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MACHINES FOR STAMPING OR MARKING LETTERS
OR FOR SIMILAR OPERATIONS
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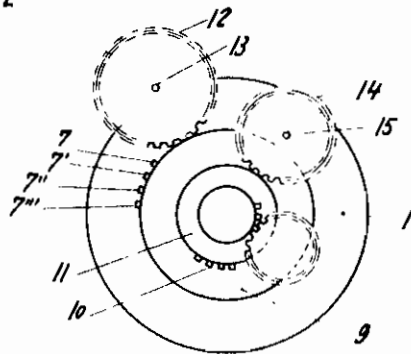
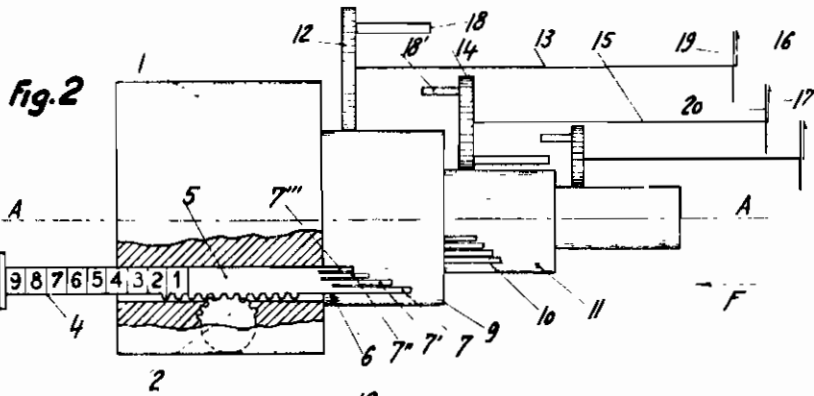
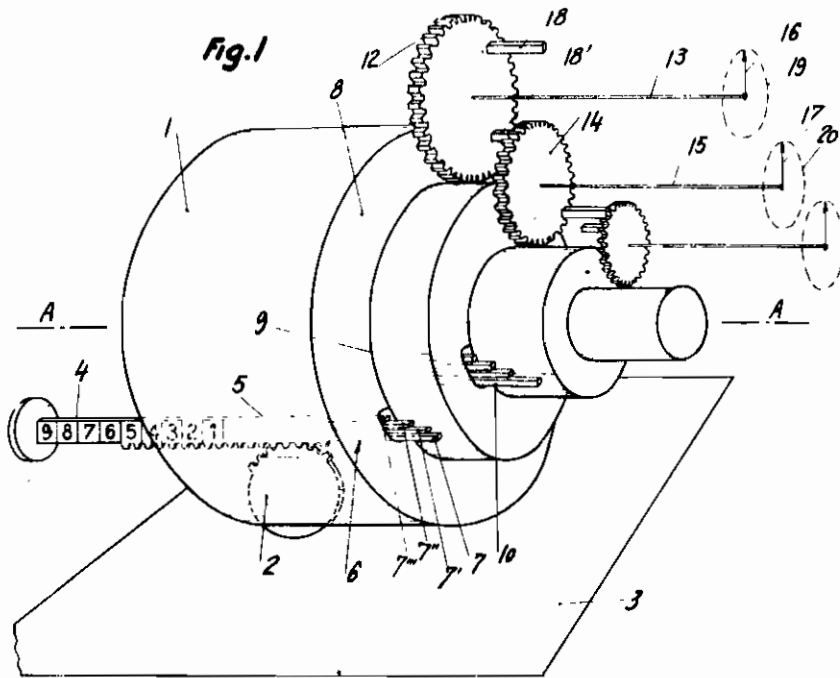


Fig. 3

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MACHINES FOR STAMPING OR MARKING LETTERS OR FOR SIMILAR OPERATIONS

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The present invention has for its object a machine for stamping or marking letters or for similar operations, and provided with a meter.

