Oct. 30, 1934. A. H. STANDLEY 1,979,178

SHOWER PIPE FOR SUCTION ROLLS

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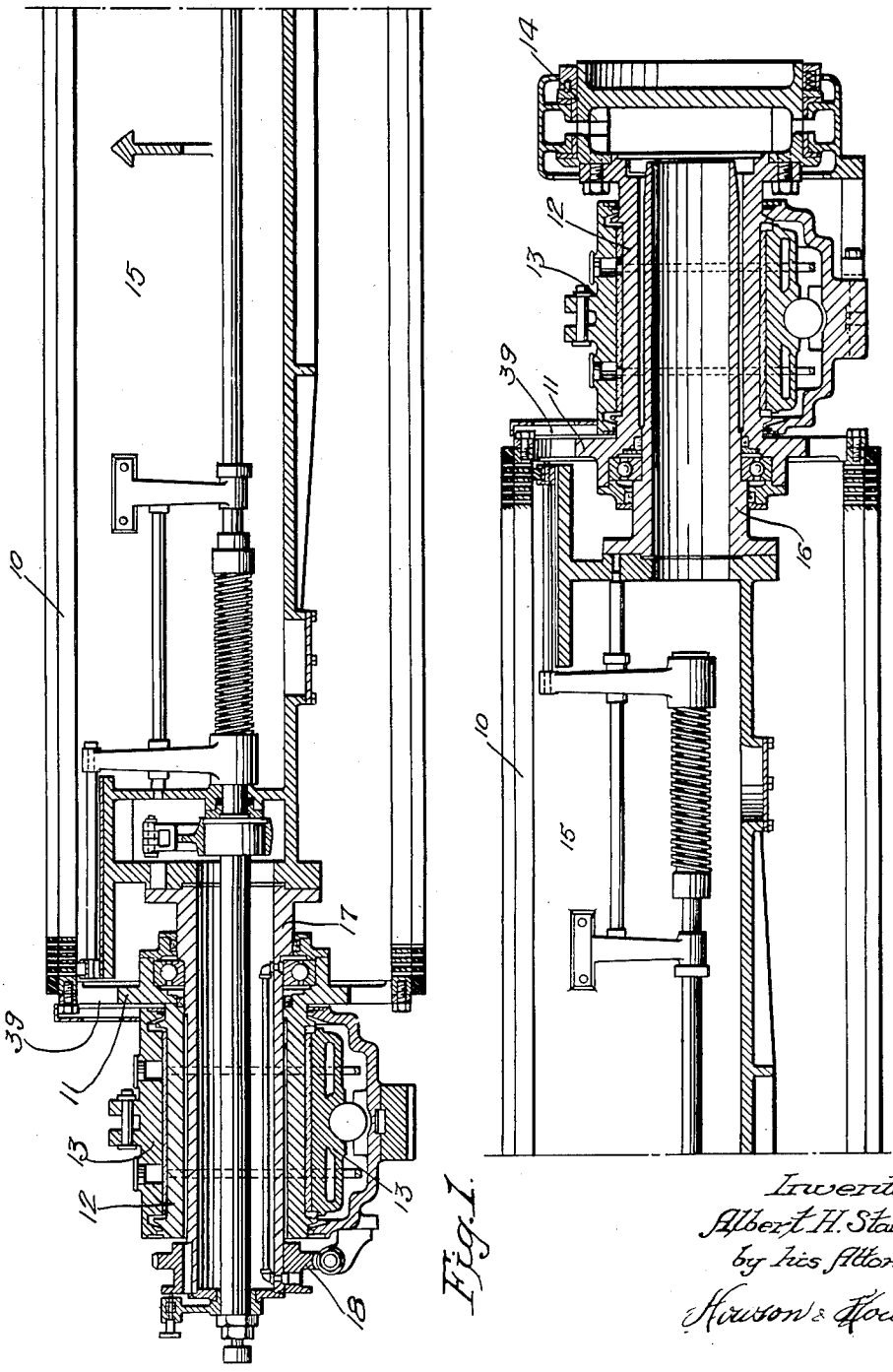


