

July 29, 1924.

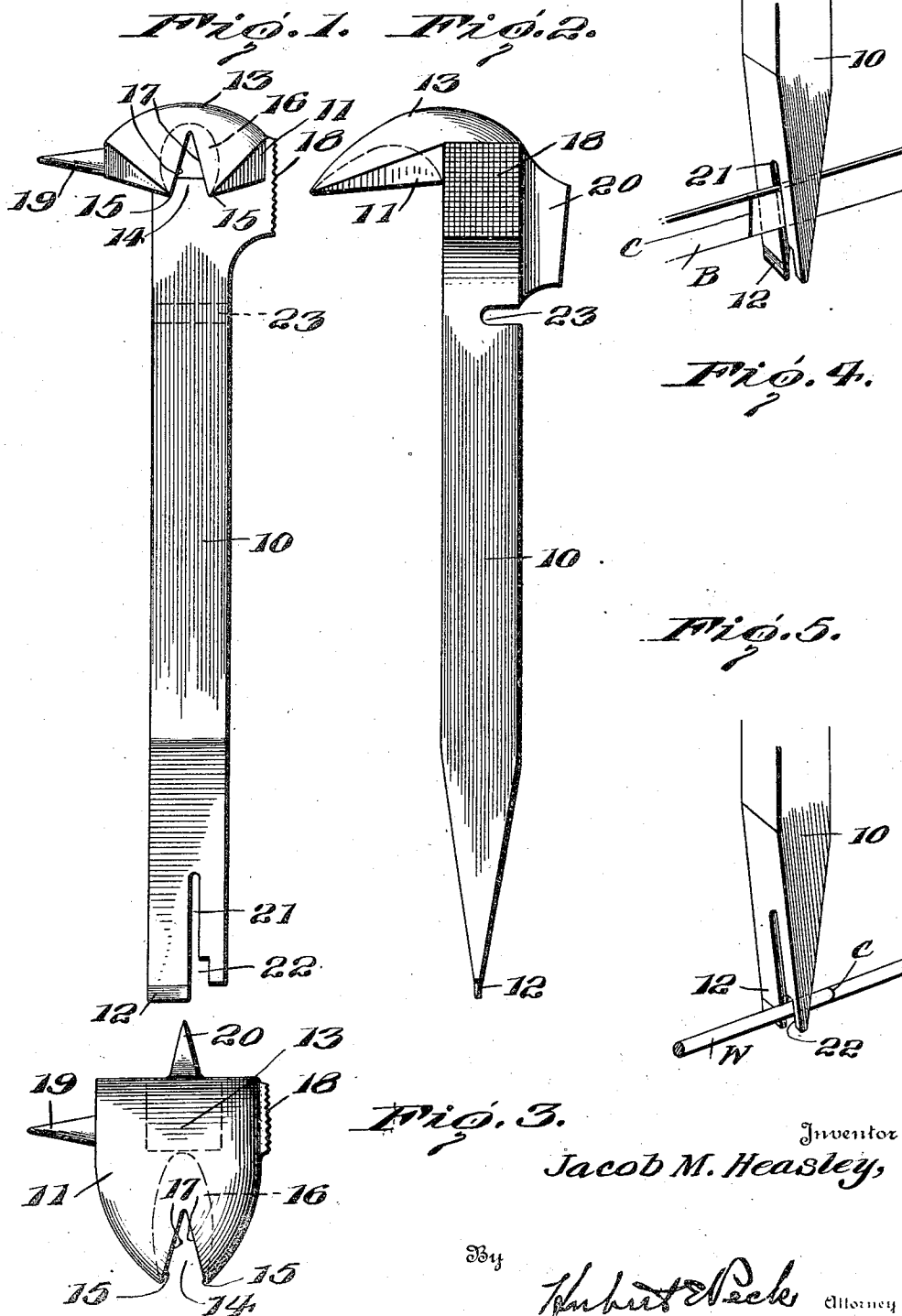
1,503,323

J. M. HEASLEY

COMBINATION TOOL

Filed Sept. 2, 1922

2 Sheets-Sheet 1



Inventor
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Fig. 6.

