July 5, 1938. O. MASSEY 2,122,843

MACHINE FOR DELIVERING OR DISPENSING LENGTHS OF SEALING TAPE FROM A ROLL

Filed Nov. 30, 1936 3 Sheets-Sheet 1

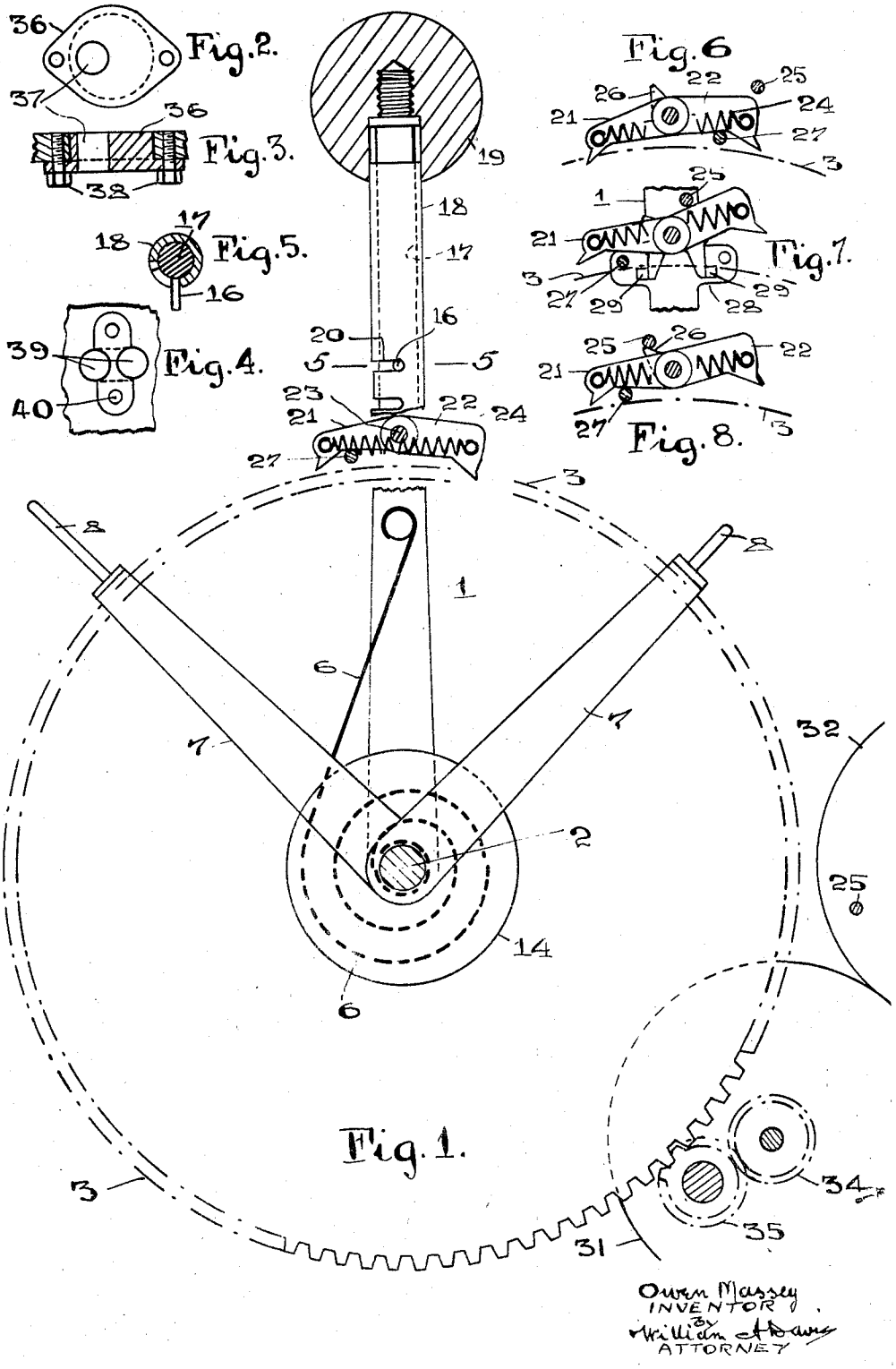


Fig. 2.

Fig. 3.

Fig. 5.

Fig. 4.

Fig. 6

Fig. 7.

Fig. 8.

Fig. 1.

