Jan. 25, 1966 R. A. JORGENSEN 3,231,169

HAND PRESS

Filed Feb. 25, 1963 2 Sheets-Sheet 1

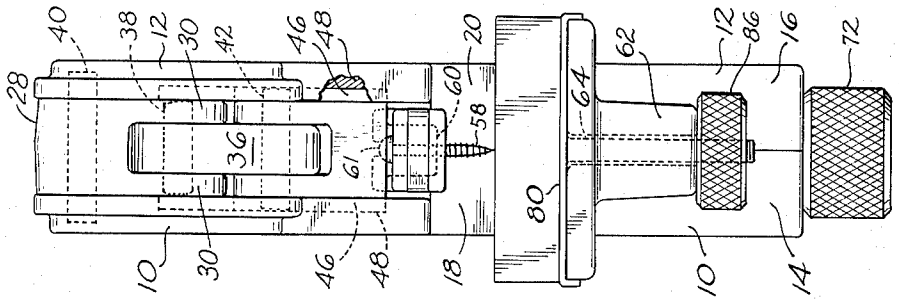


Fig. 2.

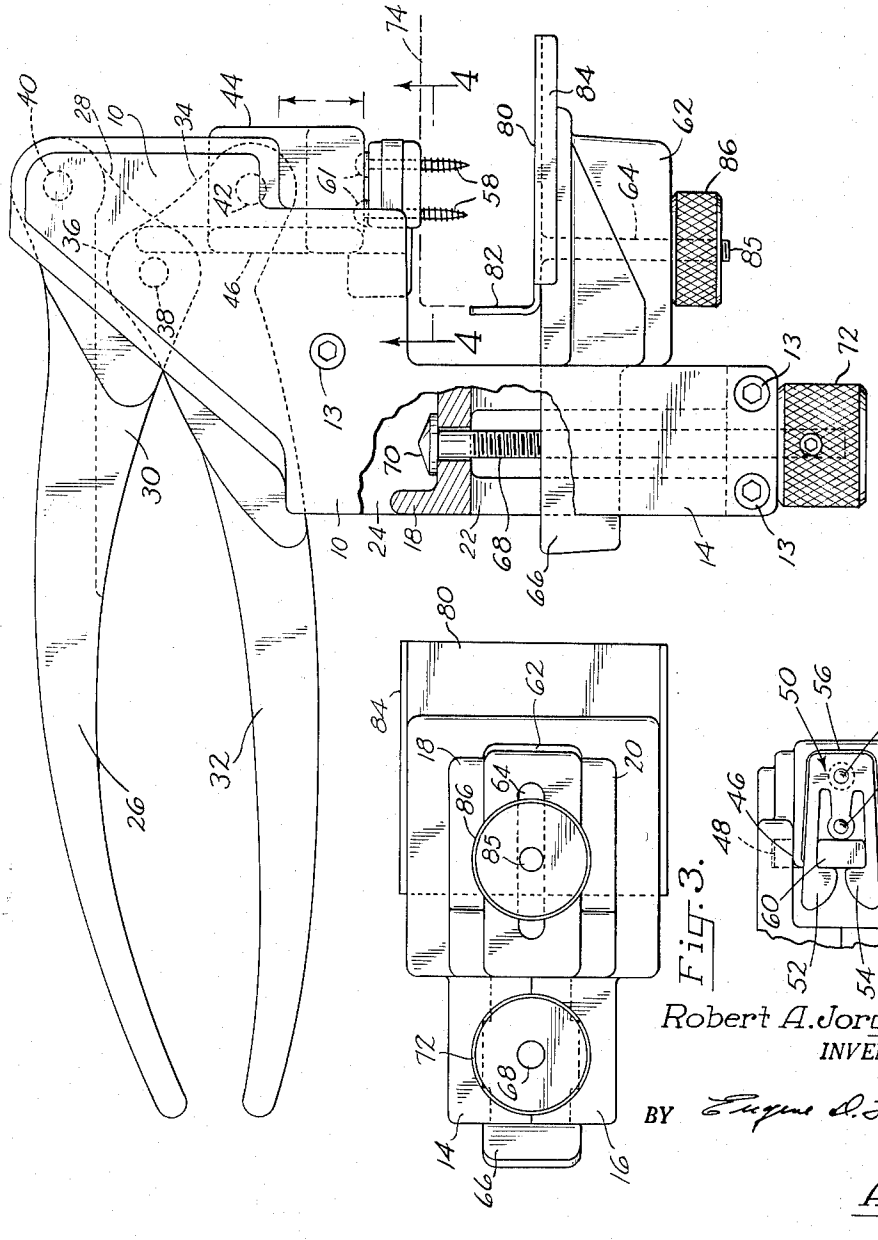


Fig. 1.

Fig. 3.

Fig. 4.

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HAND PRESS

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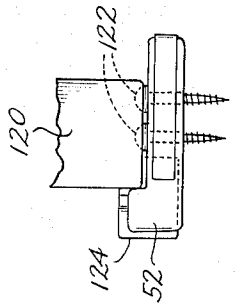


Fig. 9.

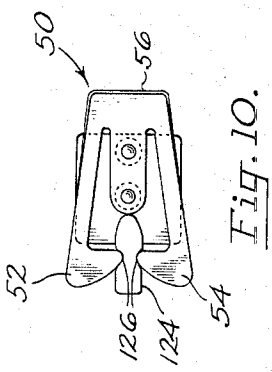


Fig. 10.

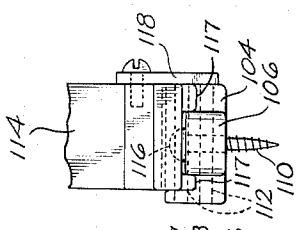


Fig. 8.

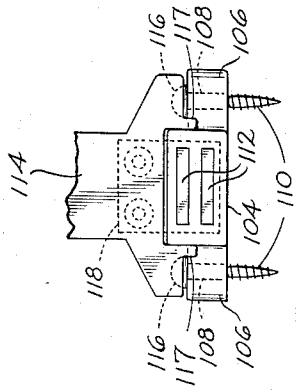


Fig. 7.

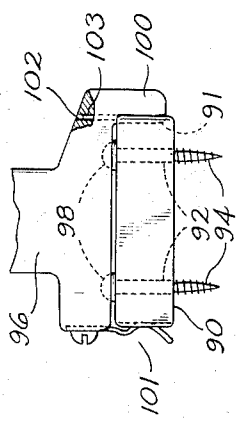


Fig. 5.

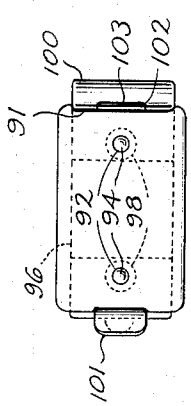


Fig. 6.

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United States Patent Office 3,231,169 Patented Jan. 25, 1966

3,231,169

HAND PRESS

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Filed Feb. 25, 1963, Ser. No. 260,505
12 Claims. (Cl. 227—143)

This invention relates to hand presses. It pertains particularly to hand presses suitable for use in installing screw-mounted door catches of the type described in Jorgensen U.S. 3,061,346.

Although the press is described with particular reference to such use, no limitaition thereby is intended since by suitable modification of the press head, the press may be used as a convenient hand-operated press for a diversity of crimping, riveting, punching, stamping and cut-off applications.

The Jorgensen door catch referred to above includes a pair of screw-mounted, spring-pressed catch arms adapted to receive in releasable latching engagement the head of a ball-headed screw or similar strike member. The catch is installed by screwing it into the ceiling, side wall, or floor of a cabinet, or other structural assembly. The strike is inserted between the arms of the catch with the spur extending outwardly.

The door associated with the structural assembly is closed against the spur, which penetrates sufficiently to mark the door. The strike then is removed from the catch and inserted in the marked location on the door. This sequence of operation requires perhaps 15 to 30 minutes of a carpenter's time, depending primarily upon the accessibility of the catch-mounting location.

