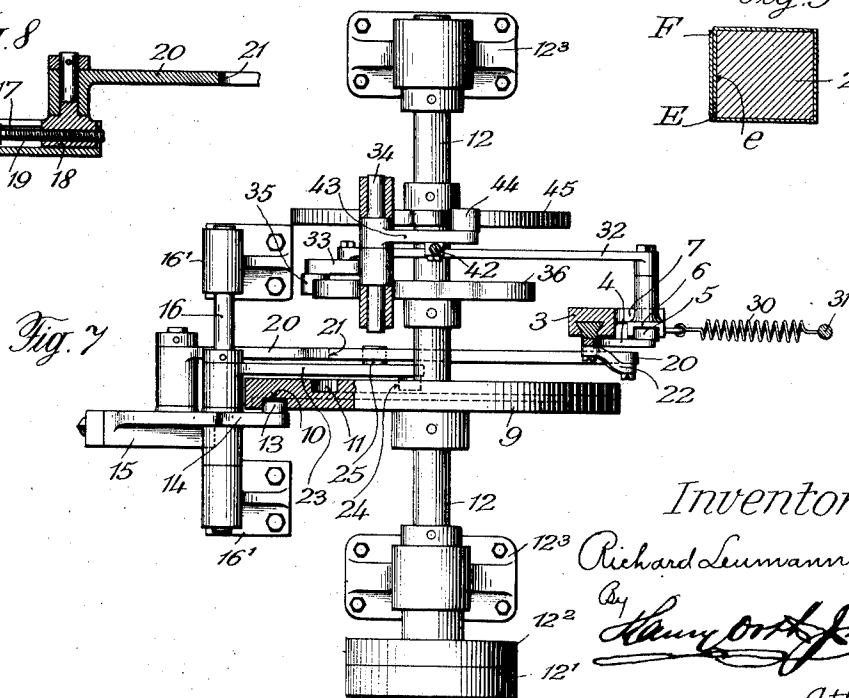
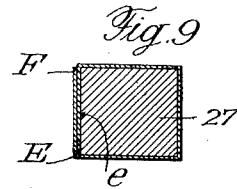
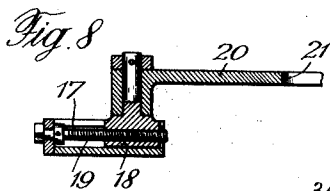
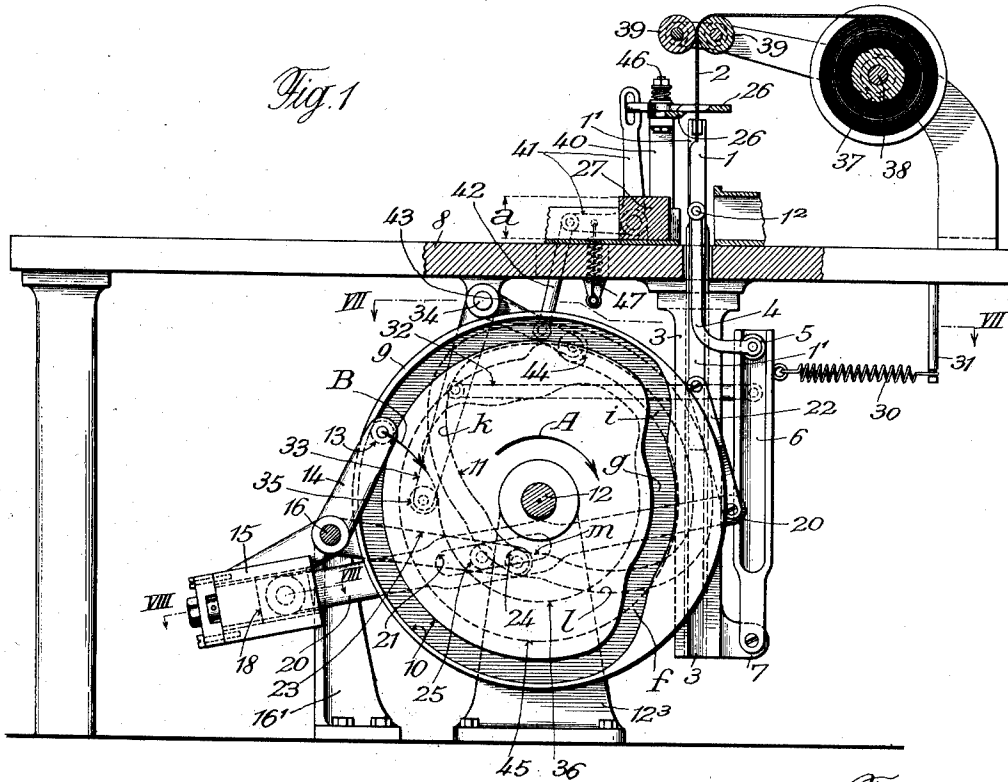


R. LEUMANN.
PAPER FEEDING DEVICE FOR WRAPPING MACHINES.
APPLICATION FILED APR. 30, 1919.

1,341,184.

