Nov. 17, 1931. W. B. LASHAR 1,832,034

METHOD OF FEEDING TAPE

Filed Jan. 6, 1930

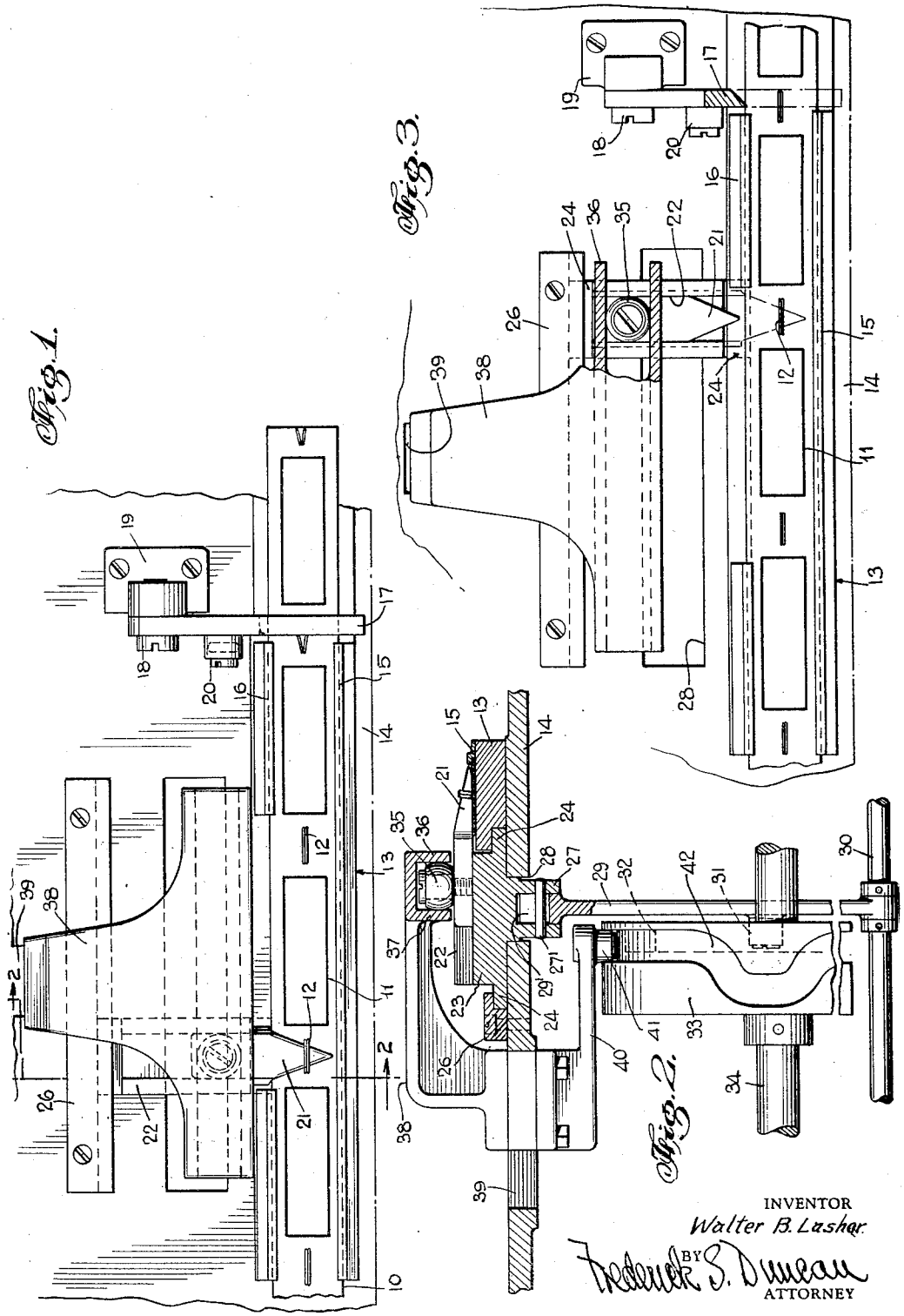


Fig. 3.

Fig. 1.

Fig. 2.