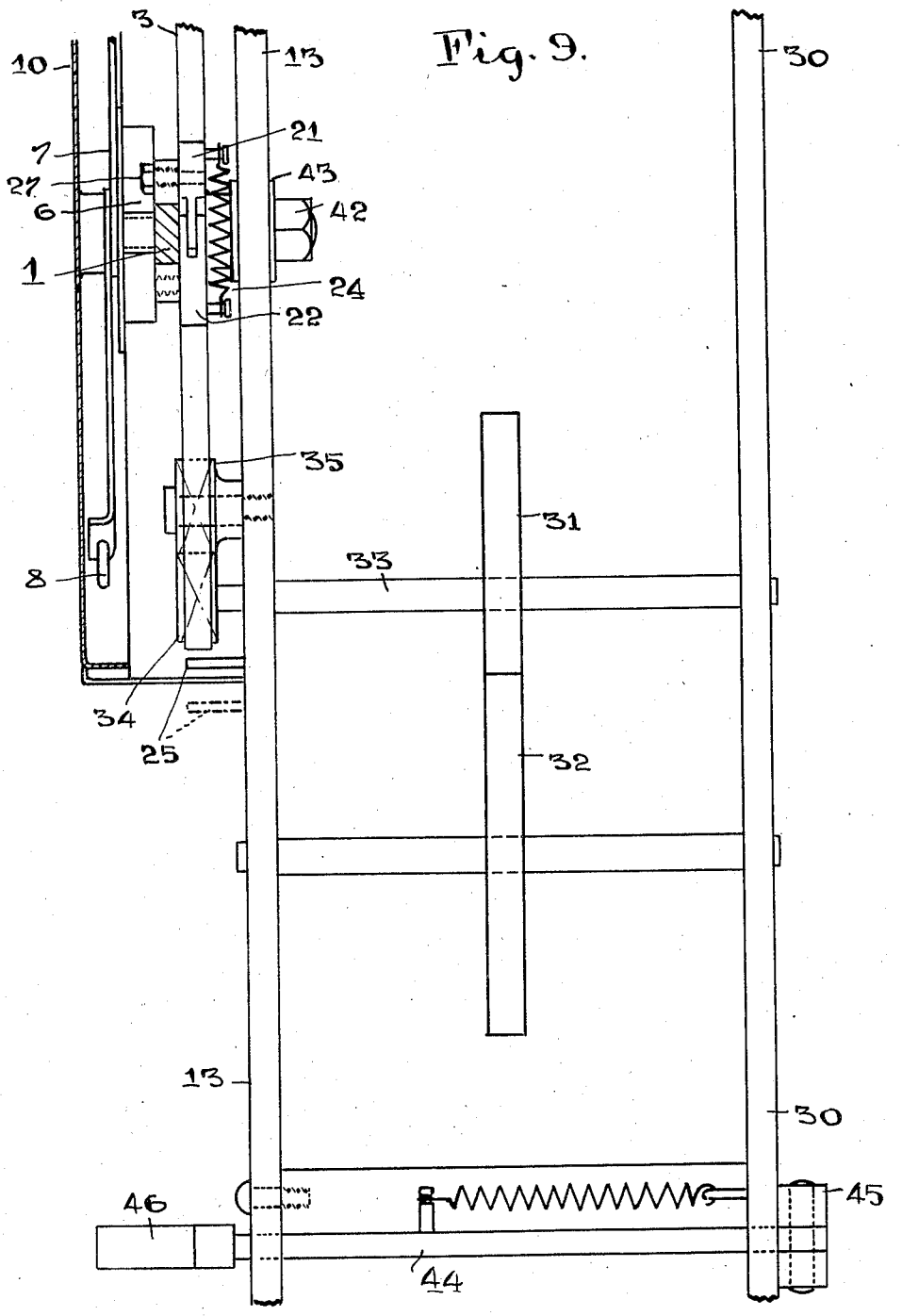
Owen Massey
INVENTOR
By
William A. Davis
ATTORNEY

July 5, 1938. O. MASSEY 2,122,843

MACHINE FOR DELIVERING OR DISPENSING LENGTHS OF SEALING TAPE FROM A ROLL

Filed Nov. 30, 1936 3 Sheets-Sheet 2

Fig. 9.