Patented May 25, 1920.

3 SHEETS—SHEET 1.



Inventor:

Richard Leumann,

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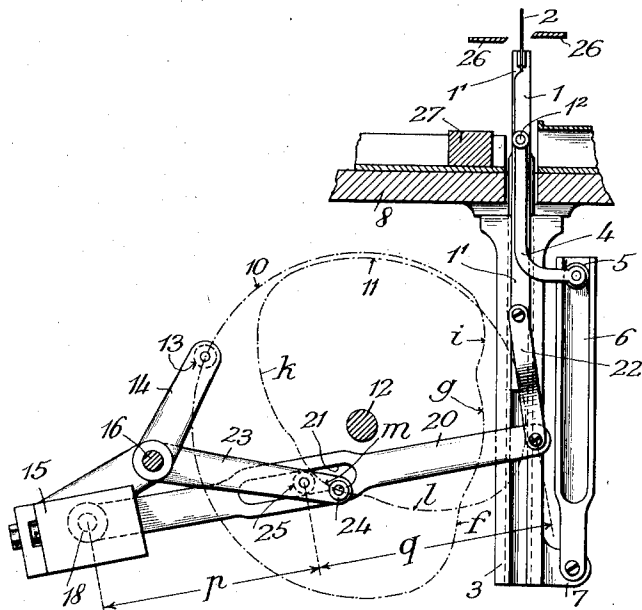


