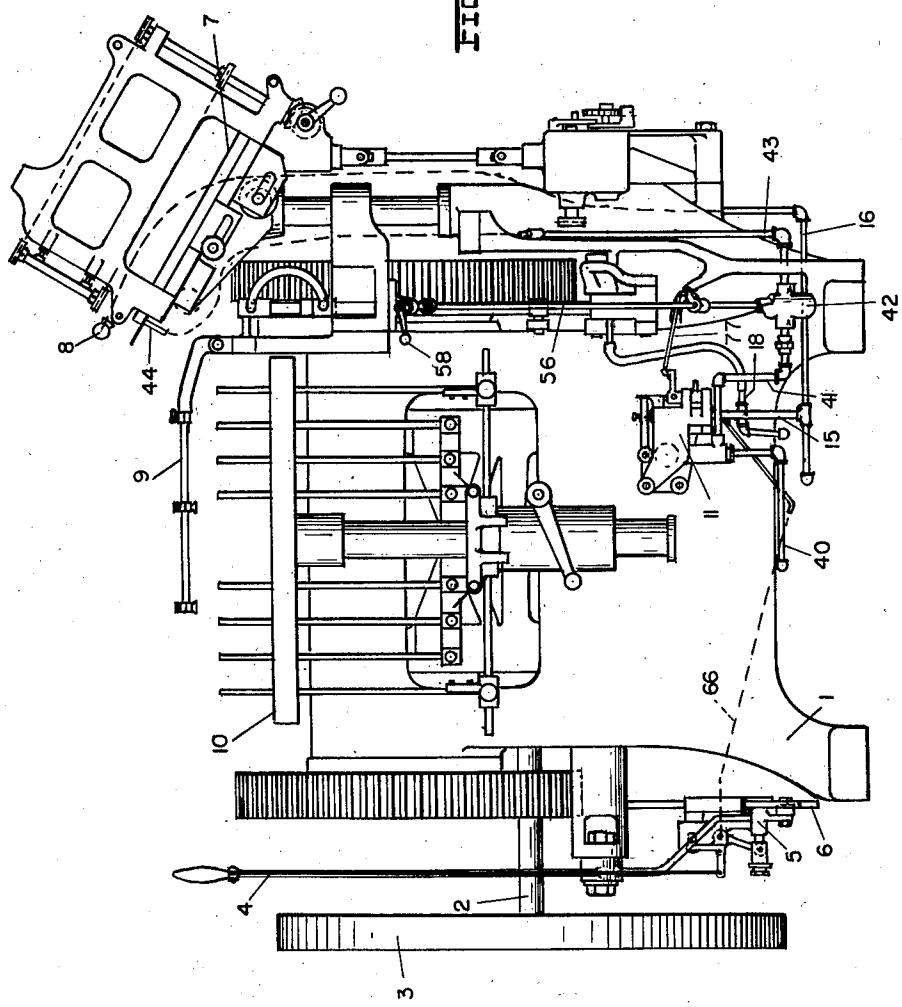
May 25, 1943. W. C. RUPP 2,320,100

PLATEN PRINTING PRESS

Filed Sept. 3, 1941 5 Sheets-Sheet 1

FIG. 1



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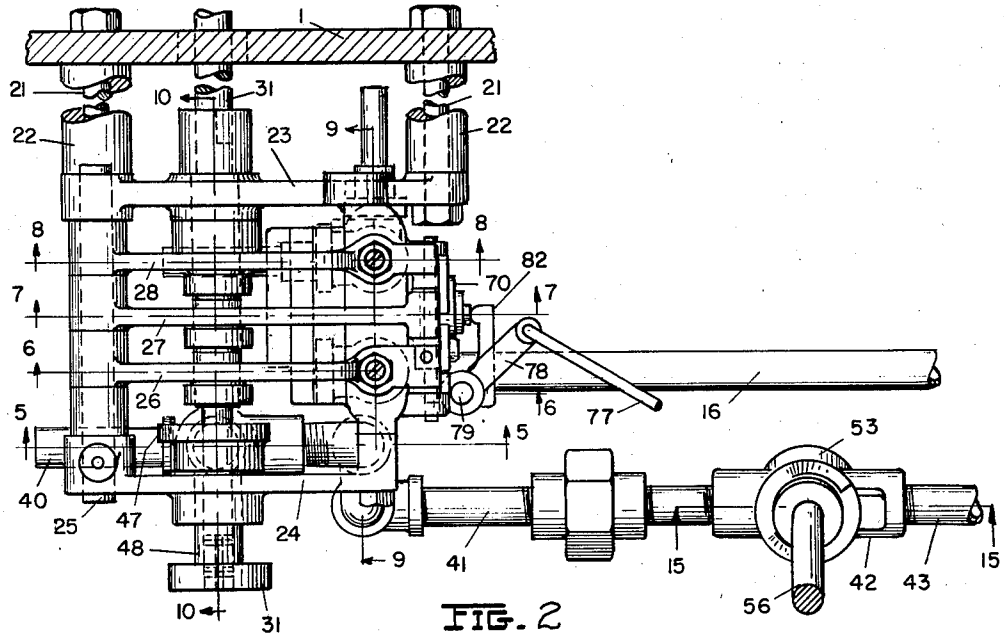


