

L. F. PFISTER.

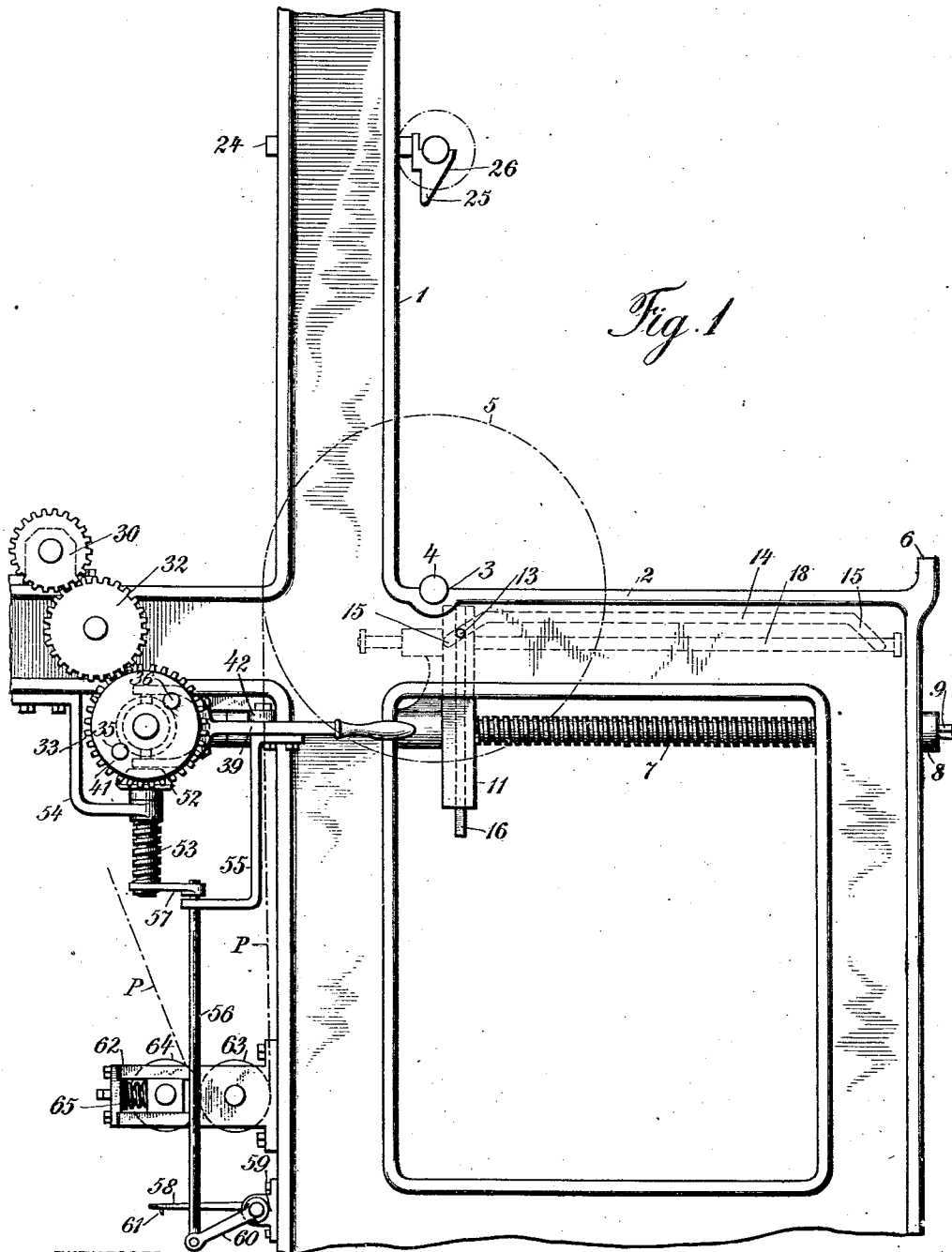
MEANS FOR SUPPLYING ROLLS OF PAPER TO PRINTING PRESSES.

APPLICATION FILED AUG. 9, 1905.

940,273.

Patented Nov. 16, 1909.

4 SHEETS—SHEET 1.



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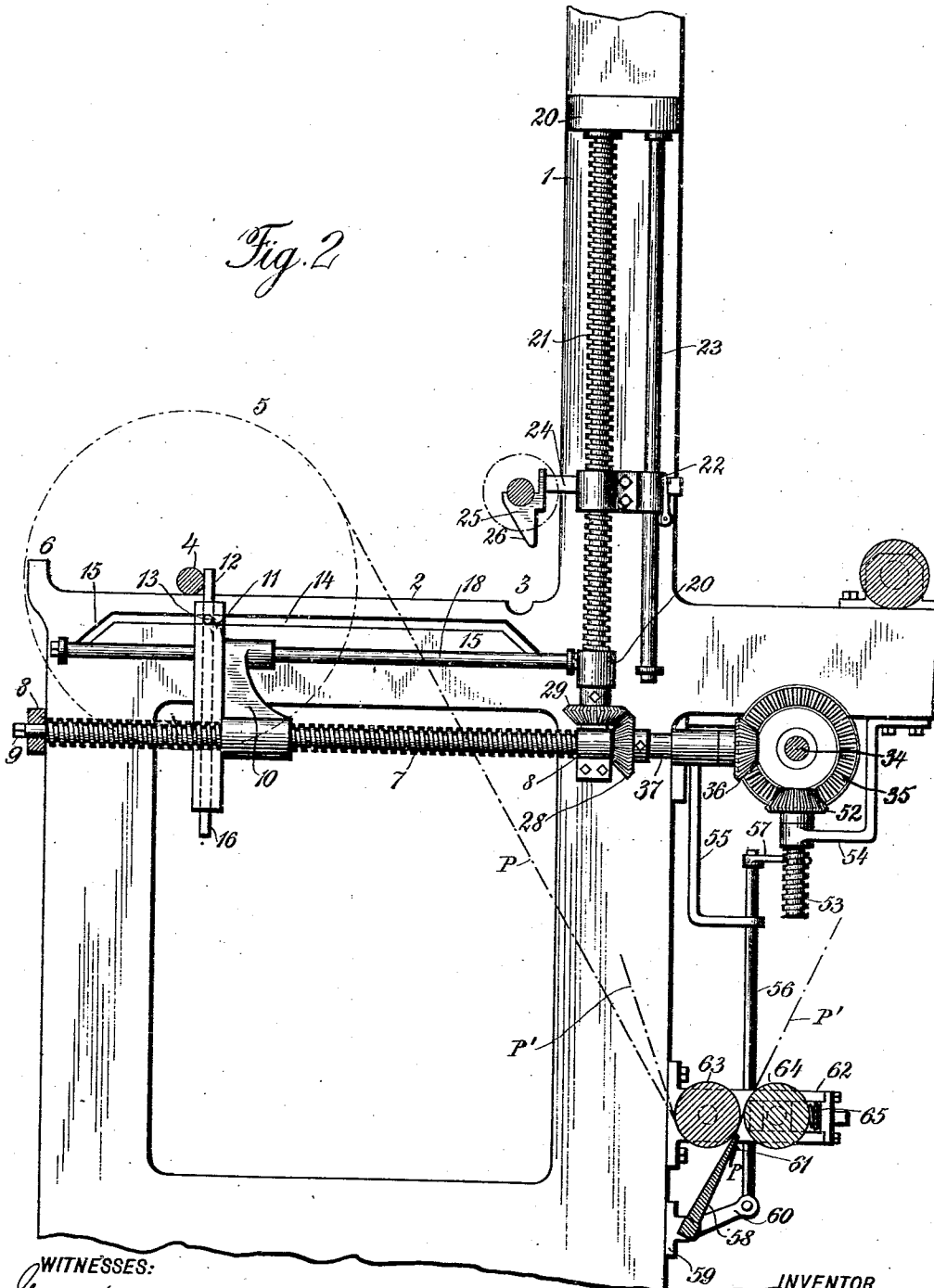
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4 SHEETS—SHEET 2.

