

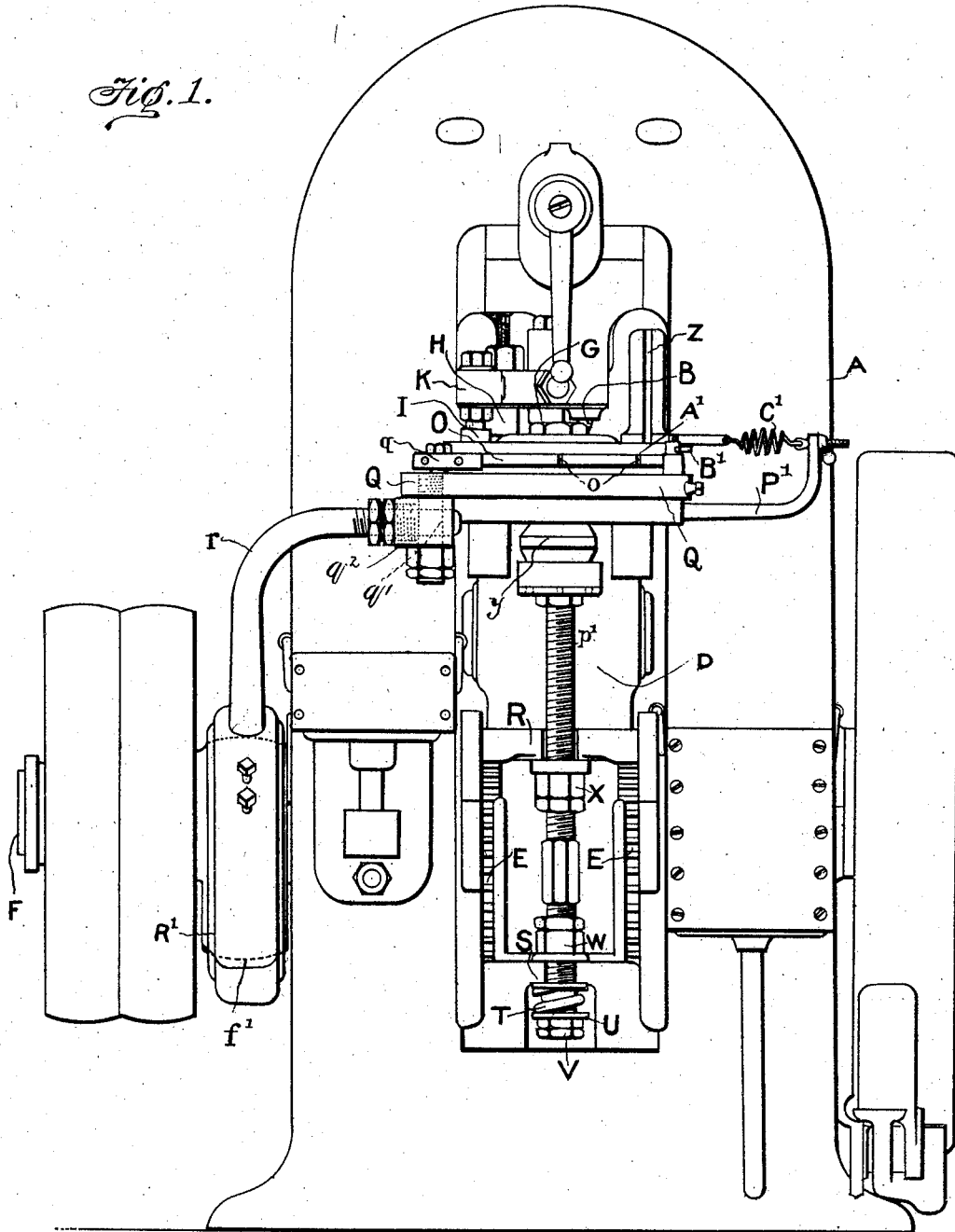
O. SMITH.

COINING OR OTHER PRESS.

APPLICATION FILED MAY 28, 1900. RENEWED OCT. 21, 1904.

5 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
 Tanton & Belt,
 J. L. Lawlor.