Machines of this type are already known, in which a meter totalizes the amounts printed by the rollers or wheels carrying figures, when the crank of the apparatus is rotated. However, the known machines are generally of rather complicated construction, since they have to be provided with bulky transmission devices comprising a large number of different elements arranged between the printing wheels or rollers and the counting device.

The purpose of the present invention is to overcome this drawback and the said invention relates to an extremely simple arrangement which enables the meter to be actuated either directly or indirectly by the member which controls the position of the printing rollers.

According to one feature of the invention, the printing wheels or other printing members are arranged in radial slots of a drum which rolls on the surface intended to receive the impression, are actuated by the crank or other actuating member of the apparatus, and are controlled by pull-rods which preferably form racks or the like, that pass freely through said drum and mesh with said rollers, one of the ends of said pull-rods projecting and being of an appropriate shape to enable it to be actuated from the outside for adjusting the position of the corresponding roller, the opposite end of said pull-rods being shaped like a kind of comb or harrow projecting from the other side of the aforesaid drum and having stepped fingers of various lengths, and so constructed that for each position of the roller, a predetermined number of fingers projects relatively to the drum and can mesh with a pinion that drives the counting device.

A separate rack provided with pull-rods and combs corresponds to each printing roller and is adapted to mesh by means of its comb with a different pinion of the counting device. Each of said pinions corresponds in turn to the units, tens, hundreds, etc. figure, of the number to be totalized.

According to another feature of the invention, the pinions of the meter are preferably angularly off-set relatively to the axis of rotation of the drum carrying the rollers, in such a manner as to mesh successively and not simultaneously with the wheels of the meter, the pinion which corresponds to the units being for example actuated by its comb before the pinion which corresponds to the tens and this latter pinion before the pin-

ion which corresponds to the hundreds, etc. the carrying from one pinion to the next pinion being effected for example by means of a projection or the like which rotates the next pinion one unit for each complete revolution of the previous pinion. It will be seen that in this manner an automatic carrying of the units, tens, hundreds, etc. is obtained in the simplest manner. Of course, the same result could be obtained by angularly offsetting the combs that drive the pinion of the meter relatively to the axis of rotation of the drum that carries the printing rollers.

On the other hand, the pull-rods that control each rack which adjusts the position of the corresponding printing roller and of the comb that controls the counting device, could of course be replaced by an oscillating lever, it being possible to place a step-down or step-up gearing between said lever and the rack or between the rack and the wheel carrying the figures (rollers) or between said wheel and the toothed-comb of the rack.

The combs which project from the drum carrying the rollers preferably bear against auxiliary drums longitudinally offset relatively to the main drum.

The counting device may actuate a meter of any type, and the machine can print and count two, three or a larger number of values.

In the accompanying drawing, which is given solely by way of example, an apparatus according to the invention has been shown.

Fig. 1 shows a general perspective view of the essential members of the apparatus;

Fig. 2 is a corresponding elevational and partly sectional view;

Fig. 3 is a view in the direction of the arrow of Fig. 2.

According to the example shown, the main drum 1, the rotation of which is imparted by a crank (not shown) of the apparatus, carries, lodged in radial slots, wheels or rollers provided with type characters, one of which can be seen at 2. All of said rollers are angularly off-set in the drum 1 and carry, for example, on their peripheries, ten figures from 0 to 9, which, in the printing position, extend slightly beyond the circumferential surface of the drum 1, so that the corresponding figure can come into contact with the surface 3 on which the drum 1 is adapted to roll. The position of each roller is controlled in the example shown, by a pull-rod 4 which actuates a rack 5 which passes through a guide channel of the drum 1 and meshes with the corresponding roller 2. It will be seen that for each

position of the pull-rod 4, a character or a figure of the roller 2 is in the printing position. The rack 5 carries, at its opposite end to the pull-rod 4, a comb 6 having stepped teeth 7, 7', 7'', etc.

