(No Model.) 2 Sheets—Sheet 1.

H. B. KINNEY.

POWER PRESS.

No. 264,837. Patented Sept. 19, 1882.

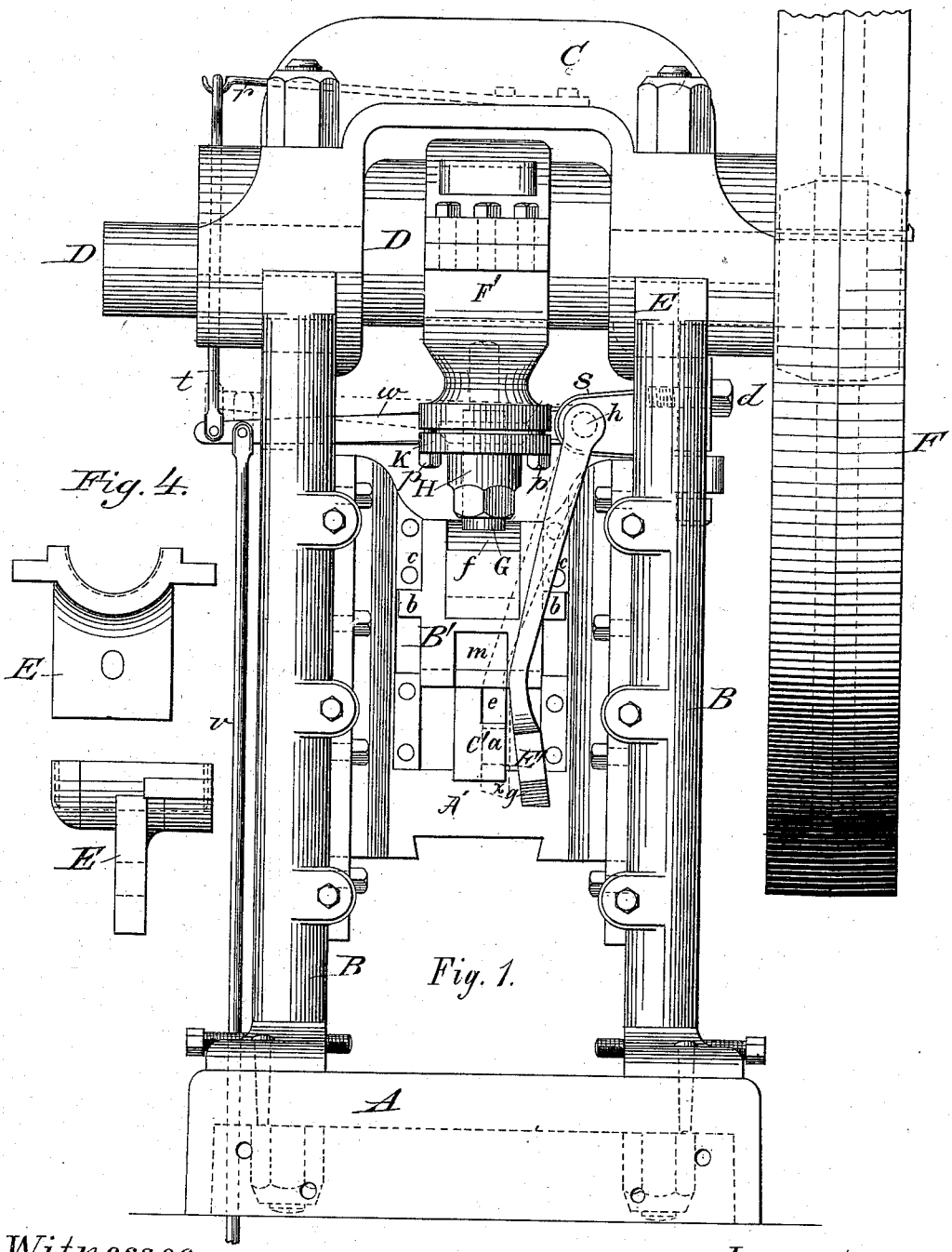

Fig. 4.

Fig. 1.

Witnesses.
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(No Model.)

