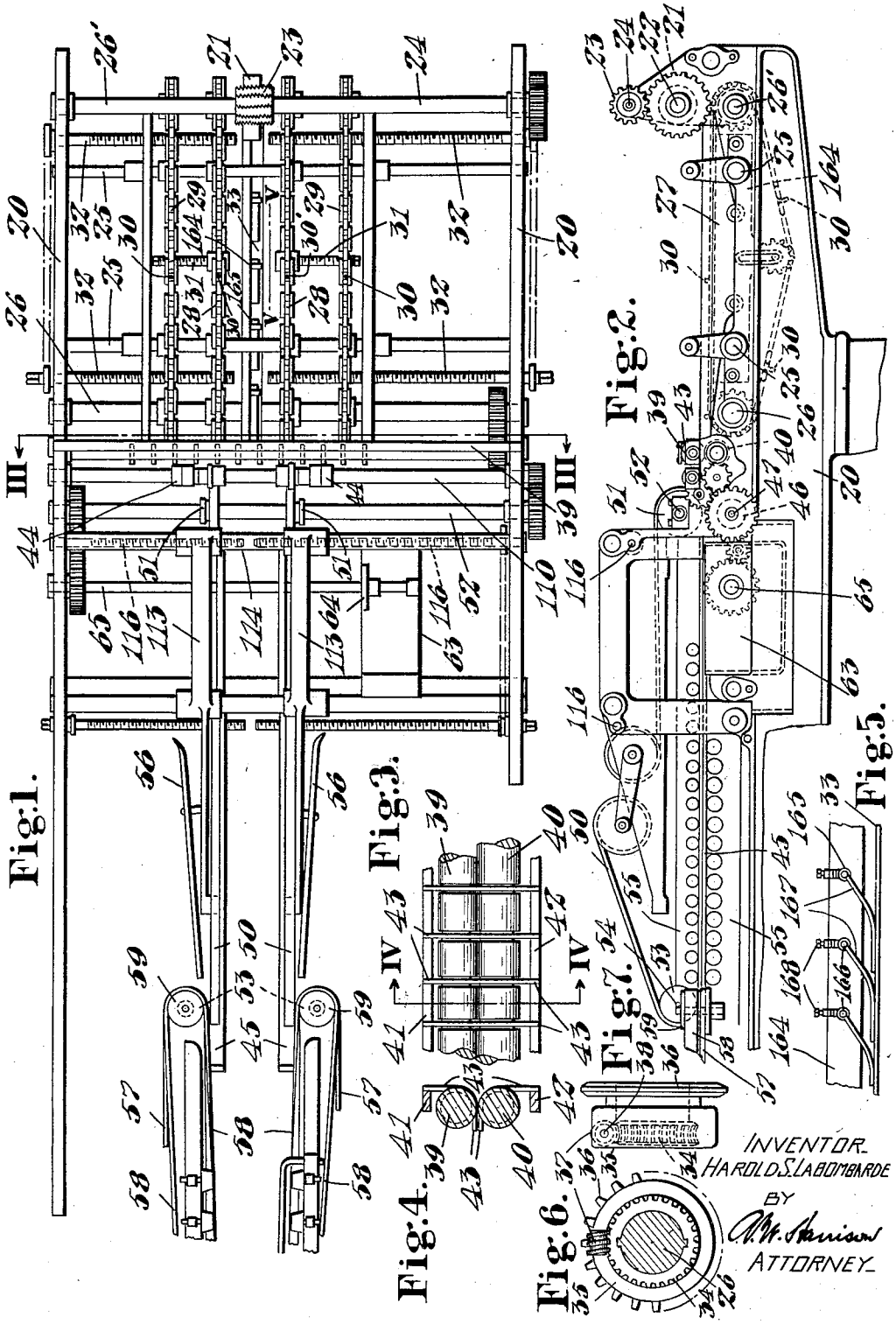
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FEEDER FOR ENVELOPE MACHINES

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HAROLD S. LABOMBARDE, OF NASHUA, NEW HAMPSHIRE, ASSIGNOR TO THE INTERNATIONAL PAPER BOX MACHINE COMPANY, OF NASHUA, NEW HAMPSHIRE, A CORPORATION OF MAINE

FEEDER FOR ENVELOPE MACHINES

Original application filed November 3, 1927, Serial No. 230,746. Divided and this application filed July 30, 1928. Serial No. 296,186.

