Aug. 17, 1948. S. S. JACOBS ET AL 2,447,015

TYPE LOCKING MEANS FOR MARKING MECHANISM

Filed May 17, 1945 2 Sheets-Sheet 1

FIG 1

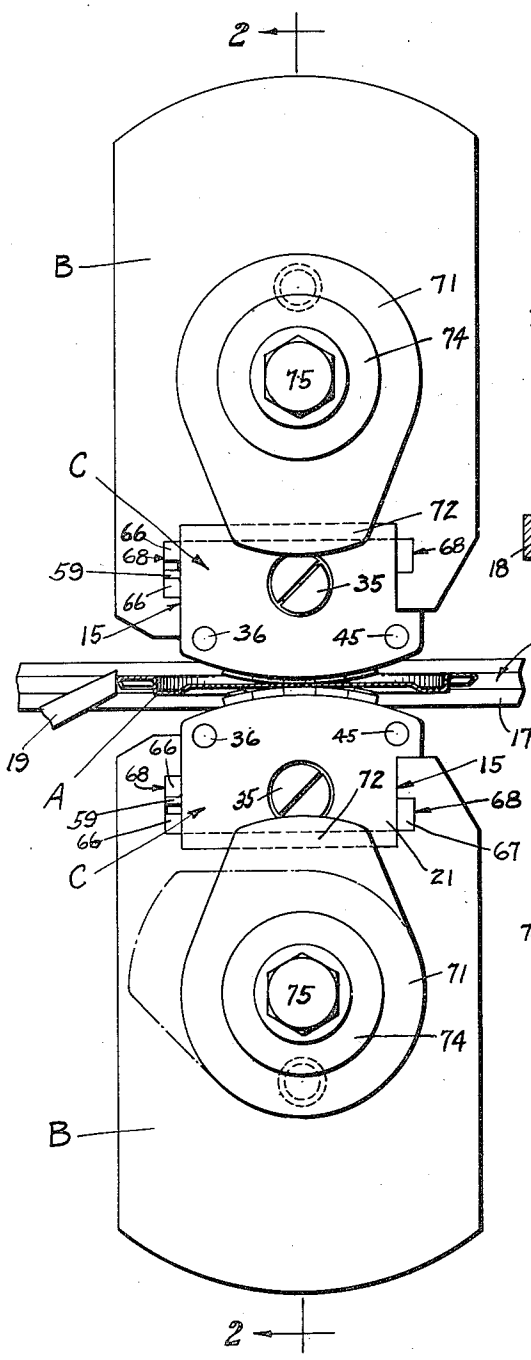
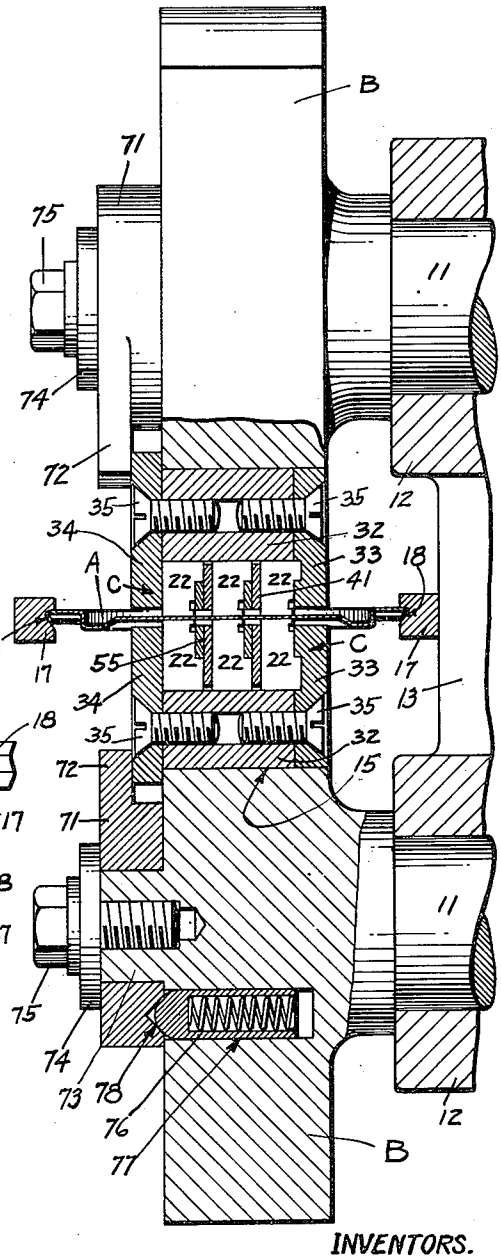