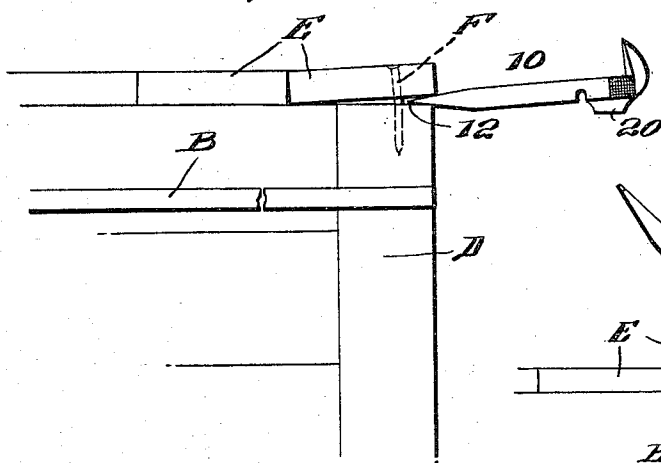


Fig. 8.

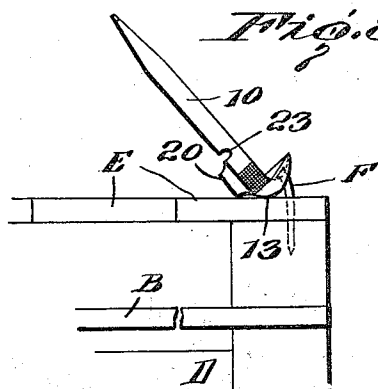


Fig. 7.

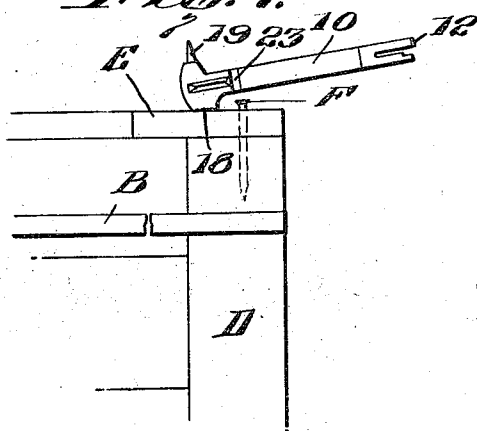
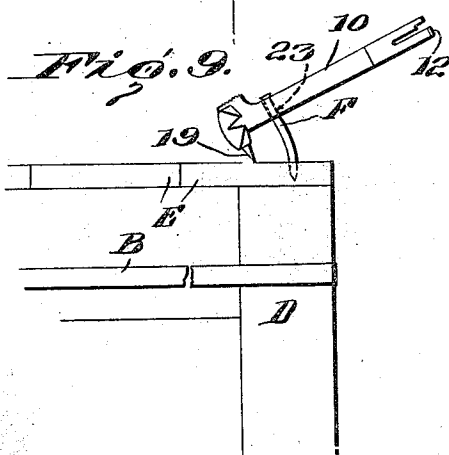
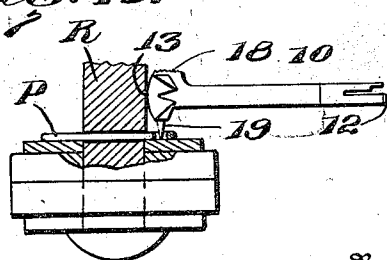


Fig. 10.



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UNITED STATES PATENT OFFICE.

JACOB M. HEASLEY, OF PITTSBURGH, PENNSYLVANIA.

COMBINATION TOOL.

Application filed September 2, 1922. Serial No. 535,928.

To all whom it may concern:

Be it known that I, JACOB M. HEASLEY, a citizen of the United States of America, and resident of Pittsburgh, county of Allegheny, State of Pennsylvania, have invented certain new and useful Improvements in and Relating to Combination Tools, of which the following is a specification.

This invention relates to certain improvements in combination tools; and the nature and objects of the invention will be readily recognized and understood by those skilled in the arts involved in the light of the following explanation and detailed description of the accompanying drawings illustrating what I at present consider to be the preferred embodiments or mechanical expressions of the invention from among various other forms, arrangements, combinations and constructions of which the invention is capable within the spirit and scope thereof.