Fig. 2

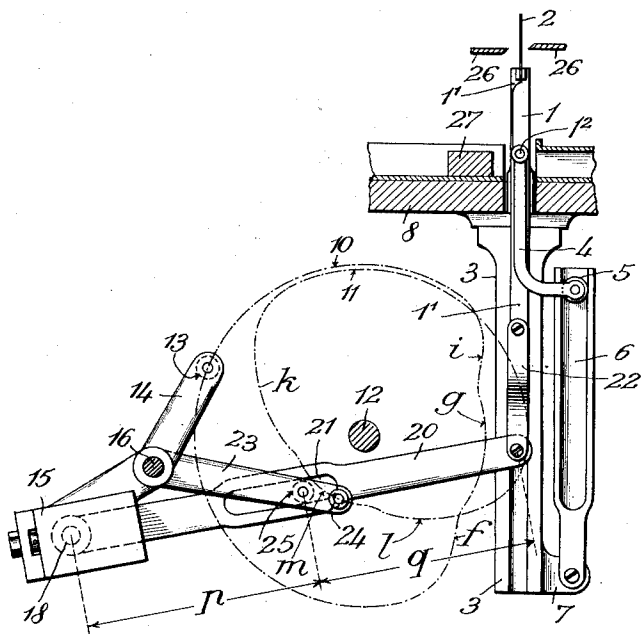


Fig. 3

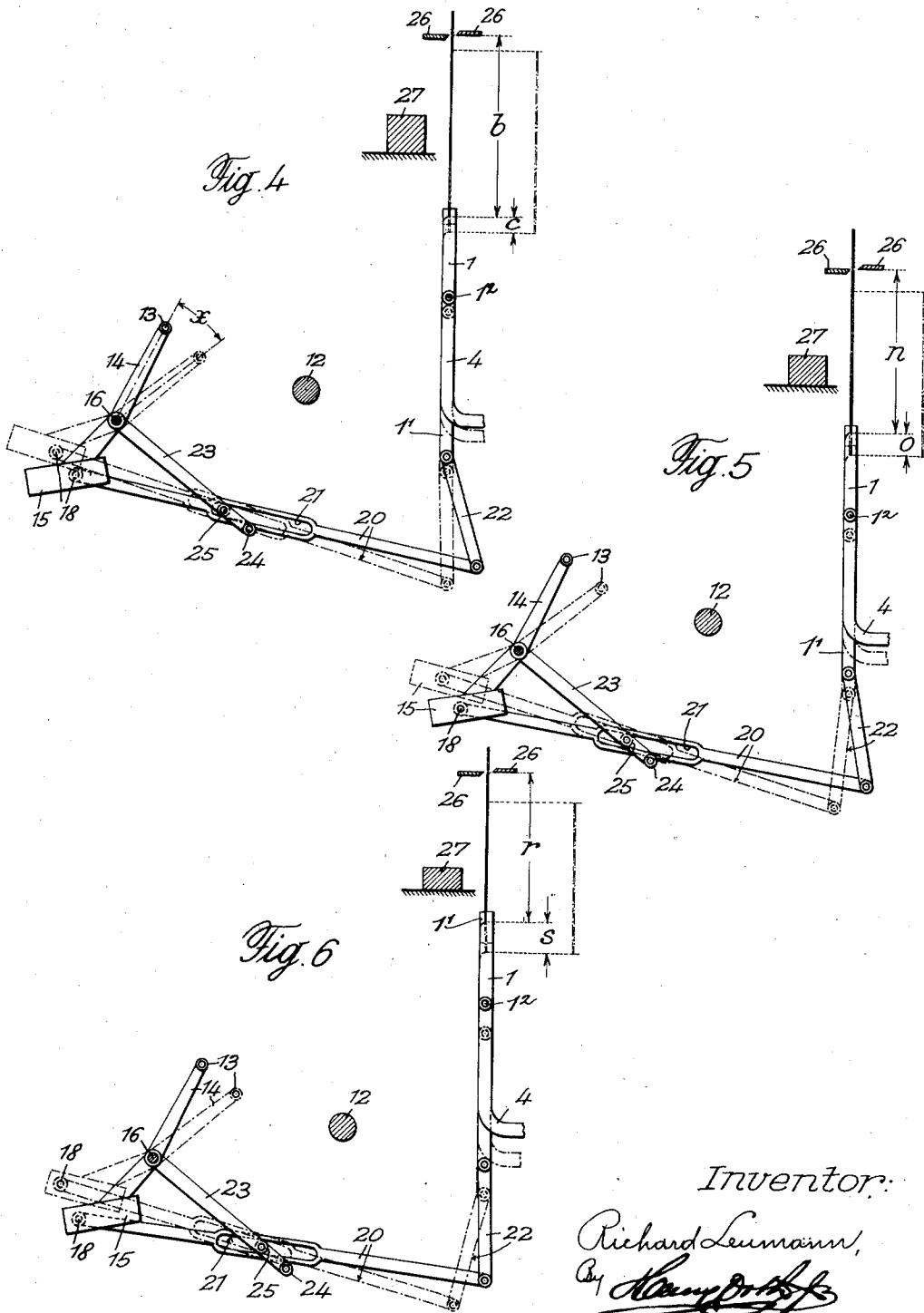
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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PAPER-FEEDING DEVICE FOR WRAPPING-MACHINES.

1,341,184.

Specification of Letters Patent.

Patented May 25, 1920.

Application filed April 30, 1919. Serial No. 293,794.

To all whom it may concern:

Be it known that I, RICHARD LEUMANN, a citizen of the Republic of Switzerland, residing at Villa La Loex, Chailly sur Lausanne, Switzerland, have invented certain new and useful Improvements in Paper-Feeding Devices for Wrapping-Machines; and I do hereby declare the following to be a clear, full, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in paper feeding devices for wrapping- or packing-machines.

In automatically working wrapping-machines in which the distance between a surface of the article to be wrapped and the knives of a paper feeding device remains always the same, the ends of the strip-like paper coverings must be brought onto the surface of the article to be wrapped so that they shall not project beyond the edges of the surface in question. When the size of the articles vary, the object referred to can only be attained when the length of the wrapping strip is also changed in accordance with the circumference of the article and when the paper strip of determinate length severed by the knives of the paper feeding device is conveyed into such a position or is so "centered" with regard to the article to be wrapped that the ends of the strip assume at the end of the wrapping operation the required position with regard to a determinate surface of the article without projecting beyond the edges of said surface.