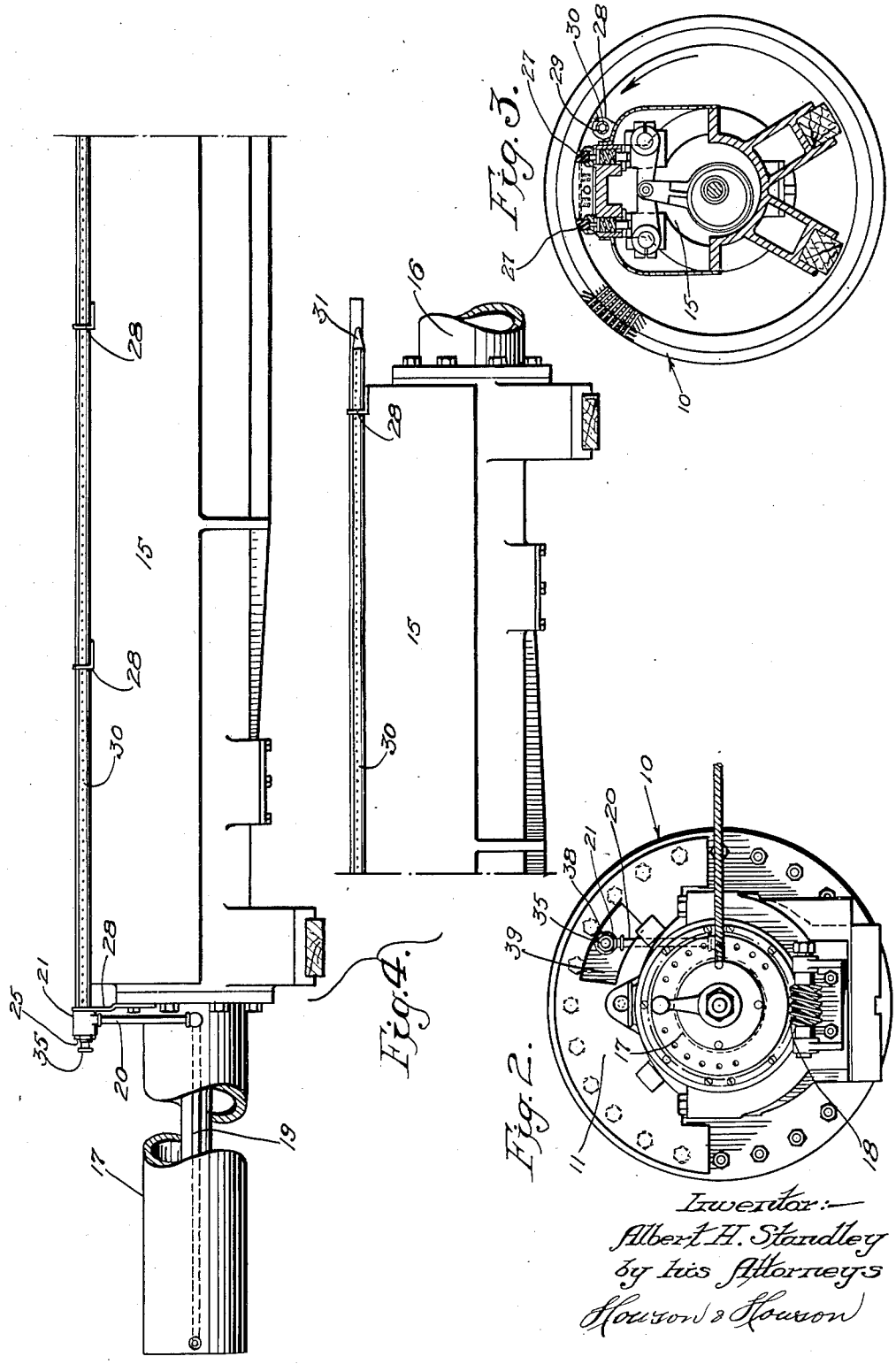
Fig. 1.

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Fig. 5.