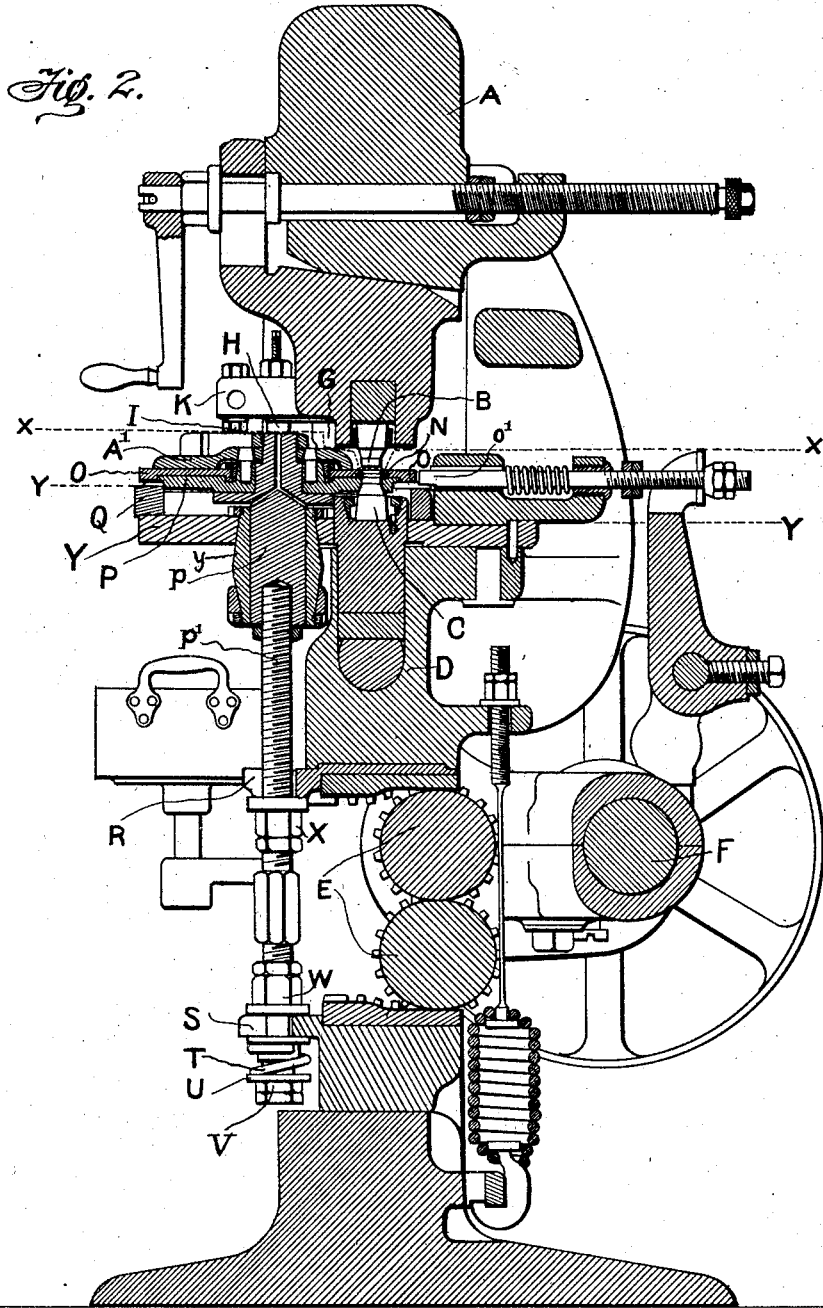
Inventor:
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5 SHEETS—SHEET 2.



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No. 790,462.

PATENTED MAY 23, 1905.

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COINING OR OTHER PRESS.

APPLICATION FILED MAY 28, 1900. RENEWED OCT. 21, 1904.