Owen Massey
INVENTOR
By William A. Davis
ATTORNEY

July 5, 1938. O. MASSEY 2,122,843

MACHINE FOR DELIVERING OR DISPENSING LENGTHS OF SEALING TAPE FROM A ROLL

Filed Nov. 30, 1936 3 Sheets-Sheet 3

Fig. 10.

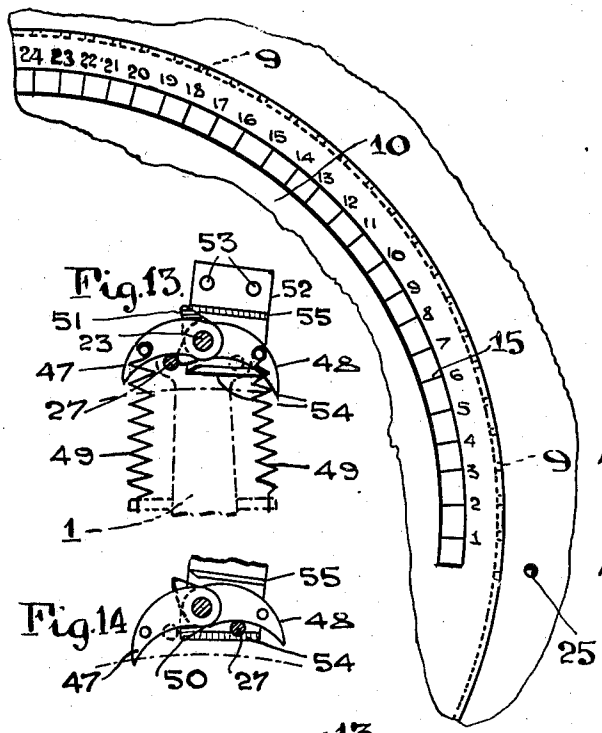


Fig. 13.

Fig. 14.

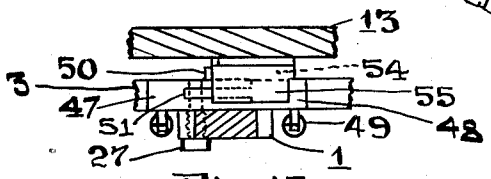


Fig. 15.

Fig. 11.

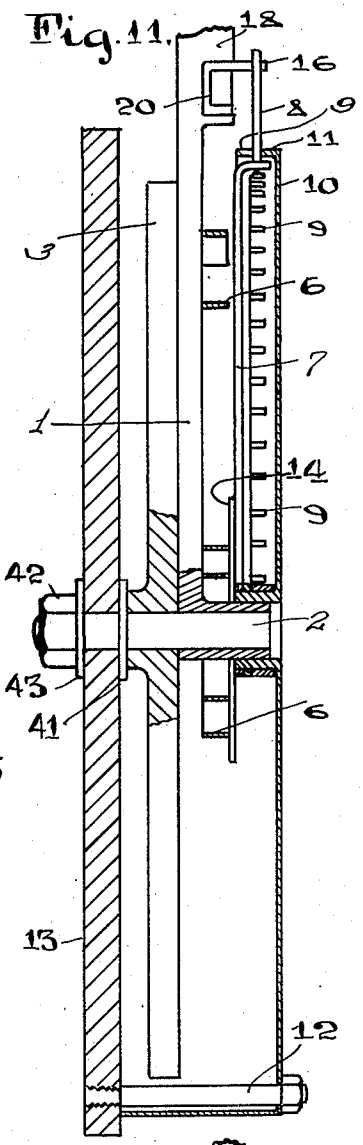
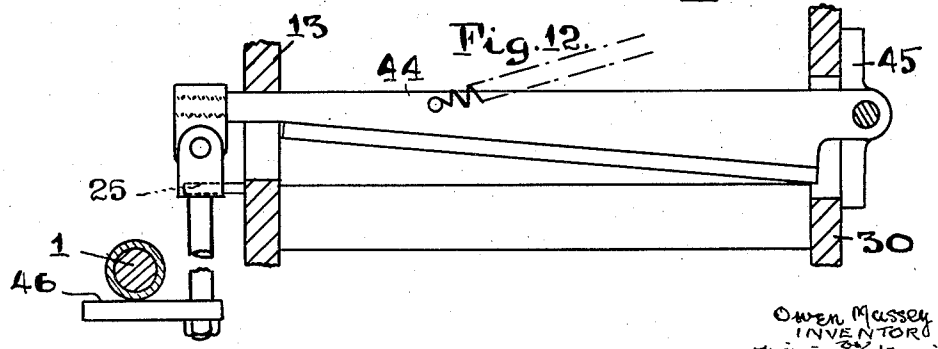


Fig. 12.