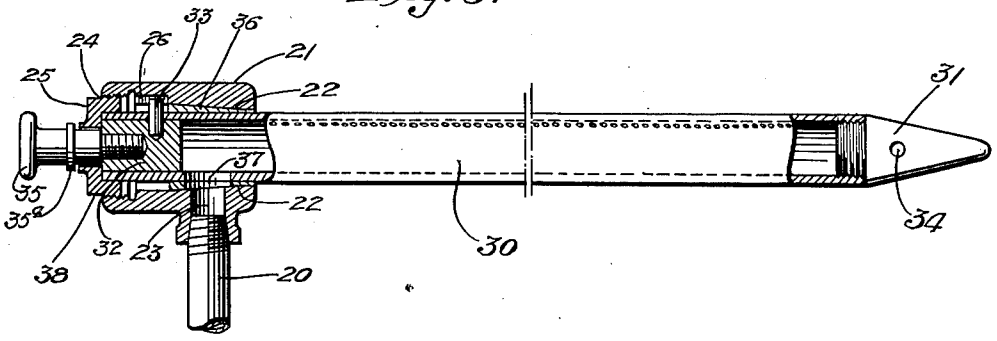


Fig. 6.

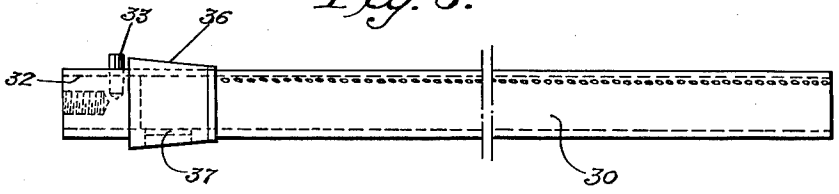
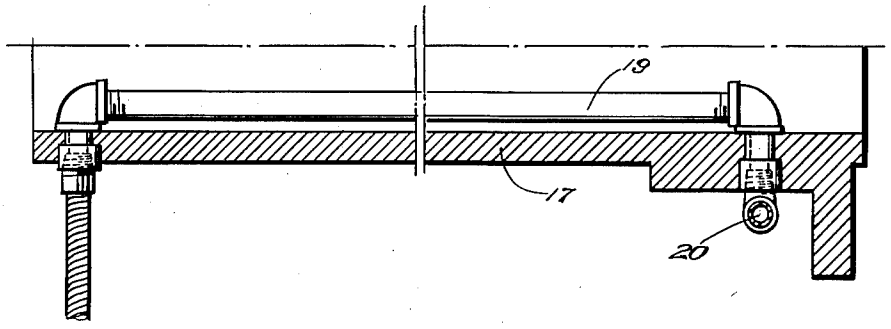


Fig. 7.



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UNITED STATES PATENT OFFICE

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SHOWER PIPE FOR SUCTION ROLLS

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Application April 14, 1934, Serial No. 720,595

9 Claims. (Cl. 92—53)

This invention relates to suction rolls, and more particularly to an arrangement of the shower pipes of suction rolls.

Suction rolls are substantially universally provided with shower pipes directing sprays of fluid against the inner surface of the shell immediately in advance of that edge of the suction box first engaged by a given portion of the shell in its rotation. Particles of fibre and felt passing through the openings of the shell collect upon the pipe tending to clog the openings and, furthermore, particles of foreign matter in the water delivered through the pipe gather in the openings and tend to clog the same so that the shower pipe has to be removed and cleaned. This must be done whenever the shower fails to operate properly, for this shower in addition to cleansing the roll lubricates the inner surface of the roll so that it may not have too great a frictional engagement with the packings of the suction box. As at present constructed, such devices require dismantling of the roll in order that they may be removed for cleaning, and an important object of the present invention is the provision of a shower pipe arrangement permitting the pipe to be removed for cleaning without dismantling the roll.

A further object of the invention is the provision in a device of this character of an arrangement such that the shower pipe can be removed without breaking any actual pipe connections and simply disengaging the shower pipe from a slip joint through which its connection with the water supply is provided.

A further object of the invention is the provision of a shower pipe so constructed that it may be very readily cleaned and may be readily inserted into position in the roll.

