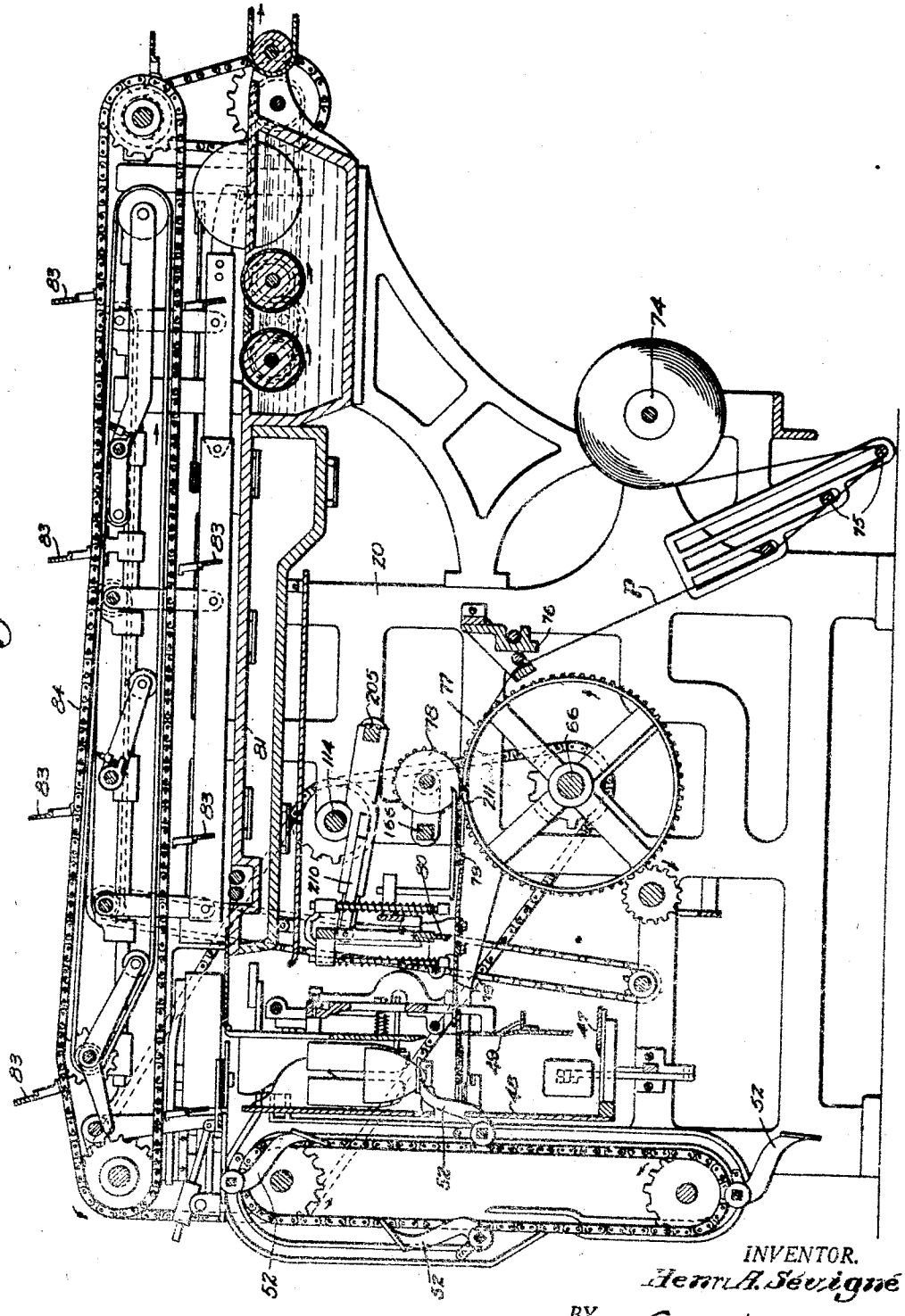
Aug. 16, 1932. H. A. SEVIGNE 1,872,513

WEB FEEDING AND CUTTING MACHINE

Original Filed Sept. 27, 1929 3 Sheets-Sheet 1

Fig. 1.



