The object of my invention is to provide a generally improved novel throw off or tripping mechanism for use on cutters and creasing presses and like machines. One object of the invention is to provide a throw off mechanism adapted to be operated manually for the purpose of throwing off the impression on and off whenever occasion demands it. Another object is to provide electrically actuated or controlled means for throwing off the impression and at the same time stop the press. Still other objects are to improve and refine the throw off mechanism so as to obtain simplicity of construction and efficiency, safety and sureness of operation. Accordingly my invention is embodied in a throw off mechanism of the general type and character as hereinafter described and as illustrated in the accompanying drawings in which:

Fig. 1 is a side view of a cutting and creasing press equipped with a throw off mechanism embodying the invention, with details omitted and parts broken away.

Fig. 2 is an enlarged side view of the throw off mechanism with parts broken away.

Fig. 3 is a detail sectional view of parts of the mechanism.

Fig. 4 is a vertical elevation looking in the direction of arrow 4 in Figure 2.

Fig. 5 is a plan view looking in the direction of arrow 5 in Figure 2.

Fig. 6 is a wiring diagram.

Fig. 7 is a sectional detail view on line 7-7 of Figure 2.

The invention is disclosed in connection with a well known type of a heavy cutting and creasing press which comprises a frame forming a stationary form member 2. 3 is the platen which oscillates or rocks on the frame being operated in a well known manner by connecting rods 4 driven by a suitable operating mechanism, not shown.

The platen is carried on a shaft 5 journaled in eccentric sleeves 6 mounted in the ends of the connecting rods. Each sleeve is provided with a radially disposed arm 7 and the two arms are connected across the machine by an adjuster bar 8. Only one side of the press is shown. The platen has side frames 9 forming rockers 10 which rock or roll on tracks 11 on the press frame. The impression of the platen on the form, which is not shown, is regulated by rotating or adjusting the eccentric sleeves 6 in the connecting rods whereby to move the shaft 5 closer to or further away from the form in a well known manner.

For this purpose the platen body is at each side of the press provided with a number of teeth or notches 12 adapted to be engaged by a pawl 13 having a notch 14. The pawl is mounted in adjusted position on the teeth 12 by means of a bolt 15. The head of the bolt slides in an undercut groove 90 in the platen body, Fig. 7. By loosening the bolt 15, the pawl 13 may be moved circumferentially on the platen body, hence the notch 14 may be adjusted with respect to the form of the press, see also Fig. 1.

The adjuster bar 8 carries two latches 16 one at each end within a suitable bearing 19. Each latch has a tooth 17 adapted to engage the aforesaid notch 14 under pressure by a spring 18, whereby the adjuster bar and the eccentric sleeves are locked in a given position with respect to the platen body. The adjustment is varied by adjusting the position of the pawl 13, in a well known manner.

When it is desired to throw off the impression, the latches 16 are disengaged from the notches 14 to permit the adjuster bar 8 with the eccentric sleeves to fall by gravity outwardly into the throw off position shown in full lines in Fig. 1 and the shaft 5 will accordingly be rotated to move the platen outward or away from the form so as to prevent impression. This is accomplished by means of fingers 20 secured to a rock shaft 21 mounted in end bearings 22 bolted to the ends of the adjuster bar 8. The shaft 21 carries a throw off lever 28 which is adapted to be engaged by a hook 36 which normally is not in the path of the lever 28 but which hook is moved into the path of the lever 28 at the end of the impression stroke when it is desired to trip the press. The operation is as follows. When the platen is about to close on the form, the hook 36 is moved to catch and arrest the upward and inward movement of the lever 28. The latter therefore cannot con-
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21 continues its outward movement, hence the shaft 21 is moved clockwise and the fingers 20 lift the latches 16 away from the notches 14 with the result that the press is tripped.

The impression is thrown on and the press untripped by a movement of the shaft 21 in anticlockwise direction when the platen is near the end of its outward movement. To this end the shaft 21 is provided with a throw on arm 23 having bolts 24 for adjusting its angular position on shaft 21. The arm 23 carries a roller 26 which may be placed in any one of a number of holes 25 in the arm. The latter is adapted to be arrested in its outward movement, when the press opens, by an abutment 33 which normally is not in the path of the roller 26, but which abutment is moved into the path thereof, when the press is to be untripped near the end of the opening stroke.

The throwing-on or untripping operation is as follows. When the platen is near the end of the opening stroke, the abutment 33 will be moved into the path of the roller 26. In due time the roller 26 will run onto the abutment, see the dotted outline in Fig. 2. Consequently the arm 23 is stopped and rocks the shaft 21 anti-clockwise while the platen continues its outward movement, thereby moving the pawls 13 in under the latches 16. When the latches 14 are opposite the teeth 17 on the latches, the latter will be forced inward in the bearings 19 by the springs 18, and thus the latches and the pawls will engage and the parts again locked in normal untripped position.