Owen Massey
INVENTOR
By William H. Davis
ATTORNEY

Patented July 5, 1938

2,122,843

UNITED STATES PATENT OFFICE

2,122,843

MACHINE FOR DELIVERING OR DISPENSING LENGTHS OF SEALING TAPE FROM A ROLL

Owen Massey, Harborne, Birmingham, England

Application November 30, 1936, Serial No. 113,444
In Great Britain March 20, 1936

11 Claims. (Cl. 164—42)

This invention relates to machines for dispensing or delivering lengths of sealing tape from a roll of paper, linen, or the like used for sealing parcels, packages, and for other such purposes.

The object of the invention is the provision of a machine by which one, two, or more different lengths of tape can be delivered at will; which is provided with length-determining means of simple construction, quick and easy to operate; which has a plurality of length-determining devices adjustable independently of each other; which in one form provides for a more effective condition of the adhesive when a damping device is employed; and which allows machines functioning in a different manner to be built up from common parts.

Having the aforesaid and other objects in view as will appear from a perusal of the following description, the invention consists in the novel combinations of parts described in the annexed specification, illustrated in the accompanying drawings and more particularly pointed out in the appended claims.

For a clear understanding of the invention, reference may be had to the accompanying drawings in which:

Figure 1 is a side elevation of a machine according to the invention with certain parts omitted and broken away for clarity.

Figure 2 is an elevation and Figure 3 a sectional plan of an adjustable bearing for the main spindle of the machine shown in Figure 1.

Figure 4 depicts an alternative form of bearing.

Figure 5 is a sectional plan view of the operating lever included in Figure 1 with the section plane on line 5—5.

Figures 6, 7 and 8 are fragmentary diagrammatic views illustrating the action of the pawls appearing in Figure 1.

Figure 9 is a plan of Figure 1.

Figure 10 illustrates a portion of the calibrated indicator for length of strip.

Figure 11 is an elevation looking at right angles to Figure 1.

Figure 12 is an end elevation of the guillotine.

Figures 13, 14 and 15 depict the action of an alternative form of pawl mechanism.

A machine according to the invention can readily be adapted to operate in the manner customary with tape delivering machines, that is, by delivering the tape on the first stroke of the operating lever; or in an entirely novel manner which provides for an interval of time between the moistening of the strip and its removal from the machine whereby the adhesive has sufficient time to change its condition from that of a hard smooth gum to a sticky or tacky surface well adapted for firm and secure adhesion to the surface to which it is applied. To provide for the aforesaid interval of time between moistening and using, the strip is moistened and paid out, not on the first or active stroke made by the operator, but on the return stroke so that the moistened strip remains in or attached or connected to the machine during the time the operator is using a previously-paid-out length, ready for severance from the roll or detachment from the machine by or at the next succeeding active stroke made by the operator. In this manner, the time interval between two successive workings of the machine is utilized for materially improving the condition of the adhesive, as already explained.

It is convenient to effect the return stroke of the machine by spring means and the following description sets forth a machine so constructed and arranged to operate, though the functioning of the other parts is not affected if the spring is omitted and the operating lever returned manually.

In Figure 1, the operator-operated lever 1 by which the machine is worked is journally mounted for oscillatory movement on a dead shaft 2, and is connected transmissionally with the tape during one stroke of the lever by a one-way device comprising a toothed wheel 3 and co-operating pawls 21, 22 hinged on the lever. Concentric with the ratchet wheel and in torque-transmitting relationship thereto is the driving wheel of a train of gearing connected to propel the strip through the machine, which wheel in order to simplify the construction may serve as the ratchet wheel as illustrated in the drawings.

