Jan. 7, 1964 F. KREMBEL, JR 3,116,683

DIE HOLDER

Filed Sept. 13, 1962

FIG.4.

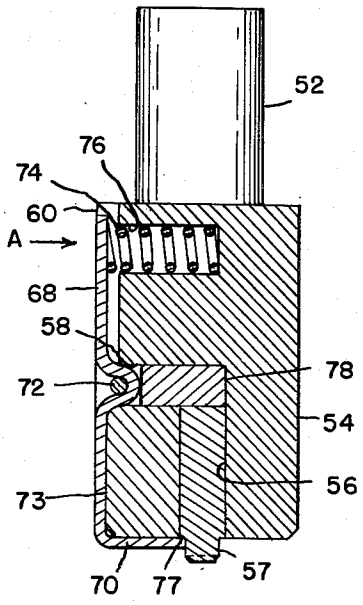


FIG.3.

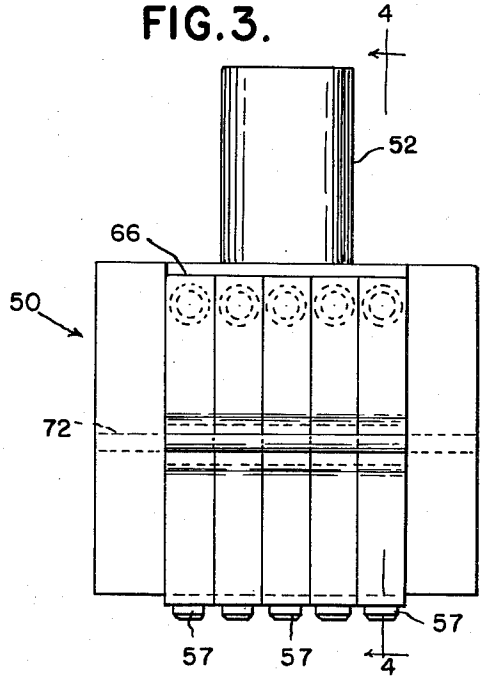


FIG.6.

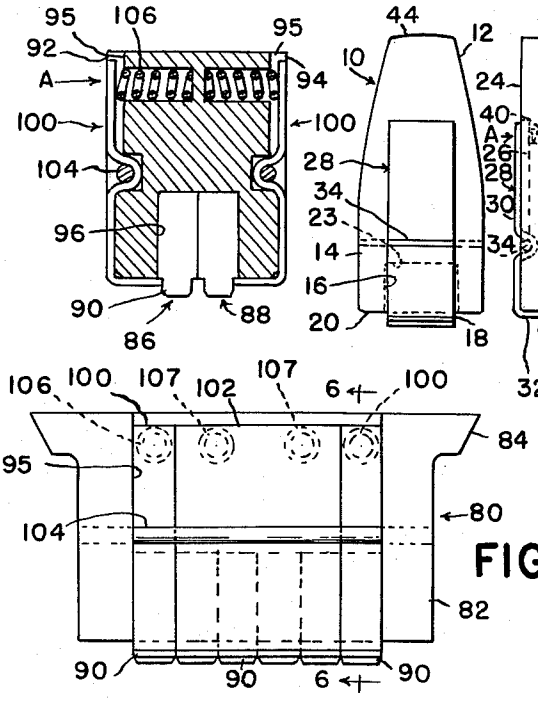


FIG.1.

FIG.2.

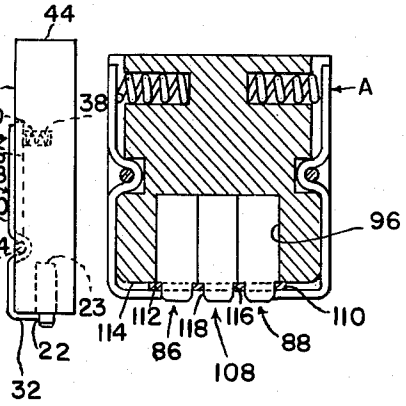


FIG.7.

FIG.5.

INVENTOR.
FRANK KREMBEL JR.
BY Whittemore, Hulbert & Belknap
ATTORNEYS

United States Patent Office 3,116,683 Patented Jan. 7, 1964

3,116,683

DIE HOLDER

Frank Krembel, Jr., Detroit, Mich., assignor to Columbia Marking Tools, Inc., Detroit, Mich., a corporation of Michigan

Filed Sept. 13, 1962, Ser. No. 223,462
2 Claims. (Cl. 101—28)

The present invention relates to a new and improved marking tool and more particularly to a lever action type lock or latch therefor for holding and changing steel type, logo type, or die inserts in stamp holders or type holders.

