

No. 772,113.

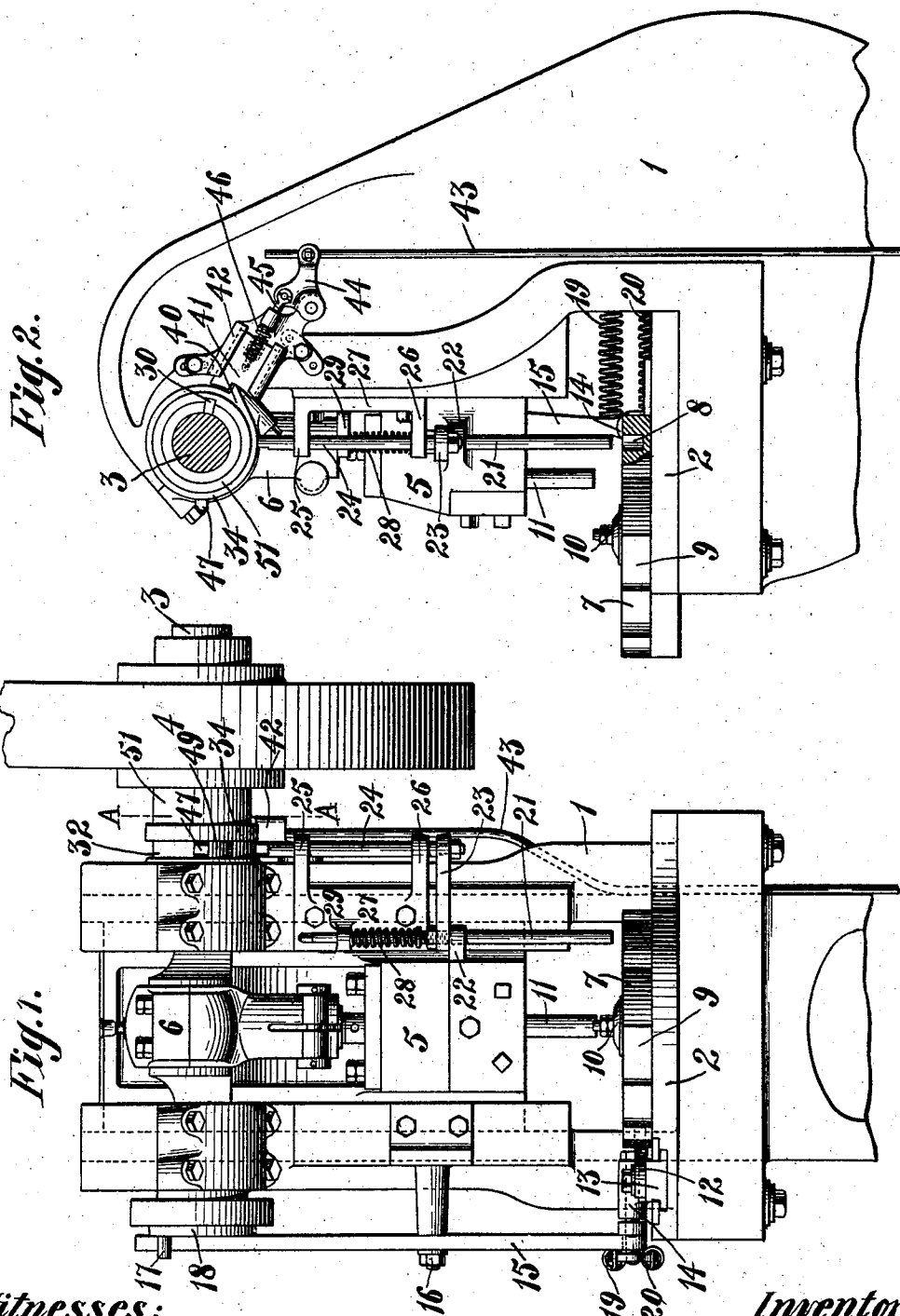
PATENTED OCT. 11, 1904.

