May 14, 1935. C. D. RYAN 2,001,287

HAND OPERATED POSTAL MACHINE

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FIG. 1

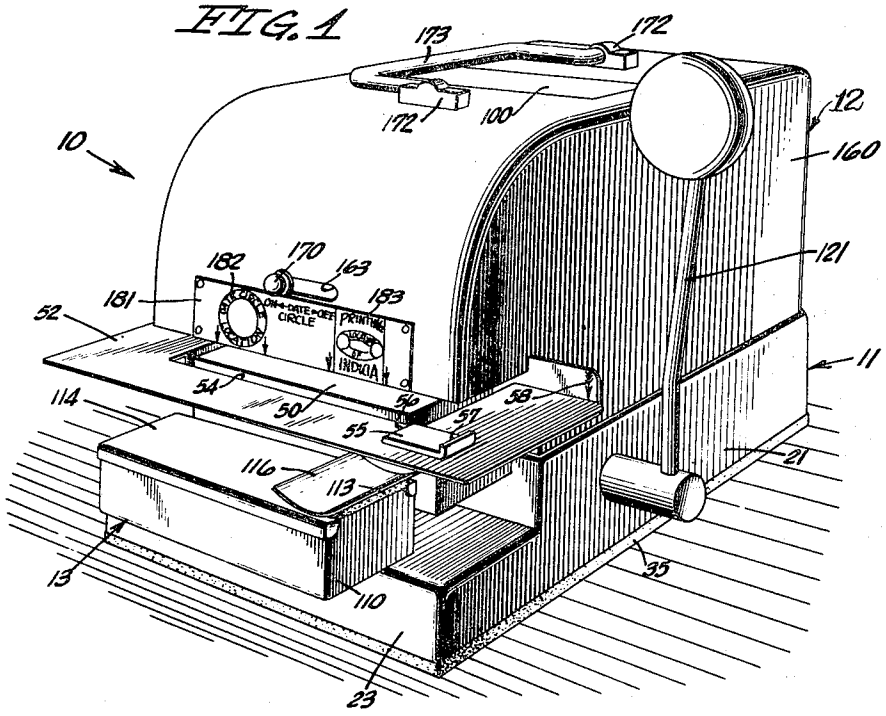
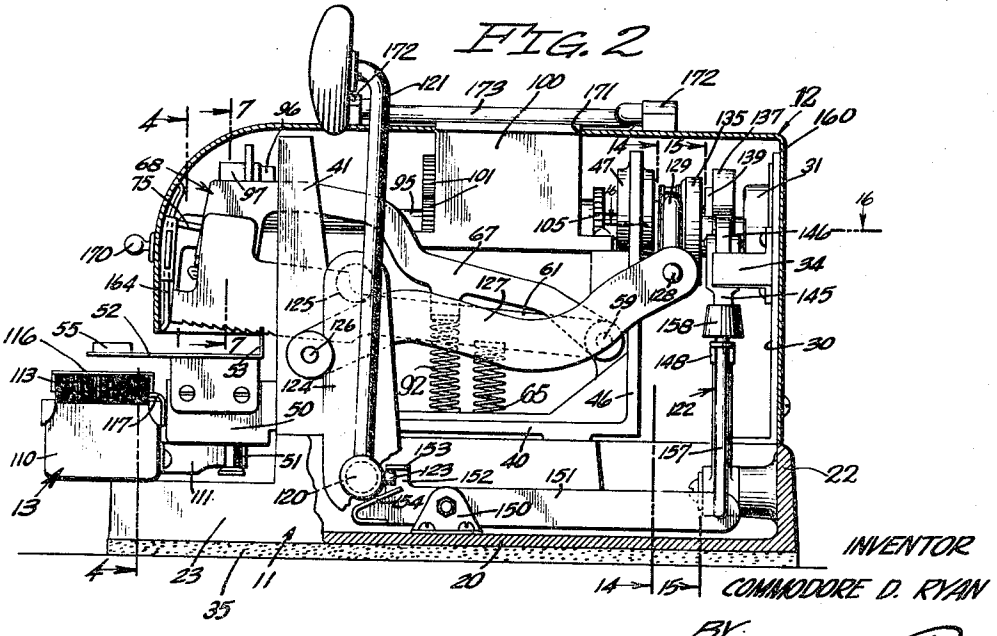