This invention relates to mechanism for feeding blanks singly and successively to other mechanism which treats the blanks, as by folding them, and the invention has particular reference to feeders for envelope machines of the type illustrated and claimed in my application filed November 3, 1927, Serial No. 230,746, of which the present application is a division.

One of the objects of my present invention is to provide improved means for ensuring accurate feeding of the blanks, and I attain this object by employing four pin-carrying chains for properly alining the blanks, which chains are relatively adjustable so that the rear edge of each blank will be so engaged by four pins, regardless of the shape of said rear edge, that the blank will be pushed along in proper alinement for accurate operation of the creasers and folders, no matter how thin or thick the blanks are.

Another object is to provide means for frictionally holding the blanks back against the alining chain-pins, to aid in ensuring proper alinement of the blanks.

Another object is to ensure the passage of the blanks between the nipper rolls which effect proper travel of the blanks, without liability of even the thinnest of them flexing around said rolls instead of travelling perfectly flat.

With the above stated objects in view, and others which will be explained, the invention consists in the mechanism and in the construction and combination of parts thereof, substantially as hereinafter described and claimed.

Of the accompanying drawings:—

Figure 1 is a plan view of the feeding mechanism.

Figure 2 is a side elevation of the same.

Figure 3 is a detail view, looking toward the left from the line 3—3 of Figure 1.

Figure 4 represents a section on line 4—4 of Figure 3.

Figure 5 is a detail elevation looking from the line 5—5, Figure 1.

Figures 6 and 7 are detail side and edge views of the sprocket adjustment hereinafter described.

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

At one end of the frame 20 of the machine is a combing wheel 21 carried by shaft 22, said wheel feeding the blanks successively from a pile supported by a suitable table not necessary to illustrate. A rotary brush 23, carried by a shaft 24, keeps the combing wheel clean.

Mounted slidably on two tie rods 25 and two shafts 26, 26′, are four carriages 27 for chains 28, 29, the sprockets for which are carried by the shafts 26, 26′. The outer chains 29 have blank-engaging and forwarding pins 30 and the inner chains 28 have blank-engaging and forwarding pins 30′. It is to be understood that in operation each blank fed by the combing wheel is deposited on the chains in front of the four pins thereof.

Each of the two outer carriages 27 is connected to an inner carriage by one or more screws 31 (Fig. 1) whereby lateral adjustment may be effected to cause the chain pins, especially the pins 30′, to properly engage the blanks. This is of particular importance when the blanks have angular corner recesses, which recesses are present in nearly all envelope blanks. The term pins is employed as a short generic word to apply to any kind of projection adapted to push the blanks along.

Screws 32, mounted in the side members of the frame, engage the carriages of both the inner and outer chains to enable the two frames of each pair to be simultaneously adjusted laterally for different sizes of blanks. That is, the two screws 32 at either side may be operated to simultaneously adjust the right-hand or the left-hand pair of pin-carrying chains, while the screws 31 may be operated to vary the distance between the chains of the right-hand pair of the left-hand pair. This provides for locating the pins so they will accurately engage the apexes of angular recesses of a blank regardless of the width of the blank, while the adjustment of the sprockets for the two outer chains as presently described provides for proper simultaneous pushing action of four chain pins against blanks of any selected shape.

In line with the feed wheel 21 and between the carriages of the inner chains 28 is a guide strip 33 supported by the tie rods 25.

The sprockets on the driven shaft 26 for the two outer chains 29 are rotatively adjustable on said shaft to enable the pins 30 of said chains to be advanced or retracted relatively to the pins 30′ of the inner chains 28 so that the four pins which are to engage the rear edge of a blank of a selected shape may be so relatively positioned that all four of said pins will properly and simultaneously engage said edge in the correct locations necessary to ensure that the blanks will not be pushed along askew. To effect this adjustment of the said sprockets (see Figs. 6 and 7), the shaft 26 has two worm-wheels 34 splined thereon, and each worm-wheel has a collar 35 surrounding it, a sprocket 36 for a chain 29 being fixed to or integral with said collar. Mounted in the collar is a worm 37 engaging the worm-wheel 34 and having a portion 38 to be engaged by a wrench whereby the collar and its sprocket may be adjusted rotatively on the shaft. By this means either of the chains 29 can be adjusted to advance or set back its pins 30 relatively to the pins 30′ of the inner chains 28, in order to effect accurate engagement of the four pins with the blanks. In other words, the mechanism described provides for adjusting two of the chains relatively to the other two in the direction of travel of the chains and blanks.