2 Sheets—Sheet 2.

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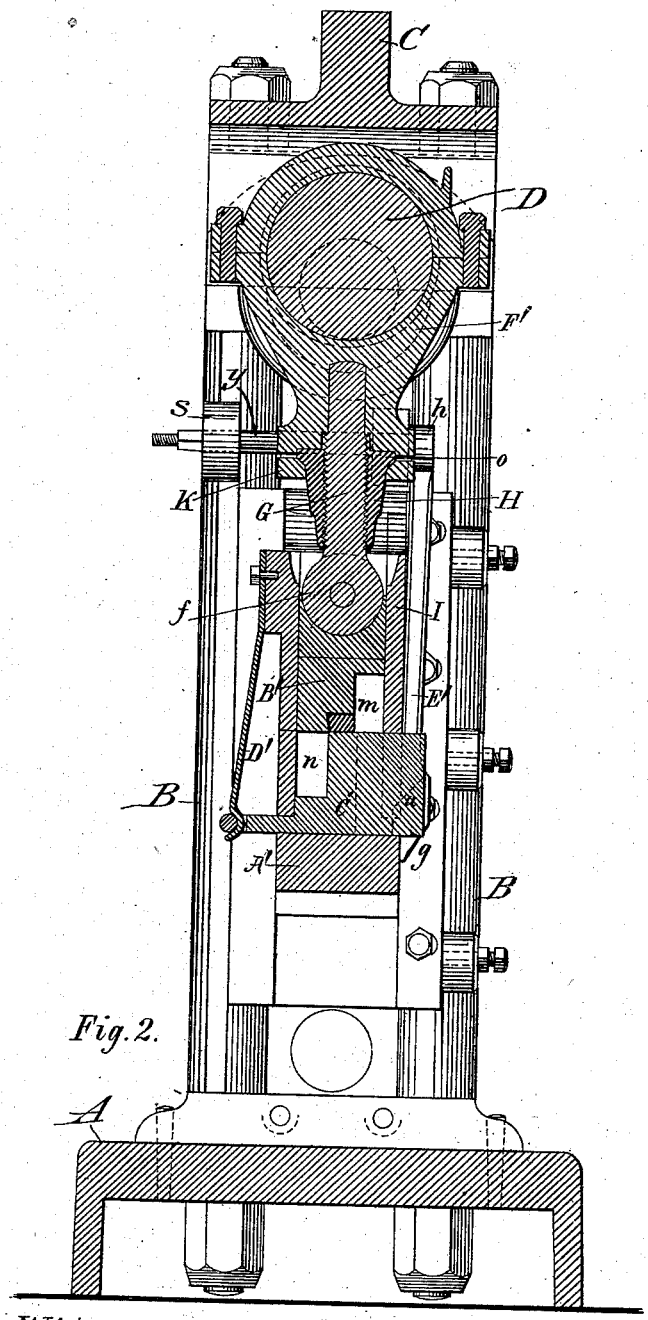

Fig. 2.

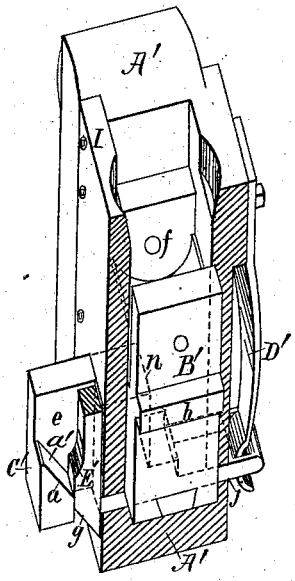

Fig. 3.

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UNITED STATES PATENT OFFICE.

HORACE B. KINNEY, OF WEST WINFIELD, NEW YORK.

POWER-PRESS.

SPECIFICATION forming part of Letters Patent No. 264,837, dated September 19, 1882.

Application filed November 19, 1881. (No model.)

To all whom it may concern:

Be it known that I, HORACE B. KINNEY, a citizen of the United States, residing at West Winfield, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Power-Presses, of which the following is a specification.

My invention relates to that class of machines employed for shearing, punching, pressing, and forging cold or hot metals; and the invention consists in the construction and arrangement of parts, as hereinafter more fully described and claimed.

In the annexed drawings, Figure 1 is a front elevation of my improved power-press, with the sash-plate removed, and showing the construction of parts above the table, the piston being at its extreme upward lift. Fig. 2 is a central vertical section of the same. Fig. 3 is a sectional perspective detail, showing the relative arrangement of the sash, piston, clutch-bar, and connections at the end of the downward stroke of the piston, the sash and piston being clutched; and Fig. 4 represents detail views of a detachable box for holding the eccentric-shaft up to the cross-head or cap of the press.

