

May 11, 1926.

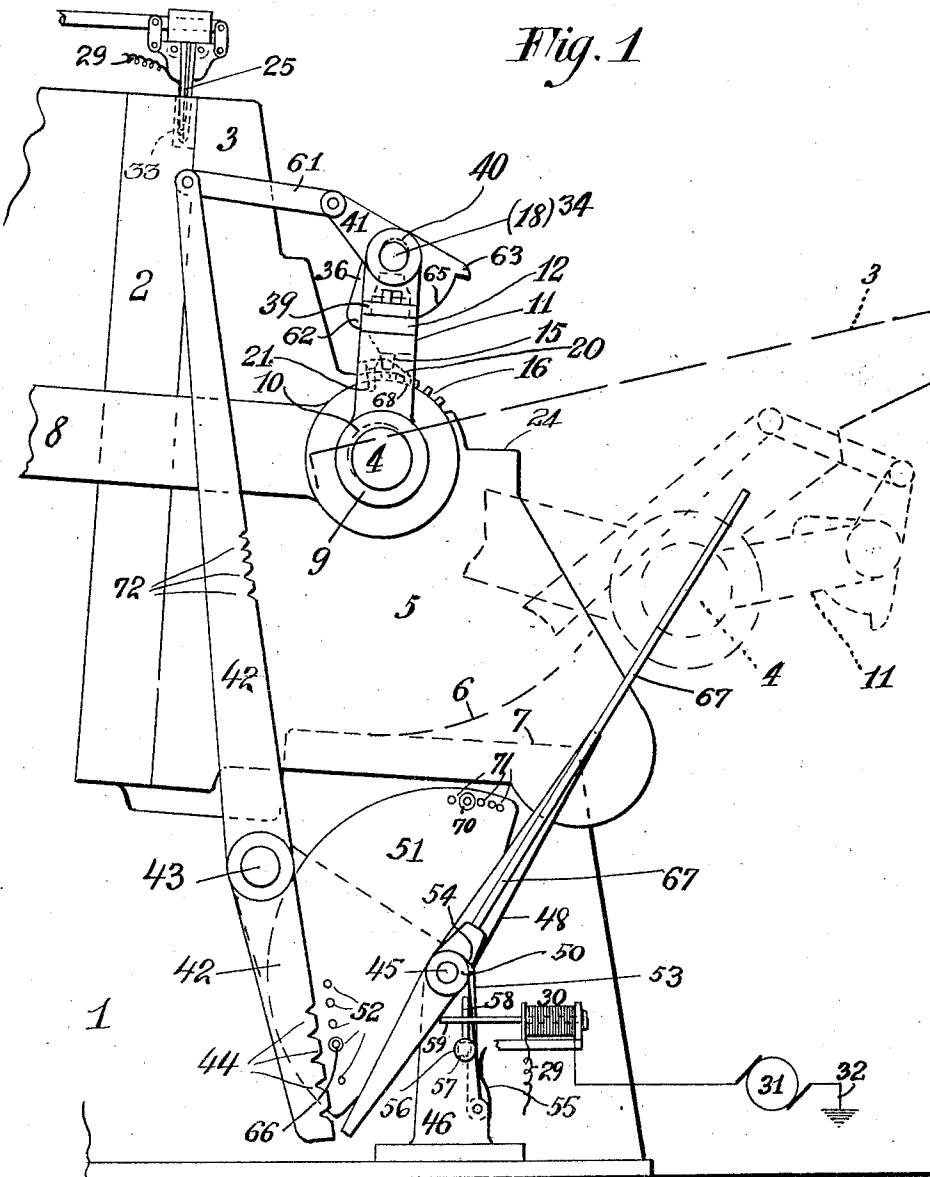
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1,584,446

