No. 860,255. PATENTED JULY 16, 1907.

J. SJÖSTRÖM.

PISTON PUMP.

APPLICATION FILED AUG. 8, 1906.

Fig: 1.

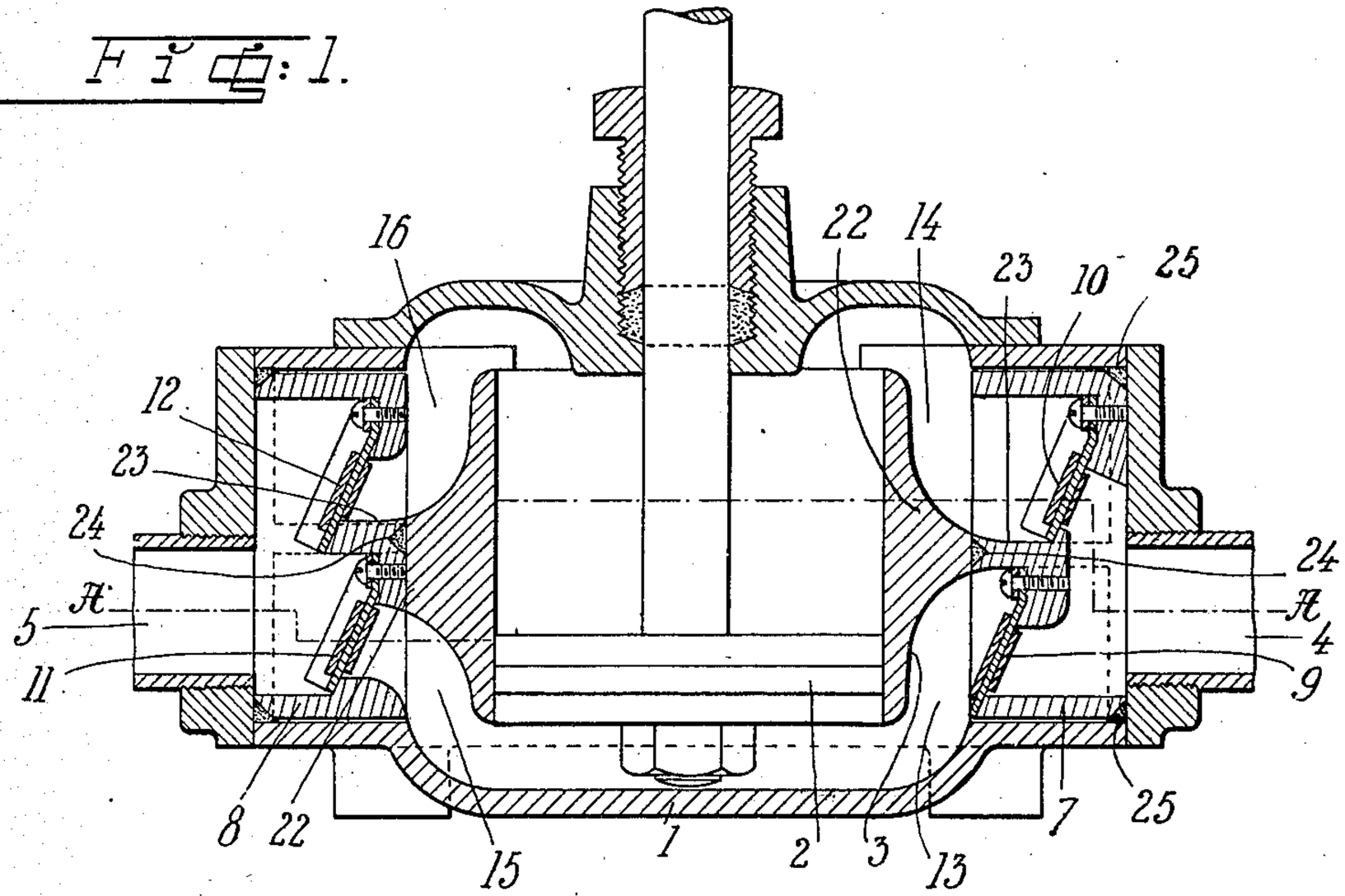
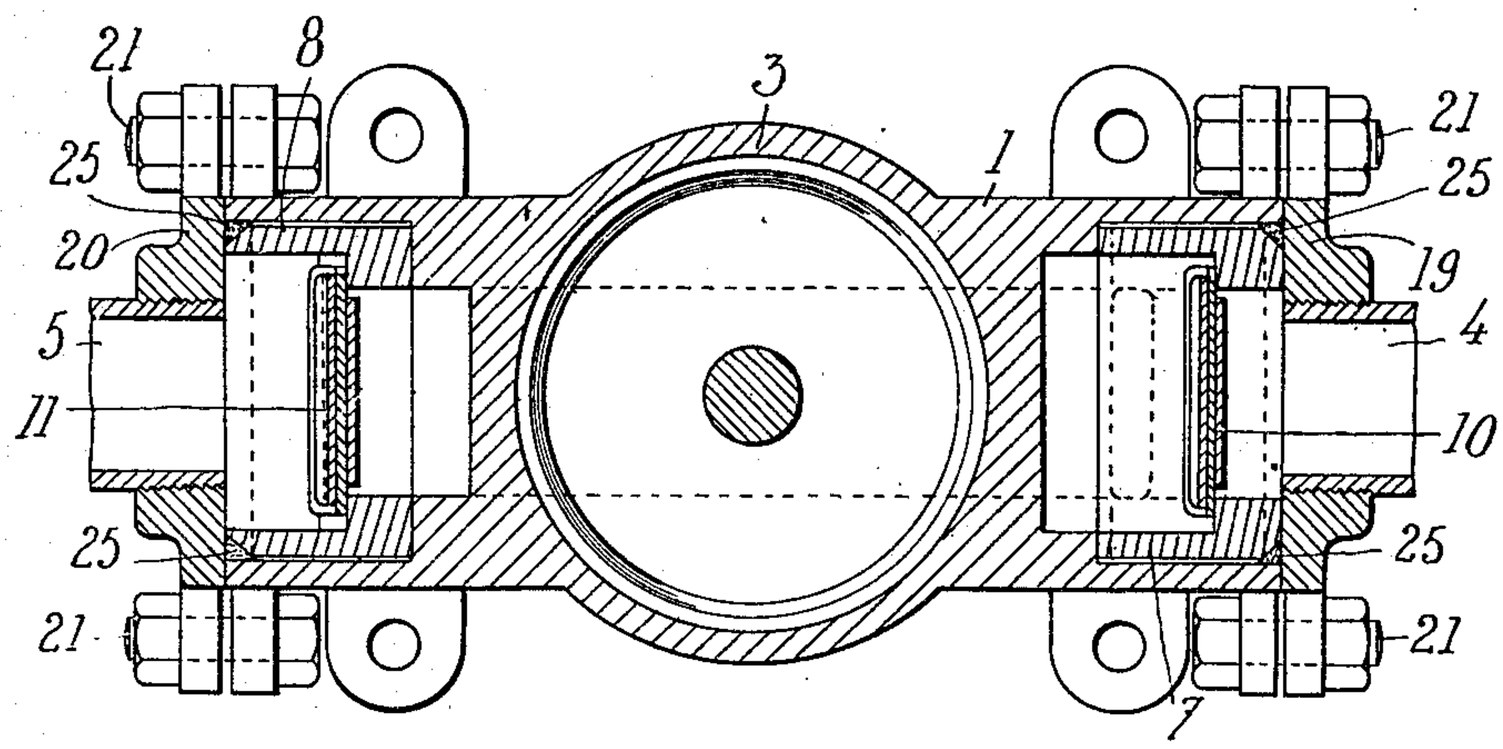