Like letters are used to designate the same parts throughout the several views.

The bed or table A supports the vertical hollow columns B B, which are connected at the top by a cap-piece or cross-head, C, in which are formed suitable bearings for the horizontal shaft D, that has an eccentric portion arranged between the arms of the cross-head. This cross-head is chambered at one end for the reception of a detachable box, E, (shown in Fig. 4 and in dotted lines, Fig. 1,) that forms one of the bearings for the shaft D and assists in holding it up to the cross-head in such a manner that by simply removing the screw *d* the shaft may be readily detached when required.

The cross-head C is connected with the bed A by means of bolts that are passed through the hollow columns B and secured at their ends by suitable nuts, thus preventing the columns from spreading and securely binding the frame-work of the press. To one end of the shaft D a fly-wheel, F, is attached in the usual manner.

A′ represents the sash, which is supported within the space between the columns B B by means of its frictional contact therewith, suitable gibs (not shown) being arranged in connection with the columns in such a manner as to be adjusted so as to exert a sufficient pressure against the broad face of the sash to hold it stationary at the top of the frame when the sash is disconnected from the reciprocating piston. The sash A′ is chambered for a sufficient length and depth from its front for the reception of the piston B′, and is also recessed or chambered to form shoulders *c c*, which extend through to the back wall of the opening in the sash, and conform to projections *b b*, that are formed upon the sides of the piston. These projections are adapted to engage with the shoulders *c c* for the purpose of lifting the sash to the position shown in Fig. 1. If the piston is disconnected or unclutched from the sash, the latter will remain in this position by reason of the friction between it and the columns B, said friction being sufficient to hold the sash up against its own weight.

The sash A′ and piston B′ are connected for joint operation by means of a horizontally-sliding clutch-bar, C′, which operates in a channel at the lower part of the sash beneath the piston. This clutch-bar is provided with an elongated portion, *j*, which passes through the back of the sash and is connected therewith by a spring, D′, the upper end of which is secured to said sash. The spring D′ serves to operate the clutch-bar C′ so as to connect the sash A′ and piston B′ for joint operation, as hereinafter described. The forward end of the clutch-bar C′ projects through the removable sash-plate I, and is adapted to be engaged with the end of an arm or lever, E′, for the purpose of unclutching the sash and piston, the opening in the sash-plate acting as a guide for the sliding clutch-bar. The side of the clutch-bar C′, at its front end and next to the arm or lever E′, is cut out for about one-half its thickness for the purpose of forming a projection or lug, *a*, having an upper inclined portion, *a′*. This lug projects far enough from the face of the sash-plate to permit the inclined or angular end *g* of the arm E′ to be moved into the chamber *e* and stop against the side wall of the clutch-bar, thus holding it against the tension of the spring D′, and thereby unclutching the sash and piston. While

the arm E′ remains in this position the sash A′ is unclutched from the piston B′, and will remain detached and stationary at the top of the space between the columns B B until the arm E′ is moved out from its engagement with the clutch-bar C′, when the tension of the spring D′ will cause the clutch-bar to be carried suddenly under the reciprocating piston B′ and into engagement therewith, so as to connect it with the sash A′ for the purpose of operating the same. The piston and clutch-bar are recessed or rabbeted at *m n*, as shown in Fig. 2, for the purpose of engaging with each other, as well as to afford a clearance to the piston when unclutched.

The arm or lever E′ extends above the sash A′ and is secured at *h* to a rock-shaft, *y*, that is journaled in lugs or bearings *s s* on the right-hand columns. To the rear end of the rock-shaft *y* is attached a lever, *w*, which is connected with the lower end of a vertical rod, *t*, which engages at its upper end with a spring, *r*, that is secured to the cross-head or press-cap. This spring is of sufficient tension to act upon the arm E′ by means of the rod *t*, lever *w*, and rock-shaft *y*, to keep the lower inclined end of the arm E′ forced against the inclined lug *a* on the end of the clutch-bar C′, and thus hold said clutch-bar against the tension of the spring D′ and away from engagement with the piston. The lever *w* is also connected by a vertical rod, *v*, with a foot-treadle (not shown) that is arranged beneath the table A, so that by pressure upon said treadle the arm E′ will be disengaged from the clutch-bar C′, and permit the same to be acted upon by its spring D′ so as to again clutch the sash and piston, as before described. It will thus be seen that the sash and piston may be clutched and unclutched at the will of the operator by simply pressing upon the foot-treadle.

