No. 765,316. PATENTED JULY 19, 1904.

J. A. KEYES.

PAPER FEEDER.

APPLICATION FILED NOV. 24, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig.1

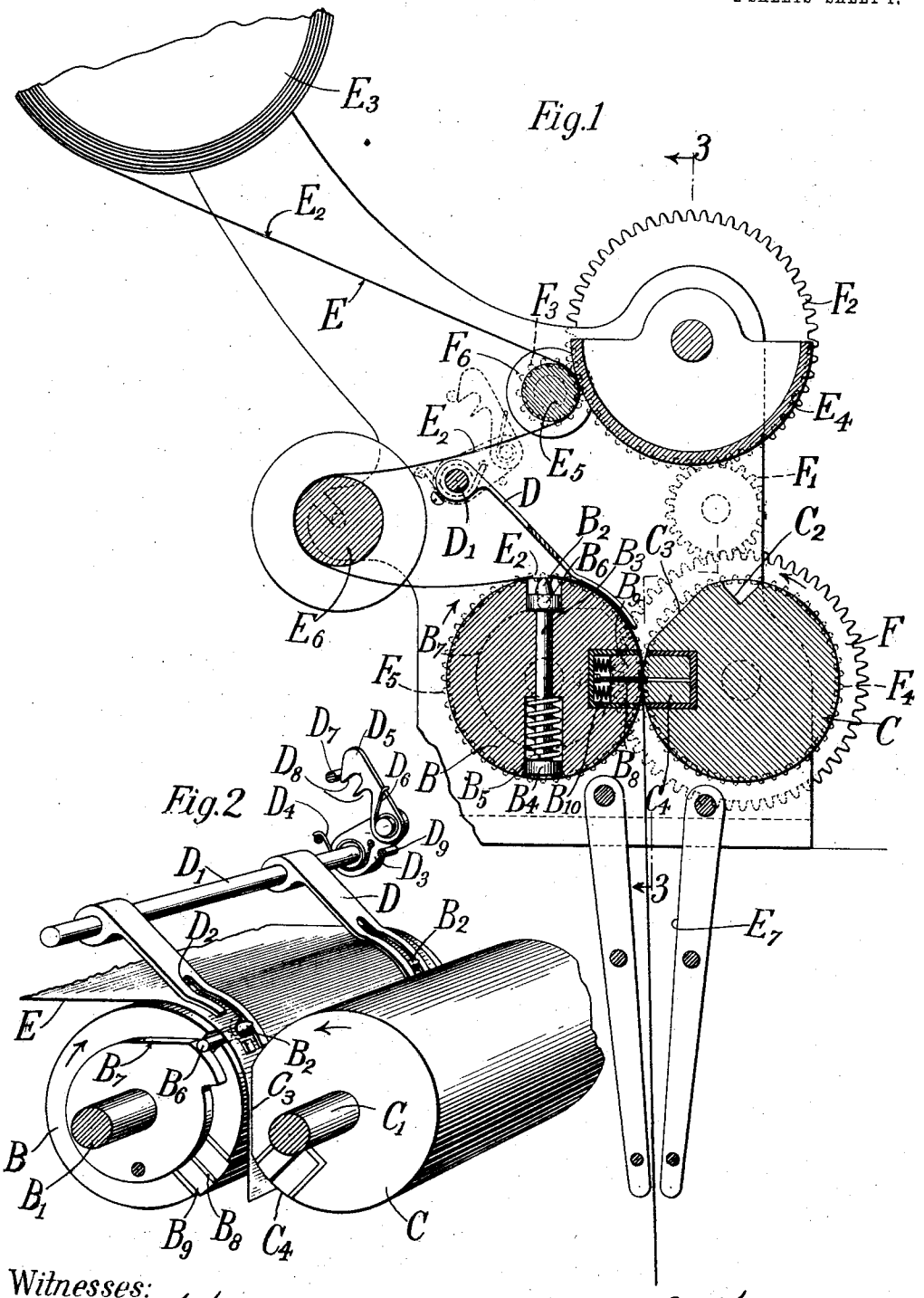


Fig.2

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3

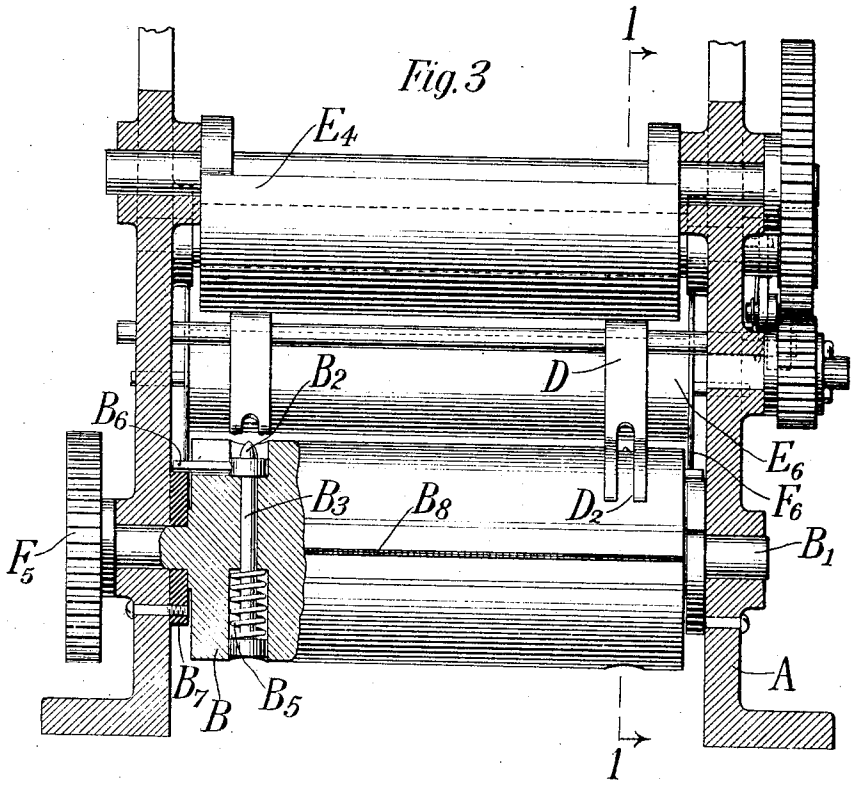
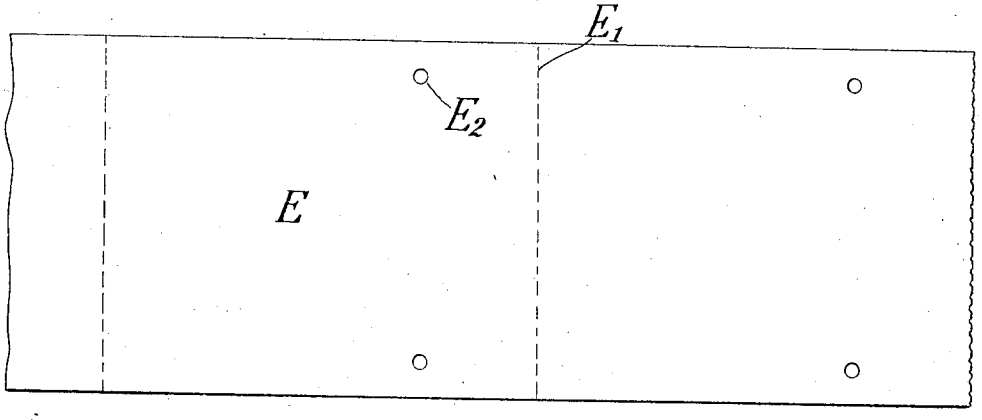


Fig. 4



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No. 765,316. Patented July 19, 1904.

UNITED STATES PATENT OFFICE.

JAMES A. KEYES, OF NEW YORK, N. Y., ASSIGNOR TO WRIGHT'S AUTOMATIC TOBACCO PACKING MACHINE COMPANY, OF LYNCHBURG, VIRGINIA.

PAPER-FEEDER.

SPECIFICATION forming part of Letters Patent No. 765,316, dated July 19, 1904.

Application filed November 24, 1902. Serial No. 132,569. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. KEYES, a citizen of the United States, and a resident of New York city, in the borough of Manhattan, county and State of New York, have invented certain new and useful Improvements in Paper-Feeders, of which the following is a specification, taken in connection with the accompanying drawings, which form a part of the same.

This invention relates to paper-feeders, and relates especially to apparatus for feeding paper from a continuous strip or roll and for accurately severing this strip into sheets.

In the drawings, in which the same reference character refers to similar parts in the several figures, Figure 1 is a sectional view showing an embodiment of this invention, taken substantially on the line 1 1 of Fig. 3. Fig. 2 is a detail perspective view showing parts of the same. Fig. 3 is a partial sectional view taken substantially on the line 3 3 of Fig. 1. Fig. 4 is a detail showing the perforated paper strip.

