C. G. MORTIMER.

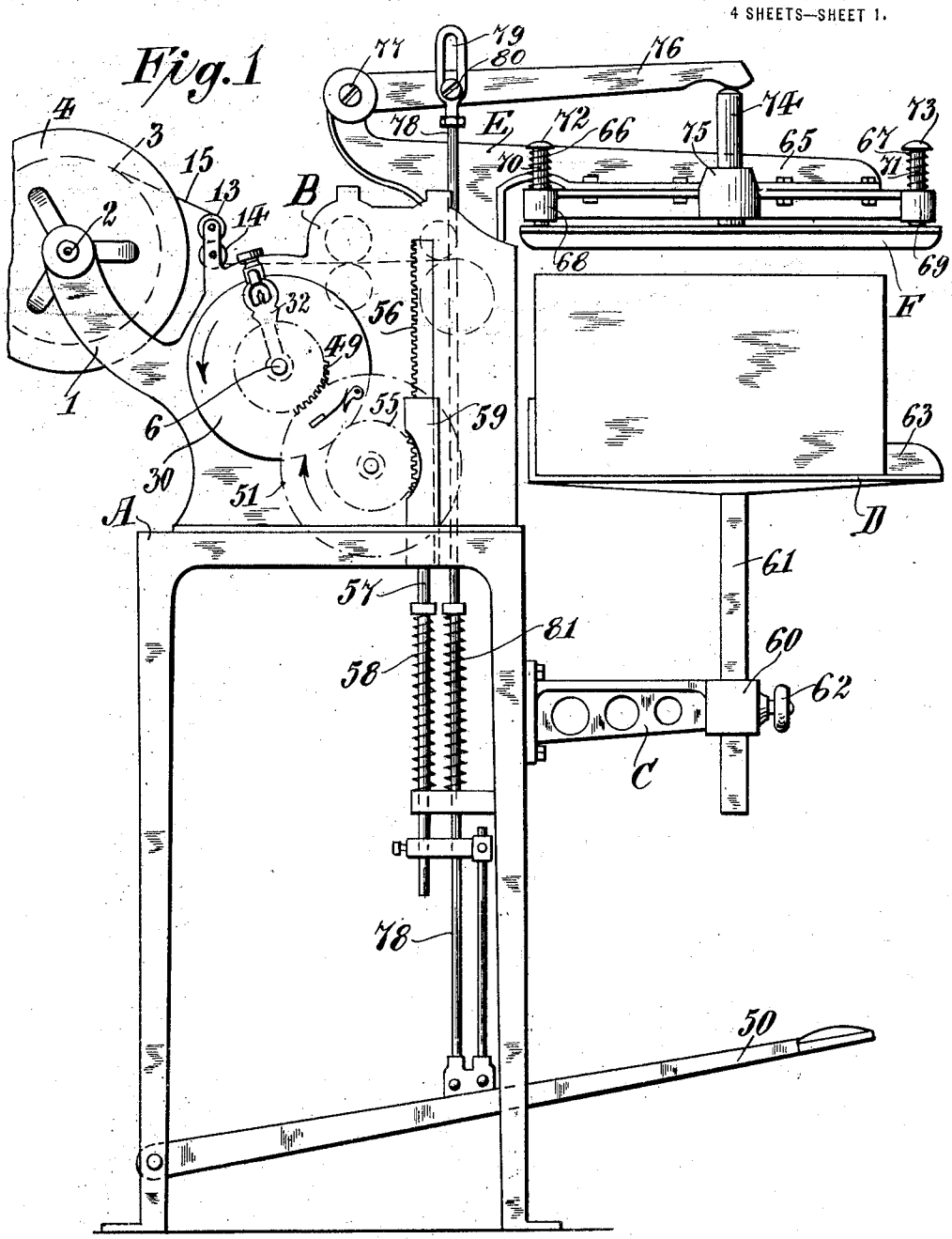
AUTOMATIC SEALING MACHINE.

APPLICATION FILED DEC. 27, 1913. RENEWED AUG. 3, 1917.

