June 9, 1942. H. F. GILLIAM 2,285,507

GUMMED PAPER TAPE MACHINE

Filed March 24, 1941

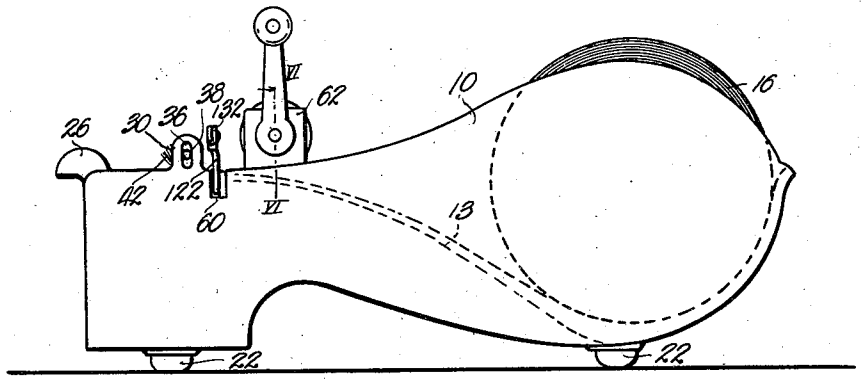


Fig. 1.

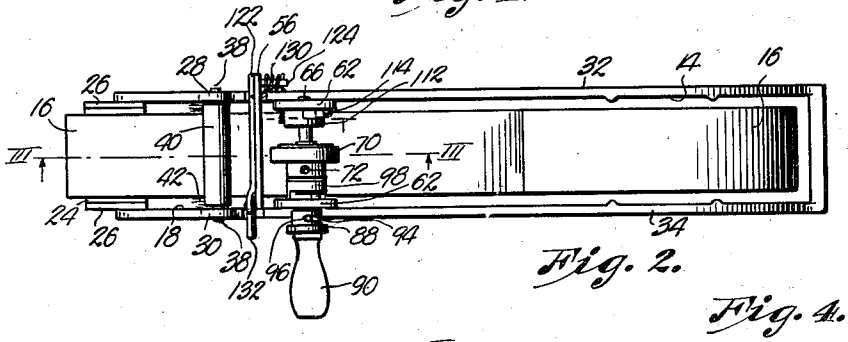


Fig. 2.

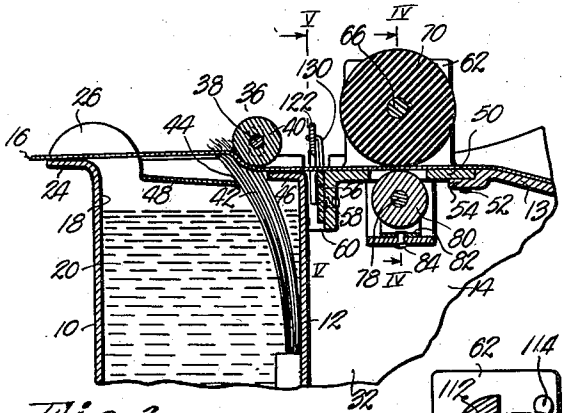


Fig. 3.

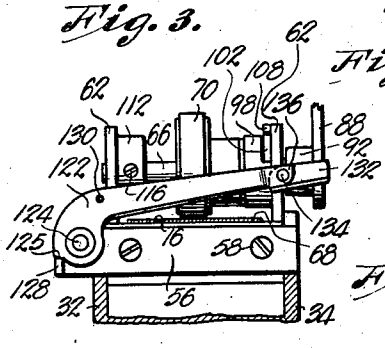


Fig. 5.

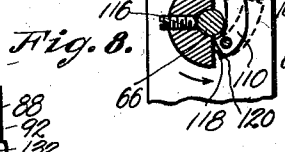


Fig. 8.

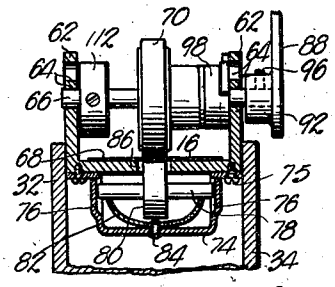


Fig. 4.

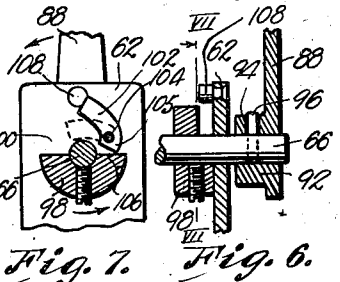


Fig. 7.

Fig. 6.

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GUMMED PAPER TAPE MACHINE

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5 Claims. (Cl. 164—42)

This invention relates to improvements in tape dispensing machines and particularly to a machine whereby gummed paper tape is measured and moistened.

