

(No Model.)

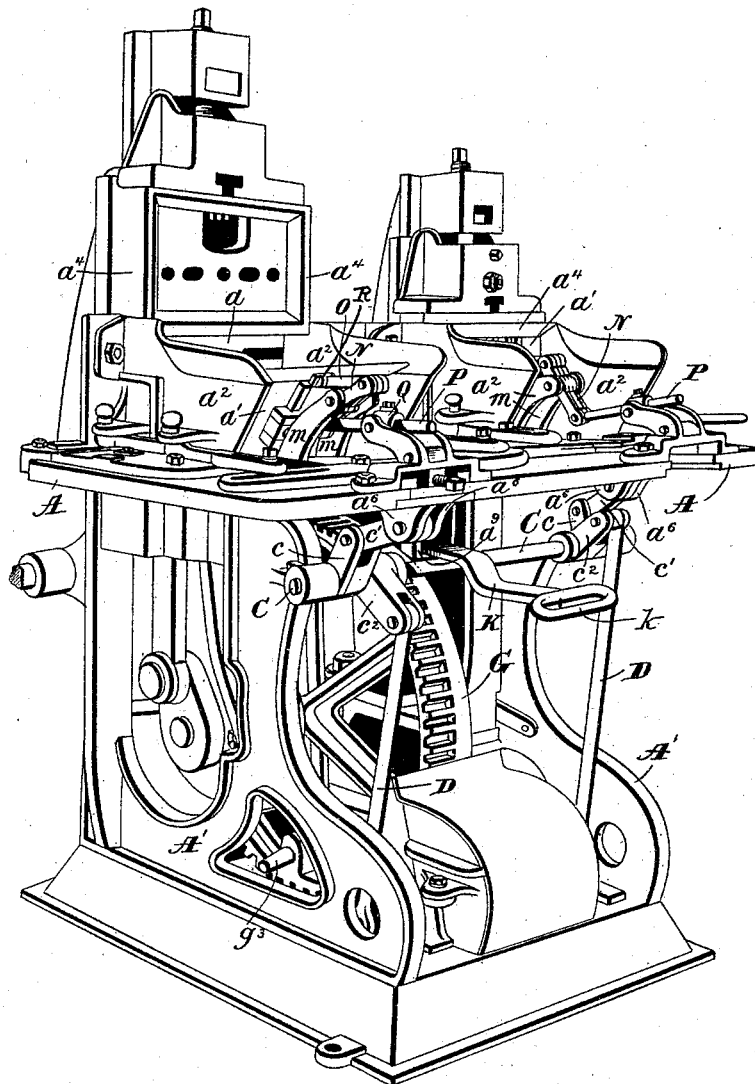
4 Sheets—Sheet 1.

T. HILL.  
TOBACCO PRESS.

No. 489,741.

Patented Jan. 10, 1893.

Fig. 1.



Witnesses.  
Jas E. Hutchinson  
Henry C. Hazard.

Inventor.  
Thomas Hill, by  
Kimble and Russell, his Attys.

(No Model.)

