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CHIP REMOVER FOR TAG NOTCHING MACHINES

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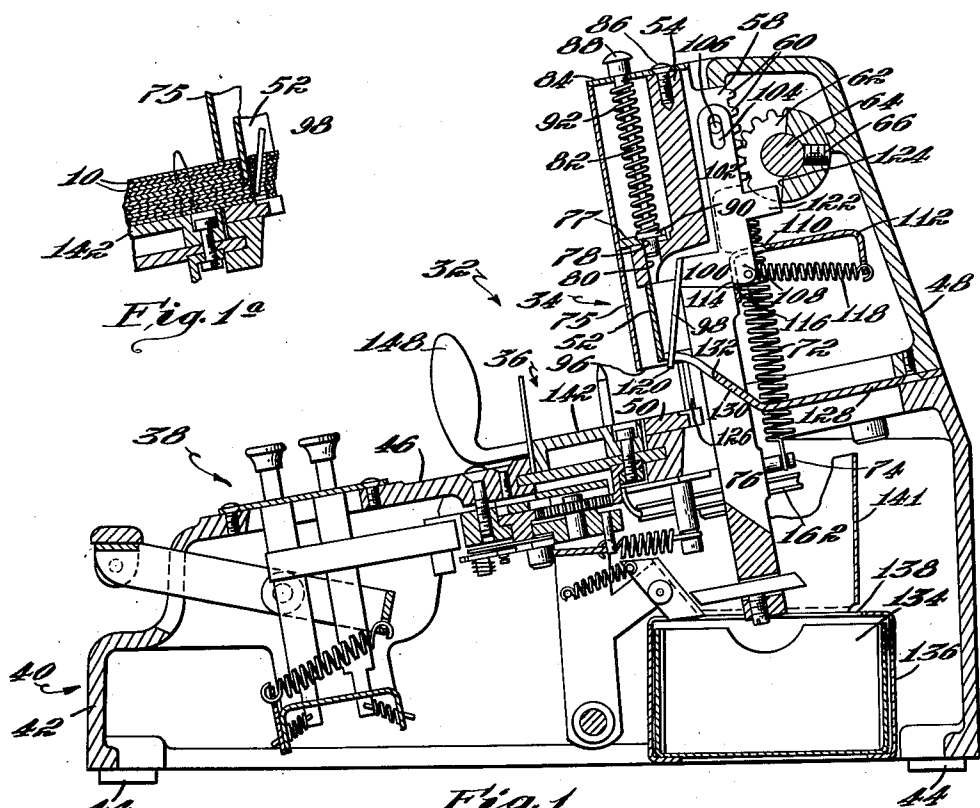


Fig. 1

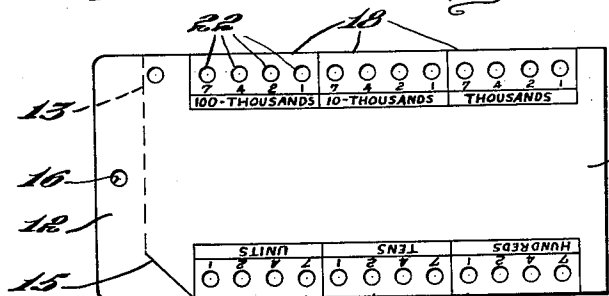


Fig. 2

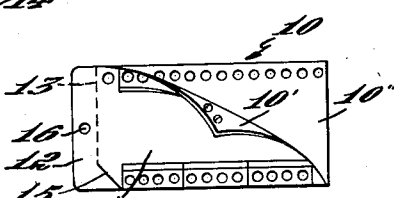


Fig. 4

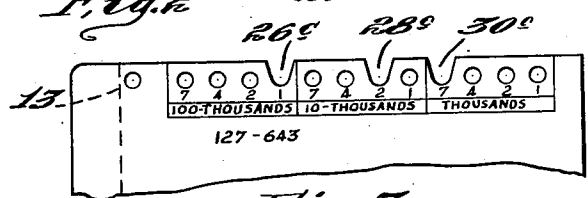


Fig. 5



Fig. 5

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CHIP REMOVER FOR TAG NOTCHING
MACHINES