Fig. 2



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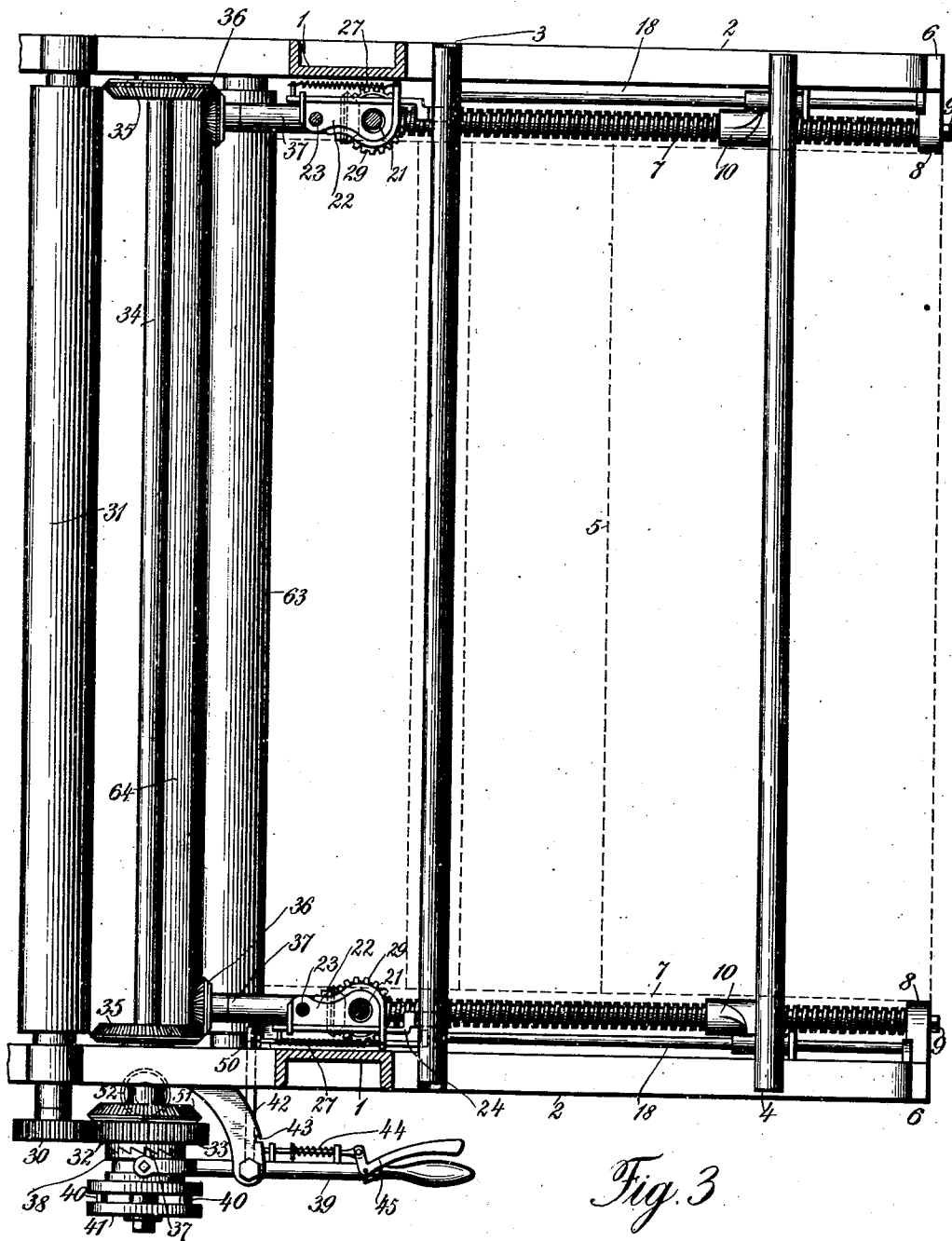