The object of this invention is to provide a paper feeding device for wrapping-machines of the type referred to, which feeds at any time a length of paper that is adapted exactly to the size of the article to be wrapped and which centers the lengths cut off in the required manner with regard to the article to be inclosed. To this end the paper feeding device according to this invention comprises means adapted to impart a feeding movement to gripping means for seizing the paper strip to be advanced as well as members adapted to impart in connection with members of said feeding means an additional movement to the paper strip that has been cut in order to center it with regard to the

article to be wrapped, the arrangement being such that upon an adjustment of a member determining the feeding stroke of the grippers also a change of the centering stroke adapted to the change of said feeding stroke is effected.

The invention consists also in the particular construction, arrangements and combination of parts of the paper feeding device, as will be hereinafter fully set forth and pointed out in the claims, reference being had to the accompanying drawings which illustrate by way of example one construction of carrying out the invention.

In these drawings:

Figure 1 is a front view of the paper feeding device;

Figs. 2 and 3 are corresponding views illustrating other positions of an adjustable sliding block and of the members connected therewith.

Figs. 4, 5 and 6 are figures illustrating in full lines some members of the paper feeding device in the position which they assume in the positions of the sliding block shown in Figs. 1 and 2, 3 respectively, at the end of the feeding stroke and in dotted lines in the position which they assume at the end of the centering stroke.

Fig. 7 is a section on the line VII—VII of Fig. 1;

Fig. 8 is a section on the line VIII—VIII of Fig. 1, and

Fig. 9 illustrates how a strip of paper has to be wrapped around a die.

Referring to the drawings, 1, 1¹ designate pliers-like gripper means. The member 1 is adapted to be oscillated relatively to the member 1¹ about a pivot 1² which connects said two parts 1, 1¹. The member 1 is rigidly connected to an arm 4 carrying at its outwardly bent lower end a roller 5. The latter works in a groove of a link 6 pivotally mounted at its lower end to a projection 7 of a stationary guide-member 3 fixed to a table 8 of a wrapping- or packing-machine. 30 is a spring fixed at one end to the link 6 and at the other end to a pin 31 fixed in its turn to the table 8. The spring 30 has the tendency to turn the link 6 in a clockwise direction. To the link 6 is pivotally connected a rod 32 which is also pivotally connected to an arm 33. The latter is pivotally mounted on a pin 34 carried by the table 8. To the free end of the arm 33 is secured a roller 35 cooperating with a cam-disk 36 fixed to a

main shaft 12 carrying a loose pulley 12¹ and a fast driving pulley 12². The shaft 12 is mounted in two stationary bearings 12³. Upon a rotation of the cam-disk 36, the link 6 will be oscillated about its pivot, the member 1, 4 being then caused to oscillate about the pivot 1². The lower portion of the part 1¹ is adapted to reciprocate in a vertical groove of the guide-member 3. The grippers 1, 1¹ are adapted to seize upon an oscillation of the part 1¹ relatively to the part 1 the free end of a paper strip 2 fed between them. This strip 2 is unrolled from a roll 37 carried by a shaft 38 and it is conveyed to the grippers 1, 1¹ by two feed rollers 39 working in a well known manner.

9 designates a cam-disk also fixed to the main shaft 12. The cam-disk 9 is provided at its front side with a cam-groove 10 and at its rear side with a cam-groove 11. In the cam-groove 10 works a roller 13 of a lever 14 formed integral with a link 15 and pivotally mounted on a shaft 16 carried by a stationary support 16¹. In a groove 17 (Fig. 8) of the link 15 is movably mounted a slide block 18. The latter can be adjusted within the groove 17 by means of a screw 19 and it is operatively connected to a rod 20 pivotally mounted on said slide block 18. The rod 20 has in its middle portion a slot 21 and to one of its ends is fixed a link 22 connected at its second end to the member 1¹ of the grippers 1, 1¹ reciprocating in the vertical groove of the guide-member 3. On the shaft 16 is also pivotally mounted a lever 23. A roller 24 of this lever 23 engages with the cam-groove 11 of the disk 9 and a pin 25 of it projects into the slot 21 of the rod 20. 26 designates two knives which are for severing a strip of determinate length from the paper strip 2. The distance of the knives 26 from the table 8 remains always the same. One of these knives 26 is fixed to a bracket 40 secured to the table 8. The second knife 26 also carried by the bracket 40 is operatively connected to a cranked lever 41 pivotally mounted on the bracket 40 and connected at one end to a rod 42. The latter is connected in its turn to an arm 43 pivotally mounted on the pin 34 and carrying a roller 44 which coöperates with a cam-disk 45 fixed to the shaft 12. A spring 47 has the tendency to rotate the cranked lever 41 in an anticlockwise direction. Upon a rotation of the shaft 12 and consequently of the cam-disk 45, the crank lever 41 will be oscillated about its pivot causing thereby an oscillation of the movable knife portion about the stationary vertical pivot 46 carried by the bracket 40 so that upon each oscillation of said movable knife portion a strip of paper will be cut off from the tape 2.

