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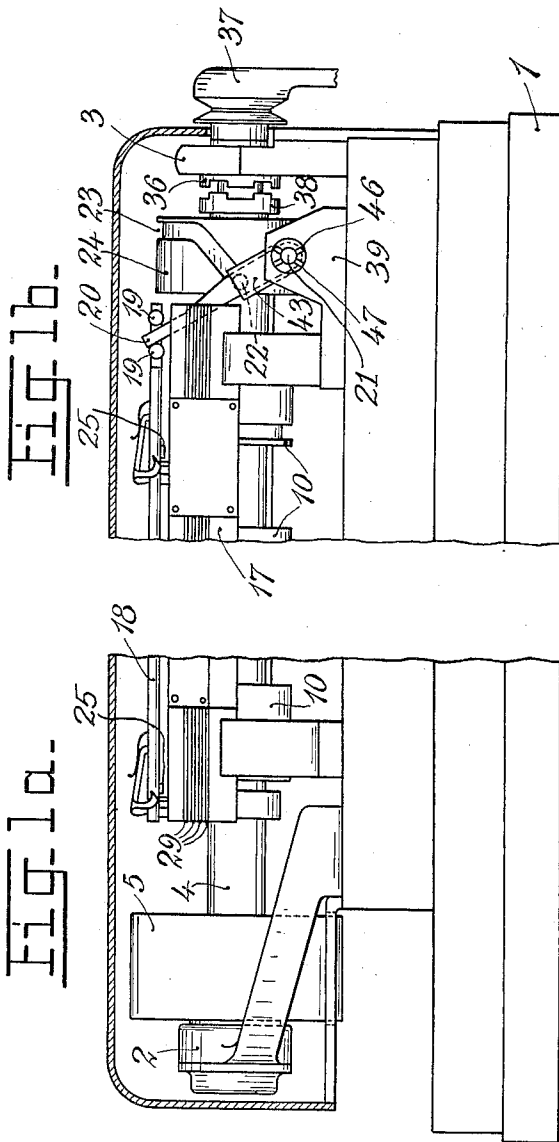
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2,128,156

VALUE STAMPING MACHINE

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3 Sheets-Sheet 1



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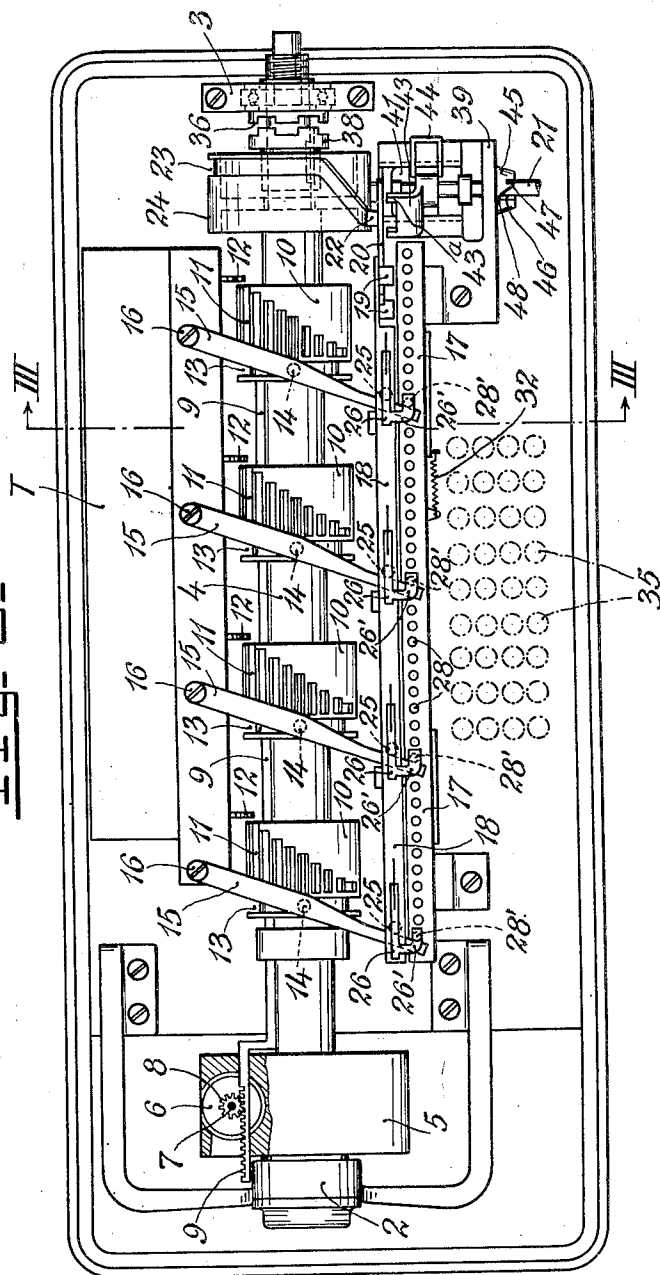
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Fig. 2-