Fig. 3

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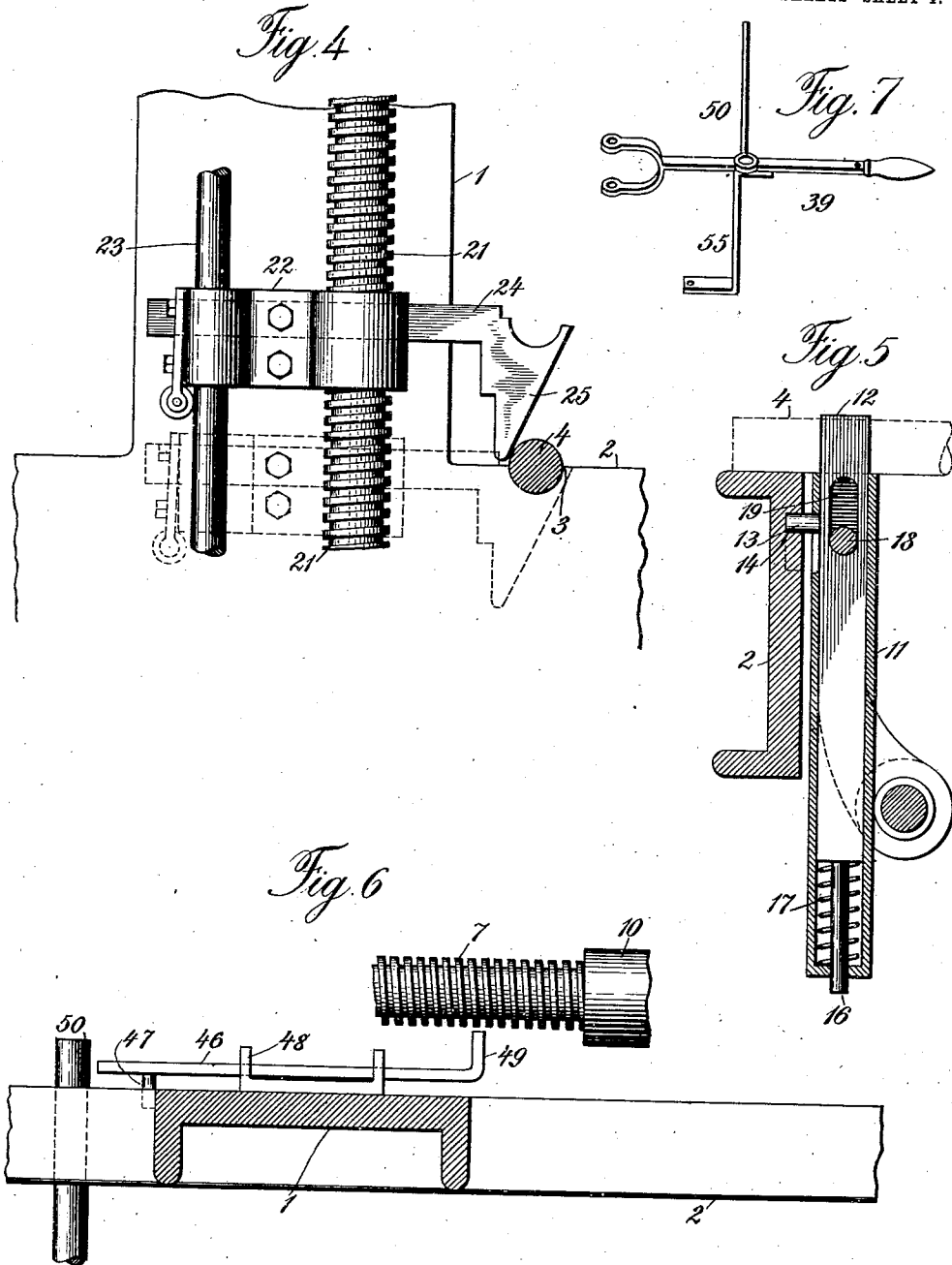
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4 SHEETS—SHEET 4.

940,273.



WITNESSES:
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UNITED STATES PATENT OFFICE.

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MEANS FOR SUPPLYING ROLLS OF PAPER TO PRINTING-PRESSES.

940,273.

Specification of Letters Patent.

Patented Nov. 16, 1909.

Application filed August 9, 1905. Serial No. 273,327.

To all whom it may concern:

Be it known that I, LOUIS F. PFISTER, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, city of New York, and State of New York, have invented certain new and useful Improvements in Means for Supplying Rolls of Paper to Printing-Presses, of which the following is a specification.

The present invention relates to that class of printing presses wherein the paper to be printed is in the form of a web drawn from a roll and fed through the machine.

The principal objects of the invention are to facilitate the supply of the rolls of paper, and insure the webs of successive rolls automatically assuming such connected relation, that the paper from a plurality of rolls will be fed to the printing machine in a continuous web, without necessarily involving the stoppage of the press or the interruption of the printing operation.

Other objects of my invention are to provide automatic adjustment of the rolls of paper, the contemporaneous mechanical removal of the spindles and cores of the exhausted rolls, and the accomplishment of these ends in an automatic and simple manner by motion derived more conveniently from the press.

My invention consists of the machine, details and parts of the same as herein described and claimed and shown in the accompanying drawings.

Figure 1 is a side elevation of as much of the end portion of a printing press as is required to illustrate an embodiment of my invention, a roll of paper being shown as adjusted and the spindle and core of an exhausted roll being shown in a removed position. Fig. 2 is a vertical longitudinal section of the parts shown in Fig. 1, such parts being in a position the reverse of those shown in said figure, the full and exhausted rolls, the pasting devices, and co-acting parts being shown in positions different from those in Fig. 1. Fig. 3 is a horizontal section taken on the line 3—3 of Fig. 2 except that the parts are in the reverse positions to those shown in Fig. 2. Fig. 4 is a detail enlarged of one of the means for lifting the paper roll spindle, the bracket for the spindle and its carrier being represented by full lines as being near the limit of its downward movement, while the dotted lines indicate said

parts as having reached a still lower position. Fig. 5 is a vertical section also on an enlarged scale of some of the parts for conveying the spindle and its surrounding paper roll into its operative position for the press. Fig. 6 is a detail partly in section and on an enlarged scale, of certain parts of the machine for disengaging the clutch mechanism that establishes the actuating relation between the press and the roll supplying means. Fig. 7 is a detail in perspective of the clutch lever and certain connecting parts.

Similar numbers indicate like parts in all the figures.

1 is a rear vertical portion of the frame of a printing press, and 2 is a horizontal portion of the frame extending from said portion 1. Said extension 2 is provided with recesses or sockets 3 near the vertical portion 1, for the reception and journal bearings of spindles 4 which carry and around which are wound the paper rolls 5. At or near the rear end of the horizontal extensions 2, (there being one on each side of the frame) are upward extensions or projections 6, 6, which serve as stops for preventing a roll of paper 5 from rolling off of said extensions 2, after having been placed in a position with the projecting end of the spindle resting on said extensions.

7, 7 are horizontal screws journaled in the machine frame adjacent to the vertical parts 1 and preferably at right angles with the same. The outer ends of these screws 7, 7 project beyond their bearings 8 and are angular or of a form to receive a key, as shown at 9.

Supported on each of the screws 7 is a traveler 10, said travelers being interiorly screwthreaded, and engaging with their respective screws so that said travelers will ride back and forth on their screws as the latter are revolved in one direction or the other. Secured to each of the travelers 10, is a vertical casing 11 through which passes a block or plunger 12, the upper end of which is adapted to extend beyond the adjacent horizontal extension 2. The plungers 12, one at each side of the machine, provide means for insuring the transverse position of the roll of paper as it runs along the ways. The plunger is provided with a laterally extending projection 13 (clearly shown in Fig. 5) which extends beyond the casing 11

and enters and engages with a groove 14 in the part 2 of the frame and which extends longitudinally along the same, said groove being for the greater part of its length contiguous to and parallel with the top of said part 2 and having its ends 15 diverging or declining from the longitudinal part of said groove, see Figs. 1 and 2. The lower end of the plunger 12 is provided with a stem 16 which plays and is guided through an opening in the bottom of the casing, a tension spring 17 being interposed between the bottom of the casing and the lower end of the plunger to normally maintain the latter in its uppermost position.

18, 18 are fixed horizontal rods, parallel with the screws 7, 7 and which pass through the respective travelers 10 to provide means for guiding said travelers and their connected parts, and to prevent the same from turning when the screws 7, 7 are revolved. The rods pass through vertical slots 19 in the respective plungers 12, 12 to permit a vertical movement of said plungers.