The holders of the present invention are each designed to hold a number of standard individual steel stamps or type. Three embodiments are provided including (1) a hand holder, (2) a holder that is designed to fit into the ram of a press, and (3) a holder which is adapted to be carried by a marking machine. The novel features of the present invention are contained in each of the aforesaid three embodiments, the essential feature of each embodiment being the provision of a cavity or pocket at the lower end of the holder which is adapted to receive one or more stamp or type inserts and a novel lockplate or latch which is provided to hold one or more inserts in a predetermined fixed position in the holder, The insert(s) may be quickly changed when a different marking is required to be stamped on the next part. In order to change the insert(s), all that is required is that the mechanic or machinist press on the upper end of the latch thereby releasing the insert(s). In case the inserts are to be only partially changed, the latch is made in a plurality of sections which act like a gang of fingers holding the inserts.

The present advantage of the latch type holder over the prior art is in its simplicity, strength, and performance. In addition, no loose pieces or tools are required for changing insert(s). In the case of a machine holder, the holder does not have to be removed from the machine to change the insert(s). The slot or cavity in the holder can be either straight or curved. The curved slot is usually machined to a certain radius so that the type will give a curved impression as when stamping the sides or ends of round parts or when marking a turned recess.

It is an object of the present invention to provide a marking tool comprising a holder which has a downwardly opening recess or pocket in the lower end thereof for receiving identification marking insert(s) and manually operable and releasable latching means carried by the holder for selectively retaining the insert(s) in the holder.

Another object of the present invention is to provide a marking tool of the aforementioned type wherein the latching means is resiliently biased to a position to retain the insert(s) in a latched position.

Still another object of the present invention is to provide a marking tool comprising a holder having a downwardly opening recess in the lower end thereof for receiving an identification marking insert, a substantially L-shaped latching element having a pair of arms, one of the arms extending along the side of the holder and the other arm along the bottom thereof, means carried by the holder extending laterally across an intermediate portion of the one arm for pivotally mounting the latching element, said latching element having a latched position where the other arm has a portion in engagement with the insert to retain the insert in the recess, and an unlatched position where the other arm is out of engagement with the insert to permit the release thereof.

A further object of the present invention is to provide a marking tool of the aforementioned type wherein the one arm is longer than the other arm.

A still further object of the present invention is to provide a marking tool of the aforementioned type wherein the resilient means are carried by the holder for biasing the latching element toward the latched position.

Another object of the present invention is to provide a marking tool of the aforementioned type wherein the resilient means is in engagement with the one arm at a point above the pivot mounting means.

Still another object of the present invention is to provide a marking tool of the aforementioned type wherein the resilient means is in the form of a spring.

A further object of the present invention is to provide a marking tool of the aforementioned type wherein the upper end of the holder is shaped to fit the hand of a mechanic.

A still further object of the present invention is to provide a marking tool of the aforementioned type wherein the holder is provided with a laterally outwardly extending flange at the upper end thereof which is adapted to be received in a marking machine or the like.

Another object of the present invention is to provide a marking tool of the aforementioned type wherein the holder is provided with an elongated stem at the upper end thereof which is adapted to be received in a punch press or the like.

Still another object of the present invention is to provide a marking tool of the aforementioned type wherein a relatively hard anvil is located in the recess or pocket immediately above the insert.

A further object of the present invention is to provide a marking tool of the aforementioned type wherein the other arm of the latching element is of a width to retain a plurality of aligned inserts in the recess.

Another object of the present invention is to provide a marking tool of the aforementioned type wherein a plurality of latching elements of substantially L-shaped configuration are carried by the holder on opposite sides thereof, each of the elements being designed to retain an insert in the cavity.

It is thus another object of the present invention to provide a simplified, low-cost structure of the aforementioned type having certain advantages contributing to efficiency, reliability, and long life, as well as ease of maintenance.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawing wherein a preferred form of the present invention is clearly shown.

FIGURE 1 is a front elevational view of a hand type holder forming one embodiment of the present invention.

FIGURE 2 is a side view of the hand type holder illustrated in FIGURE 1.

FIGURE 3 is a front elevational view of a holder forming another embodiment of the present invention and which is designed to be carried by a punch press or the like.

FIGURE 4 is a view, partly in section, taken on line 4—4 of FIGURE 3.

FIGURE 5 is a front elevation of a holder forming the third embodiment of the present invention and which is provided with a flange on the upper end thereof which is adapted to be carried by a machine.