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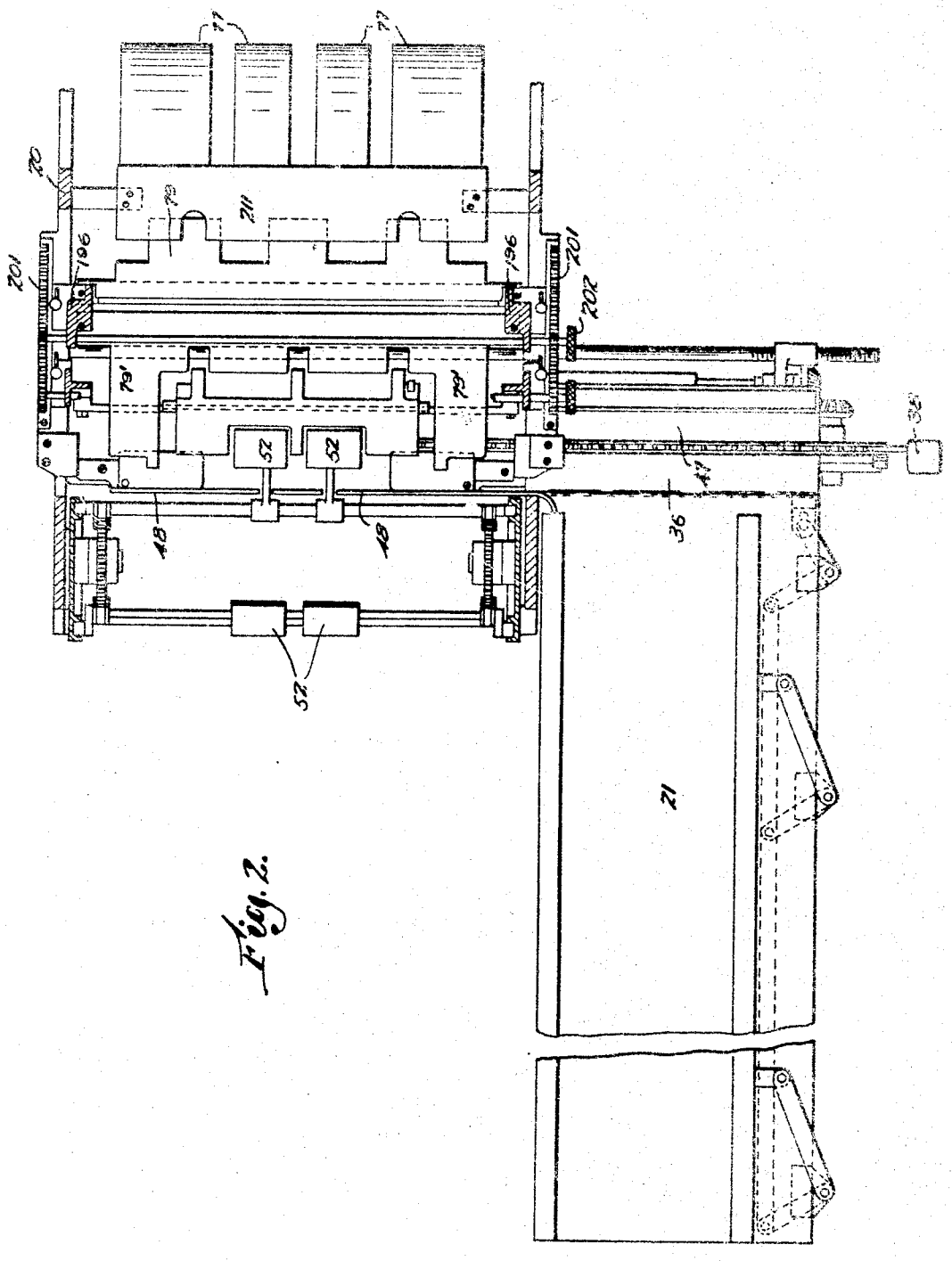


Fig. 2.

