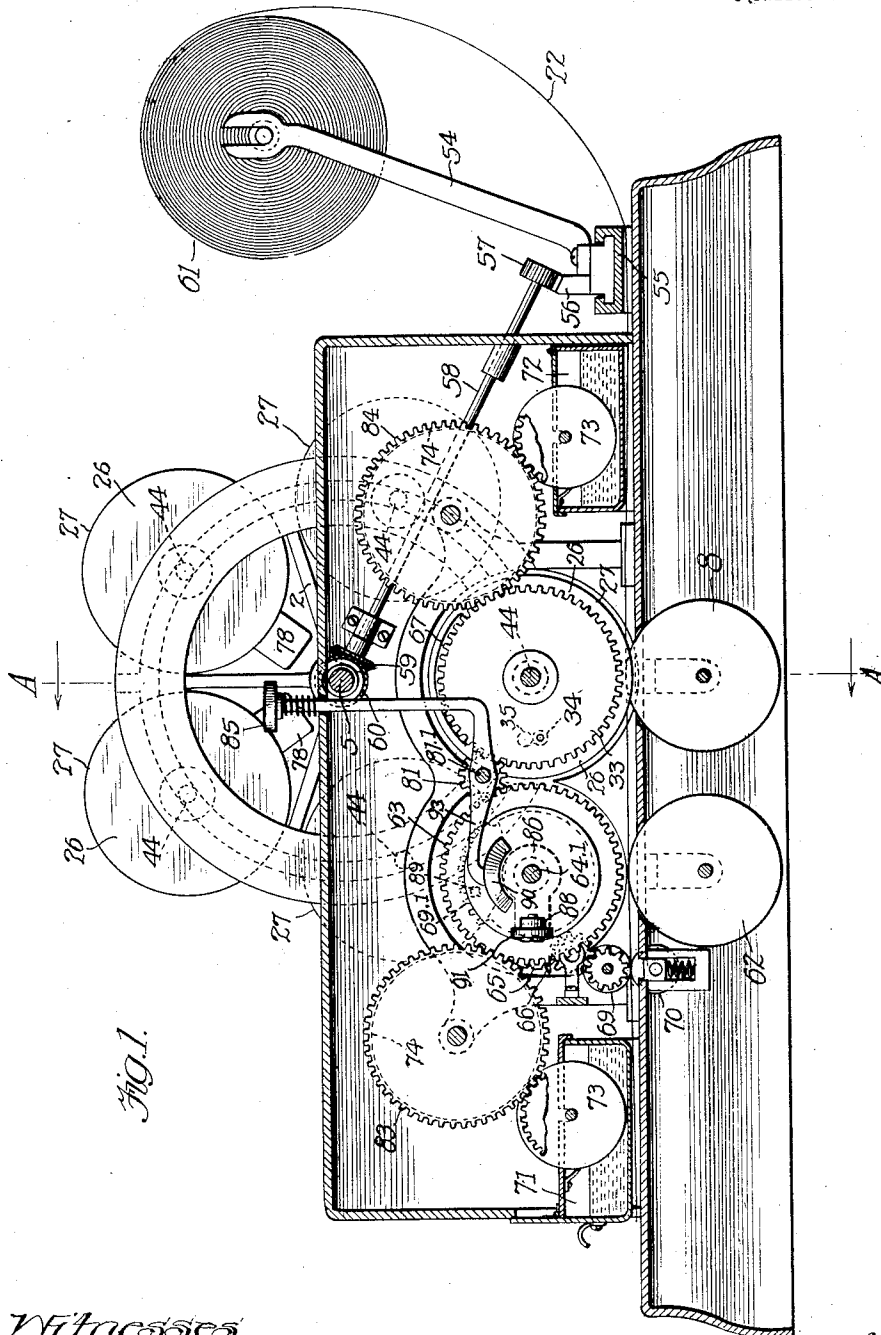


A. H. PITNEY.
 PARCEL POSTAGE METER.
 APPLICATION FILED FEB. 3, 1913.

1,208,642.

Patented Dec. 12, 1916.
 5 SHEETS—SHEET 1.



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5 SHEETS—SHEET 2.

