G. W. HENRY, JR.

TAG MARKING MACHINE.

APPLICATION FILED SEPT. 14, 1915.

1,203,113.

Patented Oct. 31, 1916.

4 SHEETS—SHEET 1.

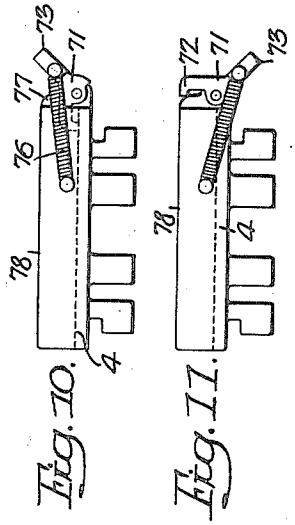


Fig. 10.

Fig. 11.

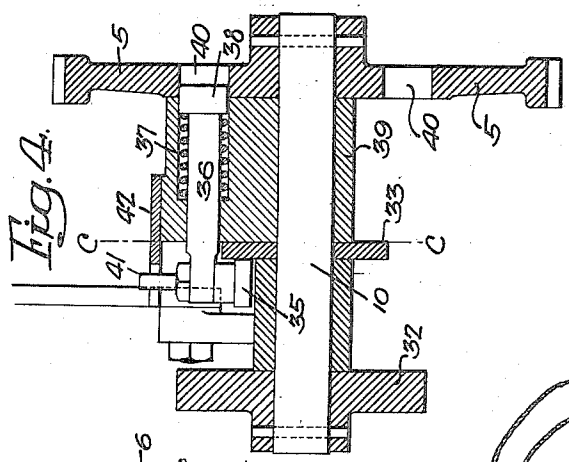


Fig. 4.

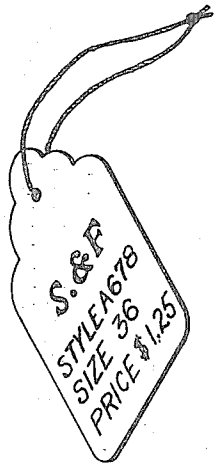


Fig. 14.

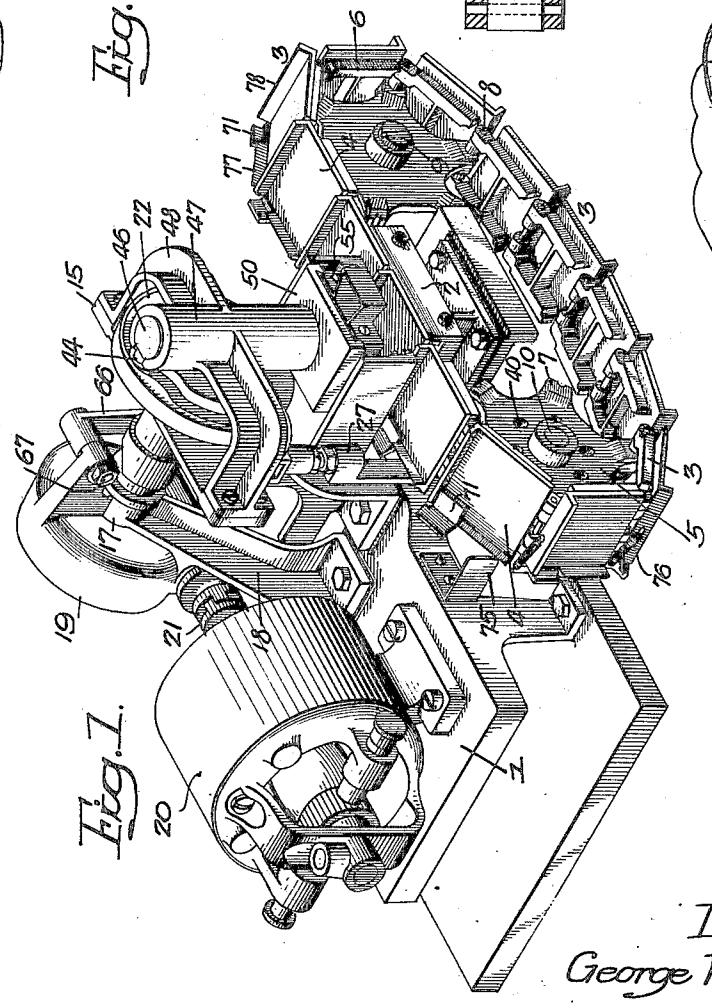


Fig. 1.

