

UNITED STATES PATENT OFFICE.

HUGO BILGRAM, OF PHILADELPHIA, PENNSYLVANIA.

PAPER-FEED.

SPECIFICATION forming part of Letters Patent No. 734,215, dated July 21, 1903.

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To all whom it may concern:

Be it known that I, HUGO BILGRAM, a citizen of the United States, residing in the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Paper-Feeds, of which the following is a specification.

My invention consists in a method for feeding a continuous band of paper or other material through two machines or twice through the same machine, so that the operations performed each time shall correctly register with one another. This is accomplished, first, by providing the band of paper with a series of cuts, holes, or indentations capable of forming obstructions; second, by providing a periodical feeding device to feed slightly more than required, and, third, by temporarily releasing the feeding mechanism and withdrawing the excess previously fed, permitting the said obstruction to limit the amount so withdrawn.

The accompanying drawings show the application of the device to the feeding apparatus of a wrapping-machine, the wrapper being fed to the machine from a continuous band which has previously been passed through a printing-machine and requires to be cut as printed.

Figure 1 shows a side view of the feeding device. Fig. 2 represents the top view of the band of wrapping-paper.

In printing the paper preparatory to feeding it to the wrapping-machine the paper is provided with short transverse cuts B B, as shown in Fig. 2, the cuts marking the lines where the paper is to be cut off. These cuts may be made in the process of printing.

In the drawings, 1 is the frame of the feeding device, in which the driving-shaft 2 is journaled, rotating in the direction indicated by an arrow. To this shaft are secured the cranks 3 and 4 and the cam 5. The crank 3 is connected with the pawl-lever 6 by the connecting-rod 7. The pawl 8, carried by the said pawl-lever, engages with the ratchet-wheel 9, secured to the shaft 10, to which the lower paper-feed roller 11 is secured. The upper feed-roller 12 is carried by the arbor 13, journaled in the bearings 14, which are mounted in the housing 15 free to move vertically and pressed downward by springs 16.

The bobbin of paper 17, prepared as described, is held in the frame, as shown, the paper band A passing over the roller 18 to the feed-rollers 11 and 12, by which it is fed to the table 19. A mechanism for cutting the paper is provided as follows: The crank 4 is connected with the slide 20 by means of the connecting-rod 21. To this slide is secured the blade 22 of the paper-shears, which passes through a perforation of the table 19. Above the table is located the stationary shear-blade 23.

For properly adjusting the paper before cutting the following device is provided: The lever 24, having its fulcrum at 25, carries the roller 26 and by means of the connecting-rod 27 is connected with the slide 28, which passes through the said perforation of the table 19. The upper end of the said slide 28 is designed to be below the face of the table 19 when in its lowest position and above the lower edge of the shear-blade 23 when in its uppermost position. The lever 29, the fulcrum of which is at 30, carries the cam-roller 31 and is jointed to the rod 32. The upper end of this rod embraces the arbor 13 of the upper feed-roller 12 in such a way that by a raising of the cam-roller 31 the feed-roller 12 is raised from contact with the lower feed-roller 11. The cam 5 is adapted to operate the levers 24 and 29 in such a way that the lever 24 is first operated upon and the lever 29 immediately thereafter.

A light weight 33, held by the lever 34, rests on the band of paper A as it passes from the roller 18 to the feed-rollers 11 and 12.

The operation of the device may be described as follows: As the shaft 2 is rotated the crank 3 imparts an intermittent motion to the paper-feed roller 11, which, in conjunction with the upper roller 12, will feed the paper to the table 19. After this operation is completed and while the pawl 8 is returning the high part of cam 5 will raise the roller 26, and with it the slide 28. The feed-rollers 11 and 12 being designed to feed slightly more paper than needed, one of the cuts B of the band of paper will have just passed the edge of the shear-blade 23 and the upper end of the slide 28 will bend the front lip of the cut of the paper upward, separating the edges of the cut. Immediately

after this the high part of the cam 5 will come into contact with the roller 31 and will raise the feed-roller 12 from its seat, releasing the grip of the feed-rollers and allowing the weight 33 to partially withdraw the paper previously fed; but since the raised lip of the cut in the paper held up by the slide 28 will impinge against the face of the shear-blade 23 the paper will be withdrawn only until the cut is in line with this face, which forms an abutment, preventing a further withdrawal. As the rotation of the shaft continues the shear-blade 22 will come into operation, and before the cutting is completed the cam-rollers 26 and 31 will be allowed to return to their normal positions ready for a repetition of the described process. The paper will thus invariably be cut precisely in line with the short cuts previously made in the endless band.

The device is applicable to many other uses in which a band of paper or other material is to be subjected to consecutive mechanical operations that shall register with one another.

I claim as my invention—

1. In combination, an intermittent feeding device adapted to feed a continuous band, means for intermittently releasing the said feeding device, means for partially withdrawing the band previously fed and an

abutment adapted to intercept the withdrawal of the band by impinging against an obstruction with which the said endless band has been previously provided, substantially as described.

2. In combination, an intermittent feeding device adapted to feed a continuous band, means for raising one lip of a cut with which the said band has been previously provided, means for intermittently releasing the said feeding device, means for partially withdrawing the band previously fed and an abutment adapted to intercept the withdrawal of the band by impinging against the said raised lip, substantially as specified.

3. In combination, an intermittent feeding device adapted to feed a continuous band, means for raising one lip of a cut with which the said band has been previously provided, means for intermittently releasing the said feeding device, means for partially withdrawing the band previously fed, a stationary shear-blade adapted to intercept the withdrawal of the band by impinging against the said raised lip and a movable shear-blade adapted to cut the band through the said cut, substantially as described.

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Witnesses:

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