TRIPPING MECHANISM FOR CREASERS, CUTTERS, AND THE LIKE

Filed March 10, 1925

3 Sheets-Sheet 1



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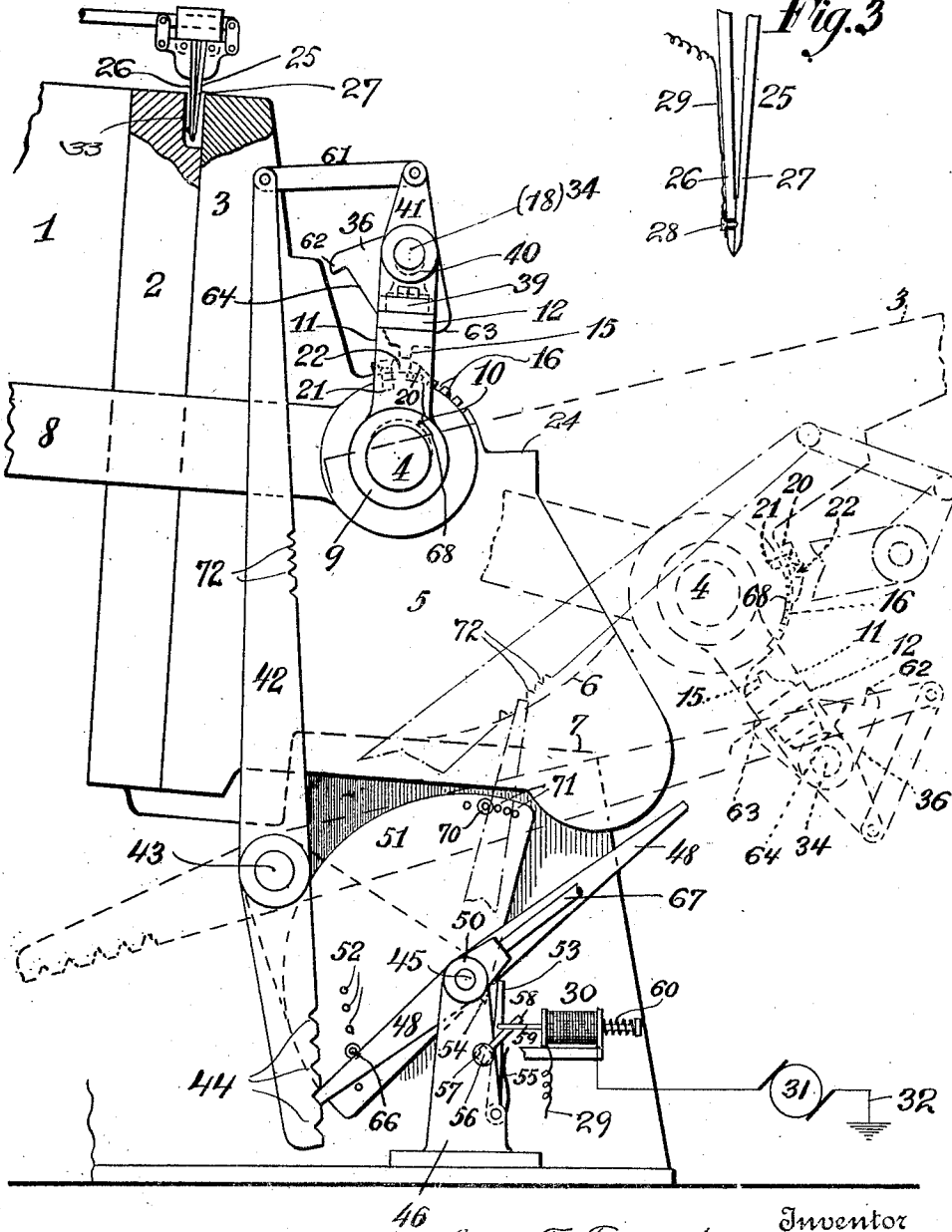
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3 Sheets-Sheet 2.