FIG. 2



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FIG. 3

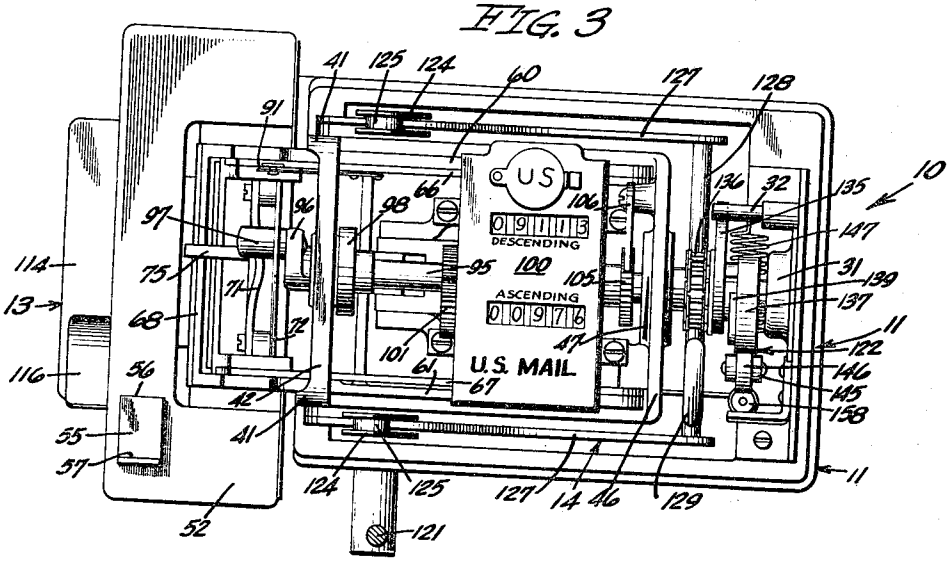


FIG. 5

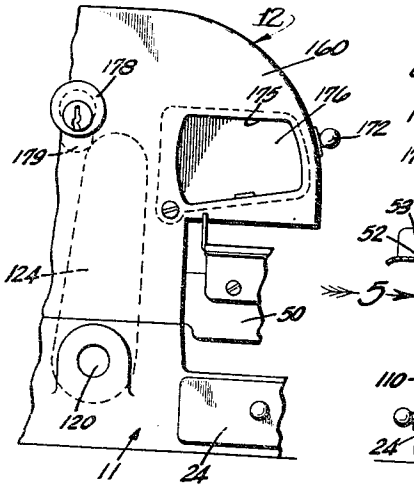


FIG. 4

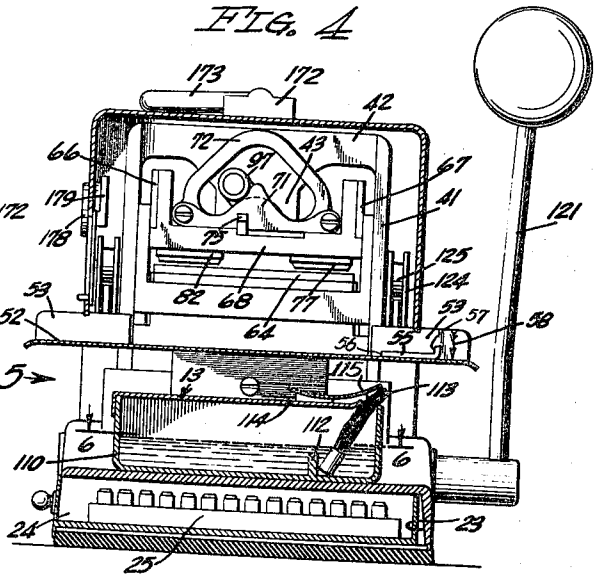
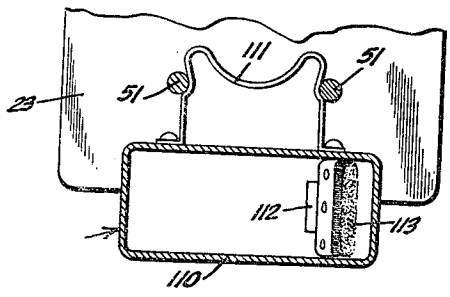


FIG. 6



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FIG. 7

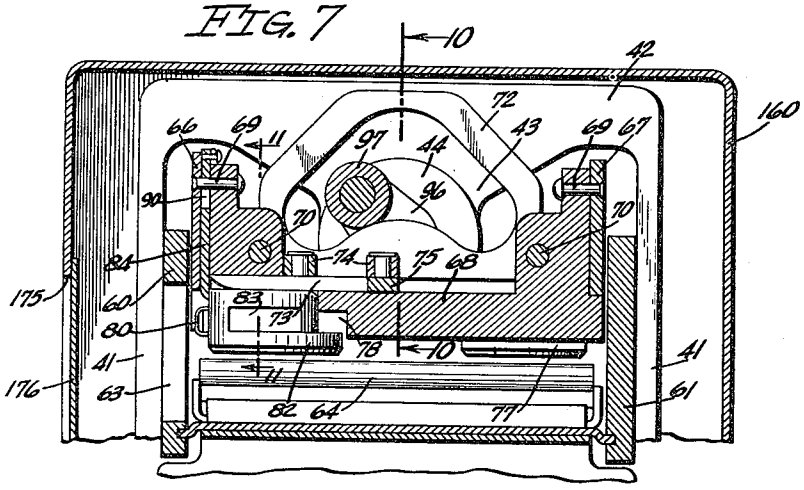


FIG. 9

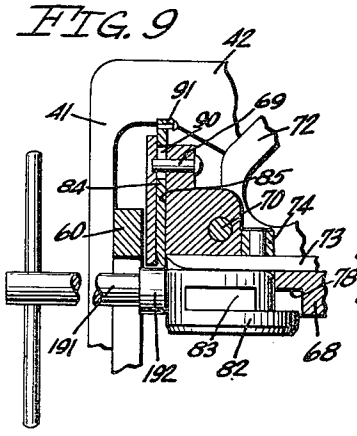


FIG. 8

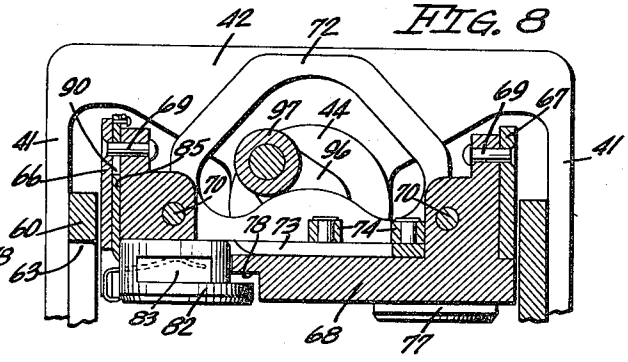
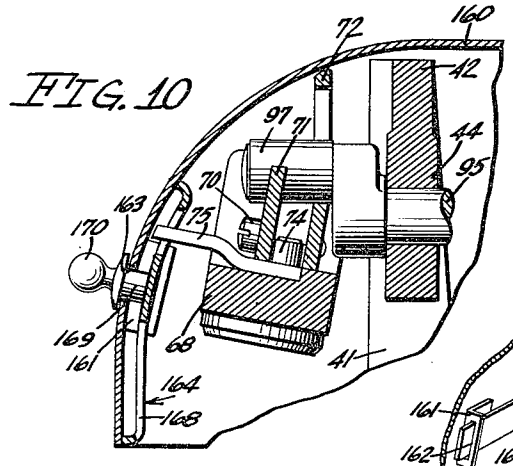