H. OSSWALD.
POWER PRESS.

APPLICATION FILED JAN. 22, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



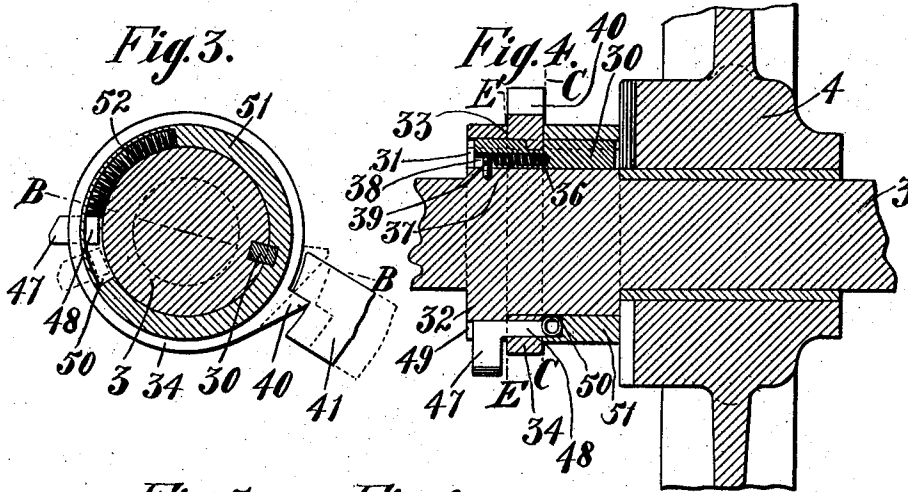
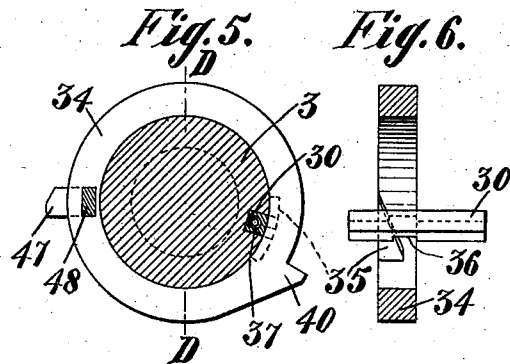
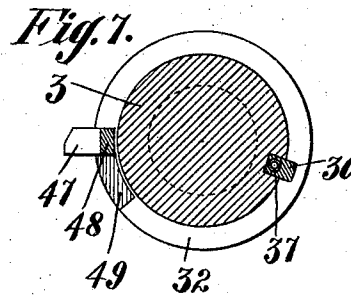
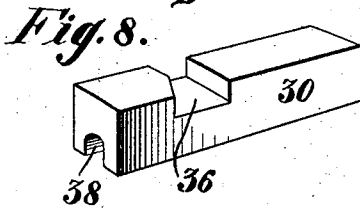
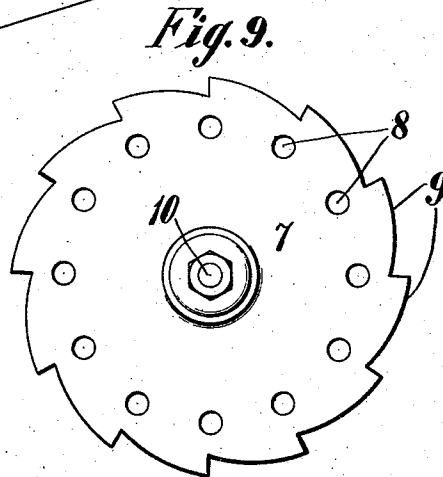
Stypos machine
when work not pressing,
centered

H. OSSWALD.
POWER PRESS.

APPLICATION FILED JAN. 22, 1903.

NO MODEL.

2 SHEETS—SHEET 2.



Witnesses:

F. S. Hackenberg.
Henry P. Rime

Inventor:

Herman Oswald
By Brown & DeWald
his Attorneys

UNITED STATES PATENT OFFICE.

HERMAN OSSWALD, OF NEW YORK, N. Y.

POWER-PRESS.

