

Jan. 16, 1923.

S. B. EMMERT.
STRIP SERVING MACHINE.
FILED MAR. 19, 1919.

1,442,058.

2 SHEETS—SHEET 1.

FIG. 1

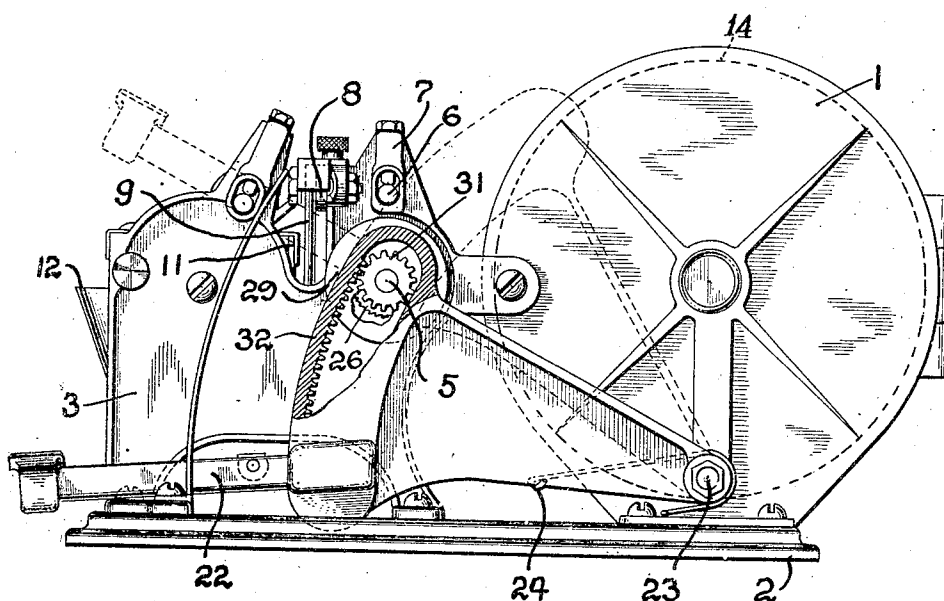
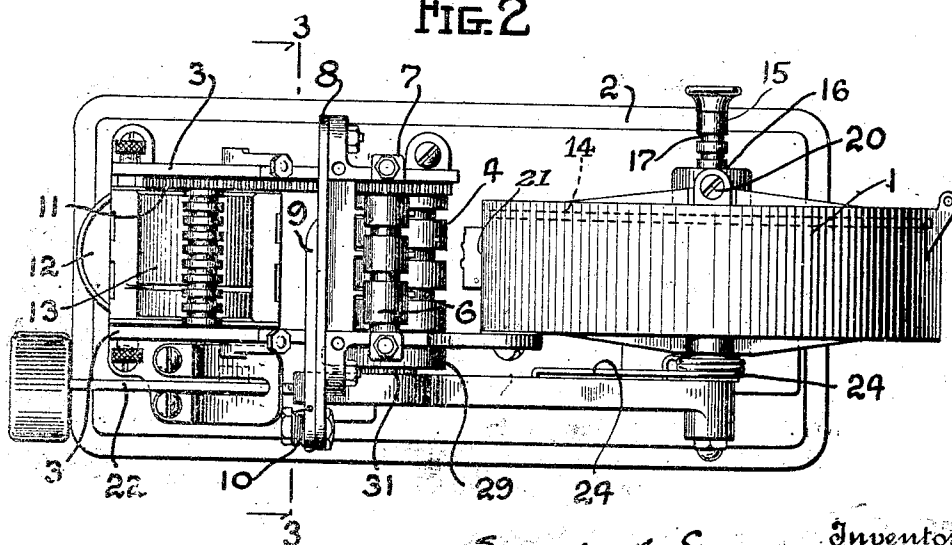


FIG. 2



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2 SHEETS—SHEET 2.

