

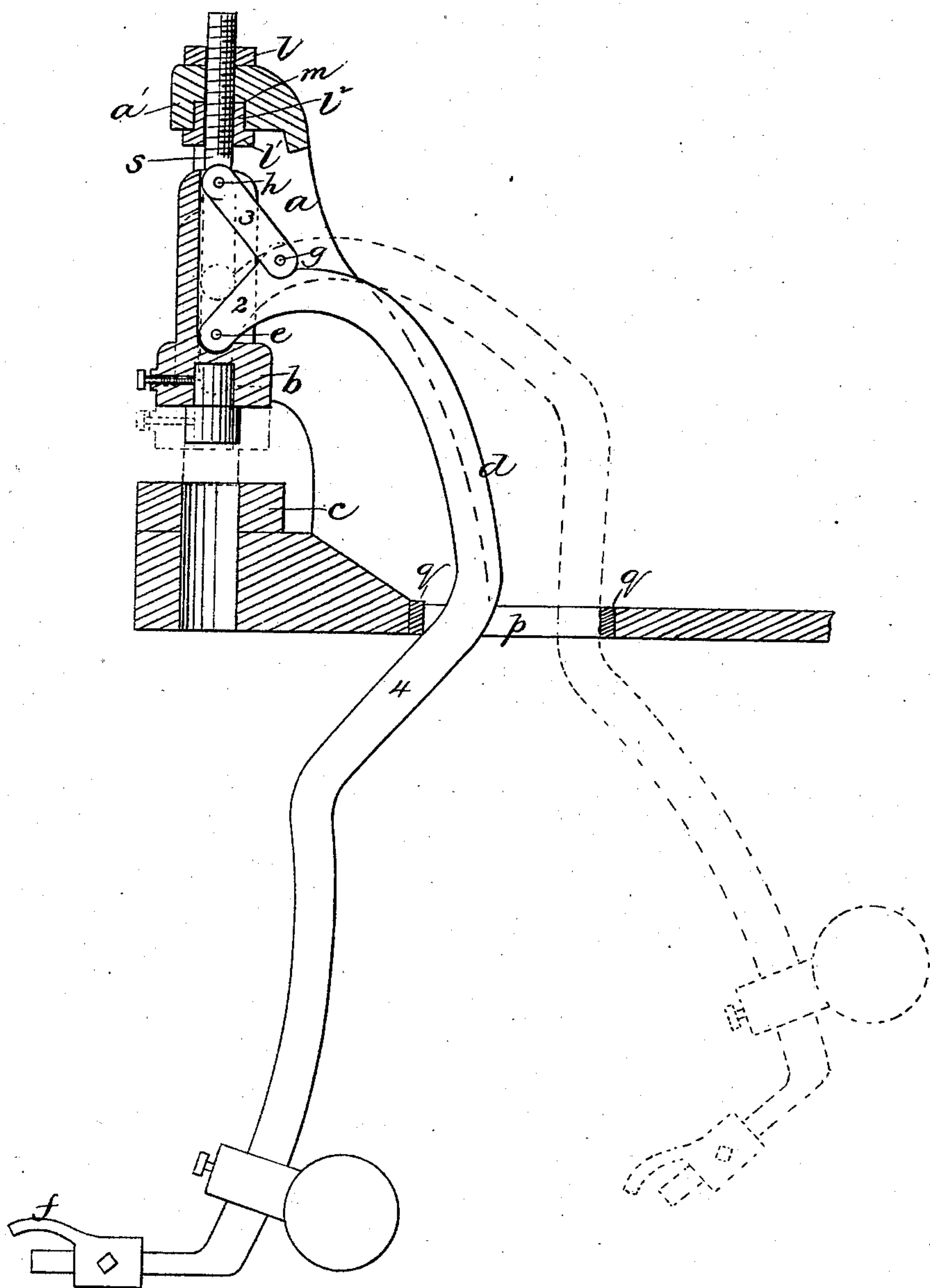
(No Model.)

J. A. HORTON.

DROP PRESS.

No. 294,237.

Patented Feb. 26, 1884.



Witnesses.

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# UNITED STATES PATENT OFFICE.

JAMES A. HORTON, OF READING, MASSACHUSETTS.

## DROP-PRESS.

SPECIFICATION forming part of Letters Patent No. 294,237, dated February 26, 1884.

Application filed October 12, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES A. HORTON, of Reading, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Drop-Presses, of which the following is a specification.

This invention relates to drop-presses adapted to be operated by foot-power; and it has for its object to provide improved means whereby the power employed in depressing the plunger is utilized to the best advantage, and the plunger is automatically raised upon the removal of such power.