1,378,889. **Patented May 24, 1921.**

4 SHEETS—SHEET 1.

Fig. 1



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4 SHEETS—SHEET 2.

Fig. 2.

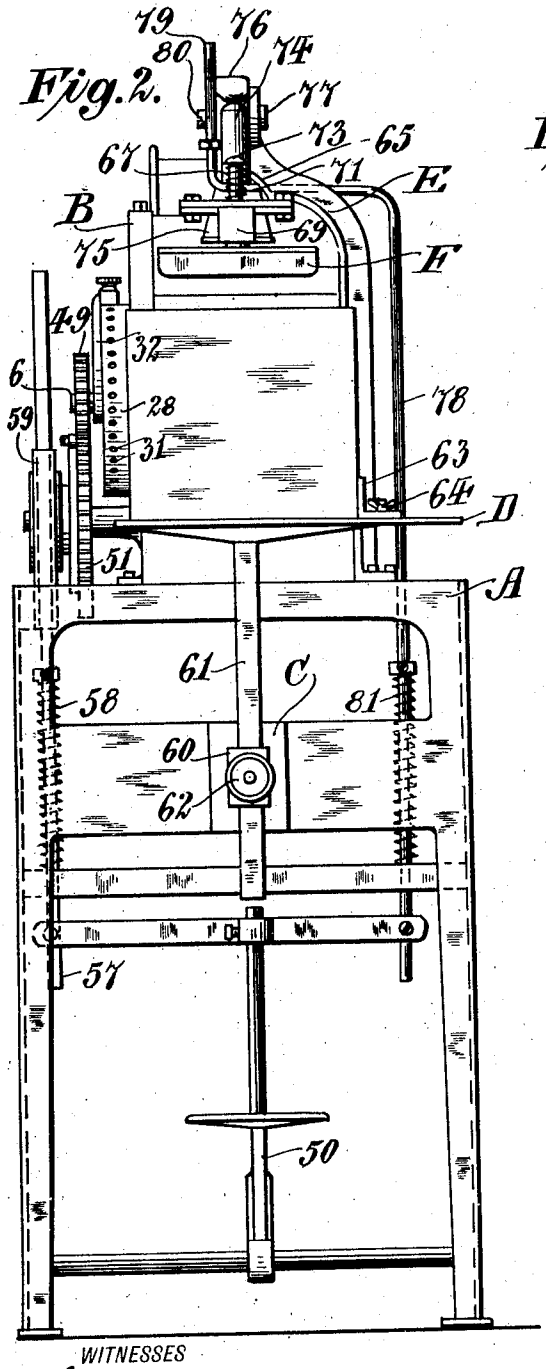


Fig. 8.

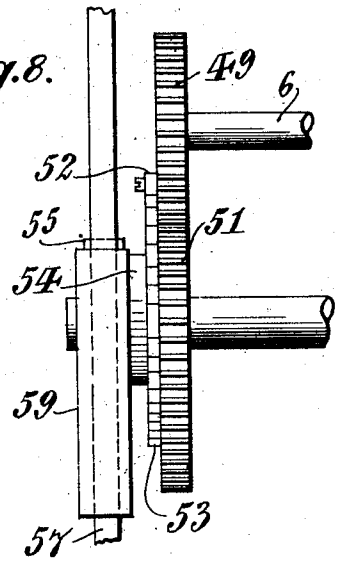
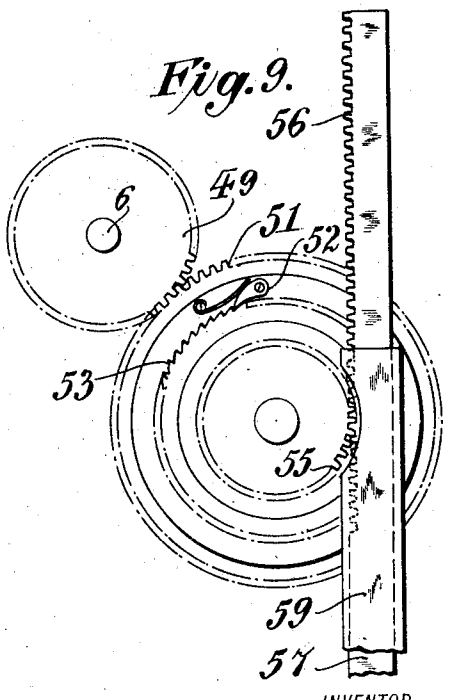


Fig. 9.



