C. S. WRIGHT.

PUMP LINING EXTRACTOR.

APPLICATION FILED OCT. 25, 1913.

1,126,612. Patented Jan. 26, 1915

Fig. 1.

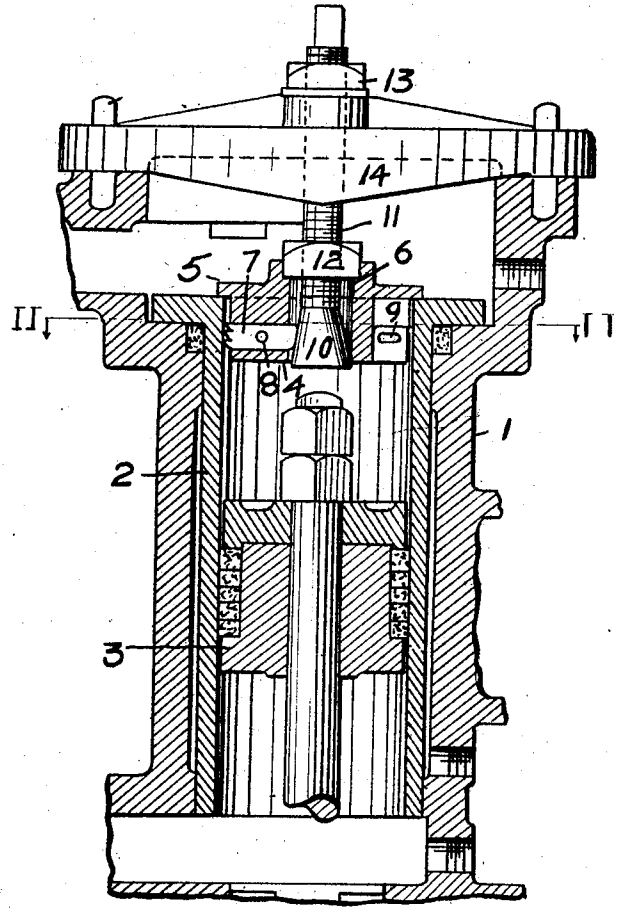
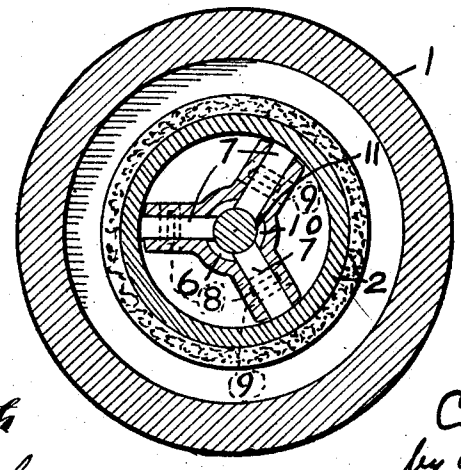


Fig. 2.



WITNESSES

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PUMP-LINING EXTRACTOR.

1,126,612. Specification of Letters Patent. Patented Jan. 26, 1915.

Application filed October 25, 1913. Serial No. 797,184.

To all whom it may concern:

Be it known that I, CLYDE S. WRIGHT, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented new and useful Improvements in Pump-Lining Extractors, of which the following is a specification.

My invention relates to extractors for pump linings or the like.

The object thereof is to produce a tool, efficient and cheap, for pulling pump-linings or similar things from their casings or containers.

Referring to the accompanying drawing, Figure 1 is a central vertical section of a pump and my improved extractor applied thereto; and Fig. 2, is a cross-section of Fig. 1 on the line II—II.

On the drawings, 1 represents the pump-casing containing the tubular liner 2, in which the piston 3 works.

