No. 720,243. PATENTED FEB. 10, 1903.

E. J. HALLBERG.

PAPER FEEDING APPARATUS.

APPLICATION FILED JULY 8, 1901.

NO MODEL.

Fig. 2.

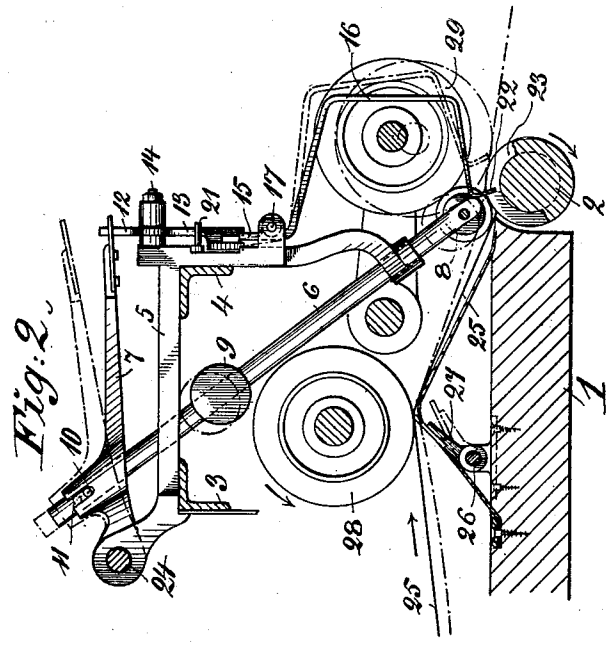


Fig. 3.

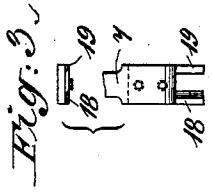
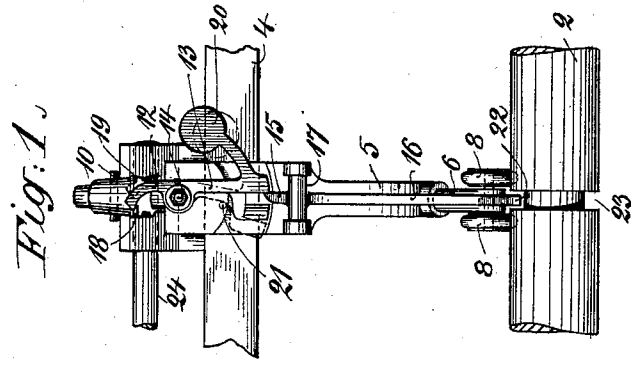


Fig. 1.



WITNESSES

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PAPER-FEEDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 720,243, dated February 10, 1903.

Application filed July 8, 1901. Serial No. 67,523. (No model.)

To all whom it may concern:

Be it known that I, ERNST JULIUS HALLBERG, printer, a subject of the King of Sweden and Norway, and a resident of David Bagares gata No. 5, Stockholm, in the Kingdom of Sweden, have invented certain new and useful Improvements in or Relating to Paper-Feeding Apparatus, of which the following is a specification, reference being made to the accompanying drawings.

The present invention relates to an improved device in paper-feeding apparatus for keeping the forward edge of the sheet stretched or extended during a certain period of the feeding of the paper in order that even the thinnest and softest kind of paper that is to be fed in the apparatus may be sure to cause a shifting of an abutment protruding in the path of the paper and having for its purpose on being shifted to throw into action a force which is periodically or at certain times to perform some work or other in the operation of the machine.

A device in accordance with this invention is shown in the accompanying drawings, in Figure 1 in a front view, and in Fig. 2 in a side view. Fig. 3 represents a detail.

1 is the table of a paper-feeding apparatus, and 2 a roll journaled at its forward edge and arranged to rotate continually in the direction indicated by the arrow while the apparatus is in motion.

3 and 4 are two bars or angle-irons supported in suitable manner by the table and carrying a frame 5, in which is slidably mounted a rod 6, passing with its upper end through a hole in an arm 7, pivoted to the frame. The rod carries at its lower end two rotatable rollers 8, suitably covered with india-rubber or other material, and is pressed down by a weight 9, (or a spring,) serving to press the rollers against roll 2, while through the upper end of the rod passes a guide-pin 10, engaging in a slot 11 in the arm 7, partly with the view to prevent the rollers 8 by the turning of the rod from taking up an incorrect position in relation to the roll 2 and partly in order that the rod may be lifted by the arm 7 when the latter is swung, owing to the pin engaging the bottom of the slot. On the front side of the frame are two two-armed levers, the upper one of which, provided with the arms 12 and 13, is pivoted on a stud 14, while the lower one, provided with the arms 15 and 16, is pivoted on a pin 17, which is perpendicular or nearly perpendicular to the stud 14. The end of arm 12 is hook-shaped and adapted to enter between two fingers 18 and 19 on the end of arm 7, (see Fig. 3,) while the arm 13 is provided with a weight 20, Fig. 1, intended to swing the lever on its stud 14 when the arms are free. For limiting this swinging movement a pin 21 is mounted on the frame. When the two levers are in the position indicated by full-drawn lines in the drawings, the end of arm 15 is in the way of the end of arm 13, preventing the latter from being moved to the left, and as a result the arm 7, the finger 18 of which is beneath the hook of arm 12, cannot move upward unless the arm 15 be moved out of the way of arm 13. The lower end of arm 16 forms the abutment 22, which is to be shifted by the forward edge of the paper when being fed forward and which is located between the two rollers 8 and partly enters a circumferential groove 23 in the roll 2. The force to be thrown into action when the abutment is shifted is here supposed to act either directly or indirectly on the shaft of the arm 7 in such a manner as to tend to move the arm secured to said shaft upward into the position shown in dotted lines in Fig. 2.