Although the time involved in mounting the Jorgensen catch is even less than that required to mount catches of many other classes, it still would be desirable to provide a tool by means of which the screws mounting the catch could be pressed directly into the structural member in a single, easily effectuated movement requiring but a few seconds, and it is the general object of this invention to provide a hand-operated press which accomplishes this function.

It is another object of the present invention to provide a hand press which is versatile in its application, not only to the operation of pressing screws or other spurred fastening members into structural members, but also in such operations as crimping, riveting, punching, stamping and cutting work of various categories.

Still a further object of the invention is the provision of a hand press adapted particularly for pressing screw-mounted door catches into structural members, and characterized by the following advantages:

(1) It installs the catches rapidly and easily in any location and in restricted space.

(2) It may be used with catches having various patterns of holding screws.

(3) The catches are easily mounted on the press in the first instance and easily demounted therefrom after application.

(4) The catch is held stable as the screws are driven.

(5) The screws are driven straight in accurate alignment.

(6) The screws will not fall out during application no matter what the position of the press.

(7) The catch itself serves as a guide and holder for the screws as they are driven.

(8) The press is adjustable to accommodate structural members of varying thickness.

(9) An extremely high pressure may be applied with the tool, enabling insertion of the screws even into hardwood structural members with a single, easily effectuated press stroke.

(10) The tool is simple and inexpensive in its construction, easily operated and requires a minimum maintenance during a long service life.

Another object of the invention is the provision of a novel and efficient method of attaching spur-fastened assemblies to structural members.

The manner in which the foregoing and other objects of this invention are accomplished will be apparent from the accompanying specification and claims considered together with the drawings, wherein:

FIG. 1 is a view in side elevation of the herein described hand press, partly in section to show the interior construction;

FIG. 2 is a view in front elevation of the press of FIG. 1;

FIG. 3 is a bottom plan view of the press;

FIG. 4 is a detail, fragmentary plan view of the press head with a door catch mounted thereon in operative position, looking in the direction of the arrows of line 4—4 of FIG. 1;

FIGS. 5 and 6 are a side elevation and bottom plan view, respectively, of an alternate form of press head;

FIGS. 7 and 8 are views in front and side elevation, respectively, of still another form of press head for use in the press of the present invention; and

FIGS. 9 and 10 are views in side elevation and bottom plan, respectively, of still another form of press head for use in the presently described press.

In one of its forms the hand press of my invention comprises a press frame mounting a lever-operated toggle means, a press head and an anvil. First pivot means pivotally connect one side of the toggle means to the frame. Second pivot means pivotally connect the other side of the toggle means to the press head. Guide means are provided for guiding the press head in reciprocating movement.

The anvil is spaced from the press head and aligned with its direction of reciprocating movement. In case the press is to be applied to the installation of a door catch, the working surface of the press head is provided with a post dimensioned to mount the catch with the screws in place.

Adjusting means are associated with the anvil for spacing the anvil a predetermined distance from the press head as required to accommodate a structural member of varying thickness. Also, adjusting means are associated with the anvil for locating the structural member laterally with respect to the catch, so that the catch may be applied in the correct location.

As a consequence, merely by working the toggle with the levers, it is possible to press the screws directly into the structural member in a single, rapidly effectuated stroke, thereby mounting the catch in the desired location.

A novel and efficient method thus is provided for attaching to structural members spur-fastened devices having a plurality of guideways and a freely movable spur fastener extending through each guideway with its head on one side of the appliance and its spur on the other side. This method comprises inserting the fasteners in the guideways of one of the appliances, and positioning the appliance by keying together the appliance and the press head, as by locating the heads of the fasteners in corresponding recesses in the press head. This, in turn, locates the appliance in a predetermined position relative to the structural member to which the appliance is to be fastened. The appliance is held in its predetermined position while pressing the fasteners into the structural member, using the guideways, first, to retain the fasteners and, secondly, to guide their penetrating movement.