FIG 2



INVENTORS.
Samuel S. Jacobs
Howard B. Peterson
BY Ivan D. Thornburgh
Charles H. Erne
ATTORNEYS

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Filed May 17, 1945 2 Sheets-Sheet 2

Fig 3

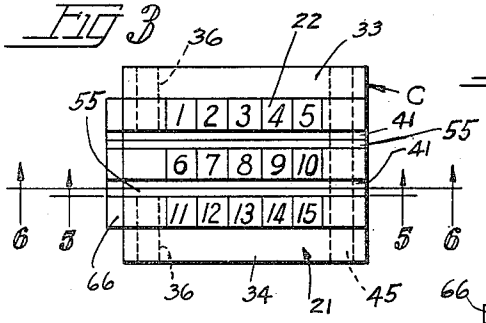


Fig 4

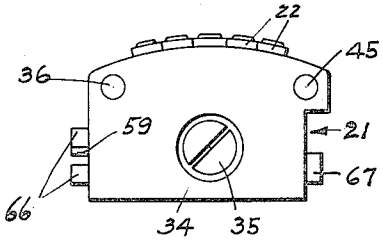


Fig 5

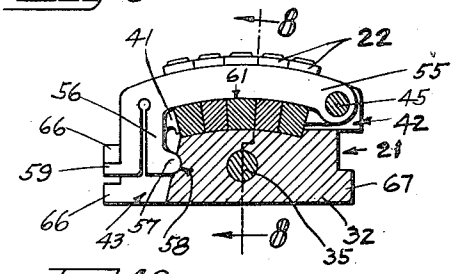


Fig 10

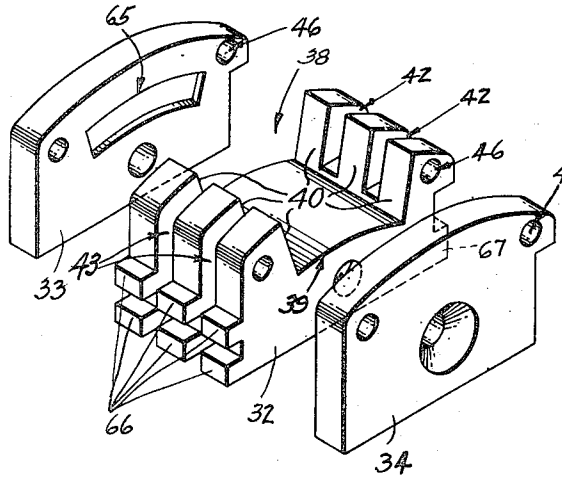


Fig 7

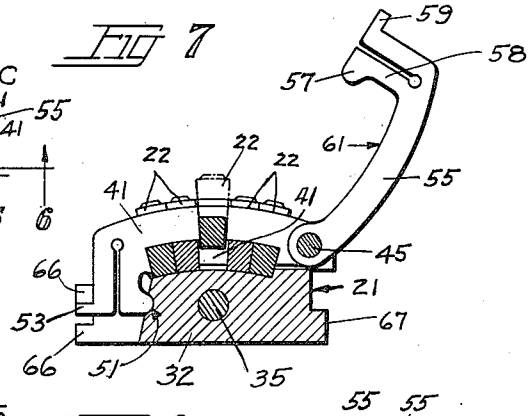


Fig 8

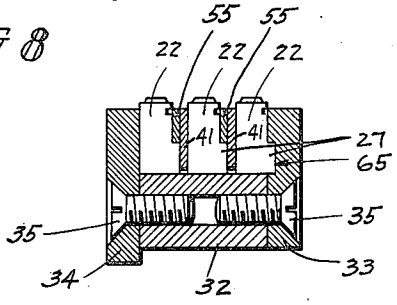


Fig 9

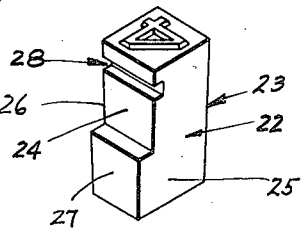
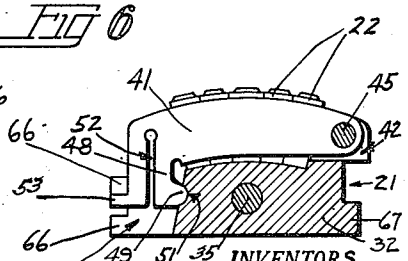