The piston B′ is caused to reciprocate by means of its connection with the eccentric portion of the shaft D through the pitman F′, as shown in Figs. 1 and 2. The lower end of the pitman F′ is provided with a circular wrist or joint, *f*, which rests in a semicircular box fitted into the upper end of the piston B′, the parts being connected by a wrist-pin.

The wrist *f* is provided with a bolt or shank, G, that extends upward through the several parts, as shown in Fig. 2, and into the pitman F′ for a sufficient distance to hold the same steadily in line. The lower end of the shank G is threaded for engagement with a deep nut, H, the upper end of which is enlarged to form an inverted tapering wall beneath the pitman. The nut H is seated up into the head of the pitman sufficiently to steady the nut in a fixed place for it to turn against its base or junction with the pitman-head, and also serves to steady the shank G in line. The shank G and nut H are coupled to the pitman F′ by means of a flat band, K, or its equivalent, the inner wall of the coupling being tapered to fit the enlargement of the nut H. This coupling acts as a jam-nut, and is secured to the pitman-head by means of screw-bolts *p p* in such a manner that by turning said bolts slightly the coupling may be loosened and the nut H be turned in its seat between the coupling and pitman, so as to give any desired adjustment to said pitman.

The pitman F′, being caused to reciprocate by the revolution of the eccentric-shaft D, imparts a reciprocating motion to the piston B′, which, being clutched with the sash A′, as before described, also causes the latter to reciprocate within the space formed by the columns B B or frame of the press. The lower end of the sash A′ forms a die or tool holder, and acts in conjunction with the table A, which supports the work, said table being made sufficiently strong to resist the shocks. While the foot of the operator is held upon the treadle, that is connected with the arm or lever E′, as before described, the sash and piston will remain clutched, and the reciprocations of the sash will continue until, by removing the pressure of the treadle, the end of the arm E′ is allowed to engage with the face of the lug *a* on the front end of the clutch-bar C′, thus unclutching the sash and piston and holding the clutch-bar forward against the tension of its spring. The piston now continues its reciprocations within the sash without moving the latter, which remains stationary at the top of the frame by reason of its frictional contact therewith, the lower end of the sash being chambered for a sufficient depth to allow for the movement of the piston without permitting it to act upon the sash until the parts are again clutched. In order to start the sash the foot is placed upon the treadle and the arm E′ is moved out from its engagement with the clutch-bar, which is then forced by the spring D′ into engagement with the piston, thus clutching the latter with the sash at the point *m* if the piston is down, or at the point *n* if it is at its highest lift, and in either case causing the parts to operate together, as before. It will be seen that the piston reciprocates as long as the shaft D is revolved, while the sash is caused to operate only when clutched with said piston.

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

1. The combination, with the chambered sash A′, having shoulders *c c*, of the piston B′, arranged within said sash, and provided with projections *b b*, adapted to engage with said shoulders and thereby lift the sash, substantially as described.

2. The combination, with a chambered sash, A′, and recessed clutch-bar C′, carried by the sash, as shown, of a vertically-reciprocating piston, B′, arranged within the said sash, and adapted to actuate the same, substantially as described.

3. The combination, with the sash A′, piston B′, and clutch-bar C′, adapted to connect said sash and piston, of the spring D′ and pivoted arm or lever E′, said spring and lever being adapted to operate the clutch-bar so as

to clutch and unclutch the sash and piston, substantially as described.

4. The combination, with the chambered sash A′, recessed piston B′ arranged therein, and the recessed clutch-bar C′, connected with the sash by a spring, D′, and provided with a lug, *a*, having an inclined face, *a′*, of the pivoted arm or lever E′, having an inclined end, *g*, and mechanism for actuating said lever for the purpose of unclutching the sash and piston, substantially as described.

5. The combination, with the sash A′ and piston B′ connected therewith, of the pitman F′, threaded shank G, nut H, and coupling K, whereby the pitman may be adjusted to regulate the stroke of the sash, substantially as described.

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Witnesses:
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WILLIAM JACKSON.