The vertical portions at the sides of the machine frame are provided with journal bearings, 20, 20, respectively, for vertical screws 21, 21, on which are mounted and with which engage travelers 22, 22, respectively, said screws passing through said travelers so that as the screws are revolved, their respective travelers will ride up or down upon the same according to the direction of rotation of the screw. Guide rods 23 are secured to the frame and pass through the travelers 22, said rods serving to prevent the travelers from turning upon their respective screws. A horizontal rod 24 passes through guides in each carrier 22, and is adapted to have a horizontal movement in relation to said carriers. The forward end of each of said rods is provided with a bracket 25 having an arched recess on its upper side, the recesses of said brackets serving as bearings for the spindles of the paper rolls. The outer edge 26 of the brackets 25 is inclined as shown. The end of the rod 24 opposite to the bracket 25 is engaged with a tension spring 27, see Fig. 3, which is secured to the traveler 22. This spring serves normally to keep the rod 24 and the bracket 25 in their outermost positions, while the spring permits of said bracket and rod being forced inward. Bevel gears 28 and 29 secured to the screws 7 and 21 respectively serve to transmit motion from said screw 7 to said screw 21.

Motion is derived from the power of the press through the medium of a gear 30 of an inking roll 31 (see Fig. 3), constituting part of the press, such motion being conveyed through an intermediate gear 32 to gear 33 on shaft 34. This shaft is provided with two bevel gears 35, 35, one at each end and on the opposite sides of the press frame, said

gears engaging with other beveled gears 36, 36, secured respectively to the shafts 37 forming extensions of the respective screws 7. Power is transmitted from the shaft 34 through the gears 35, 36, 28 and 29 above mentioned, so as to rotate the shafts 7 and 21 and cause the travelers 10 and 22 to ride upon said screws.

The gear 33 is loosely journaled on the shaft 34, and secured to this gear is one member 37 of a clutch. 38 is the other member of said clutch, the jaw of which member is adapted to engage with that of the member 37. The member 38 is adapted to be operated by a lever 39 having a yoked end which engages in an annular groove in said member to enable said member to revolve and to permit said member to be engaged with and drawn away from the other member 37. The member 38 is provided with small pins 40, 40, extending from the outer face of said member and into corresponding recesses in the face of a disk 41 which is secured to and rotates with the shaft 34, said recesses permitting the movement longitudinally of the shaft 34 of the movable member 38 of the clutch to insure that said member will always rotate with the shaft 34. The arrangement of the pins 40, 40 on the movable member 38 of the clutch with the disk 41, enables the motion of the disk to be transmitted to overcome the load required in starting the means into actuation, the points of transmission caused by the pins being more distributed than were connection made directly with the shaft 34. Consequently there is less tendency of straining or wrenching the parts on the shaft 34, in throwing the supply-means into operation.

42 is a bracket extending out from the frame of the machine to which the lever 39 is pivoted. This bracket is provided with a notch 43 in which a spring bolt 44 which is carried by the lever 39 is adapted to engage, so as to hold the movable member 38 of the clutch out of engagement when desired, said bolt being connected to one arm of a bell-crank lever 45 which is pivoted to the lever 39, and by means of which said bolt may be disconnected from the notch 43 when desired.

46 is a throwout for the clutch above described, said throwout being provided with a laterally projecting pin 47 for maintaining the throwout against withdrawal from its bearing 48, said bearing being secured to the inner side of the machine frame and provided with guides in which the throwout may slide. The throwout 46 is provided at its end with an extension 49 extending into the path of movement of the traveler 10. An arm 50, carried by and extending laterally inward from the lever 39 has its free end in a position to the rear of the throwout.

Secured to the gear 33 is a beveled gear 51

which engages with a beveled gear 52 secured to the upper end of a vertical worm 53 supported in a bearing carried by a hanger 54 depending from a fixed part of the frame 5 (see Fig. 1).

55 is an angle arm secured to and depending from lever 39, the lower horizontal part of said arm engaging with a vertical rod 56, which is adapted to play vertically in said part. Extending from the upper part of the rod 56 is a horizontal arm 57, the free end of which is adapted to be engaged with the worm 53 when said arm is thrown against said worm by the movement of the lever 39.

58 is a pasting blade extending transversely across the machine below the parts above described (see Figs. 1 and 2) and journaled or pivoted to rock in bearings 59 upon the machine frame. Secured to one of the journals of said blade is an arm 60 to the outer end of which is pivotally connected the rod 56. The blade 58 is provided with small spurs 61 that project from the underside of the blade near its outer edge. Secured to the press frame, in proximity above the blade 58, is a bearing box 62 in which are mounted rollers 63, 64, disposed laterally in relation to each other and maintained in yielding contact with each other through the medium of tension springs 65 acting on the movable bearings of the roller 64.

The operation is as follows: The nearly exhausted roll of paper 5 being in the position shown in Fig. 1 with its spindle 4 in sockets 3, and it being desired to use a new roll of paper, the parts of the apparatus will be as shown in Fig. 1, the travelers 22 and brackets 25 will be in their highest positions, and the spent roll removed from the same. The screws 7, 7 should then be rotated by means of keys on the ends 9 of said screws so that the travelers 10, 10, casings 11 and connected parts travel backward along the horizontal extension 2 and until the pins have passed to the lower end of the oblique slots 15. During the backward movements of the parts 10 and 11 the travelers 22 and brackets 25 will descend on the screws 21 until the inclined edges of said brackets come in contact with the spindle 4 of the nearly exhausted roll, which is in the sockets 3, when the further descent of said brackets will cause them to recede against the action of their tension springs and when the upper edge of said brackets has reached the under side of said spindle, said tension springs will cause the brackets to be forced laterally again and under said spindle, which will then rest in said brackets as well as in said sockets 3. The mechanism of the press being put into operation, and the web or paper from the core that is resting in the sockets 3 and on the brackets 25 running through the press and being printed upon, a new roll of paper 5 is placed with its spindle

4 on the horizontal extension 2 behind the casings 11. The web or paper from said roll is pasted near its free end and the latter is brought forward and placed over the edge of the blade 58 and made to engage with the spurs 61 on the same, said blade being at this time in the position indicated in Fig. 1. The paper from the nearly exhausted roll that is resting in the sockets 3 and upon the travelers has fed down between the two rolls 63 and 64 and from there to the printing mechanism of the press. The operator then moves the sliding part of the clutch by the lever 39 into engagement with the fixed part of the same, and by the same movement brings the horizontal arm 57 into engagement with the worm 53. The gears 33 and 31, gear 52 and worm 53 will then be caused to rotate. By the rotation of the worm 53 the rod 56 will be raised, and by means of said rod and the arm 60 the blade 58 will be raised until the parts assume the positions shown in Fig. 2, with the web of the new roll pressing against the web of the nearly exhausted roll with the paste between said two webs. Both of said webs will then pass conjointly between the feed rollers 63 and 64 and to the printing portion of the machine.