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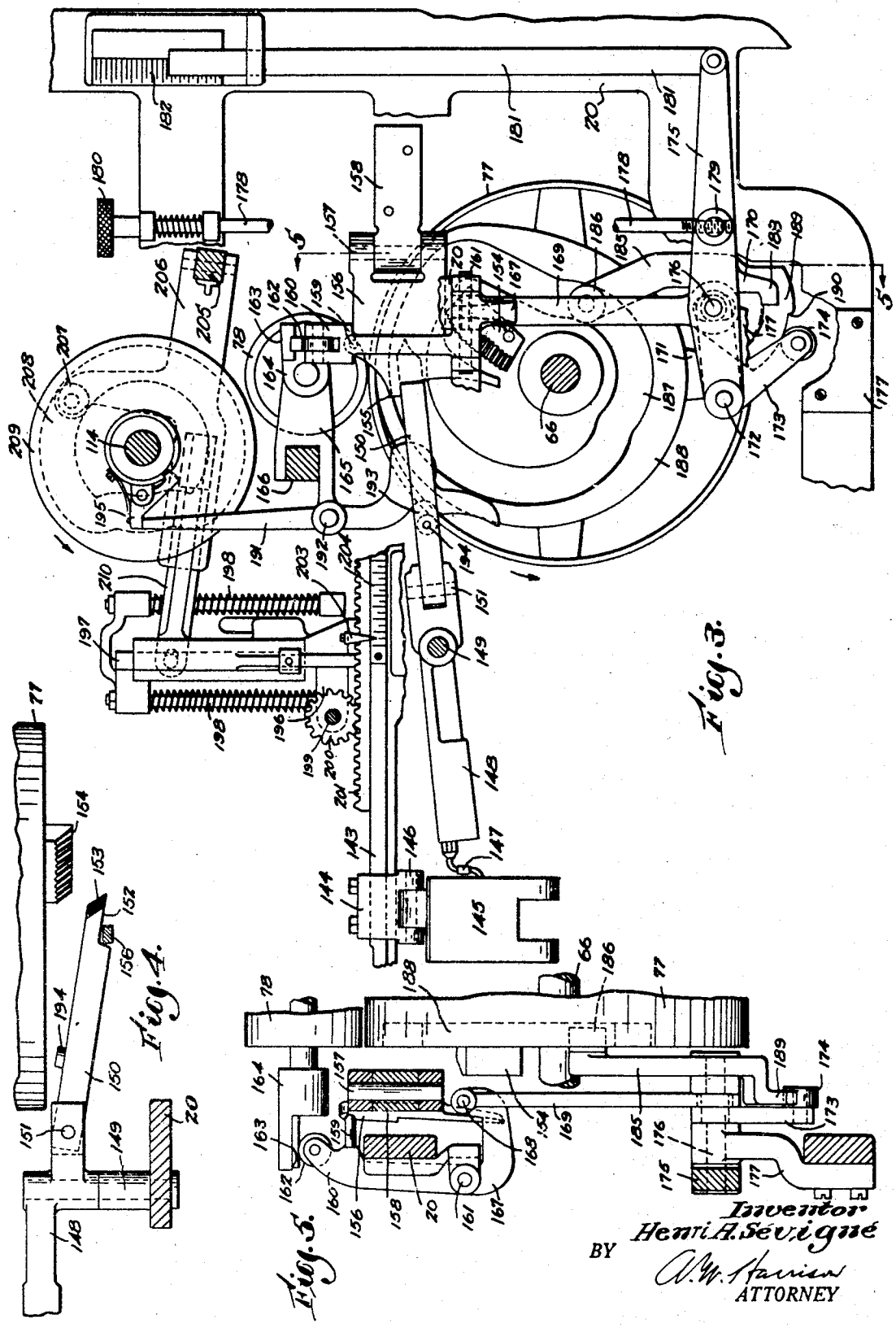


Fig. 3.

Fig. 4.

Fig. 5.

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UNITED STATES PATENT OFFICE

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WEB-FEEDING AND CUTTING MACHINE

Original application filed September 27, 1929, Serial No. 395,608. Divided and this application filed March 30, 1931. Serial No. 526,193.