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by his Attorneys,
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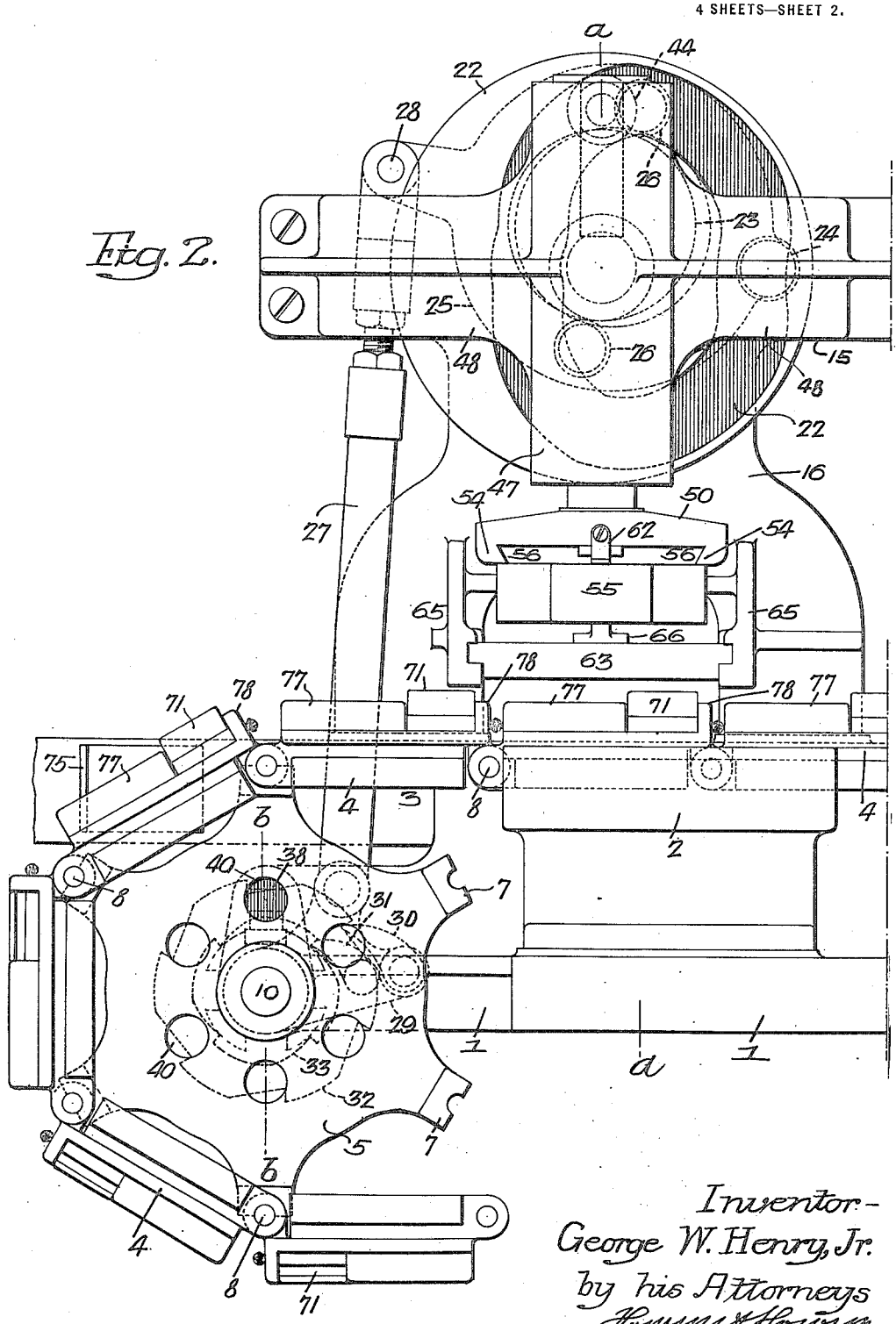
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4 SHEETS—SHEET 2.

