Feb. 12, 1935. W. R. HASTY 1,990,905

DEVICE FOR REMOVING CONCRETE MOLDS

Filed Dec. 11, 1933

FIG. 1.

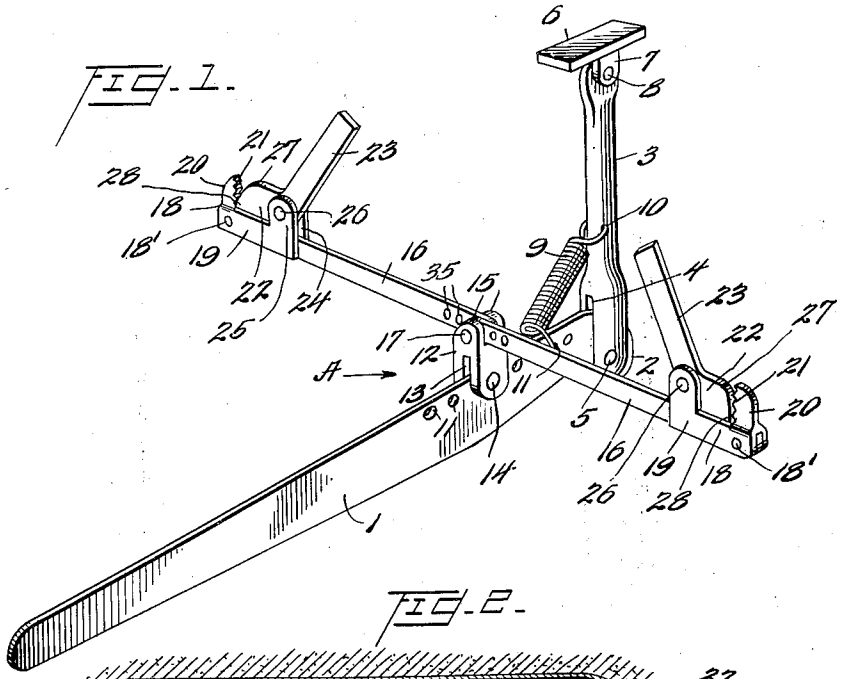


FIG. 2.

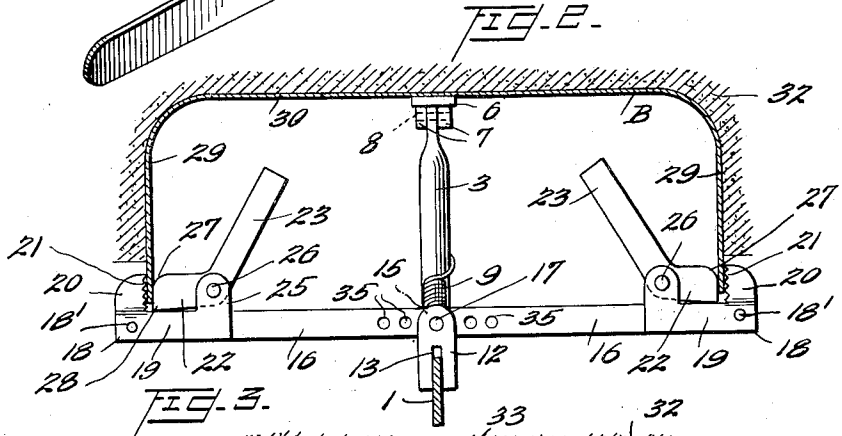
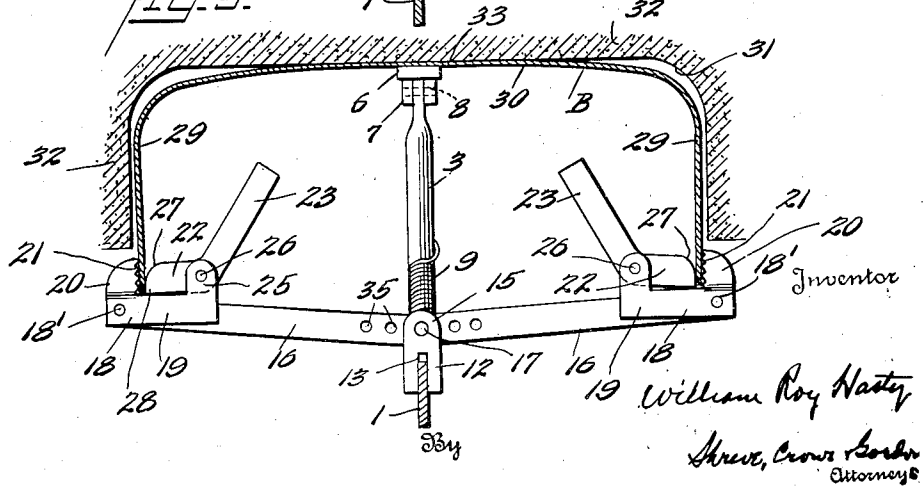