5 SHEETS—SHEET 3.

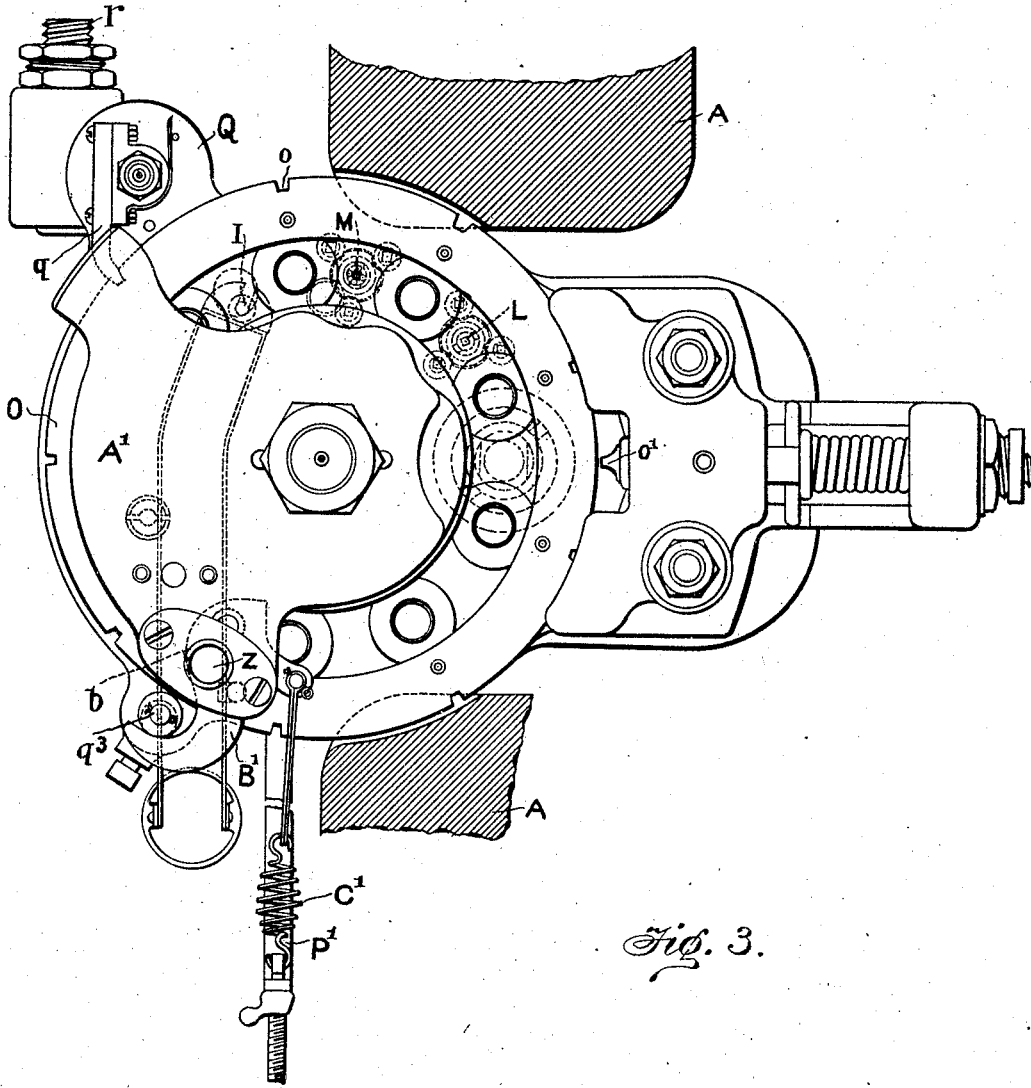


Fig. 3.

Witnesses:
Fenton S. Bell.
J. L. Lantor.

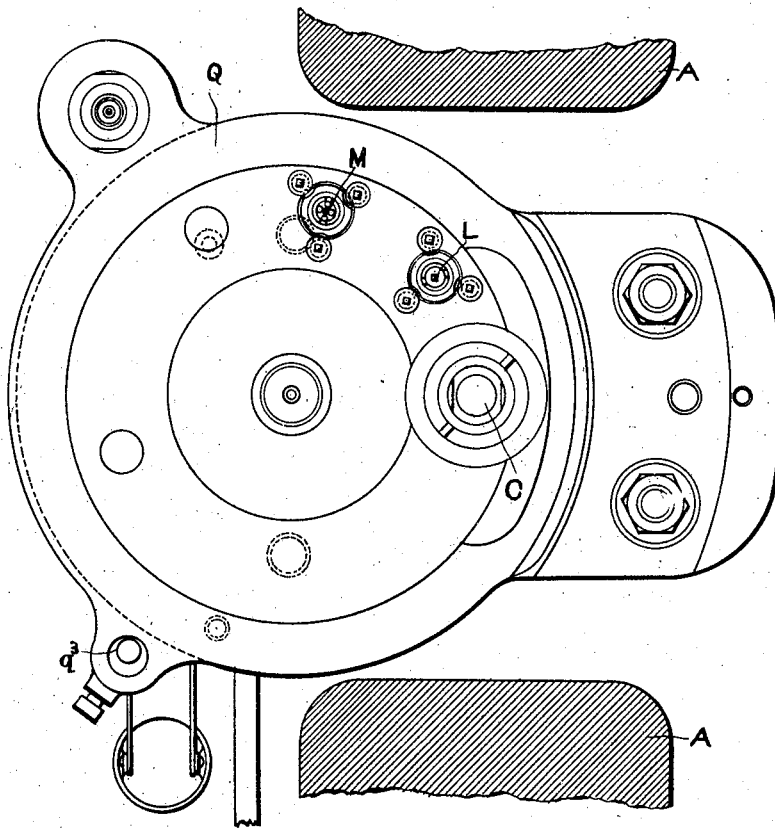
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COINING OR OTHER PRESS.