FIG. 2

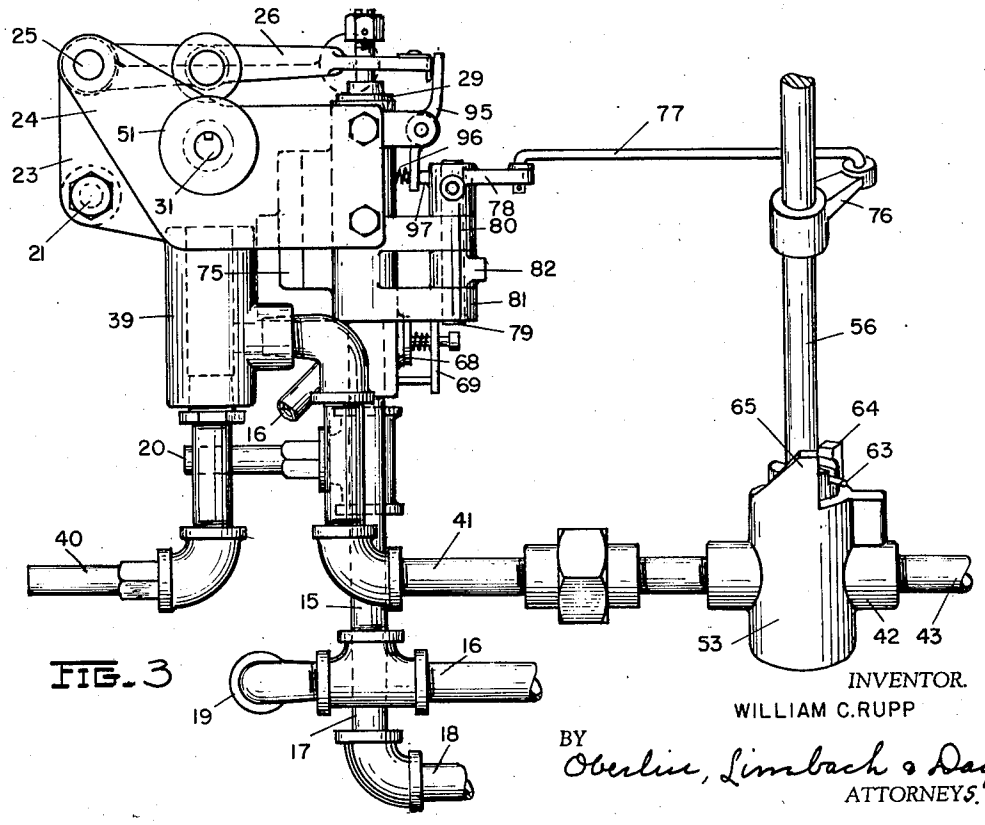


FIG. 3

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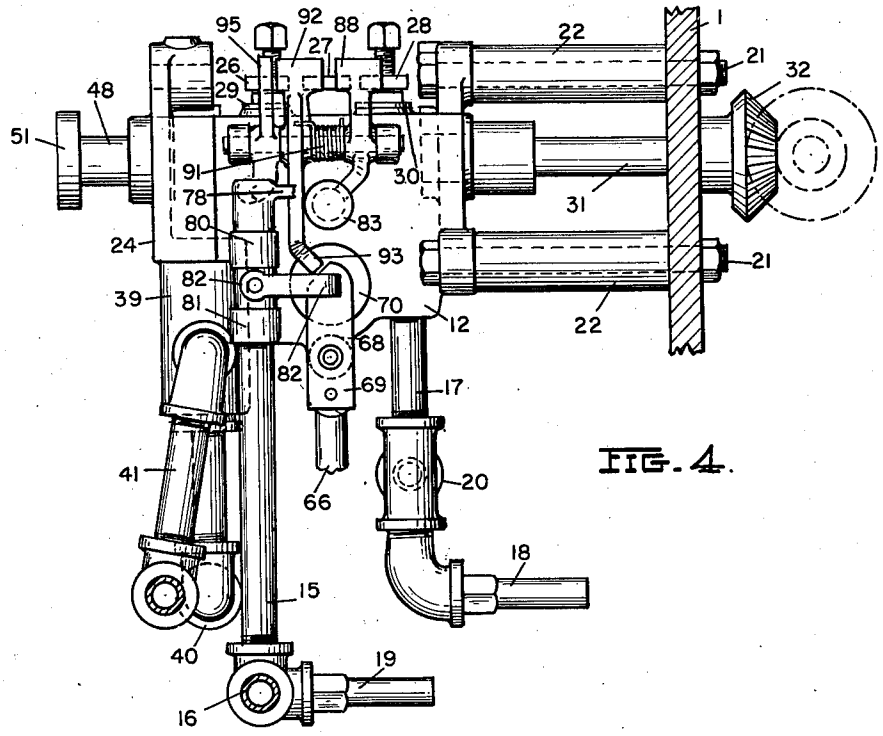


FIG. 4.

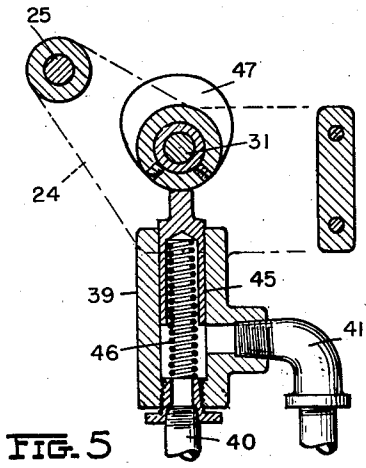


FIG. 5

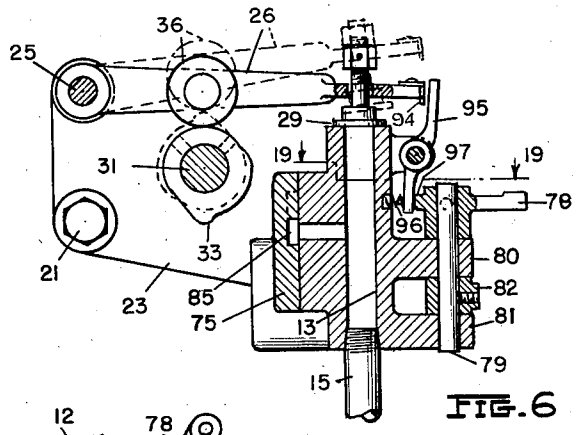


FIG. 6

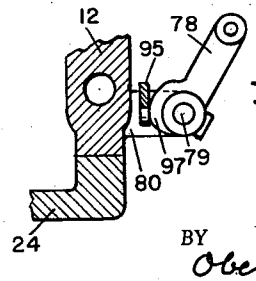


FIG. 19

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PLATEN PRINTING PRESS

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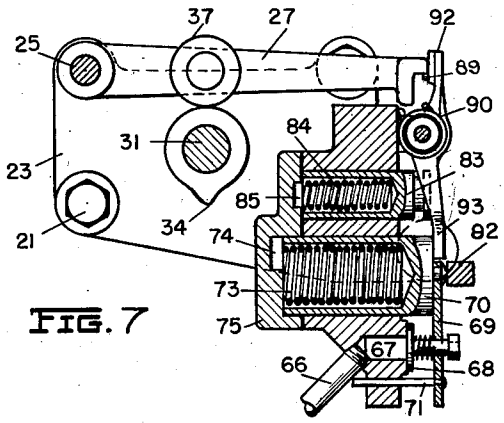