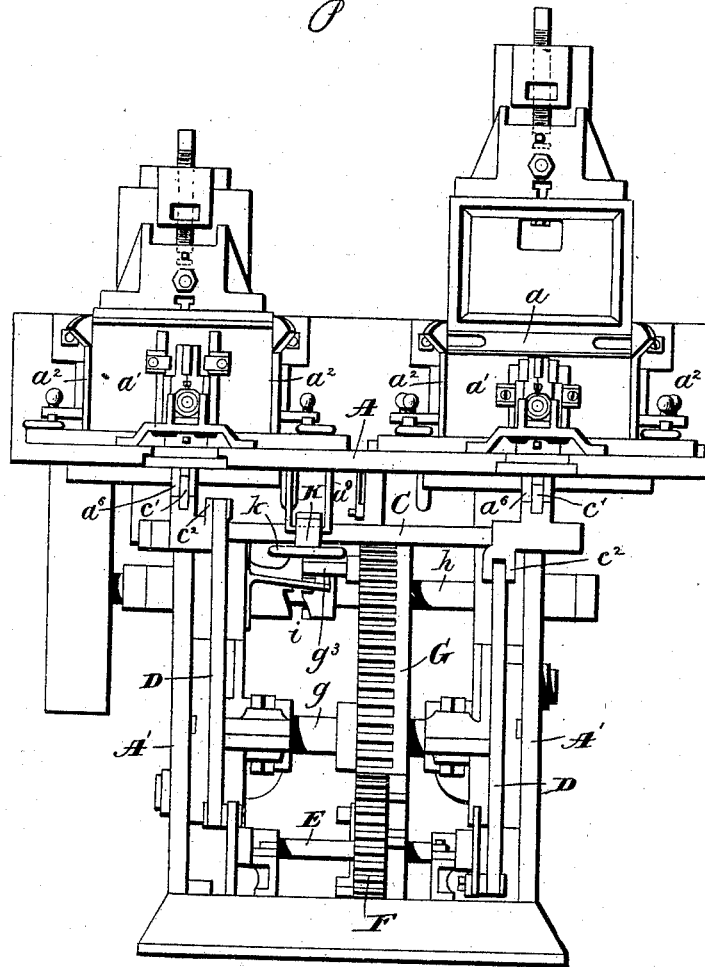
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Fig. 2.



Witnesses:  
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(No Model.)

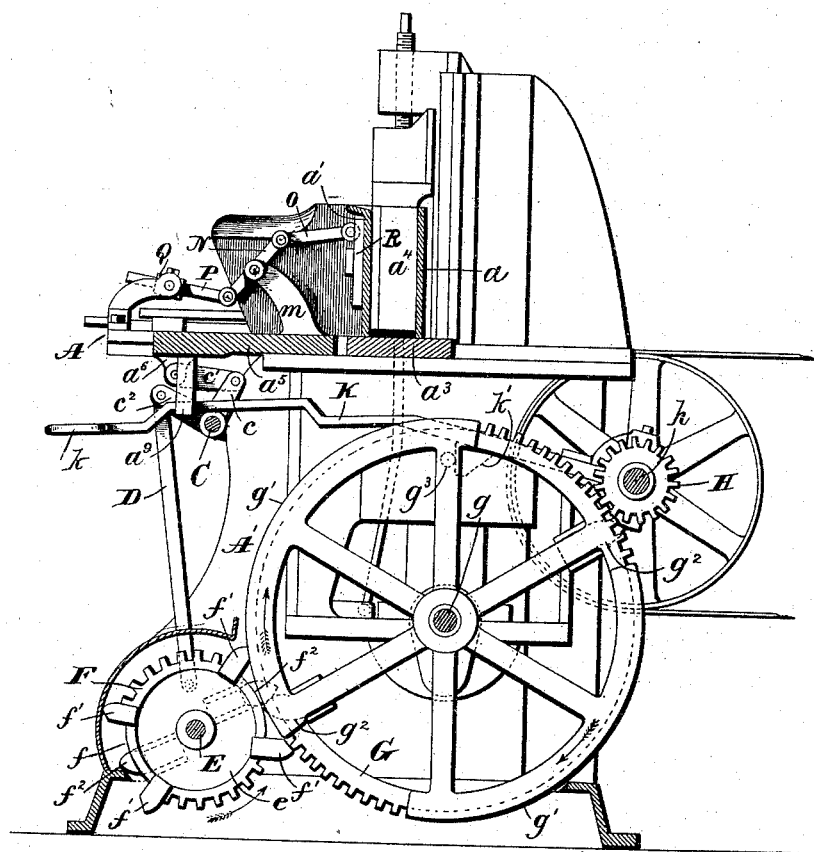
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Fig. 3.



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(No Model.)