APPLICATION FILED MAY 28, 1900. RENEWED OCT. 21, 1904.

5 SHEETS—SHEET 4.

Fig. 4.



Witnesses:
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APPLICATION FILED MAY 28, 1900. RENEWED OCT. 21, 1904.

5 SHEETS—SHEET 5.

Fig. 8.

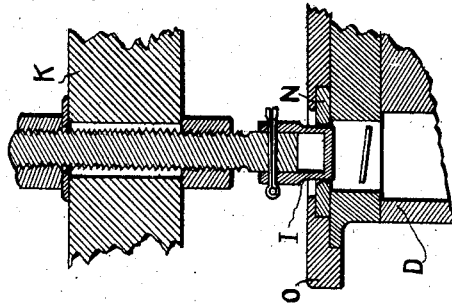


Fig. 7.

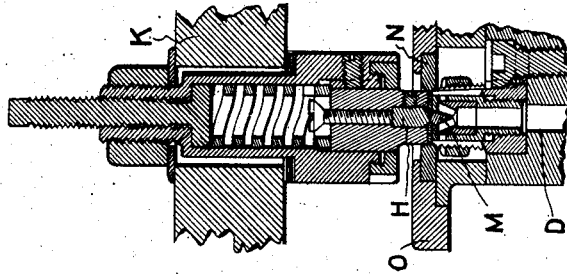


Fig. 6.

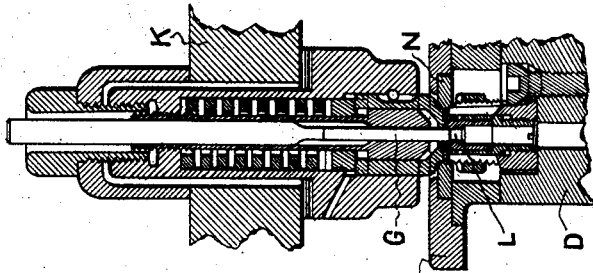
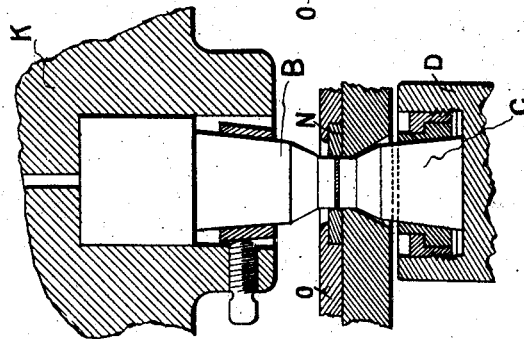


Fig. 5.



Witnesses:
Gordon S. Belt,
J. L. Lawlor.

Inventor:
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UNITED STATES PATENT OFFICE.

OBERLIN SMITH, OF BRIDGETON, NEW JERSEY.

COINING OR OTHER PRESS.

SPECIFICATION forming part of Letters Patent No. 790,462, dated May 23, 1905.

Application filed May 28, 1900. Renewed October 21, 1904. Serial No. 229,430.