FIG. 7

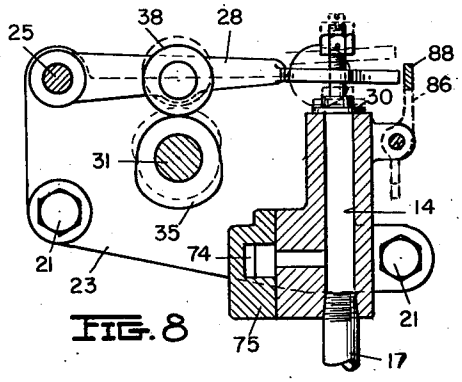


FIG. 8

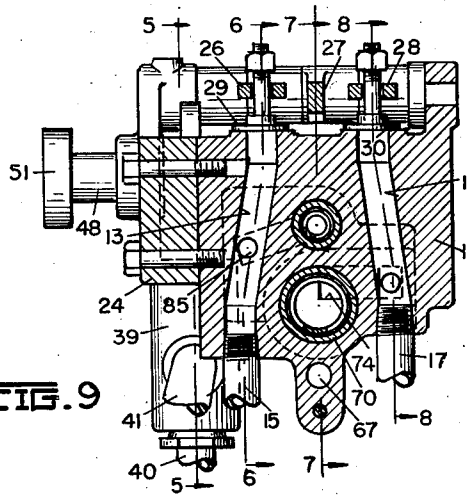


FIG. 9

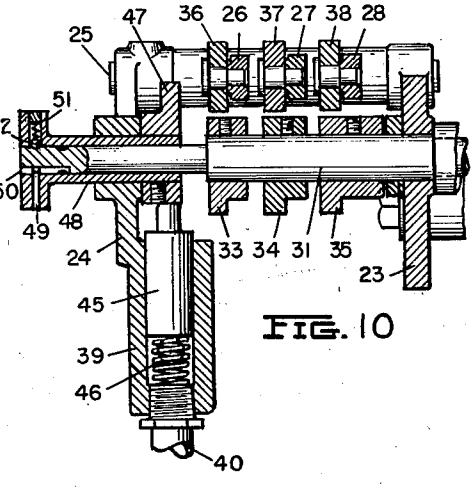


FIG. 10

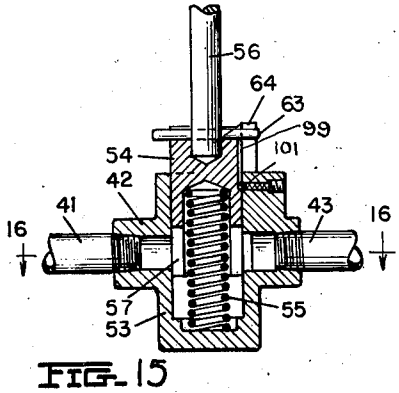


FIG. 15

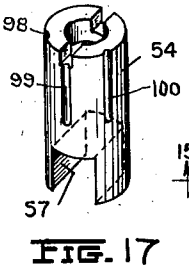


FIG. 17

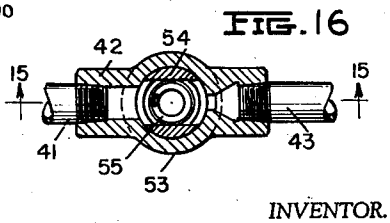


FIG. 16

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May 25, 1943. W. C. RUPP 2,320,100

PLATEN PRINTING PRESS

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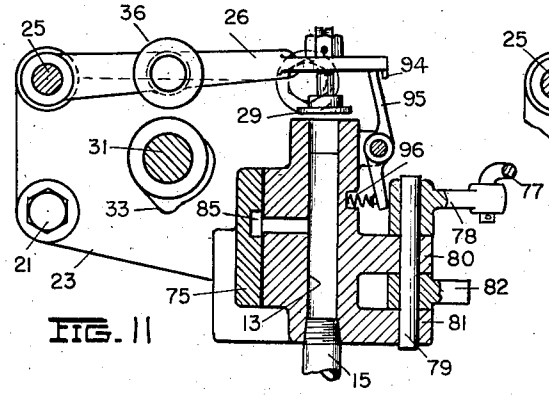