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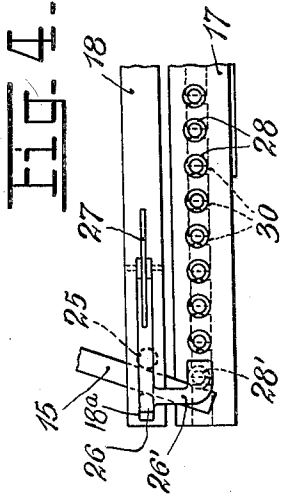
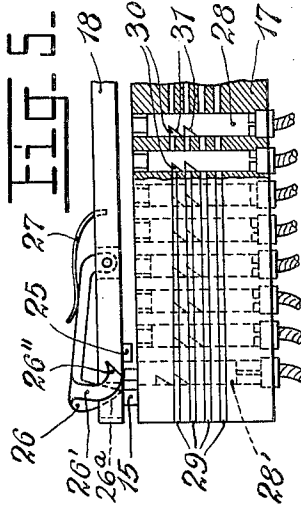
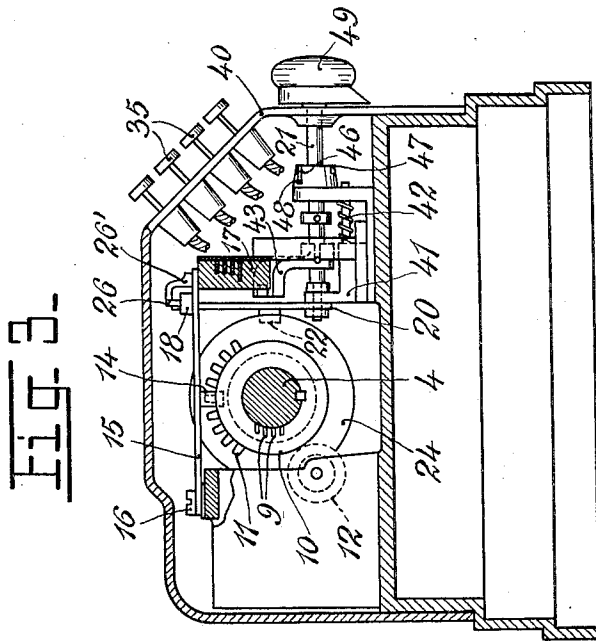
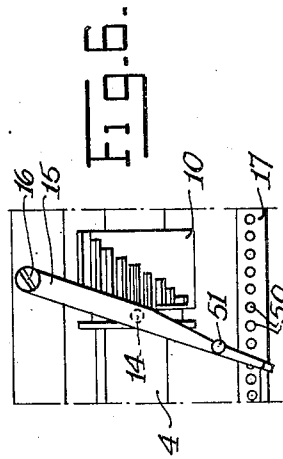
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VALUE STAMPING MACHINE

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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VALUE STAMPING MACHINE

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4 Claims. (Cl. 101—91)

The present invention has for its object improvements in value stamping machines such as postage stamp cancelling machines, cash registers, ticket printing and amount counting machines or the like, use being made of toothed drums or segments with step-wise arranged teeth co-operating with the respective wheels in an automatic counting device (hereinafter termed "counter"). The invention is distinguished substantially by the fact that the type wheels serving to stamp or print the value (for instance upon a letter, ticket or the like) are rotatably arranged in a member which is in turn mounted rotatably in the machine, the mechanism for adjusting the type wheels being so arranged that the same, simultaneously with the type wheel setting, provides for the corresponding setting of the toothed drums opposite their appertaining wheels co-operating with the counter.

The invention is further distinguished by the fact that the setting of the parts for the respective values takes place by means of a mechanism which is driven by the machine and is so constructed that its operation may be controlled by means of the depressible keys.