INVENTOR
Walter B. Lashar

BY Frederick S. Duncan
ATTORNEY

Patented Nov. 17, 1931 1,832,034

UNITED STATES PATENT OFFICE

WALTER B. LASHAR, OF FAIRFIELD, CONNECTICUT, ASSIGNOR TO AMERICAN FABRICS COMPANY, A CORPORATION OF CONNECTICUT

METHOD OF FEEDING TAPE

Application filed January 6, 1930. Serial No. 418,692.

My invention relates to an improved method of feeding strips of fabric such as tape and is particularly adapted for feeding label strips to a label cutting machine. Label strips consist usually of tape in which numbers, characters, trade-marks or other identifying markings are woven at intervals, and the strip is severed between markings to provide labels of substantially uniform length.

One of the difficulties encountered in cutting label strips by automatic machinery is due to the fact that the irregularities in the weave result in slight variations in the length of the markings and the spaces between them, and the feed of the label strip to the cutter of the machine must be varied to compensate for such variations. In other words, the length of the label markings as well as of the spaces between markings is determined by fixed numbers of weft threads and hence to insure the proper positioning of the label markings with respect to the cutter, the tape must be fed by steps measured not by fixed linear units but by weft units, otherwise the variations due to irregularities of weave might accumulate to such an extent that the cutter would in time be cutting through the markings instead of intermediate between successive markings.

It has been a practice, heretofore, to form the label strip with a rib in each space between markings, this rib being formed in the strip while the strip is being woven. The strip is then fed into the cutting machine by means of reciprocating fingers which engage the ribs successively and push the label strip toward the cutter to definite successive positions with respect to the cutter. One of the objections to this system is the fact that the ribs necessarily project very slightly above the surface of the tape and, as a consequence, the fingers sometimes fail to engage a rib. The markings themselves are usually raised above the main body of the tape and, if the fingers fail to engage a rib, they will engage the next adjacent marking and push the label strip forward to such position that the cutter will cut through a marking rather than through the space between markings.

It is an object of my invention to provide an improved method of feeding the tape by which the tape is more positively engaged and its feed to desired position with respect to the cutter is assured. In my co-pending application, Serial No. 418,006 filed January 2, 1930, I disclose an improved label strip in which a loop is formed between each successive pair of markings, and it is an object of the present invention to provide a method of feeding such a tape and means for carrying out the method.

With these and other objects in view which will appear hereinafter I shall now describe a means for carrying out my improved method of feeding tape and will thereafter define the novelty and scope of my invention in the claims.

In the accompanying drawings

Figure 1 is a plan view of a tape-feeding machine adapted to carry out my improved tape-feeding method,

Fig. 2 is a view in cross-section taken on the line 2—2 of Fig. 1 and

Fig. 3 is a plan view similar to Fig. 1 but showing parts in a different position.

In the drawings, the label strip of tape is indicated by the reference numeral 10. The tape is provided with label marking indicated at 11, which are suitably spaced apart, while in each space between markings is a loop 12 which runs lengthwise of the tape. The tape is supported on a plate 13 which is secured to a table 14. On the plate 13 there is an outer guide 15 and a shorter inner guide 16 which serve to maintain alinement of the tape. A cutter for severing the tape is shown at 17 and consists of a blade pivoted at one end upon a screw 18 threaded into a bracket 19 supported on the table 14. A rod 20 is pivotally secured to the blade and provides means for operating the same. The operating rod 20 may be connected with a cam by which the blade will be operated at fixed time intervals. The means for operating the cutting blade forms no part of my invention and hence is not shown in the drawings.

To feed the tape to the cutter I provide a finger 21 which is arranged to move transversely and also parallel to the run of the tape. To this end the finger is mounted to

slide in transverse guides 22 secured to a slide plate 23 and the latter slides longitudinally or parallel to the tape. The slide plate rests on the table 14 and is formed with flanges 24 on opposite sides thereof. One of the flanges slides in a recess formed between an undercut edge of the plate 13 and the table 14. The other flange is engaged by an overlapping guide member 26 secured to the table. The plate 23 is formed with depending ears 27 which project through a slot 28 formed in the table 14 and carry a pin 27'. The pin is engaged by the forked end 29' of an arm 29 which is journalled on a shaft 30. Intermediate its ends the arm 29 carries a roller 31 which engages a cam groove 32 formed in the face of a cam 33. The cam is fixed to a drive shaft 34. The shape of the cam groove 32 is such as to swing the arm 29 back and forth, thereby reciprocating the slide plate 23 and giving the finger 21 a movement parallel to the run of the tape.