FIG. 11

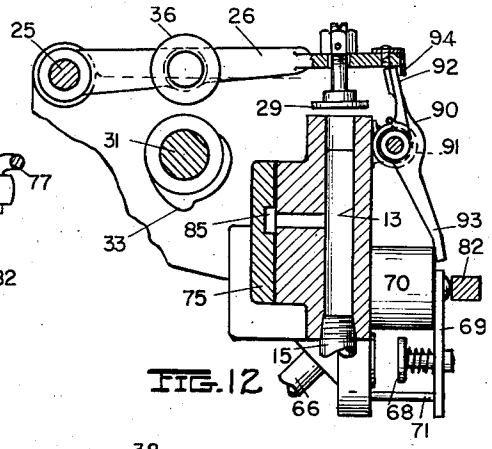


FIG. 12

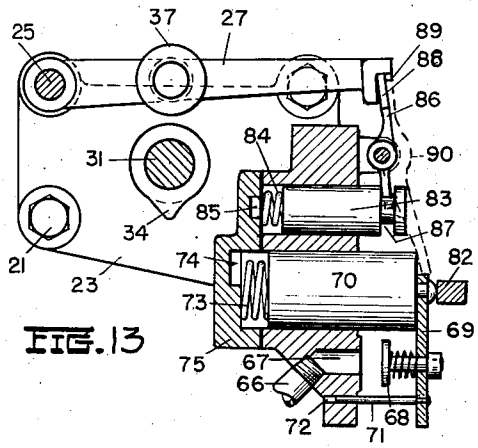


FIG. 13

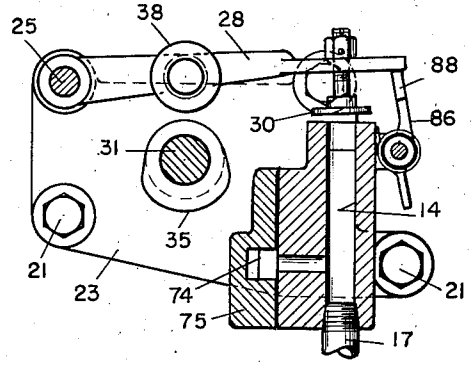


FIG. 14

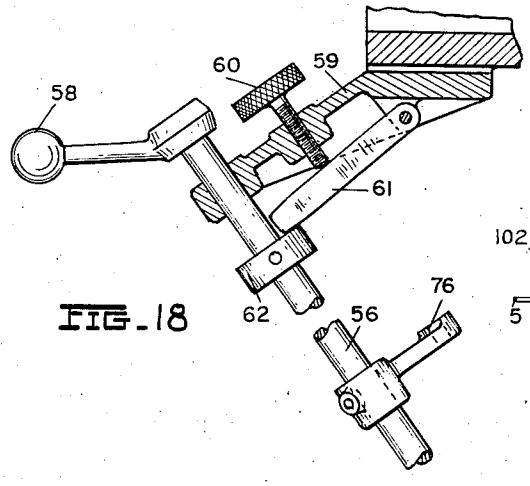


FIG. 18

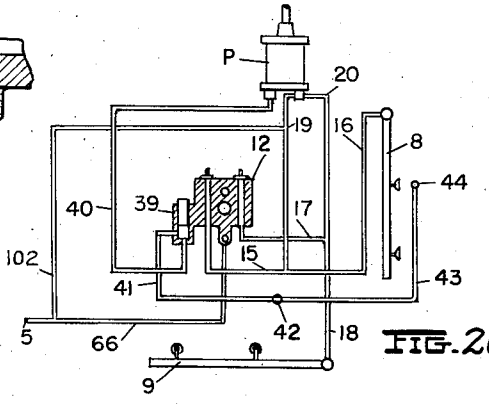


FIG. 20

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Patented May 25, 1943

2,320,100

UNITED STATES PATENT OFFICE

2,320,100

PLATEN PRINTING PRESS

William C. Rupp, Parma, Ohio, assignor to The Chandler & Price Company, Cleveland, Ohio, a corporation of Ohio

Application September 3, 1941, Serial No. 409,389

17 Claims. (Cl. 271—56)

This invention relates, as indicated, to printing presses and more particularly to platen printing presses of the type provided with pneumatic suction devices for feeding sheets to and delivering them from the platen of the press.

Suction devices of this character usually include oscillatable tubular arms provided with sucker tip assemblies adapted to engage or contact the sheets, and valves for periodically breaking the vacuum in the arms and sucker tips when suction is not desired. To prevent injury to the type form and other parts of the press in case of failure of the feeder sucker tips to feed a sheet to the platen it is customary in such cases, pending restoration of the vacuum in the sheet-feeding means, to either stop the press or move the throw-off lever into operation. Where means is provided for automatically operating the throw-off lever under such circumstances, such means may desirably be of the type disclosed in Johnson Patent No. 2,185,440 wherein the throw-off mechanism is also automatically responsive to the reestablishment of the vacuum to move the throw-off lever back to inoperative position.

Other difficulties arise, however, when the delivery sucker tips fail properly to seize a sheet and remove the same from the platen. If the suction is thereby immediately cut off from the feeder sucker tips, preventing the feeding of further sheets, trouble may nevertheless be caused by the feeder sucker tips thereupon dropping a sheet into the mechanism of the press. Similarly, when stopping the press during normal operation it has generally been necessary to pick the last sheet out of the machinery into which it has dropped.

It is, therefore, a primary object of this invention to provide means whereby the feeding and delivery of further sheets may be automatically stopped upon failure of the sheet feeding means to properly feed a sheet or of the delivery means to deliver a sheet, without, however, causing any sheet in process of feeding or delivery to be dropped into the press mechanism.

Another object is to provide such means which may be rendered inoperative when desired, as when starting printing or when printing curly or other difficult sheets.

A further object is to provide such means whereby upon failure of the sucker tips to properly seize a sheet the sheet feeding means will be permitted to complete its cycle of feeding a sheet to the platen before being rendered inoperative.

Still another object of this invention is to provide such means wherein the suction may be cut off in both feed and delivery means when desired so that the press need not be stopped upon cessation of feeding.

Other objects of this invention will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings:

Fig. 1 is a front elevational view of a platen printing press incorporating the device of my invention;

Fig. 2 is a top plan view of the valve control mechanism of my new device;

Fig. 3 is a front elevational view of the mechanism of Fig. 2;

Fig. 4 is a side elevational view of such mechanism;

Fig. 5 is a sectional view taken along the line 5—5 on Fig. 2 through the air-blast control valve;

Fig. 6 is a sectional view taken along the line 6—6 on Fig. 2 through the feeder line valve;

Fig. 7 is a sectional view taken along the line 7—7 on Fig. 2 through the safety mechanism and throw-off valve;

Fig. 8 is a sectional view taken along the line 8—8 on Fig. 2 through the delivery line valve;

Fig. 9 is a vertical sectional view taken along the line 9—9 on Fig. 2 through the valve passages;

Fig. 10 is a vertical sectional view taken along the line 10—10 on Fig. 2 through the valve cam shaft;

Fig. 11 is a sectional view through the feeder valve similar to Fig. 6 but showing such valve locked in open position;

Fig. 12 is a sectional view through the feeder valve similar to Fig. 11 but showing the safety locking mechanism;

Fig. 13 is a sectional view through the safety mechanism similar to Fig. 7 but showing such mechanism in operative position;

Fig. 14 is a sectional view through the delivery line valve similar to Fig. 8 but showing such valve locked in open position;

Fig. 15 is a sectional view taken along the line 15—15 on Fig. 2 through the manual control valve;

Fig. 16 is a sectional view through such valve taken along the line 16—16 on Fig. 15;

Fig. 17 is an elevational view of the valve member of the valve of Fig. 15;

Fig. 18 is an elevational view, partly in cross section, of the manual control means;

Fig. 19 is a top plan detail view of a portion of the control means taken along the line 19—19 on Fig. 6; and

Fig. 20 is a diagrammatic layout of the piping to show the interrelation of the operating parts.

Referring now more particularly to said drawings and especially Fig. 1 thereof, the device of my invention may be incorporated in a platen press comprising a main frame 1 having pivotally mounted thereon a bed (not shown) adapted to be oscillated by cam means driven by the main drive shaft 2 of the press, such shaft being provided with a fly-wheel 3. Throw-off means is provided as described in Johnson Patent No. 2,185,440, for example, comprising means for oscillating the back shaft in its bearings so as to position the bed for printing and throw-off positions respectively, such means being well known in the art. A throw-off lever 4 permits of manual operation, and means, including a plunger indicated at 5 operative upon failure of vacuum in the vacuum line to engage a bar 6 which is pivotally attached to the bed of the press and is reciprocated by oscillation thereof, acts to automatically move the lever into throw-off position. A feed table 7 and sheet feeding means generally indicated at 8 are provided and delivery means 9 and delivery table 10 operate in cooperation therewith. The vacuum lines running to such throw-off mechanism, feeder, and delivery means respectively are indicated in dash lines where their depiction would otherwise confuse the drawings. Likewise the details of the supporting and operating mechanism for the feeder 8 are omitted since the precise means of operation of the same is no part of the present invention.