The operation of a paper feeding device as hereinbefore described is as follows:

Assuming, for example, that the greatest height or thickness of the article 27 to be wrapped is a (Fig. 1), the slide block 18 movably mounted in the link 15 is brought into the position illustrated in Fig. 1, *i. e.* it is moved toward the right hand end of the link 15. Fig. 1 shows in connection with said position of the sliding block 18 the different members of the feeding device in the position which they assume when the grippers 1, 1¹ are in their uppermost position, *i. e.* Fig. 1 shows said members in the position that they assume immediately before the starting of the feeding stroke. The roller 13 is approximately in the middle of the concentric portion of the cam-groove 10 and the roller 24 coöperates with a short concentric portion m of the cam-groove 11, said portion m being the part of the groove 11 that lies nearest to the axis of the shaft 12. Upon a rotation of the disk 9 in the direction of the arrow A, the roller 24 effects as soon as it passes into the non-concentric portion l of the cam-groove 11 by means of the lever 23 and the pin 25 an oscillation of the rod 20 about the slide block 18 acting as a pivot for this rod 20.

The link 22 connected to the rod 20 then moves the grippers 1, 1¹ seizing the paper strip 2 to an amount b (Fig. 4) downwardly. This movement of the grippers 1, 1¹ corresponds to their paper feeding stroke. The position of the members 23, 14, 20, 21, 1, 1¹ at the end of said feeding stroke of the gripping-irons 1, 1¹ is shown in Fig. 4 in full lines. Immediately upon the termination of said feeding stroke, the rollers 24 and 13 are caused to move in concentric portions of the cam-grooves 11 and 10 respectively. During this span of time no shifting of the paper takes place; the knives 26 are however brought into operation so that a strip of paper having the length b and situated beneath said knives is severed off from the paper strip 2.

In the further course of the rotation of the disk 9 in the direction of the arrow A, the roller 13 is caused to coöperate with the eccentric portion f (Fig. 1) of the cam-groove 10. This causes the lever 14 to turn through an angle α (Fig. 4) in the direction of the arrow B so that the members 14, 20, 22, 1, 1¹ are moved into the positions illustrated in Fig. 4 in dotted lines and the severed strip having the length b is moved downwardly to a further amount c by the grippers 1, 1¹. This additional movement is imparted to the severed paper strip in order to move it into such a position with regard to the article 27 so that the ends E, F of the strip—which upon the releasing by the grippers 1, 1¹ is wrapped by

means not shown on the drawings (which means do not pertain to this invention) in the manner illustrated in Fig. 9 around the article—do not extend beyond the upper or lower edges of the surface *e* (Fig. 9) of the article 27. This additional movement imparted to the grippers 1, 1' for the purpose of moving the severed strip into the proper position with regard to the article 27 that is to be wrapped is the so called "centering-stroke". When the roller 13 has reached the end of the concentric part *g* of the groove 10, the gripping-irons 1, 1' are again moved upwardly into the position illustrated in Fig. 1, this being effected at first owing to the coöperation of the roller 13 with the eccentric portion *i* of the groove 10 and afterward owing to the coöperation of the roller 24 with the section *k* of the groove 11. During the coöperation of the roller 24 with the section *m* of the groove 11, the grippers 1, 1' that have been moved back into the position illustrated in Fig. 1, do not receive any motion, but as soon as the roller 24 passes into the section *l* of the cam-groove 11 said grippers 1, 1' are again moved downwardly. A new working cycle of the paper feeding device then begins which corresponds to that just described.