FIGURE 6 is a sectional view taken on line 6—6 of FIGURE 5.

FIGURE 7 is a sectional view taken on substantially the same line in FIGURE 5 as section 6—6 and illustrating another modification of the present invention.

FIGURES 1 and 2 illustrate a hand holder which is designated by the numeral 10. The holder is provided with an upper or tail end 12 and a lower end 14. The upper end 12 of the hand holder 10 is in the form of a shank so that a machinist can take hold of this shank as he places the holder 10 on the part or piece that is to be marked. The upper end or shank is tapered inwardly

and shaped similar to the head on a cold chisel. The lower end 14 of the holder 10 is of substantially rectangular configuration and is provided with a pocket or recess 16 which is adapted to receive an identification marking insert, type, or the like 18. The insert 18 has a length greater than the height of the pocket 16 such that it extends below the end surface 20 of the holder 10 when in the illustrated assembled position. The insert 18 is provided with one or more shoulders 22 which is substantially flush with the end surface 20 when in the assembled position. The pocket 16 has a substantially flat or straight bottom surface 23 which forms an abutment for the insert 18. The side 24 of the holder 10 is provided with an elongated groove 26.

The holder 10 carries a latching or locking element 28 of substantially L-shape configuration. The element 28 includes a long arm 30 which is arranged substantially parallel to the side 24 and a short arm 32 which is arranged substantially parallel to the end surface 20 of the holder 10. The latching element 28 is carried by the holder for pivotal movement by means of an elongated mounting pin 34 which spans an intermediate portion of the long arm 30 as best illustrated in FIGURE 2. The short arm 32 has an end surface which is adapted to engage the shoulder 22 opposite therefrom provided on the insert 18 so as to retain and lock the insert in the cavity or pocket 16. The upper end 12 of the holder 10 is provided with a cavity 38 in which is mounted resilient means 40 in the form of a spring. The spring 40 has one end against the inner end of the cavity 38 and the other end opposite the upper end of the arm 30 so as to bias the latching element 28 in a direction to urge the arm 32 into a latching position with respect to the shoulder 22 on the insert 18.

When legend changes are necessary, the holder 10 with its lever action type lock is advantageous in that it permits the changing of the insert in a minimum amount of time. All that is required is that thumb pressure be applied on the upper end of the arm 30 at a position approximately opposite the spring 40 so as to move the short arm 32 out of engagement with the insert 18 after which the insert 18 is removed from the holder 10. A new insert may then be inserted in the cavity 16 after which time the thumb pressure is removed from the arm 30 and the spring 38 is effective to urge the latching element 28 in a direction such that the short arm 32 is brought into engagement with the shoulder 22 on the new insert 18.

The holder 10 is cast from tool steel selected to meet exact specifications. Heat treatment of each of the cast holder bodies is rigorously controlled thereby insuring proper stamp seat hardness, and proper temper to the non-chip head thereby resulting in outstanding holder toughness.

As mentioned previously, the end of the shank is shaped similar to the head of a cold chisel. In operation, the top 44 of the shank is struck with a hammer, while the machinist holds the holder 10 on the part or piece to be marked. The impact of the hammer is transferred to the holder 10 which in turn transfers the impact of the hammer onto the stamp or insert. This force causes the stamp or insert to enter the material of the part that is to be marked, thereby making a permanent impression in the part.

It should be understood that the latching element 28 may be adapted to retain a plurality of marking inserts 18 in the pocket 16. As an example, two or three marking inserts may be utilized therein as will be explained for other embodiments. This is particularly true for very small type. A single lock plate or latch element 28 may be designed to hold one, two, or even three pieces of type since it would be impractical for hand holders to utilize a separate latch element for each insert or piece.

The holder 50 illustrated in FIGURES 3 and 4 has certain of the features contained in the embodiment illustrated in FIGURES 1 and 2. The upper end of the holder 50 is provided with an elongated shank or stem 52 of cylindrical configuration. The stem 52 is adapted to fit into the ram of a press. The work performed by holder 50 is also the same as that described for FIGURES 1 and 2, the only exception being that the stamping force is delivered by mechanical, hydraulic, or pneumatic machines.

The main body 54 of the holder 50 is provided with an elongated recess or cavity 56 which is adapted to receive a plurality of inserts 57. In the present embodiment five such inserts are utilized and which are arranged in side by side relationship in a single row. A transversely extending recess 58 is provided in one side 60 of the body 54 and intersects the elongated recess 56 on the inner end thereof as best illustrated in FIGURE 4.