The device of my invention comprises an assemblage of valves and regulatory means therefor, such assemblage being generally indicated at 11 on Fig. 1 and illustrated in detail in certain of the other figures. More specifically such device comprises a casting 12 in which are formed passageways 13 and 14. Passage 13 communicates with tube 15 which leads to feeder vacuum line 16, and passage 14 communicates with tube 17 which leads to delivery vacuum line 18. Lines 19 and 20 come from the vacuum pump P (see Fig. 20) and supply suction to lines 16 and 18 respectively.

Casting 12 is secured to the frame 1 of the press by means of bolts 21 within spacer sleeves 22, such bolts passing through end portion 23 of the casting (see Fig. 2). A plate 24 is bolted to the other end of casting 12 and supports one end of shaft 25 on which arms 26, 27 and 28 are pivotally mounted, arms 26 and 28 being operative upon sufficient oscillation to raise valve members 29 and 30 from their respective seats at the ends of passages 13 and 14, thus acting like tappet valves. A cam shaft 31 driven through bevel gear 32 passes beneath such arms and is operative upon rotation to rock the same through engagement of cams 33, 34, and 35 with cam rollers 36, 37 and 38 carried by arms 26, 27 and 28 respectively. The function of arm 27 will be made clear below.

Depending from plate 24 is a cylinder 39 from the lower end of which line 40 communicates, such line carrying air under pressure from the pump for the air blast. From the side of such cylinder line 41 leads to valve 42 from which line 43 leads to the air blast means 44 (see Figs. 1, 3, and 20). A plunger 45 is reciprocable in cylinder 39 against the force of coil spring 46 and when depressed is operative to close line 41 where it leaves the cylinder (see Fig. 5). A cam 47 mounted on cam shaft 31 engages the upper end of such plunger and reciprocates the same in timed relationship to the raising and lowering of tappet valve members 29 and 30. Cam 47 is mounted in a manner to permit rendering it inoperative when it is not desired to have the air blast intermittently interrupted, being attached to a tube 48 which is slidable on the end portion of shaft 31 and locked for rotation therewith by means of pin 49 engaged in slot 50 in such shaft (see Fig. 10). By means of handle 51 cam 47 may then be moved to the right as viewed in Fig. 10 and into inoperative position, spring-backed ball 52 engaging either of two grooves in shaft 31 to hold the cam in the selected position.

Valve 42 comprises a cylinder 53 in which an inner cylindrical valve member 54 is rotatably and reciprocably mounted. A coil spring 55 tends to raise such member which is keyed to a control rod 56 at its upper end and provided with a slot 57 in its lower end to permit passage of the air. Obviously, the higher member 54 is raised by spring 55 the more air will be permitted to pass. A handle 58 is secured to the upper end of rod 56 and is operative to rotate such rod and thereby such valve member. Rod 56 may be reciprocated in supporting bracket 59 by turning knurl-headed screw 60 which engages pivotally mounted lever arm 61 which in turn bears on collar 62 on such rod (Fig. 18). Thus by manipulation of such screw the size of the valve passage afforded by slot 57 in member 54 may be adjusted, the valve member being forced down against spring 55 to provide a progressively smaller opening. One end of key pin 63 is adapted to engage stops 64 and 65 to limit rotation of rod 56 and the valve member.

Line 66 leads from throw-off operating mechanism 5 above described to passage 67 in casting 12 (see Figs. 1, 4, 7, 13 and 20). A valve member 68 carried by finger 69 is adapted to close the end of such passage. Finger 69 depends from plunger 70 reciprocably mounted in a cavity in casting 12 and is properly positioned by means of guide member 71 sliding in hole 72. Plunger 70 is backed with a coil spring 73 tending to force such plunger outward and thus cause valve member 68 to be unseated and the throw-off mechanism thrown into operation through the resultant failure of the vacuum in line 66. Communicating with the inner end of the cavity in which such cylinder snugly fits is a lateral passageway 74 cored in back plate 75 and connecting such cavity with passage 14. It will be seen, therefore, that when the vacuum is properly maintained in the delivery lines and hence in passage 14 plunger 70 will be held retracted against the force of the spring, but upon failure of the vacuum in the delivery lines plunger 70 will move outward opening line 66 as above explained and causing the throw-off mechanism to operate.

Keyed to control rod 56 is an arm 76 connected by link 77 to arm 78 keyed to shaft 79 journalled in brackets 80 and 81. Between such brackets an arm 82 is attached to shaft 79 the end portion

of which is adapted to contact the end of plunger 70 and hold such plunger retracted against the force of spring 73 upon proper setting of handle 58 even when the delivery vacuum has failed.

Above plunger 70 a similar but smaller plunger 83 protrudes from a cavity in casting 12 in which it fits snugly and is reciprocable. It likewise is backed by coil spring 84 tending to force it outwardly and the inner end of the cavity communicates by passage 85 with passage 13 which as above described is in connection with the feeder vacuum line.

Pivotally mounted on the face of casting 12 is a double-ended lever 86 the tail of which is engaged in a groove 87 in the end of plunger 83 (Figs. 4, 8 and 13). Thus when plunger 83 is retracted the head 88 of the lever will be held away from the ends of arms 27 and 28 but when such plunger has moved outward actuated by spring 84 upon failure of the vacuum in the feeder lines such head will be moved inwardly against the ends of arms 27 and 28 and as such arms are raised by cams 34 and 35 respectively such head will snap under the ends thereof preventing valve member 30 from again becoming seated. This, of course, has the effect of rendering the delivery suckers inoperative. Lip 89 on the end of arm 27 hooks over head 88 as shown in Fig. 13.