Fig 6



INVENTORS.
Samuel S. Jacobs
Howard B. Peterson
BY Ivan D. Thornburgh
Charles H. Erne
ATTORNEYS

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TYPE LOCKING MEANS FOR MARKING MECHANISM

Samuel S. Jacobs, San Mateo, and Howard B. Peterson, San Francisco, Calif., assignors to American Can Company, New York, N. Y., a corporation of New Jersey

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7 Claims. (Cl. 101—29)

1

The present invention relates to a marking mechanism for a machine for marking container or can parts and has particular reference to devices for locking type elements in operative position against accidental displacement while permitting of rapid removal and replacement of the type elements when desired.

In the marking of articles such as can parts for identification it is often desirable to use different indicia on different batches of the articles. Where small groups of articles are to be marked as a matter of course in the regular production of such articles a considerable number of different marking plates must be kept on hand to meet all the needs of the producer. In some cases this matter has been simplified by the introduction of interchangeable type to be used in special marking heads but usually such heads are expensive to produce and maintain.

The instant invention contemplates the provision of a marking head having a quickly removable and replaceable holder unit for interchangeable type which is simple in construction and economical of production so that small users of such equipment will be benefitted.

An object of the invention is the provision of a marking mechanism utilizing interchangeable marking type wherein the type may be assembled in a plurality of rows each separated from the other and locked in place against accidental displacement so that a wide range of indicia may be available, at the same time allowing for quick and easy removal and replacement of individual type elements to provide for necessary changes in the pattern of the mark.

Another object is the provision of such a marking mechanism wherein the marking elements as a unit may be quickly and easily inserted into and removed from a carrier member for supporting the unit during a marking operation, the carrier member being utilized to lock the type elements against displacement from the unit.

Another object is the provision of a type holder unit for such a marking mechanism wherein the individual type elements may be removed and replaced quickly and may be locked against accidental displacement and in such replacement each row of type is individually changed or left undisturbed so that the unit may be readily handled independently of the mechanism in which it is to be used.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying

2

drawings, discloses a preferred embodiment thereof.

Referring to the drawings:

Figure 1 is a side elevation of a marking mechanism embodying the instant invention, with parts broken away and with a can end shown in section and in marking position;

Fig. 2 is a sectional view taken substantially along the line 2—2 in Fig. 1, with parts broken away and also with a can end shown in section;

Fig. 3 is a top plan view of a marking unit used in the mechanism shown in Fig. 1;

Fig. 4 is a side elevation of the marking unit;

Figs. 5 and 6 are sectional views taken substantially along the respective lines 5—5 and 6—6 in Fig. 3;

Fig. 7 is a view similar to Fig. 5 with a movable part in a different position;

Fig. 8 is a transverse sectional view taken substantially along the line 8—8 in Fig. 5;

Fig. 9 is an enlarged perspective view of a type element used in the marking unit; and

Fig. 10 is an enlarged perspective view of certain parts of the marking unit arranged in an exploded or separated relation.

As a preferred embodiment of the instant invention the drawings illustrate a marking mechanism for embossing marks and indicia in sheet metal can ends or other articles A moving through the mechanism in a continuous procession. The mechanism includes a pair of continuously rotating heads or carrier members B equipped with cooperating removable marking units C between which the can ends pass as the heads rotate to effect the embossing or marking operation. Such a marking mechanism may form a part of a more elaborate can making or sealing machine although the invention is equally well adapted for use on other machines and for articles other than can or container parts.

In the marking mechanism the heads or carrier members B are disposed one above the other as shown in Figs. 1 and 2. These carrier members are formed or mounted on two spaced and parallel rotatable shafts 11 (Fig. 2) journaled in bearings 12 in a frame 13 which may be the main frame or a sub-frame of the machine in which the mechanism is used. The shafts are rotated in unison at the same rate of speed and in opposite directions, as indicated by the arrows in Fig. 1, in any suitable manner.

The carrier members B are of elongated configuration, with straight sides each member having one convexly curved end and one flat end. The members are mounted on their shafts so that

their flat ends come adjacent as the members rotate. These flat ends of the members are formed with transverse T slots 15 for the reception of the marker units C, as will be hereinafter explained.