By the said arrangements it is possible to produce a value stamping machine which is particularly simple in construction and is easy and safe in use, the whole setting consisting only in pressing down the key or keys corresponding to the desired values.

An embodiment of the invention is illustrated in the annexed drawings. Figs. 1a and 1b when taken together show by way of example a postage stamp cancelling machine in front view partly broken away and with the cap or casing in longitudinal section. Fig. 2 shows a machine in plan view, the cap being removed. Fig. 3 shows a cross section on the line III—III of Fig. 2. Fig. 4 shows in plan view a position of the setting mechanism. Fig. 5 shows the same in front view partly in section. Fig. 6 is a portion of Fig. 2 and shows a modification for manual setting.

In the drawings the base 1 of the machine carries bearings 2 and 3 for a rotatable shaft 4. At one end of the shaft 4 a printing head 5 is fastened, wherein the type wheels 6 serving to stamp the value are journaled rotatably on a pin 7. To each of the type wheels 6 a toothed wheel 8 is attached which meshes with a rack 9 which is displaceable in the axial direction of the head and by its displacement rotates the gear wheel 8, whereby simultaneously the type wheel 6 fastened thereto is turned for setting.

On the shaft 4 four toothed drums 10 are dis-

placeably but non-turnably mounted and provided as shown with nine step-wise arranged rows of teeth 11 serving to operate a gear wheel 12 which in turn serves to drive the item wheel of the counter T appertaining to the respective toothed drums.

The racks 9 serving to set the type wheels are extended in the axial direction of the shaft 4 and are attached each to one toothed drum 10 in such a relation that, when each drum 10 is displaced for co-operating with the wheel 12, the corresponding type wheel 6 is set to the value which corresponds to the number of teeth entering in operation on the gear wheel 12.

Each of the toothed drums 10 has an annular groove 13 receiving a roller or pin 14 of a setting arm 15 swingable in the horizontal plane and having the end which is located behind the shaft 4 fastened turnably about a screw 16, the front end of said arm resting upon a carrying member 17 which extends in the longitudinal direction of the machine as shown.

By now swinging the free ends of the arms 15 through a greater or less angle to the right (Fig. 2) from the zero position shown in the drawings, the respective toothed drums 10 may be brought into such a position in relation to their appertaining wheels 12 that any number of the teeth 11 will be positioned to operate the said wheel 12 during rotations of the shaft 4, and simultaneously the respective type wheel 6 is so turned that the item corresponding to the number of operating teeth of the drum 10 is set in printing position in the head 5.

In order to set the arms 15 mechanically in the desired positions and thereby to set type wheels to the desired values, a bar 18 is arranged in the longitudinal direction of the machine above the free ends of the arms 15, said bar 18 being displaceable in its longitudinal direction and being provided at the right hand end (Fig. 2) with pins or rolls 19, between which the upper end of an arm 20 projects, the lower end of which is mounted turnably on a shaft 21. At some height above its axis the arm 20 is provided with a roll 22 projecting into a cam groove 23 on a cam disk 24 fastened to the shaft 4.

On the underside of the bar 18 and in front of the arms 15 pins 25 are arranged which during the movement of the bar 18 to the left (Fig. 2) serve to swing the arms into zero position. Further, for each arm 15 there is tiltingly attached to the bar 18 a hook 26 projecting through a slot 18a in the bar 18 behind the arm 15, said hook being pressed down by a spring 27 and serving to

move the arm 15 to the right during the setting movement of the bar 18.

In order to stop the arms 15 during setting and thereby also to stop the drums 10 in the desired settings in relation to the operating wheels 12 of the counters, vertically movable pins 28 are arranged in the carrying member 17, a group of ten pins being provided for each of the arms 15. Each group co-operates with one of four rails 29, which are retained displaceably in longitudinal horizontal slots in the carrying member 17 as shown, said rails being provided with teeth 30 which may co-operate with notches 31 in the pins 28 and are adapted to retain the same in an elevated position, the rails being acted upon by springs 32 which always tend to press the teeth 30 of the rails against the pins 28.

The first one of the pins in each group, the pin 28', is connected by a Bowden-wire transmission with a member which is acted upon by an eccentric attached to the shaft 4 immediately before the shaft 4, after having completed one revolution, comes into the zero position, so that the pin 28' in the resting or zero position of the machine is always lifted and held fast by the appertaining tooth on the rail 29, whereby its upper end locks for the movement of the appertaining arm 15 to the right.