This invention relates to machines for feeding and cutting a web of sheet material such as paper, and has particular reference to machines adapted to vary the extent or distance of feed of the web to a cutter, in order to sever the web into sections of different sizes.

The machine illustrated and described is similar in principle and operation to that which is described and claimed in Letters Patent No. 1,412,754, issued April 11, 1922 to Sévigné and Arnold, to which patent reference may be had for additional description of the structure and operation of those parts which are similar to parts of the present machine. And reference may also be had to my application Serial No. 395,608, filed September 27, 1929 and which became Letters Patent No. 1,808,181, June 2, 1931, of which the present application is a division.

While the invention claimed in the present divisional application is especially useful in machines for wrapping loaves of bread, as described in the Letters Patents just referred to, I do not limit myself thereto, as the web-feeding and cutting mechanism is useful for many other purposes where it is desirable to sever a web into sections of different lengths according to the needs of other articles with which the sections are to be associated. To facilitate an understanding of the present invention however, it will be mainly described as employed in a bread wrapping machine.

The principal object of the present invention is to provide a machine which is readily convertible to either one of a variety of adjusted conditions, so that a single machine will successively supply sections cut from a web, which sections will be of a size or area best suited to the requirements of other articles to be associated with the sections.

With said object in view, and others hereinafter described, the invention consists in the construction and combination of parts substantially as hereinafter described and claimed.

Of the accompanying drawings:

Figure 1 represents a longitudinal section of a machine which includes my improvements.

Figure 2 represents a section on a horizontal line, illustrating some of the details.

Figure 3 is a view similar to a portion of Figure 1, on a larger scale.

Figure 4 is a detail plan view of some of the parts shown in Figure 3.

Figure 5 represents a section on line 5—5 of Figure 3.

Similar reference characters indicate similar parts or features in all of the views.

In view of the fact that the invention is illustrated as embodied in a bread wrapping machine, although not limited thereto, a preliminary description will be given of some of the mechanism which is employed in that particular type of machine, with the understanding that if information is desired as to other parts of the machine, such as details of the mechanism which causes the bread to travel through the machine and be wrapped while in transit, reference may be had to Letters Patent No. 1,808,181 of which the present application is a division.

Portions of the frame of the machine are illustrated at 20. The articles to be wrapped are placed on an inclined plate 21 (Fig. 2) and pass therefrom onto a horizontal plate or floor 36 which is slotted. Pushers 38 carried by a chain effect a cross-feeding of the articles into the machine and onto a shelf member 47 (Fig. 1), from which they are removed and elevated between wall plates 48, 49, by lifting fingers 52 carried by endless chains. While the articles are moving upwardly, they are partially enwrapped in sections of paper cut from a web, as explained in the patent referred to. The web of paper P is drawn from a roll on a suitably mounted core 74. It passes under gravity rolls 75, then between members of a device which prevents retrograde movement of the web, such device being indicated as a whole at 76, then over the feeding drum 77 carried by a shaft 66, and under the upper roll or rolls 78, and then over a bed 79. The web is cut into sections by a knife 80, and each section is engaged by an upwardly moving article. The completion of the wrapping is effected at the top of the vertical chute through which they are elevated by the lifting fingers 52, and

the wrapped articles are moved horizontally over a sealing table 81 by pushers 83 carried by chains 84.

The mechanism for effecting the feed of the web P and cutting it into sections will now be described.

The frame of the machine has a fixed ledge 143 (Fig. 3) on which is mounted a block 144 having what is termed the selector shoe 145 hinged to it at 146. Said shoe is so located and so formed and supported as presently described that a loaf of bread being pushed under it and into the machine by the cross-feed will swing the shoe 145 upward and, through the mechanism now to be described, automatically vary the length of each wrapper section cut from the web according to the height of the particular loaf which raises said shoe. The said shoe has a flexible-joint connection 147 with the outer end of a lever 148 pivotally supported at 149 and having a laterally movable extension or inner arm 150 connected to it by a vertical hinge pin 151. The inner end of the arm 150 has a notch 152 in one side (Fig. 4) and is laterally bevelled and serrated on the other side of its tip as illustrated at 153. Said serrated tip coacts, in operation, with the bevelled and serrated block 154 which is carried by a disk that rotates with the feeding drum 77, all in a manner similar to the mechanism illustrated in Figure 7 of the Patent 1,412,754 hereinbefore referred to.