To all whom it may concern:

Be it known that I, OBERLIN SMITH, of Bridgeton, in the county of Cumberland, and in the State of New Jersey, have invented certain new and useful Improvements in Coining or other 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 front elevation of a coining-press embodying my invention. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a horizontal section on the line *x x*, Fig. 2; Fig. 4, a like section on the line *y y*, Fig. 2. Fig. 5 is a detail view in section of the coining-dies; Fig. 6, a similar view of the punch and its die; Fig. 7, a like view of the countersinking-dies, and Fig. 8 is a detail view in section of the ejecting-plunger.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention is the provision of a press for coining or other work, in the use of which the article to be formed is subjected to a succession of operations, which will do perfect work, and especially in respect to the accurate register of the series of operations; and to this end such invention consists in the press constructed and operating substantially as hereinafter specified.

I have selected for the illustration of my invention a coining-press and one designed for coining Chinese cash, which, as is well known, is a coin perforated with a square hole at the center; but it is to be understood that the invention is capable of embodiment in presses for forming other articles than coin, and hence the selection of this particular class of presses is not to be taken as restricting the scope of my patent.

In its general construction the press shown is similar to the one covered by United States Patent No. 574,227, granted to me December 29, 1896, there being employed, as in said patent, a frame A, comprising a base and two vertical posts or columns rising therefrom and connected at their tops by a curved or arched piece; a fixed or stationary upper coining-die B; a lower die C, mounted on a ver-

tically-movable support or ram D; a toggle for raising the ram, composed of two blocks E and E, interposed between the ram and the frame-base, and a cranked driving-shaft F.

Besides the coining-dies the present press has tools for punching the hole through the coin, for countersinking such hole on both sides, and for the expulsion of the completed coin, and they are arranged in the arc of a circle in the order named, counting from the coining-dies. The punch G for making the hole, the upper countersinking-die H, and the expelling-plunger I are suitably mounted in the block or piece K, in which the upper coining-die B is mounted, while the die L, to cooperate with said punch G, and the lower countersinking-die M are mounted with the lower coining-die C on the ram D.

The coin is confined circumferentially, as in the press of the hereinbefore-mentioned patent, by the interior wall of a collar or annulus N, which thus constitutes the third member or part of the coining-die. Said collar, however, in this case is movable in a circular path, being for such purpose mounted in a plate or dial O, that is rotatably mounted on the upper side of a plate P, connected with the ram D in the manner to be described. For imparting a step-by-step or intermittent rotation to the dial O there is mounted concentric with the latter a yoke Q, carrying a pawl *q* to engage teeth or notches *o* and *o* in the dial and connected by a rod or pitman *r* to an eccentric R' upon the driving-shaft F. In view of the fact that the axis of the driving-shaft is in a plane at right angles to the axis of the yoke and that the two axes are in different vertical planes the connections of the pitman with the shaft and yoke are by means of universal joints. In the former case there is a ball-and-socket joint, the periphery of the eccentric R' being made spherically convex and the inner surface of the pitman-strap being made correspondingly concave. In the latter case there is a vertical stud *q'* on the yoke, to which is pivoted a block *q''*, between which and the pitman there is a pivotal connection having a horizontal axis. The pitman has a general curved form to reach from

the shaft forward around the press-column and is of ample stiffness to enable it to do the pulling and pushing requisite to reciprocate the yoke. For locking the dial in the desired position after each movement a dog is employed, which consists of a sliding bar d' , having one end shaped to enter each of the notches o and o' when the same is presented opposite such end. By the step-by-step rotation of the dial the collar N is successively placed in line with the various devices which are to act on the coin. The diameter of the interior of the collar N is such that, though it freely admits the coin blank or planchet, yet when the latter has been operated on by the upper and lower, or obverse and reverse, dies it will be firmly held in the collar by reason of the radial expansion of the blank against the wall of the collar. Thus securely held by the collar the coin can therefore be successively presented to the punching and countersinking tools with the certainty that it will be in position for these operations, so that they will accurately register, and thus the work be perfect in this regard. The table P has projecting from its under side a shank or stem p , into which is screwed the upper end of a vertical rod p' , that passes through forked lugs R and S, which are on the ram D and frame-base, respectively. On the lower end of the rod is a short coiled spring T, interposed between the lower lug S and a collar U, held in place by a nut or nuts V, while above said lug S is a nut W and below the lug R is a nut X. On the upper end of the ram D is a plate Y, which has a bearing y for the table shank or stem p . The table P has vertical movement with the ram D, and there is vertical movement of the ram unaccompanied by the table, the table being restricted in its movement by the nuts W and X and the lugs R and S, which act as stops. The ram ascends alone until the lower die enters the collar N above it, the lug R rising above the nut X, and then the table and dial rise with it, the nut W rising from the lower lug S and the spring T being compressed. On the descent the ram, table, and dial move together until the nut W strikes the lug S, whereupon the table and dial are arrested and the ram continues its descent alone to withdraw the lower die from the collar.

