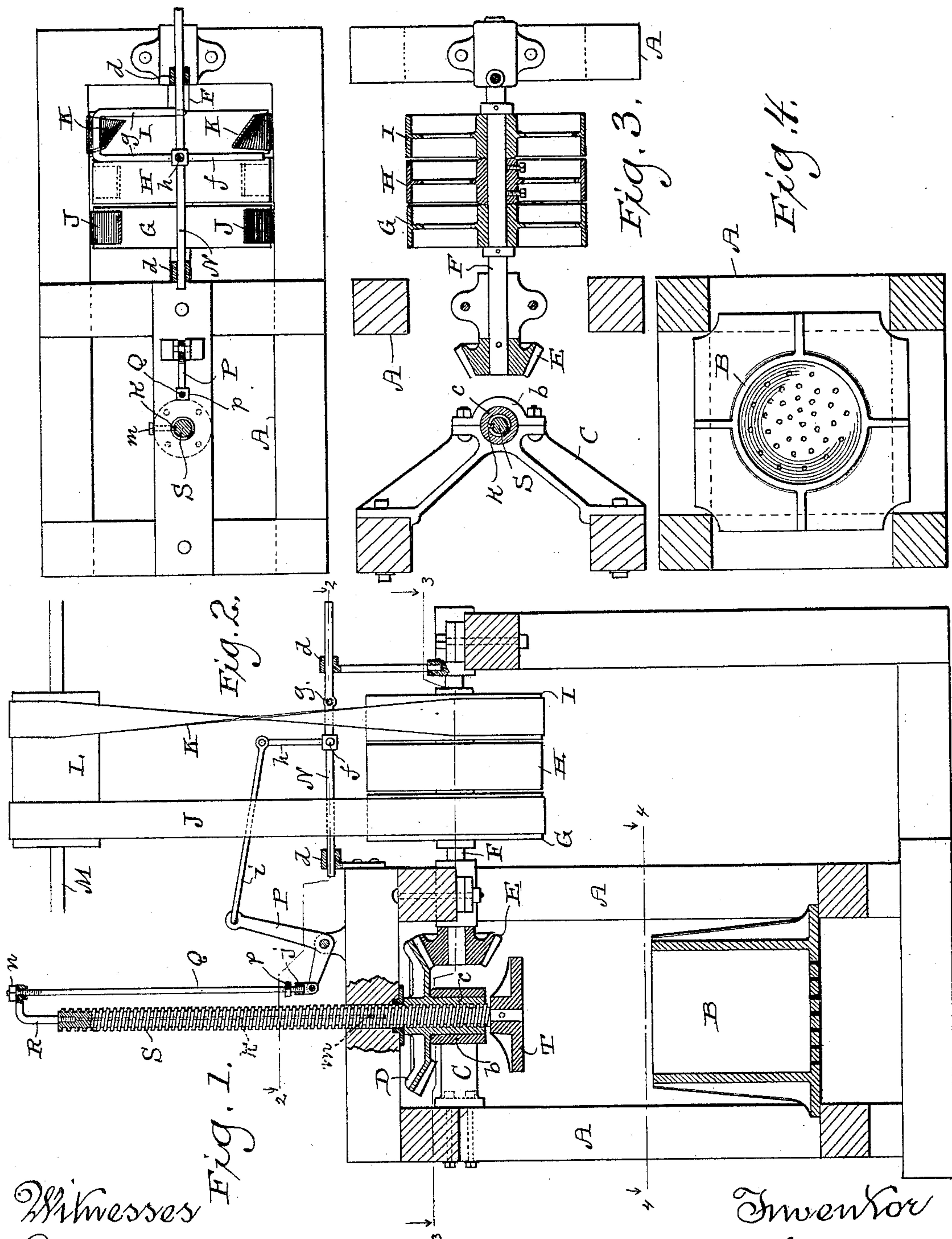


(No Model.)

F. GROTENRATH.
POWER PRESS.

No. 462,485.

Patented Nov. 3, 1891.



Witnesses
Geo. W. Young.
N. E. Oliphant.

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In witness
Fred Grotenrath,
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UNITED STATES PATENT OFFICE.

FRED GROTENRATH, OF MILWAUKEE, WISCONSIN.

POWER-PRESS.

SPECIFICATION forming part of Letters Patent No. 462,485, dated November 3, 1891.

Application filed March 23, 1891. Serial No. 386,006. (No model.)

To all whom it may concern:

Be it known that I, FRED GROTENRATH, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Power-Presses; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention consists in certain peculiarities of construction and combination of parts, to be hereinafter described and subsequently claimed.

In the drawings, Figure 1 represents an elevation of a power-press partly in section and provided with my improvements; and Figs. 2, 3, and 4 represent horizontal sections respectively taken on lines 2 2, 3 3, and 4 4 of Fig. 1.