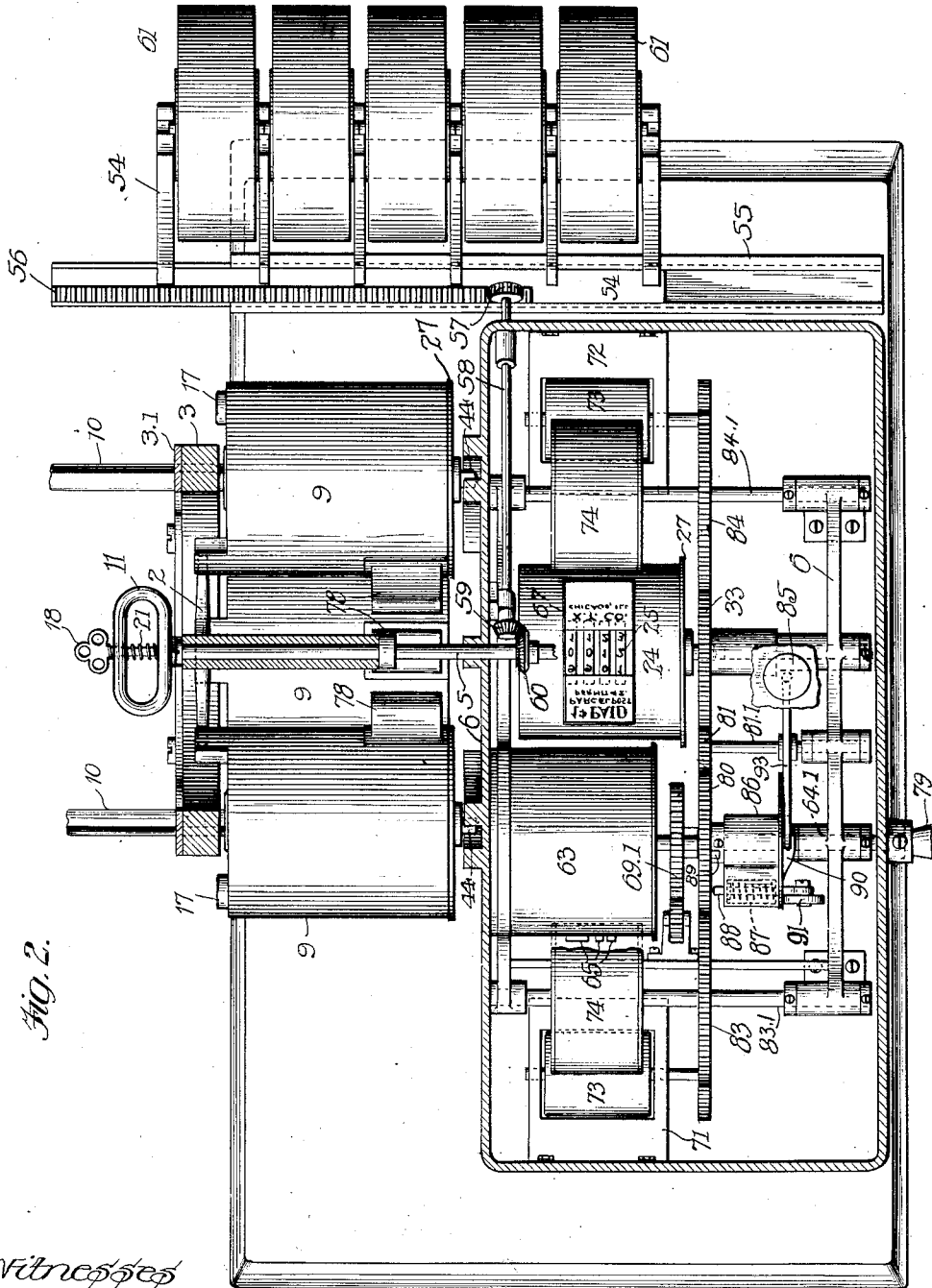


Fig. 2.

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 5 SHEETS—SHEET 3.