The impression, therefore, is thrown on, or the press is untripped, by arresting the movement of the arm 23 and permit an anticlockwise movement of the shaft 21 to permit the latches 16 to move inward into engagement with the pawl notches 14, whereby to lock the adjuster bar 8 to the platen in its former adjusted position. The roller 26 is mounted in any one of the holes 25 in a position to correspond with the adjusted position of the pawl 13. That is to say, if the pawl 13 engages the fourth tooth in the series of teeth 12, the roller 26 will be mounted in the fourth hole 25, and so on. This is necessary in order that the arm 23 be stopped in a predetermined position to accomplish the throwing on of the impression with the platen in the position determined by the adjusted position of the pawls 13 on the platen body.

The abutment 33 and the hook 36 are both carried by a tripping lever 30 pivoted at 31 to a bracket 32 secured to the press. The lever 30, see Fig. 4, extends upwardly from the pivot 31 and has a short arm 40 to which the abutment 33 is pivoted at 34 and rests on a spring 35. The hook 36 is pivoted on a longer upright arm 42 of the lever 30 and is operated by means to be explained hereafter.

The tripping lever is swung to the left in Figure 4 to bring the abutment 33 into the path of the roller 26 to arrest the movement of the arm 23 to throw on the impression. The tripping lever is swung to the right in Figure 4 to cause the hook 36 to engage the throw off arm 28 to rock the shaft 21 to throw off the impression. The swinging movement of the tripping lever 30 is accomplished by means of a foot bar 37. Normally the lever 30 is locked in upright neutral position by a spring 39 which lies one half in the lever and one half in the bracket 32, see Figure 2.

During the normal operation of the press, the impression is on and the arm 23 occupies a position relative to the platen such as is indicated in dotted lines in Figure 1. The paper, after being cut and creased, is removed from the press by suitable nippers 43 which are carried by swinging arms 44 pivoted on a shaft 45. As the press closes, the nippers 43 descend and grip the upper edge of the sheet. As the press opens, the nippers are raised and carry the sheet away to be disposed of by a suitable delivery mechanism, not shown.

If there is a faulty sheet on the platen, the nippers will be unable to remove it, and the press must therefore be tripped before it closes. The operator, therefore, puts his foot under the bar 37 to tilt the tripping lever to the right in Figure 4 and thus brings the hook 36 in over, or into the path of the throw off arm 28. The hook engages the arm, the shaft 21 will be rocked clockwise, the latches 16 disengaged from the pawls 13 and at the close of the impression stroke, the adjuster bar and shaft 21 with associated parts fall clockwise into the position shown in full lines in Figures 1 and 2 and the press is tripped or the impression thrown off. On the succeeding closing stroke, the throw off arm 28 will pass by the hook 36 and the press will continue to run with the impression off, or it may be stopped.

After the trouble has been attended to, the impression is thrown on. This is accomplished by the operator placing his foot on top of the bar 37 thereby tilting the tripping lever to the left in Figure 4 so as to bring the abutment 33 in under or into the path of the descending roller 38. When the latter contacts with the abutment, the movement of the arm 23 is arrested and the cam engaged the latches 16 are re-engaged the notches 14 to restore the normal running position of the adjuster bar 28 and the sleeves 6 and the impression is again on. The swinging movements of the tripping lever 30 are limited and regulated by the two screws 38 carried by the bracket 32 and adapted to engage the centering pin 46 fast in the lever 30.

The impression may also be thrown off automatically and the machine stopped. This is of advantage where the operation is such that the operator is temporarily absent from the machine, or otherwise occupied. To this end there is provided means for
stopping the motor 50, Figure 6, which drives the machine, and also for operating the hook 36 to engage the throw off arm 28 on the closing movement of the machine.

5 Referring first to Figure 4, however, it will be seen that the hook 36 is pivoted to the tripping lever at 51. A spring 52 tends to pull the hook into active outward tilted position in the path of the throw off arm 28.

This tendency is opposed by a release magnet 53 which maintains an armature 54 in upright attracted position overcoming the force of the spring 62. The hook is connected to the armature by a link 55.

10 Referring now to Figure 6, it will be seen that there is provided a starting circuit from the line 56 through wires 57, 58 and 59 to a switch magnet 60, thence through wire 61 to the other line 62. This circuit is broken at the starting push button switch 63. When the latter is pushed in, the starting circuit is closed and the magnet 60 operates switch arm 64 to close the operating motor circuit from line 56, through wire 65, switch arm 64 and through the motor to line 62. At the same time another circuit is closed through the magnet 60 as follows. Line 56, wire 55, switch arm 64, wire 66 to wire 68, to wire 65, through magnet 60, to wire 61 to line 62.