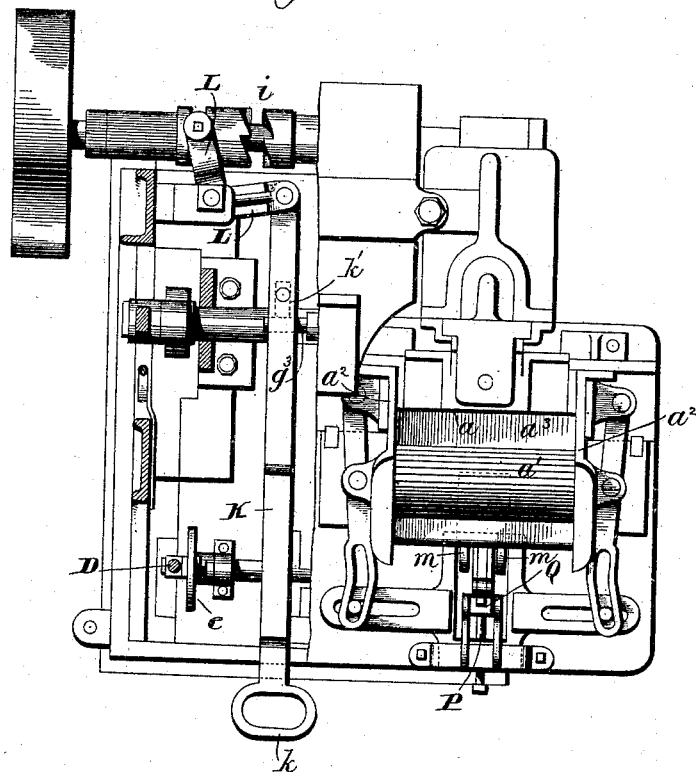
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*Fig. 4.*



*Witnesses*  
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*Henry C. Hazard.*

*Inventor*  
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*Prindle and Russell, his Attys.*

# UNITED STATES PATENT OFFICE.

THOMAS HILL, OF QUINCY, ILLINOIS, ASSIGNOR TO THE ADAMS TOBACCO PRESS COMPANY, OF SAME PLACE.

## TOBACCO-PRESS.

SPECIFICATION forming part of Letters Patent No. 489,741, dated January 10, 1893.

Application filed January 26, 1892. Serial No. 419,279. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS HILL, a citizen of the United States, residing at Quincy, in the county of Adams, and in the State of Illinois, have invented certain new and useful Improvements in Tobacco-Presses; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of a press embodying my improvements; Fig. 2 a view in front elevation; Fig. 3 a view partly in side elevation and partly in section; and Fig. 4 a view partly in plan and partly in section.

Letters of like name and kind refer to like parts throughout the several figures.

The design of my invention has been to make certain improvements in tobacco presses and to this end, said invention consists in the press having the construction and combination of parts substantially as hereinafter specified.

My object more particularly has been to improve the press shown and described in Letters Patent No. 324,631 granted August 15 1885 to C. W. Adams, which in practical use was found to contain defects which had to be obviated in order to render the same a success, mechanically and commercially. Accordingly the press I show in the drawings is of the Adams type. Said press has two, alternately acting plug molds each of which consists of a stationary back wall  $a$ , a movable plate  $a'$  constituting the front wall, movable side walls  $a^2$  and  $a^3$ , stationary bottom  $a^4$  and a vertically reciprocating plunger  $a^5$ , all of said parts, with the exception of the front wall, as will hereinafter appear, being constructed and operated substantially as the similar parts as shown in the patent above referred to.

In working these presses difficulty has been experienced with the cam mechanism employed for operating the movable walls of the mold, the same being defective on account of wear and lost motion and its liability to breakage. These defects are not present in the mechanism which I have devised and which will now be described.