FIG. 3

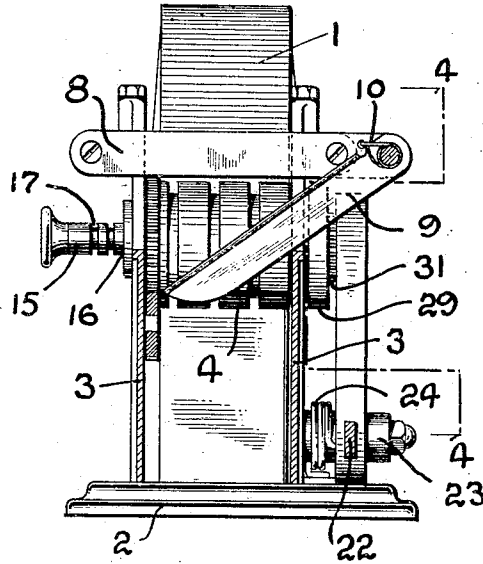


FIG. 4

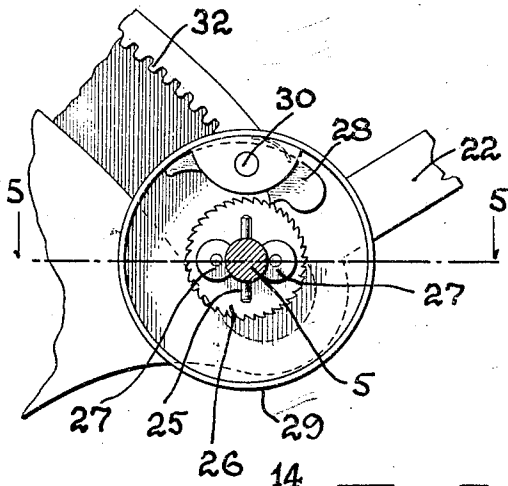


FIG. 5

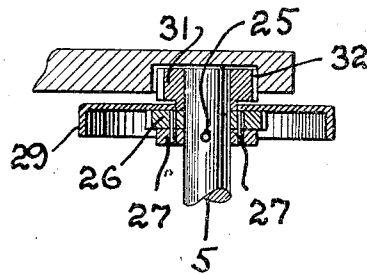
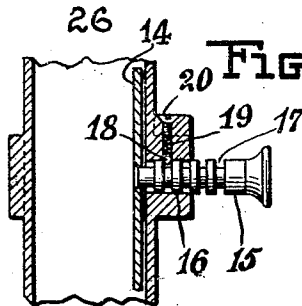


FIG. 5.



Samuel B. Emmert *Inventor*
By his Attorney
W. B. Morton

UNITED STATES PATENT OFFICE.

SAMUEL B. EMMERT, OF YONKERS, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO NASHUA GUMMED & COATED PAPER COMPANY, OF NASHUA, NEW HAMPSHIRE.

STRIP-SERVING MACHINE.

Application filed March 19, 1919. Serial No. 283,585.

To all whom it may concern:

Be it known that I, SAMUEL B. EMMERT, a citizen of the United States, and a resident of 119 Morris Street, Yonkers, Westchester County, New York, have invented new and useful Improvements in Strip-Serving Machines, of which the following is a specification.

The present invention relates to machines for serving strips of adhesive gummed tape. The improvements may conveniently be embodied in a machine adapted to feed, cut and moisten strips of tape and to deliver the same in an adhesive condition to an operator for immediate application to a package, box or the like. In U. S. Patent No. 1,384,082, to Charles G. Mortimer there is illustrated and disclosed an apparatus adapted to feed, cut, moisten and deliver strips of tape in adhesive condition to an operator for the same purpose. The present application discloses an apparatus embodying important improvements over the apparatus described in the aforesaid patent.

One object of the present invention is to insure accurate operation of the machine. Another object is to simplify the feed controlling elements in such a manner that they are not readily rendered inoperative by breakage or by rapid or careless operation. One embodiment of my invention is illustrated in the accompanying drawings in which—

Figure 1 is a side elevation with portions broken away to illustrate parts occupying relatively interior positions.

Figure 2 is a top plan view.

Figure 3 a view partly in transverse vertical section, at line 3—3 of Figure 2, showing more particularly the strip severing mechanism.

Figures 4 and 5 are fragmentary views, somewhat enlarged, illustrating details of the feed controlling mechanism. Fig. 6 is a detail view.

According to the drawings, a supply of gummed tape in roll form may conveniently be supported in a suitable housing 1 mounted upon the base 2 of the apparatus. The frame 3, also mounted upon the base 2 is adapted to carry tape feeding means, tape severing means and tape moistening means.

The tape feeding means may include a driven roller 4 securely mounted on a shaft 5 and adapted to co-operate with a second

roller 6 journaled in bearings 7 and adapted to be held in yielding engagement with said roller 4.

The strip severing means may include a fixed blade 8, preferably mounted above the normal path of the strip of tape as it leaves the feed rollers. A blade 9 is pivotally mounted to swing from a position below the path of the tape and to co-operate with the fixed blade 8 for the purpose of severing the strip. A suitable spring 10 engages the swinging blade 9, tending to press it normally to a position below the path of the tape.