In its lifted position the pin 28' will act upon an arm 26' attached to the appertaining hook 26, so that the hook 26 is retained so much elevated that it cannot act upon and take along with it the appertaining setting arm 15, when the bar 18 is moved to the right. The arm 26' of the hook 26 has an inclined face 26'' which during the movement of the bar 18 will act to lift the latter, when the arm 26' strikes against a lifted pin 28. The other pins in each group are connected by Bowden-wire transmission each with its depressible key 35 at the front side of the machine, said keys being in usual manner grouped in relation to and provided with indication of the setting value corresponding to the same.

On the end of the shaft 4 is turnably journaled a coupling member 36 which co-operates with a coupling member 38 carried by a handle or the line 37.

The machine described above operates, when used, in the following manner:—

In the position shown in the drawings of the respective parts, which are seen in resting or zero position, all the pins 28' and also all hooks 26 are in lifted position. If therefore the machine is started by coupling together the coupling members 36, 38, so that the shaft 4 is caused to rotate in counter-clockwise direction in Fig. 3, the bar 18, by means of the roll 22, is at once moved to the right. However, during this movement the hooks 26, because they are retained in lifted position by the pins 28' are held out of engagement with and pass by the arms 15, so that the latter are not taken along, and therefore no setting will take place. When the shaft 4 approaches its initial position, the bar 18 is again moved to the left into its initial position shown in the drawings.

When a value stamping is to take place, the key 35 corresponding thereto is depressed, whereby the appertaining pin 28 is lifted into locking position, wherein it is retained by the appertaining rail 29, whose tooth 30 projects into the notch 31 of the raised pin 28. Simultaneously with the lifting of the pin 28, the appertaining rail 29 is displaced to the left against the action of the

spring 32, due to its co-action with the inclined surface of the notch 31 so that the pin 28' of the group to which the lifted pin 28 belongs, is released by the rail 29 and falls down, whereby the hook 26 is released and projects down behind the setting arm 15.

When the machine is now started and the bar 18, as described above, is moved to the right, the arm 15 and consequently the toothed drum 10 of the group to which the lifted pin 28 belongs are taken along by the hook 26, until the arm 26' of the latter strikes with its inclined face 26'' against the lifted pin 28 and thereby is lifted upwards. Thus the hook 26 is disengaged from the arm 15, and the latter comes to rest in engagement with the pin 28, whereas the bar 18 continues its movement to the right, until it reaches its extreme position. When this is reached, the type wheel 6 and the drum 10 have been moved into the position corresponding to the desired value, whereafter the stamping and the operation of the counter take place.

During the last part of the revolution of the shaft 4 the cam groove 23 of the disk 24 causes the bar 18 to be moved again back into initial position. During this movement the hook 26, on account of its inclined rear surface 26a rides over and behind the arm 15, whereupon the latter and consequently the drum 10 are taken along by the pin 25 and carried back into initial position. Immediately before the shaft 4 has completed its revolution, the said eccentric mechanism will also act upon the first-named pin 28' of the group and will lift the same, whereby the rail 29 is moved to the left, so that the set pin 28 falls down again into in-operative position, whereas the pin 28' again lifts the hook 26 and retains same in in-operative position. All the parts now have the initial or zero position shown in the drawings, and the stamping may again take place in the manner described above.

If a series of stampings of the same value is to be effected, the functions described above must be repeated at each revolution of the shaft 4, but in order to avoid unnecessary movement of the bar 18 a repeating mechanism is arranged by means of which the set value may be maintained during a desired number of stampings.

The arm 20 which serves to move the bar 18 is rotatably mounted on the shaft 21, which is in turn displaceable in its longitudinal direction in a carrying member 39 and the casing 40, its inner end being carried by a slide 41 which may be displaced in the longitudinal direction of the shaft 21. The slide 41 is normally retained in its inner position by means of a spring 42. On the shaft 21 an arm 43 is displaceably but non-rotatably arranged, the said arm having a forked end 43a adapted to embrace the arm 20. The said arm 43 is prevented from being displaced together with the shaft 21 in its longitudinal direction by means of a U-shaped guiding member 44 (Fig. 2). The carrying member 39 is provided with a hub 45 having spaced diametrically arranged grooves 46 and 47 which have different depths, considered in the axial direction of the shaft 21, said grooves serving to receive a transverse pin 48 arranged in the shaft 21, the groove 46 with the largest depth receiving the pin 48, when the parts are in the normal position shown in the drawings.