FIG. 3.



Inventor

William Roy Hasty

By

Shrew, Crowe & Gordon

Attorneys

Patented Feb. 12, 1935

1,990,905

UNITED STATES PATENT OFFICE

1,990,905

DEVICE FOR REMOVING CONCRETE MOLDS

William Roy Hasty, Atlanta, Ga., assignor of one-half to Henry E. Fields and Horace F. Fields, Atlanta, Ga.

Application December 11, 1933, Serial No. 701,897

7 Claims. (Cl. 254—131)

This invention relates to a device for expeditiously removing a form from concrete or like substance, wherein the substance is poured or applied to the form in a plastic or semi-plastic state and allowed to set or harden before removal of the form is effected.

In concrete construction it is prevalent to use metallic forms embedded in the material, and which after the latter has set or hardened, are difficult to remove without injury or damage to the form and marring of the molded surface, and therefore, one of the principal objects of this invention is the provision of a device attachable to the form and designed to support and at the same time exert force in removing direction so as to effect removal of the form from the molded surface of the material without injury to either the mold or surface of the material.

Another important object of this invention is the provision of a device of this character adapted to support or brace the top portion of the mold and at the same time exert a downward and inward force on the respective sides thereof to effect separation of the mold from the molded surface of the material commencing at its free edges and progressively extending in meeting direction towards the center of the top portion, and without damage to either the mold or molded surface of the material.

With these and other objects in view, which will become apparent as the description proceeds, the invention resides in the construction, combination and arrangement of parts, hereinafter more fully described and claimed, and illustrated in the accompanying drawing, in which like characters of reference indicate like parts throughout the several figures, of which:

Fig. 1 is a perspective view of my improved mold removing device.

Fig. 2 is a cross sectional view of a mold and end elevation of the device partly in section and operatively attached thereto.

Fig. 3 is a similar view to Fig. 2 after the device has been partially operated in mold removing direction and showing the mold as substantially removed from the molded material.

Means heretofore employed for removing concrete molds with which I am familiar have proven deficient in many respects. For instance, such means being intended primarily as a supporting or bracing structure adapted to prevent collapse or distortion of the mold during the molding operation, usually embodying a frame work which in course of dismantling or removal might be utilized to assist in effecting removal of the mold but with more or less disastrous results to both the mold and contacting surface as well, and it was to overcome such deficiencies by providing a device comprising a fulcrum lever having a brace or supporting means adapted to engage the top of the mold pivotally and resiliently connected thereto, and arms pivotally connected to said lever adapted to grippingly engage the opposite edges of the mold, so that operation of said lever effects removal of the mold from the contacting surface of the concrete or other material without damage to either the mold or molded surface, that I designed the mold removing device forming the subject matter of this invention.