Fig. 2



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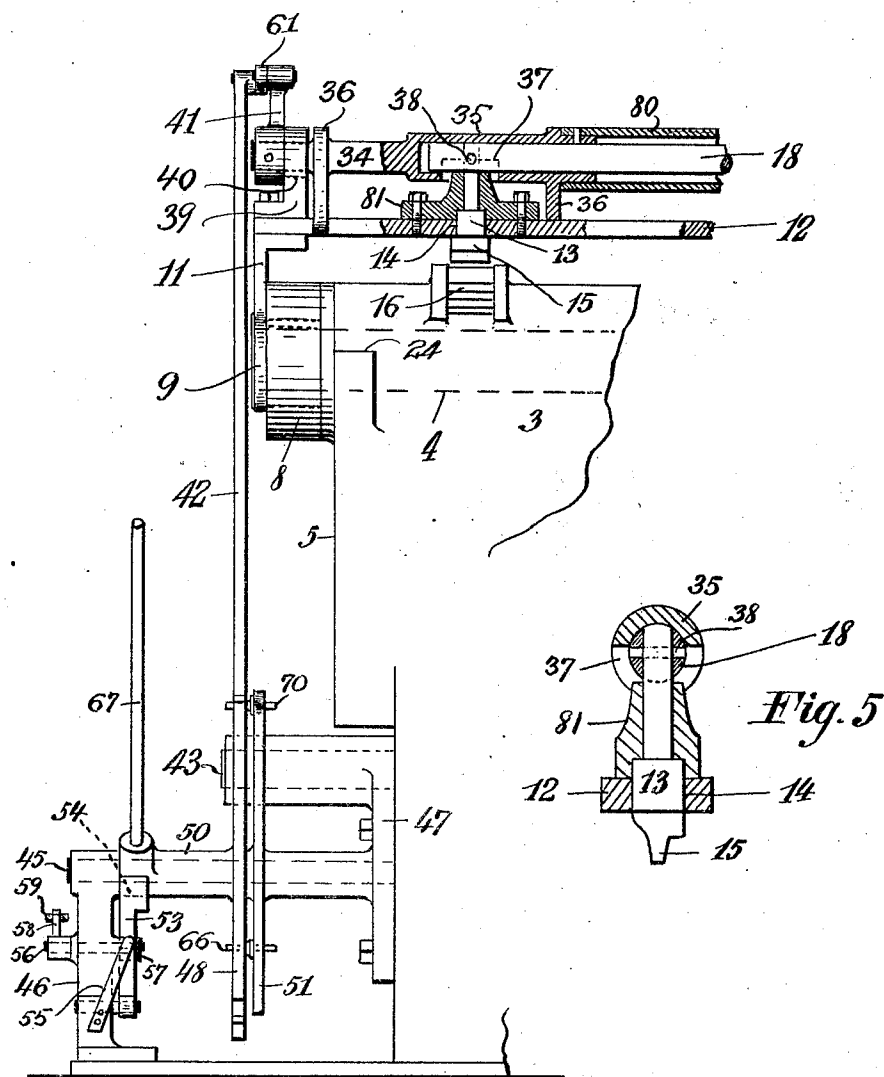
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TRIPPING MECHANISM FOR CREASERS, CUTTERS, AND THE LIKE

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3 Sheets-Sheet 3

Fig. 4



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TRIPPING MECHANISM FOR CREASERS, CUTTERS, AND THE LIKE.

Application filed March 10, 1925. Serial No. 14,366.

This invention relates to tripping mechanisms for heavy duty platen printing presses, creasers and cutters, and like machines embodying a fixed bed against which the platen is operated for printing, cutting or creasing purposes.

More particularly this invention relates to such machines as aforesaid which include a mechanism for setting or adjusting the platen in order to adjust the impression for a particular job or for purposes of taking up for wear or for other reasons.

The object of this invention is to provide a tripping mechanism for automatically tripping the platen or throwing off the impression when such action becomes desirable or necessary, and again untripping the platen.