Each of the inserts 57 is provided with a corresponding locking or latching element 66. The latching elements 66 are arranged in side by side relationship along side 60 of the body 54. Each of the latching elements 66 is provided with a long arm 68 and a short arm 70. An elongated rod or pin 72 carried by the end portions of the body 54 extends transversely across side 60 of the body 54 and the long arms 68 so as to mount the latching elements 66 for individual pivotal movement. Each of the latching elements 66 has a corresponding biasing spring 74 which is received in an upper cavity 76 provided in the body 54. Each spring 74 is adapted to engage one end of the corresponding long arm 68 for biasing the latching element 66 to a latching position where the outer end of the corresponding short arm 70 is in contact with the shoulder 77 of the insert 62 to retain the insert 62 in the recess or pocket 56.

Mounted within the cavity 58 is an elongated anvil 78. The anvil 78 serves two important purposes. First of all, it provides a relatively hard backing or base for the inserts 62. Secondly, the anvil 78 provides a back-up for the individual latching elements 66. The hardened anvil 78 is held in place by the latching elements 66 and rod 72 as best illustrated in FIGURE 4.

It should be understood that the body 54 may be made in several pieces which are connected by a plurality of bolts or by welding certain of the pieces together so as to define the aforesaid recesses 56 and 58.

The press holder 50 is recommended for marking on flat surfaces. Use of the press holder 50 of the type just described makes possible a large variety of character combinations, economically solving a majority of flat marking problems. Time-saving features of the holder 50 are readily apparent when frequent legend changes are required. Thumb pressure on the upper end of one of the arms 68 releases the corresponding type or insert 62. For partial legend changes, as in frequent prefix or suffix changes, the selective type latch is particularly desirable.

Referring once again to FIGURE 3, it should be readily apparent that if the first insert 57 and the last insert 57 are the only inserts which are to be changed, the three intermediate inserts 57 may have one latching element therefore rather than three individual latching elements 66. With such an arrangement, one latching element would be utilized to retain a plurality of inserts 57 in the pocket 56. In certain cases one spring 74 would press against two adjacent latching elements 66 since the diameter of the spring will not allow an individual spring for each latching element 66 when the element 66 is less than $\frac{3}{16}$" in width.

The holder 80 illustrated in FIGURES 5–7 is used in various marking machines that employ the roll marking method. The holder 80 is used to mark round parts. The method of attaching the holder 80 with respect to various marking machines varies with the particular design of the machine. Some holders are held by means of a round shank with a key, while other holders are mounted by means of a T slot bolt arrangement.

The holder 80 includes a body 82, the upper end of the body 82 being provided with an outwardly extending flange 84 which is adapted to be inserted in a marking machine. The holder 80 is provided with two rows of inserts, each row consisting of a plurality of individual inserts. The rows are designated by the numerals 86 and 88, while the individual inserts are designated by the numeral 90. In the present embodiment each row contains six inserts. In order to utilize two rows of inserts, it is necessary that each of the sides 92 and 94 of the body 82 be provided with a vertical slot 95, as is the case in FIGURES 3 and 4, which is adapted to receive one or more latching elements. The elements are arranged to release the inserts 90 either individually or in combinations. The latching elements on opposite sides of the body 80 are identical and are similar to the latching elements described in FIGURES 3 and 4.

The body 82 is provided with a downwardly facing recess or pocket 96 which is adapted to receive both rows of inserts 90. The latching machanism on side 92 is identical to the latching mechanism on side 94 and, therefore, a desciption of one will suffice for both.

A latching element 100 is provided for each of the end inserts 90, while an intermediate latching element 102 is provided which has a width sufficient to retain the four intermediate inserts 90 in the pocket 96. An elongated pivot pin or rod 104 is carried by the body 82 and extends transversely across side 92 and intermediate portions of the long arms of latching elements 100 and 102 for permitting individual pivotal movement of the latching elements. The latching elements 100 and 102 each includes a long arm and a short arm similar to the other embodiments. A biasing spring 106 is provided for each of the latching elements 100, while a pair of biasing springs 107 are provided for the latching element 102. The biasing springs 106 and 107 are arranged in the body 82 in a manner similar to the arrangement described in the other embodiments.

With the arrangement just described, when it is required to release one of the end inserts or a combination of intermediate inserts, thumb pressure is applied at the upper end of the long arm of the corresponding latching element so as to urge the short arm out of engagement with the shoulder provided on the corresponding insert or inserts, as the case may be. This selective type of latch is recommended where partial legend changes are necessary, releasing only the type or logo-type that requires changing.