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4 SHEETS—SHEET 3.

Fig. 3.

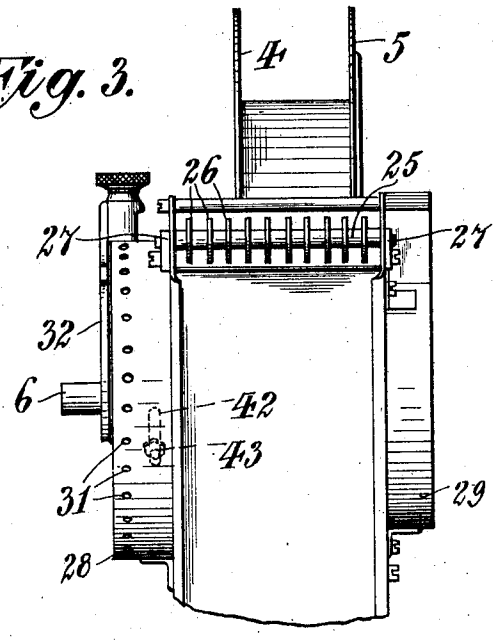
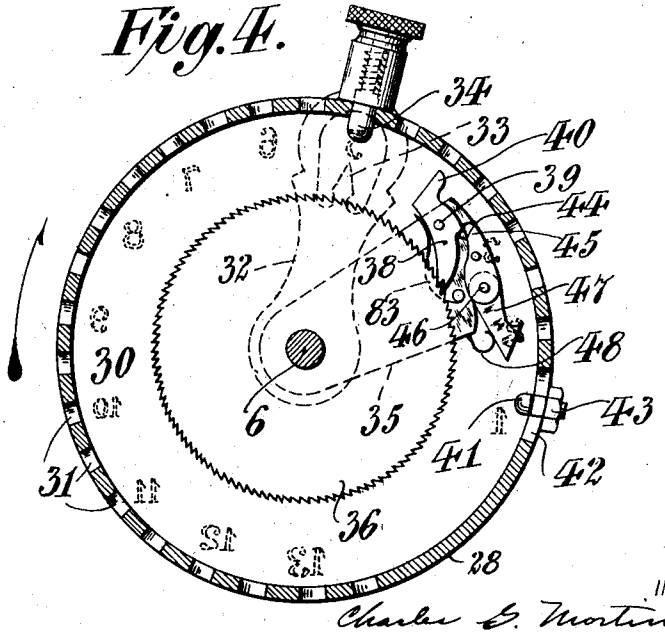


Fig. 4.



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1,378,889. **Patented May 24, 1921.**

4 SHEETS—SHEET 4.

Fig. 5.

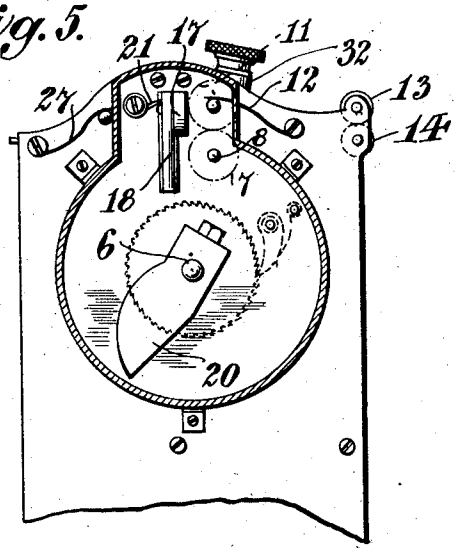


Fig. 6.