Each blank advanced by the pin-carrying chains is delivered to a pair of driven nipper rolls 39, 40, (Figs. 1, 2, 3 and 4) which are circumferentially grooved. Secured to transverse fixed bars 41, 42, are guides or deflector strips 43 extending into and partly beyond the grooves of the rolls 39, 40, to guide the blanks, especially thin ones, and prevent them from flexing around the rolls. Said strips ensure flat straight delivery of the blanks to the scorers 44 which are, as is customary, laterally adjustable simultaneously with adjustment of the usual folding mechanism when blanks of different widths are to be operated upon.

The blanks are carried by upper and lower belts over a glue disk 64 (Fig. 1) rotating in a glue box 63 and carried by a shaft 65. The two lower belts 45 are mounted at one end on pulleys 46 (Fig. 2) carried by shaft 47. The two upper belts 50, which are much shorter than the lower belts, are mounted at one end on pulleys 51 carried by shaft 52 (Figs. 1 and 2), and at the other end on pulleys 53 carried by idle stud shafts 54. Upper and lower cages 55 support rolls (Fig. 2) for maintaining the carrier belts in operative proximity. Suitably supported inclined bars 56 (Fig. 1) effect preliminary folding of the side portions of the blanks.

From the carrier belts the partially folded blanks pass between a pair of side belts 57 and are acted upon by twist belts 58 which, at one end, are mounted on pulleys 59. The carrying and folding elements just referred to are well known and are illustrated, for example, in Letters Patent No. 960,348 granted June 7, 1910, and do not require a further description herein.

Reference has been made to one of the objects of the invention being to frictionally hold the blanks back against the chain pins which advance them. This is accomplished by means or devices illustrated by Figure 5 in connection with Figure 1. Supported by the tie rods 25 (Figs. 1 and 2), at one side of the guide strip 33, is a vertical strip 164 (Fig. 5) in which studs 165, having slits 166 are rotatively mounted. Secured in the slits 166 are spring fingers 167 which bear on the blanks that are being pushed along the guide strip 33 by the chain-pins and exert sufficient, but light, friction on the blanks to retain their rear edges against the chain-pins. By means of screws 168 suitably mounted in the strip 164 and bearing on the studs 165, said studs can be held in any desired position of rotative adjustment to effect proper pressure of the spring retarders 167 on the blanks being pushed along the strip 33.

The operations of the several parts of the mechanism having been explained in connection with the descriptions of the structure thereof, description of the machine as a whole is unnecessary.

Having now described my invention, I claim:

1. A feeder for delivering blanks to blank-treating mechanism in accurate alinement, said feeder including four pin carriers and means for laterally adjusting said carriers relatively to each other.

2. A feeder for delivering blanks to blank-treating mechanism in accurate alinement, said feeder including four pin carriers and means for simultaneously laterally adjusting either the right-hand or the left-hand pair of pin carriers.

3. A feeder for delivering blanks to blank-treating mechanism in accurate alinement, said feeder including four endless pin carriers, means for adjusting the inner and outer carriers relatively to each other, and means for simultaneously adjusting either the right-hand or the left-hand pair of carriers laterally.

4. A feeder for delivering blanks to blank-treating mechanism in accurate alinement, said feeder including four endless pin-carriers, means for laterally adjusting said carriers relatively to each other, and means for adjusting two of said carriers relatively to the other two in the direction of travel of the said carriers.

5. A feeder for delivering blanks to blank-treating mechanism in accurate alinement,

said feeder including four endless pin-carriers, and means for laterally adjusting said carriers relatively to each other, the driving sprockets for two of said carries being rotatively adjustable on their shafts whereby said two carriers may be adjusted relatively to the other two in the direction of their travel.

6. A blank feeding mechanism having four endless pin carriers for the blanks, side guides to prevent lateral movement of the blanks while travelling with said carriers, and means for laterally adjusting either the right-hand or the left-hand pair of carriers.

In testimony whereof I have affixed my signature.

HAROLD S. LABOMBARDE.