FIG. 10



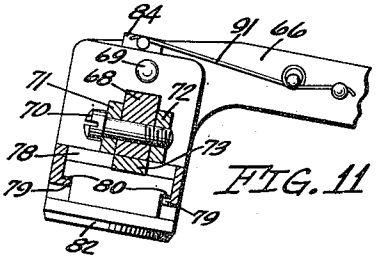


FIG. 11

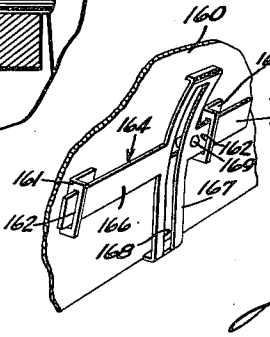


FIG. 12

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FIG. 13

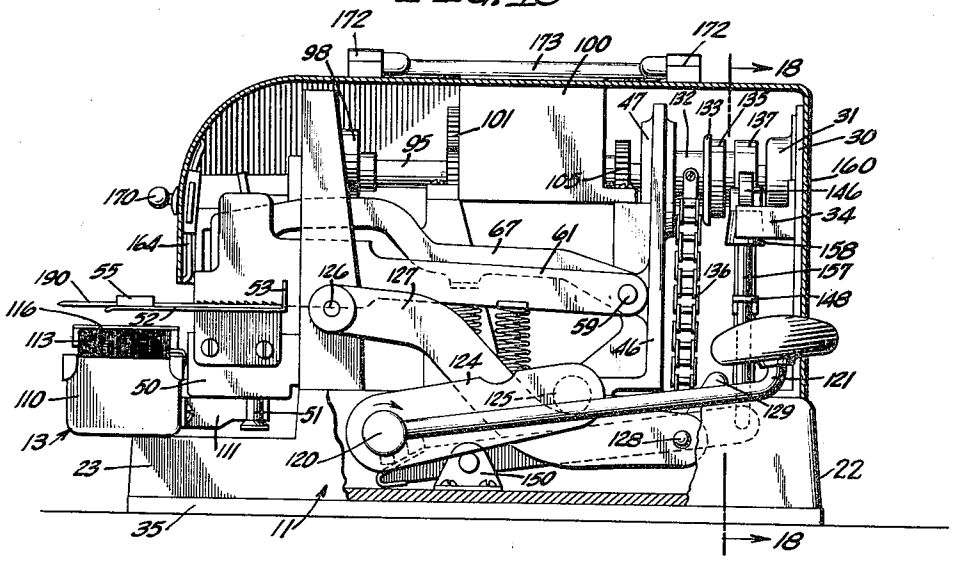


FIG. 14

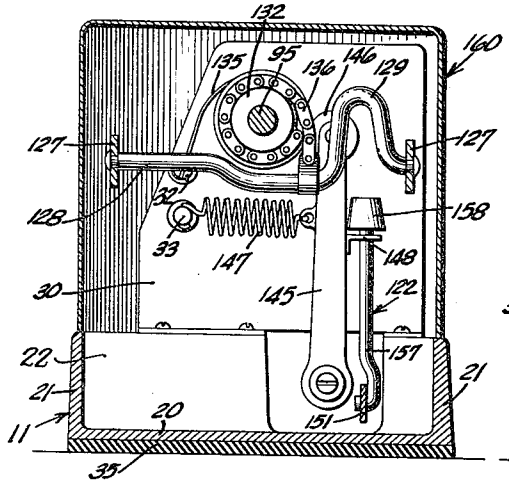


FIG. 15

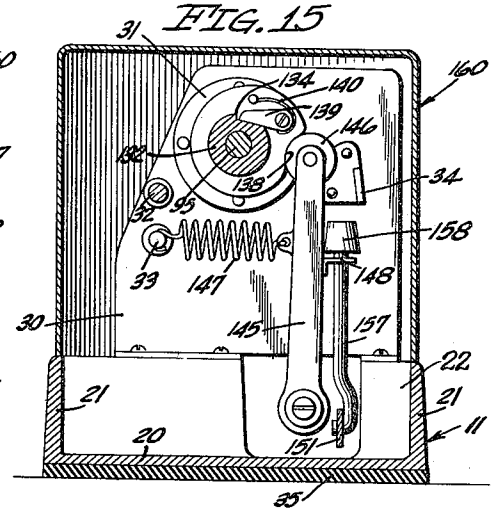
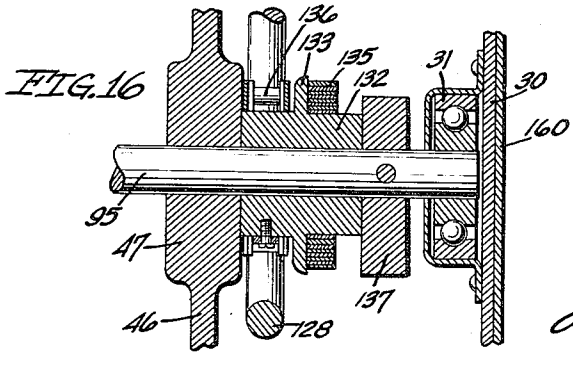