Provision is made for supporting the can ends A as the heads rotate during passage of the ends between the heads B and between the marker units C carried thereby. For this purpose the marking mechanism is equipped with a pair of spaced and parallel guide rails or tracks 17 having edge grooves 18 for the reception of the peripheral edges of the can ends. These tracks are secured in any suitable manner to the frame 13 and constitute a horizontal path of travel extending between the heads B. The can ends are propelled along the tracks in time with the rotation of the heads B, by way of a feed finger or dog 19 which operates between the tracks. The feed finger may be actuated in any suitable manner.

There is one marker unit C in each carrier member B. Each marker unit includes a type holder 21 for retaining in a desired pattern a plurality of individual type elements or blocks 22 (Fig. 9) which carry the characters to be embossed on the can ends. The type in one holder have raised characters while that in the other have depressed characters so as to cooperate with each other in embossing the indicia in the ends as the latter pass between the heads.

Each type element 22 is formed with two flat parallel sides 23, 24 and two tapered sides 25, 26. The tapered sides give the type a wedge shape for better arrangement in an arc such as is required in a rotating head. The side 24 is formed with a projecting foot or ledge 27 disposed at the bottom of the type element. Near the top or face of the type element, the side 24 is cut across in a shallow groove 28 for the reception of a sharp instrument or tool for removing the element from the holder.

The type holder 21 includes a body 32 (Figs. 5 and 10) of substantially rectangular configuration and a pair of side plates 33, 34 which are secured by flat head screws 35 and pilot pins 36 to the two opposite sides of the body (see Figs. 3 and 4.) The holder body is formed with a transverse wedge shaped recess or channel 38 having an outwardly convexly curved bottom 39 constituting a seat for the reception and support of a plurality of rows of the type elements 22.

By way of example, the holder body 32 illustrated in the drawings, is proportioned to hold three rows of type elements 22 with five elements in each row. The opposite outwardly flaring side walls 40 (Fig. 10) of the wedge shaped recess 38 of the holder body engage the two end elements in each of the several rows of type and thus confine the elements of each row against longitudinal displacement.

Transversely of the body 32, the rows of type elements are located in spaced relation by type separator levers 41 (see Figs. 6 and 8) which separate the rows one from the other and locate the two outer rows in position against the body side plates 33, 34. There are two of these separator levers 41 and they extend longitudinally of the holder body across the wedge shaped recess 38. The ends of the levers are disposed in vertical slots 42, 43 (Fig. 10) respectively formed in the oppositely disposed channel walls of the body. These slots communicate with the wedge shaped recess 38.

At one end, the separator levers 41 are mounted on a pivot pin 45 which extends the full width of the holder and which fits tightly into holes 46 formed in the side plates 33, 34 and in the body 32 adjacent the slots 42. The opposite ends of the separator levers are formed with depending catches 48 which extend down into the slots 43. The outer edges of the catches are flush with the outer surface of the body. Each catch is provided on its inner edge with a rounded latch lobe or locking projection 49 which engages in a notch 51 formed in the holder body. This holds the separator levers in closed position. The catches 48 are cut through with slits 52 to provide a spring action for seating and unseating the latch lobes. The outer edge of each catch is formed with a protruding handle lug 53 which extends beyond the holder body. This is for raising and lowering the levers when desired.

The type elements 22 thus are located and retained in their respective rows by the holder body 32, the side plates 33, 34 and the separator levers 41. They are held against vertical displacement by type locking levers 55 (Fig. 5) which complete the positive locking of the individual type elements in place and at the same time provide for quick removal of any particular individual type element or row of type elements when desired. It will be observed that two of the rows of type elements 22 are directly locked in position by the type locking levers 55. The third row which is adjacent the side plate 33 does not need a locking lever 55 as the face of the side plate 33 is shouldered for that purpose. This conserves space in the width of the holder although it will be obvious that all type elements can be held by locking levers if desired.

The locking levers 55 are similar in configuration to the separator levers 41 and are disposed adjacent the separator levers. At one end, the locking levers extend into the slots 42 in the holder body 32 where they are pivotally mounted on the pivot pin 45. At the opposite ends, the locking levers are formed with depending spring latches 56 having latch lobes or locking projections 57 which extend down into the slots 43 of the body and engage in notches 58 formed in the body adjacent the separator lever notches 51. A slit in each locking lever disposed in a manner similar to the slits 52 in the separator levers 41, affords a releasable spring action for seating and unseating the latch lobes 57 in the holder body notches 58 (Fig. 5).