The invention is primarily directed to the provision of a combination tool for opening boxes, crates and other similar containers, and particularly for use in opening boxes and crates of the wire or metal ribbon-bound type in general use for packaging and shipping purposes. Those familiar with such types of shipping boxes and crates are aware of the considerable difficulties and disadvantages encountered in breaking or cutting the wires or metal ribbons with which they are bound and in extracting and pulling the nails with which the boxes are closed, due to the necessity for the employment of a multiplicity of tools of prevailing types not adapted for performing such opening operations. Therefore, one of the main objects of the present invention is to provide a combination tool presenting as a unit the various implements necessary to perform the required opening operations on such types of boxes and crates, and further to provide a novel construction and relative arrangement of the several implements of which the unit is formed, so that, the several implements cooperate in performing their functions to produce certain advantages in operation and efficiency in results.

A further object of the invention is the provision of a combination tool which, although particularly adapted for use in opening boxes, crates and such like containers, is also capable of general utility and adapted to a variety of uses and operations.

A further object of the invention is the

provision of a combination tool head incorporating and embodying several implements capable of a variety of operations and uses, which tool head is so formed, constructed and arranged as to provide a common fulcrum or bearing for the several implements in operation and use thereof.

A further object of the invention is to provide a combination tool embodying therein improved nail extracting and pulling means, so formed and arranged that nails can be extracted thereby without binding or jamming and without materially bending the nails, and which nail extracting means functions and obtains certain advantages and results through cooperation with certain other of the implements forming the unit combination tool of the invention.

A further object of the invention is the provision of a combination tool embodying a multiplicity of cooperating implements forming a compact unit readily handled and operated, and of convenient shape and form, which combination tool is of simple construction having considerable durability and of comparatively small cost to manufacture.

With the foregoing and other objects in view, which will be readily recognized and appreciated by those familiar with this art, the invention consists in certain novel features in constructions and in combinations and arrangements of elements as more fully and particularly set forth and specified hereinafter.

Referring to the accompanying drawings:

Fig. 1 is a side elevation of a combination tool of the invention taken on the claw-head side thereof;

Fig. 2 is a side elevation taken on the hammer-head side thereof;

Fig. 3 is a side elevation or top plan of the tool head and implements formed therefrom and grouped therewith;

Figs. 4 and 5 are detail perspective views of the tool applied to a band and to a wire respectively, in position for breaking the same;

Figs. 6 to 9 inclusive, are perspective views of the operation of a tool of the invention in opening a box by extracting the nails therefrom; and

Fig. 10 is a detail perspective view of the invention applied to a cotter-pin for withdrawing the same.

One mechanical adaptation or physical

expression, from among various others of which the invention is capable, is illustrated purely by way of example in the accompanying drawings as forming a combination tool embodying the various features of the invention. The illustrated combination tool comprises a body or shank 10, in the present instance substantially rectangular in cross-section although not limited to any specific or particular cross-sectional shape, having a head 11 at one end thereof and having the opposite end thereof formed to provide an edge tool 12 by beveling or inclining opposite sides of the shank or body member 10 toward each other to converge in a narrow transversely disposed edge forming the tool or implement 12.

The head 11 is preferably formed integral with the shank or body member 10 and extends laterally and outwardly from one side thereof. The head 11, in the present instance, is formed of a greater width than the body 10 and the opposite sides of the head extend laterally a distance beyond the opposite sides of the body 10 respectively, adjacent thereto. The depth or thickness of the head 11 is appreciable and gradually decreases outwardly to the end and the opposite sides, on both inner and outer (with respect to the body 10) faces thereof, so that the outer face of the head 11 presents a rounded or convex surface 13 as will be readily apparent by reference to the accompanying drawings. The outer end of the head 11 is provided with an inwardly extending and converging V, or similar shaped opening 14 to provide the opposite claws 15, and the inner (or under) surface of the head immediately adjacent to and surrounding the V opening 14 is beveled at 16 to provide the opposite inner sides of the claws 15 with the edges 17. The claws 15 formed on and by the head 11 provide nail grasping means, as will be more fully and particularly pointed out and described hereinafter.

On one side of the body 10 of the tool and adjacent the head 11, a hammer block or head 18 is formed by a lateral extension of the body 10 which hammer head at its outer end forms a lateral extension of a side of the head 11 and extends a distance inwardly therefrom along the body 10. On the opposite side of the head 11, from the hammer head 18, a punch 19 is provided which extends laterally from a side of the head 11. A cutter 20 is provided on the side of the body 10 between the hammer head 18 and the punch 19, and this cutter 20 is formed by a blade substantially triangularly shaped in cross-section and extending outwardly from the side of the body 10 adjacent to and extending a distance inwardly along the body from the inner end of the head 11.