Referring by letter to the drawings, A represents the frame, and B a cylinder supported on timbers of said frame, this cylinder being shown as having the bottom thereof provided with a series of perforations. A bracket C, secured to timbers of the frame, is provided with a bearing *b* for the vertically-extended and internally-screw-threaded hub *c* of a gear-wheel D, in mesh with a pinion E on a horizontal shaft F, the latter having bearings on said frame. Arranged on the shaft F are pulleys G H I, the center one of the same being fast to said shaft and the others loose thereon, motion being communicated to said pulleys by means of a straight belt J and cross-belt K, that are driven by a drum L, fast on a shaft M, as illustrated in Fig. 1. Supported in guides *d* on the press-frame is a sliding rod N, provided with a finger *f*, loop or fork *g*, and arm *h*, the latter having a link connection *i* with one arm of a bell-crank P, trunnioned in bearings on said press-frame. Engaging a shackle *j* on the other arm of the bell-crank is the screw-threaded lower end of a rod Q, loose in an eye at the outer end of an angle-arm R, connected to a screw S, the latter being the shank of a follower T in line with the cylinder B and being engaged with the screw-threads in the bore of the gear-wheel hub *c* above described, the screw being preferably provided with a longitudinal groove *k* for engagement with a guide-pin *m* in a timber of the press-frame. Adjustable on the upper and lower screw-threaded ends

of the rod Q are stop-nuts *n p*, respectively, opposed to the angle-arm R, above specified.

The finger *f* on the rod N is intended to operate against the straight belt J, and the loop *g* on said rod engages the cross-belt K, the rod and its connections forming a shifting mechanism for said belts, as will be hereinafter more fully described. In practice the belts J K are normally on the loose pulleys G I and the follower T elevated, as shown in Fig. 1. The cylinder B being filled with material to be pressed, the straight belt J is shifted from the loose pulley G onto the tight pulley H by a lever or other suitable means, (not shown,) and thus the shaft F is rotated to actuate the pinion E and gear-wheel D, the rotation of the latter causing the screw S to descend and exert the follower T against the material in the cylinder B, certain of the material, such as clay, being squeezed through the perforated bottom of said cylinder and the residue retained therein. When the angle-arm R on the screw reaches the lower nut *p* on the rod Q, the bell-crank P is actuated to move the sliding rod N, and thus the finger *f* of this rod shifts the straight belt J back onto the loose pulley G, and the loop *g* of said rod will at the same time shift the cross-belt K from the loose pulley I onto the tight pulley H to thus cause a reverse movement of the pinion E and gear-wheel D for the purpose of automatically elevating the screw and follower above described. The upward movement of the screw S brings the angle-arm R against the upper nut *n* on the rod Q, and thus the bell-crank P is again actuated to cause the sliding rod N to return to its normal position, the loop *g* on this rod shifting the cross-belt back onto the loose pulley I to thereby stop the motion of the screw-actuating mechanism until such time as the cylinder is refilled and the straight belt thrown onto the tight pulley. The time at which the bell-crank P is actuated to cause a shift of either or both belts is regulated by the adjustment of the stop-nuts on the rod Q, that is parallel to the follower-carrying screw.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the follower-shank, a drive mechanism for the same, suitable

means for reversing the drive mechanism at a predetermined time independent of an operator, and a stop mechanism, also independent of an operator, for limiting the reverse movement of said follower-shank, substantially as set forth.

2. The combination of the follower-shank, an actuating-shaft connected to the same, two loose pulleys and an intermediate tight pulley on the shaft, a driving-drum, straight and cross belts normally connecting the drum and loose pulleys, a shifter comprising a sliding rod provided with a finger arranged to operate against one of the belts and a loop or fork engaging the other of said belts, a reciprocative device connected to the shifter-rod, and an actuating mechanism for said device governed by said follower-shank, substantially as set forth.

3. The combination of the follower-shank, an actuating-shaft connected to the same, two loose pulleys and an intermediate tight pulley on the shaft, a driving-drum, straight and cross belts normally connecting the drum and loose pulleys, a bell-crank, a reciprocative rod connected to one arm of the bell-crank and governed by the follower-shank, and a belt-shifter comprising a sliding rod connected to the other arm of the bell-crank, a finger on

the latter rod arranged to operate against one of the belts, and a loop or fork, also on this latter rod, in engagement with the other of said belts, substantially as set forth.

4. The combination, with the screw-threaded follower-shank, of a gear-wheel having a screw-threaded hub engaging the follower-shank, a shaft carrying two loose pulleys, an intermediate tight pulley, and a pinion, the latter being in mesh with said gear-wheel, a bell-crank, a rod connected to one arm of the bell-crank and loose in an arm of said follower-shank, stops on the rod, a driving-drum, straight and cross belts normally connecting the drum and said loose pulleys, and a belt-shifter comprising a sliding rod linked to the other arm of said bell-crank, a finger on the rod, and a loop or fork, also on said rod, engaging the other of said belts, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

FRED GROTENRATH.

Witnesses:

N. E. OLIPHANT,
WM. KLUG.