

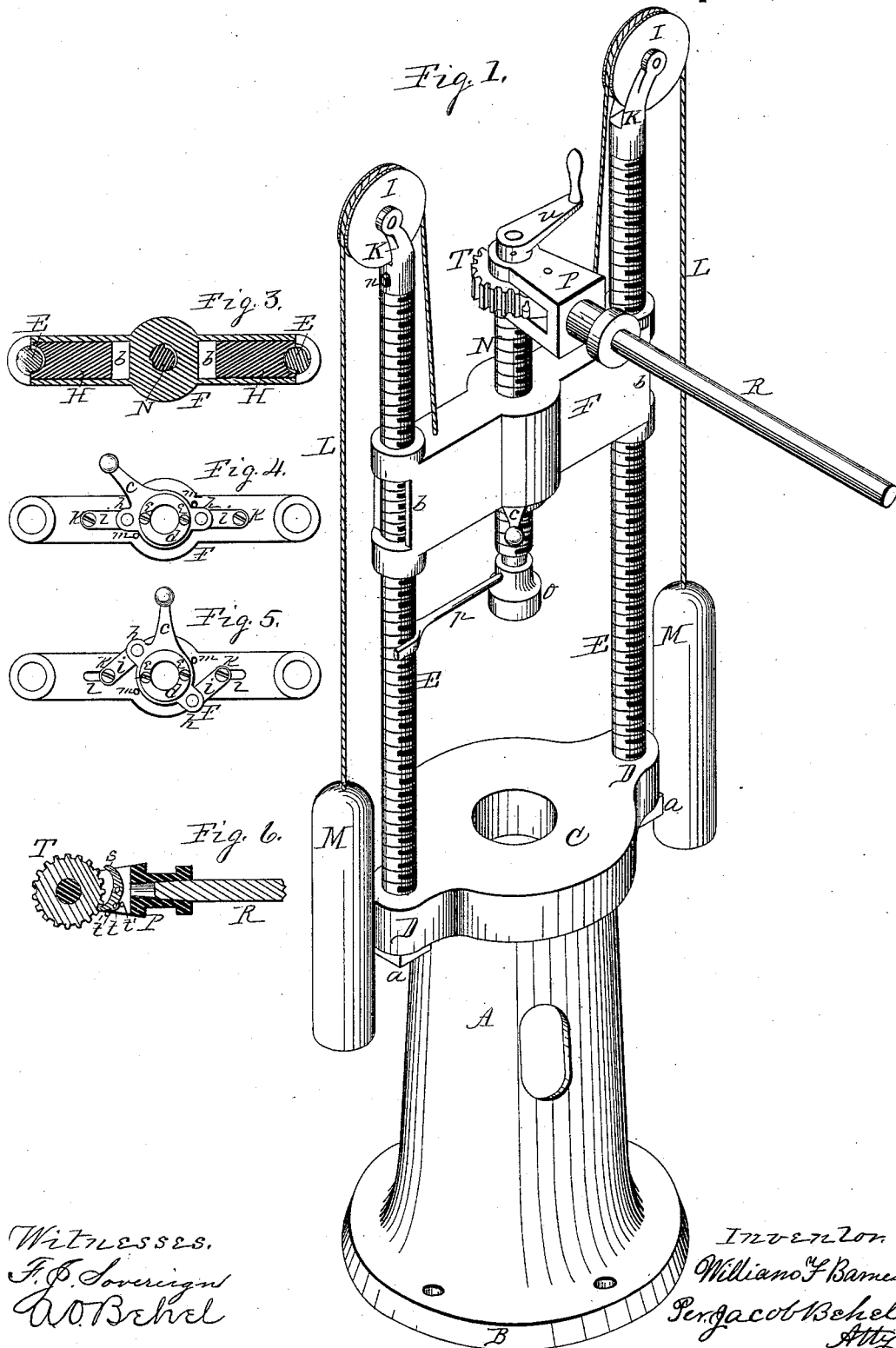
(No Model.)

2 Sheets—Sheet 1.

W. F. BARNES.  
PRESS.

No. 304,594.

Patented Sept. 2, 1884.



Witnesses.  
F. P. Sovereign  
A. O. Behel

Invention  
William F. Barnes.  
Per Jacob Behel.  
Atty.