In the embodiment of the invention shown in the drawings a frame A is preferably employed formed with bearings for the various shafts for the moving parts of the apparatus. In the top of this frame there is mounted in the usual way the paper-reel E^3, on which a quantity of paper in the form of a continuous perforated strip E is wound to be fed by the feeder as desired. In order to relieve to some extent the strain on the paper strip, an auxiliary feed may be employed adjacent the reel E^3. In the drawings an auxiliary feed comprising a feed-segment E^4 is shown, this segment coöperating with the idler E^5. This idler, as indicated, is formed with flanges F^6 on either end of the same and is geared by the meshing gears F^2 F^3 to be operated from the feed-segment. The paper strip is of course engaged between the idler and the segment and is intermittently fed forward to the desired extent, thus relieving the strain on the paper strip to a very considerable extent.

As indicated, the idler E^6 is used, over which the strip passes to the intermittently-gripping feeder. This feeder operates to positively grip the strip of paper and to feed it forward. The grip of the feeder upon the strip is, however, released at certain times, so as to allow for the operation of the positive aliner, which coöperates with the paper strip and secures the exact alinement of the same as it is fed forward. The intermittently-gripping feeder is preferably composed of two feed-rolls B and C. These feed-rolls cooperate, so as to positively grip the paper between them; but one of the feed-rolls is formed with a depression C^3, which releases the paper strip when the rolls reach the position indicated in Fig. 2, and the paper strip can then pass freely between the rolls and can be readily adjusted under the action of the aliner.

As indicated in the drawings, the paper strip E is formed with the series of perforations or holes E^2, which are regularly spaced along the strip and which enable the strip to be accurately alined, so that it may, if desired, be severed by appropriate cutting devices exactly along the intended lines of severence E'. The perforated strip is in this way severed accurately into the separate sheets, which are fed forward to be used as desired. This of course is of special utility where the paper strip is printed, each sheet having appropriate printed matter upon it. The alining means coöperates with the holes or perforations E^2 and acts when the intermittently-gripping feeder is in released position, as indicated in Fig. 2. This aliner preferably comprises alining members to coöperate with the perforations E^2 in the paper strip and to accurately adjust the position of the paper strip from time to time. In the drawings each alining member B^3 is indicated as mounted in the feed-roll B, a suitable retracting-spring B^5 being employed which acts upon the collar B^4 on the alining pin or member to normally retract the point B^2 beneath the working surface of the roll. The alining member is thrown out into operative position by the pin B^6, secured to the same, which coöperates with the alining-cam B^7. This cam, as is indicated in Fig. 3, is se-

cured to the frame adjacent the shaft B′, and the pin B^2 is thereby raised beyond the surface of the roll B at each revolution, is forced through the hole E^2 in the paper strip, and positively alines the paper strip at this time. The end B^2 of the alining member coöperates with the hole C^2 in the other feed-roll, and it will be seen that as soon as the alining members have operated the cams cease to protrude them, and they are withdrawn beneath the surface of the feed-roll in which they are mounted.

The presser D is preferably employed in conjunction with the aliner, two of these pressers D being shown secured to the presser-rod D′. The operative ends of these pressers are preferably slotted, so that the points B^2 of the alining members may project through them, as indicated in Fig. 2. The pressers may be held in proper engagement with the paper strip by the presser-spring D^4, which operates on the crank D^3, secured to the presser-rod. The latch D^5 is preferably connected with the crank and is formed with the notches D^8, so that when the pressers are raised the latch is forced down under the action of the light spring D^6 to latch over the pin D^7 and hold the pressers in raised position. The pin D^9 may be employed, if desired, to limit the downward movement of the pressers. The presser preferably exerts a slight tension upon the paper strip, holding the strip against the feed-roll B and also serves to hold the strip down, so that the alining members B^2 properly engage the perforations E^2 in the strip. This slight tension exerted by the pressers prevents any slipping of the paper strip which might otherwise occur when the grip of the feed-rolls is released.