During normal operation of the press, however, when the feeder mechanism is functioning properly, when valve member 29 is unseated by action of cam 33, permitting plunger 83 to move outwardly, such outward action will be prevented by the tail of lever 86 engaging plunger 83 while the head 88 of such lever is held out in the position indicated in Fig. 8 by engagement with the end of arm 27 (see Fig. 4). By the time cam 34 has come around to raise arm 27 (which would then permit head 88 to move inwardly and block the seating of valve member 30) valve member 29 has again been seated, restoring the vacuum and causing plunger 83 to be held in thereby. Of course, if there were continued failure of the vacuum due to failure of the sheet feeding mechanism to properly seize a sheet, plunger 83 would move outwardly and head 88 inwardly upon the raising of arm 27 to prevent seating of member 30 and continued functioning of the delivery means. But it is clear that the delivery means will not be interrupted if in process of delivering a sheet until such sheet has been deposited on the delivery table.

Another double-ended lever 90 is pivotally mounted adjacent lever 86 and provided with a torsion spring 91 tending to force its head 92 outwardly and its tail 93 against the end of plunger 70. Upon failure of the vacuum in the delivery lines plunger 70 will move outwardly under action of spring 73 causing head 92 of lever 90 to move inwardly against the ends of arms 26 and 27 and as such arms are raised by cams 33 and 34 such head will snap thereunder and prevent valve member 29 from again becoming seated. This renders the feeder suckers inoperative and no more sheets will be fed. Lip 89 on arm 27 and lip 94 on the end of arm 26 hook over head 92 as shown in Fig. 12.

However, during normal operation, when valve member 30 is unseated by action of cam 35 raising arm 28, plunger 70 although no longer held retracted by suction will nevertheless be unable to move outwardly since its outer end engages tail 93 of lever 90 while the head 92 of such lever presses against the end of arm 27. Not until arm 27 is raised by action of cam 34 will head 92 have an opportunity to move inwardly to prevent re-seating of valve member 29. Since valve member 30 will in the interim again have become seated, plunger 70 is now held in by the vacuum and head 92 will no longer be forced inward but on the contrary will be held out by torsion spring 91.

It is apparent that if, when valve member 30 becomes re-seated, there is nevertheless a failure of vacuum in the delivery lines due to failure to properly seize a sheet, plunger 70 will not be held retracted but will move outwardly causing head 92 of lever 90 to move in under arm 26 as soon as arm 27 has been raised by cam 34. This obviously will prevent further functioning of the feeder suckers as above explained. It will also be noted, however, that should the delivery suckers fail to properly deliver a sheet the vacuum to the feeder suckers will not be interrupted until they have completed the feeding of another sheet (i. e. valve member 29 is only prevented from being seated during the next cycle) and likewise the delivery means will deliver such last fed sheet since valve member 30 will not be prevented from normal seating until the failure of member 29 to become seated releases plunger 82 causing lever head 88 to move into position to prevent the lowering of arm 28.

As explained above and illustrated in Fig. 13, the throw-off will become operative upon failure of the vacuum in the delivery lines for any reason since outward movement of plunger 70 will unseat valve member 68.

Another double ended lever 95 is provided beside lever 90 with a compression spring 96 bearing against its lower end tending to force its upper end inward into position to engage arm 26 (see Fig. 11) and prevent the seating of valve member 29 (thus suspending operation of the feeder and delivery suckers as above explained). Usually (for normal operation) handle 58 and therefore arm 78 will be so set that cam 97 will bear against the lower end of lever 95 holding the upper end of such lever in inoperative position (see Figs. 6 and 19). It will be noted that lip 94 on arm 26 is offset so that the upper end of lever 95 cannot be caught thereby.

A consideration of the above description will indicate the manner in which the mechanism operates under different conditions. It is at once apparent that there are three general positions in which handle 58 may be set to obtain appropriate operation of the feeder and delivery means. In order to hold such handle in the selected position three grooves 98, 99 and 100 are provided in valve member 54 adapted to engage a spring-backed ball 101 housed in the casing of valve 42.

When handle 58 is turned to rotate valve member 54 sufficiently to close valve 42 there will, of course, be no air passing to the air blast means. Furthermore, arm 78 is turned by action of link 77 so that cam 97 no longer will bear against the lower end of lever 95 and the upper end of such lever will move in to engage arm 26 causing the delivery and feeder suckers to become inoperative. It is thus possible to run the press with the feeder stopped and without having the delivery sucker pull the tympan off the platen. The press need not be stopped merely because feeding has ceased. The throw-off is, of course, automatically operative throughout the time such conditions endure.

The last described position is employed when starting up the press. Handle 58 is then turned

to open valve 42, starting the air blast, and camming lever 95 into inoperative position. As above indicated, the head of lever 95 does not engage lip 94 of arm 26. Otherwise the mechanism would jam. Handle 58 is turned far enough to swing arm 82 (through action of arm 76, link 77, arm 78 and shaft 79) into position shown in Fig. 6 where it is operative to hold plunger 70 retracted despite failure of vacuum in the feeder or delivery lines. As a result, it is possible to start the printing operation without having the suction automatically shut off due to failure of the delivery suckers to pick off a sheet during the first cycles of the press. Likewise, the throw-off is not operated upon failure of the delivery vacuum since arm 82 likewise acts to hold valve member 68 seated. If the feeder vacuum should fail, however, due to failure to feed a sheet, the delivery will be rendered inoperative by plunger 83 moving out and the throw-off will also be made operative by reason of line 102 which connects line 19 to the throw-off. When the feeder next seizes a sheet the delivery will again be rendered operative and the throw-off inoperative so that generally printing will be interrupted for only one cycle. This setting of the device is not only useful when starting printing but may be retained when printing difficult curly sheets and the like where an operator must be in attendance and it is not desired that the feed and delivery be stopped automatically every time a sheet is missed. Link 77 has a toggle action in this position augmenting the ball 101 in groove 98 to lock handle 58 since otherwise spring 73 might force lever 82 outwards.

If the operator wishes to set the device for "safety" position he will now turn handle 58 back to an intermediate position (ball 101 engaging groove 99) with cam 97 still holding lever 95 in inoperative position. As above described, if the delivery now fails to deliver a sheet the resultant failure of vacuum will permit plunger 70 to move outwardly as soon as arm 27 is raised by cam 34 and head 92 of lever 90 moves beneath arm 26. Further action of the feeder is thereby prevented since valve member 29 cannot again become seated (but not until the sheet in course of feeding has been placed on the platen) and the vacuum now also fails in the feeder line. This in turn permits plunger 83 to move out and likewise prevents re-seating of valve member 30 so that after the last fed sheet is delivered the delivery means becomes inoperative. Lip 94 on the end of arm 26 and lip 89 on the end of arm 27 prevent the escape of head 92 of lever 90 when plunger 70 is again retracted during the delivery of such last fed sheet. Otherwise the feeder would be enabled to feed yet another sheet. The throw-off is automatically operated as soon as plunger 70 moves out without the time lag which would occur if sole reliance were placed on the unseating of valve member 29 and consequent failure of vacuum in line 102. Passage 57 in valve member 54 is sufficiently wide that passage of air to the air-blast is permitted in both of the last two positions above described.