Connected to the underside of the reciprocating part  $a^5$  of each front and side wall

moving mechanism is a rock shaft C, the connecting means being a crank arm  $c$  on the shaft and a link  $c'$  extending from the latter to lugs  $a^6$  on said part  $a^5$ . Said rock-shaft extends horizontally across the front of the machine a short distance below the supporting plate or table A, being supported in such position in suitable bearings on the side pieces  $A'$ ,  $A'$  of the frame. To a second crank arm  $c^2$  on said shaft is pivotally attached the upper end of a pitman D whose lower end is pivotally secured eccentrically to the face of a disk  $e$  mounted on a shaft E arranged transversely near the base of the machine parallel with the rock-shaft C above. At or near its longitudinal center said shaft has keyed to it a toothed wheel F which is adapted to mesh with and be driven by a gear wheel G having a diameter approximately four times that of said wheel F and mounted on a transverse shaft  $g$ .

The mechanism just above set forth operates to move each of the front walls or plates into position to operate on the tobacco and to retract the same, and also to operate the side walls. As it is necessary that the movement of the front walls backward and forward must not be continuous, but intermittent, I accomplish this by making the rotation of the wheel F intermittent, although its driving wheel G is continuously revolved. To this end the periphery of the wheel F is provided with blank spaces  $f$  and  $f$  by the omission of teeth therefrom. By this arrangement, when the gear wheel G has rotated the wheel F until a blank space coincides with the teeth of the former, movement of the latter and the parts connected therewith will cease. The blank or toothless spaces, as shown, are disposed at points diametrically opposite so that each of said front plates  $a'$  will be moved by the wheel F in one direction, when the wheel G engages one section of teeth on the latter, will have a period during which it will remain immovable when said wheel G passes over one of the blank or toothless spaces  $f$ , a return movement when the second section of teeth meshes with said wheel and finally, a period during which it is again immovable,

after it has been entirely withdrawn from the mold, when the second blank or toothless space is adjacent to the teeth of the wheel G.

To prevent any movement of the gear wheel F when the blank spaces are in the last named position, relative to the gear wheel G, the latter is provided on one side of its teeth with a circumferential, smooth portion or flange  $g'$  with which lugs,  $f'$  and  $f''$ , provided on the wheel F at each end of said spaces, are adapted to engage, while to throw the sections of teeth on said wheel into mesh with the gear wheel G at the proper time said wheel F is provided on its side opposite the respective blank or toothless space, with lugs or projections  $f^2$  and  $f'^2$  which are engaged by lugs  $g^2$  and  $g'^2$  arranged on the wheel G at points diametrically opposite each other. The engaging faces of all of said lugs are, preferably, rounded. By this construction, each plate  $a'$  at each limit of its movement, will when a blank space  $f$  comes around to the gear wheel G, remain stationary, and be securely so held because of the engagement of the lugs  $f'$  and  $f''$  on the wheel F with the smooth portion  $g'$  on the wheel G, and after the predetermined continuance in an immovable position, will be again moved when one of the lugs  $g^2$  on the last named wheel engages with one of the lugs  $f^2$  on the wheel F. At appropriate places portions of the smoothed or flanged periphery of the wheel G are removed to permit passage of the lugs  $f'$  and  $f''$  on the wheel F as the latter wheel is rotated by the starting lugs. It is to be noted that the positions of the duplicate sets of crank arms on the rock shaft C are such, relative to each other, that when one front plate  $a'$  has closed its mold, that is to say, is in position for operation on the tobacco, the other has been completely retracted from such position so that the molds may be used alternately as in the patent herein referred to.

Motion is given the gear wheel G by means of a pinion H on a driving shaft  $h$  that extends across the machine at the rear side thereof, the frame of the latter being provided with suitable bearings for its support. Said pinion is loosely mounted on the shaft  $h$  and is adapted to be connected with and disconnected from the same to operate the press and stop it, by means of a clutch  $i$  also on said shaft. Such clutch is operated through the medium of a longitudinally movable bar K placed just beneath the plate or table A of the press with its rear end connected to one arm of a bell-crank lever L whose other arm is in engagement with the sliding member of said clutch. The front end of the bar K, which for convenience of manipulation by the operator is at such point furnished with a handle  $k$  is supported by a loop or bracket  $a^9$  fixed to the underside of the table A.

