H. A. W. WOOD.

PAPER FEED ROLL CLUTCH.

APPLICATION FILED JAN. 17, 1914. RENEWED AUG. 22, 1919.

1,410,090. Patented Mar. 21, 1922.

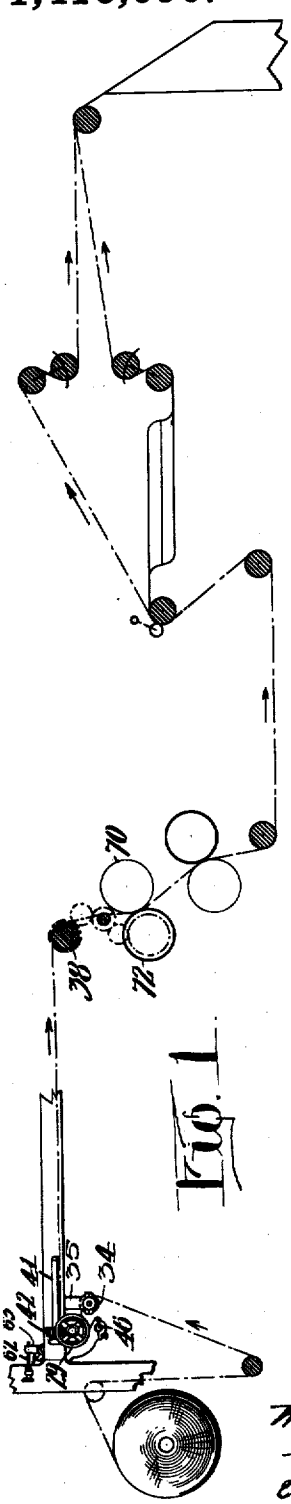


Fig. 1.

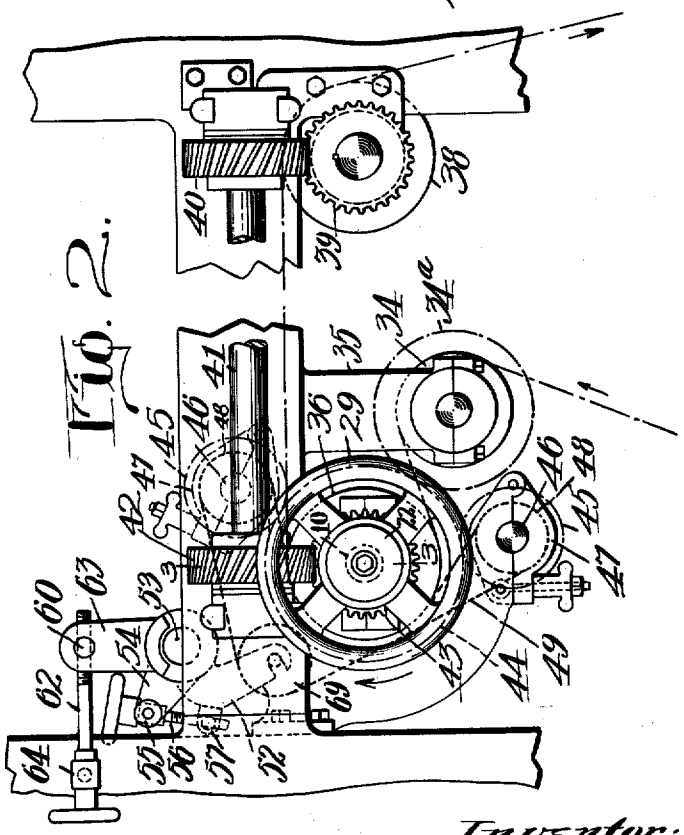


Fig. 2.

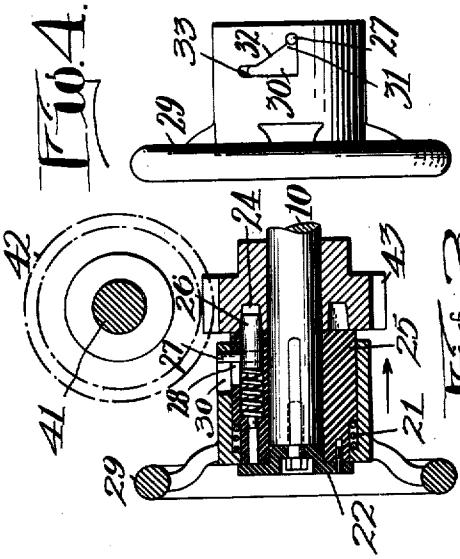


Fig. 3.