The invention is embodied in a mechanism which may be set to trip the press automatically irrespective of the adjusted position of the platen, and it includes means for automatically untripping the press irrespective of the adjusted position of the platen, all as set forth in the following specification and as illustrated in the accompanying drawings in which—

Figure 1 is a side view of a press equipped with a tripping mechanism embodying the invention.

Figure 2 is a similar view showing the parts in tripped position and with parts in section.

Figure 3 is a detail view of the sheet holding means.

Figure 4 is a front view showing the tripping mechanism partly in section and partly broken away.

Figure 5 is a transverse sectional detail view of parts of the tripping mechanism.

Referring to the drawings, the invention is disclosed in connection with a well known type of cutting and creasing press. The press is shown only in outline and is identified by the frame 1, which is provided with a stationary bed 2 against which the platen 3 operates in the usual manner. The platen is carried by a shaft 4 journaled in side frames 5 which are provided with a roll 6 which rides on tracks 7. The construction is alike on both sides of the press, so only the one side is illustrated. The side frames are operated to oscillate the platen by means of connecting rods 8.

The connecting rods 8 are not directly connected to the ends of the shaft 4 but are mounted on sleeves 9, which are bored eccentrically as at 10, Figure 1, to receive the ends of the shaft 4. Each sleeve or bearing has an upstanding arm 11, and the two arms 11, one on each side of the press, are connected by a cross bar 12, which is called the platen adjusting bar.

Means are provided for locking the arms 11 with their eccentric sleeves 10 to the platen frame in various positions of adjustment. To this end the bar 12 carries a pin 13 which slides in a bore 14 in the bar. The pin has a dog 15 which enters a hole 22 in a pawl 20. The latter is adjustable circumferentially of the frame by engagement with any one of a set of notches 16 on the frame. The pawl 20 is set in said notches by a screw 21 which moves in a slot, not shown.

Thus by setting the pawl 20, the position of the hole 22 is varied and when the dog 15 drops into the hole 22, the angular positions of the arms 11 and sleeves 9 are varied correspondingly to rotate the shaft 4 to adjust the pressure of the platen. This construction is old in presses of this type.

The pins 13 are secured to an adjuster handle bar 18 which thus connects the two or more dogs on the machine. Ordinarily the dogs are disengaged from the holes 22 in the notched pawls 20 by lifting the handle bar upwards or pushing it down, to re-engage the dogs and holes 22.

The construction so far described and illustrated is common to this type of press and well known in the art. The adjustment of the eccentric sleeves permits a variation in the impression pressure and such adjustments are of course made while the machine is at rest. It is, however, also desirable and necessary to be able to instantly throw off the impression or trip the platen while the press is running, whenever a faulty sheet of paper is placed on the platen, which, if allowed to complete its impression stroke, would cause printing, cutting or creasing in an undesirable manner.

The throw off is accomplished manually by the lifting of the handle bar 18 to disengage the dogs 15, whereupon the members 9, 11, 12, 18 and associated parts fall by gravity in a clock wise direction, the bar

12 coming to rest on stops 24 provided on the platen frames in a usual and well known manner.

Such instant manipulation of the handle bar is, however, both difficult and unsafe while the press is in motion, and cannot always be performed in time. Again, these machines are rapidly being provided with automatic feeders in which case it is obvious that an automatic tripping mechanism must be provided to trip the press whenever a sheet fails to be placed on the platen in proper position, or when a faulty sheet is fed to the platen.

Again, when one of these presses is equipped with an automatic feeder, it is also equipped with an automatic delivery or means for removing the sheet from the platen.

Such an automatic feed and delivery is disclosed in the U. S. Patent Number 1,515,572, and this invention presupposes the presence on the press of some means, such as disclosed in the said patent, for seizing the sheet prior to completion of the impression stroke for the purposes of removing the sheet.