As illustrated by comparing Figures 3 and 5, a stop shoulder 155 of a member 156 coacts with the inner end of the compound lever 150, 148, to limit the lower position occupied normally by the selector shoe 145. Said member 156 is connected by a vertical pivot 157 to a bracket 158 fixed to the frame of the machine and therefore can swing laterally. Projecting laterally from the top of the member 156 is a stud 159 adapted to act on a lever 160 which is pivotally supported at 161 and has a roll 162 at its upper end. Said roll moves to and from position under the block 163 which projects from the bearing 164 in which one end of the shaft of the upper rolls 78 is mounted. The said bearing 164 is carried by the arm 165 projecting from the rock shaft 166 the rocking of which to effect intermittent feed of the web P according to whether or not the rolls 78 are lowered to grip the web against the drum 77, will now be described.

The lower end 167 of the lever 160 (Fig. 5) extends inwardly in a somewhat horizontal direction and is connected at 168 to the upper end of a link 169 the lower end of which is connected at 170 to the arm 171 (see dotted lines in Fig. 3) of a bell-crank lever pivotally supported at 172 and having its other arm 173 provided with a roll 174. The pivot pin 172 is carried by one end of a lever 175 pivoted at 176 to a fixed bracket 177. A vertical rod 178 has a screw-threaded lower end engaging an internally threaded stud 179 projecting from the lever 175, the upper end of said rod passing through a stud projecting from the machine frame and having a suitable knob 180. By means of said knob the rod 178 may be rotated so that its lower screw-threaded end will effect adjustment of the lever 175 for a purpose presently described. To enable the amount of such adjustment to be visualized, a gage strip 181 is connected to the end of the lever 175 and extends up through a guide eye of the machine frame and coacts with a scale 182 attached to said frame.

The lever 175 has a lug 183 to coact with a suitable stop projecting from the machine frame, to limit the position to which the lever may be swung in one direction.

A lever 185 (Figs. 3 and 5) is pivotally supported at 176 and has a roll 186 engaging a cam groove 187 in the disk 188 which rotates with the shaft 66 and carries the serrated block 154, and said lever 185 has a lower portion 189 formed with a cam edge 190 to act on the roll 174 of the arm 173 of the elbow lever.

By the mechanism just described, especially the parts shown in the lower portions of Figures 3 and 5, and including the adjusting rod 178, provision is made for ensuring proper length of feed of the web when it is advanced to the cutter by the action of the drum 77 and rolls 78, to suit wide articles as well as narrow ones. When the articles are wide the wrapper sections must be longer than those for narrow articles. The mechanism just referred to permits this to be done without affecting the operation of the selector shoe 145 and its associated members, in automatically varying the length of the sections according to different heights of the articles to be wrapped.

When the lever 185 is rocked by the cam groove 187 (Fig. 3) its cam 190 acts on the roll 174 and, through the bell-crank lever 173, 171, pulls the link 169 down and the latter swings the lever 167, 160 (Fig. 5) so that the roll 162 of the latter moves under the block 163 of the shaft-bearing 164 and separates the rolls 78 from the drum 77 and stops feeding of the web P. By adjusting the rod 178 (Figure 3) the lever 175 is adjusted so that its bell-crank lever 173, 171 is shifted up or down so as to vary the period at which the described lifting of the feed rolls occurs, and thereby cause a greater or lesser range of feed of the web according to whether the articles to be wrapped are wide ones or narrow ones.