FIG. 16



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FIG. 17

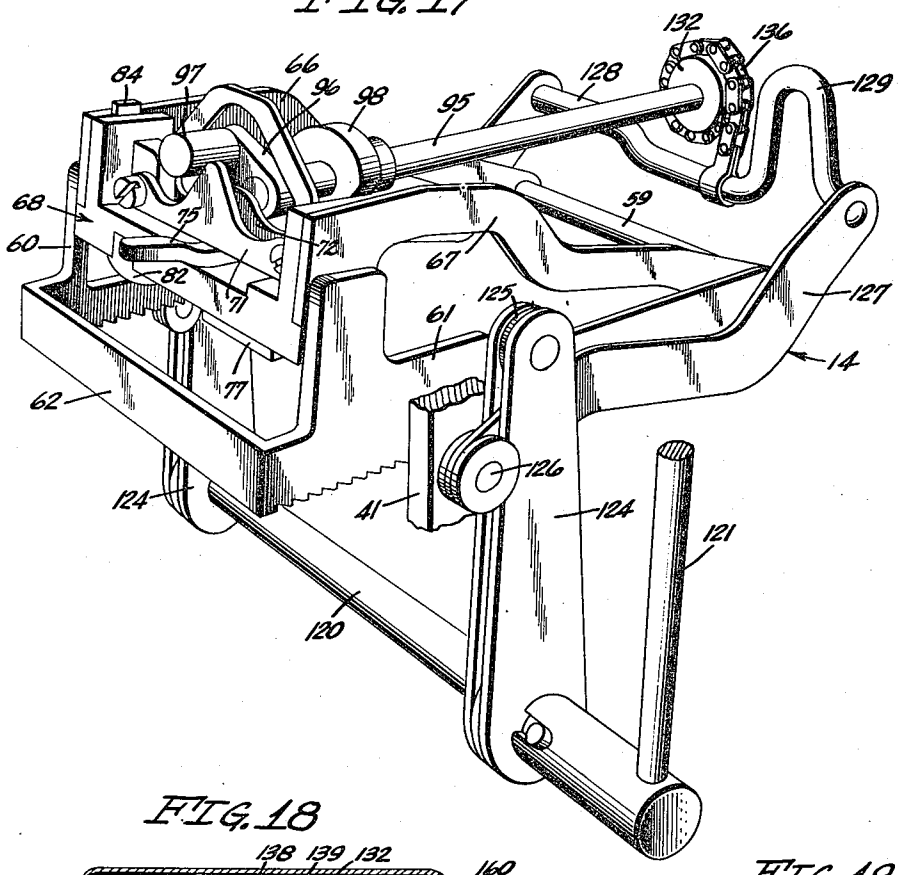


FIG. 18

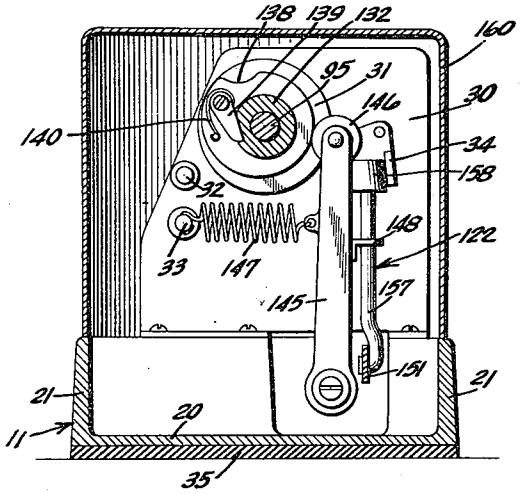


FIG. 19

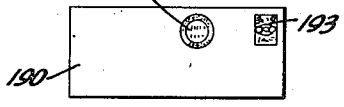
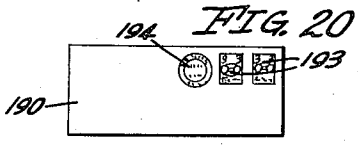


FIG. 20



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Patented May 14, 1935 2,001,287

UNITED STATES PATENT OFFICE

2,001,287

HAND OPERATED POSTAL MACHINE

Commodore D. Ryan, Los Angeles, Calif., assignor to National Postal Meter Company, Los Angeles, Calif., a corporation of California

Application May 31, 1933, Serial No. 673,639

9 Claims. (Cl. 101—301)

My invention relates to metered postal machines for printing indicia on mail matter, and more particularly to a machine of the portable hand operated class.

The large power driven postal machines now in use are very satisfactory for printing indicia upon relatively large quantities of mail matter. However, the power driven machines are too costly to be used by the majority of firms and individuals whose quantity of outgoing mail is relatively small.

Accordingly, an object of my invention is to provide a hand operated postal machine which is simple in construction so as to be manufactured at a small cost and sold at a relatively low price, thus enabling many small business firms to enjoy the use of such a machine.

The use of postal machines is strictly controlled by the Federal authorities in accordance with certain postal rules and regulations, and the present practice necessitates taking the machine or a portion thereof to a post office where the machine is set to print a predetermined amount of postage in return for payment therefor.

To facilitate transportation to and from the post office, it is another object of my invention to provide a machine of light weight and small size, thus enabling a person to conveniently carry the machine.

A further object of my invention is to provide a postal machine which includes a suitable envelope flap moistener.

A still further object of my invention is the provision of a postal machine in which certain portions of the indicia printing die may be conveniently shifted to a non-printing position to permit the printing of different amounts of postage in a manner to be made clear hereinafter.

Further objects and advantages will become apparent in the following description in view of the accompanying drawings, in which:

Fig. 1 is a perspective view of a preferred embodiment of my invention.

Fig. 2 is a side elevational view taken in the direction of the arrow 2 of Fig. 1, the side of the housing being broken away to show the interior of the machine.

Fig. 3 is a plan view of the machine with the housing removed.

Fig. 4 is a vertical sectional view taken on the line 4—4 of Fig. 2.

Fig. 5 is a fragmentary side elevational view taken in the direction of the arrow 5 of Fig. 4.

Fig. 6 is a horizontal sectional view taken on the line 6—6 of Fig. 4.

Fig. 7 is an enlarged vertical sectional view taken on the line 7—7 of Fig. 2.

Fig. 8 is a fragmentary view somewhat similar to Fig. 7 showing the non-printing position of one of the printing dies shown therein.

Fig. 9 is a fragmentary view similar in part to Fig. 7 showing the manner of removing one of the printing dies shown therein.

Fig. 10 is a fragmentary vertical sectional view taken on the line 10—10 of Fig. 7.

Fig. 11 is a fragmentary vertical sectional view taken on the line 11—11 of Fig. 7.

Fig. 12 is a fragmentary perspective view of a portion of the machine shown in Fig. 10.

Fig. 13 is a view similar to Fig. 2 showing the mechanism of the machine disposed in operative position.

Figs. 14 and 15 are vertical sectional views taken on the lines 14—14 and 15—15 respectively of Fig. 2.

Fig. 16 is an enlarged fragmentary horizontal sectional view taken on the line 16—16 of Fig. 2.

Fig. 17 is a semi-diagrammatical perspective view showing the power transmitting mechanism included in my invention.