Mounted on the finger 21 is a roller 35 which is adapted to ride in a slot formed between a pair of depending flanges 36 and 37 on an arm 38. This arm projects through and has sliding engagement with a slot 39 formed in the table 14, the slot running transversely to the direction of movement of the slide plate 23. Rigidly secured to the arm 38 below the table 14 is an arm 40 which at its forward end carries a roller 41. The roller 41 engages a cam groove 42 cut in the periphery of the cam 33.

The operation of the machine is as follows: Assuming that the parts are in the position shown in Fig. 1 with the finger 21 in its forward transverse position engaging the loop 12, the cam 33 acting on the arm 29 will cause the plate 23 to be moved toward the right, as viewed in the figure, feeding the tape toward the cutter 17. When the finger has reached the limit of this stroke a proper length of the tape will have been fed to the cutter, and the latter will then be operated to sever the strip cutting off a label. Either while the cutter is operating or thereafter, the cam 33 will retract the arm 38 disengaging the finger from the loop, as shown by full lines in Fig. 3. The cam will hold the arm 38 in such retracted position while it returns the side plate 23 to the position shown in Fig. 1, after which the cam will cause the arm 38 to swing forward, sliding the finger 21 into engagement with the next succeeding loop on the tape. This completes a cycle of movement.

It will be observed that the finger 21 is wider than the length of the loops and has a pointed end so that it will be sure to engage the loop regardless of slight variations in the position of the loop due to irregularities of weave. The variations between successive loops is slight and less than the span of each loop. Normally the point of the finger is alined with the center of a loop as the finger is moved into engagement with the loop. If, by reason of a local variation in the weave, the center of the loop lies behind the axis of the finger, the tape will be advanced by the taper of the point as the latter is moved transversely into engagement with the loop. On the other hand, if the loop is slightly advanced with respect to the axis of the finger, the tape will be drawn back by the finger as the pointed end is introduced into the loop. Thus engagement of the loop by the finger results in positioning the tape. Since the loop is woven into the fabric while the fabric is being formed on the loom, each loop bears a definite position with respect to the markings woven in the tape, and consequently the feed of the tape is corrected at each cycle of the feed mechanism to compensate for irregularities of weave.

I have described the label strip as a tape but by that term I mean to include any strip of fabric whether formed with selvaged edges or not.

While I have described my invention as applied to a label cutting machine it will be obvious that the same method of feed could be employed for other purposes as well without departing from the spirit and scope of my invention as defined in the following claims:

I claim:

1. In the method of feeding a tape formed with a longitudinally-disposed loop, the steps which comprise, transversely engaging the loop, and longitudinally moving the tape by means of the loop to a fixed position.

2. In the method of feeding a tape formed with a longitudinaly-disposed loop, the steps which comprise, engaging the loop, longitudinally moving the tape, and positioning the tape with respect to a fixed point.

3. In the method of feeding a tape formed with a loop, the steps which comprise, engaging the loop and simultaneously positioning the tape with respect to a fixed point, and moving the tape through a fixed distance with respect to said point.

4. In the method of feeding a tape formed with a loop, the steps which comprise, engaging the loop, positioning the tape by such engagement with respect to a fixed point, and moving the tape through a fixed distance with respect to said point.

5. In the method of feeding a tape formed with a loop, the steps which comprise engaging the loop, moving the tape by means of the loop to a fixed position, and disengaging the loop.

6. In the method of feeding a tape formed with spaced longitudinally-disposed loops, the steps which comprise, moving an engaging means transversely into engagement with a loop, moving the engaging means through a fixed distance, withdrawing the engaging means transversely to disengage the loop,

and returning the engaging means to a position to engage a succeeding loop.

7. In the method of feeding a tape formed with spaced longitudinally-disposed loops, the steps which comprise, moving an engaging means transversely into engagement with a loop and thereby positioning the tape with respect to a fixed point, moving the engaging means through a fixed distance to advance the tape longitudinally with respect to said point, withdrawing the engaging means from engagement with the loop and returning the engaging means to a position to engage a succeeding loop.

In testimony whereof, I have signed this specification.

WALTER B. LASHAR.