4 is the head of the extractor which extends down into the end of the lining and has the flange 5 thereon resting on the end of the liner to limit the distance the head may extend into the liner. The head has the transverse central opening 6 in axial alinement with the axial center of the liner. Radial openings are provided in the head extending from the central opening 6 to the outer face of the head. The radial slidable dog or jaws 7 are inserted in these radial openings having their outer ends toothed for biting engagement with the interior face of the liner, and their inner ends projecting slightly into the central opening 6, the dogs or jaws being held in their slots by the pins 8 secured thereto and extending into the radial slots 9 in the head. The slots permit the dogs or jaws 7 to slide freely for limited distances.

11 is the stem or rod for actuating the jaws 7 and for pulling the head and attached lining. Within the circle formed by the inner ends of the jaws 7 is the cone or wedge 10, which, when drawn onwardly, causes the jaws to move outwardly into engagement with the liner 2. The length of the slots 9 and the diameter of the cone is such that the cone cannot be drawn past the dogs even when the extractor is not in use, thereby preventing the accidental separation of the head and cone. The upper or smaller end of the cone 10 extends out beyond the opening 6 to form the stem 11 by which the cone is actuated and the lining drawn from the casing. This stem is threaded and provided with the nuts 12 and 13, the former being seated on that side of the head toward which the cone 10 is tapered.

14 is a cross-bar or support resting on the outer end of the casing 1 beyond the head and liner. The stem 11 extends through the cross-bar 14 and beyond the same, its outer end being squared to receive a wrench or other tool, by which the stem may be turned. The nut 13 rests on the outer face of the cross-bar. The cross-bar or its equivalent may be held rigidly by other means than the casing, and the functions of the nut 13 and the cross-bar may evidently be supplied by any suitable means for pulling the stem longitudinally, provided the pump-casing be held from movement.

To operate my extractor, the head 4 with the stem 11 and the nut 12 is inserted in the liner 2 with the flange 5, if employed, on the top of the lining. The stem is then turned in the nut 12, which causes the tapered or cone head 10 to force the jaws 7 into interlocking engagement with the liner. The cross-bar 14 is put over the stem. The nut 13 is then screwed down on the cross-bar, which causes the head to pull the liner longitudinally in the casing 1. The harder the nut 13 draws up on the stem 11 the harder the jaws 7 bite into the liner, thereby preventing them from slipping.

The nut 12 at all times keeps the head 4 and the stem 11 assembled with their co-operative surfaces near together, so that a slight turn of the stem will cause or permit the dies to move on the head. The stem serves as a handle when the head is applied to the liner 2 and holds the stem erect so that it may be rotated without supporting with the hands. The nut 12 also permits the easy insertion of the bar 14 over the stem as it would not be easy to hold the stem while the bar is being put on; and also permits the nut 13 to be put on without holding up the stem.

Modifications may be made in my invention within the scope of the appended claims.

I claim—

1. In a tube extractor, a head insertible in the tube, jaws carried thereby and movable into engagement with the tube, a taper head surrounded by the jaws for moving them into such engagement, a nut support-

ed by the head, a threaded stem carrying the taper head and working in the nut for causing the taper head to move the jaws outwardly, and a second nut on the stem for moving the stem, the head, and the tube, longitudinally.

2. In a tube extractor, a head insertible in the tube, jaws carried thereby and movable into engagement with the tube, a taper head surrounded by the jaws for moving them into such engagement, a nut supported by the head, a threaded stem carrying the taper head and working in the nut for causing the taper head to move the jaws outwardly, a support resting on the device from which the tube is to be extracted, and a nut working on the stem and bearing on the support for moving the stem, the head, and the tube longitudinally in the said device.

3. In a tube extractor, a head insertible into the tube and provided with a central opening and radial openings, jaws movable in the radial openings and having portions extending into the central opening, a taper-head in the central opening and adapted to engage the said portions of the jaws, means for drawing the taper-head in the direction toward which it tapers, and means for preventing the taper-head from being drawn past the said portions of the jaws, the said means comprising a pin and slot connection between the head and jaws.

Signed at Toledo, Ohio, this 21st day of October, A. D. 1913.

CLYDE S. WRIGHT.

Witnesses:
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