Considering the foregoing in greater detail and with particular reference to the drawings:

In its illustrated embodiment, the press is mounted in

a frame comprising a pair of plates **10**, **12** arranged parallel to each other and releasably held together by screws **13**. The plates are maintained in spaced relation by integral lower bosses **14**, **16** and integral upper bosses **18**, **20**. Thus there are provided a lower opening **22** in which the anvil assembly is housed and an upper opening **24** in which the press driving assembly is housed.

The driving assembly broadly comprising lever-operated toggle means, includes a first lever **26** provided at one end with a toggle-forming extension **28** which includes a pair of spaced integral plates **30**.

A companion lever **32** likewise is formed with a toggle-forming extension **34** and with a tongue **36** adapted to be received in pivoting relation between plates **30**.

The two levers are pivotally interconnected intermediate their ends by means of a pivot pin **38** penetrating the overlapped portions of plates **30** and tongue **36**.

The desired toggle action is provided by pivotally connecting the end of toggle-forming extension **28** between frame members **10**, **12** by means of a pivot pin **40**. Also, the end of toggle-forming extension **34** is pivoted by means of pivot pin **42** to a press head **44**. The two pivot pins are aligned with each other and with the work.

The press head may be of varying size and configuration as required by the pressing operation contemplated. It is provided with guide means for guiding it in reciprocal movement. In the illustrated form of the invention, the guide means comprise gibs **46** extending lengthwise along the side walls of press head **44**, and corresponding gibways **48** cut into the inner side walls of frame members **10**, **12**.

Where the press is to be used for applying catches on cabinets or other structural assemblies, means are provided for holding the catch and mounting screws on the press head. In the embodiment of FIGS. 1–4, each catch **50** comprises a base to which are affixed a pair of spaced arms **52**, **54**. The arms are spring pressed by means of leaf spring **56**. Screws **58** penetrate the catch for attaching it to a structural member.

When the press is to be used in attaching such a catch, the press head is provided with a mounting post **60** having a cross section slightly larger than the normal space between arms **52**, **54**. The catch then is maintained on the post by frictional engagement.

Locating recesses **61** also are provided on the working surface of the press head. These are dimensioned to seat the heads of screws **58** and are arranged in a corresponding pattern, thus keying together the catch assembly and the press head. The recess pattern, of course, may be changed to accommodate catches having varying patterns of screws by the simple expedient of providing interchangeable press heads.

The recesses serve the important function of locating the catch accurately with respect to the work, while the catch itself serves the important function of holding the screws and aligning them properly.

Cooperating with press head **44** is an anvil assembly housed in lower opening **22**.

The anvil assembly includes an anvil **62** which may be provided with a longitudinal slot **64**. The inner side face of anvil **62** engages the side edges of frame members **10**, **12** in sliding engagement. An integral tongue **66** works in the space between plates **10**, **12**.

Means are provided for adjusting the position of the anvil relative to the press head as required to accommodate work of varying thickness.

In its illustrated form, such means comprise screw **68**, rotatably mounted in openings formed in boss pairs **14**, **16** and **18**, **20**. The screw is maintained in position by a locating head **70** at one end and a knurled turning head **72** at the other end. The intermediate portion of the screw is threaded through tongue **66** of the anvil assembly. Accordingly, by turning knurled head **72**, the position of anvil member **62** relative to the press head **44** may be adjusted as desired to accommodate the shelf or other work piece, indicated generally at **74**.

Means also are associated with the anvil for locating the work properly with reference to the press head. This is desirable when installing door catches, since it makes possible mounting the catch the desired and predetermined distance inwardly from the edge of the work.

To this end there is provided a cover plate **80** provided with an angled, upwardly extending abutment section **82** and guiding downwardly-turned flanges **84**, one on each side.