The principal object of this invention is the provision of a tape dispensing machine having means for feeding the tape, driven by a crank when rotated in one direction and a shearing means operable by said crank when it is rotated in the reverse direction.

Another object of the invention is the provision of a tape dispensing means having means operable by the driving crank to deliver tape sections of pre-determined unit lengths.

A further object of this invention is the provision of means whereby the feed rollers are secured against reverse movement when a given unit length has been fed forward.

Other objects are simplicity and economy of construction, ease and efficiency of operation, and adaptability for use with any of the various types or sizes of tapes.

With these as well as other objects which will appear during the course of the specification, in view, reference will now be had to the drawing wherein:

Figure 1 is a side elevation of a tape dispensing machine embodying this invention.

Fig. 2 is a plan view of the machine with the tape in position.

Fig. 3 is an enlarged sectional view of the feed end portion, of the machine.

Fig. 4 is a vertical sectional view taken on line IV—IV of Fig. 3 with parts left in elevation.

Fig. 5 is a vertical sectional view taken on line V—V of Fig. 3.

Fig. 6 is an enlarged sectional view taken on line VI—VI of Fig. 1.

Fig. 7 is a sectional view taken on line VII—VII of Fig. 6.

Fig. 8 is an enlarged sectional view taken on line VIII—VIII of Fig. 2.

Throughout the several views like reference characters refer to similar parts and the numeral 10 designates a case open at the top and provided with vertically disposed partitions 12 and 13 to form a compartment 14 for receiving the roll of tape 16 and a reservoir 18 for receiving water 20. The case is mounted on suitable feet 22, made of soft material such as rubber to prevent scratching of the desk. An out-turned lip 24 with up-turned guide flanges 26 is provided at the front of the machine to guide the out-going tape. Above the reservoir 18 and adjacent partition 12 are upstanding ears 28 and 32 on opposite side walls 32 and 34 respectively of case 10. Each ear is vertically slotted at 36 to receive the end trunnions 38 of weight roller 40. A capillary feed member such as brush 42 extends upwardly from adjacent the bottom of reservoir 18 to pass through a slot 44 formed between the in-turned flange 46 of partition 12 and the cross plate 48 to normally contact roller 40. The tape 16 passes between the roller 40 and brush 42 as it is being fed from the machine so that its lower gummed side is moistened by water fed by brush 42 from the reservoir.

A frame 50 secured by screws 52 to a ledge 54 formed between walls 32 and 34 of the case 10 is provided at its front portion with a stationary shear blade 56 which is secured thereto by screws 58, and extends through slots 60 formed in walls 32 and 34. Frame 50 is provided at its opposite sides with upstanding ears 62 perforated at 64 to receive shaft 66. This shaft 66 is at right angles to the direction of travel of the tape in the machine and is positioned above the planar surface 68 of frame 50 substantially the radius of the feed roller 70 which is disposed substantially midway between walls 32 and 34 and is securely mounted for rotation with shaft 66 by set screw 72.

A yoke 74 secured by screws 75 to the under side of frame 50 is provided at its opposite side walls with vertically disposed grooves 76 into which the opposite ends of shaft 78 are mounted for sliding movement.

This shaft 78 carries a roller 80 in operative relation with feed roller 70. A resilient member 82 is secured in position, by rivet 84 to yoke 74, so as to engage and pull the tape from the roll and feed it from the machine. It will be observed the frame 50 is provided with a central opening 86 through which roller 80 extends.

Shaft 66 extends outwardly beyond ear 62 at one side of the machine to receive the crank 88 having handle 90. The hub 92 of crank 88 is slotted at 94 to receive pin 96 which is securely mounted radially in shaft 66. The slot 94 is of sufficient length to allow free movement of the crank as the pin 96 remains stationary for reasons hereinafter set forth.

Since it is very desirable to feed out definite predetermined lengths of tape, it is found convenient to provide means whereby the operator can stop the feed roller at the proper point at each complete revolution of roller 70 which has a circumference equal to the desired unit length of tape. The means suitable for this purpose is best shown in Figs. 6 and 7. The sleeve 98

partially cut away at 100 carries a pawl 102 pivoted to 98 at 104 and has an ear 105 adapted to contact the radial wall 106 of seleeve 98 to limit the outward swinging of the free end of the pawl. A stop pin 108 carried by ear 62 above and just outside the periphery of sleeve 98 is in the path of travel of pawl 102 when the crank 88 is rapidly moved in a clockwise direction to feed the tape from the machine. In Fig. 7 the pawl 102 is shown in solid lines in the extended position to engage stop pin 108 to prevent further rotation of the feed roller 70. In the operation of the machine when the operator wishes to feed out just one unit of length of the tape he rotates crank 88 rapidly for one revolution. This will cause the pawl 102 to be thrown outwardly until ear 105 strikes wall 106 when the pawl will engage stop pin 108 to limit the feeding of the tape. Should the operator desire to deliver more than one unit length of tape he permits the pawl 102 to fall by gravity to the dotted position shown in Fig. 7 and continues to the clockwise movement of the crank. This operation can be repeated to obtain any desired length of tape. When the feed roller 70 has made a full revolution and the pawl 102 has engaged pin 103 a pawl 110 carried by sleeve 112 at the other end of shaft 66 drops by gravity to engage behind stop pin 114 carried by ear 62 to prevent reverse movement of shaft 66. Sleeve 112 is secured by set screw 116 to shaft 66 and has a radial wall 118 against which the ear 120 of pawl 110 strikes to limit its outward movement. It will be noted that both the pawls 102 and 110 are very similar but that the one works by centrifugal force to position against the stop pin 103 while the other pawl 110 works by gravity, when the rotation stops, to be positioned in alignment with stop pin 114.