The outer edges of the locking levers are flush with the outer end surfaces of the body. Each outer edge is formed with a handle lug 59 which projects beyond the body. This construction allows for application of a lifting force to swing open the locking levers on their pivot pin 45. Intermediate its ends, each locking lever is formed with a curved locking edge 61 for embracing engagement against the tops of the feet or ledges 27 of the type elements 22 when a locking lever is in locking position. This is best shown in Fig. 5.

Hence when it is desired to change the indicia to be embossed on a can end, it is merely necessary to hinge or swing to open position (Fig. 7) the type locking lever 55 which holds in place the particular type elements to be changed and this permits removal and replacement of any of the type elements in that row. Fig. 7 shows one of the type elements in a partially extracted position above the others as during the removal of such an element. During the removal and replacement of one or more type elements in one row, the type

elements in the other rows are not disturbed but are firmly held against accidental displacement by their closed separator levers 41 and by their closed locking levers 55.

In the third row of type elements 22 for which no locking lever 55 is provided mention has already been made that the side plate 33 could be shouldered. In Fig. 10 this is shown to be accomplished by a locking groove 65 formed in the inner face of the side plate 33. The feet or ledges 27 of the row of type elements engage in this locking groove 65 being so held by the separator lever 41 on that side.

To remove and replace any of the type elements in this row it is only necessary to hinge open the separator lever 41 and this permits of shifting the type elements back into the space formerly occupied by the lever. In that position they are free of the inner wall of the side plate and may be lifted out readily and others inserted. The separator lever 41 for this one row of type elements therefore serves the dual purpose of locating the type elements and of locking them in position.

The construction of type holder just described allows for great variation in type selection. Any individual element or group of elements may be rapidly and easily removed and replaced and if desired any row of elements may be omitted. Only one row of type elements may be used if the indicia selected requires such an arrangement. On the other hand two or more rows may be desired. Type elements of one holder may be used interchangably with those in another and so on.

In order to provide for quick and easy removal and replacement of the entire type holder unit C from and into a head B, the holder body 32 of the unit is formed with holding tongues 66, 67 (Figs. 4 and 10) which project out from the ends of the holder body. When the holder unit C is in place in a head B the ends of its holder body 32 and its side plate 33 engage against the sides of the T slot 15 in the head and the tongues 66, 67 on the body engage in grooves 68 of the T slot. The outer side plate 34 of the holder unit is slightly deeper than the plate 33 and engages against the face of the head to locate the holder unit in position in the head.

In this position of a holder unit C in its head, the handle lugs 53, 59 of the type separator levers 41 and the type locking levers 55 are disposed within the adjacent groove 68 of the T slot 15 in the head and the outer edges of these levers adjacent the handle lugs engage against the head adjacent the T slot. Thus the levers 41, 55 are locked against accidental opening during the rotation of the heads and thus the type elements 22 can in no way become accidentally loosened or displaced and thrown out of the holder units. This safeguard is of particular advantage in high speed production where rotary marker heads are operated at high rates of speed.

Each holder unit C is locked in place in the head B by a turn button 71 having a stepped lug 72 which is readily rotated manually into a locking position overlapping the outer plate 34 of the inserted holder unit, as best shown in Figs. 1 and 2. This turn button is mounted on a trunnion 73 formed on the outer face of each carrier member B. A washer 74 and a stud 75 secured in the end of the trunnion hold the turn button in place. A spring barrel 76 disposed in a bore 77 in the carrier member has a rounded nose which is engageable in a recess 78 cut in the button.

This locates the button in its correct locking position.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

We claim:

1. In a marking mechanism for a machine for marking container parts, the combination of a type holder insertable into a marking head, said type holder having a walled recess for receiving a plurality of rows of separate type marking elements each provided with aligned locking ledges, a plurality of spaced locking levers pivotally mounted in a wall of said holder recess and respectively and individually hingeable into and out of embracing engagement with the aligned ledges of said rows of type elements for confining the same in said holder against displacement therefrom when the lever is in a closed position and for permitting access to the type elements for easy removal thereof from said holder when the lever is in an open position, and a spring catch on the outer end of each of said locking levers yieldably engageable with a notch on said holder for individually locking the levers in closed position over the ledges of said marking elements.