Fixed to the underside of plate **80** is a rod **85**, the outer end of which is threaded and provided with a knurled nut **86**. Rod **85** works in longitudinal slot **64** through the anvil and may be locked releasably in any desired position of adjustment merely by tightening nut **86** against the under surface of the anvil.

In the alternate form of the invention illustrated in FIGS. 5 and 6, the press head is modified frictionally to hold a device or appliance indicated generally at **90** and comprising, for example, a door catch, hinge, or other similar member preferably provided with opposite side recess **91**. The appliance is provided with a pair of guideways **92** in which are adapted to be inserted screws **94** or other spur type fasteners arranged with the heads on one side of the appliance and the spurs extending through the other side thereof.

The press head **96** corresponds to press head **44** of the previously described embodiment. Its working surface is provided with a pattern of recesses **98** designed to accommodate the heads of screws **94**.

Frictional means are provided on press head **96** for releasably securing appliance **90** in its working position. Such means comprise an extension **100** on one side of the press head, cooperating with a leaf spring **101** fastened to the other side of the same. If desired, a second leaf spring **102** wedged into a slot **103** through the shoulder of the press head also may be employed. Appliance **90** then may be pressed between the two side pieces thus provided, with the heads of screws **94** nesting in recesses **98**.

The embodiment of FIGS. 7 and 8 is designed to accommodate catches or other devices including magnetic elements. In this form of the invention, the magnetic element itself is used for releasably securing the device to the press head.

As an example, the device may comprise a magnetic catch having a body **104** and a pair of oppositely disposed shoulders **106**. Guideways **108** extending through the latter are adapted to receive screws **110**.

Centrally of the body there are mounted a pair of wafer-type floating magnets **112**. These are suitably housed and, in use, are adapted to cooperate with a plate of magnetic material, not illustrated, in releasably closing a cabinet door.

The catch and plate are conventional and form no part of the present invention. However, the catch may be applied with the herein described press, modified by the inclusion of a press head **114** in the working face of which are pockets **116** dimensioned to receive the heads of screws **110**. The body **104** of the catch is received in an appropriately dimensioned recess in the working face of the press head. The recess is defined in part by outwardly extending stabilizing flanges **117**.

A plate **118** of steel or other magnetic material is bolted or otherwise fastened to the side face of the press head. It is positioned in such a manner that when the magnetic catch is located in the press head with the heads of screws **110** received in recesses **116**, plate **118** on the press head will lie closely against magnets **112** in the catch, holding the catch securely, but releasably, in position.

Still another form of the invention is illustrated in FIGS. 9 and 10. This form is adapted for use with catches such as the above mentioned Jorgensen catch, illustrated in

FIGS. 1–4. However, an alternate mode of holding the catch on the press head is featured.

Accordingly, in this form of the invention, the press head **120** is provided with recesses **122** to locate the screw heads, and also with a downwardly-extending wedge-shaped post **124**. The latter serves a function analogous to that served by mounting post **60**, previously described in that it enters between the jaws of the catch, but from the side, with the ends of the jaws received in oppositely placed pockets **126** on the side faces of the post. This manner of mounting the catch on the press head may be accomplished more easily in some situations.

Operation

The operation of the herein described hand press, as applied to the installation of Jorgensen-type door catches, is as follows:

First, the position of anvil **62** with reference to press head **44** is adjusted by turning screw **68** as required to provide an opening sufficiently large to accommodate cabinet shelf **74** or other structural member in a proper working position.

Next, the locating plate **80** is positioned longitudinally of anvil member **62** by moving rod **85** until the upturned abutment member **82** is located properly. Plate **80** then is locked on place by tightening down on knurled nut **86**.

Next, the screws are inserted in the catch and the resulting assembly slipped over post **60** on the press head in the manner shown particularly in FIG. 4. As this is done, the screw heads seat in recesses **61** of the press head surface (FIG. 1), thus keying together the catch and press head, and locating the catch properly with the screws aligned and restrained from falling out. Still further, the catch itself is held in place by the frictional engagement of the catch arms against the side walls of the post.