Fig. 18 is a vertical sectional view taken on the line 18—18 of Fig. 13, and

Figs. 19 and 20 are semi-diagrammatic views of envelopes showing the arrangement of the indicia as printed by the machine of my invention.

Referring specifically to the drawings, a postal machine 10, comprising a preferred embodiment of my invention, includes a base 11, printing unit 12, a moistener 13, and a power transmitting mechanism 14.

The base 11

Referring particularly to Figs. 2, 4, and 14, the base 11 shown therein is formed as by casting to provide a bottom 20, side walls 21, and a rear wall 22. Provided on the front end of the base 11 is a housing 23 in which a drawer 24 is slidably mounted as shown in Fig. 4, a font of type 25 being stored in the drawer 24 for a purpose to be described hereinafter. Fixed on top of the rear end of the base 11 is a vertical upwardly extending plate 30, as shown in Figs. 13 and 14, having a bearing 31 provided thereon. Mounted on the plate 30 and extending horizontally therefrom are upper and lower posts 32 and 33 as shown in Fig. 15. Also fixed to the plate 30 is a lug 34 shown clearly in Fig. 2. The purpose of the posts 32 and 33 and the lug 34 will be made clear hereinafter in connection with the description of the power transmitting mechanism 14.

The under side of the base 11 is covered by a soft rubber pad 35 to prevent the machine 10 from sliding about and scratching a surface upon which it might be supported.

The printing unit 12

The printing unit 12 is somewhat similar to the printing press shown and described in my copending application, Serial No. 652,255, filed January 18, 1933, for Inking mechanism. However, the unit 12 will be described herein sufficiently to clearly point out its structure and operation.

The unit 12, as shown in Figs. 2, 3, and 4, includes a base plate 40 supported on top of the aforedescribed base 11. Fixed on the front end of the base plate 40 is a pair of upstanding arms 41 which are joined at their upper ends by a transverse member 42. Formed on the member 42 midway between the arms 41 is a depending lug 43, the latter having a bearing 44 suitably mounted therein, the bearing 44 being axially aligned with the aforementioned bearing 31 on the rear plate 30.

Formed integral with the base plate 40 on the rear edge thereof is an upstanding plate 46 in an upper portion of which a bearing 47 is mounted, the latter being disposed in alignment with both of the aforementioned bearings 31 and 44.

Mounted on a front portion of the base plate 40 is a printing platen 50 which extends forward over the housing 23 of the base 11, a more detailed description of the platen 50 being available in the above referred to copending application. Provided on the under side of the platen 50 is a pair of depending lugs 51.

Supported by the platen 50, as shown in Figs. 2 and 4, is a horizontal envelope supporting plate 52 having upstanding guide portions 53 formed on the rear edge thereof. The plate 52 is formed to provide a rectangular opening 54 into which the platen 50 extends. Fixed on the plate 52 as clearly shown in Fig. 1 is a work positioning lug 55 having a primary face 56 and a secondary face 57, the latter being formed by upturning the right hand edge of the lug as shown. Stamped onto the front face of the right-hand guide portion 53 is an arrow 58 shown in Figs. 1 and 4. The purpose of the arrow 58 and the faces 56 and 57 of the lug 55 will be explained later in connection with the operation of the machine 10.

Pivotally secured to a lower portion of the vertical plate 46 of the printing unit 12 on a suitable pin 59 is a pair of forward extending arms 60 and 61, these arms being guided transversely by contact with inner faces of the aforementioned upstanding arms 41. The arms 60 and 61 are formed at their forward ends as best shown in Fig. 17, a cross-bar 62 being provided to join the extremities of these arms. The arm 60 is formed to provide an opening 63 to permit removal of certain parts of the printing unit, as will be described hereinafter.

Slidably mounted between the arms 60 and 61 is an ink pad 64 shown in Fig. 4, a detailed description of the construction and operation of the ink pad 64 being presented in the above referred to copending application. Suitable compression springs 65 are positioned between the base plate 40 of the unit 12 and each of the arms 60 and 61 to urge the latter to the normal position in which they are shown in Fig. 2.

Also pivoted on the pin 59 is another pair of forwardly extending arms 66 and 67 on the forward extremities of which a printing head 68 is fixed by suitable rivets 69 as seen in Fig. 8. Secured on the top side of the head 68 by screws 70 are front and rear spaced cam plates 71 and 72 respectively. Slidably mounted between the cam plates 71 and 72 as shown in Figs. 7 to 10 inclusive is a wedge 73 which is guided relative to the cams 71 and 72 by a pair of rollers 74. Fixed to one end of the wedge 73 is a finger 75, the latter extending forwardly from under the cam plate 71 as shown in Fig. 10. The finger 75 is adapted to actuate the wedge 73 in a manner to be explained later.

Fixed on the under side and at one end of the printing head 68 is a printing die 77, the face of which is formed to print postage indicia. The under side of the opposite end of the printing head 68 is formed to provide a recess 78, ledges 79 being positioned on opposite sides of the recess 78, each of these ledges having spring fingers 80 on the upper sides thereof as shown in Figs. 8 and 11.

Disposed within the recess 78 of the printing head 68 is a date circle printing die 82 having channels 83 on opposite sides thereof for receiving the ledges 79 and springs 80 thereof. The channels 83 are sufficiently wide to permit a slight vertical movement of the die 82 relative to the head 68, the spring fingers 80 tending to continuously urge the die 82 to its uppermost position in which it is shown in Fig. 8. The die 82 is normally retained within the recess 78 by a keeper 84 which is slidable vertically in a suitable slot 85 provided between one end of the head 68 and the end of the arm 66 as shown in Fig. 7. The keeper 84 has a vertical slot 90, the latter embracing one of the rivets 69 of the head 68, vertical movement of the keeper being limited by contact of the ends of the slot 90 with the rivet 69. The keeper 84 is urged to its lowermost position by a spring 91 mounted on the arm 66 as shown in Fig. 11.

The arms 66 and 67 are urged to the uppermost position in which they are shown in Fig. 2 by suitable compression springs 92, the latter being interposed between these arms and the base plate 40 of the printing unit 12.