SPECIFICATION forming part of Letters Patent No. 772,113, dated October 11, 1904.

Application filed January 22, 1903. Serial No. 140,145. (No model.)

To all whom it may concern:

Be it known that I, HERMAN OSSWALD, a citizen of the United States, and a resident of the borough of Brooklyn, in the city and State of New York, have invented a new and useful Power-Press, of which the following is a specification.

My invention relates to a power-press for cutting and forming metal or other material, the object being to provide means whereby the press shall be automatically stopped in the event the work is not properly adjusted for receiving the tool.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a view in front elevation of so much of a press as will serve to discuss the construction and practical operation of my invention. Fig. 2 is a view of the same in side elevation, the drive-wheel being removed. Fig. 3 is an enlarged transverse section through the drive-shaft in the plane of the line A A of Fig. 1 looking toward the left as the drawing is held to read it. Fig. 4 is a partial section taken longitudinally through the shaft and hub of the drive-wheel and parts adjacent thereto, the section being taken in the plane of the line B B of Fig. 3. Fig. 5 is a transverse section through the shaft in the plane of the line C C of Fig. 4. Fig. 6 is a section through Fig. 5 in the plane of the line D D, showing the locking-dog in full length. Fig. 7 is a transverse section through the shaft in the plane of the line E E of Fig. 4. Fig. 8 is an enlarged view in perspective of the locking-dog, and Fig. 9 is a plan view of the work-support.

The supporting-frame is denoted by 1, the bed-plate for receiving the work-support by 2, the drive-shaft by 3, the drive-wheel running loosely on the shaft by 4, and the vertically-reciprocating tool-carrier by 5, the latter being connected with the drive-shaft by suitable eccentric mechanism, (denoted as a whole by 6.) The several parts mentioned above are not explained more in detail herein, as they do not form any part of my present invention, except so far as they coact in a

general way with the parts to which my present invention is more particularly directed.

The work-support is denoted as a whole by 7. It is provided with a series of holes 8 near its periphery and on its periphery with a series of ratchet-teeth 9, the arrangement being such that there is one tooth for each of the holes 8. The work-support is mounted on the bed-plate 2 in rotary adjustment by means of a stub-axle 10, the position being such as to bring the work or that part of the work to be operated upon step by step beneath the operating-tool. (Indicated in Fig. 1 by 11.) The work-support 7 is rotated step by step by means of a pawl 12, pivoted to a slide 13, operated by an arm 14, which in turn is operated by a lever 15, fulcrumed at 16 and actuated in one direction by a pin 17, set in the face of the disk 18 on the drive-shaft 3. The lever 15 is operated in the opposite direction by means of a pair of springs 19 20, leading from the lever 15 back to a point of attachment on the frame 1. The arrangement is such that each revolution of the drive-shaft 3 will advance the work-support 7 one step, corresponding to one tooth 9.

The particular mechanism indicated for driving the work-support 7 does not form a part of my present invention, except so far as it furnishes a means for operating the work-support 7, and hence is not described more in detail.

There is mounted on the frame 1 and in a position to enter successively the holes 8 in the work-support 7 at each downward stroke of the tool a rod 21. This rod 21 slides freely through a lug 22 on the tool-holder 5, so that the latter is permitted to continue its downward stroke even though the rod 21 be prevented from completing its full downward stroke—as, for example, by engaging the top surface of the work-support 7 instead of exactly registering with one of the holes 8. An arm 23 is fixed on the rod 21 to move together with it and carries in its free end an upright stop bar or rod 24, which has a vertically-reciprocating movement in the arms 25 26 of a bracket 27, bolted to the frame 1. A spring 28 on the rod 21, bearing at its up-

per end on a lug 29 on the bracket 27, causes the rod 21, and hence the arm 23 and stop-bar 24, to move downwardly whenever the rod is permitted to do so by the downward movement of the tool-carrier 5 and its lug 22. The upward stroke of the tool-carrier 5 by its bearing against the under side of the arm 23, fixed on the rod 21, carries the rod 21 and the parts fixed thereto upwardly along with it against the tension of the spring 28. When at the limit of its upward stroke and, in fact, until the tool-carrying head 5 has permitted the rod 21 to descend to a point below the top of the work-support 7 the upper end of the stop-bar 24 will rest in position to operate the clutch for connecting the drive-shaft 3 and releasing it from the drive-wheel 4, as follows:

The drive-wheel 4, (see Fig. 4,) loosely mounted on the shaft 3, is locked to and released from the shaft by means of a dog 30, having a sliding movement parallel with the axis of the shaft 3 toward and away from the hub 4 of the drive-wheel in a groove 31, formed in an enlarged portion 32 of the shaft. This enlarged portion of the shaft has an annular groove 33 formed therein for receiving an annular ring 34. The ring 34 has an inwardly-projecting wedge-shaped portion 35, (see Fig. 6,) which coacts with a recess 36 in the dog 30 (see Fig. 8) to withdraw the dog from locking engagement with the hub of the wheel 4 or permitting the dog to slide into locking engagement with the hub of the wheel 4 under the tension of the dog-actuating spring 37, according as the ring 34 is locked in the one direction or the other in the groove 33. The actuating-spring 37 of the dog 30 is seated in the socket 38, one end of the spring bearing against the inner end of the socket and the opposite end bearing against a stop 39, set in the shaft 3. The ring 34 has on its exterior a shoulder 40, (see Figs. 3, 4, 5,) which is intended to engage a switch-plate 41, mounted in sliding adjustment in a bracket 42, secured to the frame 1.

The switch-plate 41 is controlled by a rod 43, leading to a pedal, (not shown,) the said rod 43 being connected to an angle-lever 44, which in turn is connected with the stem 45 of the switch-plate to draw the switch-plate away from the ring 34, a spring 46, seated on the stem of the switch-plate, being utilized to throw the switch-plate toward the ring 34 into locking position with the ring whenever the rod 43 is released. The ring 34 also carries a dog 47, secured thereto by means of a tailpiece 48, (see Fig. 4,) extending at right angles to the body of the dog 47, the said body of the dog 47 being arranged to move freely to a limited extent in a slot or recess 49, formed in the enlarged portion 32 of the shaft in proximity to the grooves in which the ring 34 is seated.

The tailpiece 48, by which the dog is connected to the ring 34, is extended into a groove 50, formed in the enlarged portion of the shaft, or in a collar 51, swaged onto the shaft and made a part thereof after the ring 34 is placed in position. The groove 50 extends in arc form to a limited extent for a short distance around the axis of the shaft, the said grooves or recesses 49 and 50 permitting the dog 47, carried by the ring 34, to move, together with the ring 34, to a limited extent relative to the shaft 3. A spring 52 (see Fig. 3) is seated in the curved groove 50 with one end bearing against the base of the groove and the other against the tailpiece 48 for the purpose of throwing the ring 34 and holding it normally in position to release the dog 30 and permit it to lock the shaft 3 to the drive-wheel 4.

The body of the dog 47 or its extreme outer end is in position to engage the stop-bar 24, hereinabove referred to, whenever the latter is not lowered to a point below that which would be determined by the lower end of the rod 21 resting on the surface of the work-support.

The operation of the mechanism which forms the subject-matter of my present invention is as follows: Whenever the work-support 7 carries the work into the exact position to be operated upon by the tool 11, the rod 21 will exactly register with one of the holes 8, and when the rod 43 is depressed to draw the switch-plate 41 out of engagement with the abutment 40 on the ring 34 the ring 34 under the tension of its actuating-spring 52 will be moved to release the dog 30 and lock the shaft to the continuously-driven wheel 4 and the shaft 3 will revolve to reciprocate the tool. The dog 47 when the parts are in the position described above, with the rod 21 in the hole 8, will freely pass the stop-bar 24, and the shaft 3 will continue to rotate until the switch-plate 41 is allowed to slide toward the ring 34 to engage the abutment 40 on the ring 34 and force it against the tension of its operating-spring 52 back into position to draw the dog 30 back out of engagement with the hub of the wheel 4 and at the same time lock the shaft 3 against further rotary movement. When from any cause the work-support 7 fails to move a full stroke into position to bring the work into its exact relation to the cutting-tool, the rod 21 will fail to register with a hole 8, and when the machine is started, as before, and the downward movement of the cutter begins the rod 21 will engage the top surface of the work-support, and hence the stop-bar 24 will not be lowered out of the path of the dog 47, so that the latter will engage the stop-bar soon after the shaft 3 has begun its rotary movement thereby through the attachment of the dog 47 with the ring 34, moving