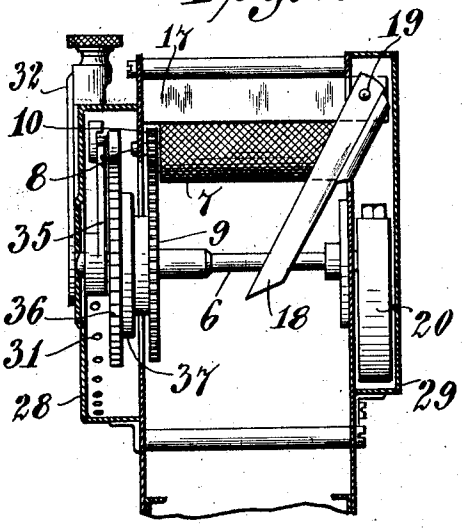
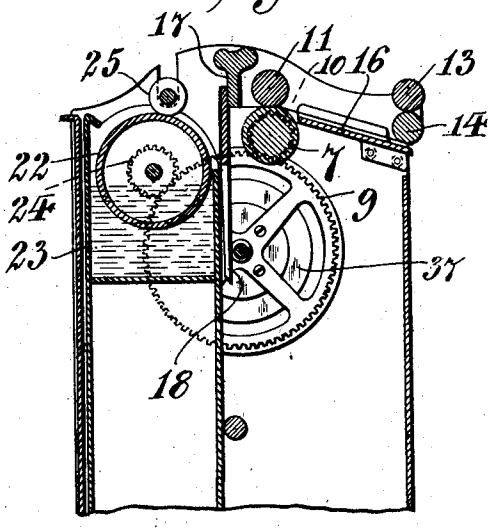


Fig. 7.



WITNESSES

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UNITED STATES PATENT OFFICE.

CHARLES GREENOUGH MORTIMER, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO NATIONAL BINDING MACHINE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

AUTOMATIC SEALING-MACHINE.

1,378,889. Specification of Letters Patent. Patented May 24, 1921.

Application filed December 27, 1913, Serial No. 808,943. Renewed August 3, 1917. Serial No. 184,357.

To all whom it may concern:

Be it known that I, CHARLES GREENOUGH MORTIMER, a citizen of the United States, and a resident of East Orange, in county of Essex and State of New Jersey, have invented an Improvement in Automatic Sealing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The present invention has to do with an improvement in devices for sealing packages with strips of gummed tape. It is particularly applicable where such apparatus is required to be used extensively and continuously as in manufacturing establishments turning out great quantities of products done up in packages of substantially uniform size. The object of this invention is to provide an automatic device capable of being operated rapidly and one in which the sealing of packages may be accomplished without handling of the tape by the operator. By eliminating hand work, from the act of sealing, it becomes wholly automatic and its speed ceases to be limited by the rapidity with which any given operator may be able to apply the gummed strips.

With the above objects in view, I have devised an apparatus which will moisten, sever, and deliver gummed strips of tape to a position for attachment to a package and will then affix the said strip, the whole operation being complete upon a single stroke of the actuating mechanism. One embodiment of my invention, adapted to be actuated by foot power, is illustrated in the drawings accompanying this specification, which,

Figure 1 is a front elevation,

Fig. 2 an end elevation,

Fig. 3 an end elevation of the strip moistening and delivering member, the base portion being omitted.

Figs. 4, 5, 6 and 7, illustrate by enlarged details the strip moistening and severing mechanism, and,

Figs. 8 and 9 are enlarged detail views of the mechanism connecting the main shaft and the actuating rod.

In Figs. 1 and 2 of the accompanying drawings, A represents a suitable base upon which is mounted a strip moistening and severing member B and a bracket C adapted to hold a table D in a position adjacent to the strip severing member B. A superstructure E is also mounted upon the base A and adapted to support a presser member F.