To this end my invention consists in the improvements which I will now proceed to describe and claim.

The accompanying drawing, forming a part of this specification, represents a vertical central section of a foot-power press provided with my improvements.

In the drawing, *a* represents the frame or body of a drop-press.

*b* represents the plunger, adapted to slide on guides or ways on said body; and *c* represents the bed-plate, said parts being of the usual or any suitable construction.

In carrying out my invention I provide a foot-lever, *d*, which is pivoted at one end to the plunger at *e*, and inclined upwardly from said pivotal point when in its normal position, so as to form a member, 2, of a toggle-joint, and is then bent downwardly and forward, so that its lower end, which has a suitable foot-piece, *f*, is in convenient position to be acted on by the foot of the operator.

3 represents a link which is pivoted at *g* to the upper extremity of the part 2 of the foot-lever, and at *h* to a fixed support, *k*, on the body *a*, said link and the part 2 of the foot-lever constituting the two members of a toggle-joint. The plunger and the foot-lever are held in suspension by said link and its support, the foot-lever being so arranged that its weight will keep said toggle-joint members out of line with each other, as shown in full lines in the drawing, the plunger being thus normally held in a raised position.

It will be seen that when the foot-lever is swung backwardly by the operator's foot, as shown in dotted lines, the toggle-joint is straightened and the plunger is depressed.

I have found that by this arrangement of

operating devices the power exerted by the operator is employed to much better advantage than by any other arrangement known to me, and that heavy work can be done which heretofore has been considered impossible of accomplishment by a foot-power press.

I prefer to make the support *k*, to which the link 3 is pivoted, vertically adjustable, so that the plunger can be adjusted to bed-plates of different thicknesses. To this end I make said support in the form of a threaded rod having adjustable check-nuts *l l'* bearing, respectively, on the upper and lower surfaces of the portion *a'* of the body *a* above the aperture in which the plunger works, and holding the support *k* at any point to which it may be adjusted. The orifice in the body through which the threaded rod passes is smooth, so that said rod can be adjusted vertically without being rotated. The lower nut, *l'*, has an extension, *l''*, which projects into a recess, *m*, in the body *a* and fits closely in said recess. The nut *l'* is thus given an extended bearing on the threaded rod, which prevents the upward pressure upon it, caused by the operation of the press, from stripping the threads of said nut and rod. The foot-lever passes through a slot, *p*, in the body *a*, or in a plate or bed on which said body rests, said slot being provided with elastic buffers *q q* at its ends, which serve as stops for the lever and limit its oscillations.

To obviate the necessity of adjusting said stops when the plunger is vertically adjusted, I form the portion 4 of the foot-lever that works in said slot substantially parallel with the portion 2 of said lever, so that the points reached by said portion 4 at the extremes of its movements will always be the same with any vertical adjustment of the plunger, as will readily be seen.

I claim--

1. In a drop-press, the combination, with the plunger and body, of the gravitating foot-lever pivoted at one end directly to said plunger, and a link connecting the lever to a fixed support on the body of the press, said link and the end of the foot-lever constituting the members of a toggle-joint, as set forth.

2. The combination, with the plunger, the foot-lever pivoted to the plunger, and the link 3, pivoted to said foot-lever, of an adjust-



able support to which said link is pivoted, and means for positively holding said support at any position to which it may be adjusted, whereby the plunger may be adjusted to the  
5 different heights, as set forth.

3. The combination, with the plunger, the foot-lever pivoted to the plunger, and link pivoted to the foot-lever, of the screw-threaded rod to which the link is pivoted, said rod  
10 passing loosely through an orifice in the frame of the press, and check-nuts engaged with said threaded rod and bearing, respectively, on the upper and lower sides of the portion of said body through which said rod passes, as  
15 set forth.

4. The combination of the body *a*, having the recess *m*, the threaded rod supporting the link, foot-lever, and plunger, the upper check-nut, *l*, bearing on the upper surface of the  
20 body, and the lower check-nut, *l'*, bearing

against the lower surface of said body, and having an extension, *l''*, projecting into the recess *m*, as set forth.

5. The combination of the plunger, the link pivoted to a fixed support, the foot-lever 25 pivoted to said link and plunger, and formed as a member of a toggle-joint between the link and plunger, and having the portion 4, which is substantially parallel with said toggle-joint member, and stops or buffers *q q*, arranged to 30 limit the movements of the portion 4, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 9th day of October, 35 1883.

JAMES A. HORTON.

Witnesses:

C. F. BROWN,  
A. L. WHITE.