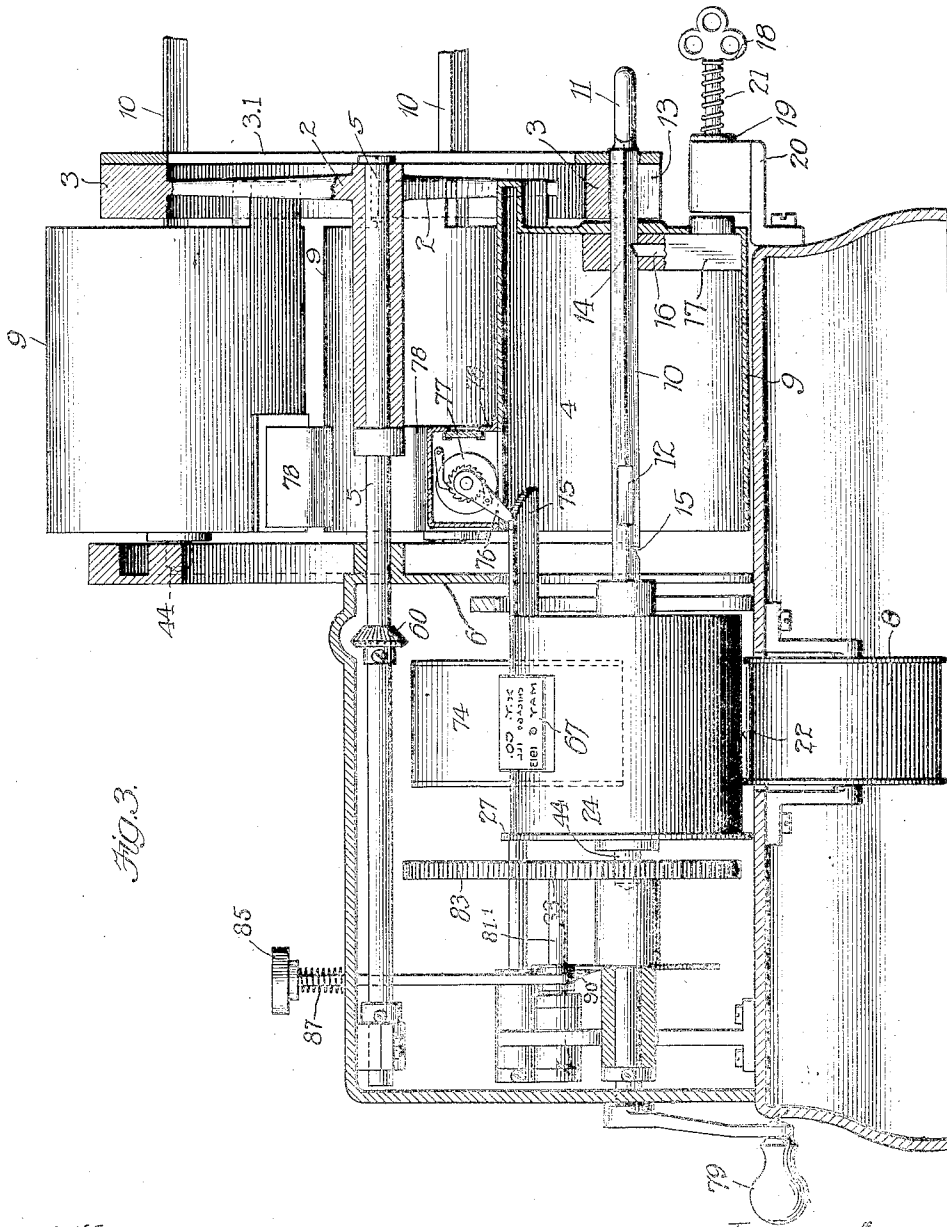


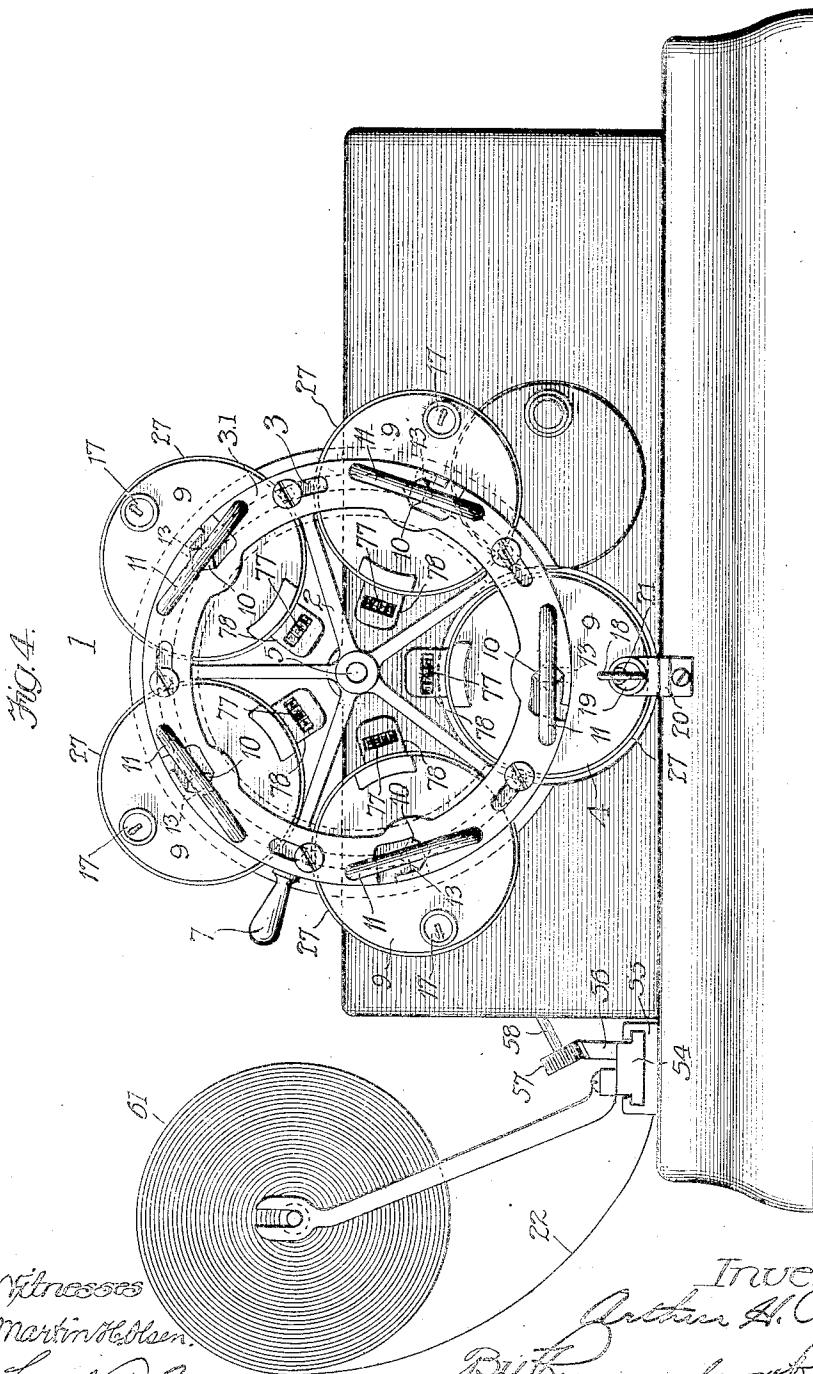
Fig. 3.

