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CUTTING TOOL FOR THE TIE WIRES OR BANDS OF CONCRETE BUILDING FORMS, BARRELS, BOXES, BALES, AND THE LIKE

Filed Aug. 8, 1927

Fig 1

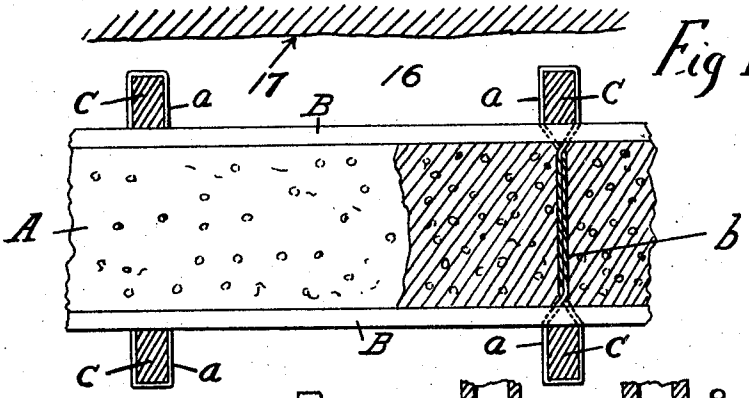


Fig 2

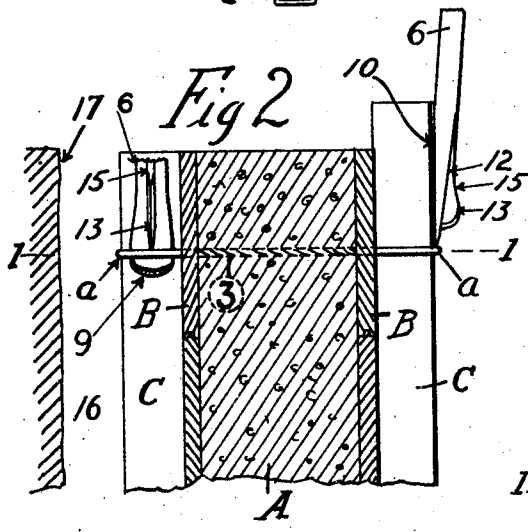


Fig 3

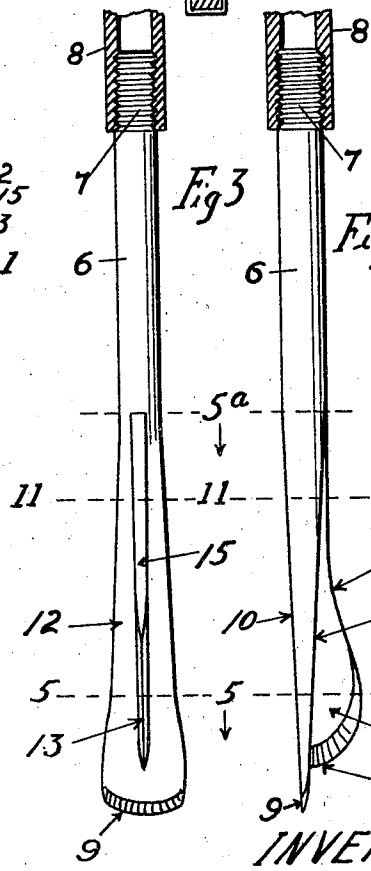
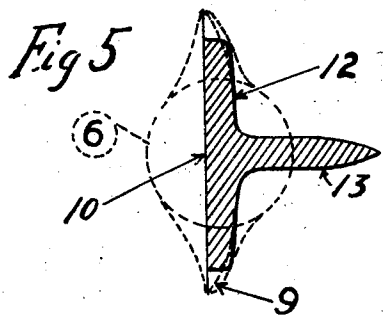


Fig 4

Fig 5



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UNITED STATES PATENT OFFICE.

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CUTTING TOOL FOR THE TIE WIRES OR BANDS OF CONCRETE BUILDING FORMS, BARRELS, BOXES, BALES, AND THE LIKE.

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This invention relates, more especially, to implements or tools adapted for use in cutting or severing the binding-wires of concrete or other temporary building forms or frames when they are to be dismantled or removed from molding-place after the concrete has properly set and hardened, such use of the type of wire-cutting implements being further extended or adapted to the purposes of removing binding tie wires or bands from barrels, boxes, bales, cartons and similar containers of goods.

The peculiar advantages and preferred structure of the improved device herein will be specifically and fully described in connection with the accompanying sheet of drawings, in which—

Figure 1 is a sectional plan taken on the dotted-line 1, 1, of Fig. 2, showing a fragmentary piece of mass-concrete work with the ordinary wire-clamped temporary molding frame or form in place that it is the special purpose of my improved cutting-tool to sever the extended loops of wire from the upright wooden or metal bars of the said molding frame or form; Fig. 2, a fragmentary vertical section, taken on the dotted-line 2, 2, of Fig. 1, showing the said mass-concrete work and one of the twisted tie-wire clamps as they appear in use, and, also, showing the lower working-end of my improved cutting-tool in two severing-positions for freeing the adjacent fore edge and side edge of the respective opposite loop-ends of the said tie-wire from holding-place on the wooden or metal uprights of the temporary clamping mold-frame; Fig. 3, a front elevation of my improved cutting-tool, showing its wedge and sharp-blade severing front-face; Fig. 4, a side elevation of the said cutting-tool to more clearly show the lateral sharp fin or blade formation that forms the actual essential part of my invention herein, although the view includes an edge-sight of the sharp wedge-end of the tool that just precedes the sharp severing fin or blade formation in the structure; and Fig. 5, a horizontal section taken on the dotted-line 5, 5 of both views 3 and 4, to show the said lower wedge-end of the tool-stock in extended plan and to, also, show very decidedly the cross-section of the sharp severing fin or blade formation that extends laterally from the lower part of the tool-stock, just above the said lower wire stretching wedge-end thereof.