Figure 3 shows such sheet seizing means as being embodied in a delivery gripper 25 comprising two jaws or finger 26 and 27. The finger 26 carries a properly insulated electrical contact 28 connected by a wire 29 to a solenoid 30. The latter is connected to the motor 31 which drives the press. The motor is grounded by a wire 32.

As described in the patent aforesaid, the gripper 25 is adapted to seize the sheet just prior to impression, the gripper entering a cut out portion 33 in the bed 2. After impression the gripper removes the sheet.

Referring now to the automatic tripping means, the same are embodied in a mechanism for automatically operating the handle bar 18 to disengage the dogs 15 from the notched pawls 20.

As shown in Figure 4 there is provided a bar operating member comprising a shaft 34 having a sleeve 35 adapted to receive the handle bar 18 endwise thereof. The shaft 34 carries a cam 36 and the sleeve 35 carries a similar cam 36. The sleeve is cut out as at 37 to permit the pin 38, which connects the pin 13 and bar 18, to be driven through these two members.

The shaft 34 is journaled in bearings 39 having an elongated hole 40 to receive the shaft. Outside the bearing, the shaft is connected through an arm 41 with a link 61 to a trip lever 42 pivoted at 43. The trip lever has five notches 44 below the pivot 43. The numeral 45 denotes a shaft which has its bearings in a floor stand 46 and a bracket 47 secured to the press, Figure 4. On said shaft 45 is mounted a handle 67 and a trigger lever 48 connected by a sleeve 50.

Adjacent the trigger lever 48 is a plate 51 which is fixed and which is provided with five holes 52. On said floor stand 46 there is further pivoted a pawl 53 which is kept in engagement with a tooth 54 on the sleeve 50 by a spring 55. At 56 there is pivoted a trigger 57 having a handle 58. The trigger has a squared portion which bears against the pawl 53. The solenoid 30 is suitably mounted on the frame of the press. The core 59 engages the trigger handle as shown. A spring 60 tends to move the trigger to the left in Figures 1 and 2. The aforesaid cams 36 are provided with stops 62 and 63 and have a flat portion 64 and a curved cam portion 65. A stud 66 is adapted to be inserted in any one of the holes 52 in the plate 51. The latter may conveniently form a part of the casting 47 for the support of the aforesaid pivot 43 and shaft 45.

The operation is as follows: Assuming as shown in the drawing that the pawl 20 is adjusted to engage notch 68 Fig. 1 of the notches 16 which in this case would be fourth notch counting in an anticlockwise direction. Then stud 66 is inserted in the corresponding hole of the holes 52. All as shown in Figure 1. During the normal running of the press the platen will therefore be set at adjustment four and will move from the position shown in full lines in Figure 1 to the position shown in dotted lines therein. And the connected parts will similarly be moved from closed to open position. While the press is thus operating the trigger lever 48 will remain in its normal position as shown being held there by the pawl 53.

When for some reason or other a sheet fails to be fed to the platen or is mutilated so that the gripper 25 cannot seize the sheet, the contact 28 will contact with the gripper jaw 27 and complete the circuit through the solenoid 30 which thereupon will draw its core 59 to the right against the action of the spring 60 and consequently move the trigger 57 to cause the squared portion thereof to disengage the pawl 53 from beneath the tooth 54. The trigger lever 48 will now fall by gravity until stopped by the stud 66. This occurs near the end of the impression stroke and as the trip lever 42 continues to move one of its stops 44 will engage the tripper lever 48 with the result that the upper end of the trip lever is stopped short of its final normal position and through the instrumentality of link 61 and arm 41 the shaft 34 is rotated which brings the curved cam portion 65 on top of the adjuster bar 12 to raise said shaft 34 in the elongated hole 40 in the bearing 39.

The result is that the adjuster handle 18 is lifted as shown in Figure 4 to withdraw the dog 15 from the notched pawl 20. This condition is pictured in Figure 2. Immedi-

ately thereafter the impression stroke is completed but the eccentric sleeves 9 have been turned and fall by gravity to rest on stop 24, such fall causing a partial rotation of the eccentric bores 10 in said sleeves 9 and trips the platen.