At the same time that the above operation is taking place, the screws 7 and 21 will be caused to revolve so as to feed the travelers 10 and their connected parts toward the sockets 3, and to cause the travelers 22 and brackets 25 and connected parts to move in a vertical direction away from said sockets. The upward movement of the brackets 25 will lift the spent or nearly spent roll out of the sockets 3, and carry it out of the way, it being necessary, however, to cut the web from said roll between it and the feed rollers 63 and 64. The tension on the web from the new roll 5 will draw said roll toward the sockets 3 and keep the spindle of said roll in contact with the rear side of the plungers 12, as shown in Fig. 2, thus insuring the correct transverse position of the spindle of the roll as it runs along the ways. As the casing 11 on the traveler 10 about reaches the sockets 3, the plunger 12 will be caused to descend by reason of the pin 13 on said plunger riding down the inner incline 15 of the guiding slot 14 (see Fig. 1) until it has got to a point below the spindle 4. When the travelers 10 have arrived at this position they will strike the extension 49 of the throwout 46 so as to shift the latter to cause the same to strike the arm 50 which will cause the clutch mechanism to be thrown out of action, and the rotation of the screws 7 and 21 will then cease. At the same time that the clutch mechanism is thrown out of operation, the arm 57 through the lever 39 and angle arm 55 will become disengaged from the worm 53. The rod 56, said arm 57 and the connecting parts will fall by gravity, so that the blade 58 will

assume its former position, as shown in Fig. 1. The screws 7 are next operated by keys in the reverse direction to that that they had previously taken by means of the power of the press, and so that the travelers 10 will return to their original positions away from the sockets 3, and the travelers 22 and brackets 25 will descend until said brackets have passed under the spindle that rests in sockets 3.

The above operations may be repeated as many times as desired and as long as it is desired to keep the press supplied with paper to be printed upon.

From the above it will be seen that my invention provides means for simply and automatically continuing the printing from one web to another and of withdrawing the spent or nearly spent web from the machine at the proper time, and all without any interruption of the regular and continuous operation of the press.

I do not limit my invention to the precise mechanism, devices and combinations of devices as herein described and shown, as many variations may be made therein without departing from the spirit of the invention or sacrificing its principal advantages.

What I claim as new and desire to secure by Letters Patent is:

1. In combination with a printing press, means for supporting a spindle of a roll of paper and guiding it to its operative position for use for the press, a device having means for engagement with said spindle, and means for feeding said device toward said operative position, and means for withdrawing said device away from engagement position with the spindle, when said spindle has reached said operative position.

2. In combination with a printing press, means for supporting a spindle of a roll of paper and guiding it to its operative position for use for the press, a device having means for engagement with said spindle, and means for feeding said device toward said operative position, and means for automatically withdrawing said device away from engagement position with the spindle, when said spindle has reached said operative position.

3. In combination with a printing press, means for supporting a spindle of a roll of paper and guiding it to its operative position for use for the press, a device having means for engagement with said spindle, and means for feeding said device toward and away from said operative position, and means for withdrawing said device away from engagement position with the spindle, when said spindle has reached said operative position and also when said device has reached the point farthest away from said position.

4. In mechanism of the character de-

scribed, the combination with a suitable support for the spindle of a roll of paper, and provided with recesses forming its journal bearings when in its operative position, a device for engagement with the front of said spindle while on said support, and having a movement along the same whereby the roll may be drawn along said support by its web, and its movements along the same to the recesses regulated by the movement of said device on which the spindle bears.

5. In mechanism of the character described, the combination with a suitable support for the spindle of a roll of paper, and provided with recesses forming its journal bearings when in its operative position, two devices for engagement respectively with the front of said spindle beyond the two ends of the roll, while said spindle is on said support, and said two devices having a movement along said support, whereby the roll may be drawn along the same by its web, its transverse position insured, and its movement along the support regulated by the movement of the devices on which the spindle bears.

6. In mechanism of the character described, the combination with a suitable support for the spindle of a roll of paper, and provided with recesses forming its journal bearings when in its operative position, a device for engagement with the front of said spindle while on said support, and having a movement along the same, whereby the roll may be drawn along said support by its web, its movement along the same to the recesses regulated by the movement of said device on which the spindle bears, and means for bringing the web from said roll in contact with the web of a preceding roll.

7. In mechanism of the character described, the combination with a suitable support for the spindle of a roll of paper, and provided with recesses forming its journal bearings when in its operative position, a device for engagement with the front of said spindle while on said support, and having a movement along the same, whereby the roll may be drawn along said support by its web, its movement along the same to the recesses regulated by the movement of said device on which the spindle bears, means for bringing the web from said roll in contact with the web of a preceding roll, and means for removing the spindle of the preceding roll of paper from an operative position.

8. In mechanism of the character described, the combination with a suitable support for the spindle of a roll of paper, and provided with recesses forming its journal bearings when in its operative position, a device for engagement with the front of said spindle while on said support, and having a movement along the same, whereby the roll may be drawn along said support by its web,

and its movement along the same to the recesses regulated by the movement of said device on which the spindle bears, means for removing a spindle from its operative position, said device and spindle being mutually co-active.

9. In mechanism of the character described, the combination with a suitable support for the spindle of a roll of paper, and provided with recesses forming its journal bearings when in its operative position, a device for engagement with the front of said spindle while on said support, and having a movement along the same, whereby the roll may be drawn along said support by its web, and its movement along the same to the recesses regulated by the movement of said device on which the spindle bears, means for removing a spindle from its operative position, said device and spindle being mutually co-active, and means for bringing the web from the roll into a position for contact with the web from the spindle to be removed.

10. In combination with a printing press, means for supporting a spindle of a roll of paper and guiding it to its operative position for use for the press, a device for engagement with the front of said spindle while on said support and guiding means, and having a movement along said guiding means, means for removing a spindle from its operative position, and means adapted to be intermittently operated from a printing press for actuating said device and removing means.

11. In combination with a printing press, means for supporting a spindle of a roll of paper and guiding it to its operative position for use for the press, a device having means for engagement with the front of said spindle, and means for feeding said device toward said operative position, whereby it may travel in front of the spindle, a clutch for establishing actuative relation for said means with a printing press, and means for automatically releasing the clutch.

12. In mechanism of the character described, the combination with suitable bearings, of devices for removing the spindle of a roll of paper from said bearings, means for bringing the paper of a new roll in contact relation with the paper of the roll preceding, a clutch for establishing actuative relation for said devices and means with a printing press, and means for automatically releasing the clutch.

13. In mechanism of the character described, the combination with suitable bearings and a guiding support to the same, of devices for removing the spindle of a roll of paper from said bearings, means for regulating the movement of a spindle of a new roll on said support to said bearings, a clutch for establishing actuative relation for the devices and means with a printing

press, and means for automatically releasing said clutch.