In the illustrated embodiment characterizing this invention there is shown a mold removing device A and a concrete mold B. Said device A comprises a fulcrum lever 1 formed with a rounded hook like depending end 2 and a substantially normally upright standard or supporting brace 3 slotted at its lower end as at 4 adapted to receive the lower end of lever 1 to which it is pivotally connected by pin 5. The pressure or mold contact plate 6, in the present instance, is substantially rectangular and is formed on the under surface with a pair of spaced ears 7 between which is adapted to extend the upper end of standard 3 to which it is pivotally and suitably connected by pin 8. One end of a coil spring 9 is suitably connected to standard 3 by engaging aperture 10, the other end of said spring being similarly or suitably connected to lever 1 by extending through aperture 11 and by means of which said standard is normally maintained in substantial vertical relation with respect to lever 1 during operative positioning of the device, said spring and the shape of end 2 permitting limited pivotal movement of said lever with respect to said standard without affecting the relative position of the latter with respect to mold B, as will hereinafter more fully appear.

An anchor block 12 is formed at one end with a slot 13 adapted to receive the upper edge of lever 1 and to which it is pivotally connected by pin 14 at a point predeterminedly spaced from standard 3. Pin 14 is suitably and detachably secured in said block. The upper end of said block is formed with a pair of upstanding spaced ears 15 at right angles to slot 13 and between which are pivoted the inner ends of the respective cross arms 16 on pin 17 similarly and detachably secured thereto.

Mounted in the respective free ends of arms 16 is a substantially U-shaped member 18 comprising the complemental plates 19 between which is

pivotally secured said end by pin 18', thereby permitting said member to remain in horizontal or normal gripping position when in engagement with the sides of the pan or mold B and preventing bending of said sides, irrespective of the movement of arms 16, as clearly shown in Fig. 3 of the drawing. The outer stem portions of each pair of plates, in the present instance, are bent into overlapping relation and if desired may be welded or otherwise suitably connected to form the stem member 20 the inner face of which is serrated or formed with teeth 21. While I have preferably shown member 18 as formed from plates 19, it is apparent that, if desired, they may be formed from suitably recessed blocks. A lock member 22 formed with a handle 23 extending upwardly at an angle therefrom is hingedly mounted in slot 24 formed in stem 25 between plates 19 of each member 18 on pin 26 extending therethrough. Each of said members 22 is adapted to extend intermediate the respective stems 20 and 25 and is formed with a curved edge 27 extending from the base of handle 23 to a point 28 which is adapted when in lowered position to be spaced from teeth 21 a distance substantially equal to the thickness of side 29 and to contact the inner surface of said side adjacent its lower edge in gripping engagement when handle 23 is moved in a downward direction or side 29 in an upward direction since as point 28 moves upward it also moves toward teeth 21 as will be more fully hereinafter shown.

In order to permit tensioning of spring 9 and adjustment of arms 16 with respect to standard 3, lever 1 adjacent its upper edge is formed with a series of apertures 11, and in order to adjust arms 16 with respect to different widths of molds each of said arms is formed adjacent its inner end with a plurality of apertures 35. It is, however, apparent that said device is applicable to a considerable variation in mold widths without necessitating such adjustment.

The mold B is formed with sides 29 and top 30, shown in Fig. 2 as embedded in the concrete or other moldable material 32, and in view of its shape is commonly referred to as a pan, and the device for effecting its removal may therefore be designated in this connection as a pan puller, since in effect its action is to pull the pan away from the molded face of the material 32.

While the operation of the device would seem to be clear from the above description, it might be well to further state that to operatively position the device it is only necessary to position the plate 6 against the top 30 of mold B and insert the lower edges of sides 29 between the members 22 and teeth 21, the curved faces 27 permitting easy insertion of said edges, arms 23 tending to maintain points 28 in contact with sides 29, or if desired a slight downward movement of said arms 23 or upward movement of sides 29 will cause said points to firmly contact said sides so that when force is applied to lever 1 said edges will be firmly gripped, and an upward pressure through standard 3 will be exerted against plate 6 and top 30, and owing to the pivotal connection of arms 16 as at 17, as lever 1 is operated in a downward or outward direction with respect to said mold the sides 29 will be drawn downwardly and inwardly in meeting direction and away from the molded surface 31 of concrete or other material 32 progressively from the lower edge of said surface toward the center of the top portion as at 33, thereby peeling as it were, the mold from said surface so that when the operation has progressed as shown in Fig. 3 the mold is ready to be completely removed from surface 31, and detachment of the device A from mold B is effected by simply releasing the pressure on leaver 1 and elevating handles 23 as will be clear without further description.