Journalled in the bearings 31, 44, and 47 of the machine 10 is a driven shaft 95 upon the front end of which a crank 96 is fixed. Rotatably mounted on the end of the crank 96 and disposed in operative relation with the cam plates 71 and 72 of the printing head 68 is a roller 97. Also fixed on a front portion of the shaft 95 adjacent the bearing 44 is a cam 98 shown in Figs. 3 and 17.

Suitably supported in the unit 12 is a meter 100 geared to the shaft 95 as by gears 101 as shown in Fig. 3. The meter 100 registers each rotation of the shaft 95 and is provided with suitable mechanism (not shown) but preferably of the type illustrated and described in the patent to Whitlock, No. 1,879,967, dated September 27, 1932 for locking the shaft 95 against rotation upon completion of a predetermined number of printing operations of the machine 10. Fixed on the shaft 95 between the meter 100 and the plate 46 is a ratchet wheel 105, a pawl 106 being pivoted on the plate 46 in operative relation to the wheel 105 so as to prevent reverse rotation of the shaft 95 as shown in Fig. 3.

The moistener 13

The moistener 13 is removably supported in front of the machine 10 adjacent the printing platen 50 as shown in Figs. 2, 4 and 6, this moistener including a water receptacle 110 having a

spring clip 111 on one side thereof for engagement with the lugs 51 on the under side of the platen 50 (see Figs. 2 and 6). Formed inside the receptacle 110 on the bottom thereof is an upstanding lug 112 suitably positioned so as to retain a brush 113 in the position in which this brush is shown in Fig. 4. Removably mounted on top of the receptacle 110 is a cover 114 having a slot 115 at one end thereof to allow the upper end of the brush 113 to extend therethrough. Above the cover 114 in spaced relation therewith is an arcuate plate 116 suitably supported from one side of the cover by a finger 117. As seen in Fig. 2, the arcuate plate 116 is positioned so that one edge thereof contacts the upper end of the brush 113.

The power transmitting mechanism 14

Suitably journalled in the side walls 21 of the base 11 of the machine 10 is a horizontal drive shaft 120 disposed in transverse relation to the machine 10. This shaft is adapted to be partially rotated by a manually actuated arm 121. The power transmitting mechanism 14 to be recited in the following description includes certain elements for transmitting rotation of the drive shaft 120 to the aforedescribed driven shaft 95. Also included by the power transmitting mechanism is a shaft positioning mechanism 122 to be described hereinafter.

Fixed to the shaft 120 and extending radially therefrom is a stud 123, the purpose of which will be described hereinafter. Fixed at their lower ends to opposite ends of the drive shaft 120 are pairs of upstanding arms 124, a roller 125 being carried between the upper ends of each pair of these arms. Pivoted on suitable pins 126 of each of the arms 41 of the unit 12 are identical cam levers 127 as shown in Figs. 2, 3, and 17, the free ends of the levers 127 being joined to opposite ends of a transverse rod 128, the latter being formed to provide an inverted U-shaped portion 129.

Rotatably mounted on the driven shaft 95 adjacent the bearing 47 is a drum 132 having a central annular flange 133 formed integral therewith as shown in Figs. 2 and 15, one end of the drum having a ratchet tooth 134 formed thereon as seen in Fig. 15. Wound around the drum 132 on one side of the flange 133 is a torsion spring 135, the inner end of the spring being fixed to the drum while the outer end of the spring is attached to the aforementioned upper post 32 of the plate 30 as shown in Fig. 14. Also wound around the drum 132 is a chain 136, one end of which is fixed to the drum while the other end is attached to the rod 128 of the levers 127 as shown in Figs. 14 and 17.

Fixed on the shaft 95 adjacent the drum 132 is a cam 137 formed to provide an arcuate recess 138 in the periphery thereof. Pivoted on one side of the cam 137 is a pawl 139 which is spring urged against the drum 132 by a spring 140, this pawl being positioned so as to engage the ratchet tooth 134 of the drum 132 as shown in Fig. 15.

The shaft positioning mechanism 122 as shown in Figs. 2, 13, and 15 includes a vertically disposed arm 145 bifurcated at its upper end and pivotally mounted at its lower end to the rear end wall 22 of the base 11. Rotatably mounted in the bifurcated upper end of the arm 145 is a roller 146, the arm being positioned so that the roller 146 thereof contacts the periphery of the aforementioned cam 137. Connected at its opposite ends to the arm 145 and the post 33 of the aforedescribed plate 30 is a contractile spring 147, the latter being provided so as to yieldably urge the roller 146 against the periphery of the cam 137. Fixed to the arm 145 is a horizontally disposed apertured bracket 148.

Pivotally mounted on a suitable lug 150 on the bottom wall 20 of the base 11 is a lever 151 as shown in Fig. 2. Provided on one end of the arm 151 is an ear 152 having a lip 153 formed thereon, the latter projecting over the aforementioned stud 123 of the drive shaft 120. Also formed on the lever 151 below the lip 153 is an inclined flange portion 154, the lip 153 and a portion of the flange 154 being disposed to normally confine the stud 123 as shown in Fig. 2.

Slidably received by the apertured bracket 148 of the bifurcated arm 145 is a vertical rod 157, the lower end of this rod being bent so as to be received by the apertured end of the lever 151 as shown in Fig. 15. Fixed to the upper end of the rod 157 is a cork shaped head 158 which is preferably made of rubber.

As shown through the several views of the drawings, the mechanism of the machine 10 is enclosed by a suitable housing 160, lower edge portions of the latter resting on top of the sides 21 and rear end 22 of the base 11. Suitable means (not shown) is provided for locking and sealing the housing 160 onto the machine 10 to prevent access to the mechanism thereof by unauthorized persons.

Fixed on the inside surface of the front wall of the housing 160 is a pair of horizontally aligned ears 161 formed to provide rectangular openings 162 as shown in Figs. 10 and 11. Cut through the housing 160 between the ears 161 is a horizontal slot 163.