Preferably there are a number of collars N, arranged in a circular series, the number being such that all of the operations in the making of the coin, as well as the placing of the planchet in the press and the ejection of the completed coin, can be simultaneously carried on.

The planchets are placed in a vertical tube or hopper Z, that is supported by a fixed plate A' above the dial O, and beneath the bottom of said hopper is a swinging or pivoted plate B', having a hole b of a diameter to enable it

to contain a planchet, which hole by the vibration of the plate moves to and fro between a position beneath the hopper and one above the series of collars N and N', receiving a planchet in the former position and delivering it to a collar in the latter position. A coiled spring C', fastened at one end to an arm P', projecting from the table P, and at its other end connected to said plate B', moves the latter from beneath the hopper, while the reverse movement is caused by a stud or pin q on the yoke Q, which engages a hook-shaped projection on said plate. The planchet when in the collar rests on the table P, and the upper side of the latter must be level or flush with the top of the lower coining-die, so that the planchet may smoothly pass to the die without danger of catching. Such vertical adjustment of the table as may be needful for this purpose is effected by means of the rod p' .

The operation of the press constructed as described is as follows: The hopper being supplied with planchets, the lowermost one in the hopper is taken therefrom by the plate B' and dropped into a collar N and by the step-by-step motion of the dial is brought to a position in line with the two coining-dies. The ram now ascends, and the planchet supported on the lower die is raised thereby within the collar N, and then the latter moves upward with the ram, their joint upward movement being continued until the upper die is encountered by the planchet and the latter subjected to coining pressure between them. The ram, with the lower die, and the collar, with the coin in it, next descend together until the descent of the collar and coin is arrested by the stop-nut W on the rod p' striking the lug S, while the ram continues its descent alone until it removes the lower die from within the collar. By reason of the pressure to which it is subjected by the coining-dies the planchet is expanded radially sufficiently to cause it to be firmly held by friction within the collar both from falling and turning, and it therefore remains in a fixed position in the latter after the lowering of the lower die. The latter having been withdrawn from the collar, the dial is again revolved sufficiently to carry the collar, with the coin in it, to a position in line with the punch and its die, which when the ram ascends again removes from the center of the coin a square piece. The ram then descending, another partial revolution of the dial presents the punched coin, still firmly held in the same position in the collar, between the countersinking-dies, which when the ascent of the ram is repeated countersink the square opening on both sides of the dies, and thus complete it. It now remains to remove the finished coin from the press, and this is done when after the descent of the ram the dial is revolved to place the coin beneath the plunger I, and the ram again ascends and

the coin encountering the plunger is forced thereby out of the collar and drops into a suitable trough or chute.

Having thus described my invention, what I claim is—

1. In a press, the combination of a series of tools adapted for successive action and which produce effects on the work in a predetermined definite relation to each other, and a work-carrier having a circular work-receiving opening in which the work is held by frictional contact with the wall of such opening, the first of the series of tools acting to expand the work to produce the frictional contact with the opening-wall substantially as and for the purpose described.

2. In a press, the combination of a series of tools, adapted for successive action and which produce effects on the work in a predetermined definite relation to each other, and a rotary work-carrier having a circular work-receiving opening in which the work is held by frictional contact with the wall of such opening, the first of the series of tools acting to expand the work to produce the frictional contact with the opening-wall substantially as and for the purpose described.

3. In a press, the combination of a series of tools, including dies that act on opposite sides of the work, said tools acting successively and producing effects on the work in a predetermined definite relation to each other and a work-carrier having a circular work-receiving opening against the wall of which the work is expanded by the action of said dies and the work thereby secured in such opening, substantially as and for the purpose described.

4. In a press, the combination of a series of tools, including dies that act on opposite sides of the work, said tools acting successively and producing effects on the work in a predetermined definite relation to each other and a rotary work-carrier having a circular work-receiving opening against the wall of which the work is expanded by the action of said dies and the work thereby secured in such opening, substantially as and for the purpose described.