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1,208,642.

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 5 SHEETS—SHEET 4.



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5 SHEETS—SHEET 5.

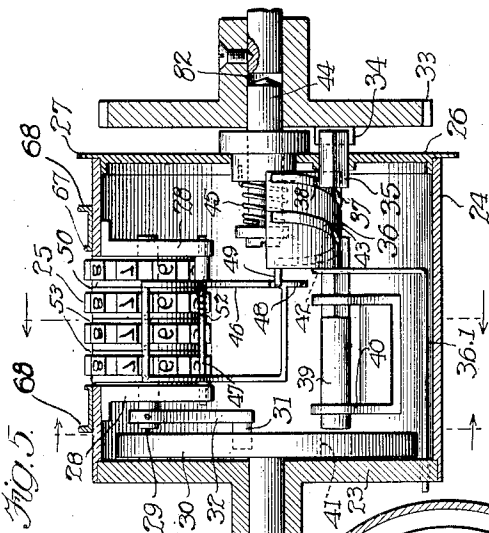
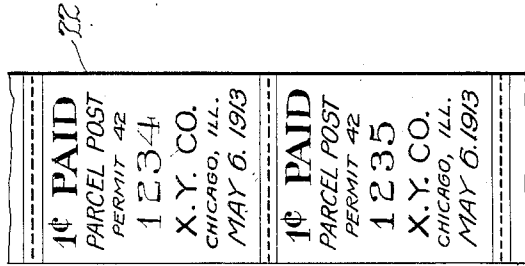
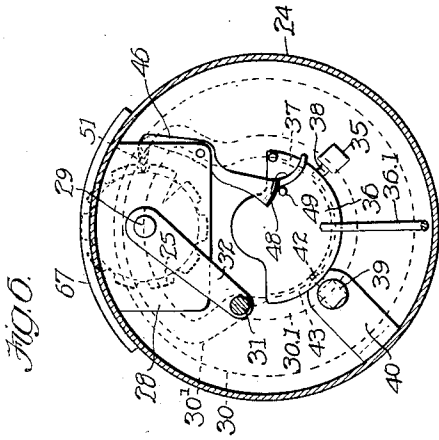
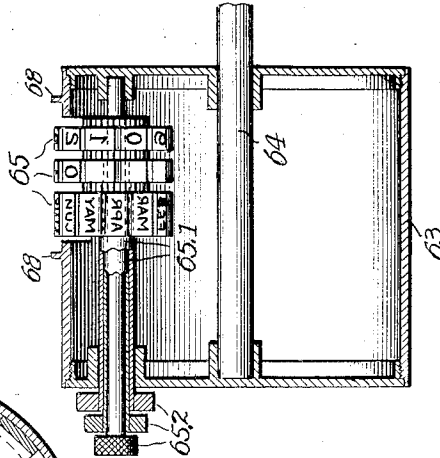


Fig. 8.



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UNITED STATES PATENT OFFICE.

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PARCEL-POSTAGE METER.

1,208,642.

Specification of Letters Patent.

Patented Dec. 12, 1916.

Application filed February 3, 1913. Serial No. 746,082.

To all whom it may concern:

Be it known that I, ARTHUR H. PITNEY, a citizen of the United States of America, and a resident of Joliet, county of Will, and State of Illinois, have invented certain new and useful Improvements in Parcel-Postage Meters, of which the following is a specification.

This invention relates to a system and machine for handling mail matter wherein the necessity of post office cancellation is eliminated.

The invention is applicable in particular to parcels post matter. The varying dimensions of mail matter in this class involves many difficulties in the matter of cancellation of stamps if done by machinery.

The present invention contemplates the employment of a postage stamp printing machine, also including a dating device for printing dates on stamps in order that after a certain predetermined lapse of time the stamps become void or in effect canceled.

The machine is intended for use in large mercantile establishments and is constructed to print any desired number of stamps at one time, and also includes means for printing stamps of different denominations.