Severing mechanism may be used in connection with this alining and feeding mechanism in order to sever the paper strip as desired, this severing mechanism in the embodiment of the invention illustrated comprising a knife or cutter B^8, adjustably mounted in one of the feed-rolls B. The spring-pressed guards B^9 are mounted on either side of the cutter, so as to shield the cutting edge of the same in the manner illustrated in Fig. 2. A coöperating severing-slot is formed between the blocks C^4, mounted in the roll C. The severing mechanism operates to sever the paper strip when in the position indicated in Fig. 1, and each severed blank passes down the guide E^7 to be utilized in any desired way.

The requisite movements of the various parts of this apparatus are preferably secured by the gearing indicated. The gear F is rigidly secured to the shaft C′ of the roll C, the two feed-rolls being geared together by the gears F^4 F^5. (Indicated in Fig. 1.) The gear F, through the idler F′, drives the gear F^2, which operates the auxiliary feed. These gears may be operated intermittently or constantly, as desired, the timing of the various operations of the feeder being properly regulated in any case. It will be noted also that the time at which the auxiliary feed operates may be suitably adjusted by adjusting the relative positions of the gears F^2 and F′. This feeder withdraws from time to time a portion of the continuous strip E from the reel by the auxiliary feed described, so that a certain amount of slack is supplied to the feed-rolls B and C when in the position indicated in Fig. 1. As the feed-rolls revolve in the direction indicated by the arrows the alining members are protruded by the cams indicated, so that the ends B^2 of these alining members project through the holes or perforations E^2 in the paper strip and positively aline the strip operating in connection with the pressers. At this time the feed-rolls are in the released position, (indicated in Fig. 2,) so that any slight adjustment of the paper strip is readily effected by the aliner. The feed-rolls on their continued rotation positively grip the paper strip between them, feed it forward, and finally the severing mechanism operates to cut off a blank from the end of the paper strip.

It is of course understood by those familiar with this art that many changes in the form and proportions of parts may be made. Furthermore, parts of this apparatus may be omitted, if desired, and parts may be used in connection with other devices without departing from the spirit of this invention. I do not therefore desire to be limited to the disclosure which has been made in this case; but

What I claim as new, and what I desire to secure by Letters Patent, is set forth in the appended claims:

1. In a paper-feeder, a reel, a feed-segment, an idler coöperating with said feed-segment to intermittently feed a perforated paper strip, a feed-roll formed with holes, a cutter-notch and a depression, a coöperating feed-roll, spring-retracted alining members mounted in said coöperating feed-roll, cams to protrude said alining members, a cutter and spring-pressed cutter-guards mounted in said feed-roll and slotted pressers coöperating with said feed-roll to hold said paper strip in engagement therewith, said pressers being spring-operated and provided with a latch to hold them out of engagement with said feed-roll.

2. In a paper-feeder, an auxiliary feed to feed forward a paper strip, a feed-roll provided with a depression, a coöperating feed-roll formed with a cutter and an alining member mounted in said coöperating feed-roll, means to protrude said alining member to engage perforations in said paper strip and a spring-operated presser coöperating with said alining member.

3. In a paper-feeder, intermittently-gripping coöperating feed-rolls, a cutter mounted upon one of said feed-rolls and a protruding alining member mounted on one of said feed-

rolls to engage perforations in a paper strip to aline the same while said feed-rolls are in released position.

4. In a paper-feeder, coöperating intermittently-gripping feed-rolls, a cutter mounted in one of said feed-rolls, an intermittently-protruding alining member mounted in one of said feed-rolls and a presser to engage a perforated paper strip and to coöperate with said alining member.

5. In a paper-feeder, intermittently-gripping feed-rolls to engage a perforated paper strip, an intermittently-operating alining member to engage said perforated paper strip while said feed-rolls are in released position and severing mechanism to sever blanks from said paper strip.

6. In a paper-feeder, intermittently-gripping feed-rolls, and an intermittently-operating aliner to engage a paper strip while said feed-rolls are in released position.

7. In a feeder, intermittently-gripping feeding means and an intermittently-operating aliner to engage a strip while said feeding means is in released position and to longitudinally aline said strip.

8. In a paper-feeder, a roll, a spring-operated presser coöperating with said roll and alining members mounted in said roll to be intermittently protruded from the same to engage perforations in a paper strip to positively aline said strip.

9. In a paper-feeder, a roll, a spring-retracted alining member mounted in said roll, a cam to intermittently protrude said alining member and a spring-operated presser coöperating with said roll and said alining member.

10. In a feeder, intermittently-gripping feeding means to engage a perforated strip and an intermittently-operating alining-pin to engage the perforations in said strip while said feeding means is in released position.

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