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Original application October 22, 1948, Serial No.
55,975, now Patent No. 2,576,211, dated Novem-
ber 27, 1951. Divided and this application
March 8, 1950, Serial No. 148,397

5 Claims. (Cl. 164—50)

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This invention relates to tag notching machines of the kind disclosed in my pending application for patent Serial No. 55,975, filed October 22, 1948 which has matured into Patent No. 2,576,211 dated November 27, 1951 of which this is a division, and has for its principal objects to provide a novel form of chip remover for that machine which will automatically remove chips severed from the tags during the cutting operation from the vicinity of the cutter and the operating parts thereof which is simple in construction yet positive in operation and which may easily be adapted to other than tag notching machines wherein chips are cut from the edge of material and must be moved from the vicinity of the cutter to maintain proper operation of the machine.

As illustrated herein the machine with which the chip remover is combined has a cutter, and means for effecting movement of the cutter into and out of cutting engagement with a tag to cut a notch in an edge of the tag by severing a small chip therefrom. In accordance with the foregoing objects of this invention a chip remover is associated with the cutter in a manner to extract each chip from its notch as the cutter severs it from the tag. As illustrated the chip remover is in the form of a finger carried by the cutter and movable therewith to enter the tag prior to the cutting operation and thereafter movable to a lateral position remote from the cutter. Lateral movement of the finger is restrained during the approach of the finger and entrance thereof into the tag by a latch, the latch being released to effect the aforesaid lateral movement to extract the severed chip following severance by cutting movement of the cutter. A manually operated lever serves to effect movement of the cutter for the cutting operation and spring means returns the cutter and lever to a position of rest; the return of the latter also effecting a relatching of the finger for the succeeding notching operation. To insure clearing the severed chip from the finger, a wiper is placed in the path of the finger to intercept and wipe the chip therefrom. To effect clean cutting and efficient operation, a yieldable member is associated with the cutter to engage the tag as the cutter moves into cutting contact therewith and to remain in engagement with the tag until the cutter has retracted sufficiently to clear it. A tag carriage upon which the tag is placed for movement relative to the cutter is arranged to receive the tag reversed, end for end, so that either or

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both edges may be placed between the cutter and cutter block.

The construction and operation of the machine will now be described in greater detail with reference to the accompanying drawings wherein:

Fig. 1 is a vertical elevation in section taken substantially midway between the opposite ends of the machine;

Fig. 1a is a fragmentary view showing the pressure foot resting on the topmost tag of a stack of tags and the chip remover.

Fig. 2 is a plan view of a tag of the type which is to be notched by use of the machine;

Fig. 3 is a fragmentary portion of the tag showing notches cut in one edge thereof;

Fig. 4 is an isometric view of a tag showing it as consisting of two plies attached to a stub; and

Fig. 5 is a plan view of a chip removed from its notch.

The present machine is for the purpose of cutting notches in the edge of tags such as are commonly used by wholesalers and retailers to record data which is pertinent to stocktaking and inventories. A tag 10 of the type shown in Fig. 2 is shown by way of illustration and is comprised of two plies 10' and 10'' (Fig. 4) which are superposed and are divided into stub portions 12 and body portions 14, the latter being removable from the stubs along weakened tear lines 13 and 15. A small hole 16 midway between the opposite edges of the stubs provides for holding the tag in place on the machine, as will appear hereinafter, and also for attaching the tags to the merchandise. Along opposite margins of the tags (Fig. 2) are indicia-marked areas 18 and 20, each of which is divided into three groups defined by printed demarcation lines. Within each area there are four holes 22 punched through the tag, and these holes are marked from left to right, as seen in Fig. 2, with the numerals 7, 4, 2, 1, and on the opposite margin from right to left 7, 4, 2, 1. The first group on the top margin, as seen in Fig. 2, represents hundred-thousandths, the second group ten-thousandths, and the third group thousandths. The groups in the lower margin are marked respectively hundredths, tens and units. In cutting the notches in a tag of this type to record, for example, certain styles, quantity, quality, price, etc., a particular number is selected to represent what is desired and this number is punched in an edge or edges of the tag by cutting through the tag to remove chips

