Aug. 8, 1939 S. PRICE 2,169,058

TAPE SERVING MACHINE

Filed Sept. 1, 1937

FIG. 1

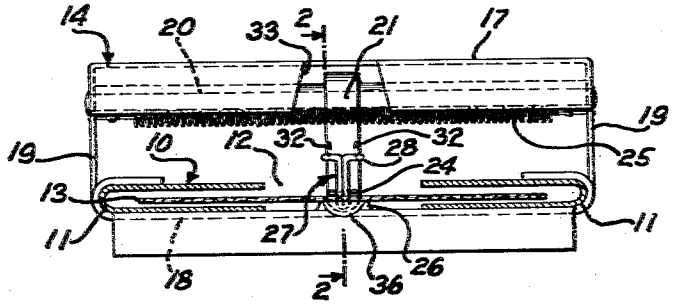



FIG. 2

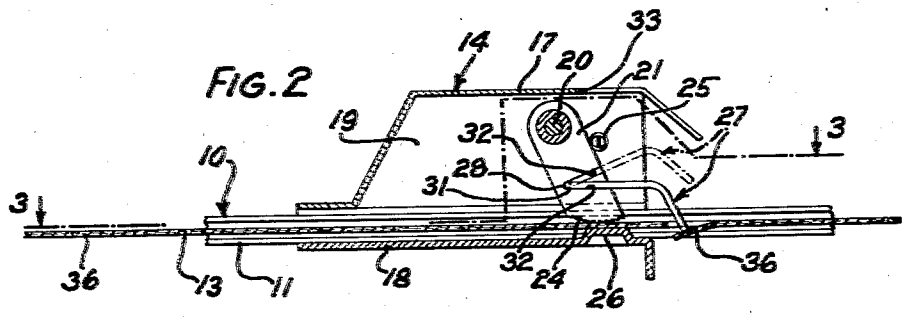
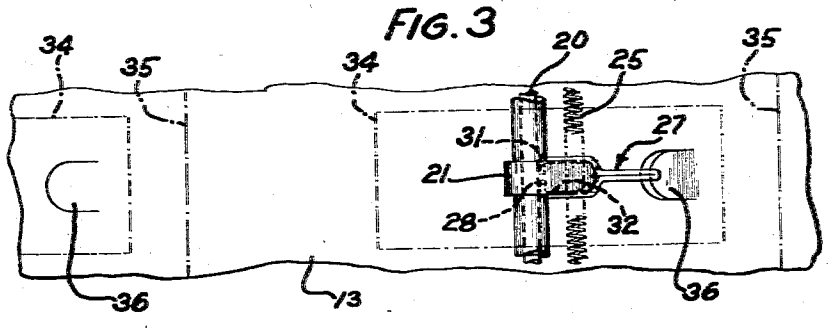



FIG. 3




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## TAPE SERVING MACHINE

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7 Claims. (Cl. 271—2.5)

This invention relates to tape serving machines and more particularly to tape feeding devices for machines of the general type disposed in United States Patent 2,021,038, November 12, 1935.

The aforementioned patent discloses a tape serving machine including a device for feeding a continuous web of gummed tape having spaced printed label portions thereon to tape moistening and severing devices, the tape being delivered from the machine ready for application to packages. The feeding device includes a carriage supporting a pivotal tape gripping shoe having a serrated face which cooperates with a raised portion in the lower wall of the carriage to grip the tape therebetween when the carriage is moved to feed tape, the movement of the shoe into gripping engagement with the tape being controlled by a feeler dog fixed to the shoe which normally engages the surface of the tape and holds the shoe from engagement with the tape. The dog cooperates with feeler receiving portions formed in the tape at intervals corresponding to the length of the individual label portions in such a manner as to permit the shoe to move into gripping engagement with the tape so that only predetermined lengths or complete label portions are fed past the tape moistening and severing devices, whereby the tape served is not severed across a label portion. A tape feeding device of the above described type cannot be used for feeding plain gummed tying or sealing tape, that is, tape to be used solely for tying and sealing purposes and which is used in great quantities, and such tape for economy and other reasons is not provided with printed label nor feeler receiving portions.

An object of this invention is to provide a simple, practical and efficient tape feeding device for machines of the referred to type which can be readily adapted for feeding plain tape, or tape having spaced feeler receiving formations corresponding to predetermined lengths thereof.