If a series of stampings of equal value are to be effected, this value is set by the depressing of the proper key or keys 35. Thereafter the shaft 21, by means of a handle 49 attached on its

extreme end, is pulled outwards in its axial direction against the influence of the springs 42 and during this movement the pin 48 is moved out from the groove 46 in the hub 45.

5 Simultaneously the arm 20 is taken along, and engaged in the forked end of the arm 43, the roller 22 being thus moved out of engagement with the cam groove 23 in the disk 24. When then the shaft 21 is turned clockwise, Fig. 1, by means of the handle 49 the arm 43 will swing the arm 20 to the right, so that the bar 18 which is taken along performs its setting movement and during this movement, as described above, causes the setting of the drum 10 and appertaining type wheels 6, whereafter the pin 48 in the shaft 21 is moved into the groove 47 which has such a depth that the shaft 21 and consequently the pin 22 are retained in inoperative position with respect to the cam groove 23.

20 The shaft 4 can now be caused to rotate for effecting any number of stampings, without any alteration taking place in the set value, because the setting mechanism has been released from the machine in the set position. When the last stamping has been effected, the shaft 21 is moved back, until the pin 48 again falls into the groove 46, and during this operation firstly the arm 20 and consequently the bar 18 are moved back into the initial position, the arms 15 and the toothed drums 10 being thereby carried back into zero position as described above, whereupon the shaft 21 is moved axially by the spring 42, so that the arm 20 is moved out from the forked end of the arm 43 and the roller 22 is again moved into engagement with the groove 23 in the disk 24. All parts have now been restored to normal position, in which ordinary stamping may take place in the manner first described.

35 As will be understood the detailed construction may be varied in several manners without departing from the scope of the invention. Thus between the type wheels and the toothed drums an indirect connection may be arranged, and a regulation may be effected by acting upon this connection.

40 The setting may also take place by direct movement of the setting arms 15 manually by external means for setting the drums axially independently of each other, for instance as indicated in Fig. 6. According thereto each arm 15 is provided with a handle 51, and projections 50, preferably spring-pressed, are arranged on the top side of member 17 to arrest the arms 15 in their several adjusted positions.

55 I claim:

1. In a value stamping machine, a drive shaft, a plurality of drums slidably and non-rotatably mounted on said shaft, a printing head rotatable

with said shaft, said printing head including type wheels rotatably mounted therein, actuating members for said type wheels arranged side by side along said shaft and connected with the drums whereby movement of the latter is imparted to said type wheels, and separately movable members connected with said drums for effecting adjustment thereof.

2. In a value stamping machine, a drive shaft, a plurality of drums slidably and non-rotatably mounted on said shaft, a printing head rotatable with said shaft, said printing head including type wheels rotatably mounted therein, actuating members for said type wheels arranged side by side along said shaft and connected with the drums whereby movement of the latter is imparted to said type wheels, separately movable members connected with said drums for effecting adjustment thereof, a group of manually adjustable stop members arranged in the path of movement of each of the separately movable members, and means operated by said shaft to actuate said separately movable members, the extent of movement of each separately movable member being controlled by said stop members.

3. In a value stamping machine, a drive shaft, a plurality of drums slidably and non-rotatably mounted on said shaft, a printing head rotatable with said shaft, said printing head including type wheels rotatably mounted therein, actuating members for said type wheels arranged side by side along said shaft and connected with the drums whereby movement of the latter is imparted to said type wheels, separately movable members connected with said drums for effecting adjustment thereof, a group of manually adjustable stop members arranged in the path of movement of each separately movable member, means operated by said shaft to actuate said separately movable members, and means for interrupting the operative relation between the drive shaft and the operating means for said separately movable members.

4. In a value stamping machine, a drive shaft, a plurality of drums slidably and non-rotatably mounted on said shaft, a printing head carried by said shaft and rotatable therewith, type wheels rotatable in said head, a plurality of actuating members connected with the drums and extending side by side along said shaft into said printing head, a rack and pinion driving connection between said actuating members and said type wheels, said drums having grooves therein, independently movable members mounted for pivotal movement, and means carried by said members engaging in said grooves for adjusting said drums.

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