The press continues its motion and the parts move down into the dotted position shown in Figure 2, the platen remaining tripped which condition will continue until it is again untripped.

The untripping of the platen is accomplished by the operator taking hold of the handle 67 and throwing it forward to the left in the drawing to rotate sleeve 50 and trigger lever 48 until the latter is stopped by a second stud 70 placed in hole four of the series of holes 71 in the upper part of the aforesaid plate 51. This position is shown in dotted lines in Figure 2. When now the trip lever 42 swings to the right on the opening stroke of the plate, notch number four of the series of notches 72 in said lever above its pivot 43 strikes the upper end of tripper lever 48, the lever 42 will be stopped and prevented from further movement, and as the platen continues its movement the said lever 42 through the link 61 and arm 41 will rotate shaft 34 with the cams 36 to bring the flat or low portion 64 of the cam on top of the adjuster bar 12. This movement occurs at the end of the outward movement of the platen and causes the shaft 34 to move bodily in the elongated holes 40 toward the shaft 4 to again cause the dog 15 to engage the hole 22 in the pawl 20. The parts are now in the same position as shown in full lines in Figure 1, that is the platen is untripped and moves forward on the impression stroke. The parts are now in normal position.

It will be seen from the foregoing that the trigger lever 48 acts as an abutment for the lower end of the trip lever 42 to arrest the motion thereof to untrip the press at the end of the closing or impression stroke of the platen. That by arresting the movement of said lever 42 the shaft 34 is raised by the rotation of the cams 36. The rotation of the cam being stopped by the stop 62. The untripping of the platen is also accomplished by the trigger lever 48 acting as an abutment to arrest the movement of the upper part of the lever 42 by engaging a particular notch of the series of upper notches 72 which, as the platen continues its opening movement, causes a rotation in the opposite direction of the shaft 34 and cams 36 to lower the dog 15 into engagement with one of the notches 16, the movement of the cam in the opposite direction being stopped by the stop 63.

Figure 2 shows in full lines the parts in their respective position at the moment the gripper contact 28 completes the circuit

through the solenoid 30 and causes the trigger lever 48 to fall with the result as described. It also illustrates in dotted line the parts at the extreme of the opening stroke in untripping position. The untripping of the platen back into normal position is illustrated in Figure 2 with the upper part of lever 48 arresting the opening movement of lever 42 in dot and dash line, which also includes the back to normal positions of the link 61, arm 41 and arm 11.

It follows from the foregoing that no matter what the adjusted relationship is between the eccentric sleeves 9 and the platen 3 the press may be automatically tripped and untripped by placing the studs 66 and 70 respectively in the proper corresponding hole in the series of holes 52 and 72. After the untripping of the press and if the grippers 25 take hold of a succeeding properly fed sheet the circuit through the solenoid 30 is broken and the spring 60 restores trigger 58 to normal upright position and when the operator has moved handle 67 back to normal position, or neutral position as it were, the pawl 53 is forced in under the tooth 54 to maintain the parts in such normal position whereby to spring the lower end of the tripper lever 48 out of the way of the lower end of lever 42 to permit the latter to operate without tripping the press. The foregoing is thought to fully describe this invention and the operation thereof. It will be seen that the only attention required by the operator is to place the studs 66 and 70 in their respective proper positions corresponding with the adjustment of the platen after which the press will be automatically tripped in the event a sheet fails to be placed thereon. The press will continue operating tripped until the parts are restored. The untripping is accomplished automatically after the operator has thrown the handle 67 as aforesaid. Thus all injury to the press caused by the absence of a sheet on the platen is avoided.

It will have been understood from the foregoing that the adjusting mechanism comprising the dog 15, the pawl 20 and notches 16 is duplicated at both ends of the press. Preferably a third cam, not shown, will be used on the other end of the press. Such third cam may conveniently be connected to the sleeve 35 by means of a tube 80 such as indicated in Figure 4. A suitable housing 81 is also employed for the convenient guidance of the pin 13.