The machine is appropriately constructed so that post office officials may set the machine to print any desired number of prepaid stamps of the desired denominations. The user of the machine may operate it to print stamps as required, and when the prepaid number of stamps of any one denomination has been issued the machine becomes inoperative with respect to such denomination of stamps and cannot again be operated to print stamps of that particular denomination until the authorized officials have unlocked and reset the particular stamp printing device. The machine is still operative as to the other denominations of stamps until the prepaid number of these have been respectively issued.

In order to facilitate the employment of a postal system such as herein contemplated, the stamp printing devices are removable from the machine so that when locked they may be sent to post office stations to be reset.

The invention has for its objects the provision of stamp printing mechanism adapt-

ed to print stamps of various denominations on differently colored strips of gummed paper so that stamps of different denominations may be easily distinguished by their color.

Other objects of the invention are to provide a machine of the above specified class with a plurality of registering devices whereby the total value of stamps of each denomination printed may be ascertained at any time; to provide a plurality of recording devices adapted to be differently set to positions to represent any desired value of postage, and then to be reset by unity automatically on printing operations of a machine and finally locked in zero position; to provide a multiple paper strip carriage and a multiple printing drum carriage with a common actuating means whereby both may be differentially set to corresponding positions, and thus cause corresponding printing drums and paper strips to become operative; to provide a machine of this class with combined stamp printing and stamp canceling mechanisms; and to provide a controlling key manually operative and having connections whereby the machine may be differentially controlled as to the number of stamps issued.

An illustrative embodiment of this invention is shown in the accompanying drawings in which—

Figure 1 is a right side elevation of the entire machine with the casing and bed plate in section. Fig. 2 is a plan view of the entire machine with the casing in section. Fig. 3 shows a transverse vertical section taken on the line A—A of Fig. 1. Fig. 4 shows the machine in left side elevation. Fig. 5 is a view showing in longitudinal section one of the stamp printing drums and connecting mechanism. Fig. 6 is a view showing in transverse section one of the stamp printing drums. Fig. 7 is a detail showing the construction of the numbering device. Fig. 8 is a detail showing in section the date printing drum. Fig. 9 is a fragmentary detail of one of the paper strips after having been printed and perforated by the machine, thus showing the appearance of the stamps.

The structure of the machine includes a rotatable reel or magazine for supporting

a plurality of stamp printing drums, each adapted to print stamps of some one denomination. Each drum is inaccessible to the operator, being inclosed in a casing, but with its casing being readily removable from the reel. Each drum casing is provided with a lock ordinarily preventing removal of the printing mechanism from the casing, when removed from the machine, except by authorized parties. When the drums are in their proper places in the reel, the printing devices may also be moved from the drum into the machine at the proper point for effecting impressions, but the construction is such that during the movement of the printing device to and from its respective drum, and during the operation of the machine, manipulation of the printing device is prevented.

A paper carriage is provided on which is mounted a plurality of paper strips, one for each drum on the reel. The reel and paper carriage are geared together and the reel is provided with a handle whereby it may be manually rotated to bring any desired printing device into operative position. Thus when the reel is set the paper carriage is also automatically set, bringing a paper strip corresponding to the operative printing device into position to receive impressions.

The machine also includes a dating device for dating each stamp as issued. This device in construction is well known, but as employed in the system herein described is also equivalent to a stamp canceling device. Thus there is incorporated in a single machine stamp printing, and stamp canceling mechanisms.

In the construction shown in the drawings the reel or printing drum magazine 1 consists of a wheel frame 2 and a heavy rim 3 secured to the outer edge of the wheel and serving as a support for accounting and printing devices 4. Secured to the wheel 2 is a stub shaft 5 journaled in one of the side frames 6 of the machine. The reel 1 is provided with a handle 7 in order that it may be manually rotated to position a drum, for printing stamps of a desired denomination, into coöperative relation with an impression roller 8. The selected drum does not become operative with respect to the impression roller until moved inwardly, out of its inclosing casing, into the machine immediately above the roller 8.

Each device 4 includes a casing 9 in which is slidably mounted rod 10 rectangular in cross section and passing through the rim 3 of the reel, the latter, through the rod 10, serving to support both the casing 9 and the printing mechanism contained therein, the printing mechanism being directly supported by the rod 10. Rod 10 is provided with