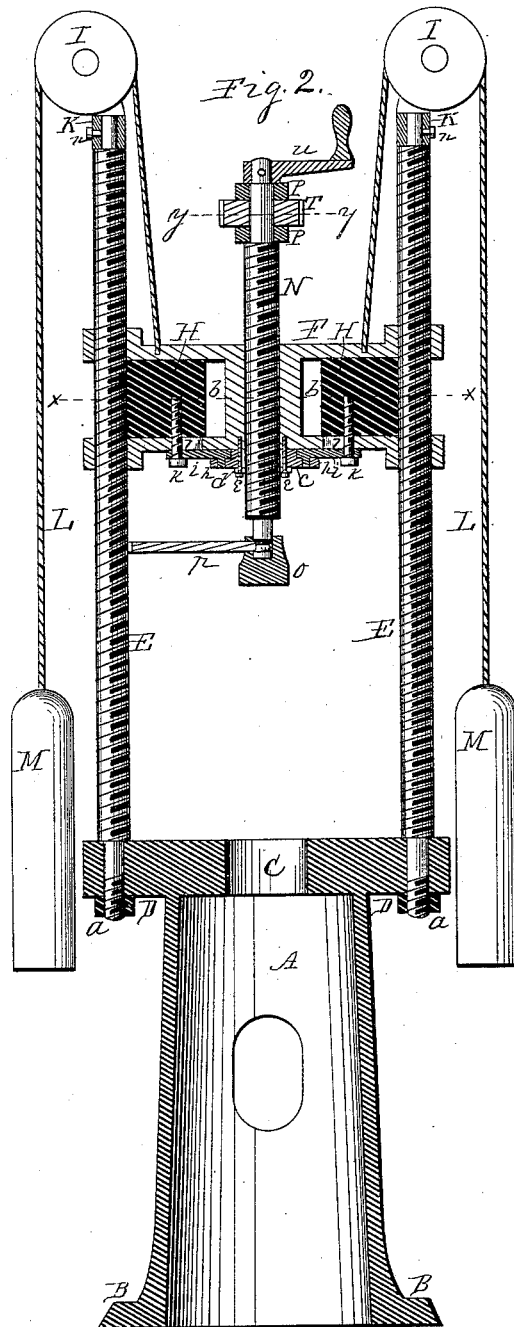
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# UNITED STATES PATENT OFFICE.

WILLIAM F. BARNES, OF ROCKFORD, ILLINOIS, ASSIGNOR TO W. F. AND JOHN BARNES, OF SAME PLACE.

## PRESS.

SPECIFICATION forming part of Letters Patent No. 304,594, dated September 2, 1884.

Application filed July 25, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM F. BARNES, a citizen of the United States, residing in the city of Rockford, in the county of Winnebago and State of Illinois, have invented a new and useful Press, of which the following is a specification.

This invention relates to a class of presses known as the "screw-press;" and its object is to produce at a small cost a screw-press capable of use for most of the purposes for which a press of its class is required, and of a construction to permit the press to be quickly adjusted to any point within its capacity. To this end I have designed and constructed the press represented in the accompanying drawings, in which—

Figure 1 is an isometrical representation of a press embodying my invention. Fig. 2 is a vertical central section cut on a line passing through the axial center of the guide-screws and press. Fig. 3 is a transverse central section of the cross-head cut on dotted line *x* on Fig. 2. Fig. 4 is an under face view of the cross-head with the toggle-levers in line. Fig. 5 is an under face view of the cross-head with the toggle-levers contracted, and Fig. 6 is a transverse central section of the ratchet mechanism on dotted line *y* on Fig. 2.

The pedestal of the press represented in the figures is produced of cast-iron, and consists of a cylindrical tubular shaft, A, circular base B, and circular press-cap C, elongated on opposite sides, forming ears D, which furnish supports for the guide-screws.

At E are represented screw-threaded guides, having their lower ends fitted to enter holes formed in the ears D, in which they are fixed by means of screw-nuts *a*, fitted to their depending screw-threaded ends.

At F is represented a cross-head fitted to receive the screw-guides in a manner to slide thereon freely. This cross-head F is fitted with end openings, *b*, to receive the semi-screw nuts H, which are of block form, fitted to slide freely endwise in the openings, and having their outer ends internally screw-threaded, to engage the screw-threaded guides E, to fix the cross-head in place on the guides when adjusted.

At *c* is represented a lever placed on the under face of the cross-head, having its pivotal center concentric with the press-screw.

This lever *c* is held in place to oscillate about its center by means of a flanged thimble, *d*, fixed in place on the cross-head, concentric with the press-screw, by means of screws *e*, passed through the flanged thimble *d* and screw-threaded into the cross-head. The lever *c* is provided with ears *h*, projecting from its opposite sides.

At *i* are represented toggle-lever links, having one end pivotally connected with the ears *h*, and their other ends pivoted to the semi-screw nuts by means of screws *k*, which extend through slotted openings *l*, formed in the under face of the cross-head, and are screw-threaded into the semi-screw nuts. By this arrangement of levers it will be seen that when the levers are extended, as shown in Fig. 4, the semi-screw nuts will be held in screw-threaded connection with the screw-guides to fix the cross-head in its adjusted position thereon, and when the levers are contracted, as shown in Fig. 5, the semi-screw nuts will be withdrawn from their connection with the screw-guides, and permit the ready adjustment of the cross-head to any position on the guides.

At *m* are represented pin-studs fixed in the under face of the cross-head to limit the oscillatory movement of the toggle-levers.

At I are represented sheaves supported in yokes K, to revolve therein on suitable bearings. The yokes K are fitted with a socket to receive the journal-formed upper end of the guide-screws, and are fixed thereon, when adjusted to position, by means of set-screws *n*.