If the different parts in Fig. 2 occupy the positions shown by full-drawn lines and 25 is assumed to be a sheet of paper the forward edge of which in the course of the feeding process has reached the continually-rotating roll 2, it is evident that as the feeding proceeds this edge will be introduced between the roll and the rollers 8, pressing on it. The paper edge on having thus entered will be advanced by the roll and rollers, being then kept straight and stretched by the rollers, so that when reaching the abutment 22 it will have power to shift said abutment sufficiently to cause the arm 15 to be moved out of the way of arm 13. As soon as this has occurred the upper two-armed lever will be free to swing on its pivot, thus releasing the arm 7 and allowing the force acting on the shaft 24 to turn the arm upward. When the arm 7 is lifted, the rollers 8 will also be lifted from the roll 2 and no longer exert a feeding ac-

tion on the paper. By the aid of suitable connections between the shaft 24 and, for instance, feeding devices, gripping devices, counters, &c., acting on the paper said devices may be engaged or disengaged at the proper moment, so that the sheet fed forward and resting with its forward edge on the roll 2 will be entirely liberated. Thus, for instance, the shaft 24 may be connected with a shaft 26 by means of levers or the like in such a manner that an arm 27, secured on the latter shaft, when the aforesaid force is released will be moved up into the position shown by dotted lines, so that if 28 represents a feed-roll any feeding by this roll will be interrupted. If rollers 29 be subsequently moved down onto the roll 2, the sheet, resting freely between the latter and the rollers and now disengaged from previous feeding devices and occupying the position shown in dotted lines, will be fed forward to the place or machine where it is to be subjected to further treatment. After the removal of the sheet by the rollers 29 the different parts are returned into the position shown by full-drawn lines by the shaft 24 being actuated, for instance, by the driving mechanism of the machine in such a manner that the arm 7 is swung downward. In this downward motion the two fingers 18 and 19 descend on each side of the upper point of the hooked end of arm 12, the position of which is determined by the pin 21, the finger 19 acting on the upper rounded end of said arm so as to bring the lever 12 13 into the position shown by full-drawn lines. When the arm 13 was in the position shown by dotted lines in Fig. 1, the end of arm 15 was behind the end of arm 13, the abutment 22 being consequently retained in its advanced position; but in the return movement just mentioned of the lever 12 13 into the position shown by full-drawn lines the lever 15 16 evidently was also given an opportunity to resume the position shown by full-drawn lines, and as a result the arm 15 is once more brought in the path of arm 13, which is thereby prevented from moving to the left in Fig. 1, the arm 7 being held down by the hook, which now grips over the finger 18.

It is evident that instead of the roll 2 a movable track formed by endless tapes or cloths may be used, moving over revolving pulleys, shafts, &c., and that the rollers 8 by bearing on such a track would operate in like manner to that described.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a paper-feeding apparatus, a feed-roll, a movable abutment in proximity thereto, a pair of presser-rollers for holding the paper on each side of and in proximity to the abutment and connected to a pivoted arm under tension tending to lift said rollers, and a lever for holding said arm down against said tension, said lever being adapted to be released by the movement of said abutment, substantially as described.

2. In a paper-feeding apparatus, a feed-roll, a movable abutment in proximity thereto, a sliding rod carrying presser-rolls for holding the paper on each side of the abutment, a pivoted arm under tension tending to lift said rod, and a lever for holding said arm down against said tension, said lever being adapted to be released by the movement of said abutment, substantially as described.

3. In combination, the roll 2, the frame above the same, a rod sliding in said frame and having presser-rollers at its lower end, a lever 7 tending to lift said rod, a two-armed lever pivoted to said frame and having one end engaging the free end of said lever to hold it depressed, and a second lever pivoted to said frame and having one end engaging the end of the first-named lever and its other end extending into proximity to the feed-roller and in the path of the paper, substantially as described.

4. In combination, the roll 2, having a groove therein, the frame above the same, a rod sliding in said frame and having presser-rollers at its lower end, a lever 7 tending to lift said rod, a two-armed lever pivoted to said frame and having one end engaging the free end of said lever to hold it depressed, and a second lever pivoted to said frame and having one end engaging the end of the first-named lever and its other end extending into the groove in the feed-roller and in the path of the paper, substantially as described.

5. In combination, the roll 2, the frame 5 above the same, the rod 6 guided in said frame and having rollers at its lower end for engaging said roll, a lifting-lever 7 pivoted in the frame, a two-armed rocking lever having a forked end for engaging the free end of said lever for holding it depressed, and a second two-armed lever having one arm for engaging the first two-armed lever, and having a finger or abutment entering a groove or channel in the roll 2, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

ERNST JULIUS HALLBERG.

Witnesses:
CARL TH. SUNDHOLM,
HANS B. OHLSSON.