2. In a marking mechanism for a machine for marking container parts, the combination of a type holder insertable into a marking head, said type holder including a body member having a walled channel for receiving a type marking element provided with a locking ledge, said holder having slots disposed in the opposite channel walls thereof communicating with said channel, said type holder further including a pair of side plates enclosing opposite open ends of said channel for confining the type element therein, and a locking lever pivotally mounted on one of said channel walls and extending across said channel, said lever having its opposite ends disposed within said slots for confining said locking lever when in closed position within the contour of said holder, said locking lever being movable into embracing engagement with the ledge of said marking element and into yielding engagement with the other of said channel walls for locking said marking element in said holder against displacement therefrom when the lever is in closed locking position, said lever being movable in the opposite direction out of engagement with the marking element to permit easy removal of the element from said holder.

3. In a machine for marking container parts including a marking head having a replaceable type holder therein removably secured to said head, the improvement comprising said type holder having a walled channel for receiving and holding a type marking member provided with a locking ledge, and a locking member pivotally mounted on said holder and movable into embracing engagement with the ledge of said marking member for confining said marking member against displacement from the holder, said locking member being movable in the opposite direction out of engagement with said marking member ledge to permit easy removal of the marking member from said holder, said locking member being engageable with said head for holding the locking member against displacement from said

marking member while the holder is positioned in the head.

4. In a machine for marking container parts including a marking head having a T slot therein and a replaceable type holder removably disposed in said slot, the improvement comprising said type holder having tongues extending from the opposite ends thereof for engagement with said T slot for retaining the holder in place on said head, said type holder having a walled recess for receiving a type marking element provided with a locking ledge, a locking member pivotally mounted on said holder and movable into embracing engagement with the ledge of said marking element when the holder is removed from said head for confining said marking element against displacement from the holder, said locking member being movable in the opposite direction out of engagement with said marking member ledge to permit easy removal of the marking member from said holder, and a handle lug on said locking member disposable in said T slot of the head adjacent the type holder tongue engaged therein for holding said locking member against displacement from said marking member while the type holder is positioned in the head.

5. In a machine for marking container parts including a marking head having a T slot therein and a replaceable type holder removably disposed in said slot, the improvement comprising said type holder having tongues extending from the opposite ends thereof for engagement with said T slot for retaining the holder in place on said head, said type holder having a walled recess for receiving a plurality of aligned rows of type marking elements each provided with a locking ledge, a locking member pivotally mounted on said holder and movable into embracing engagement with the aligned ledges of a said row of elements for confining said marking element against displacement from the holder, said locking member being movable in the opposite direction out of engagement with said marking member ledge to permit easy removal of the marking member from said holder, and a separator member pivotally mounted on said holder adjacent said locking member and disposed between adjacent rows of type elements for maintaining the latter in spaced aligned relation, movement of said separator member on its pivotal mounting away from said type elements permitting the latter to be shifted in the holder recess out of engagement with said locking member for convenient removal of said type elements from and replacement thereof in said holder recess, said locking member when in type marking element confining position within the marking head engaging a wall of said T slot to hold the locking member against movement away from the ledge of said confined type marking elements.

6. In a marking mechanism for a machine for marking container parts, the combination of a

type holder insertable into a marking head, said type holder having a walled recess for receiving a plurality of rows of separate type marking elements each provided with aligned locking ledges, a separator member movably mounted on said holder and disposed between adjacent rows of type elements for maintaining a row of type elements in spaced aligned relation, a locking lever pivotally mounted in said holder adjacent said separator member and movable into embracing engagement with the aligned ledges of a said row of type elements for confining the same against displacement from said holder when said lever is in a closed position, said lever being movable in the opposite direction out of engagement with said type elements to permit their removal from said holder, and cooperating latching means on said lever and holder respectively for releasably locking said lever in its closed type confining position.

7. In a marking mechanism for a machine for marking container parts, the combination of a marking head having a recess for receiving and supporting a type marking element provided with a locking ledge inwardly of its marking face, an insert block removably secured in said recess, a locking lever pivotally mounted at one end on said block and swingable into and out of embracing engagement across said ledge to hold the marking element against displacement from said recess, and spring means yieldably cooperating with the free end of said lever for holding its intermediate portion in embracing engagement with the ledge of said type marking element to prevent displacement of the element relative to the marking head recess.

SAMUEL S. JACOBS.
HOWARD B. PETERSON.

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