Under the pressure of the return spring 6 (which is conveniently of the torsion or clock type) while the machine is not being operated, the operating lever is held against a stop adjustable to enable the effective stroke of the lever to be varied according to the length of tape to be delivered. To extend the convenience of the machine, a plurality of adjustable stops and a by-passing mechanism are provided so that any stop can be selectively and functionally brought into action by a simple movement of the knob of the control lever which permits of the stop or stops being avoided without necessitating movement of the stop. Such stops comprise an arm 7 hinged about the operating lever shaft 2 and furnished at its outer end with a radial peg 8

which can be introduced into any one of a large number of radial slots 9 Figures 10 and 11 cut in the rim of a stop-holding disc 10 also fixed concentrically with the said shaft. The rim 11 may be of annular shape to enclose the gearing except at the part where the lever operates where it is cut away and the edge slotted as mentioned; screws 12 hold the rim and disc to the adjacent frame member 13. To locate the stop arms laterally, a spacing disc 14 is placed adjacent the stop-holding disc 10 to leave space for sideways movement of the arms for adjustment, the latter being sprung laterally out of one slot, moved to the required place and allowed to spring back into another selected slot. The slots 9 are spaced at unit distances apart to represent a feeding movement of say one inch or other desired unit of length, and the outer face of the disc 10 or the periphery is marked with graduations 15 Figure 10 such as 1", 2", 3" etc. up to the maximum length for which the machine is designed.

For co-operation with the adjustable stops, the operating lever has a projection 16 Figures 1 and 5 which normally lies parallel to the main shaft and at right angles to the radial stops 8 to abut against the latter and check the return motion of the lever. The radial lengths of the adjustable stops differ from one another, the longest being remote and the shortest nearest the cutting portion of the operating lever stroke (left and right respectively in Figure 1), while the peg 16 is capable of movement towards or away from the shaft 2 to suit the length of the selected radial stop. Suitable means for such movement comprise a rockshaft 17 mounted in the tubular end 18 of the operating lever, a knob 19 fixed to the outer end of the rockshaft by which the latter may be turned and slid, a channel or U shaped slot 20 in the periphery of the tubular lever, and the peg 16 fixed radially in the rockshaft to engage the channel or U shaped slot. The number of transverse limbs of the slot 20 accords with the number of adjustable stops, two being illustrated, enabling the peg to be located and fixed at the particular radial distance from shaft 2 to come into or to avoid contact with a particular stop or stops, merely by turning and sliding and re-turning the rockshaft by means of the knob 19. Thereby the machine can be set to deliver two or more lengths of tape, and any one of the lengths can be delivered without disturbing the setting of the machine, by a simple motion of the operating knob and lever necessitating the use of only one hand, a feature of value when the machine is used for packing operations.

A suitable emplacement for the return spring 6 is intermediate the spacing disc 14 Figure 11 and the operating lever, with one end anchored to the latter and the other to a fixed point such as the shaft 2.

In the following description of the pawl engaging and dis-engaging means, two pawls are described in order that, as already adumbrated, one machine with common parts can be readily adapted without structural change to work in the normal manner or in the novel way previously mentioned herein, though it is apparent that the invention also embraces machines with only one pawl arranged to operate in the particular manner desired.

For convenience in manufacture and marketing, two pawls 21, 22 Figures 1, 6, 7 and 8, are hinged at 23 on a common pin fixed to the lever 1 with a coiled tension spring 24 stretched between the two, the anchorage points of the spring on the two pawls and the relation of such anchorage points to the hinge point 23 being so arranged that actuation of one of the pawls by contact with a stationary part 25 on the frame of the machine results in the other pawl being turned on its pivot when the spring passes the dead centre. The stationary part 25 conveniently consists of a peg screwed into the machine frame 13, for contact with a tail piece 26 extending from the back of the pawl 22, these two contacting parts in co-operation with the spring effecting an engaging or disengaging action of both pawls, though only the one selected is effective. To hold the idle pawl in a non-operating position, a stop in the form of a screwed pin 27 is inserted in either of two tapped holes Figure 7 provided in a lateral enlargement 28 on the lever 1 shown in that figure but omitted from others for clarity. Limiting stops 29 on the lever 1 check the outwards or dis-engaging movements of the two pawls, the latter being provided each with an integral lug 57 for contact with the respective stop 29 as illustrated in Figure 7, but not shown in the other views for the sake of clarity.

For convenience of drawing and explanation, the stationary part 25 is illustrated in Figures 6–8 in different relative positions, though it will be understood that the motions occur as the operating lever carrying its pawls is displaced around its axis of oscillation. In Figure 1, the pawl 22 is driving the toothed wheel in a clockwise direction and the strip is being fed out from the delivery end of the machine in the usual manner, at the termination of which delivery stroke the feed ceases and the guillotine cuts off the strip. In this case, delivery has commenced from the point of the operating lever defined by the left hand stop 8. The co-operation of the pawls, their spring, and the stationary part will be described more particularly after the general structure of the machine and the guillotine have been dealt with.