Referring now particularly to the tape serving means reference will be had to Fig. 5 wherein is shown a knife or shear blade 122 pivoted to stationary blade 56 by means of pin 124. A shoulder 125 formed on blade 122 contacts stop member 128 carried by stationary blade 56 to limit the upward movement of blade 122, also the spring 130 mounted on pin 126 with one of its ends secured to blade 122 and its other end secured to case wall 32 is so wound as to exert a lifting movement of blade 122. The outer end of blade 122 is provided with a finger 132 pivoted at 134 and disposed in the path of travel of crank 88. Due to the force of gravity the fingers 132 will normally retain the position shown in Fig. 5 and as the crank is moved in a clockwise direction to feed the tape the fingers will move upwardly against stop 136 to permit the passage of the crank. When it is desired to sever the tape after the operator has moved the crank to the position described above he reverses the crank movement so that it will contact finger 132 to move blade downwardly against the action of spring 130 for a shearing action with blade 56 with the tape 16 therebetween.

After this shearing operation the spring 130 returns the blade to the raised position. During this shearing operation the pin 96 stands still and the slotted hub of the crank moves thereabout a sufficient distance to complete the operation. With this pawls and finger operating as described above it is apparent that any number of unit lengths may be measured and cut off without any special adjusting or manipulation other than the operation of the crank 88.

In order to feed different unit lengths of tape a plurality of holes 64 is provided in each of the ears 62 to receive shaft 66, see Fig. 4.

Since many minor changes might be made in the various parts of this machine without departing from the spirit of the invention, it is desired to be limited only by the scope of the claims.

Having thus described the invention what is claimed as new and desired to be protected by Letters Patent is:

1. In a tape dispensing machine a master feed roller mounted on a transverse shaft, a floating feed roller resiliently urged toward said master feed roller, a crank mounted for limited free movement on said shaft to drive said master roller through one or more full revolutions; a centrifugally operated ratchet adapted to limit the feeding of the tape to pre-determined unit lengths; and ratchet means to prevent reverse movement of said feed rollers at each revolution of the master feed roller.

2. In a tape dispensing machine a master feed roller mounted on a transverse shaft, a floating feed roller resiliently urged toward said master feed roller, a crank mounted for limited free movement on said shaft to drive said master roller in one direction only; a centrifugally operated ratchet adapted to limit the feeding of the tape to pre-determined unit lengths; and gravity operated ratchet means to prevent reverse movement of said feed rollers at each revolution of the master feed roller.

3. In a tape dispensing machine a master feed roller mounted on a transverse shaft, a floating feed roller resiliently urged toward said master feed roller, a crank mounted for limited free movement on said shaft to drive said master roller; a contrifugally operated ratchet adapted by varying the speed of revolution of said crank to limit the feeding of the tape to pre-determined unit lengths; gravity operated ratchet means to prevent reverse movement of said feed rollers at each revolution of the master feed roller; and a cutting blade operable by said crank as said master roller is idle, to sever said tape.

4. In a tape dispensing machine a master feed roller mounted on a transverse shaft, a driving crank mounted for limited free movement on said shaft and operable to rotate said master feed roller through any desired number of complete revolutions; a centrifugally operated pawl carried by said shaft to stop the rotation of said feed roller at each revolution when it is rotated above a pre-determined rate of speed, and a gravity pawl operable to prevent reverse movement of said feed roller when it is stopped by said centrifugally operated pawl.

5. In a tape dispensing machine a master feed roller mounted on a transverse shaft, a driving crank mounted for limited free movement on said shaft and operable to rotate said master feed roller through complete revolutions; a centrifugally operated pawl carried by said shaft adapted to stop the rotation of said feed roller at each revolution when it is rotated above a pre-determined rate of speed and to permit unlimited rotation thereof when it is rotated below said predetermined rate of speed; a gravity pawl operable to prevent reverse movement of said feed roller when it is stopped by said centrifugally operated pawl, and a blade operable by said crank when the feed roller is at rest, to sever sections from said tape.

HARRY F. GILLIAM.