

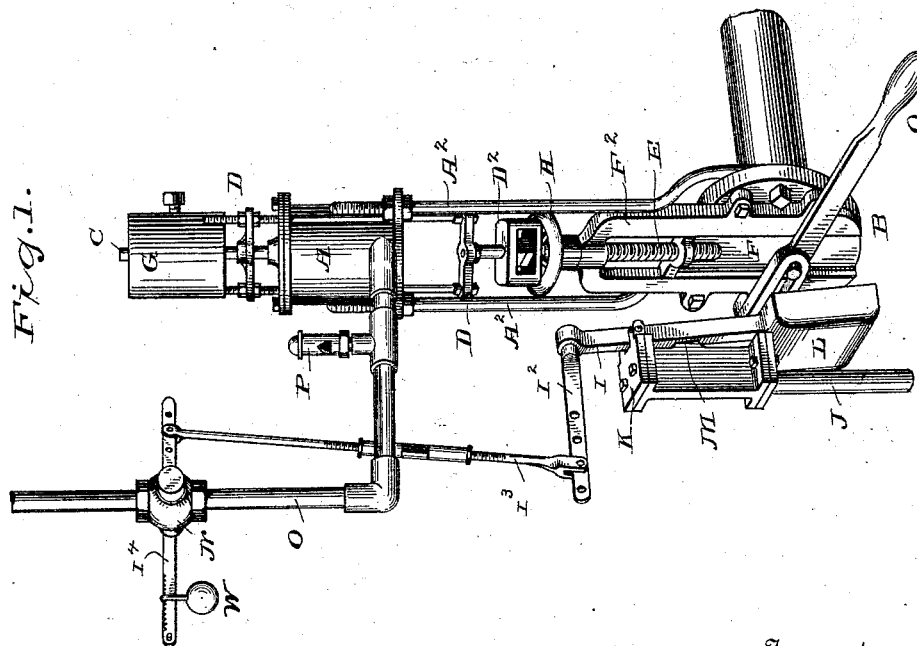
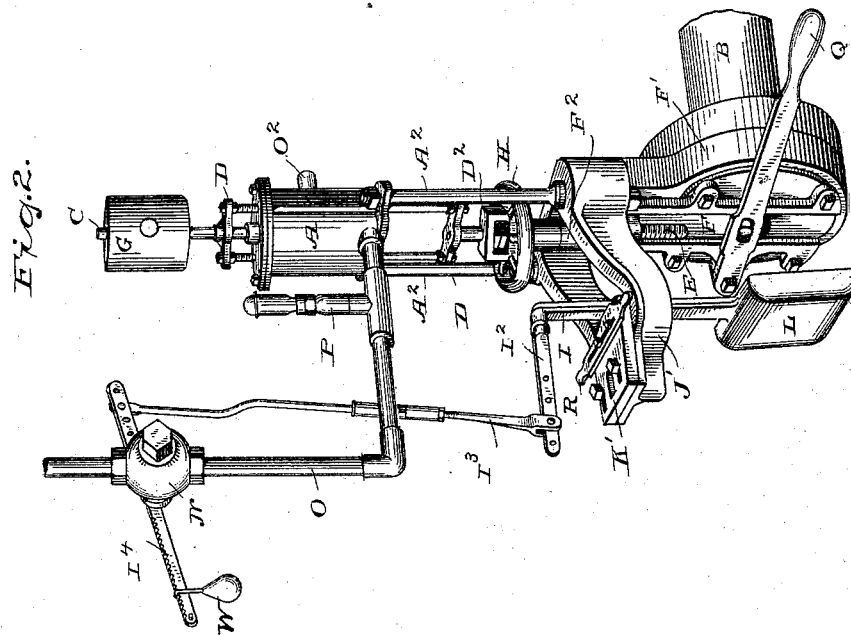
(No Model.)

H. SCHOFIELD.

APPARATUS FOR OPENING AND CLOSING STUFF TAPS.

No. 422,979.

Patented Mar. 11, 1890.



Witnesses

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APPARATUS FOR OPENING AND CLOSING STUFF-TAPS.

SPECIFICATION forming part of Letters Patent No. 422,979, dated March 11, 1890.

Application filed February 28, 1889. Serial No. 301,490. (No model.) Patented in England December 29, 1886, No. 17,040.

To all whom it may concern:

Be it known that I, HENRY SCHOFIELD, a subject of the Queen of Great Britain and Ireland, and a resident of Stannington, near Sheffield, in the county of York, England, have invented a new and useful Improvement in Apparatus for Opening and Closing Stuff-Taps, (in part patented to me in Great Britain and Ireland by Letters Patent No. 17,040, dated December 29, 1886,) of which the following is a specification.

This invention consists in certain novel automatic attachments for paper-making machinery, as hereinafter set forth and claimed.

Its primary object is to thus provide for opening the pulp-valve or "stuff-tap," so as to permit obstructions to pass, and for closing the same to its proper position again, so as to keep the wire covered with pulp.

Apparatus has heretofore been constructed to give an alarm or warning to the attendant when a stoppage occurs. My attachments go further and accomplish what the attendant would otherwise have to do by hand.

Another object of the invention is to so attach the automatic valve-mover as to provide for independently regulating the valve and for working it by hand at will.

Another object is to provide for the support of the whole of the attachments by the flange of the stuff-tap, as hereinafter more fully set forth.