Fig. 4.

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UNITED STATES PATENT OFFICE.

HENRY A. WISE WOOD, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO WOOD NEWSPAPER MACHINERY CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF VIRGINIA.

PAPER-FEED-ROLL CLUTCH.

1,410,090. Specification of Letters Patent. Patented Mar. 21, 1922.

Application filed January 17, 1914, Serial No. 812,843. Renewed August 22, 1919. Serial No. 319,248.

To all whom it may concern:

Be it known that I, HENRY A. WISE WOOD, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Paper-Feed-Roll Clutch, of which the following is a specification.

This invention relates to web feeding mechanism and while capable of general use is especially designed as an improvement over my prior invention on web-controlling and tension device, patented Aug. 26, 1919, No. 1,314,178, on which I filed the application for Letters-Patent on the 16th day of June, 1913, Serial No. 773,917.

The principal object of this invention is to provide a convenient construction by which the operator will be enabled to feed the web into the bite of the first printing couple, while the press is stopped, by simply tucking the free end of the web into the bite between the tapes and feed roller and turning the feed roller by hand until the web is properly inserted between the printing and impression cylinders. This is advantageous because the operator can have full control of the progress of the web in feeding in, and yet thereafter the web will be positively forwarded both by the printing couple and the feed rollers and will be under their joint control.

Reference is to be had to the accompanying drawings, in which—

Fig. 1 is a diagrammatic view showing the path of the web through the device which is the subject of this invention and through the press;

Fig. 2 is a side elevation of a paper feed device constructed in accordance with this invention;

Fig. 3 is a sectional view of the same on the line 3—3 of Fig. 2; and

Fig. 4 is an elevation of the hand wheel on the feed roller.

In order to give the operator full control of the web so that he may feed it in at will by hand when the press is stopped, the invention is shown in connection with certain features illustrated in my above identified application. The web passes over a bending roll 34 journalled in brackets 35 on the frame of the machine and driven from the feed of the press by a gear 34^a. The web passes under a feed roller 36 mounted on a shaft 10 in bearings on the frame and then over a roll 38 which is operated from the press. From there the web goes in the usual way to the impression and printing cylinders 70 and 72 respectively.

On the shaft of the roll 38 is a spiral gear 39 meshing with a gear 40 on a shaft 41. This shaft, by a spiral gear 42, drives a spiral gear 43 which is loose on the shaft 10 of the feed roller 36. On this shaft is another gear 44 which drives two gears 45 on shafts 46. These shafts are journalled in hinge cup bearings 47 and carry a plurality of tape pulleys 48. The feed belts or tapes 49 pass from these pulleys around, and contact with, the feed roller 36 and then over tightener pulleys 69.

Each of the tightener pulleys is supported on an arm 52 loose on a transverse shaft 53. Keyed to the shaft 53 are arms 54. Each of these is provided with a poppet 55 through which passes a screw 56 into a nut 57 mounted on the arm 52. Thus each of the arms 52 can be adjusted relatively to the shaft 53 for taking up the slack of its feed belt or tape. For adjusting the entire system of tightener pulleys simultaneously the shaft 53 is provided with an arm 63 keyed to it. This has a nut 60 which receives an adjusting screw 62 passing through a poppet 64 on the frame of the machine. The parts so far described are similar to those shown in my above identified patent.

For the purpose of providing the hand feed above mentioned the driving spiral gear 43 is provided with a number of holes 24 in the side adjacent to the clutch hub 25. This clutch hub 25 is securely fastened to the shaft 10 and contains a spring-pressed reciprocable pin 26 adapted to engage the spiral gear 43 by entering one of the holes 24 in the face thereof. The spring-pin is provided with a transverse operating pin 27 which projects through a slot 28 in the clutch hub and engages through a cam opening 30 in the hub of a spring-actuated hand wheel 29. This hand wheel hub is free to turn slightly on the clutch hub 25 and is normally

held in extreme position by a spring 21 against a fastening plate 22 on the end of the shaft. The cam opening 30 is provided with two projecting slots at right angles to each other numbered 31 and 33 having an inclined surface 32 beween them.