FIGURE 7 is another embodiment of the present invention and includes all the features illustrated in FIGURES 5 and 6. In addition, a third row of inserts, designated by the numeral 108, is provided in the cavity 96 which is enlarged. The inserts in the third row 108 are held in the cavity 96 by means of the latching elements provided on opposite sides of the body.

A pair of locating elements or spacers 110 and 112 are interposed between the end surface 114 of the body of holder and the short arms of the latching elements. Each spacer is provided with a row of openings for receiving the end portion of the marking inserts in rows 86 and 88. The longitudinal edges 116 and 118 of the spacers 110 and 112 respectively engage the shoulders provided on the inserts in the center row 108 so as to hold the inserts in the center row 108 in the cavity 96. The inserts may be released individually or in combination as described for the embodiment illustrated in FIGURES 5 and 6.

The holders described herein are equipped with manually operable selective type locks or latches. Each of the latching elements are operated by manually applying thumb pressure against the upper end of the long arm thereof in the direction of arrow A as illustrated in FIGURES 2, 4, 6, and 7. In each of the embodiments the pivot mounting pin or rod is removable so that in case the latching elements or plates are damaged, they can be easily replaced.

It should be understood that in connection with any of the embodiments described herein, whether adapted for manual use, or to be inserted in a press, or to be inserted in a marking machine, that any number of latching elements can be utilized on one or both sides of the holder. The number of latching elements required of different width depends upon what section of the legend is changed for the specific application. As pointed out herein, it is possible in certain cases to provide a latching element for every individual piece of type. In other cases it is desirable to provide a latching element for a combination of marking inserts. It should also be understood that the anvil 78 as described in connection with FIGURES 3 and 4 can also be utilized with the other embodiments.

As mentioned previously, the type slot in the holder can be straight as illustrated or curved. The curved slot is usually machined to a certain radius so that the type will give a curved impression as when stamping the sides or ends of round parts or when marking in a turned recess.

The holders of the present invention are made from select tool steel. The steel holders are heat treated so as to insure proper stamp seat hardness which results in extreme durability and wear resistance. The holders may be made in various sizes to fit various types of machines.

It should be understood that the bodies of the various holders may be made in several pieces which are appropriately bolted or welded together so as to define the recesses for the inserts and anvils. As an example, a removable retainer plate 73 as illustrated in FIGURE 4 may be utilized to define one side of the pocket or recess 56. The retainer plate 73 is held in a clamped position by the latching elements 66. When the latching elements 66 are all moved to an unlatched position, the retainer plate 73 is released.

The drawing and foregoing specification constitute a description of the improved die holder in such full, clear, concise and exact terms as to enable any person skilled in the art to practice the invention, the scope of which is indicated by the appended claims.

What I claim as my invention is:

1. A stamping type holder comprising a body having a type-receiving socket in the bottom thereof adapted to receive a plurality of type pieces, a substantially vertical relatively narrow notch in one side of said body intermediate the end portions thereof, said notch having a length substantially equal to the length of said type-receiving socket, with a portion of said notch being enlarged throughout the entire length thereof to form a hinge recess, a plurality of L-shaped latching members, each of said members having a long arm extending along said one side of the body and a short arm extending inwardly along the bottom of said body to engage and hold at least one type piece in said type-receiving socket, the long arms of said latching members having inwardly extending substantially U-shaped intermediate hinge portions which are received in said hinge recess and having the portions of said long arms above said hinge portions opposite said notch, an elongated hinge pin having a length greater than the length of said socket carried by the end portions of said body, said pin extending across and in engagement with the outer surfaces of said hinge portions of said long arms to hold said latching members on said body and to provide a pivot mounting for said latching members, a spring socket in said body above said type-receiving socket for each of said latching members and having a spring therein which reacts against said body and the corresponding latching member to urge the short arm thereon toward the type-receiving socket to maintain the corresponding type therein, said pivot mounting permitting said latching members to be op-

erated independently of one another, each of said latching members being moved to an unlatched position upon the application of a force thereto which urges the upper portion of the corresponding long arm through said notch against the corresponding spring to thereby move the corresponding short arm away from the type which it controls to effect the release thereof.

2. The stamping type holder defined in claim 1 wherein said enlarged portion of the notch forms an opening which intersects said type-receiving socket, and a relatively hard anvil in the innermost part of said opening, said anvil having a substantially flat side which forms the bottom of said type-receiving socket, said U-shaped hinge portions being received in the remaining portion of said opening and abutting said anvil.

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