Fig. 2.



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4 SHEETS—SHEET 3.

Fig. 3.

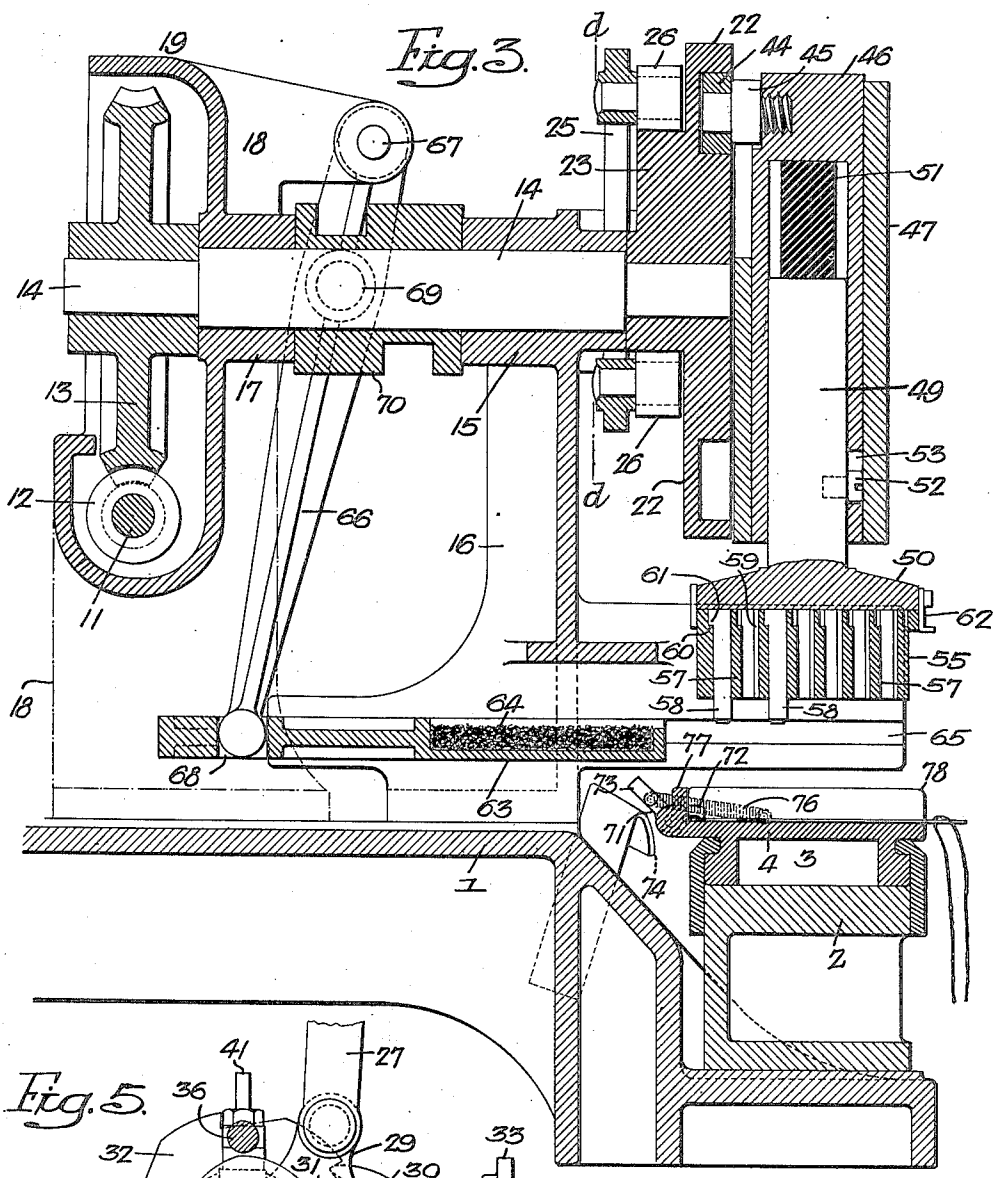


Fig. 5.