Similarly, when the feeder has failed to seize a sheet, plunger 83 moves out to render the delivery means inoperative and lip 89 prevents the upper end 88 of lever 86 from escaping from beneath arm 28 after it has once assumed such position.

To start the feed and delivery means again handle 58 is turned to the second position above described with arm 82 holding plunger 70 retracted, later turning to the "safety" setting when the machine is operating properly. Even should the handle then be turned to the first described position permitting lever 95 to engage arm 26, one cycle of feed and delivery would be completed before valve members 29 and 30 are locked in open position.

It will be seen from the foregoing that the objects of this invention have been achieved and a suction control device provided of great flexibility in operation. All possibility of damage to either the press or form is avoided even in the absence of the operator through automatic operation of such device so that one operator may satisfactorily tend a number of presses.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:

1. In a platen printing press, feed means for feeding sheets to the platen, delivery means for delivering sheets from the platen, means automatically operative upon failure of said delivery means to properly engage a sheet on the platen to render said feed and delivery means inoperative, and delay means associated therewith operative to cause said feed means to complete the feeding of the next sheet in succession to the platen before becoming inoperative.

2. In a platen printing press, feed means for feeding sheets to the platen, delivery means for delivering sheets from the platen, means automatically operative upon failure of said delivery means to properly engage a sheet to render said feed and delivery means inoperative, and means operative to delay the action of said automatic means until after completion of one cycle of such press.

3. In a platen printing press, suction feed means for feeding sheets to the platen, suction delivery means for delivering sheets from the platen, means automatically operative upon failure of said delivery means to properly remove a sheet from the platen to render said feed and delivery means inoperative by withholding the suction therefrom, and delay means preventing operation of said automatic means to withhold suction from said feed means until said feed means completes the feeding to the platen of the next sheet in succession.

4. In a platen printing press, feed means for feeding sheets to the platen, delivery means for delivering sheets from the platen, throw-off means operative to withhold the platen from impression relationship with the form of such press, means automatically operative upon failure of said delivery means to properly remove a sheet from the platen to actuate said throw-off means and render said feed and delivery means inoperative, and delay means causing said feed means to complete the feeding of the next sheet in succession to the platen before becoming inoperative.

5. In a platen printing press, feed means for feeding sheets to the platen, delivery means for delivering sheets from the platen, throw-off means operative to withhold the platen from impression relationship with the form of such press, safety means automatically operative upon failure of said delivery means to properly remove

a sheet from the platen to render said feed and delivery means inoperative, delay means associated with said safety means causing said feed means to complete the feeding of the next sheet in succession to the platen before becoming inoperative, and means for making said safety means inoperative.

6. In a platen printing press, feed means for feeding sheets to the platen, delivery means for delivering sheets from the platen, throw-off means operative upon failure of the delivery means to remove a sheet from the platen to withhold the platen from impression relationship with the form of such press, safety means automatically operative upon failure of said delivery means to remove a sheet from the platen to render said feed and delivery means inoperative, delay means associated with said safety means causing said feed means to complete the feeding of the next sheet in succession to the platen before becoming inoperative, means for making said safety means inoperative, and manual means for making said feed and delivery means inoperative.

7. In a platen printing press, feed means for feeding sheets to the platen, delivery means for delivering sheets from the platen, means automatically operative upon failure of said delivery means to properly remove a sheet from the platen to render said feed and delivery means inoperative, and delay means associated therewith causing said feed means first to complete the feeding of the next sheet to the platen and the delivery means to remove such sheet from the platen before becoming inoperative.

8. In a platen printing press, suction means for feeding sheets to a platen, other suction means for delivering such sheets from such platen, vacuum lines leading to said respective suction means, valves in said lines communicating with the atmosphere, means operative to open and close said valves in timed relationship, and means operative, upon failure of vacuum in one of said lines due to failure of a said suction means to pick up a sheet, to prevent closing of the said valve in the other of said lines when said valve is next opened.

9. In a platen printing press, suction means for feeding sheets to a platen, other suction means for delivering such sheets from such platen, vacuum lines leading to said respective suction means, valves in said lines communicating with the atmosphere, means operative to open and close said valves in timed relationship, means operative, upon failure of vacuum in one of said lines due to failure of a said suction means to pick up a sheet, to prevent closing of the said valve in the other of said lines when said valve is next opened, and means operative, upon the consequent failure of vacuum in said last-named line, to prevent the closing of the said valve in said first-named line when said valve is next opened.

10. In a platen printing press, suction means for feeding sheets to a platen, other suction means for delivering such sheets from such platen, a vacuum line leading to said feeder suction means, another vacuum line leading to said delivery suction means, a valve in said feeder vacuum line communicating with the atmosphere, a valve in said delivery vacuum line communicating with the atmosphere, means operative to open and close said valves in timed relationship, means operative, upon failure of vacuum in said delivery vacuum line due to failure of said delivery suction means to pick up a sheet, to prevent closing of said valve in said feeder vacuum line when said valve is next opened, and means operative, upon consequent failure of vacuum in said feeder line, to prevent the closing of the said valve in said delivery vacuum line when said last-named valve is next opened.

11. In a platen printing press, suction means for feeding sheets to a platen, other suction means for delivering such sheets from such platen, a vacuum line leading to said feeder suction means, another vacuum line leading to said delivery suction means, a valve in said feeder vacuum line communicating with the atmosphere, a valve in said delivery vacuum line communicating with the atmosphere, means operative to open and close said valves in timed relationship, means operative, upon failure of vacuum in said delivery vacuum line due to failure of said delivery suction means to pick up a sheet, to prevent closing of said valve in said feeder vacuum line when said valve is next opened and to throw the throw-off means of the press into operation, and means operative, upon consequent failure of vacuum in said feeder line, to prevent the closing of the said valve in said delivery vacuum line when said last-named valve is next opened.