In Fig. 1, the mass-concrete A is dropped into or inserted and held between the form boards or timbers B, as customary, and the upright wooden or metail bars C are used to clamp the said boards in duly spaced relation or position for the insertion of said concrete mass A, the usual horizontal tie-wires having outer loops *a*, *a*, and twisted middle or main portions *b*, for engagement with said upright bars C and the boards B, with said parts *b* embedded in the concrete in the usual manner of performing re-inforced and massed concrete work.

After the said work has properly seasoned and set, ready for the false or temporary frame or form to be dismantled or parted and removed, the said clamping tie-wires must be severed so as to release the wooden boards B and the uprights C from their previous boxing or molding-frame condition. In order to readily cut the loops *a*, *a*, of said tie-wires I employ my improved combined loop opening or wedging and cutting implement that I will now proceed to describe in its exact detail and how it can be readily adapted to the many inconvenient conditions that ensue for the application of the actual cutting or severing end of the tool. 6 indicates the shank or body-portion of the tool or implement herein, it being of strong metal of round cross-section and provided with a screw-threaded upper end 7.

8 indicates ordinary metal pipe or tubing which is internally threaded at its opposite ends, for use, in one or various sized lengths to extend the upper threaded end of the shank 6 of the wire-cutting implement herein to suit the near or the distant position of each of the clamping-loops of wire to be severed in dismantling the temporary mold or frame-work inclosing the concrete part of the building-structure under erection.

The lower end of the tool is broadened and formed into a sharp arc-shaped or bowed wedge 9, and the main round-sectioned shank 6 is slightly tapered, with a flat back 10 from a point or level 11 down to the very tip of the sharp lower wedge-end 9, while the opposite front-face 12 of the power part of the tool is more decidedly tapered from a level located slightly above the said point or level 11 down to the said beveled wedge-

end 9, as best seen in Figs. 3 and 4, such taper-and-wedge formations being found the best adapted for use in entering the clamping-loops *a*, wherever located, and opening them ahead ready for the vertical laterally-extending sharp-edged fin or cutting-blade formation 13 provided at the lower end of the said tapering front-face 12 but terminating at a point somewhat above the center of the beveled wedge-end 9, sufficient, however, for the wedge to enter beneath the clamping-loop to be cut, before the lower rounded knife-edge 14 of the blade 13 contacts with the said loop and thence passes through it while set and tightly stretched outwardly by the action of the leading or preceding wedge-end 9, such action of the wedge-end of the tool also causing an instant parting or snapping of the wire when cut by the blade and resulting in very expeditious work for the removal of the metal or wooden forms used in the molding of concrete structures, or the like.

The said vertical blade-formation 13 extends nose-shape along the lower center of the tapered front face 12 and concaves at 15 for the ready stripping or return of the tool from wedging and cutting action to a position for the next wedging and cutting action thereof on each succeeding loop to be severed.

In Fig. 5, I have shown in dotted-lines the cross-section of the shank 6 at the level or point 5^a of Figs. 3 and 4. The tool is made strong and somewhat weighty so as to make each stroke thereof effective but not otherwise cumbersome to the user. It can be easily wielded wherever loop-clampings or the like, made in the wire or in metal bands, are located in concrete working-forms or in connection with boxes, barrels, cartons, or bales forming containers of merchandise and goods of all kinds in storage or shipping. It is especially useful in severing hidden wires, or deeply-located ones where shears and the like, heretofore and generally used cannot reach and are cumbersome, clumsy, and not at all handy in connection with the severing of wires or ties in narrow spaces, such as that indicated by 16, Fig. 2, between the forms or molds and an embankment or like spaced backing 17, common to the foundations of buildings, and where water often collects and back-fills are to be made.

In using the tool it is handled "tamp" or "crow-bar" fashion and with its lower wedge-end readily inserted and easily forced into each loop opening-and-stretching position back of any of the straight parts of the wire (as in several places in Fig. 2) outside of its twisted portion *b* that is embedded in the concrete mass and then, on further forcing the tool downwardly, the sharp blade 13 comes into contact with the wedge set or stretched part of the loop for immediately snapping or severing it and throwing its cut ends aside ready for the lifting and next down or poking stroke of the tool in a like manner on all the loops to be cut and the succeeding parts of the mold or form to be parted and dismantled. For near-at-hand or close work no extension-tubing will be required and, if desired, any suitable nice fitting head or handle (not shown) can be mounted on the upper threaded end of the tool shank.

I claim:—

A loop open-wedging and cutting implement for use in severing the tie or binding wires or bands of concrete-building forms, boxes, barrels, cartons and bales or like containers of commodities, such wedging and cutting implement comprising an extensible shank or body-portion, a flat doubly-tapered lower or working end of the said shank having an outside-beveled laterally-broadened wedge-formation and a sharp-edged blade or nose-shaped formation the latter extending forwardly and centrally-lengthwise from the front straight or flat tapered face of said lower working-end of the implement and terminating at a point a little above and in the acting-force position that follows the entrance-action of the said wedge-formation and during its stretching or open-setting action on the clamping-loop portions of the binding wires or bands, substantially as shown and described.

In testimony whereof I hereunto affix my signature.

OLLIE WARREN RANKIN.