Constructionally, the machine may be built with two spaced side frame members 13, 30 Figure 9 at the outer face of one of which the operating lever 1 and associated parts are arranged, the space between the frame members being occupied by the paper or other roll, guides, feeding mechanism, moistening means, which can be of conventional kind, and the cut-off device. The roll itself is mounted on an idle spindle, and the feed rollers 31, 32 drive the strip and not the roll to avoid the effect of decreasing roll diameter. Grip is obtained by forming the feed rollers as toothed wheels one spring urged and the other 31 fixed to a live spindle 33 which at one end carries a pinion 34 in mesh with an intermediate toothed wheel 35 which in turn meshes with the main toothed driving spur wheel 3. The ratio of the gearing and the diameter of the driven feed roller 31 are chosen to feed unit length of strip for unit displacement of the operating lever. The other simple modification to the machine for normal or reverse working is to this gear train. To feed the strip on the return stroke of the operating lever involves a change of direction of rotation so that the feed roller shall continue to rotate in the same direction in both types of machine, and therefore the intermediate wheel is omitted or removed, and the main wheel 3 with all its appurtenances is displaced so that it meshes directly with the driven wheel 34. Several constructions will allow of such di-

rect meshing. As depicted in Figures 2 and 3, the main shaft has an eccentric mounting comprising an eccentric bush **36** provided with a hole for the shaft **2** indicated by **37** and fixing screws **38**. In Figure 4 the aperture in the side frame is in the form of a slot **39** having a blocking piece **40** with semi-circular grooves by removing and replacing which the main shaft can be located. Or alternatively, the dead main shaft may be formed with an integral collar **41** Figure 11, and frictionally held at either end of the slot such as **39** by a nut **42** and large washer **43**; or two holes may be used instead of the slot for the last method. In addition, extra holes are provided in the side frame **13** for the stationary part **25** which operates the pawls, and for the screws **12** which fix the stop-holding disc **10**.

Towards the delivery end of the machine is disposed the cutting-off device followed functionally by a means for moistening which may be of known kind including a piece of sponge fed from a water reservoir and placed so that the gummed face of the strip travels across the damp surface beyond the cutting-off knife. The preferred construction of guillotine appears in Figures 9 and 12, the operating lever **1** being of sufficient length to contact with and actuate a member mechanically coupled to the blade. The movable blade **44** is conveniently hinged at one end on a bracket **45** fixed to one side frame **30** and extended through the other side frame **13** for actuation by the operating lever through the medium of an anvil **46** pendant from the blade and extended into the path of the operating lever for contact by the lever during the last segment of the outward stroke (clockwise) of the lever.

When the operating lever is turned clockwise from the position illustrated in Figure 1 strip is being delivered until the tail piece **25** of the driving pawl **24** strikes the stationary peg **25**, but when such contact occurs, the parts take relative positions as depicted in Figure 8 wherein the pawl **22** is just on dead centre with reference to a straight line passing through the hinge point of the pawls and the anchorage points of the coiled spring. As the operating lever continues to travel on, the pawls continue in their disengaging motion until arrested by the stops **29** as indicated in Figure 7, the direction of the pull of the spring after it passes the dead centre moving the pawl **21** from the position shown in Figure 8 to that in Figure 7. From this it is clear that positive movement of the right hand pawl **22** is accompanied by spring actuation of the left hand pawl **21**. Pawl **22** having in this manner been dis-engaged, the lever **1** travels on and strikes the anvil **46** of the guillotine Figure 12 and cuts off the strip to the selected length. The operating knob is now released and commences its return stroke under the pressure of the spring **6** allowing the knife to return to the position of Figure 12. As the operating lever continues its return travel, the outer edge of the pawl **22** comes in contact with the peg **25** as shown in Figure 7 and is thereby turned past the dead centre before referred to, the spring **24** completing the movement and engaging the pawl with the toothed wheel. However, as the pawl is then trailing in relation to its hinge point, the toothed wheel is not driven, and the lever terminates its return motion by contact with the left hand stop lever **7** ready for the next actuation by the operator. During these in and out movements of the pawl **22**, the other pawl **21** oscillates in sympathy by the pull of the tension spring but is checked on the one hand by the inserted peg **27** and on the other by the stop **29** on the operating lever, so that the unwanted pawl is out of action.