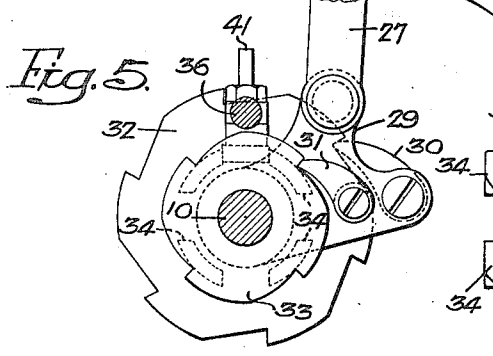
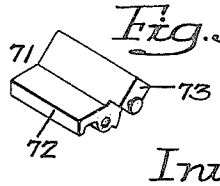


Fig. 6.

Fig. 9.



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4 SHEETS—SHEET 4.

Fig. 7.

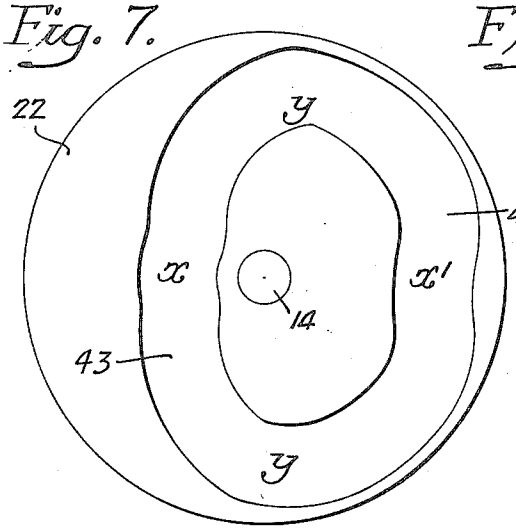


Fig. 15.

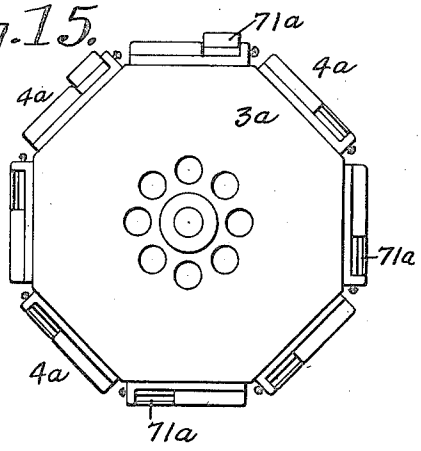


Fig. 8.

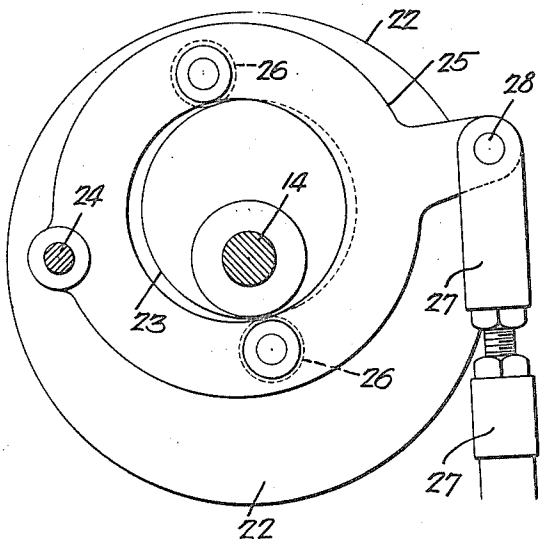


Fig. 13.

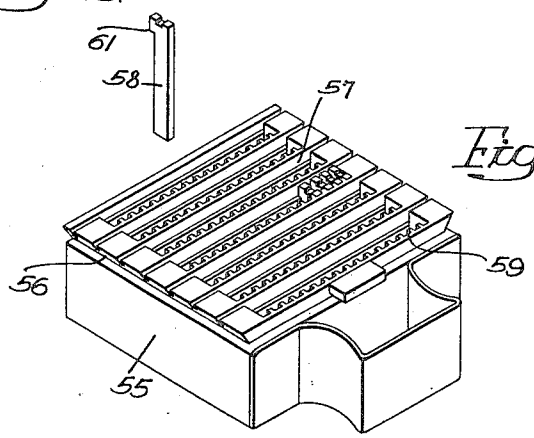


Fig. 12.