5. In a press, the combination of a series of tools, comprising punching and countersinking devices, said tools acting successively and producing effects on the work in a predetermined definite relation to each other and a work-carrier having a circular work-receiving opening in which the work is held by frictional contact with the wall of such opening, the work so held being moved by the carrier from the punching to the countersinking devices substantially as and for the purpose described.

6. In a press, the combination of a series of tools comprising coining, punching, and countersinking devices, said tools acting successively and producing effects on the work in a

predetermined definite relation to each other and a work-carrier having a circular work-receiving opening in which the work is held by frictional contact with the wall of such opening, the coining devices acting to expand the work to produce the frictional contact with the opening-wall, and the work thus held being moved in succession to the other devices substantially as and for the purpose described.

7. In a press, the combination of a series of tools comprising coining-dies, a punch, and a countersinking-tool, a work-carrier having a round work-receiving opening which is moved in succession to the tools, said dies acting to expand the blank to cause it to engage the opening-wall, and thereby be secured in the opening for movement by the carrier to the succeeding tools, and means for feeding a blank to the opening before it reaches the coining-dies, substantially as and for the purpose described.

8. In a press, the combination of a series of tools adapted for successive action, a work-carrier having a circular work-receiving opening in which the work is held by frictional contact with the wall of such opening, the first of the series of tools acting to expand the work to produce the frictional contact with the opening-wall and a movable support for said work-carrier, substantially as and for the purpose described.

9. In a press, the combination of a series of tools adapted for successive action, a rotary work-carrier having a work-receiving opening in which the work is held by frictional contact with the wall of such opening, the first of the series of tools acting to expand the work to produce the frictional contact with the opening-wall a rising and falling table on which said carrier is rotatably mounted, and a ram for moving said table, substantially as and for the purpose described.

10. In a press, the combination of a circular series of tools, comprising coining, punching, countersinking, and ejecting devices, a rotary work-carrier having a circular series of work-receiving openings in which work is held by frictional contact with the walls of such openings, the coining devices acting to expand the work to produce the frictional contact with the opening-wall a rising and falling table on which said carrier is mounted, and a ram for moving said table, substantially as and for the purpose described.

11. In a press, the combination of a die part to act on the face of the work, a die part to act on the edge of the work, by which the work is held by frictional contact of its edge therewith, said die parts being simultaneously movable, and one being movable relative to the other whereby the work and the face-engaging die are separated after the work has been acted upon, and a carrier for said edge-engaging die part by which the latter and the

work are moved onward substantially as and for the purpose described.

12. In a press, the combination of two die parts to act on opposite faces of the work, a die part that encircles the work, by which the work is held by frictional contact of its edge therewith, means for moving the latter die part and one of the face-engaging parts, simultaneously, and the face-engaging part alone, whereby the latter and the work are separated, and a carrier for said edge-engaging die part by which the latter and the work are moved onward substantially as and for the purpose described.

13. In a press, the combination of two die parts to act on opposite faces of the work, placed one above the other, a die part that encircles the work, by which the work is held by frictional contact of its edge therewith, means for moving the lower, face-engaging part upward to carry the work into the encircling die part, and downward to retract said die part from the encircling die part, and means to move the latter upward simultaneously with the lower die part, substantially as and for the purpose described.

14. In a press, the combination of a dial, a reciprocating device for causing movement thereof, an operating-shaft, whose axis is in

a plane that intersects the plane of the dial-axis, and a pitman having universal-joint connections with said device and shaft, substantially as and for the purpose described.

15. In a press, the combination of a dial having a vertical axis, a reciprocating device causing movement thereof, a horizontal operating-shaft in both vertical and horizontal planes different from those of the dial, a supporting-frame and a pitman curving around the latter, and having universal-joint connections with the reciprocating device and the shaft, substantially as and for the purpose described.

16. In a press, the combination of a dial, a yoke to move the same, an operating-shaft, an eccentric thereon, having a spherical periphery, a pitman having a strap fitting such periphery and a universal joint connecting pitman and yoke, substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand this 27th day of April, 1900.

OBERLIN SMITH.

Witnesses:

JAMES J. REEVES,
WILLIAM ENGLISH.