a handle 11 by means of which it may be moved inwardly or outwardly with respect to the supporting reel in order to carry the printing mechanism into and out of the machine. The rod 10 is cut away at 12 in order that when in its outer position with the printing mechanism located in casing 9, the entire unit may be removed from the reel, this being possible from the shape of the slots 13 in the rim 3 and through which rod 10 passes. Accidental disengagement of any printing unit from the reel is prevented by a shiftable flat metal ring 3.1 having a slot and pin connection with rim 3 and bayonet slots through which rods 10 pass. Rod 10 is also provided with two notches 14 and 15 for coöperating with a spring operated locking bolt 16 which serves to retain the member 10 in either its inner or outer position. The locking bolt 16 is a part of a standard lock construction 17 securely mounted on casing 9 so as not to be removed therefrom. The lock 17 to serve its function properly should be operative only by means of a master key at a central station or in the possession of authorized parties, or by a key 18 mounted in a sleeve 19 swiveled in a fixed bracket 20 secured to the frame of the machine. The key 18 cannot be removed from its supporting sleeve 19 but may be pushed inwardly against the action of a coiled spring 21 into the key seat of the particular lock 17 which is opposite the location of the key, and the key is positioned as shown in the drawings to be effective only with respect to that printing drum which is in operative position. After the reel 1 has been set as desired, key 18 is forced inwardly and turned, thus withdrawing bolt 16 from the notch in rod 10 and permitting the rod 10 to be forced inwardly and thus carry the printing device contained in the case 9 into position for effecting impressions on one of the paper strips 22. It may also be noted that key 18 has a double function of controlling lock bolt 16 and alining the magazine reel in its set position.

Each printing device is rotatably mounted on rod 10, through a disk 23 to which is secured a casing 24 in which is mounted the numbering wheels 25 and coöperating parts. Secured to the right hand end of casing 24 (Fig. 5) is a disk 26 having an outwardly extending rim or shoulder 27 for bearing against the inner surface of the casing 9 when the casing 24 and its contained mechanism is seated in the casing 9. Secured to the casing 24 are brackets 28 for supporting the numbering wheel shaft 29. This shaft is suitably cut away to provide space for a multi-shouldered actuating pawl for wheels 25 and suitable retaining pawls, for coöperating with notches cut in the interior edges of the numbering wheels and operat-

ing the wheels in a well known manner upon a rocking movement of shaft 29. Rocking of shaft 29 is effected by a fixed cam 30 secured to rod 10 and having an eccentric groove 30.1 in which is seated a roller 31 on an arm 32 secured to shaft 29. On printing operations the printing device is rotated and thereby causes roller 31 to move along the eccentric groove in fixed cam 30 and thereby rock shaft 29, the multi-shouldered pawl 29.1 serving as usual to impart a step by step movement to the wheel of lowest denomination and through notches successively increased in depth, operating the numbering wheels of higher order as required in carrying operations.

Drum 24 is given its rotary movement by a gear 33 included in the driving mechanism to be described further on. The gear is provided with a lug 34 which engages a prismatic plunger 35 slidably mounted in disk 26 but normally prevented from longitudinal movement by a cam 36 having a groove 37 into which extends a pin 38 on plunger 35.

Each printing device is also provided with a locking plunger 39 slidably supported in a bracket 40 and in suitable position for entering a hole 41 in fixed cam 30 when the printing device is at rest in its normal position. Plunger 39 is provided with a roller 42 extending into a groove 43 in cam 36. Cam 36 is journaled on a stub shaft 44 secured to end plate 26 and is normally urged by a spring 45 to rotate in such direction that its cam grooves 37 and 43 operate to withdraw plunger 35 from the path of lug 34, and to force plunger 39 into the hole 41 in fixed cam 30, and thus make the printing mechanism of the respective drum entirely inoperative as would be required when the printing wheels have made the required predetermined number of impressions. In order that the printing wheels may control operation of cam 36, a multi-pronged pawl 46 is pivoted on a rod 47 secured to brackets 28 and has a shoulder 48 for engaging a pin 49 on cam 36 preventing movement of the latter under its spring 45. Rigid with each numbering wheel 25 is a disk 50 having a notch 50.1 in suitable position to be opposite a cooperating prong 51 of pawl 46 when the numbering wheel is in position to print a cipher. The prongs 51 successively decrease in length from lower to higher order and complete movement of the pawl 46 around its supporting rod 47 under the action of its spring 52 is prevented by disks 50 until all of the numbering wheels arrive at zero position. The notches in disks 50 are of such form that when entered by prongs 51 further rotation of the numbering wheels is prevented, but because of the difference in length of prongs 51, the numbering wheels

are locked in zero position in succession from higher to lower order.

Fixed spacing plates 53 are, as is customary, located between the numbering wheels to prevent movement being imparted from one wheel to another through friction.

It will be seen that the above construction of printing device provides means whereby the numbering wheels are free to be set to print any desired number and then reset step by step so as to print numbers successively decreasing in value until the numbering wheels all arrive at zero. Then the locking movement of pawl 46 takes place preventing further movement of all the numbering wheels and also carrying its shoulder 48 out of the path of pin 49 on cam 36, permitting the latter to rotate a limited distance under the action of its spring 45. The rotation of the cam by effecting the withdrawal of plunger 35 makes this particular numbering device inoperative, in respect to printing, on further operations of the machine. The movement imparted to plunger 39 by the cam 36 serves to lock the printing device against rotation by any means as it locks the device to the fixed cam 30. Cam 36 may be restored to normal position by the official having access to the printing drums by means of an arm 36.1 secured to the cam and extending through the printing drum at end 23. Arm 36.1 is inaccessible when the drum is within its casing 9. By restoring cam 36 plungers 35 and 39 controlled thereby are also restored. The cam is retained in normal position by shoulder 48 on pawl 46, it being assumed that pawl 46 is again held in normal position by the readjustment printing wheels.