These and other objects I attain by the construction shown in the drawings wherein, for the purpose of illustration I have shown a preferred embodiment of my invention and wherein:

Fig. 1 is a longitudinal sectional view through a suction roll equipped with a spray pipe in accordance with my invention;

Fig. 2 is an end elevation of the suction roll;

Fig. 3 is a transverse sectional view therethrough;

Fig. 4 is a view of the suction box removed showing the method of mounting the spray pipe thereon;

Fig. 5 is an enlarged sectional view showing the spray pipe in position in a supply head;

Fig. 6 is a view showing the spray pipe removed; and

Fig. 7 is a detail sectional view illustrating the method of conducting fluid to the supply head.

Referring now more particularly to the drawings, the numeral 10 generally designates a rotating shell of a suction roll; 11, end heads therefor, having hollow trunnions 12 mounted in suitable bearings 13, one of these end heads being connected as usual to the drive mechanism indicated at 14 through its trunnion. Within the shell is arranged the suction box 15, this box being at present shown as of that type illustrated in the prior patent to Edward T. Street under date of June 30, 1931, No. 1,812,812, for Suction rolls. The ends of this suction box have trunnions 16 and 17 which are mounted and guided in the trunnions 12 of the shell.

In accordance with my invention, the trunnion 17, which is projected entirely through the associated shell trunnion in order that it may be connected with adjusting means generally designated at 18, has arranged therein a longitudinally-extending water conduit 19 which opens through the outer shell of the trunnion 17 at its outer end outwardly of the outboard end of the associated trunnion 12 of the shell and at its inner end through the trunnion 17 inwardly of head 11. At this point it is connected with a substantially tangentially-extending conduit 20 the upper end of which is equipped with a fitting more particularly shown in Fig. 5. This fitting comprises a tubular chamber 21 the bore of which is tapered adjacent one end as indicated at 22. The side wall of the chamber has an opening therethrough at such tapered portion as indicated at 23 for communication with the conduit 20. The opposite end of the chamber 21 is threaded, or otherwise adapted at 24, for convenient attachment of a head 25. Inwardly of this connection, a slot 26 is formed in the inner surface of the chamber for a purpose presently to appear.

The axial bore of the chamber 21 is directed along one side of the suction box; i. e., that side thereof bearing the packing 27 which is first engaged by any given portion of the shell 10 during its rotation. Secured to the suction box are a plurality of brackets 28 each having an opening 29 coaxial with the bore of chamber 21. The spray tube comprises a tubular body 30 enclosed at its opposite ends as indicated at 31 and 32, the closure 32 comprising a plug secured to the tube by a pin 33 which projects beyond the outer surface of the tube and engages in the slot 26 of chamber 21 in order that the openings of the tube

may be properly directed. The closure 31 comprises a tapered plug threaded into the end of the tube and apertured at 34 to permit the insertion of a tool whereby this closure may be removed. Pin 33 may have a loose fit so that closure 32 may be readily removed through medium of a handhold 35 connected therewith, which handhold embodies a portion rotatable in the head 25 and has threaded engagement with the closure 32. The exterior surface of the tube, adjacent closure 32, has sweated or otherwise secured thereto or provided thereon a tapered conical surface 36 adapted to fit the tapered bore of the chamber and through the tube and this tapered surface an opening 37 is formed which aligns with the opening 23 of the chamber when the tube is in position therein.

Since the handhold 35 is rotatably engaged by the head 25, it will be obvious that this head may be rotated to disengage it from the chamber, the head being provided with angular shoulders 38 for engagement by a wrench. The head, during rotation to disengage the same from the chamber 21, engages a shoulder 35*a* on handhold 35, breaking the taper joint connection so that by an axial pull the unit constituting the spray pipe may be withdrawn from the chamber. The adjacent head 11 of the shell has an opening 39 formed therein which may be aligned with the tube and through which the tube may be withdrawn and reinserted, and the head 25 is readily accessible through such opening for disengagement by means of a socket wrench. When the tube is withdrawn, the closures of the opposite ends thereof may be removed, the tube thoroughly cleaned and reassembled without any demounting of the suction roll per se. In reinserting the tube, the closure 31 assists in engaging the tube in the openings of the brackets.

Since the arrangement herein described is, obviously, but one of a number of similar constructions which will be suggested thereby, I do not wish to be understood as limiting myself to such construction except as hereinafter claimed.