As in the Patent 1,412,754, there is no web-cutting operations when there is no feed movement of the web P, and in the present machine the mechanism for controlling this is similar to that of said patent. It includes

a stop lever 191 (Fig. 3) pivoted at 192 to the rock-shaft arm 165 and having a notch 193 cooperating with a roll 194 projecting from the lever arm 150. The upper end of the lever 191 shifts under and from the detent lug 195 carried by the shaft 114. As the structure and operation of this part of the machine is substantially the same as in the Patent 1,412,754, further description thereof herein is unnecessary.

The upright frame 196 (Fig. 3) has guides for the vertical carrier 197 the lower end of which carries the knife blade 80 (Fig. 1). Said frame 196 also carries presser rods 198 similar to those of the Patent 1,412,754. In the present machine however, the knife frame is adjustable toward and from the nip of the web-feeding drum and rolls. To this end, the frame is mounted in suitable slideways and has a transverse shaft 199 provided with a pinion 200 at each end, the said pinions engaging rack bars 201 (Fig. 2) supported by the ledges 143 of the machine frame (Fig. 3). At one end the shaft 199 has a knob or hand wheel 202 by means of which the shaft and its pinions may be rotated to change the position of the knife longitudinally of the machine. When the articles are wide ones, the knife is moved and set farther away from the nip of the feed rolls. As indicated in Figures 1 and 2, the bed plates 79, 79′, which are separated by a narrow space to permit the knife to act, are so connected to the knife frame as to move with the latter when adjustment is effected. Therefore the web is supported by said plates during the operation of the knife regardless of the position of the knife longitudinally of the machine. By means of a pointer 203 carried by the knife frame, said pointer coacting with a scale 204 on the ledge 143, the degree of adjustment of the knife frame can be visualized.

To reciprocate the knife carrier 197, the rock shaft 205 has at each end an arm 206 provided with a roll 207 engaging a cam groove 208 in a disk 209 carried by the shaft 114, and the arms 206 have slidable outer sections 210 which actuate the knife carrier vertically. In other words, the arms of the rock shaft are extensible to perform their functions during any adjusted position of the knife frame.

The web P is moved toward the knife over a fixed bed strip 211 (Figs. 1 and 2) and over the bed plate 79 and under the edge of the knife, the forward edge of the web extending across the chute between the wall plates 48, 49. The overlapping edges of the strip 211 and plate 79 are irregular or recessed as illustrated in Figure 2 so that, while presenting sufficient smooth surface areas for guiding the web to position under the knife, will cause less frictional resistance to the advance of the web than would be the case if said overlapping edges of the strip and plate had no recesses. Said recesses permit the advancing edge of the web to be somewhat wavy transversely, and hence there is less frictional resistance to its advance.

Having now described my invention, I claim:—

1. A machine for feeding and cutting a web of paper, said machine having a support for a rolled web of paper, rolls for feeding the web, means under the control of articles to be associated with sections cut from the web for varying the length of time of operation of said rolls, a cutter for severing the web into sections, and means for adjusting the location of the cutter toward or from the web-feeding rolls.

2. A machine for feeding and cutting a web of paper, said machine having a support for a rolled web of paper, rolls for feeding the web, means under the control of articles to be associated with sections cut from the web for varying the length of time of operation of said rolls, a frame movable toward or from said rolls, a vertically-movable knife mounted in said frame, and means for varying the position of said frame relatively to said rolls.

3. A machine for feeding and cutting a web of paper, said machine having a support for a rolled web of paper, rolls for feeding the web, means under the control of articles to be associated with sections cut from the web for varying the length of time of operation of said rolls, a frame movable toward or from said rolls, a web-cutting knife mounted in said frame, and means for varying the position of said frame relatively to the said rolls, the said frame and a fixed part of the machine having a cooperating pointer and scale to indicate the adjustment of the knife.

4. A wrapping machine having intermittently-separable rolls for feeding a web of paper, a cutter for severing the paper, means for controlling the operation of the feed according to the vertical size of the article to be wrapped, and means for altering the timing of the length of the feeding operation of said rolls, to vary the length of the wrapper sections cut from the web according to whether the articles are wide or narrow.

In testimony whereof I have affixed my signature.

HENRI A. SÉVIGNÉ.