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or pods C, (Fig. 5) which are substantially triangular in shape. To illustrate, suppose the number to be recorded is 127-543 (Fig. 3). The first three numbers 1-2-7 represent 127 thousand and would be recorded by cutting a notch opposite 1 in the first group (designated 26°), a notch opposite the number 2 in the second group (designated 28°) and a notch opposite the number 7 in the third group (designated 30°). The tag would then be reversed, that is, 10 turned end for end and notches corresponding to the numbers 6, 4 and 3 cut in the opposite edge. Since there is no key having a digit value of 6 on the machine, this number would be made up by cutting notches opposite the figures 4 and 2. In the same way the number 3 would be made up by cutting notches opposite 2 and 1.

The machine 32 for cutting notches in tags of the type described above is shown in Fig. 1 as comprised essentially of a cutter head 34, a tag carriage 36 arranged to present an edge of the tag to the cutter, and a keyboard 38 for selectively positioning the tag-carrying carriage with respect to the cutter, these being assembled in operating relation to each other, as will appear hereinafter, on a base 40.

The base 40 is in the form of a hollow, substantially rectangular frame 42 supported at its four corners on cushions 44 and has at its top side an inclined table 46 which contains the keyboard 38, the tag carriage 36 and an upstanding turret 48 at the rear portion thereof which houses the cutter head 34.

The turret 48 is preferably separable from the frame and is attached thereto at its base by suitable screws. At the forward side of the turret there is mounted a cutter and cutter head which move substantially vertically with respect to the inclined surfaces of the table 46 and cooperate with a cutter block 50 formed integral with the frame. The cutter blade 52 is substantially V-shaped, the apex of the cutter, however, being rounded off so as not to be acutely angular thereby affording a continuous and clean cut. The cutter is fastened to a cutter head 54 which is slidably received in an open channel (not shown) formed in the forward side of the turret in the walls of which are a pair of opposed ways or grooves. To impart vertical movement to the cutter head and hence to the cutter, to and from the cutter block there is formed integral with the back side of the cutter head a rack 58 (Fig. 1) having rack teeth 60 which mesh with a pinion 62 fastened to a horizontal, transversely extending shaft 64 by a set screw 66. Rotation of the shaft 64 is effected by a hand lever or arm (not shown) which is attached to one end of the shaft 64 by means of a clamp collar. Manual depression of the lever is necessary to move the cutter down toward the cutter block and hence through the tag or tags resting on the cutter block. The cutter is returned, however, to a position of rest by a pair of stiff springs 72, the lower ends of which are connected to posts 74 extending laterally from a depending extension 76 projecting downwardly from the cutter head.

In order to hold the tag or tags while the cutter is penetrating the same to make the cut and also to prevent the tags from lifting away from the cutter block as the cutter is being retracted, a presser foot 75 (Figs. 1 and 1a) is provided which is a substantially V-shaped channel and is arranged to straddle the cutter. The edges of the presser foot have bordering flanges which bear against the flat face of the cutter head at

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opposite sides of the channel in which the head 54 slides and also a web 77 substantially midway between its ends which rests on a shouldered portion of the cutter head and is yieldably held thereagainst by a rod 82, the lower end of which passes through a hole 78 in the web and into an aperture 80 formed in the shoulder portion. The upper end of the rod passes through a plate 84 fastened by means of screws 86 to the top of the cutter head. A coil spring 92 placed on the rod between the plate 84 and a collar 90 formed on the lower end of the rod yieldably forces the presser foot in a downward direction. A head 88 at the upper end of the rod provides for lifting it so as to permit removing the presser foot when it is desired to have access to the cutter knife. As thus mounted the lower edge 96 of the presser foot is slightly in advance of the cutting edge of the cutter so that it will come into engagement with the tags to be cut prior to movement of the cutter knife into engagement therewith and will remain in contact with the tags until the cutter moves out of contact with the tags.