Slidably mounted by means of the ears 161 is a member 164 having laterally extending bars 166, the latter being received by the openings 162 of the ears 161. Formed integral with the bars 166 is an arcuate vertically disposed bar 167 having a slot 168 formed therein. The member 164 is adapted to be manually shifted by means of a pin 169 which is fixed to one of the bars 166, this pin extending through the slot 163 of the housing 160, a knob 170 being provided on the end of this pin. The aforementioned finger 75 of the printing head 68 extends into the vertical slot 168 of the bar 167 for a purpose to be made clear hereinafter.

The top of the housing 160 is formed to provide an opening 171 into which the face of the meter 100 extends. Fixed on top of the housing 160 is a pair of apertured blocks 172 in which a handle 173 is pivotally mounted. As shown in Fig. 5, one side of the housing 160 has an opening 175, the latter being normally closed by a door 176. Suitably mounted on one side of the housing 160, as shown in Figs. 5 and 6, is a cylinder lock 178, a lug 179 of which is positioned so as to swing into or out of the path of one of the arms 124 of the drive shaft 120, it being clear that when the lug 179 is locked in the path of the arm 124 as shown in Fig. 5 the machine 10 cannot be operated.

Mounted on the front end of the housing 160 as shown in Fig. 1 is a plate 181 having suitable indicia 182 and 183 thereon for indicating the relative positions of the printing dies 77 and 82 respectively.

Operation

Assuming the meter 100 of the machine 10 to be set by the postal authorities for a predetermined amount of prepaid postage, the machine 10 is made ready for use by unlocking the lock

178 so that the lug 179 thereof swings out of the path of the arm 124.

Before using the machine 10 the date circle die 82 must be removed and supplied with the proper type from the drawer 24 for printing the current date. The die 82 is removed by opening the door 176 of the housing 160 and screwing the threaded end of a wrench 191 into a suitable threaded opening provided in the die 82 as shown in Fig. 9. The wrench 191 has an enlarged portion 192 which forces the keeper 84 upward so as to permit removal of the die 82. After suitable type is placed in the die 82 the latter is replaced and the wrench 191 unscrewed therefrom.

Prior to the printing operation, the flap of an envelope may be moistened by the moistener 13 by drawing the flap of the envelope rightwardly across the top of the cover 114 and under the arcuate plate 116 so that the gummed side of the envelope flap is wiped by the brush 113, the latter being automatically moistened by capillary action. After the moistening operation, the flap is properly folded, but not necessarily sealed, and the envelope indicated by the numeral 190 in Fig. 13 is then placed face up on the work receiving plate 52 so that the rear edge of the envelope contacts the guide portions 53 of the plate 52. The envelope is then moved rightward until it contacts the primary face 56 of the lug 55. The operator then pushes the arm 121 rearwardly, thus rotating the drive shaft 120 in the direction indicated by the arrow in Fig. 13. As the shaft 120 rotates, the pairs of arms 124 are swung as shown in Fig. 13, the rollers 125 of these arms riding along the upper edges of the levers 127 causing the latter to swing downwardly. As the levers swing in this manner the transverse rod 128 thereof pulls on the chain 136, thus rotating the drum 132 of the driven shaft 95. Rotation of the drum 132 is transmitted to the shaft 95 by engagement of the ratchet tooth 134 with the pawl 139 of the cam 137 as shown in Fig. 18. As the driven shaft 95 rotates the crank 96 on the end thereof rotates causing the roller 97 to contact the cam plates 71 and 72, thus swinging the arms 66 and the printing head 68 to the printing position shown in Fig. 13. As the printing head 68 is being lowered the cam 98 of the shaft 95 actuates suitable mechanism (not shown) which causes the ink pad 64 to be drawn from under the printing head 68 and also causes the arms 60 and 61 to be lowered so that the lower edges of the forward ends of these arms contact the envelope 190 so as to press the latter against the platen 50, thus preventing removal of the envelope until the printing operation is completed.

While the drive shaft 120 is being rotated by manually pushing on the arm 121, the driven shaft positioning mechanism functions in the following manner: As shown in Fig. 13, rotation of the drive shaft 120 swings the stud 123 downward into contact with the inclined flange 154 of the lever 151 causing the latter to be rocked as shown. As the longer arm of this lever swings upward the vertical rod 157 is raised positioning the rubber head 153 thereof between the aforementioned lug 34 and the bifurcated arm 145, as shown in Figs. 13 and 18.

As described hereinbefore, the driven shaft 95 is actuated by the power transmitting mechanism 14 in response to manual actuation of the arm 121. However, just after the printing dies 77 and 82 are pressed against the envelope 190 the driven shaft 95 is rotated very rapidly as a result of the expansion of the compression springs 65 of the arms 60 and 61 and the springs 92 of the arms 66 and 67.

Upon completion of a revolution of the driven shaft 95 the roller 146 of the bifurcated arm 145 enters the arcuate recess 138 of the cam 137, the roller being urged against the cam by the spring 147 of the arm 145. As the shaft 95 completes its revolution at a rapid rate (as shown in Fig. 15), the arcuate recess 138 of the cam 137 tends to ride past the roller 146. This, however, is prevented by the rubber head 158, the latter being wedged between the arm 145 and the lug 34 as aforedescribed. The head 158 is made of resilient material so as to absorb the shock exerted by the rapidly moving cam 137 as the latter completes its rotation.

After completion of a printing operation the arm 121 is allowed to return to its normal upright position, this arm being returned by the torsion spring 135 which rotates the drum 132, thus winding up the chain 136.

During a cycle of operation of the machine 10 uneven torque loads are exerted on the driven shaft 95 as the roller 97 of the crank 96 contacts the cam plates 71 and 72, and the cam 98 functions to operate the arms 60 and 61 as described in detail in the aforementioned copending application. The levers 127 of the power transmitting mechanism 14 are shaped so that varying degrees of leverage may be had by the drive shaft 120 over the driven shaft 95, thus permitting a uniform force to be applied on the arm 121 in spite of the uneven torque of the shaft 95 to be overcome.