To automatically throw the press out of operation which is required at each half-revolution of the gear wheel G so as to make such operation intermittent and not continuous, the

bar K has on its underside a downwardly projecting stud or lug  $k'$  arranged so as to be within the path of studs or lugs  $g^3$  and  $g'^3$ , fixed on the face of said wheel adjacent to said bar at points one hundred and eighty degrees apart. The engagement of each lug  $g^3$  with the stud  $k'$  moves said bar longitudinally rearward and causes, through the bell-crank lever L, the clutch to be shifted to disconnect the pinion H from the shaft  $h$ .

The operation of my intermittent gearing having been set forth in connection with the description of its structure no further setting forth of its operation is necessary.

The connection I employ between the reciprocating part  $a^5$  of the mold operating mechanism and the front plate or wall  $a'$  of the mold is as indicated hereinbefore, different from the like mechanism of the Adams patent, referred to, and this connection I will now describe.

Rising from the upper side of the part  $a^5$  and curving forward are two lugs or ears  $m$  and  $m'$  between whose upper ends is pivoted, at its longitudinal center a lever N. A bar or link O pivotally attached to the upper end of the latter connects the same to the front wall or plate  $a'$  of the mold, while to the lower end of said lever N is pivotally attached a link or bar P which extends toward the front of the machine and is passed through a block or piece Q pivoted or journaled between arms or brackets  $q$  and  $q'$  that are secured to and rise from the upper side of the table A. The link P is adjustably connected to the block Q by means of a screw  $q''$  so that its point of attachment to said block may be varied to enable the space between the front plate or wall  $a'$  and the back wall  $a$  of the mold to be increased or diminished. The connection of the link O with the wall  $a'$  is a sliding one and consists of a plate R to whose upper end said link is pivotally attached, which moves between ways or guides upon the face of said wall.

It will be seen that I have provided a toggle to transmit the movement of the reciprocating part  $a^5$  to the front wall  $a'$  which, besides perfectly effecting the necessary movement of said wall from an inclined to a vertical position and vice versa, is advantageous because of the power that is the well known characteristic of this mechanical expedient.

Having thus described my invention, what I claim is:—

1. In a tobacco press, in combination with the movable wall or section of the press mold, the reciprocating plate connected therewith, the rock shaft connected to the plate the intermittently driven gear wheel and the crank and pitman connections between the latter and said rock-shaft, substantially as and for the purpose specified.

2. In a tobacco press, in combination with the movable wall or section of the press mold, the reciprocating plate connected therewith, the rock shaft, the crank thereon connected

with said plate, the intermittent gearing comprising in part the wheel F, a second crank on the rock shaft, and a pitman connected with the latter and having an eccentric connection with said wheel, substantially as and for the purpose shown.

3. In a tobacco press, in combination the movable wall or section, the reciprocating plate, the toggle connected to the latter, to said section and to a relatively fixed point, and the intermittently driven toothed wheel for actuating said plate, substantially as and for the purpose specified.

4. In a press, in combination, the movable mold section or wall, the reciprocable part to move the same, the pivoted lever carried by said part, the link connecting one end of said lever with said wall, and the second link connecting said lever to a relatively immovable part, the connection with the latter being ad-

justable, substantially as and for the purpose described.

5. In a press, in combination, the movable mold section or wall, the reciprocable part to move the same the intermittent gearing to move said part, the lever pivoted to and carried by the latter, the link connecting one end of said lever with said wall, the pivoted or journaled block or piece upon a part immovable relative to the latter, and the link between the lever and said block or piece, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 12th day of January, 1892.

THOMAS HILL.

Witnesses:

F. M. McCANN,  
ERNEST A. HENDERSON.