When smaller articles have to be wrapped in a strip of paper, for instance articles of the size illustrated in Fig. 5, the length of the strip to be severed must be changed. Also the centering stroke has to be changed as the position of the table 8 and the distance of the knives 26 from the table 8 remain always the same. Only when the requirements just mentioned are fulfilled is it possible to position the ends E, F of the severed length in the manner illustrated in Fig. 9 around the article 27 so that they do not extend beyond the lower and upper edges respectively of the surface *e* of the article 27. In such a case, that is when the size of the articles is smaller, the feeding stroke has to be reduced and the centering stroke must be increased. In the hereinbefore described paper feeding device said two strokes can be changed by adjusting the slide block 18, which influences their magnitude, relatively to the link 15. Figs. 2 and 5 and Figs. 3 and 6 respectively illustrate the working of the described feeding device for two positions of the slide block 18 carried by the link 15 differing from that shown in Fig. 1. In the position of the slide block 18 illustrated in Fig. 2, the distance *p* compared with the distance *q* is greater than for the position of the block 18 shown in Fig. 1. The result of this is, that upon an oscillation of the rod 20 about the block 18, which oscillation is brought about by the roller 24 coöperating with the cam-groove 11, the strip of paper is drawn beneath the

knives to an amount *n* (Fig. 5). This amount *n* is smaller than the amount *b* of Fig. 4. On the other hand, as illustrated in Fig. 5, the centering stroke *o* of the grippers due to the coöperation of the roller 13 with the cam-groove 10 is greater than the centering stroke *c* shown in Fig. 4. Such a working corresponds just to the requirements that have to be fulfilled.

In the position of the slide block 18 shown in Fig. 3, the distance *p* compared with the distance *q* is still greater than in Fig. 2. In accordance with the smaller size of the articles 27 that have to be wrapped in this position of the slide block 18, also the feeding stroke *r* will be of smaller and the centering stroke *s* of greater magnitude than in the position of the block 18 illustrated in Fig. 2.

I claim:

1. A paper feeding device of the character described, comprising gripping means adapted to seize the end of a strip of paper, cutting means for severing a length from the strip seized, a member operatively connected to said gripping means, and means for directly acting upon said member in order to cause a determinate length of strip to be passed by said cutting means and to cause an additional movement to the length of paper severed by said cutting means, for the purpose of centering said cut off strip with regard to the article to be wrapped in it.

2. A paper feeding device of the character described, comprising gripping means adapted to seize the end of a paper strip, cutting means for severing a length from the strip, a member operatively connected to said gripping means, means adapted to directly act upon said member so as to cause a determinate length of strip to be passed by said cutting means and to cause an additional movement of the length of paper severed, for the purpose of centering said length with regard to the article to be wrapped, and manually adjustable means operatively connected to said member to adjust the extent of the feeding stroke of the feed means and the amount of additional movement imparted to the cut off length, the change of magnitude of the additional movement being effected in a predetermined relation to the change in the magnitude of the feeding stroke.

3. A paper feeding device of the character described, comprising gripping means adapted to seize the end of a paper strip, cutting means for severing a length from the strip, a rod operatively connected to said gripping means, an adjustable slide block acting as a pivot for said rod, and two members adapted to act upon said rod in order to impart to said gripping means a feeding movement for the purpose of moving a determinate length of the tape past said cutting

means as well as an additional movement for the purpose of centering the cut off strip with regard to the article to be wrapped in said strip, the position of said slide block
5 determining the magnitude of the feeding stroke imparted to the tape by said gripping means and the arrangement being such that an adjustment of said movable member causing a change of the feeding stroke
10 of the gripping means has the effect of changing the magnitude of said additional movement imparted to the gripping means in accordance with the effected change of the magnitude of the feeding stroke.
15 4. A paper feeding device of the character described, comprising gripping means adapted to seize a paper tape, cutting means for severing off a strip of determinate length from the tape seized by said gripping means,
20 a rod operatively connected to said gripping means, a cam disk, means for rotating the latter, a pivotally mounted arm acted upon by said cam disk and operatively connected with said rod, a second pivotally mounted
25 arm also acted upon by said cam disk and provided with a link-like projection, a slide

block adjustably mounted in said projection and acting as a pivot for said rod, and a stationary shaft acting as a pivot for said two arms. 30

5. In a paper-feeding device for wrapping machines, means for supplying a strip of paper from a roll, vertically movable, lever actuated gripping members to seize and withdraw the end of said strip cutting 35 mechanism to sever the withdrawn length, lever actuated centering mechanism to vertically move and center the severed strip with respect to the article to be wrapped, means for moving said lever-actuated 40 mechanisms and means for simultaneously adjusting the effective lever lengths for said actuating mechanisms, whereby the withdrawing movement and the centering movement are simultaneously adjusted. 45

In testimony that I claim the foregoing as my invention, I have signed my name.

RICHARD LEUMANN.

Witnesses:

EDWARD BLAIN,
H. AM.