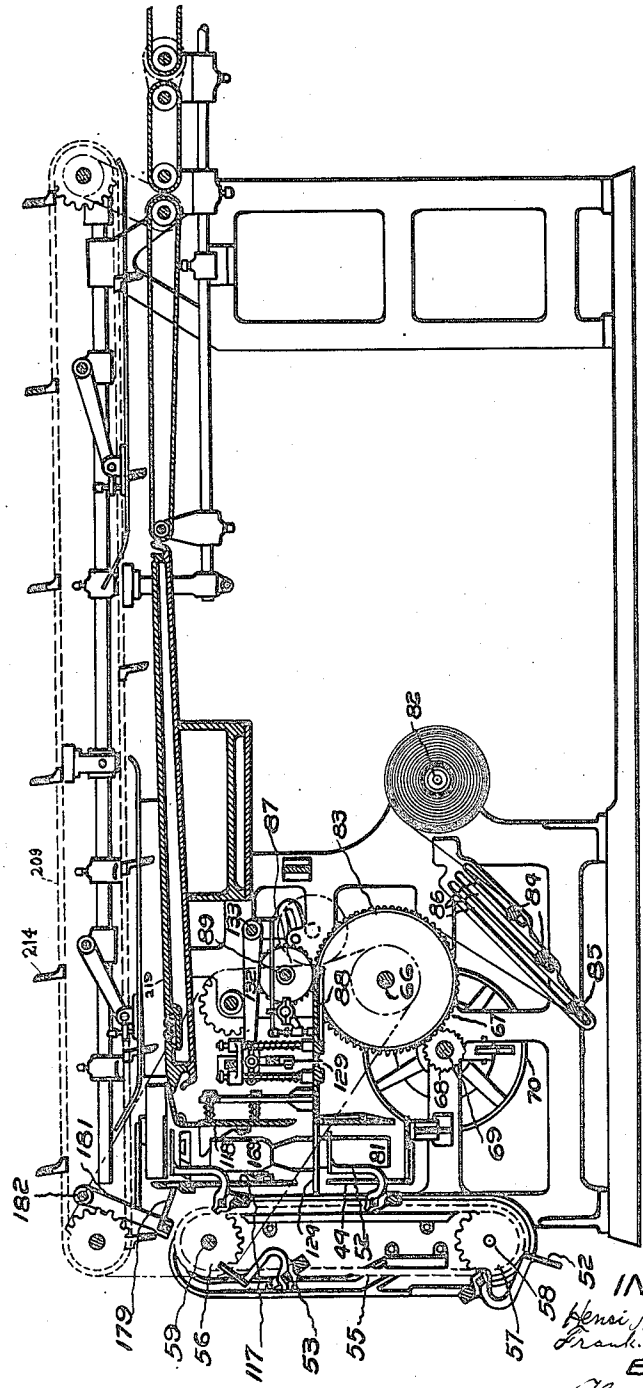
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H. A. SEVIGNE ET AL

WEB TENSION MECHANISM FOR WRAPPING MACHINES

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UNITED STATES PATENT OFFICE.

HENRI A. SEVINGE, OF WINTHROP, MASSACHUSETTS, AND FRANK K. ARNOLD, OF NASHUA, NEW HAMPSHIRE, ASSIGNORS TO NATIONAL BREAD WRAPPING MACHINE COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

WEB TENSION MECHANISM FOR WRAPPING MACHINES.

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To all whom it may concern:

Be it known that we, HENRI A. SEVIGNE and FRANK K. ARNOLD, citizens of the United States, and residents, respectively, of Winthrop, in the county of Suffolk and State of Massachusetts, and of Nashua, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Web Tension Mechanism for Wrapping Machines, of which the following is a specification.

This invention relates to wrapping machines and has particular reference to machines which wrap bread in sections of paper cut from a web. The present application is a division or continuation of our application which became Letters Patent No. 1,253,636, granted January 15, 1918, and of our continuing application which became Letters Patent No. 1,412,754, granted April 11, 1922, in which applications division was required.

The object of the invention claimed herein is to provide means whereby the wrapping material will be delivered uniformly regardless of the gradual reduction of size of the supply roll of paper.

With this object in view, our invention consists in the employment of a plurality of gravity rolls, one above another, in position to bear in or on a single loop of paper being drawn from a roll and fed to cutting and wrapping mechanism, said rolls, or any equivalent thereof such as rods being especially effective when the feed of the paper is intermittent.

The accompanying drawing represents a longitudinal section through a wrapping machine of the character shown in the above mentioned patents.