Fig: 2.



WITNESSES:

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PISTON-PUMP.

No. 860,255. Specification of Letters Patent. Patented July 16, 1907.

Application filed August 8, 1906. Serial No. 329,756.

To all whom it may concern:

Be it known that I, JOHANNES SJÖSTRÖM, a subject of the King of Sweden, residing at Gäfle, in Södra Centralgatan 20, in the Kingdom of Sweden, have invented new and useful Improvements in Piston-Pumps.

The present invention refers to double acting piston-pumps.

The invention consists chiefly in the construction of the valve-boxes and in the combination of these valve-boxes with the pump cylinder and the casing inclosing said parts in the manner stated below, so that a good tight joint between the valve-boxes and the said cylinder casing may easily be secured while at the same time the valve-boxes may be readily accessible for cleaning or other purposes and may be easily removed from the casing for repair or for change. Besides this the advantage is gained through this invention that on account of the simple construction of the pump the cost of manufacturing the same will be small in comparison with the costs for similar pumps of the constructions before known.

The invention is illustrated on the accompanying drawing forming part of this specification, in which drawing

Figure 1 shows a vertical, longitudinal section of a pump constructed in accordance with this invention and Fig. 2 shows a horizontal section of the same on the line A—A in the Fig. 1.

1 is the casing of the pump, 2 the piston, movably arranged in the cylinder 3.

4 is the inlet or suction pipe for the fluid and 5 the outlet pipe through which the fluid is forced from the pump.

7 and 8 are the removable frames constituting valve-boxes, provided with the valve claps 9, 10, 11 and 12; and 13, 14, 15 and 16 are canals or passages formed within the casing and corresponding with the said valve claps.

19 and 20 are removable end pieces or covers which by means of bolts or the like are fastened in their position.

In the form of the invention illustrated in the drawing the inlet- and outlet pipes are connected with said end-pieces.

The valve-boxes 7, 8 consist of molded frames or plates provided with openings forming the valve passages which openings or passages are closed by the corresponding valve claps 9, 10, 11 and 12, which plates or frames thus form seats for said valve claps. The casing is at its ends provided with openings or chambers for the reception of the valve-boxes, said openings or chambers being thus formed that the valve-boxes may, after removal of the end-pieces or covers 19, 20, be introduced into said chambers and held in their position there by means of the end pieces, when these are fastened to the casing. In order to secure a tight fit between the outer sides of the cylinder 3, which, as may be seen from Fig. 1, is provided with projecting flanges or tongues 22 that bear against corresponding tongues or projections 23 in the valve-box and together with these latter tongues divide the passages or canals 13, 14 and 15, 16 from each other, the said tongues are provided with a groove 24, which groove also extends along the sides of the valve frames as indicated by dotted lines in Fig. 1. In this groove suitable stopping or packing material, such as yarn of asbestos, is placed. When the valve-boxes the outer sides of which converge a little inwards, are pressed into their respective positions in the casing, the packing material placed in the groove 24 in the sides of the same will be pressed between the sides of the boxes and the corresponding inner walls of the casing so that a good tight fit will be secured.

In order to secure a tight fit between the sides of the valve-boxes—which as may be seen from the drawing are provided with flange-formed side-portions—and the casing the outer edges of said side-portions of the valve-boxes are in the manner shown on the drawing either beveled or provided with wedge-shaped grooves as the case may be. The packing material which also in this case may consist of yarn of asbestos is placed on the said wedge-shaped beveled parts of the edges or in the wedge-shaped grooves. When the stopping or packing material is put in its place and the valve frame placed in proper position in the casing and the end pieces or covers 19, 20, being fastened to the casing, the said packing material will render the joints securely tight against leakage.

From the above it will be seen that the construction and the arrangement of the valve-boxes is very practical for the purpose and that the means for securing a good tight fit are at the same time very simple and efficient, wherefore a pump of this construction may be manufactured at relatively low cost, besides which, as before stated, the advantage is gained that the valve boxes are easily accessible so that they may easily be taken out for cleaning or other purposes by an unskilled person.

How the pump is used and how it acts will be understood from the foregoing without further description.

Having thus described my invention I declare that what I claim is:

1. A double acting pump comprising a casing, a cylinder arranged centrally therein, a piston movable in said cylinder, removable valve boxes, one on each side of said cylinder and seated in the casing, two valves carried by each box and removable therewith, said valves in each box communicating with the top and bottom of the pump cylinder respectively, and removable, ported cap-plates secured to the casing and serving to lock the valve-carrying boxes in their seats in the pump casing.

2. A double acting pump consisting of a casing, a pump cylinder arranged centrally therein, a piston movable in said cylinder, removable valve boxes, one on each side of said cylinder and seated in said casing, two valves carried by each box and removable therewith and communicating with the top and bottom respectively of the pump cylinder, said valve boxes having wedge-shaped packing-receiving grooves adjacent to the pump cylinder and also having wedge-shaped packing grooves on their outer faces, ported cap-plates applied to the casing against the outer faces of the valve boxes and confining the latter in their seats in the casing, and packing material confined in the grooves in the valve boxes between the same and the cylinder and between said valve boxes and the cap-plates.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOHANNES SJÖSTRÖM.

Witnesses:
AUG. HAGELIN,
ALMA PETTERSSON.