The paper strip carriage 54 is supported on a suitable track 55 and carries a rack 56 with which meshes a pinion 57 fast to a shaft 58 journaled in the frame of the machine and also carrying fast thereto a bevel pinion 59 meshing with a bevel pinion 60 fast to the reel supporting shaft 5. Through this gearing it will be seen that when the printing drum reel or magazine is rotated by handle 7, the paper supporting carriage will be given a corresponding transverse movement thereby positioning one of the paper supply rolls 61 in line with the impression rollers 8 and 62. The rolls of paper 61 are preferably of some predetermined color corresponding with the values of the various stamps which may be printed by drums 4. For example, when the drum printing two cent stamps is in printing position, the paper strip which may be colored red is in position for receiving impressions.

Only one stamp dating drum is provided, as this serves to date all the stamps issued of whatever denomination. This drum 63 is fixed to a shaft 64 journaled in the frames

of the machine and receives motion through gearing to be described further on. The dating wheels 65 are eccentrically mounted in the drum 63 so that only one type of each wheel may effect an impression during a single rotation of the drum, as is the case with the numbering wheels of the stamp printing drum. The dating wheels 65 are fast to concentric tubes 65.1 journaled in drum 63 and having at their outer ends knurled heads 65.2 by means of which the tubes may be rotated to set the dating wheels from day to day. The drum 63 is provided with a row of pins 66 suitably located to perforate the paper strips on a line passing between impressions.

So far the manner of effecting impressions of consecutive numbers and dates on stamps, and also the manner of perforating has been described. To print the body of the stamp, such as the amount of postage, the name of the user and his permit number, as is required in cases of prepaid postage of this general class, an electroplate 67 is removably secured to each of the drums 24. In order to feed the paper strips only during the time impressions are made so that there shall be no unused part of the strip, each of the drums 24 and 63 is provided with a pair of flanges 68 of exactly the required length, and cooperating with the impression rollers 8 and 62, the latter in combination with the flanges also serving as feed rollers. The flanges, when the machine is at rest in normal position, are out of coacting relation with rollers 8 and 62 and therefore offer no obstruction to threading one of the strips of paper 22 into the machine for receiving impressions.

An extra pair of feed rollers 69 and 70 is provided which serves to prevent accidental movement of the paper strips 22 when flanges 68 are out of cooperative relation with impression rollers. Roller 70 is yieldingly mounted with respect to roller 69 so that it may be lowered away from the latter when the paper tape is threaded into the machine. The feed rollers 69 and 70 are geared together and in order that they rotate only during the time impressions are being made they are driven by a mutilated gear 69.1 on the drive shaft 64.

For the purpose of furnishing ink to the stamp printing and dating devices, ink receptacles 71 and 72 supply ink to rollers 73 journaled therein, and through intermediate rollers 74 the ink is properly distributed on the numbering wheels 25, electroplate 67 and the dating wheels 65.

In order to count the number of stamps of each denomination issued by the machine, each printing drum 24 (Fig. 3) carries a cam 75 which when the printing drum is in operative position is operative with respect

to an actuating arm 76 of a counting device 77 of standard construction and supported in a housing 78 integral with casing 9. The housing 78 is suitably cut away to permit the numbering device to be read through a glass mounted in the opening.

The driving mechanism of the machine receives power from shaft 64.1 which in the form shown in the drawings is provided with an operating crank 79. Fast to shaft 64 connected to shaft 64.1 through a clutch 86 is a gear 80 (Fig. 1) meshing with a small intermediate pinion 81 journaled on a stub shaft 81.1 and in turn meshing with the driving gear 33 for printing drums 24. It may be seen in Fig. 5 that gear 33 is provided with a central recess 82 in which rests the outer end of stub shaft 44 of any one of the printing drums 24 when the latter is in operative position in the machine. Thus the gear 33, which is well supported in one of the side frames of the machine, serves to assist in supporting against lateral movement the printing drum 24 which is in printing position. The gear 80 meshes with the gear 83 fast to shaft 83.1 carrying fast thereto one of the ink rollers 74 and the gear 33 meshes with a gear 84 fast to shaft 84.1 carrying fast thereto the other ink roller 74, and in this way serve to rotate these rollers and their supply rollers 73. Shafts 83.1 and 84.1 are journaled in side frames 6.