20 Thus, even though the pressure is taken off the starting button 63 and the starting circuit opened, the magnet 60 will remain energized and the operating circuit through the motor remains closed.

30 The press commences then to operate and is usually turned over a couple of times, the impression being off, because there is no current in the impression release magnet 53, one side through wire 67, being open at 63. The operator then puts his foot on the bar 37 to swing the tripping lever into position to put the impression on and also releases the starting button 63. The release of the starting button switch closes the release circuit through release magnet 53 as follows. From line 56 through wires 65, 66, 58 and 67 to 53, and to the other side wire 61 to line 62. The release magnet thus becomes energized and keeps the hook 36 in inactive position. The paper may now be fed to the press and the normal operation is on.

If it is now desired to put the circuit into tripping condition, the operator pushes another tripping push button switch 68 and closes a circuit as follows. From line 56 through wires 65 and 66 to push button 68, to magnet 60 through wire 70 to line 62. The magnet 60 then pulls up its core and closes two switches 71 and 72. Current then passes through the magnet from wire 66 through switch 71 and back through 70 to line 62. Consequently the magnet 69 remains energized even though the trip push button switch 63 is released.

At the same time, however, a stop circuit has been closed through the nippers 43 from a local battery 74 through the nippers, wire 75 to a switch 76, through switch 72, wire 77 to stop magnet 78 and back through wire 79 to the battery, provided there is no paper between the nippers. In this event, the magnet 78 being energized, it will open the operating circuit in line 56 and the motor will stop. If there is paper between the nippers, the automatic stop circuit through magnet 78 will be open and the operating circuit through magnet 60 remains closed and the press will continue to operate.

The switch 76 is arranged to momentarily open the stop circuit through the nippers when the latter are in the position shown in Figure 1 ready to grip the paper. At this time it is not desirable that the nippers are in a live circuit. The rocking shaft 45 which carries the nippers arm 44 also carries a swinging cam member 80 adapted to engage the switch 76. As the nippers descend to take the paper, the cam 80 opens the switch 76 and keeps it open until the nippers have ascended clear off the press. If now the nippers have seized a sheet, the circuit through stop magnet 78 will remain open. If the nippers do not seize a sheet, this circuit will be closed and the magnet 78 will open the operating circuit of the press.

The press may be stopped at any time by pressing the stop button switch 81 to break the operating circuit. The three buttons 63, 68 and 81 may be located conveniently within reach such as indicated in Figure 1.

In operation the roller 26 is positioned in the arm 23 to correspond with the adjustment of the pawl 13 so as to obtain the impression adjustment and pressure desired. The press is then started by pressing the starting button 63 which closes the motor operating circuit through magnet 60. At this time the impression is off. The operator then swings the tripping lever to bring abutment 33 into the path of the roller 26, thus throwing the impression on at the same time releasing the starting button. This automatically closes the tripping circuit through the release magnet 53, the armature 54 is attracted and keeps the hook 36 out of the path of the throw off lever 28.

If the nippers fail to seize a sheet, the stop circuit through the magnet 60 is opened and the release magnet 53 no longer holds the hook 36 in inactive position. The hook is pulled out into the path of the lever 28 and engages the latter to automatically throw off the impression because the platen is moving on its closing or upstroke, and at the same time the press stops.

From the foregoing it will be clear that the operator may at any time throw the impression on and off by operating the tripping lever 30, besides which the throw off mechanism may be automatically and electrically
operated by merely closing the tripping circuit through the impression release magnet 53.

The throw off mechanism as herein described may be attached to the press without requiring any material alteration in the press structure. It is safe and easy to operate and responds both to manual as well as electrical operation whenever circumstances require.

I claim:
1. In a platen press, means to adjust the impression of the platen, a shaft to unlock the adjusting means to throw off the impression, two levers on said shaft, a tripping lever adapted to be moved into the path of either one of said levers to actuate the said shaft and means for operating said tripping lever.

2. The combination of a platen press, means for adjusting the position of the platen therein, means for operating said adjusting means to throw off the impression of the platen, an electrically controlled member for actuating said operating means, an electrical circuit for operating said press and including the said member and means in said circuit for automatically causing said member to act and to stop the said press.

3. In combination, a platen press, means for adjusting the impression of the platen, mechanism for throwing the impression on and off, a tripping lever, means for manually operating said tripping lever to actuate the said mechanism, an electrical press operating circuit, means in said circuit for automatically causing said tripping lever to actuate said mechanism to throw off the impression and means in said circuit for automatically breaking the same to stop the press when the impression has been thrown off.

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