The work **74** is placed on the anvil and pressed snugly against abutment **82**. Levers **26**, **32** then are brought together by hand pressure. This drives the press head through a stroke measured by the stroke arrows of FIG. 1. In so doing, it drives screws **58** into the wood in an operation made both easy and accurate by the fact that all of the elements of the assembly are properly located and aligned, as well as by the fact that the lever handles move independently of the frame. This floating arrangement prevents pressure applied to the handles from canting the press head so that the screws would be improperly inserted.

Also, the applied pressure resulting from the lever advantage, coupled with the advantage obtained by opening the toggle formed by toggle extensions **28**, **34**, is enormous and more than ample to drive screws **58** completely into the work in a single easy stroke.

After insertion of the screws, the levers may be moved from the closed position of FIG. 1 to an open position. This action strips the latch from post **60** and leaves the tool ready for use in installing another catch.

The application of the invention to the form of the invention illustrated in FIGS. 5 and 6 is similar. However, in this instance the door catch or other appliance **90** is merely slipped between side plates **100**, **102** of the press head **96**, the resilient pressure exerted by spring plate **102** serving to anchor the appliance in place as it is installed.

In the embodiment of FIGS. 7 and 8, the mode of operation again is similar. In this case, however, a magnetic appliance or device **104** is seated in a press head **114**, the attraction between magnets **112** in the device and side plate **118** on the press head serving to secure the device to the head as it is driven into the work.

In the form of the invention illustrated in FIGS. 9 and 10, a catch having a construction similar to that illustrated in FIGS. 1 and 4 is mounted on a press head **120** equipped with a wedge-shaped side mounting post **124**. The catch merely is slipped over the post with the arms seating in recesses **126** thereof, using a longitudinal motion of the catch rather than a sideways motion, as was the case in the embodiment of FIGS. 1–4.

It is to be observed particularly that all of the above described forms of the invention are characterized by illustrating a novel method of attaching to structural members spur fastened appliances having a plurality of guideways therethrough in which the spur fasteners freely extend, with their heads on one side of the appliance and the spurs on the other.

The method comprises first inserting the fasteners in the guideways. Next the appliance is located accurately with respect to the work by positioning the heads of the fasteners in the recesses or pockets provided in a corresponding pattern in the working face of the press head. The appliance then is held two dimensionally in its predetermined position relative to the structural member to which it is being attached while the fasteners are pressed into it. During this operation, the guideways are employed to hold the spur members in their proper position relative to the work and at the same time to guide their penetrating movement. Eccentric loading, and consequent bending, of the screws thus is prevented.

As a result, with a single, easily-effectuated stroke of the press, the appliance is fastened to the work in exactly the proper position with the spur members correctly aligned.

It is to be understood that the forms of my invention herein shown and described are to be taken as preferred examples of the same and that various other changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of my invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. A hand press comprising:

(a) a press frame,

(b) lever operated toggle means comprising a pair of elongated lever arms pivotally interconnected intermediate their ends and each having at one end a toggle-forming extension,

(c) first pivot means pivotally connecting one only of the toggle-forming extensions to the frame,

(d) a press head,

(e) second pivot means pivotally connecting the press head only to the other toggle-forming extension,

(f) guide means on the frame slidably engaging the press head for guiding the press head in reciprocating movement relative to the frame,

(g) and anvil means spaced from the press head and aligned with its direction of reciprocating movement.

2. The hand press of claim **1** wherein the guide means comprise gib and gibway means mounted respectively on the frame and press head.

3. The hand press of claim **1** including securing means on the press head for releasably securing thereto for reciprocative movement therewith a device to be pressed by the hand press.

4. The hand press of claim **1** wherein the anvil is provided with a longitudinally extending slot and including work positioning means comprising an angled plate slidably mounted on top of the anvil for adjustable movement substantially normal to the movement of the press head and connected to a screw extending through the slot and mounting a screw head adapted to bear releasably against the anvil.