A sheet of drawings accompanies this specification as part thereof.

Figure 1 of the drawings is a perspective view of a stuff-tap provided with my attachments, as shown in my British patent. Fig. 2 is a like view of a preferred embodiment of the same invention, including an additional improvement.

Like letters refer to corresponding parts in both figures.

In each form of the apparatus a small single-acting steam-cylinder A is fixedly supported, as by uprights A², above the stuff-tap B, the piston-rod C being connected by suitable means, such as cross-heads and rods D, and the customary regulating-screw E to the sliding valve F, which opens and closes the outlet of the pulp-conduit. A weight G, conveniently applied to the piston-rod C, causes

the valve to descend by gravity to the lowest position for which it is adjusted and to remain normally in this position. The regulating-screw E may be turned by hand to increase or diminish the ordinary flow of pulp, by a hand-wheel H, for example, a suitable swivel-coupling D² connecting the same and said cross-heads and rods D so as to prevent interference of either with the other. The screw E slides freely through the valve-frame F², which supports the screw in its normal position. In front of the stuff-tap a lever I is supported by a suitable standard J, Fig. 1, fixed in the pulp-tank, or preferably by a bracket J', Fig. 2, integral with a valve-seat F', which is bolted to the flange of the stuff-tap B and conveniently supports the cylinder-uprights A². At the top of its support J or J' the lever I is fulcrumed to a hinge-plate K or K', and at its lower end it has a broad portion L, something like the bowl of a spoon, rendering the lever "spoon-shaped," as it is hereinafter termed, and against which the stream of pulp impinges as it issues beneath the valve F. The normal position of the lever I is determined by a back-stop, such as is shown at M, Fig. 1, on its support, and its upper end is connected directly or indirectly with the spigot of a stop-cock N, interposed between two sections of a steam-pipe O, which supplies the cylinder A with steam. The preferred indirect connections represented consists of a perforated lever-arm I², a connecting-rod I³, furnished with a turn-buckle, and a steelyard-lever I⁴, furnished with a movable counterbalancing-weight W and having a perforated end, to which said rod is coupled. The requisite power and stroke for opening and closing the cock N may thus be obtained with great nicety.

In the improved apparatus, Fig. 2, the hinge-plate K' is slotted so as to be adjustable toward and away from the face of the stuff-tap, and it is provided with a sliding bar R, having a projection opposed to the lever I, so that by thrusting in said bar the lever may be fastened back so as to keep the stop-cock N closed when the flow of pulp is stopped intentionally, as during non-working hours. Ordinarily the bar is retracted.

When the tap becomes obstructed and its discharge is stopped or materially reduced, the lower end of the spoon-shaped lever I, supposing the same to be free, swings toward the face of the tap and opens the cock N. Its tendency to so swing forward is due to the weight of said lever-arm I², connecting-rod I³, and the perforated end of the steelyard-lever I⁴, preponderating that of the body of said lever I¹ and the weight W thereon to a greater or less extent, according to the adjustment of said weight, and to a sufficient extent to render the advanced position of the broad portion or spoon L its normal position. This admits steam beneath the piston in the cylinder A, and through the connections C, D, D², and E lifts the valve F and permits the obstruction to escape. The reverse movement of the lever I, due to the resumed flow of pulp, shuts off the steam, which escapes from the cylinder A through a suitable exhaust O², Fig. 2. The weight G, through the same connections, then lowers the valve I to the normal position at which it is set by the screw E. A whistle P, connected with the pipe O between the steam-cock N and the cylinder A, gives notice when the cylinder is taking steam. A hand-lever Q, directly connected with the valve F, provides for lifting it by hand at will without interfering with the automatic attachments.

Details which have not been described may be of any approved description, and I do not limit my claims, hereinafter stated, to any mechanical details, except such as are specified therein.

The cylinder A, its piston, and connections may be modified so as to render the valve-mover hydraulic instead of steam-actuated, and other like modifications will suggest themselves to machinists.

Having thus described said apparatus for

opening and closing stuff-taps, and an improved form thereof upon which my specific claims are based, I claim as my invention and desire to patent under this specification—

1. The combination, with a stuff-tap and its valve, of a valve-mover and connections for opening and closing the same, and means for automatically controlling the operation of said valve-mover, comprising a movable part arranged in front of the tap so as to receive the impact of the stream of pulp, substantially as hereinbefore specified.

2. The combination, with a stuff-tap having a vertically-sliding valve, of a vertical single-acting piston and cylinder above the tap, a weighted piston-rod, connections to transmit motion between the latter and the valve, a pipe conveying a fluid under pressure, connected with the lower end of said cylinder and provided with a stop-cock, a spoon-shaped lever swinging in front of the tap, and connections to transmit motion between said lever and said cock, substantially as hereinbefore specified.

3. In an apparatus for opening and closing stuff-taps, the combination, with a vertically-sliding valve and its adjusting-screw, of an automatic valve-mover, and motion-transmitting connections between them, comprising a vertical swivel, substantially as hereinbefore specified, for the purpose set forth.

4. Automatic attachments for opening and closing a stuff-tap having a sliding valve, such attachment comprising a valve-mover in line with the valve, a movable part swinging in front of the tap, and a support for both that is bolted to the flange of the stuff-tap, substantially as hereinbefore specified.

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