The moistening means may include a tank 11 adapted to hold water or other suitable moistening medium which may conveniently be poured into said tank through a port 12 projecting from the forward end of said tank and forming a substantially funnel shaped opening thereto. A moistening roller 13 may be mounted to rotate within said tank and in contact with the moistening contents thereof, said roller being preferably formed of a porous clay material.

The tape supporting means, part of which has been heretofore described, may also include means for maintaining the tape supply in proper operative alignment with the feeding, severing, and moistening means. The aligning means may include a plate or disk 14, as shown in detail in Fig. 6, secured to a supporting rod 15 slidably mounted in a suitable bearing 16. The supporting rod 15 may be provided with a plurality of peripheral grooves 17 adapted to engage a suitable yieldable stop member, as a ball bearing 18, normally held in spring pressed engagement with said supporting rod 15 by means of a coiled spring 19. The degree of pressure of said spring 19 upon the ball bearing 18 may conveniently be regulated by means of a set screw 20 against which one end of said coiled spring may be seated. It is contemplated that the tape supporting means including the alignment maintaining apparatus just described, shall permit the use of tapes of different widths. Thus, if the tape is very narrow, the disk 14 may be pushed inwardly into operative engagement with the roll of tape and be held in position against accidental displacement by engagement of the ball bearing 18 with the disk supporting rod 15. Similarly, if a roll of wider tape is to be used in the device, the disk 14 may

also be adjusted to retain the wider roll in proper position.

To set the machine for normal operation, the free end of the tape may be drawn through a suitable opening 21 in the housing 1 and threaded between the feed rollers 4 and 6.

The feed roller actuating means comprises a hand operated lever 22 pivotally mounted at 23 and preferably arranged to co-operate with the severing mechanism to automatically sever strips of tape. For this purpose, the lever arm 22 engages the underside of the swinging blade 9 and normally presses the same upwardly into operative relation to the fixed blade 8. A suitable spring member 24 may co-operate with the lever arm 22 to actuate the same and to hold it in normal blade engaging position, as indicated in dotted lines Figure 1.

Since the severing stroke of the blade 9 carries it into a position above the path of the strip, it is desirable to provide means for releasing the blade and dropping it to a position beneath the path of the strip prior to the next succeeding strip feeding operation. To accomplish this, the parts are so arranged and related that the feed rollers will remain inoperative during a predetermined initial portion of the downward stroke of lever arm 22.

Actual feeding movement of the feed rollers may be effected by rotating the shaft 5. For this purpose, said shaft is provided with a pin 25. A ratchet 26, loosely mounted upon shaft 5, is provided with projecting lugs 27 adapted to engage said pin 25 in either direction of rotation. To actuate the ratchet 26, a spring pressed pawl 28 may be mounted on a suitable pawl carrying member capable of being rotated to effect revolving movement of the pawl. In the present apparatus, Figure 4, the pawl carrying member is shown as a cylindrical cap 29, in which pawl 28, suitably supported by a pivot 30, yieldingly engages ratchet 26. The cylindrical cap 29 is secured to a pinion 31 also loosely supported on the shaft 5 and positioned to mesh with a rack 32 adapted to operate with the lever arm 22.

In operation, when the lever arm 22 is depressed, rack 32 actuates pinion 31 which in turn rotates cylindrical casing 29, thus revolving the spring pressed pawl 28. Pawl 28 moves ratchet 26 without actuating shaft 5 until the projecting lugs 27 engage the pin 25. This period during which the ratchet moves relatively to the shaft 5 is the period during which swinging blade 9 is released into its lower position beneath the path of the strip of tape. At this point, and with continued downward movement of the lever arm 22, the projecting lugs 27 bear against pin 25 and thus rotate shaft 5 which in turn rotates the feed roller 4 to feed the strip for-

ward. The downward stroke of lever arm 22 may be made to any desired degree within the limits of the machine, depending upon the length of strip desired to be fed from the supply of tape. When the desired amount has been fed out and moistened, downward pressure upon the lever arm 22 may be discontinued and the lever arm released, thus permitting it to be thrust upwardly by spring 24 into actuating contact with the swinging blade 9.