In the other mode of operation, the operating lever is turned about its fulcrum from its normal standing position of rest against the stop in use, until towards the end of the stroke contact is made with the anvil of the guillotine and the already moistened length of tape hanging from the machine is severed, the peg **27** in this case being inserted to hold up the right hand pawl **22** as seen in Figure 6 and render it inactive in relation to the toothed wheel. Though the pawl **21** is in contact with the toothed wheel, it has a trailing action in relation to its hinge point and therefore does not drive the wheel. Before cutting-off commences, the tail **26** of the right hand pawl strikes the stop **25**, disengages the pawl **22** and through the action of the tension spring effects also disengagement of the left hand pawl, the two pawls being carried by the lever during the cutting and return movements of the knife in the positions shown in Figure 7, that is, both out of contact with the toothed wheel until such time as the back or outer edge of the right hand pawl strikes the stop **25** during the return journey of the lever, whereupon the right hand pawl is turned about its pivot far enough to move the tension spring past the dead centre, and through the spring pull, turn the left hand pawl into driving engagement with the wheel. Thenceforward the return movement of the lever under its torsion spring is accompanied by a rotatory movement of the main driving wheel and a feeding of the tape by the feed rollers through the machine over the moistening pad to project and hang from the delivery end of the machine moistened and ready to be cut off at the end part of the next outward stroke. This hiatus in the cycle of operations to allow the gum to become tacky is a valuable and unique contribution to the art. Paying out by spring urged mechanism at a pre-determined speed which is kept low by frictional resistance and inertia ensures satisfactory moistening of the gum as it passes over the damp surface, without affecting the speed at which the operating lever is worked by the operator, in which respect the machine has an advantage as compared with fast working of machines which necessarily involve a correspondingly quick passage of the gum strip over the damp surface.

Another arrangement of pawl mechanism forms the subject of Figures 13–15, the pawls in this embodiment being functionally independent and separate the one of the other. As in the first-described arrangement, the pawls are hinged on a common pin **23** fixed in the operating lever **1**, and are selectively rendered in-operative by insertion of the removable peg **27**. Each of the two pawls **47**, **48** has its own coiled tension pull-on spring **49** anchored to the lever, and also has a tail piece **50**, **51** which respectively project away from and towards the shaft of the operating lever for co-operation with a bracket **52** fixed by screws **53** to the adjacent side frame **13**. Said bracket includes two spaced plates **54**, **55** standing out at right angles to the plane of the frame and positioned so that the inner plate **54** lies in the path of the inner tail piece **50**, and the outer plate **55** in the path of the outer tail piece **51** when the pawls are not held out of action by the peg **27**. As in Figure 1, the pawls point in opposite directions so that

the right hand one is adapted to drive the toothed wheel clockwise, or alternatively the left hand one turns the wheel anti-clockwise, according to whether the machine is intended to operate in the usual manner or with a hiatus between the moistening and cutting-off. In the former mode of operation, the right hand pawl **48** as shown in Figure 13 is lifted out of engagement with the toothed wheel just prior to actuation of the guillotine, by the tail piece **51** coming into contact with the plate **55**, the tip of the tail piece then sliding along the under face of the plate which is of sufficient length to embrace the segment of the stroke devoted to actuation of the knife, both on the out and return strokes of the operating lever. Thereby, the pawl is positively held out of engagement and allowed to turn into driving position only when the tail piece **51** recedes from the plate on the return stroke of the lever during which period of recession no driving action takes place since the pawl is then trailing behind its hinge point.

The other pawl functions in a similar manner, when the peg **27** is inserted in the other hole in the lever, by the tail piece **50** striking and co-acting with the inner plate **54**, but drives the toothed wheel anti-clockwise on the return stroke of the lever. Duplicate holes corresponding to **53** in Figure 13 are provided in the side frame **13** so that the bracket can be fixed in an alternative position when the main toothed wheel meshes directly with the pinion on the feed roller spindle and the pawl **47** i. e. the left hand pawl is made the driver as in Figure 14. The tail piece **50** of the pawl **47** is offset as indicated in plan Figure 15 to avoid the peg **27** and the tail piece of the right hand pawl.

In both arrangements of pawl mechanism, the stops with which the pawls contact are placed so that the calibrations **15** of unit length hold good for either mode of working.