the said ring 34 backwardly against the tension of the spring 52 in a manner quite similar to that in which the switch 41 by its engagement with the abutment 40 would have moved it, and so withdrawing the dog 30 from engagement with the hub of the wheel 4 and releasing the shaft 3 from the wheel, thereby stopping the action of the cutter 11 until such time as the work shall have become properly centered.

What I claim is—

1. The combination with a tool and means for operating it and a work-support for centering the work with respect to the tool, of means independent of the work for automatically stopping the operation of the tool whenever the work is not properly centered with respect to the tool.

2. The combination with a reciprocating tool-carrier, a rotary shaft for operating it, a drive-wheel and means for locking the drive-wheel to and releasing it from the shaft, of a rotary work-support and a part arranged to reciprocate with the tool and movable with respect to the tool-holder, the means for locking the shaft to and releasing it from the drive-wheel being under the control of said reciprocating part to release the shaft from the drive-wheel whenever the work is not properly centered with respect to the tool.

3. The combination with a reciprocating tool-holder, a drive-shaft for operating it, a drive-wheel and means for locking the drive-wheel to and releasing it from the shaft, of a rotary work-support provided with a series of holes in its face, a reciprocating rod arranged to enter one of said holes when the work is properly centered with respect to the cutter and means under the control of said reciprocating rod for releasing the shaft from the drive-wheel when the work is not centered.

4. The combination with a reciprocating tool-holder, a shaft for operating it and a wheel for operating the shaft, of a dog carried by the shaft for locking the wheel to and releasing it from the shaft, an annular ring having a limited rotary movement on the shaft and engaged with the said dog for drawing it out of and permitting it to move into locking adjustment, a switch under the control of the operator for releasing said ring to throw the dog into locking position, a work-support and means under the control of the work-support for withdrawing said dog from lock-

ing position independently of the aforesaid switch.

5. The combination with the tool-operating mechanism, of a dog for starting and stopping the operation, an annular ring for operating the dog, a second dog carried by the annular ring and having a limited bodily movement in a circular path around the axis of the drive-shaft, a work-support, a reciprocating rod in position to engage the work-support, a stop-bar carried by the said rod in position to engage the aforesaid dog carried by the ring and means under the control of the operator for permitting the said ring to rock in one direction and forcing it to rock in the opposite direction with respect to the shaft, the said stop-bar serving, at the same time, to permit the ring to operate in one direction or force it to operate in the opposite direction in the event the work is not properly centered.

6. The combination with the tool-holder and its operating mechanism comprising a shaft and drive-wheel loosely mounted on the shaft, of a spring-actuated dog movable in a direction parallel with the axis of the shaft toward and away from the hub of the operating-wheel, an annular ring having a wedge-shaped internal projection for operating the said dog, a dog carried by the said annular ring, a spring for operating the said annular ring in one direction, a work-support and means under the control of the work-support for engaging the said dog carried by the annular ring to operate the ring in opposition to the said spring.

7. In combination, a tool-holder and its operating mechanism, a rotary work-support provided with an annular series of holes, means for moving the work-support step by step, a spring-actuated rod arranged to reciprocate with the work-support and enter some one of the holes in the annular series when the work is properly centered with respect to the cutter and means under the control of the said reciprocating rod for stopping the operation of the cutter whenever the said rod fails to enter one of the holes.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 21st day of January, 1903.

HERMAN OSSWALD.

Witnesses:

FREDK. HAYNES,

GEORGE BARRY, Jr.