In accordance with the object, one embodiment of this invention, as applied to the serving of tape from a machine of the above referred to type, contemplates a tape feeding device wherein a pivotal tape gripping shoe pivotally carries a feeler dog which is latchable into either of two positions in one of which it will engage the surface of tape mounted in the machine and provided for labeling or other purposes and in the other position will be freely spaced from the surface of tape mounted in the machine and to be used for tying or sealing purposes. In the latter position of the feeler dog the gripping shoe engages the surface of the tape at all times, but only in a movement of the carriage to feed the tape will it serve to grip the tape to the carriage.

Other features and advantages of this invention will more fully appear from the following detailed description taken in connection with the accompanying drawing, wherein—

Fig. 1 is an end elevational view of tape feeding device embodying the features of the invention, an inclined tape guide of the machine upon which the device slides being shown in section;

Fig. 2 is a vertical section taken on the line 2—2 of Fig. 1, and

Fig. 3 is a fragmentary plan taken on the line 3—3 of Fig. 2.

In the drawing the invention is shown as applicable to a gummed tape serving machine of a well known type, such as is disclosed in the above referred to patent, and only such parts thereof are illustrated and will be referred to which are necessary to a full understanding of the present application of the invention.

Referring to the drawing, particularly Figs. 1 and 2, a tape guide is indicated fragmentarily at 10, the guide although shown horizontally in the drawing for simplicity in illustrating the present invention is actually inclined, as shown in the referred to patent. The guide 10 comprises a single piece of sheet metal having its longitudinal edges folded over to form U-shaped channel portions 11 and is centrally slotted at 12 (Fig. 1) for the greater portion of its length for a purpose which will be made apparent hereinafter. Gummed tape 13 from a roll (not shown) is guided during the serving thereof from the machine between the spaced walls of the guide channel portions 11 and to the severing and moistening devices (not shown).

Slidably mounted upon and surrounding the tape guide 10 is a tape feeding device embodying the features of this invention comprising a carriage 14 having upper and lower walls 17 and 18, respectively, and side walls 19. Pivotally carried, as indicated at 20, on the opposite side walls 19 is a tape gripping dog or shoe 21 provided with an eccentrically disposed serrated tape gripping surface 24. The pivotal shoe 21 is normally urged clockwise by gravity and also by a coiled spring 25 which extends between and is secured at opposite ends to the carriage side walls 19 and bears against the forward or right end face of the shoe. A circular embossment 26 is formed in the lower wall 18 of the carriage in line with the gripping shoe surface 24, the shoe and the embossment extending into the slot 12 of the guide 10, previously referred to.

Pivotally carried on the tape gripping shoe 21 is a bifurcated tape feeler dog 27 in the form of a single piece of spring wire bent into a generally U-shaped formation with short inwardly right angularly turned portions 28 formed at the ends of its furcations, the feeler dog portions 28 being fulcrumed in depressions 31 provided in opposite side faces of the gripping shoe. The feeler dog 27 extends forwardly of the gripping shoe 21 and terminates in a downwardly curved rounded outer end which in one position of the feeler dog engages the surface of the tape 13. Formed in each of the opposite side faces of the gripping shoe 21 is a V-shaped shallow channel 32, the meeting arms of each channel terminating at the fulcrum points 31 for the feeler dog portions 28. The tension between the feeler dog furcations engaged in the shallow channels 32 is such that the feeler dog may be flipped upwardly or downwardly about its fulcrum points 31 to the full or broken line positions, respectively, and will remain thereat until flipped to its other position. To permit the feeler dog 27 to be readily moved, by an operator's finger, to one or the other of its positions, the upper carriage wall 17 is cut away, as indicated at 33.

The continuous gummed tape 13 (Figs. 2 and 3) when provided with spaced printed labels, slogans, or other matter, is preferably severed between the printed portions for best appearance. This is particularly desirable when the machine is to be used for cutting labels, for example, so that each successive label portion will have the same position on each successive portion. Referring to Fig. 3, one embodiment of the tape 13 having printed labels is illustrated wherein successive printed labels are indicated in broken outline at 34 and the line of severing between successive label portions of the tape by broken lines 35. Formed in the labeling tape 13 at intervals corresponding to the length of the individual label portions 35 are punched tab-like formations 36 which may be formed in the tape during the printing operation. The punched tabs 36 are located intermediate the side edges of the tape and in line with the feeler dog 27. Although the tabs 36 are formed in the tape 13 within the boundary lines of the labels 34, in the present embodiment, it will be understood that they may, if desired, be located, for example, between successive labels in unprinted areas of the label portions 35.