The present postal rates require that three cents postage be paid for each ounce of first class mail matter. The printing die 77 of the machine is formed to print postage in accordance with the one ounce requirements of the postal rates, the date circle die 82 being formed to print the cancellation date. With the date circle disposed in operative position, as shown in Fig. 10, the envelope 190 is printed as shown in Fig. 19, the postage indicium and date circle being indicated at 193 and 194 respectively, it being noted that the postage and date circle are spaced as shown. If the mail matter weighs between one and two ounces, it is necessary to print two postage indicia upon the envelope as shown in Fig. 20. This is accomplished by manually sliding the knob 170 of the pin 169 (see Fig. 10) which moves the member 164 laterally. The finger 75 is carried by the member 164 causing the wedge 73 to be drawn from over the date circle die 82 as shown in Fig. 8, the spring fingers 80 urging the die 82 upward into non-printing position. The envelope is then shifted until its right-hand edge contacts the secondary face 57 of the lug 55 and the machine 10 is actuated so as to print a second indicium as shown in Fig. 20.

If necessary to print more than two postage indicia, the date circle is moved to non-printing position and two indicia printed by locating the envelope against the primary face 56 and then the secondary face 57 of the lug 55. Then by sliding the envelope rightwardly until the right-hand edge of the first printed indicium comes in line with the arrow 58 on the guide portion 53 of the plate 52, the envelope is positioned for the third indicium, this process being continued until all but the last required postage indicium is printed. Before the last printing operation the date circle die is moved to printing position as aforedescribed and the date circle printed simultaneously with the printing of the last indicium.

It is obvious that after the gummed surface of an envelope is moistened by the moistener 13 as aforedescribed and properly folded, the flap will be sealed to the envelope during the printing operation as a result of the pressure exerted on the envelope between the printing dies and the platen.

When necessary to replace or ink the pad 64 the same may be removed by using the wrench 191 in substantially the same manner described in the aforementioned copending application.

Although I have shown and described but one preferred form of my invention, it is to be understood that various changes and modifications might be made in the present disclosure without departing from the spirit of the invention or the scope of the appended claims.

I claim as my invention:

1. In a postal machine, the combination of: a platen; a printing die movable to and from said platen; a unidirectional driven shaft; means on said driven shaft for actuating said die as aforesaid; a meter adapted to register each rotation of said driven shaft and lock said shaft upon completion of a predetermined number of rotations; a pulley rotatably mounted on said driven shaft; ratchet means for transmitting rotation of said pulley to said driven shaft; and means for driving said pulley.

2. In a postal machine, the combination of: a platen; a printing die movable to and from said platen; a unidirectional driven shaft; means on said driven shaft for actuating said die as aforesaid; a meter adapted to register each rotation of said driven shaft and lock said shaft upon completion of a predetermined number of rotations; a pulley rotatably mounted on said driven shaft; ratchet means for transmitting rotation of said pulley to said driven shaft; a drive shaft; and means for transmitting rotation of said drive shaft to said pulley.

3. In a postal machine, the combination of: a platen; a printing die movable to and from said platen; a unidirectional driven shaft; means on said driven shaft for actuating said die as aforesaid; a meter adapted to register each rotation of said driven shaft and lock said shaft upon completion of a predetermined number of rotations; a drive shaft; and cam means for transmitting power from said drive shaft to said driven shaft, said cam means being formed so as to exert a varying force on said driven shaft to compensate for uneven torque loads exerted by said driven shaft during a printing cycle.

4. In a postal machine, the combination of: a platen; a printing die movable to and from said platen; a unidirectional driven shaft; means on said driven shaft for actuating said die as aforesaid; a meter adapted to register each rotation of said driven shaft and lock said shaft upon completion of a predetermined number of rotations; a pulley rotatably mounted on said driven shaft; means for yieldably returning said pulley to normal position; means for transmitting unidirectional rotation of said pulley to said driven shaft; and driving means adapted to rotate said pulley exclusively in said direction.

5. In a postal machine, the combination of: a platen; a printing die movable to and from said platen; a unidirectional driven shaft; means on said driven shaft for actuating said die as aforesaid; a meter adapted to register each rotation of said driven shaft and lock said shaft upon completion of a predetermined number of rotations; a drive shaft; a bar pivotally mounted at one end thereof; cam means for oscillating said bar in response to rotation of said drive shaft; and means for rotating said driven shaft in response to oscillation of said bar.

6. In a postal machine, the combination of: a platen; a printing die movable to and from said platen; a unidirectional driven shaft; means on said driven shaft for actuating said die as aforesaid; a meter adapted to register each rotation of said driven shaft and lock said shaft upon completion of a predetermined number of rotations; a pulley rotatably mounted on said driven shaft; ratchet means for transmitting unidirectional rotation of said pulley to said driven shaft; a drive shaft; a bar pivotally mounted at one end thereof; cam means for oscillating said bar in response to rotation of said drive shaft; and means for rotating said pulley in response to oscillation of said bar.

7. In a postal machine, the combination of: a platen; a printing die movable to and from said platen; a unidirectional driven shaft; means on said driven shaft for actuating said die as aforesaid; a meter adapted to register each rotation of said driven shaft and lock said shaft upon completion of a predetermined number of rotations; a pulley rotatably mounted on said driven shaft; ratchet means for transmitting rotation of said pulley to said driven shaft; a drive shaft; and cam means for transmitting rotation of said drive shaft to said pulley, said cam means being formed so as to exert different degrees of force on said pulley and thus compensate for uneven torque loads exerted by said driven shaft during a printing operation.

8. In a postal machine, the combination of: a platen; a printing head movable substantially vertically to and from said platen; a printing die removably mounted on said head; means for retaining said die on said head; a wrench for removing said die; and means on said wrench for automatically moving said retaining means into inoperative position in response to applying said wrench to said die.

9. In a postal machine, the combination of: a stationary platen; a printing head movable substantially vertically relative to said platen; a printing die shiftable substantially horizontally and vertically relative to said head; means for selectively shifting said die vertically to printing and non-printing positions; means for normally locking said die against horizontal movement relative to said head; a tool adapted to remove said die horizontally from said head; and means on said tool for automatically releasing said locking means so as to permit removal of said die.

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