At the end of the downward stroke of lever arm 22, the projecting lugs 27 are in shaft actuating engagement with the pin 25. However, when the direction of the lever arm is reversed, ratchet 26 is rotated in a direction opposite to its feed roll driving direction. Pawl 25 is held in normal spring pressed engagement with said ratchet and therefore both move in the same direction until the projecting lugs 27 again encounter pin 25. Beyond this point, in the reverse rotation of ratchet 26 the engagement between pawl 28 and ratchet 26 is not secure enough to effect reverse movement of the shaft 5. Accordingly, pawl 28 then moves relatively to ratchet 26. In this manner, the parts are readjusted to permit the blade 9 to drop beneath the path of the strip upon the initial portion of the next succeeding downward stroke of lever arm 22 and before the actual feeding of the tape takes place.

While the machine described and illustrated in the patent hereinabove referred to was intended for the same purpose as the present apparatus, I have eliminated some of the more fragile members which form a part of that former structure, such as exposed springs, with the result that the new apparatus may be more effectively operative than the former machine.

I claim as my invention:

1. In a machine for serving strips of adhesive tape, the combination of means for supporting a roll of tape and means for feeding said tape, said feeding means including a shaft, a tape engaging roller mounted thereon, a ratchet loosely mounted on said shaft and capable of limited rotary movement relatively thereto, means for actuating said ratchet to rotate the shaft and a tape cutting knife operated by said ratchet-actuating means.

2. In a machine for serving strips of adhesive tape, the combination of means for supporting a roll of tape and means for feeding said tape, said feeding means including a shaft, a tape engaging roller mounted thereon, a ratchet loosely mounted on said shaft, a detent on said shaft, means on said ratchet for engaging said detent in one direction to rotate the shaft and in the opposite direction to arrest movement of the ratchet in said opposite direction, means for actuating said ratchet and a tape cut-

ting knife operated by said ratchet-actuating means.

3. In a machine for serving strips of adhesive tape, the combination of means for supporting a roll of tape and means for feeding said tape, including a shaft, a tape engaging roller mounted thereon, a ratchet loosely mounted on said shaft, means between said shaft and the ratchet for permitting limited relative rotary movement therebetween, a pawl mounted to engage said ratchet to rotate the shaft in one direction and to rotate the ratchet alone to a limited extent in the opposite direction, means for actuating said pawl and a tape cutter operated by said pawl-actuating means.

4. In a machine for serving strips of adhesive tape, the combination of means for supporting a roll of tape and means for feeding said tape, including a shaft, a tape engaging roller mounted thereon, a ratchet loosely mounted on said shaft, a pawl to engage said ratchet, means to actuate said pawl, stop means between the shaft and the ratchet whereby pawl actuated movement of the ratchet in one direction may rotate the shaft and movement of the pawl in the opposite direction may rotate only the ratchet to a limited extent, whereupon continued movement of said pawl in said opposite direction is relative to both the ratchet and the shaft, means for actuating said pawl, and a tape cutter operated by said pawl-actuating means.

5. In a machine for serving strips of tape, the combination of means for supporting a supply of tape in roll form, means for feeding said tape and means for maintaining said tape supply in operative alignment with said feeding means including a plate movable axially of said supporting means and means for holding said plate in operative engagement with the roll of tape at various points along said supporting means whereby tapes of different widths may be accurately guided to said feeding means.

6. In a machine for serving strips of tape, the combination of means for supporting a supply of tape in roll form, means

for feeding said tape and means for maintaining said tape supply in operative alignment with said feeding means including an adjustable roll-engaging plate, a slidable rod supporting the same and having a series of peripheral grooves and a yieldable stop member adapted to cooperate with said grooves to retain said plate in various positions of adjustment.

7. In a machine for serving strips of tape, the combination of means for feeding tape from a roll, means for actuating said tape feeding means, tape severing means including a blade swingable upwardly by engagement therewith of said actuating means to a position above the path of the tape in severing the same, and a lost motion connection between said feeding means and said actuating means to permit said blade to return to a position beneath the path of the strip prior to the feeding of the next succeeding strip.

8. In a machine for serving strips of tape, the combination of means for feeding tape from a roll, tape severing means including a blade swingable across the path of the tape, a lever normally maintaining said blade in cutting position and movable in one direction to operate said tape feeding means and in the opposite direction to actuate said tape severing means, and means to permit an initial relative movement between said lever and said tape feeding means to allow said blade to clear the path of the tape.

9. In a machine for serving strips of tape, the combination of means for feeding tape from a roll, tape severing means including a swingable blade, a pivoted lever for actuating said tape feeding means and normally engaging said blade to maintain the same above the path of the strip, means permitting an initial movement of said lever relative to said tape feeding means thereby to drop said blade below the path of the strip before actuation of the tape feeding means.

Signed at New York city, in the county of New York and State of New York this 28 day of February, 1919.

SAMUEL B. EMMERT.