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UNITED STATES PATENT OFFICE.

GEORGE W. HENRY, JR., OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO H. G. DAVIS MANUFACTURING COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

TAG-MARKING MACHINE.

1,203,113. Specification of Letters Patent. Patented Oct. 31, 1916.

Application filed September 14, 1915. Serial No. 50,650.

To all whom it may concern:

Be it known that I, GEORGE W. HENRY, Jr., a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Tag-Marking Machines, of which the following is a specification.

My invention relates to certain improvements in machines for printing tags and other tickets used particularly in labeling merchandise for sale, but it will be understood that the invention can be used for printing tickets to be used for other purposes without departing from the essential features of the invention.

One object of the invention is to construct a machine which will print the style, size, number and price, if necessary, on merchandise tags.

A further object of the invention is to provide means on which the tags of different sizes can be marked without changing the form.

A still further object of the invention is to provide a machine which will automatically feed the carrier, to which the tag is secured, into the printing position, so that the printing plunger will make the impression, and to provide means for automatically discharging the printed tag.

Another object of the invention is to provide suitable means for locking the tag carrier in a fixed position during the printing operation.

These objects and other advantageous ends I attain in the following manner, reference being had to the accompanying drawings, in which:—

Figure 1, is a perspective view of my improved tag marking machine; Fig. 2, is a front elevation of sufficient of the machine to illustrate my invention; Fig. 3, is a transverse sectional view on the line *a*—*a*, Fig. 2; Fig. 4, is a sectional view on the line *b*—*b*, Fig. 2, showing the locking mechanism; Fig. 5, is a sectional view on the line *c*—*c*, Fig. 4, illustrating the locking mechanism; Fig. 6, is a side view of one of the ratchet wheels; Fig. 7, is a detached face view of the cam; Fig. 8, is a sectional view on the line *d*—*d*, Fig. 3, showing the rear of the cam and the eccentric; Fig. 9, is a perspective view of the tag clamp; Figs. 10 and 11, are detached views of the trays, showing the clamp in its two positions; Fig. 12, is a detached perspective view of the type carrying block; Fig. 13, is a perspective view of one of the type; Fig. 14, is a perspective view of a tag printed by the machine; and Fig. 15, is a view of a modification of the tag carrier.

It is the general practice at the present time to mark each tag separately by hand and, as the larger stores carry quantities of goods of the same size and style, it requires considerable time to properly mark the goods and, as often happens, the tags are carelessly and indistinctly marked. By the use of the machine which I will now proceed to describe tags for the several lots of goods of the same style, size and price are accurately and quickly marked and, by simply changing the characters on the type form other sets of tags can be marked, thus saving considerable time and annoyance in department and other stores carrying similar lots of goods.

Referring to the drawings, 1 is the base of the machine and projecting from one side of this base is a fixed table 2, over which travels an endless chain 3; the links of the chain being shaped to form trays 4 on which the tags to be marked are located. This chain can be of any length desired and passes around sprocket wheels 5 and 6, each having recessed arms 7 for engagement with pins 8 connecting the links of the chain, as clearly illustrated in the perspective view, Fig. 1. The sprocket wheel 5 is the driven wheel and the sprocket wheel 6 is an idler mounted on a stud secured to a bracket on the base 1 of the machine. The driving sprocket wheel 5 is mounted on a shaft 10 and has an intermittent rotary motion, and means are provided for locking the sprocket wheel while the chain is at rest so as to insure the proper marking of the tag by the printing mechanism.

11 is the driving shaft on which is a worm 12 which meshes with a worm wheel 13 on a transverse shaft 14 mounted in bearings 15 on the frame 16 secured to the base 1 of the machine. This shaft is also mounted in bearings 17 on a bracket 18 secured to the machine and on this bracket is a casing 19 which incloses the worm wheel 13 and worm 12. In the present instance the machine is driven by an electric motor 20, also secured

to the base 1 and the armature shaft of this motor is connected to the worm shaft 11 by a coupling 21. On the forward end of the shaft 14 is a cam 22 having an eccentric hub 23. This eccentric hub actuates the feeding mechanism for the endless chain carrier for the tags, while the cam actuates the printing plunger.