14. In mechanism of the character described, the combination with suitable bearings and a guiding support to the same, of devices for removing the spindle and core of a roll of paper from said bearings, means for regulating the movement of a spindle of a new roll on said support to said bearings, devices for bringing the new roll of paper in contact relation with the paper of the roll preceding, a clutch for establishing actuative relation for both sets of devices and the said means with a printing press, and means for automatically releasing said clutch.

15. In combination with a printing press, means for supporting a spindle of a roll of paper and guiding it to its operative position for use for the press, a device having spring yielding means for engagement with said spindle, and means for feeding said device toward said operative position, and means for withdrawing said device against the action of its spring away from engagement position with the spindle, when said spindle has reached said operative position.

16. In combination with a printing press, means for supporting a spindle of a roll of paper and guiding it to its operative position for use for the press, a device having spring yielding means for engagement with said spindle, means for feeding said device toward said operative position, and means for withdrawing said device against the action of its spring away from engagement position with the spindle, when said spindle has reached said operative position.

17. In combination with a printing press, means for supporting a spindle of a roll of paper and guiding it to its operative position for use for the press, a device having means for engagement with said spindle, and means for feeding said device toward said operative position, means for moving said roll on said support, and means for withdrawing said device away from engagement position with the spindle, when said spindle has reached said operative position.

18. In mechanism of the character described, the combination with bearings for supporting a roll of paper, of yielding devices adapted to engage the ends of the roll spindle; and provision for positively moving said devices in opposite directions for successively causing them to contact with the spindle ends, yield and engage the same, and remove the spindle from said bearings.

19. In combination with a printing press, means for removing from operative position the spindle from which the paper or web has been used, and said means having movements toward and away from said operative position, and said means constructed to pass the spindle and to be brought into position

to engage the same and remove it when it has reached said operative position.

20. In combination with a printing press, means for guiding a web of paper to the press, a pivoted device for directly engaging with a second web, and means connecting said device with the press operative mechanism for moving said device on its pivot to carry its attached web into conjunction with the other web.

21. In combination with a printing press, means for guiding a web of paper to the press, a pivoted device for directly engaging with a second web, and means connecting said device with the press operative mechanism for moving said device on its pivot to carry its attached web into conjunction with the other web, and means for bringing said device into operative connection with the press operative mechanism.

22. In combination with a printing press, means for guiding a web of paper to the press, a pivoted device for directly engaging with a second web, and means connecting said device with the press operative mechanism for moving said device on its pivot to carry its attached web into conjunction with the other web, and means for bringing said device into and out of operative connection with the press operative mechanism.

23. In combination with a printing press, means for guiding a web of paper to the press, a pivoted device for directly engaging with a second web, and means connecting said device with the press operative mechanism for gradually moving said device on its pivot to carry its attached web into conjunction with the other web.

24. In combination with a printing press, means for guiding a web of paper to the press, a movable device for engaging a second web thereon, a worm adapted to be rotated by the press operative mechanism, a connection with said device, and means for engaging said connection with and disengaging it from said worm, whereby the device may be moved toward and away from the first named web to move said device to carry its attached web into conjunction with the other web.

25. In combination with a printing press, means for guiding a web of paper to the press, a movable device for engaging a second web thereon, a clutch and lever for engaging the same for establishing coactive relation with a printing press, a worm driven through the medium of the clutch, and a projection connected with said lever and device, and adapted to engage the worm when the clutch is engaged.

26. In combination with a printing press, means for supporting a spindle of a roll of paper and guiding it to its operative position for use for the press, a screw extending substantially parallel with said spindle sup-

port, a traveler engaging with said screw, and said traveler provided with a device for engaging with said spindle, and means for withdrawing said device away from the spindle when the device has reached one end of its course.

27. In combination with a printing press, means for supporting a spindle of a roll of paper and guiding it to its operative position for use with the press, a screw extending substantially parallel with said spindle support, a traveler engaging with said screw, and said traveler provided with a device for engaging with said spindle, and means for withdrawing said device away from the spindle when the device has reached both ends of its course.

28. In combination with a printing press, means for supporting a spindle of a roll of paper and guiding it to its operative position for use for the press, a screw extending substantially parallel with said spindle support, a traveler engaging with said screw, and said traveler provided with a device for engaging with said spindle, and means for pasting the end of a newly supplied roll of paper to the paper of a preceding roll.

29. In combination with a printing press, means for supporting a spindle of a roll of paper and guiding it to its operative position for use for the press, a screw extending substantially parallel with said spindle support, a traveler engaging with said screw, and said traveler provided with a device for engaging with said spindle, and means operated by the press mechanism for pasting the end of a newly supplied roll of paper to the paper of a preceding roll.

30. In combination with a printing press, a screw extending from the operative position of a roll of paper to a point away from the same, a traveler engaging with said screw and adapted to ride back and forth in engagement with the same, and said traveler constructed to pass the spindle of the paper roll, and to be brought into position to engage the same and to remove it when said traveler has reached the operative position of the roll.

31. In combination with a printing press, a screw extending from the operative position of a roll of paper to a point away from the same, a traveler engaging with said screw and adapted to ride back and forth in engagement with the same, and said traveler constructed to pass the spindle of the paper roll, and to be brought into position to engage the same and to remove it when said traveler has reached the operative position of the roll, and means for transmitting motion from the press to said screw.

32. In combination with a printing press, a screw extending from the operative position of a roll of paper to a point away from the same, a traveler engaging with said

screw and adapted to ride back and forth in engagement with the same; and said traveler constructed to pass the spindle of the paper roll, and to be brought into position to engage the same and to remove it when said traveler has reached the operative position of the roll, and means for pasting the end of a new roll of paper to that of a preceding roll.

33. In combination with a printing press, means for supporting a spindle of a roll of paper and guiding it to its operative position for use for the press, a device having means for engagement with said spindle, and means for feeding said device toward said operative position, and means for withdrawing said device away from engagement position with the spindle, when said device has reached said operative position, means for removing from operative position the spindle from which the paper or web has been used, and said means having movements toward and away from said operative position, and said means constructed to pass the spindle and to be brought into position to engage the same and remove it when it has reached said operative position.

34. In combination with a printing press, means for supporting a spindle of a roll of paper and guiding it to its operative position for use for the press, a device having means for engagement with said spindle, and means for feeding said device toward said operative position, and means for withdrawing said device away from engagement position with the spindle, when said device has reached said operative position, means for removing from operative position the spindle from which the paper or web has been used, and said means having movements toward and away from said operative position, and said means constructed to pass the spindle and to be brought into position to engage the same and remove it when it has reached said operative position, and the movement of the spindle removing device away from and toward the operative position of the roll, being co-incident with the movement of the new roll toward and away from the operative position respectively.