The tape moistening member B consists of a base or support upon one end of which is a standard 1 having a shaft 2 supporting a tape roll 3 to which tension may be applied by means of tension plates 4 and 5, also mounted upon the shaft 2 and regulated by any well known means, as a nut. Adjacent to the tape roll is arranged the feeding, cutting, moistening and severing mechanism all of which is operated from a central shaft 6 with suitable intermediate gearing. A feeding roll 7 mounted upon a shaft 8 is operated by means of a gear 9 upon the shaft 6, which meshes with a pinion 10 on the shaft 8. The feeding roll has a coöperating presser roll 11 suitably journaled in the casing and connected with the shaft 6 through gears suitably arranged so that the two rolls may have uniform movement. The roll 11 is held yieldingly against the companion feeding roll 7, by a spring or other suitable device 12. A pair of guide rolls 13 and 14, are positioned between the feeding rolls and the tape supply, of which the web 15 passes over, between and under the guide rolls, then across a guide plate 16 to the feed rolls 7 and 11.

In advance of the feeding rolls, there is located a stationary blade 17 under which the web of tape passes as it is fed forward by the feed rolls. A coöperating blade 18, suitably pivoted at 19 is actuated by a cam 20 secured to the main shaft 6, during the pause of the feeding action, hereinafter described and against tension of a light spring 21 which causes the blade to return to normal position immediately upon being disengaged from the cam 20.

The severed strip then continues its course over the moistening roll 22 located adjacent to the cutting mechanism and arranged to rotate in a tank 23, the said moistening roll being actuated by the main gear 9 through a pinion 24 thus rendering synchronous the forward movement of tape through the feeding rolls, and over the moistening roll. A presser roll 25, having a plurality of peripheral disk like projections 26, is suitably journaled adjacent to the moistening roll and adapted to exert pressure against the same by means of springs 27 arranged at each end of its axle.

At either side of the main casing are extended casings 28 and 29 which also serve to inclose the working parts. The casing 28 may be provided on its outer face with a dial 30 and on its peripheral surface with stop openings 31, which dial and stop openings, in conjunction with an indicator arm 32, having a pointer 33, and a spring pressed plug 34, not only indicate the length of tape which will be fed from the machine, but, in connection with a pawl mechanism actually determine the same. A pawl arm 35 is fixed upon the main shaft 6 and is adapted to engage a ratchet 36 mounted upon a sleeve 37 also carrying the main gear 9. This engagement is effected through the agency of a cam pawl 38 pivoted at 39 to the arm 35 and provided with a cam member 40 by which it may be moved and released from the ratchet 36 whenever it passes an adjustable trip. This trip consists of a member 41 projecting through a slotted opening 42 in the casing and may be clamped in any desired position of adjustment along the said opening by means of a nut 43. Its function is to raise the pawl 38 out of engagement with the ratchet 36 during a part of the rotation of the main shaft and thereby stop the feeding action of the feed rolls and the connected parts for handling the strip of tape.

A spring 83 normally tends to press the pawl 38 into engagement with the ratchet 36 and, in order to secure a positive contact between the two latter, the end of the pawl is preferably made with two points to conform to the shape of the teeth of the ratchet. Arranged upon the upper surface of the pawl 38 is a detent 44, which, when the cam portion is depressed by the strip 41 is engaged by a trigger 45 also pivoted to the arm 35 at 46 and having an offset pawl 47 arranged in a plane so as to be engaged by the spring plug 34 which, as previously pointed out, may be adjusted to project through any of the several openings 31 corresponding to markings on the dial. Thus, when the central shaft is rotated in the direction of the arrow shown in Figs. 1 and 4 the pawl 38 remains in contact with the ratchet 36 thereby transmitting a feeding movement to the rolls 7 and 11 until the cam 40 is depressed by the trip 41. Thereupon the end of the trigger member 45, actuated by a spring 48, drops into the detent 44 and holds the pawl 38 out of engagement with the ratchet until the offset pawl member 47 engages the spring pressed plug 34, which releases the pawl 38 so that it may reëngage the ratchet. The foregoing mechanism has been completely described in U. S. Letters Patent No. 1,268,377, issued to me on June 4, 1918. In order to adapt this device for use in connection with the present invention, I have supplied actuating means through a gear 49 which is mounted upon the main shaft 6. It being necessary for the main shaft to make a complete rotation each time the mechanism is actuated, I provide suitable means between the gear 49 and a foot treadle 50 to accomplish this result. A geared idler 51 is mounted to mesh with the gear 49. A spring pressed pawl 52 upon the idler engages a ratchet 53 which is mounted on a sleeve 54 also carrying a pinion 55 adapted to rotate by contact with a rack 56 mounted upon a rod 57 which connects with the treadle 50. The rack thus meshing with the said pinion actuates the idler 51 through the pawl and ratchet connection on the downward stroke of the rod. On the up stroke, the idler remains unmoved. A spring 58 attached to the rod 57 causes it to return to its normal position when pressure is released from the treadle 50. A fixed guide 59 is positioned adjacent to the pinion to hold the rod 57 in proper alinement therewith and to insure proper meshing of the pinion and rack. It is understood that a single operation of the strip serving mechanism is complete before the treadle reaches its lowermost position, the latter part of the stroke being utilized for operating the presser member F.