Pivoted at 24 to the frame 15 is an arm 25 having rollers 26 which come in contact with the cam 23 so that, as the cam rotates, a reciprocating motion will be given to a rod 27 connected to the arm at 28. This rod 27 is connected to an arm 29 pivoted to the shaft 10 and on this arm are two pawls 30 and 31. The pawl 30 engages the teeth of a ratchet wheel 32 on the shaft 10, while the pawl 31 engages the teeth of a ratchet cam wheel 33, loose on the shaft 10. The pawl 30 moves the ratchet wheel 32, its shaft 10 and the sprocket wheel 5 a given distance at each reciprocation of the rod 27.

On the ratchet cam wheel 33 are cam lugs 34 which act upon a roller 35 on a sliding bolt 36. Surrounding this bolt is a spring 37 bearing against the head 38 of the bolt. This head is arranged to slide in the bearing 39 secured to a portion of the base 1 and is adapted to enter one of the holes 40 in the sprocket wheel 5 so as to lock the sprocket wheel in the position to which it is turned by the intermittent movement of the other elements of the machine, in order to insure the marking of the label at the proper point.

The bolt 36 is held from turning by a pin 41 which is adapted to a slot in the plate 42 secured to the bearing 39, Fig. 4. The cam 22 has a slot 43 shaped as shown in Fig. 7, and a roller 44 mounted on a stud 45 carried by the plunger 46 extends into this lot, so that the movement of the plunger is controlled by the cam. The plunger is adapted to a vertical bearing 47 on a bracket 48 secured to the frame 16, and mounted in the plunger 46 is the cylindrical shank 49 of the type carrying head 50. Between the end of this shank and the base of the opening in the plunger 46 is a cushion 51, preferably of rubber.

52 is a stop pin on the shank adapted to a slot 53 in the plunger 46 so as to limit the vertical movement of the printing head, yet allowing it to yield in order to accommodate itself to tags of different thicknesses.

The head 50 has undercut flanges 54 at each side to receive the undercut portions 56 of the type carrying block 55. This type carrying block is composed of a series of bars 57 spaced apart to receive the type 58. One side of each bar is notched, as at 59, and the other side of each bar is cut to form a shoulder 60 on which the shoulder 61 of the type rests, so that when the type is inserted from above it will be held in the projected position, as illustrated in Fig. 3, and locked in this position when the type carrying block is mounted in the head 50. A turn-buckle 62 on the head locks the type carrying block and holds it in the proper position.

63 is the carrier for the ink pad 64 and this carrier slides in ways on arms 65 projecting from the frame 16 and is actuated by an arm 66 pivoted at 67 to the bracket 18. The lower end of the arm is rounded and works in a slot 68 in the slide 63 and has a pin 69 which enters the groove in the cam 70, which is mounted on the shaft 14 so that, as the shaft is rotated, the inking pad carrier is projected under the type or is retracted clear of the type.

The cam 22, as illustrated in Figs. 2 and 7, has a dwell, shaped so that when the roller 44 is at the point x the type carrying head is projected to such an extent that the type will print the tag and when the roller 44 is at the point x' of the cam it is brought downward at the same time that the inking pad 64 is projected so as to ink the type, and when the roller is at the points y, y the type head is held in the raised position while the endless carrying chain is moving to shift a blank tag to the printing position, so that the plunger has first a short movement to allow the type to be inked and then an extended movement to allow the inked type to make an impression on a tag.

In order to hold the tags on the trays 4, I provide pivoted clamps 71, as clearly shown in Figs. 9, 10 and 11. A clamp is pivoted at one corner and at the back of each tray and has a clamping member 72 and an extension 73, which comes in contact with the shifting plates 74 and 75 on the base 1. The shifting plate 74 forces the clamping member down upon a tag prior to its entering the space directly under the printing blocks and the shifting plate 75 raises the clamping member so that each tag, after it is printed, drops clear of the machine. A spring 76 is connected to a pin on the clamp and to a pin on the tray in such a manner that it will hold the clamp in either of its two positions, as clearly illustrated in Figs. 10 and 11.

Each tray has a rear flange 77 and a side flange 78 and the clamp 71 is located at the junction of its two flanges, so that the tray will accommodate a large tag the width of the tray or a tag smaller than the width of the tray.