At L are represented cords, preferably of the wire-cable variety, having a suitable connection with the upper face of the cross-head, from which they extend over the sheaves I, and depend on the outside of the screw-guides, and to their depending ends are attached suitable counter-weights, M, to properly balance the cross-head and its attachments in a manner to be readily adjusted vertically on the guide-screws.

At N is represented a press-screw having a screw-thread connection vertically with the center of the cross-head. The depending end of this press-screw is provided with a press-cap, *o*, held in place thereon in a free manner by means of a rod, *p*, screw-threaded into the cap, and its inner end entering an annular groove formed in the depending journal end

of the press-screw. The outer end of the rod *p* is forked to embrace the screw-guide to move vertically thereon in a free manner, and serves to prevent rotation of the cap.

5 At *P* is represented a yoke-formed lever-head, fitted to oscillate on the upper end journal-formed portion of the press-screw, and its outer end is produced in socket form to receive a lever-bar, *R*, in a removable manner.

10 At *T* is represented a spur-toothed ratchet-wheel fixed to the upper journal portion of the press-screw between the jaws of the lever-head.

At *s* is represented a double-acting spring-actuated pawl centrally pivoted within the jaws of the lever-head, in position therein relatively with the ratchet-wheel in such a manner that the end of either arm of the pawl may be made to engage the teeth of the wheel. This pawl is provided at *t* with a vertical socket, in which is placed a spring-actuated plunger-bolt, having its lower end produced in conic form to enter conic countersink-holes *b'*, formed in the upper face of the lower jaw of the lever-head, in such position relatively with each other and with the position of the plunger-bolt as to hold one or the other of the ends of the pawl in contact with the ratchet-wheel. As the plunger-bolt is engaged with one or the other of the countersink-holes, also that when the plunger-bolt is between the countersink-holes both ends of the pawl will be held out of contact with the ratchet-wheel and permit the press-screw to be turned in either direction by means of the hand-crank *u*, fixed on its upper end.

In the use of my improved press the holes formed in the circular base *B* of the pedestal serve to receive bolts to fix it in position. The work is then placed in position on the press-table. The cross-head is then adjusted and fixed on the vertical guides in the required position for the work. Then by means of a vibratory movement of the lever *R* and the spring-actuated pawl *s*, in the position shown in Fig. 6, the press-screw will be made to descend upon the work with any force within the limits of the press. After the work is completed the position of the pawl *s* is changed opposite to that shown in Fig. 6, when a vibratory movement of the lever *R* will cause the press-screw to rise and liberate the work.

In the foregoing I have described my improved press constructed with screw-guides on which the cross-head is made adjustable; but evidently other forms of guides—such as the toothed rack or ratchet-bar of any of the known forms capable of use in connection with a cross-head made adjustable thereon, substantially in the manner shown, and hereinbefore described—would be within the scope of my invention; also, other known forms of clutching mechanism than the form shown, and hereinbefore described, may be employed to fix the cross-head in position on the guides when adjusted, without departing from the gist of my invention, so long as the cross-head

is made adjustable on the guides for the purpose of adjusting the press to the work. In this instance I have shown my improvements in a vertical form of press; but they are capable of use in a horizontal form, in which construction the counter-weights will not be required, and a radial side opening in the press-table will enlarge the scope of its usefulness.

I claim as my invention—

1. The combination, with a press cap or table, of guides rising from the table to support a cross-head made adjustable thereon, substantially as and for the purpose set forth.

2. The combination, with the press-table and with guides connected therewith, of a cross-head made adjustable on the guides, and a clutching mechanism to connect the cross-head with the guides, substantially as and for the purpose set forth.

3. The combination, with a press cap or table, of screw-guides rising from the table to support a cross-head made adjustable thereon, substantially as and for the purpose set forth.

4. The combination, with the screw-guides and with a press-table, of a cross-head provided with semi-screw nuts to engage the screw-guides, substantially as and for the purpose set forth.

5. The combination, with the cross-head and with the semi-screw nuts, of the toggle-lever mechanism, substantially as and for the purpose set forth.

6. The combination, with the screw-guides and with a cross-head, of semi-screw nuts and a toggle-lever mechanism, substantially as herein described, as and for the purpose set forth.

7. The combination, with the screw-guides and with the cross-head made adjustable thereon, as described, of counter-weights to balance the cross-head, substantially as and for the purpose set forth.

8. The combination, with the cross-head and with the screw-guides, of a press-screw having a screw-threaded connection with the cross-head, a press-cap having a free connection with the press-screw, and a steady-bar connecting the press-cap with the press-screw, and with the screw-guide, substantially as and for the purpose set forth.

9. The combination of a press-screw, a spur-toothed ratchet-wheel fixed on the press-screw, a lever-head forked to embrace the ratchet-wheel, and fulcrumed to oscillate on the press-screw, and a double-acting spring-actuated pawl to engage the teeth of the ratchet-wheel, substantially as and for the purpose set forth.

10. The combination of the press-screw, the ratchet-wheel, the oscillating lever provided with double-acting spring-actuated pawl, and a hand-crank fixed to the press-screw, substantially as and for the purpose set forth.

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Witnesses:

A. O. BEHEL,  
JACOB BEHEL.