Having thus described my invention, what I claim is:

1. Machine for delivering lengths of sealing tape from a roll comprising an oscillatory operating lever, feed rollers, a driving wheel in driving connection with said feed rollers, a one-way device for coupling said lever and said wheel during one stroke of the lever, an adjustable stop which arrests the return movement of said lever, a fixed member for co-operation with said stop, said member having a series of anchorage points at any one of which said stop can be engaged and held for determining the starting position of the lever and thereby the length of strip delivered by the machine.

2. Machine for delivering lengths of sealing tape from a roll according to claim 1 having a second stop adjustable independently of said other stop for co-operation with the fixed member, and means on the operating lever for selectively engaging any one of said stops.

3. Machine for delivering lengths of sealing tape from a roll comprising an oscillatory operating lever, feed rollers, a driving wheel in driving connection with said feed rollers, a one-way device for coupling said lever and said wheel during one stroke of the lever, a plurality of independently adjustable stops any one of which can be selected to arrest the return movement of the lever, and means on the lever for selectively engaging any one of said stops and avoiding the other stops, said means including an adjustable abutment slidably mounted on the lever.

4. Machine according to claim 3 in which the outer part of the operating lever is tubular and encloses a rock shaft which carries the adjustable abutment.

5. Machine according to claim 3 having an operating knob at the outer end of the operating lever, a rock shaft enclosed in said outer end and fixed to said knob, an abutment peg fixed to said rock shaft, a plurality of circumferential slots in the periphery of the enclosing part of the operating lever, a communicating slot or slots between said circumferential slots, said abutment projecting radially from the rock shaft through the slots and movable radially by movement of said knob into selected position to avoid the unwanted stop and contact with the selected stop.

6. Machine for delivering lengths of sealing tape from a roll including a cutting device, and means for feeding the strip to the cutting device comprising an oscillatory operating lever, a driving wheel, feed rollers in driven connection with said wheel, a one-way device for coupling said lever and said wheel for one direction of movement of the operating lever, and a second one-way device for coupling said lever and said wheel during the opposite direction of movement or return stroke of the operating lever, and means for selectively bringing one of said one-way devices into coupling position so that operation of the operating lever effects delivery of strip immediately prior to operation of the cutting device, or for bringing the other of the one-way devices into coupling position so that the return stroke of the operating lever results in the paying out of a length of moistened strip which remains uncut in the machine until the cutting device is operated during the next succeeding out stroke of the operating lever.

7. In a machine for delivering lengths of sealing tape from a roll, means for feeding the strip to the cutting device including an oscillatory operating lever, feed rollers, a toothed driving wheel in driving connection with said feed rollers, two pawls hinged on the operating lever pointing in opposite directions for engagement with the periphery of the wheel, a frame whereon the lever is mounted, and a stationary part on the frame with which one of said pawls is adapted to contact for moving said pawls into or out of engagement with said wheel.

8. In a machine for delivering lengths of sealing tape from a roll, means for feeding the strip to the cutting device including an oscillatory operating lever, feed rollers, a toothed driving wheel in driving connection with said feed rollers, two pawls hinged on the operating lever pointing in opposite directions for alternative engagement with the wheel periphery, a frame whereon the wheel is mounted, and two stationary abutments on the frame with which one or other of the pawls is adapted to contact for disengaging it from or allowing it to engage under spring influence with the said wheel.

9. In a machine according to claim 7, a spring anchorage point on each of the pawls, and a spring stretched between and anchored to said points, the points of anchorage and the point of articulation of the pawls being situated so that the common spring holds the pawls in the engaged position or in the disengaged position.

10. In a machine for delivering lengths of sealing tape from a roll, having a strip-moistening device, a cutting device, an operating means having a to-and-fro motion, feed rollers, a driving

connection with said feed rollers for feeding strip to the cutting device by actuation of the operating means, and a one-way device for coupling the operating means to the driving connection during the return stroke of the operating means and effect the paying-out of a length of moistened strip which remains uncut until the next succeeding operation of the operating means, said one-way device being released from the driving connection during the first or out stroke of the operating means.

11. In a machine for delivering lengths of sealing tape from a roll, a cutting device, an operating lever having a to-and-fro motion, feed rollers for feeding strip to the cutting device, a wheel in transmissional relation with said feed rollers, and a pawl mounted on the operating lever to engage and drive the said wheel on the return stroke of the operating lever but to be out of driving engagement during the first or out stroke of the operating lever.

OWEN MASSEY.