To operate the tape feeding device embodying the features of this invention when it is desired to feed labeling tape 13 of the type described so that successive label portions 34 will be fed past the moistening and severing devices and the label portions severed at the lines 35, a roll of labeling tape is inserted in and threaded through the machine and the spring retained latchable feeler dog 27 flipped downwardly from its broken line position (Fig. 2) to a position wherein its rounded outer end will engage the surface of the tape and hold the gripping shoe 21 out of engagement with the surface of the tape against the action of gravity and that of the spring 25 tending to move it into engagement with the tape. It is to be understood that adjustable lower and upper limit stop members (not shown) for the tape feeding carriage 14 are provided on the machine, for a purpose similar to that described in the aforementioned patent. Briefly described, the lower stop member limits the feeding movement of the carriage and is adjustable for different length label portions 34 and its position determines that only complete label portions will be fed; while the upper stop member limits the return stroke of the carriage 14 whereby only a complete label portion 34 or multiples thereof may be fed in a feeding movement of the carriage. After inserting the roll of labeling tape 13 and positioning the feeler dog 27 as described, the carriage 14 is moved upwardly upon the guide 10, or to the left as viewed in Fig. 2 against the upper limit stop member and the tape 13 adjusted longitudinally until the downwardly curved rounded outer end of the feeler dog bearing on the upper surface of the tape, engages a tab 36 whereupon it is pressed downwardly slightly with its free end below the surface of the tape, as shown in Fig. 2.

The slight downward movement of the feeler dog 27 as just described is merely sufficient to permit the eccentric serrated face 24 of the gripping shoe 21 to contact the surface of the tape and due to the action of gravity and that of the spring 25 the shoe face 24 will engage the tape with sufficient friction to positively grip the tape against the carriage embossment 26 so that upon a forward, or movement to the right of the carriage 14, as viewed in Fig. 2, the tape will be fed past the severing and moistening devices (not shown) of the machine a distance determined by the lower limit stop member, with the predetermined line of severing 35 directly in line with the severing device. The arrangement is such that at no time does the feeler dog 27 exert longitudinal pressure on the tape tending to push or pull the tape forward, but merely such pressure thereon to force the tab 36 slightly downwardly to permit a movement of the shoe 21 to grip the tape to the carriage, the downward movement of the feeler dog thus merely effects a movement of the gripping shoe into operative relation with the tape at the desired predetermined place. It is to be understood that instead of the punched tabs 36 other types of feeler dog receiving formations may be used in the tape with equally good results, for example, plain apertures could be used.

When the machine is to be used for serving plain tape having previously been used for serving labeling or other type tape, it is merely necessary to flip the spring retained latchable feeler dog 27 upwardly to its broken line position (Fig. 2) wherein the rounded outer end thereof will be raised from the surface of the tape 13 and the gripping shoe will be permitted to engage the surface of the tape, and insert a roll of plain tape in and thread it through the machine. The upper and lower limit carriage stop members are adjusted for the particular length of tape to be fed and served from the machine and then the carriage 14 is moved towards the left Fig. 2 upon the guide 10 and against the upper stop member. In a tape feeding movement of the carriage 14 towards the right and into engagement with the lower limit stop member, the shoe 21 will grip the tape to the carriage and a length of tape will be fed past the severing and moistening devices a distance determined by the distance between the upper and lower limit carriage stop members.

Due to the eccentrically disposed face 24 and the shape of the serrations thereof on the gripping shoe 21 no gripping of the tape 13 to the carriage 14 will occur during a return stroke of the carriage, or a movement to the left, as viewed in Fig. 2 in either position of the feeler dog 27 upon the gripping shoe. When the feeler

dog **27** is engaging labeling tape the gripping shoe may at times receive a slight rocking motion as the end of the dog rides onto and off of successive tabs **36**.

From the above description it is apparent that a tape serving machine embodying the features of this invention is very simple and efficient and may be readily and conveniently adapted to serve plain gummed tape for tying and sealing purposes, or tape with printed label or other printed matter, and feeler receiving formations. Also, it may be found desirable to serve tape without printed matter, but having feeler receiving formations whereby predetermined lengths thereof may be fed.