It will be noted that the device may be folded into a compact form for handling, shipping and the like, by reason of the handles 23 being foldable into parallelism with arms 16 and said arms into substantial parallelism with standard 3.

From the above it will be apparent that my improved mold or pan remover is adapted to be expeditiously attached to the mold and so constructed that when the device is operated in removing direction the distribution of forces will be in top supporting direction and simultaneously in side collapsing or removing directions, whereby damage to the mold is prevented and its expeditious removal from the molded surfaces is effected.

From the above it will be noted that I have designed a device for removing molds from concrete and the like, simple in construction, comprising few parts, foldable into a compact form, readily attachable to and detachable from the mold, adjustable to different sized molds, manufacturable at a minimum of cost, and efficient for the purposes intended.

Although in practice I have found that the form of my invention illustrated in the accompanying drawing and referred to in the above description as the preferred embodiment is the most efficient and practical, yet realizing that conditions concurrent with the adoption of my invention will necessarily vary, I desire to emphasize that various minor changes in details of construction, proportion and arrangement of parts, may be resorted to within the scope of the appended claims without departing from or sacrificing any of the principles of this invention.

Having thus described my invention, what I desire protected by Letters Patent is as set forth in the following claims:

1. A device for removing molds from concrete and the like comprising a lever element, a mold engaging standard connected to one end of said lever and movable through a vertical arc, oppositely extending arms connected to said lever and movable through arcs at right angles to that of said standard, and means for gripping the sides of the mold movably connected to said arms.

2. A device for removing molds from concrete and the like comprising a lever element, a mold engaging standard connected to one end of said lever and movable through a vertical arc, oppositely extending arms connected at their meeting ends to said lever and movable through arcs at right angles to that of said standard, and means for gripping the sides of the mold movably connected to the free ends of said arms.

3. A device for removing molds from concrete and the like comprising a lever element, a mold engaging standard connected to one end of said lever and movable through a vertical arc, oppositely extending arms connected at their meeting ends to said lever and movable through arcs similar to and also at right angles to that of said standard, and means for gripping the sides of the mold movably connected to said arms.

4. A device for removing molds from concrete and the like comprising a lever, a mold engaging standard connected to one end of said lever movable in an arc lengthwise of said lever, oppositely extending arms connected to said lever adjust-

able with respect to each other and movable in arcs parallel to said lever and also in arcs at right angles to the arc of said standard, and means movably connected to the free ends of the arms including gripping jaws adapted to grippingly engage the sides of the mold.

5. A device for removing molds from concrete and the like comprising a lever, a mold engaging standard resiliently connected to one end of said lever movable in an arc lengthwise of said lever, oppositely extending arms connected to the lever adjustable with respect to each other and movable in arcs at right angles to the arc of said standard, and gripping elements including fixed and movable jaws movably connected to the free ends of said arms adapted to grippingly engage the sides of the mold.

6. A device for removing molds from concrete and the like comprising a lever, a standard connected to one end of the lever, a plate movably connected to the free end of said standard adapted to engage the top of the mold, said standard being movable through a vertical arc with respect to said lever and plate, oppositely extending arms pivotally connected to said lever and movable through arcs at right angles to that of said standard, and means for gripping the sides of the mold movably connected to the free ends of the arms.

7. A device for removing molds from concrete and the like comprising a lever, a standard resiliently connected to one end of the lever adapted to engage the top of the mold, said standard being movable through a vertical arc, oppositely extending arms pivotally connected at their inner ends to said lever at a point spaced from said standard and movable through arcs at right angles to that of said standard, and gripping means normally seating on said arms and pivotally connected at their outer ends to the free ends of said arms to grippingly engage the sides of the mold, whereby movement of said lever in mold removing direction maintains said standard in supporting engagement with the top of the mold, depresses the inner ends of said arms drawing the sides and bottom downwardly and inwardly away from the surrounding concrete and without changing the gripping relation of the gripping means with respect to the sides of the mold.

WILLIAM ROY HASTY.