5. A hand press comprising:

(a) a press frame,

(b) a press head,

(c) gib and gibway means mounting the press head for reciprocating movement on the frame,

(d) a pair of elongated lever arms pivotally interconnected intermediate their ends and each having at one end a toggle-forming extension, one of the extensions being pivotally connected to the frame and the other to the press head,

(e) anvil means mounted on the frame, spaced from the press head and aligned with its direction of reciprocating movement,

(f) screw means working in the frame and connected to the anvil for spacing the same a predetermined distance from the press head,

(g) a work-positioning plate slidably mounted on top of the anvil for longitudinal movement with respect thereto, and

(h) adjusting means interconnecting the plate and the anvil for releasably locking the plate in a predetermined location.

6. A press for use in pressing spur-mounted devices into structural members, the press comprising:

(a) a press frame,

(b) a press head having a working face provided with a post dimensioned for frictional engagement with an opening on the device for frictionally engaging and mounting the device for movement therewith,

(c) drive means associated with the press head for driving the same in reciprocating movement,

(d) guide means on the frame for guiding the press head in its reciprocating movement, and

(e) anvil means spaced from the press head and adapted to support a structural member to which the device is to be fastened.

7. A hand press for use in pressing into structural members screw-mounted door catches including a pair of spaced, spring-pressed catch arms terminating in jaws, the press comprising:

(a) a press frame,

(b) a press head having a working face provided with a post dimensioned for mounting the door catch for movement therewith by insertion into the space between the catch arms, in frictional engagement therewith,

(c) drive means associated with the press head for driving the same in reciprocating movement,

(d) guide means on the frame for guiding the press head in its reciprocating movement, and

(e) anvil means spaced from the press head and adapted to support a structural member on which the door catch is to be fastened.

8. The press of claim **7** wherein the post is located centrally of the press head and behind the jaws in a direction normal to the plane of the catch.

9. The press of claim **7** wherein the post is wedge-shaped and provided with pockets on its opposite side faces, the post being adapted for insertion between the jaws with the jaws received in the pockets on the post.

10. A hand press for use in pressing into structural members screw-mounted door catches including a pair of spaced, spring-pressed arms, the press comprising:

(a) a press frame,

(b) lever-operated toggle means comprising a pair of elongated lever arms pivotally interconnected intermediate their ends and each having at one end a toggle-forming extension,

(c) pivot means pivotally connecting one of the toggle-forming extensions to the frame,

(d) a press head having on its working surface a catch-mounting post dimensioned for frictional insertion into the space between the spring pressed arms of the door catch with the screw heads bearing against the press head and the screw spurs extending outwardly,

(e) pivot means pivotally connecting the other toggle-forming extension to the press head,

(f) guide means guiding the press head in reciprocating movement,

(g) and anvil means spaced from the press head and aligned in its direction of reciprocating movement.

11. The hand press of claim **10** including spaced depressions in the working surface of the press head, each depression being dimensioned to receive one of the screw heads and all the depressions being arranged in a pattern corresponding to the pattern of the screws when mounted in the catch, thereby locating the catch properly with reference to the work.

12. A hand press in use for pressing into structural members screw-mounted door catches including a pair of spaced, spring-pressed arms, the press comprising:

(a) a press frame,

(b) a press head provided with a post dimensioned to mount the door catch for movement therewith by frictionally engaging the same, the catch being arranged with the screw heads bearing against the press head and the screw spurs extending outwardly,

(c) guide means on the frame guiding the press head in reciprocating movement,

(d) a pair of elongated lever arms pivotally interconnected intermediate their ends and each having at one end a toggle-forming extension, one of the extensions being pivotally connected to the frame and the other to the press head,

(e) anvil means spaced from the press head,

(f) screw means working in the frame and connected to the anvil means for positioning the anvil a spaced distance from the press head,

(g) an angled plate slidably mounted across the anvil means,

(h) and plate-positioning means releasably interlocking the plate and the anvil means in a predetermined, work-positioning location.

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GRANVILLE Y. CUSTER, JR., *Primary Examiner.*