It will further be apparent that the tripping mechanism is not entirely dependent upon the presence of the sheet holding means, except for automatic operation as aforesaid. The tripping mechanism may be manually actuated by the operator placing the trigger 48 in the position required to trip the platen.

While I have disclosed my invention in its preferred form, nevertheless I do not wish to be limited to the exact details shown, it being obvious that changes and modifications may be made within the principle of the invention and the scope of the appended claims.

I claim:—

1. The combination of a platen press and its mechanism for adjusting the position of the platen therein, a tripping mechanism for tripping the platen and means for automatically operating the said tripping mechanism irrespective of the adjusted position of the platen.

2. The combination of a platen press and its mechanism for adjusting the position of the platen therein, a tripping mechanism for tripping the platen, means for automatically operating said tripping mechanism and devices for adjusting said operating means to correspond with the adjusted position of the platen.

3. The combination of a platen press and its mechanism for adjusting the position of the platen therein, a tripping mechanism and means for automatically operating said tripping mechanism to trip and untrip the platen irrespective of the adjusted position thereof.

4. The combination of a platen press and its mechanism for adjusting the position of the platen therein, a tripping mechanism for said platen, automatic means for operating said tripping mechanism and automatic devices for actuating said automatic operating means irrespective of the adjusted position of the platen.

5. The combination of a platen press, mechanism for adjusting the platen thereof in a predetermined position, means for tripping said platen irrespective of its adjusted position, automatic actuating means for the said tripping means and devices for adjusting said actuating means to operate said tripping means at a predetermined time corresponding to the said adjusted position of the platen.

6. The combination of a platen press, means for adjusting the platen therein in any one of the several different predetermined positions, means for tripping said platen, means for actuating said tripping means and mechanism for adjusting said actuating means to correspond with the adjusted position of the platen whereby to cause the tripping means to act irrespective of the adjusted position of the platen.

7. The combination of a platen press, means for adjusting the platen thereof in any one of several different positions, means for tripping and untripping said platen, means for actuating said tripping and untripping means and devices for controlling said actuating means to correspond with the

position of the platen whereby to cause the tripping and untripping means to act irrespective of the adjusted position of the platen.

8. The combination of a platen press, means for adjusting the platen therein, means cooperating with said adjusting means for tripping the platen at the end of the impression stroke thereof and actuating means for said adjusting means operable in point of time to correspond with the said adjusted position of the platen.

9. The combination of a platen press, means for adjusting the platen therein, means cooperating with said adjusting means for automatically tripping said platen at the end of its impression stroke, actuating means for said tripping means and devices for adjusting said actuating means to cause the tripping means to operate automatically and in time corresponding with the adjusted position of the platen.

10. The combination of a platen press, means for adjusting the platen therein, means for tripping the platen, mechanism for actuating said tripping means and means for controlling the operation of said actuating means to correspond in time with the adjusted position of the platen.

11. The combination of a platen press, mechanism for tripping and untripping the platen therein, means for adjusting the position of said mechanism with respect to the platen and means for automatically causing said tripping and untripping means to act irrespective of the adjusted position thereof.

12. The combination of a platen press, mechanism for automatically tripping the platen therein at the end of the impression stroke and automatically untripping the platen at the end of its opening stroke, means for adjusting said mechanism in predetermined positions with respect to the platen and means for actuating said mechanism to act irrespective of its said adjusted position.

13. The combination of a platen press, mechanism for tripping and untripping the platen therein, a lever, automatic means for positioning said lever to actuate said mechanism to trip the platen before the impression stroke is completed and manually operated means for positioning the lever to actuate the said mechanism to untrip the press at the end of the opening stroke of the platen.