The operation of the machine is as follows:—The mechanism is driven in the present instance by an electric motor, but it will be understood that any suitable motive power may be employed without departing from the spirit of the invention. The operator feeds the tags onto one of the trays in advance of the printing plunger and as the tray, with the tag thereon, passes

the plate 74 the clamp is shifted so as to hold the tag firmly on the tray, and, as the tray is fed under the printing plunger, the plunger is first given a short movement while the inking pad is projected and then, as soon as the inking pad is retracted, it is given an extended movement and makes an impression on the tag. The movement of the endless chain carrying the trays is intermittent and the trays remain stationary while the type makes an impression and, to insure the retention of the tray in a fixed position, the bolt 36 is projected and enters one of the openings 40 in the sprocket wheel 5, holding the sprocket wheel until an impression is made. As soon as the bolt is retracted the ratchet mechanism moves the chain the distance of one tray to place another tag in position to be printed. The tag previously printed is released by the clamp striking the plate 75, after which the tag falls clear of the machine. Any suitable receptacle may be provided for receiving the printed tags.

Fig. 15 illustrates a modification of the invention, in which a many sided wheel 3^a having trays 4^a is substituted for the endless chain of trays; this wheel is provided with the clamps 71^a which hold the tags in position while being printed.

I claim:—

1. The combination in a tag marking machine, of an endless series of trays; means for intermittently moving the trays; means for marking a tag while on a tray; a clamp on each tray for holding a tag in the proper position to be marked; means for actuating the clamp so that it will hold a tag prior to and during the marking operation; and means for releasing the clamp after a tag has been printed.

2. The combination in a tag marking machine, of a table; an endless chain of trays arranged to travel intermittently over the table; means for locking the trays while at rest; a printing head; a type block carried by the head; a cam for reciprocating the head; a horizontal intermittently movable ink pad carrier; a pad thereon arranged to be projected between the type-carrying block and the trays, the cam for reciprocating the head being so cut that it will first project the plunger to ink the type while the ink pad carrier is projected and then retracted and again projected a greater distance after the ink pad carrier is withdrawn so as to make an impression on the tag carried by the tray.

3. The combination in a tag marking machine, of a frame; a driving shaft thereon; a worm on the driving shaft; a worm wheel; a transverse shaft carrying the worm wheel; a cam on said shaft having an eccentric on its hub; a type carrying plunger actuated by the cam; an arm having rollers with which the eccentric hub engages; a rod connected to the arm; two sprocket wheels, one of said sprocket wheels being mounted on a shaft; an arm loose on the shaft and carrying two sets of pawls; a ratchet wheel secured to the shaft and arranged to turn the sprocket wheel a given distance; a ratchet cam wheel loose on the shaft and engaged by the other pawl and having cams at one side; a bolt actuated by said cams, said sprocket wheel having holes into which the bolt is free to enter when the sprocket wheel is at rest; and an endless chain of trays mounted on the two sprocket wheels and arranged to carry the tags to be printed by the printing mechanism.

4. The combination in intermittent mechanism for feeding trays past a printing mechanism, of a sprocket wheel having a series of holes; a bolt arranged to be projected into any one of the holes; a ratchet wheel for turning the sprocket wheel; a ratchet cam wheel having cams for actuating the bolt; an arm; and two pawls on the arm engaging the ratchet wheels, one engaging the ratchet wheel which turns the sprocket wheel and the other engaging the ratchet cam wheel.

5. The combination in a tag marking machine, of an endless series of trays; means for intermittently feeding the trays; a type-carrying plunger arranged to make an impression on the tags carried by the trays; a pivoted clamp at the back of each tray; means for shifting the clamp so that it will hold the tag in advance of the marking operation; and means for shifting the clamp to release the tag after the marking operation.

6. The combination in a tag marking machine, of an endless series of trays, each tray having a flange at one side and at the back; a pivoted clamp at the back of the tray for holding one corner of the tag; a spring attached to each clamp and to each tray, said spring being so located that it will hold the clamp in either of its two positions; means, in advance of the marking mechanism, for shifting the clamp to secure each tag to its tray; and means for shifting the clamp to release the tag after an impression has been made.

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