testimony whereof I have hereunto set my hand.

PEDER PAULSEN.

Witnesses:
DARWIN S. WOLCOTT,
F. E. GAITHER.