In operation when it is desired to disengage the clutch, the hand wheel 29 is pressed firmly in opposition to the spring 21 against the face of the spiral gear. This brings the pin 27 out of the elongation 31 and into the main body of the cam opening 30 and then the hand wheel is turned in the direction of the arrow shown in Fig. 2 to bring the pin over into the slot 33. This motion is assisted by the cam face 32. Thereafter the feed roller 36 can be turned in the same direction by the hand wheel without disturbing the relative positions of the parts for the reason that the cam slot has pulled the pin 26 out of the hole 24 and caused the hand wheel to become fixed relatively to the shaft 10 while releasing the gear 43 from the shaft. It will be seen, therefore, that the paper can be fed through by the operator even though the gear 43 is turning, and that if this gear is not turning the operator can still perform this operation without turning any other portion of the machinery than the feed roller 36.

When it is desired to re-engage the feed roller with the power, a quick reverse motion of the hand wheel will allow the pin 27 to spring back into the elongation 31 and engage the shaft with the power through the springing of the pin 26 into one of the holes 24. Then the web is under the control of the forwarding rolls and the printing couple and is fed positively by both thereafter.

In this way by very simple mechanism the operator is enabled to have full control of this feed roller whether the machine is running or not, and can feed the end of the web in at any time.

No claim is made herein to the web-feeding mechanism by itself apart from the clutch and associated elements as that constitutes the subject of a divisional application.

Although I have illustrated and described only a single embodiment of the invention I am aware of the fact that many modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore I do not wish to be limited to all the details of construction herein shown and described and especially not to the features which are also shown in my above identified application, but what I do claim is:

1. The combination with a printing press, of a feed roller shaft, a driving gear loose on the shaft and constantly driven from the press, a hand-wheel, a pin for connecting the hand-wheel with the gear, and means whereby when the hand-wheel is turned backwardly on the shaft, the pin will be withdrawn from the gear.

2. In a printing press, the combination with a feed roller, of a shaft on which said roller is mounted, a driving wheel loose on the shaft, a hand wheel oscillatable independently of the shaft, connections between the shaft and said driving wheel, and means whereby the hand wheel can be positively connected with the shaft and the connections to the driving wheel withdrawn by moving said hand wheel longitudinally and turning it in one direction.

3. In a printing press, the combination with a feed roller, of a shaft on which said roller is fixed, a driving gear loose on the shaft, a hand wheel adapted to turn on the end of the shaft, a hub fixed to the shaft, means on the hub for connecting it with said gear, and means operated by the turning of the hand wheel for disconnecting the gear from the hub and fixing the hand wheel with respect to the hub, whereby the feed roller can be operated by the hand wheel in one direction.

4. In a printing press, the combination with a feed roller, of a shaft on which said roller is fixed, a driving gear loose on the shaft, a hand wheel on the end of the shaft, a hub fixed on the shaft, a spring pressed pin on the hub for positively connecting it with the gear, said hand wheel being movable axially on the hub, and means whereby when the hand wheel is moved toward the gear and turned, the pin will be withdrawn from the gear.

5. In a printing press, the combination with a feed roller, of a shaft on which said roller is fixed, a driving gear loose on the shaft, a hand wheel on the end of the shaft, a hub fixed on the shaft, a spring pressed pin on the hub for positively connecting it with the gear, said hand wheel being movable axially on the hub, said hand wheel having a cam opening, and an operating pin on the spring pressed pin projecting into said cam opening and adapted to be moved thereby.

6. The combination with a feed roller shaft, of a driving wheel therefor, a hand-wheel, yielding means for normally holding the hand-wheel positively clutched to the shaft independently of the driving wheel, said hand-wheel being movable on the shaft, and means whereby motion of the hand-wheel in a longitudinal direction on the shaft will release the hand-wheel so that it can turn on the shaft, and its turning motion will release the driving wheel from the shaft.

7. The combination with a feed roller shaft, of a driving wheel therefor, a hand wheel, yielding means for normally holding

the hand wheel positively clutched to the shaft, means for clutching the driving wheel to the shaft, said hand wheel being movable on the shaft, and means for releasing the hand wheel and allowing it to turn on the shaft when the hand wheel is moved in one direction on the shaft.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

HENRY A. WISE WOOD.

Witnesses:
P. M. STOCHER,
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