Each time the cutter 52 is brought into operation it cuts from an edge of each tag a pod or small chip C (Fig. 5) and if these chips accumulate without being removed from the vicinity of the operating parts, they quickly foul the parts to such an extent that they become jammed and will not perform their proper operations and also impede cutting or making clean cuts through the tag. Accordingly, a pod or chip remover 98 (Figs. 1 and 1a) is provided which is in the form of a slender finger mounted so that it is close to the cutter and arranged to enter that portion of the tag which is cut and move it out of the notch immediately upon penetration of the cutter through the tag, propelling it to an out-of-the-way position. To this end the finger 98 is fastened at its upper end to a horizontal limb 100 formed at the lower end of a link 102, the latter being attached to the cutter head for movement longitudinally thereof and also pivotal movement with respect thereto by a pin and slot connection 104 and 106. The lower end 108 of the link is situated in a vertical slot 110 formed in a U-shaped bracket 112, one leg of which is fastened to the extension 76. A notch is formed in the under side of the lower end 108 thereby providing a shoulder 114 which is engaged with the lower edge 116 of the slot 110. A spring 118 is attached to the lower end 108 of the link and to the free end of the bracket 112 in such a manner as to hold the shoulder 114 against the edge 116. In this position the extreme lower end 120 of the finger 98 is situated just in advance of and slightly below the cutting edge of the cutter 52. Accordingly, when the cutter head is moved downwardly to bring the cutter into engagement with a tag or tags situated above the cutter block 50, the lower end of the chip remover will pass through one of the holes 22 in the margin of the tag or all of the holes if there is a pile of tags. When the lower extremity of the finger 98 comes into contact with the surface of the cutter block it will stop and further movement of the head will lift the shoulder 114 over the edge 116 with the result that the spring 118 tends to urge the finger rearwardly with considerable force. Rearward movement of the finger will be resisted until the cutter penetrates the tag or tags whereupon it snaps rearwardly and thus extracts the chip or chips from their notches. To resist the

lateral force of the chip remover and hence displacement of the tags on the cutter block, guides 126 are placed at opposite sides of the cutter in a position to be engaged by the edges of the tags which are being notched and to hold them in proper relation to the cutter. While as illustrated the end of the finger enters one of the holes 22 in the edge of the tag, it is apparent that chips might be extracted from an imperforate tag by surface engagement of the finger with the piece to be removed or partial penetration thereof, for example, by sharpening the end of the finger.

To reset the chip remover, the link 102 has a rearwardly projecting limb 122 which is situated in the path of a cam 124 formed in the gear 62 by cutting a slot substantially midway between its opposite sides. As the cutter head returns to its upper position under the propulsion of the springs 72, the gear will, of course, be rotated in a clockwise direction and as the cam surface 124 comes into contact with the limb 122 it forces the link 102 upwardly and forwardly against the opposition of the spring 118 until the shoulder 114 is reengaged with the stop 116.

To prevent the chips C from sticking to the chip remover and returning with it as it is returned to a related position, there is provided a stripper which is in the form of a plate 128 fastened to the frame at the base of the turret and which has at its forward edge an upwardly inclined wall 130 in which there is a slot 132 through which the finger 98 passes as it is snapped rearwardly by the spring 118. The downwardly inclined surface of the portion 130 strips the chips from the end of the finger 98 and deflects them downwardly into a removable drawer 134 situated in the base of the machine within a housing 136, the top of which is open at 138 to permit the chips to fall into the top of the drawer. A knob (not shown) on one end of the drawer affords means for withdrawing it from the base of the machine to empty it when necessary. A guard 141 is placed above the opening in the housing 136 and extends therefrom upwardly substantially to the under side of the stripper 128 so as to prevent the chips from accidentally being thrown behind the drawer.

The tag-carrying carriage 36 is in the form of a flat plate 142 arranged to move transversely of the machine relative to the cutter 52 and is moved in one direction by a hand lever 143 fastened to the left end thereof and in the opposite direction by a motor 162 in the form of a clock spring. The operation of the carriage, escapement mechanism for interrupting movement of the carriage to receive cuts in its edges and the key-operated means for controlling the escapement mechanism so that a predetermined composition may be made is described in detail in my aforesaid pending application. It is sufficient to say that the keys are arranged to set up stop elements in the path of escapement mechanism carried by the carriage and that upon each operation of the cutter the escapement mechanism is released from engagement with a given stop long enough to permit the carriage to travel to the next stop.