Although only one specific embodiment and application of the invention has been shown and described herein, it should be understood that the device is capable of other modifications and adaptations without departing from the spirit and scope of the appended claims.

What is claimed is:

1. An adaptable feeding device for tape serving machines for feeding plain tape, or tape having spaced formations corresponding to predetermined lengths thereof, comprising a tape feeding carriage supporting a tape gripping shoe with a normal tendency to engage the tape, a tape feeler dog fulcrumed on said shoe, and means effective for retaining said feeler dog in a plurality of adjusted positions, said dog cooperating with the spaced tape formations in one adjustment thereof to control the engagement of the shoe with the tape, said dog in another adjustment when plain tape is to be fed permitting the shoe to constantly engage the tape.

2. An adaptable feeding device for tape serving machines for feeding plain tape, or tape having spaced formations corresponding to predetermined lengths thereof, comprising a tape feeding carriage upon which is movably supported a tape gripping shoe with a normal tendency to engage the tape, a tape feeler dog fulcrumed on said shoe, and means effective for retaining said feeler dog in a plurality of adjusted positions, said dog cooperating with the spaced tape formations in one adjustment thereof to control the engagement of the shoe with the tape, said dog in another adjustment when plain tape is to be fed permitting the shoe to constantly engage the tape.

3. An adaptable feeding device for tape serving machines for feeding plain tape, or tape having spaced formations corresponding to predetermined lengths thereof, comprising a slidable tape feeding carriage pivotally supporting a tape gripping shoe with a normal tendency to engage the tape, a tape feeler dog fulcrumed on said shoe, and means effective for retaining said feeler dog in a plurality of adjusted positions, said dog cooperating with the spaced tape formations in one adjustment thereof to control the engagement of the shoe with the tape, said dog in another adjustment when plain tape is to be fed permitting the shoe to constantly engage the tape.

4. An adaptable feeding device for tape serving machines for feeding plain or printed tape, or tape having spaced formations corresponding to predetermined lengths thereof, comprising a slidable tape feeding carriage supporting a tape gripping shoe with a normal tendency to engage the tape, a pivotal tape feeler dog carried on said shoe, and means for latching said dog into a plurality of positions in one of which it cooperates with the spaced tape formations to control the engagement of the shoe with the tape, said dog in another latched position when plain tape is to be fed permitting the shoe to constantly engage the tape.

5. An adaptable feeding device for tape serving machines for feeding plain or printed tape, the latter tape having spaced formations corresponding to the length of an individual printed portion or unit lengths thereof, comprising a tape feeding carriage supporting a tape gripping shoe with a normal tendency to engage the tape, and a bifurcated tape feeler dog having its furcations pivoted on opposite sides of said shoe, said shoe being provided with latching formations cooperating with said dog furcations for retaining said dog in a plurality of positions in one of which it cooperates with the spaced tape formations to control the engagement of the shoe with the tape, said dog in another position when plain tape is to be fed permitting the shoe to constantly engage the tape.

6. An adaptable feeding device for tape serving machines for feeding plain or printed tape, the latter tape having spaced formations corresponding to the length of an individual printed portion or unit lengths thereof, comprising a tape feeding carriage pivotally supporting a tape gripping shoe normally urged by gravity to engage the tape, and a bifurcated tape feeler dog formed from spring wire having angularly disposed portions of its furcations pivoted in apertures provided in opposite sides of said shoe, said shoe being formed with angularly disposed channels upon each side terminating at the pivot apertures, said channels and the spring wire dog furcations cooperating to retain said dog in a plurality of positions in one of which it cooperates with the spaced tape formations to control the engagement of the shoe with the tape, said dog in another position when plain tape is to be fed permitting the shoe to constantly engage the tape.

7. An adaptable feeding device for tape serving machines for feeding pain or labeling tape, the latter tape having spaced formations corresponding to the length of an individual label portion or unit length thereof, comprising a tape feeding carriage supporting a pivotal tape gripping shoe normally movable to engage the tape, a tape feeler dog pivoted on said shoe, and means effective for retaining said feeler dog in a plurality of adjusted positions, said dog in one adjustment being engaged with the tape for controlling the engagement of the shoe with the tape and cooperating with the tape formations in said adjustment to permit the shoe to move into gripping engagement with the tape whereby individual label portions of the tape or unit lengths thereof will be fed, and in another adjustment when plain tape is being fed to permit the shoe to constantly engage the tape.

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