14. The combination of a platen press, a gripper for seizing the sheet to be acted upon prior to the completion of the impression stroke of the platen of the press, means for tripping the platen, a lever for actuating said tripping means, devices for maintaining said lever in a normal neutral position and means for automatically causing said devices to permit said lever to move by gravity into position to actuate the tripping means when

said gripper fails to seize the sheet as aforesaid.

15. The combination of a platen press, a gripper for seizing the sheet to be acted upon prior to the completion of the impression stroke of the platen of the press, means for tripping the platen, means for adjusting the position of the tripping means with respect to the platen, a lever for actuating said tripping means, devices for maintaining said lever in normal inactive position and means for automatically releasing said lever to permit the same to move by gravity into a position predetermined to correspond with the said adjusted position of the tripping means to actuate the latter to trip the platen when said gripper fails to seize the sheet as aforesaid.

16. The combination of a platen press, means for tripping the platen of the press, means for adjusting the said tripping means with respect to the platen, a lever adapted to be positioned in one of several predetermined positions to cause the tripping means to act at a predetermined time, mechanism for keeping said lever in a normal inactive position and electrically operated releasing means to permit the lever to move by gravity into the said predetermined position.

17. The combination of a platen press, mechanism for tripping and untripping the platen thereof, means for seizing a sheet prior to the impression of said press, gravity operated means for actuating said tripping mechanism, electrically operated means actuated upon the failure of the sheet seizing means to seize a sheet before the impression of the press for permitting said gravity operated means to act to cause the tripping of the press and a manually operated member for positioning said gravity operated means to cause the tripping mechanism to untrip the tripped platen of the press.

18. The combination of a platen press, means for adjusting the platen thereof in any one of a plurality of predetermined positions, mechanism for tripping and untripping said press, a lever for actuating said mechanism and means in the latter cooperating with the said lever for causing the tripping and untripping of the said platen at points during the operation of the press corresponding to the adjustment of the platen as aforesaid.

19. The combination of a platen press, mechanism for tripping and untripping the same, means for adjusting the said mechanism in any one of a plurality of predetermined positions with respect to the platen, a lever for actuating said mechanism, a member in said tripping having a series of notches, any one of which is adapted to co-

act with the said lever to actuate the said mechanism to trip the platen corresponding to the adjusted position of the said mechanism, said lever having a second series of notches, any one of which is also adapted to coact with the said lever to actuate the said mechanism to untrip the platen corresponding to the adjusted position of the said mechanism.

20. The combination of a platen press, a gripper for seizing the sheet to be acted upon by the platen of the press, a mechanism for tripping and untripping the platen, a gravity operated lever for actuating said mechanism, a member in the latter having a series of stops cooperating with the said lever to actuate said mechanism to trip the platen in positions controlled by the said stops, said member also having a second series of stops adapted to cooperate with the said lever to actuate the said mechanism in positions controlled by said second series of stops and corresponding with the positions of the tripping mechanism controlled by the said first named series of stops.

21. The combination of a platen press, mechanism for tripping the platen thereof, a lever movable by gravity into several different positions, means for stopping said lever in any one of a number of predetermined positions, a member in said tripping mechanism having a series of stops corresponding in number to the number of predetermined positions aforesaid, mechanism for maintaining said gravity operated lever in normal inactive position and means for releasing said lever to move into one of the said predetermined position to engage a corresponding stop in the member aforesaid to cause the said tripping mechanism to act.

22. The combination of a platen press, mechanism for tripping and untripping the platen thereof, a gravity operated lever held in normal inactive position and adapted when released to move into any one of a number of selected active positions, means for stopping said lever automatically in any one of the said active positions, means in said tripping mechanism adapted to cooperate with the said lever in any one of its active positions to cause said mechanism to trip the platen, a device for manually moving said lever into another series of active positions corresponding to the active positions aforesaid and other means in said tripping mechanism adapted to coact with the said lever in any one of the said other active positions thereof and in accordance with the position in which the platen was tripped as aforesaid to cause the said mechanism to untrip the platen.

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