It should be understood that the present disclosure is for the purpose of illustration only and that this invention includes all modifications and equivalents which fall within the scope of the appended claims.

I claim:

1. In a machine for notching an edge of a tag by cutting a chip therefrom including a cutter block upon which may be placed a tag to be notched, a cutter movable to and from the cutter block to cut through a tag placed on the block, and means for effecting cutting movement of the cutter, a slender finger mounted adjacent to the cutter with an end thereof close to and slightly in advance of the cutting edge thereof, said finger being movable with the cutter toward the cutter block for entrance into a tag resting on the block prior to severance of the chip from the tag and thereafter being movable to a position remote from the cutter to extract a chip from its notch and discard it, means for effecting said lateral movement of the finger upon termination of the cutting movement of the cutter, and a stripper situated close to the path of the finger at opposite sides thereof for intercepting and stripping chips from the finger during its lateral movement.

2. In a card notching machine including a tag support for receiving a tag to be notched by cutting a chip therefrom and a cutter head and cutter fast thereto said cutter head being movable to and from the support to bring the cutter into engagement with a tag on the tag support to cut a chip from the tag, a chip remover movable with the cutter comprising a member mounted on the cutter head having at one end a slot, a pin fast to the cutter head extending through the slot, said pin and slot connection permitting movement of the member longitudinally thereof and angularly about the pin, a pick at the lower end of the member extending into close proximity to the cutter with its tip end projecting beyond the edge of the cutter so as to have contact with the chip prior to actual cutting thereof from the tag, a shoulder on the cutter head, a notch on the member engageable with the shoulder, and a spring yieldably holding the notch engaged with the shoulder, said spring being operable to swing the member angularly about said pin in a direction away from the cutting edge of the cutter and said notch being disengaged from the shoulder by relative movement of the cutter head and member following engagement of the pick with the tag and subsequent movement of the cutter into engagement with the tag.

3. In a card notching machine including a support for receiving a tag to be notched by cutting a chip therefrom, a cutter and carrier situated above the support and movable to and from the support, a chip remover movable with the cutter to and from the support, said chip remover being arranged to precede the cutter into contact with the support and comprising an arm mounted on the carrier, the upper end off that arm having a slot therein, a pin fast on the carrier with which the slot is engaged so that the arm is free to move longitudinally and angularly with respect to the carrier, a pick integral with the lower end of the arm projecting downwardly therefrom into close proximity with the cutting edge of the cutter with its tip normally projecting just beyond the cutting edge of the cutter so that as the carrier is lowered, the tip of the pick engages the support ahead of the cutter, a bracket fast to the carrier, a shoulder on the bracket, a notch on the arm engageable with the shoulder to hold the pick in said position close to the cutter,

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and a spring yieldably urging the arm and hence the pick rearwardly with reference to the cutter to extract chips from the tag and clear of the cutter in a direction rearwardly thereof following cutting by swinging the arm angularly rearwardly with reference to the carrier, said rearward movement of the pick being effected by relative movement between the arm and the cutter as the pick strikes the support and the cutter thereafter moves into engagement with the support, thus disengaging the notch from the shoulder.

4. In a machine for notching an edge of a tag by cutting a chip therefrom including a tag support, a cutter movable into and out of cutting engagement with a tag resting on the tag support to cut a chip therefrom and means for effecting movement of the cutter, a chip remover normally located at an elevated position above the tag support and being movable from said elevated position to a position on the tag support in registry with that portion of the tag on the tag support which is to be severed prior to severance therefrom, said chip remover being movable transversely of the tag support in a direction away from the edge of the tag to extract the severed chip from its notch, means for effecting movement of the chip remover into

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registry with that portion of the tag to be severed, means operable by movement of the cutter into cutting engagement with the tag to effect movement of the chip remover transversely of the tag support to extract the severed chip, and wiper means arranged close to the path of the movement of the chip removed to intercept and strip the chip from the chip remover during its extracting movement.

5. In a machine according to claim 2, a cam engaging portion of said member and operable during elevation of the cutter and finger for the next cutting operation to return said finger to its initial position and to reengage said latch.

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