According to the position of the pull-rod 4 and, consequently, to the adjustment of the roller 2, one, two, three or a larger number of teeth 7, 7', 7'', 7''', of the comb 6 project from the face 8 of the drum 1. In principle, the number of teeth of the comb 6 which are thus stepped may correspond to the number of characters carried by the corresponding roller 2.

The fingers of the comb which project from the surface 8 of the drum 1 bear against a drum of smaller diameter 9, which is concentric with the drum 1.

A corresponding adjusting system is provided for each wheel 2 of the drum 1. In Fig. 1, there can be seen for example the comb 10 corresponding to the rack that drives a second roller. Of course, said comb rests on another drum 11 of smaller diameter which is concentric with the drums 1 and 9. For example, the roller 2 and its rack 5 with the comb 6 may correspond to the units whereas the comb 10 with its rack and its roller may correspond to the tens. Of course, a desired number of other rollers could be provided raving racks and combs corresponding to the hundreds, thousands, etc.

To each comb there corresponds a separate pinion of a counting device of any kind. Thus, pinion 12 is shown arranged on a spindle 13 which is parallel with the axis A—A of the drums 1, 9 and 11. Said pinion, which is tangential to the drum 9, is actuated by the projecting teeth 7, 7', 7'', 7''' of the comb 6. It will be seen that the pinion 12 will be rotated one, two, three or more teeth according to whether one, two, three or a larger number of teeth of the comb 6 are projecting. In a similar manner, a pinion 14 is provided which is fixed on a shaft 15 and is adapted to mesh with the projecting teeth of the comb 10. Corresponding arrangements are provided, if necessary, for the combs corresponding to the other rollers. The counting device may, as stated above, be of any type.

Solely by way of example, there has been shown in Figs. 1 and 2, indicating pointers 16 and 17 which are respectively secured to the shafts 13 and 15, and which are movable in front of appropriate dials 19, 20 and indicate the number registered.

The arrangements described above enables an automatic carrying of the tens, hundreds, etc.

to be very simply effected on the various shafts and pinions.

If, for example, the pinions 12, 14, etc. of the counting device are angularly off-set relatively to the axis A—A of the system of drums 1, 9, 11, it is possible, by means of a projection 18 projecting from the pinion 12 which, as has been assumed, corresponds to the units, to rotate the pinion 14 one tooth, which corresponds for example to the tens and carries, for example, a projection 18', as soon as the pinion 12 has effected a complete revolution. In a general manner, this arrangement of angularly off-setting the pinions enables each pinion to be actuated by its corresponding comb, but only after the previous pinion has been actuated so that the carrying of the tens, hundreds, etc. can be effected without any hindrance. Of course, instead of angularly offsetting the pinions 12, 14, etc. the combs 8, 10 etc. could be angularly offset.

The operation of the above described apparatus is as follows: If the drum 1 is rotated by means of the crank not shown of the apparatus, in the direction of the arrow *f*, it will be seen that it is first of all the projecting teeth of the comb 6 which mesh with the pinion 12 and rotate same a number of teeth corresponding to the position of the printing roller 2. Then, it is the teeth of the comb 10 which actuate the pinion 14. After a complete revolution of the crank, the pointers 16 and 17 will show exactly the counting effected by the pinions 12 and 14 by totalizing the figures printed by the rollers on the surface 3 with the figure previously registered by the said pinions.

Of course, instead of making the rack 5 act directly on the printing roller, it is also possible to provide an appropriate step-down or step-up gearing between these two members. On the other hand, instead of securing said rack to a pull-rod 4, it would be possible to provide, for actuating the rack 5 and adjusting the position of the rollers, oscillating levers which would shift the rack by means of an appropriate gear with or without a step-up or step-down ratio.

It will be seen that the arrangement according to the invention is extremely simple and rugged, and enables the bulk and the number of elements of the hitherto known stamping, marking and like apparatus to be considerably reduced.

Of course, the invention is by no means limited to the embodiment illustrated and described which has only been given by way of example.

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