In order to regulate the number of any particular denomination of stamps issued, the machine is provided with a single depressible key 85 controlling the operation of clutch 86 (Fig. 2) for connecting shafts 64 and 64.1. A spring 87 normally holds plunger 88 in position to engage lug 89 on gear 80 so that shafts 64.1 and 64 will rotate as a single shaft, but an inclined cam 90 is normally in such position that a roller 91 carried by said clutch controlling plunger 88 will upon operation of the driving mechanism ride up on cam 90 and therefore through the controlling plunger disconnect the shaft 64.1 from the shaft 64 and thereby prevent stamps from being issued. The cam 90 as shown in Fig. 1 is carried by a lever 93 pivoted on stub shaft 81.1 and at its rear end is integral with the shank of key 85. Therefore when key 85 is depressed cam 90 is made inoperative and consequently rotation of shaft 64.1 under the action of its crank 79 results, on the operation of the machine, in the issuing of stamps, a single stamp being issued for each rotation of crank 79. If the operator desires to issue more than one stamp at a time, he holds key 85 in its depressed position and counts the number of operations of the crank in order to obtain the desired number of stamps.

The particular stamp shown in the drawings is thought novel, it having in combina-

tion designations of the stamp's value, by whom purchased, the permit number, the consecutive number of the stamp and the date when issued, and as it is the product of the machine herein claimed, it also is claimed in this application.

To briefly describe the operation of the device, it will first be mentioned that all of the printing drums are set by the authorized Post Office official to print the required number of stamps of various denominations. Before the printing devices are sent to the user, the official locks each printing drum 24 inside of its respective casing 9, thereby making manipulation of the numbering and registering devices impossible. When received by the operator they are placed in their appropriate positions on the reel 1 so that when the reel is rotated to position one of the drums for making impressions, its corresponding strip 22 will be positioned to cooperate with that particular drum. The adjustment of the drum previous to operations of the machine is effected simply by rotating it through handle 7 and in this manner the desired drum is selected, and through the gearing from the reel to the paper roll supporting carriage 54 the desired paper roll is selected. The selected drum is now in position so that key 18 may be operated to unlock rod 10 and the printing drum 24 supported thereon from inclosing casing 9. The handle 11 is then pushed inwardly bringing the printing device opposite the impression roller 8 (Fig. 1). The paper strip 22 is now threaded into the machine between the printing drum 24 and impression roller 8, the drum 63 and impression roller 62, and between feed rollers 69 and 70. Key 85 is then depressed and the crank 79 rotated once for each stamp it is desired to have issued. Rotation of the crank through the gearing causes one rotation of printing drum 24 and consequently causes the numbering wheels mounted therein and the electroplate carried thereby to effect impressions, and the count of the numbering wheels to be lessened by one, as before explained. Rotation of the crank also results in a single rotation of the date printing drum 63, causing the dating wheels to effect an impression on the same stamp, the position of the dating wheels on drum 63 being of course suitable for this purpose.

From the foregoing description it may readily be seen that the present invention provides means for greatly simplifying the present system of marking mail matter, particularly that of parcels post, and involves a construction having a broad field of usefulness as it is well adapted for issuing cash receipts, to be applied adhesively to packages, or for issuing tickets. In this connection it is again mentioned that the elec-

troplate forms are removable from the printing cylinder and therefore may be substituted, one for the other, as determined by the requirements of users.

Although but one specific embodiment of this invention has been herein shown and described, it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention as defined by the following claims.

I claim:—

1. In a machine of the class described, the combination with supporting means for a plurality of paper strips, of postage stamp printing mechanism, a plurality of registering devices, and means for differentially adjusting the printing mechanism constructed to selectively control the paper supporting means and registering devices for operation.

2. In a machine of the class described, the combination with supporting means for a plurality of paper strips, of printing mechanism, means for setting the printing mechanism to print different amounts, and said setting means having connections to selectively control the paper supporting means for impressions on different paper strips.

3. In a machine of the class described, the combination with accounting devices and operating mechanism therefor, of printing mechanism, positioning means for record strips, and means for selectively making cooperative any one of said accounting devices and the operating mechanism adapted to control said positioning means to set a corresponding one of said strips into operative relation with the printing mechanism.

4. In a machine of the class described, the combination with supporting means for a plurality of paper strips, printing mechanism, a plurality of registering devices, operating mechanism for the registering devices, and means for causing the printing mechanism to effect an impression on a desired paper strip and the operating mechanism to operate a registering device having a predetermined relationship to the said strip.

5. In a machine of the class described, the combination with a plurality of independent printing mechanisms of an operating mechanism therefor, manually operated means constructed to selectively control said printing mechanisms whereby the same may be adjusted to effect impressions from any one of said printing mechanisms, and means for differentially controlling said operating mechanism whereby any desired number of impressions may be effected from the selected printing mechanism.

6. In a machine of the class described, the combination with a magazine support-

ing a plurality of normally locked printing devices, means located in a fixed position in the machine for unlocking said printing devices, and said magazine being movably mounted on said machine so that any desired printing device may be operatively positioned with respect to said means.

7. In a machine of the class described, the combination with a journaled printing drum, a plunger mounted therein, operating mechanism arranged to engage said plunger

and thereby drive the printing drum, and an accounting device carried by said drum constructed to withdraw said plunger from operative position when the drum has rotated a predetermined number of times. 15

Signed at Joliet this 23rd day of Jany., 1913.

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