The bracket C is provided at its outer end with a bearing 60 through which is adapted to slide a rod 61 supporting the table D. A set screw 62, threaded in the bracket C is adapted to bear against the rod 61 to hold the same in any desired position so as to accommodate different sizes of packages which may be placed upon the table D for sealing. An angle plate 63 is movably mounted on the table D and adapted to be fastened at different positions thereon by means of suitable slots in the said table and a bolt and set screw 64.

The presser member F is carried on an extension 65 of the superstructure E through intermediate coiled springs 66 and 67. The extension 65 is provided with end bearings 68 and 69 through which pass respectively plungers 70 and 71 mounted in the presser member F. The upper ends of these plungers are provided with heads 72 and 73 against which are seated coiled springs thus supporting the presser member against pressure. A plunger 74 adapted to slide in a centrally located bearing 75 is also mounted in the presser member and is adapted to be engaged by a lever arm 76 pivoted at 77 in the superstructure E. This lever arm is actuated by downward pressure upon the treadle 50 through an intermediate rod 78 provided in its upper end with a slotted guide 79 embracing a headed projection 80 in the lever arm 76. The normal length of this rod is so regulated that its downward thrust will not actuate the lever arm 76 until the strip delivering mechanism has completed its operation by delivering a strip

moistened and severed to a position where it may be acted upon by downward impact of the presser member. The rod 78 is also provided with a coiled spring 81 which serves to return it to its normal uppermost position when pressure is released from the treadle.

In operation, it may be seen that the first portion of the downward stroke of the treadle member causes the tape serving member to operate, and the remainder of the stroke operates the presser member. The invention therefore lies in providing the combination of strip serving and strip affixing mechanisms in such relation that they operate in proper sequence and upon a single impulse from a common source of power. It is obvious that the mechanical features hereinabove described and illustrated are not the only ones which may be used to accomplish the desired result and it is believed that there may be substitution of many well known mechanical equivalents for those here described without departing from the spirit of the invention.

I claim as my invention:—

1. In a sealing machine the combination of means for presenting strips of moistened adhesive tape of various lengths in position for application to a package, a package support adjacent said strip-presenting means and in advance thereof and in the direction of movement of the strip, a presser movable toward and away from the package on said support for applying the strip thereto, and a treadle for operating both said strip-presenting means and said presser upon its down stroke, said treadle having a lost-motion connection with said presser of sufficient amplitude to permit the full operation of the strip-presenting means before the presser engages the package.

2. In a sealing machine, the combination of means for presenting strips of moistened adhesive tape of various lengths in position for application to a box, package, or the like, power operated means whereby the strip presenting means may be actuated upon a power stroke in one direction and remain inoperative upon the return stroke, a box or package supporting member adjustable both vertically and horizontally, whereby the sealing strip may be presented for application to any desired portion of said box or package, a strip pressing member, said strip pressing member and said supporting member being relatively movable after the completion of the stroke of the strip presenting means and being mounted to permit control of said movement by the operator whereby the sealing pressure may be regulated to accommodate sealable articles of varying resistant character.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

CHARLES GREENOUGH MORTIMER.

Witnesses:

JOHN W. THOMPSON,

CHARLES GREENOUGH MORTIMER, Jr.