35. In combination with a printing press, a screw and mechanism for conveying a spindle and roll of paper into an operative position, and a screw with mechanism for removing a spindle from an operative position, means for transmitting motion from a press to said screws, and means for pasting the end of a newly supplied roll of paper to the paper of a preceding roll.

36. In combination with a printing press, a support for the spindles and rolls of paper, a vertical screw for removing a spindle from its operative position, means for transmitting motion from the press to said screw, and means for pasting the end of the newly

supplied roll of paper to the paper of a preceding roll.

37. In combination with a printing press, a support for the spindles and rolls of paper, a screw with travelers and plungers for conveying a roll of paper into operative position, a screw with mechanism for removing a spindle from its operative position co-incidently with said conveying operation, means for transmitting motion from the press to said screws, and means for pasting the end of the newly supplied roll of paper to the paper of a preceding roll.

38. In combination with a printing press, suitable spindle bearings, a screw with mechanism for positively removing a spindle from said bearings, means for pasting the end of a newly supplied roll of paper to the paper of a preceding roll to form a continuous web, and means for the transmission of the motion of the press to the mechanism for pasting.

39. In combination with a printing press, bearings for the spindles of rolls of paper, a screw extending to the operative position of the paper roll, a traveler engaging with and adapted to ride back and forth on the same, and to engage with a roll spindle whereby it may be guided onto said bearings, means for pasting the end of a newly supplied roll of paper to the paper of a preceding roll to form a continuous web, and means for transmitting the motion of the press to the pasting mechanism.

40. In combination with a printing press, suitable spindle bearings, means for lifting a spindle from said bearings and supporting said spindle out of way of a succeeding roll of paper, means for operating said lifting means, and means for connecting the web of the said succeeding roll with the web of the preceding roll to form a continuous web.

41. In combination with a printing press, suitable spindle bearings, means operated by the power of the press for lifting a spindle from said bearings and supporting said spindle out of way of a succeeding roll of paper, and means for connecting the web of the said succeeding roll with the web of the preceding roll to form a continuous web.

42. In mechanism of the character described, a guiding support for the spindle of a roll of paper, provided with a recess for said spindle, a guide extending longitudinally along said support and having one end extending in a direction away from said recess, in combination with a traveler having means for engaging with the roll spindle and provided with a part extending into said guide, whereby said spindle engaging means may travel along said support and guide, and become disengaged from the spindle when it reaches said recess.

43. In mechanism of the character described, a guiding support for the spindle of

a roll of paper, provided with a recess for said spindle, a guide extending longitudinally along said support and having one end extending in a direction away from said recess, in combination with a traveler having spring yielding means for engaging with the roll spindle and provided with a part extending into said guide, all as and for the purposes set forth.

44. In mechanism of the character described, a guiding support for the spindle of a roll of paper, provided with a recess for said spindle, a guide extending longitudinally along said support and having one end extending in a direction away from said recess, in combination with a traveler having means for engaging with the roll spindle and provided with a part extending into said guide, and means for moving said traveler and spindle engaging means on the guiding support toward said recess.

45. In mechanism of the character described, a guiding support for the spindle of a roll of paper, provided with a recess for said spindle, a guide extending longitudinally along said support and having one end extending in a direction away from said recess, in combination with a traveler having means for engaging with the roll spindle and provided with a part extending into said guide, means for moving said traveler and spindle engaging means in both directions on the guide support.

46. In mechanism of the character described, a guiding support for the spindle of a roll of paper, provided with a recess for said spindle, a guide extending longitudinally along said support and having both ends extending in a direction away from said recess, in combination with a traveler having means for engaging with the roll spindle and provided with a part extending into said guide, whereby said spindle engaging means may travel along said support and guide, and become disengaged from the spindle when it reaches either end of its course.

47. In mechanism of the character described, a guiding support for the spindle of a roll of paper, said support being provided with a recess for said spindle, and a guide extending longitudinally along said support, in combination with a casing for traveling along said support and containing a plunger extending beyond the same, and a spring for normally keeping the plunger in its extended position beyond the casing, a projection on said plunger engaging with said guide, and means for drawing the plunger into the casing.

48. In mechanism of the character described, a guiding support for the spindle of a roll of paper, said support being provided with a recess for said spindle, and a guide extending longitudinally along said support, and having one end extending

away from said recess, in combination with a casing for traveling along said support and containing a plunger extending beyond the same, and a spring for normally keeping the plunger in its extended position beyond the casing, and a projection on said plunger engaging with said guide.

49. In mechanism of the character described, a guiding support for the spindle of a roll of paper, said support being provided with a recess for said spindle, and a guide extending longitudinally along said support, and having both ends extending in directions away from said recess, in combination with a casing for traveling along said support and containing a plunger extending beyond the same, and a spring for normally keeping the plunger in its extended position beyond the casing, a projection on said plunger engaging with said guide, and means for drawing the plunger into the casing.

50. In mechanism of the character described, a guiding support for the spindle of a roll of paper, said support being provided with a recess for said spindle, and a guide extending longitudinally along said support, in combination with a screw extending in operative relation with said support, a traveler engaging with said screw and having means for engaging with the roll spindle and provided with a part extending into said guide, and means for rotating the screw.

51. In mechanism of the character described, a guiding support for the spindle of a roll of paper, said support being provided with a recess for said spindle, and a guide extending longitudinally along said support, and having one end extending in a direction away from said recess, in combination with a screw extending in operative relation with said support, a traveler engaging with said screw and having means for engaging with the roll spindle and provided with a part extending into said guide, and means for rotating the screw.

52. In mechanism of the character described, a guiding support for the spindle of a roll of paper, said support being provided with a recess for said spindle, and a guide extending longitudinally along said support, and having both ends extending in a direction away from said recess, in combination with a screw extending in operative relation with said support, a traveler engaging with said screw and having means for engaging with the roll spindle and provided with a part extending into said guide, and means for rotating the screw.

53. In mechanism of the character described, a guiding support for the spindle of a roll of paper, provided with a recess for said spindle, a guide extending longitudinally along said support and having one end

extending in a direction away from said recess, in combination with a traveler having means for engaging with the roll spindle and provided with a part extending into
 5 said guide, and means for moving said traveler and spindle engaging means on the guiding support toward said recess, and means for bringing the traveler operating means into and out of actuative relation with
 10 the press operating mechanism.

54. In mechanism of the character described, a guiding support for the spindle of a roll of paper, provided with a recess for said spindle, a guide extending longitudi-
 15 nally along said support and having both ends extending in a direction away from said recess, in combination with a traveler having means for engaging with the roll spindle and provided with a part extending
 20 into said guide, whereby said spindle engaging means may travel along said support and guide, and become disengaged from the spindle when it reaches either end of its course, and means for bringing the traveler
 25 operating means into and out of actuative relation with the press operating mechanism.