The articles to be wrapped, such as loaves of bread, are singly and successively introduced into the lower portion of a vertical chute or passageway one wall of which is indicated at 44, and each article is carried up through said chute by lifting fingers 52 which are secured to rods 53 carried by chains 55 running over sprockets 56, 57, mounted on shafts 58, 59.

A shaft 66 having a gear 67 meshing with a pinion 68 carried by shaft 69 having a belt-driving pulley 70 is driven continuously when the machine is in operation. A drum 83 is carried by the shaft 66 and the paper which is to be cut into wrapper sections is intermittently pushed over the bed 88 to positions over the rising loaves in the chute, by the cooperation with said drum of a roll or series of rolls 87 carried by a shaft 89. By any suitable mechanism such as illustrated and described in the above mentioned patents, the shaft 89 is raised and lowered at proper intervals so as to feed a web of paper between them when, and during the time that, the lower position of said shaft causes the roll or rolls 87 to press the web into contact with the continuously rotating drum 83.

The paper is pushed out over fingers or extensions 124 of the bed 88 and a section is cut off by a vertically movable knife 129 operated by arms 132 of a rock shaft 133, and said section is draped over a rising loaf passing up between a rigid wall 117 and a yielding wall 118 and said section is further folded at 169. At the top of the chute a flap of the partly folded wrapper section is acted upon by a tucker 179 carried by arms 181 of a rock shaft 182, and then the wrapped loaf is pushed over the horizontal sealing table 219 by pushers 214 carried by chains 209.

The structure and operation of the parts so far referred to are fully illustrated and explained in the before mentioned patents and need not be further explained herein especially in view of the fact that so far as concerns the invention claimed herein such structure and operation may be of different character.

We will now describe the means for securing uniform delivery of the web of paper to the machine:—

The paper is fed from a roll on a suitably mounted core 82, a single loop of said paper passing under two or three gravity rolls or rods 84, 85, on its way to the feed drum 83, said rolls or rods serving to automatically reduce the pulling tension on the core 82 as the diameter of the roll of paper decreases. As has been explained, the operation of the feeding mechanism 83, 87, is intermittent. The gravity rolls or rods are guided at their ends in inclined ways 86, and are removable

so that others of different weight may be substituted therefor.

The object of the plurality of gravity rods or rolls 84, 85, operating in one loop of paper is to compensate for the gradually lessened size and inertia of the roll of paper. When a large roll of paper is in place, it requires more weight in the loop of paper between the supply roll and the feed drum, to draw off the paper from the supply roll, than when said supply roll is small. When the feeding mechanism acts and takes up some of the loop of paper, if the rod 85 is of insufficient weight to exert an unwinding pull upon the web, the loop continues to be taken up until the next rod 84 is also lifted from its normal lower position so that more than one rod is operating in the one loop. Suitable stops, such as the closed lower ends of the ways 86, serve to normally limit the lower positions of the rods 84 to a higher plane than the lowermost position of the rod 85. When the roll of paper has been considerably reduced in diameter its inertia becomes less and the combined weight of two gravity rods or rolls might then be too great to prevent the feeding action from causing a jerk upon the supply roll. The lower rod 85 alone, however, has not sufficient weight to prevent being lifted up the inclines at the beginning of the feed action, and therefore the pull upon the supply roll is an easy and comparatively steady one. Whenever the weight of the lower rod 85 is insufficient to cause the supply roll of paper to commence to unwind, the shortening of the loop due to the action of the feed mechanism continues until the next higher rod 84 is also lifted by the loop, the combined weight of the two (or even three) rods ensuring an unwinding of the roll of paper until the gravity rods return to their lower normal positions.

The mechanism just described, by automatically reducing the tension on the paper as the diameter of the supply roll is reduced, facilitates continues proper operation of the machine as a whole because it ensures delivery of smooth and untorn sections of paper to be assembled with the loaves of bread.

Having now described our invention, we claim:—

1. In mechanism for drawing a web of paper from a roll, means for compensating for the gradually reducing size and inertia of said roll, said means comprising a pluralty of elongated weights, one above another, in position to bear in a single loop of the web and mounted to be progressively lifted by said loop.

2. In mechanism for drawing a web of paper from a roll, a plurality of weights mounted to act progressively when lifted by a loop of the paper as it is drawn from the roll.

3. In mechanism for drawing a web of paper from a roll, a plurality of idler gravity rods for guiding the paper in the form of a loop as it is drawn from the roll, said rods being mounted to be progressively lifted by said loop.

4. In mechanism for drawing a web of paper from a roll, a plurality of inclined ways having idler weights guided therein in position to engage a single loop of paper as it is drawn from the roll.

In testimony whereof we have affixed our signatures.

HENRI A. SEVIGNE.
FRANK K. ARNOLD.