I claim:

1. In a suction roll, a rotatable shell having heads, one of said heads having an opening therein, a relatively stationary suction box within the shell, a plurality of brackets supported by said box, a tube mounted in said brackets and removable therefrom in the general direction of its axis and through said opening, means within the shell and stationary with relation to the suction box for supplying fluid to said tube with which the tube is brought in sealing engagement in insertion thereof, and readily detachable means accessible through said opening for holding the tube in such sealing engagement with the supply means.

2. In a suction roll, a rotatable shell having heads, one of said heads having an opening therein, a relatively stationary suction box within the shell, a plurality of brackets supported by said box, a tube mounted in said brackets and removable therefrom in the general direction of its axis and through said opening, and water supply means for said tube.

3. In a suction roll, a rotatable shell having heads, one of said heads having an opening therein, a relatively stationary suction box within the shell, a plurality of brackets supported by said box and each having an opening, a fitting having a bore aligned with the openings of the brackets, means for supplying liquid to said fitting, a tube insertible in said fitting and brackets by an axial movement through the opening of the head, said tube and fitting having coacting means coming into sealing engagement and through which liquid may be introduced to the tube, and a single means for holding said coacting means in engaged relation and for causing initial disengagement of such coacting means.

4. In a suction roll, a rotatable shell having heads, one of said heads having an opening therein, a relatively stationary suction box within the shell, a plurality of brackets supported by said box and each having an opening, a fitting having a bore aligned with the openings of the brackets, means for supplying liquid to said fitting, a tube insertible in said fitting and brackets by an axial movement through the opening of the head, said tube and fitting having coacting means coming into sealing engagement and through which liquid may be introduced to the tube, and a single means for holding said coacting means in engaged relation

5. In a suction roll, a rotatable shell having heads, one of said heads having an opening therein, a relatively stationary suction box within the shell, a plurality of brackets supported by said box and each having an opening, a fitting having a bore aligned with the openings of the brackets, means for supplying liquid to said fitting, a tube insertible in said fitting and brackets by an axial movement through the opening of the head, said tube and fitting having coacting means coming into sealing engagement and through which liquid may be introduced to the tube, the tube having a longitudinal series of openings therein and coacting means on the tube and fitting for holding the tube against rotation.

6. In a suction roll, a rotatable shell having heads, one of said heads having an opening therein, a relatively stationary suction box within the shell, a plurality of brackets supported by said box and each having an opening, a fitting having a bore aligned with the openings of the brackets, means for supplying liquid to said fitting, a tube insertible in said fitting and brackets by an axial movement through the opening of the head, said tube and fitting having coacting means coming into sealing engagement and through which liquid may be introduced to the tube, a single means for holding said coacting means in engaged relation, the tube having a longitudinal series of openings therein and coacting means on the tube and fitting for holding the tube against rotation.

7. In a suction roll, a rotatable shell having heads, one of said heads having an opening therein, a relatively stationary suction box within the shell, a plurality of brackets supported by said box and each having an opening, a fitting having a bore aligned with the openings of the brackets, means for supplying liquid to said fitting, a tube insertible in said fitting and brackets by an axial movement through the opening of the head, said tube and fitting having coacting means coming into sealing engagement and through which liquid may be introduced to the tube, a single means for holding said coacting means in engaged relation and for causing initial disengagement of such coacting means, the tube having a longitudinal series of openings therein and coacting means on the tube and fitting for holding the tube against rotation.

8. In a suction roll, a rotatable shell having heads, one of said heads having an opening therein, a relatively stationary suction box within the shell, a plurality of brackets supported by said box and each having an opening, a fitting having a bore aligned with the openings of the brackets, means for supplying liquid to said fit-

ting, and a tube insertible in said fitting and brackets by an axial movement through the opening of the head, said tube and fitting having coacting means coming into sealing engagement and through which liquid may be introduced to the tube.

9. In a suction roll, a rotatable shell having heads, one of said heads having an opening therein, a relatively stationary suction box within the shell, a plurality of brackets supported by said box, a tube mounted in said brackets and removable therefrom in the general direction of its axis and through said opening, and supporting means for the tube including means to introduce fluid thereto.

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