55. In mechanism of the character described, a guiding support for the spindle of a roll of paper, provided with a recess for
 30 said spindle, a guide extending longitudinally along said support and having both ends extending in a direction away from said recess, in combination with a traveler having means for engaging with the roll spindle
 35 and provided with a part extending into said guide, whereby said spindle engaging means may travel along said support and guide, and become disengaged from the spindle when it reaches either end of its course,
 40 means for bringing the traveler operating means into and out of actuative relation with the press operating mechanism, and means for releasing the traveler operating means from the press operating mechanism
 45 when the part of said engaging means in the guide has nearly reached the end of its course in either direction.

56. In mechanism of the character described, a guiding support for the spindle
 50 of a roll of paper, provided with a recess for said spindle, and a guide extending longitudinally along said support, in combination with a traveler having spring yielding means for engagement with the roll spindle, and
 55 provided with a part extending into said guide, and means for feeding said traveler toward the operative position of the press for said roll, whereby said spindle engaging means may travel along said support
 60 and guide, and become disengaged from the spindle when it reaches either end of its course, means for bringing the traveler operating means into and out of actuative relation with the press operating mechanism,
 65 and means for releasing the traveler operat-

ing means from the press operating mechanism when the part of said engaging means in the guide has nearly reached the end of its course in either direction.

57. In mechanism of the character described, a guiding support for the spindle
 70 of a roll of paper, provided with a recess for said spindle, and a guide extending longitudinally along said support and having both ends extending in a direction away
 75 from said recess, in combination with a traveler having means for engaging with the roll spindle and provided with a part extending into said guide, and means for keeping said part in said guide, whereby said
 80 spindle engaging means may travel along said support and guide, and become disengaged from the spindle when it reaches either end of its course, means for bringing the traveler operating means into and out of
 85 actuative relation with the press operating mechanism, and means for releasing the traveler operating means from the press operating mechanism when the part of said engaging means in the guide has nearly
 90 reached the end of its course in either direction.

58. In mechanism of the character described, a guiding support for the spindle
 95 of a roll of paper, provided with a recess for said spindle, and a guide extending longitudinally along said support, a screw shaft in operative relation with said support, a traveler engaging with said shaft and adapted
 100 to travel on the same, and provided with means for engagement with the spindle having a part engaging with said guide, means for establishing actuative relation between said shaft and the press operating mechanism, and means for disestablishing such re-
 105 lation.

59. In mechanism of the character described, the combination with bearings for supporting a spindle and its roll of paper in an operative position, of screw and trav-
 110 eling block devices, a yielding bracket operated by said devices for engaging the spindle and for removing the same from the bearings, and means for rotating said screw.

60. In mechanism of the character described, the combination with bearings for supporting a spindle and its roll of paper, in an operative position, of a yielding
 115 bracket having a contact portion, screw and block devices for operating said bracket whereby its contact portion strikes the spindle, causes the bracket to yield and subsequently engages the spindle and removes the spindle from the bearings, and means for
 120 operating said screw.

61. In mechanism of the character described, the combination with bearings for supporting a spindle and its roll of paper in an operative position, of a yielding bracket
 125 having an inclined contact portion movable

in the paths of and beyond the spindle, said bracket adapted to engage the spindle, screw and block devices for vertically moving said bracket, and means for actuating said screw.

5 62. In mechanism of the character described, the combination with bearings for supporting a spindle and its roll of paper in an operative position, of screw and traveling block devices, a yielding bracket operated by
10 said devices for engaging the spindle and for removing the spindle from the bearings, means for establishing actuating relation with a printing press for said devices during the spindle removing period, and provi-
15 sions for releasing said means.

63. In mechanism of the character described, the combination with bearings for supporting a spindle and its roll of paper in an operative position, of a yielding bracket
20 having a contact portion, screw and block devices for operating said bracket whereby its contact portion will strike the spindle, cause the bracket to yield and subsequently engage the spindle and remove the spindle
25 from its bearings, means for establishing coactive relation with a printing press for the screw and block devices during the spindle removing period, and means for releasing said means.

30 64. In mechanism of the character described, the combination with bearings for supporting a spindle and its roll of paper in an operative position, of a yielding bracket having an inclined contact portion
35 movable in the path of and beyond the spindle, said bracket adapted to engage the spindle, screw and block devices for moving said bracket, means for establishing coactive relation with a printing press for said devices,
40 and provision for releasing said means.

65. In mechanism of the character described, the combination with bearings for supporting a spindle and its roll of paper in an operative position, of a screw shaft
45 in juxtaposition to said bearings, a movable arm carried by said block and provided with a bracket, a spring for normally projecting said arm, and means for operating the screw shaft and block whereby the bracket will en-
50 gage the spindle and remove the spindle from its bearings.

66. In mechanism of the character described, the combination with bearings for supporting a spindle, and its roll of paper in
55 an operative position, of a vertical screw shaft in juxtaposition to said bearings, a movable arm carried by said block and provided with a bracket having an outer inclined portion and an upper bearing recess,
60 a spring for normally projecting said arm, and means for operating the screw shaft and

block, whereby the inclined portion of the bracket strikes the spindle, the bracket yields and its bearing recess becomes engaged by said spindle, and the bracket removes the
65 spindle from its operative position.

67. In mechanism of the character described, the combination of means for engagement with the front of the spindle of a paper web roll, mechanism for giving said
70 means a linear movement, whereby it may travel in front of the spindle, a shaft for operating said mechanism, and a clutch for connecting and disconnecting said shaft with the power of the press.
75

68. In mechanism of the character described, the combination of means for engagement with the front of the spindle of a paper web roll, mechanism for giving said
80 means a linear movement, whereby it may travel in front of the spindle, a shaft for operating said mechanism, a clutch for connecting and disconnecting said shaft with power for operating the same, a lever for en-
85 gaging said clutch, a device for retaining the lever in a clutch-disengaged position, provision for releasing said device, and means for moving the lever to disengage the clutch.

69. In mechanism of the character described, the combination of means for en-
90 gagement with the front of the spindle of a paper web roll, mechanism for giving said means a linear movement, whereby it may travel in front of the spindle, a shaft for operating said mechanism, a clutch for con-
95 necting and disconnecting said shaft with power for operating the same, means including a movable throw-out for disengaging the clutch, and a device for holding said clutch disengaged.
100

70. In mechanism of the character described, the combination of means for engagement with the front of the spindle of a paper web roll, mechanism for giving said
105 means a linear movement, whereby it may travel in front of the spindle, a shaft for operating said mechanism a clutch for connecting and disconnecting said shaft with power for operating the same, a movable
110 throw-out for disengaging the clutch, a device for holding said clutch disengaged, and a screw shaft and traveling block thereon, said block adapted to strike and operate the throw-out.

In testimony whereof, I have signed my
115 name to this specification, in the presence of two subscribing witnesses.

LOUIS F. PFISTER.

Witnesses:

GEO. M. HARRIS,
PENNINGTON HALSTED.