12. In a platen printing press, suction means for feeding sheets to a platen, other suction means for delivering such sheets from such platen, a vacuum line leading to said feeder suction means, another vacuum line leading to said delivery suction means, a valve in said feeder vacuum line communicating with the atmosphere, a valve in said delivery vacuum line communicating with the atmosphere, means operative to open and close said valves in timed relationship, a spring-backed plunger adapted to be held retracted by the vacuum in said delivery vacuum line when said delivery suction means is delivering a sheet and by mechanical means when said valve in said delivery vacuum line is open, a second spring-backed plunger adapted to be held retracted by the vacuum in said feeder vacuum line when said feeder suction means is feeding a sheet and by mechanical means when said valve in said feeder vacuum line is open, said plungers being operative to move outwardly upon failure of vacuum due to failure of said delivery suction means and said feeder suction means respectively to seize a sheet, means actuated by outward movement of said first-named plunger to prevent closing of said valve in said feeder vacuum line when said valve is next opened, and means actuated by outward movement of said second plunger to prevent closing of said valve in said delivery vacuum line when the latter said valve is next opened.

13. In a platen printing press, suction means for feeding sheets to a platen, other suction means for delivering such sheets from such platen, a vacuum line leading to said feed suction means, another vacuum line leading to said delivery suction means, a valve in said feeder vacuum line communicating with the atmosphere, a valve in said delivery vacuum line communicating with the atmosphere, means operative to open and close said valves in timed relationship, a spring-backed plunger adapted to be held retracted by the vacuum in said delivery vacuum line when said delivery suction means is delivering a sheet and by mechanical means when said valve in said delivery vacuum line is open, a second spring-backed plunger adapted to be held retracted by the vacuum in said feeder vacuum

line when said feeder suction means is feeding a sheet and by mechanical means when said valve in said feeder vacuum line is open, said plungers being operative to move outwardly upon failure of vacuum due to failure of said delivery suction means and said feeder suction means respectively to seize a sheet, means actuated by outward movement of said first-named plunger to prevent closing of said valve in said feeder vacuum line when said valve is next opened, means actuated by outward movement of said second plunger to prevent closing of said valve in said delivery vacuum line when the latter said valve is next opened, and other means actuated by outward movement of said first-named plunger operative to throw the throw-off means of such press into operation.

14. In a platen printing press, suction means for feeding sheets to a platen, other suction means for delivering such sheets from such platen, a vacuum line leading to said feeder suction means, another vacuum line leading to said delivery suction means, a tappet valve in said feeder vacuum line communicating with the atmosphere, a tappet valve in said delivery vacuum line communicating with the atmosphere, cam means operative to open and close said valves in timed relationship, a spring-backed plunger adapted to be held retracted by the vacuum in said delivery vacuum line when said delivery suction means is delivering a sheet and by mechanical means when said valve in said delivery vacuum line is open, a second spring-backed plunger adapted to be held retracted by the vacuum in said feeder vacuum line and by mechanical means when said valve in said feeder vacuum line is open, said plungers being operative to move outwardly upon failure of vacuum due to failure of said delivery suction means and said feeder suction means respectively to seize a sheet, lever means actuated by outward movement of said first-named plunger to prevent closing of said tappet valve in said feeder vacuum line when said valve is next opened, and lever means actuated by outward movement of said second plunger to prevent closing of said valve in said delivery vacuum line when the latter said valve is next opened.

15. In a platen printing press, suction means for feeding sheets to a platen, other suction means for delivering such sheets from such platen, a vacuum line leading to said feeder suction means, another vacuum line leading to said delivery suction means, a tappet valve in said feeder vacuum line communicating with the atmosphere, a tappet valve in said delivery vacuum line communicating with the atmosphere, cam means operative to open and close said valves in timed relationship, a spring-backed plunger adapted to be held retracted by the vacuum in said delivery vacuum line when said delivery suction means is delivering a sheet and by mechanical means when said valve in said delivery vacuum line is open, a second spring-backed plunger adapted to be held retracted by the vacuum in said feeder vacuum line and by mechanical means when said valve in said feeder vacuum line is open, said plungers being operative to move outwardly upon failure of vacuum due to failure of said delivery suction means and said feeder suction means respectively to seize a sheet, lever means actuated by outward movement of said first-named plunger to prevent closing of said tappet valve in said feeder vacuum line when said valve is next opened, lever means actuated by outward movement of said second plunger to prevent closing of said valve in said delivery vacuum line when the latter said valve is next opened, and manually controlled means operative to prevent outward movement of the said first-named plunger when it is not desired that the vacuum to the said feeder suction means be interrupted when the said delivery suction means fails to seize a sheet.

16. In a platen printing press, suction means for feeding sheets to a platen, other suction means for delivering such sheets from such platen, a vacuum line leading to said feeder suction means, another vacuum line leading to said delivery suction means, a tappet valve in said feeder vacuum line communicating with the atmosphere, a tappet valve in said delivery vacuum line communicating with the atmosphere, cam means operative to open and close said valves in timed relationship, a spring-backed plunger adapted to be held retracted by the vacuum in said delivery vacuum line when said delivery suction means is delivering a sheet and by mechanical means when said valve in said delivery vacuum line is open, a second spring-backed plunger adapted to be held retracted by the vacuum in said feeder vacuum line and by mechanical means when said valve in said feeder vacuum line is open, said plungers being operative to move outwardly upon failure of vacuum due to failure of said delivery suction means and said feeder suction means respectively to seize a sheet, lever means actuated by outward movement of said first-named plunger to prevent closing of said tappet valve in said feeder vacuum line when said valve is next opened, lever means actuated by outward movement of said second plunger to prevent closing of said valve in said delivery vacuum line when the latter said valve is next opened, manually controlled means operative to prevent outward movement of the said first-named plunger when it is not desired that the vacuum to the said feeder suction means be interrupted when the said delivery suction means fails to seize a sheet, and manually controlled means operative to prevent said valve in said feeder vacuum line from closing when it is desired to run the press without feeding or delivering sheets.

17. In a platen printing press, feed means for feeding sheets to the platen, delivery means for delivering sheets from the platen, means automatically operative upon failure of said delivery means to remove a sheet from the platen to render said feed and delivery means inoperative, delay means rendering said automatic means temporarily inoperative until after said feed means has first completed the feeding of the next sheet to the platen and the delivery means has removed such sheet from the platen, and means for rendering said automatic means inoperative when desired.

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