The opposite end of the tool shank or body 10, which forms the edge implement 12, is provided with a comparatively narrow slot 21 transversely therethrough and extending longitudinally of the beveled or inclined sides of the body, from and through the edge of the implement 12, a distance inwardly therefrom through the body 10. The outer end of the slot 21 is enlarged at 22 a distance inwardly from the edge of the implement 12, for a purpose appearing hereinafter. Adjacent the inner end of the cutter blade 20 and transversely across the side of the body 10 from which the blade 20 extends, a groove 23 is provided to form nail extracting means for cooperation with the claw head 11, in extracting nails and the like without substantially bending the same, as will be fully explained hereinafter.

Thus, from the foregoing description of the formation and arrangement of the various elements making up the combination tool of the invention, it is seen that the shank or body member 10 thereof forms an operating handle or lever for the various implements grouped around the head 11 of the tool, while the head 11 and portion of the body 10 adjacent thereto form and provide an operating lever for the edge implement 12 and slots 21 and 22. The operation of the combination tool and the functions of and cooperation between the various implements forming the same are disclosed and explained in the following description of the illustrated applications, from among others, of the tool in performing certain operations.

In certain types of boxes, crates, and other similar containers, wires or metal bands are bound therearound to strengthen and maintain the same in closed position. When it is desired to open a box or crate so bound it has been found extremely difficult to cut or break the same with the ordinary types of tools in universal use and familiar to those experienced in this work. With the combination tool of the present invention the slots 21 and 22 in the edge implement 12 thereof, provide positive efficient means for breaking such wires or bands. In Figs. 4 and 5 the manner of performing the above operation is illustrated. The band B (Fig. 4) or the wire W (Fig. 5) is first provided with a cut C formed by the cutter 20 of the tool to provide a weakened line transversely of the wire or band along which it is desired to break the same; then the wire or band is inserted in the proper slot of the tool, 21 for the band B, and 22 for the wire W, as clearly shown in Figs. 4 and 5; then by the exertion of force applied to the body member 10 as on operating lever, the wire or band can be readily broken along the weakened line of the cut C.

In Figs. 6 to 9, inclusive, a portion of a

box or crate D of the metal ribbon or band bound type is disclosed in which the bands B have been broken by the operation of the tool and slot 21, as above described. After breaking the bands B the planks or boards E forming the cover or a side of the box can be quickly removed without material breakage or splintering thereof by the tool of the invention, in the following manner.

The planks or boards E are first forced or pried upwardly a slight distance by inserting the edge implement 12 of the tool thereunder and utilizing the body member 10 of the tool as a lever, as clearly indicated in Fig. 6. The tool is then removed from the box and a blow of the hammer head 18 delivered on the raised plank which forces the same downwardly onto the box leaving the nails F with their heads raised above the plank as shown in Fig. 7, in which the hammer head 18 is shown forcing the board E downwardly. With the nails in the position shown in Fig. 7, the claws 15 of the head 11 are inserted thereunder with the nail in the V opening 14 and the rounded convex outer surface 13 of the head 11 bearing upon the board E to form a fulcrum for the tool. In this position the body member 10 forms an operating lever which is forced downwardly toward the box and rocks on the head 11 as a fulcrum to force the claws 15 upwardly and draw the nail F outwardly from the box. It will be noted that at the extremes of this movement of the tool the cutter 20 comes into contact with the box to form another fulcrum point to permit a further downward movement of the operating lever 10 and resulting increase in outward withdrawal of the nail F. The nature of the cutter 20 and its relative position with respect to the head 11 and claws 15 is such that it presents an edge point which enters into the material of the board E and prevents displacement or slipping of the tool during the above operation. This will be clear upon reference to Fig. 8 of the drawings.

With nails of short length the operation of the claw head 11 as above described, is sufficient to extract the same; but where, as is generally the case with packing boxes and crates, the nails are of considerable length or large size the movement of the claw head will not be sufficient to extract the nails without greatly bending or twisting the same and preventing their further practical use. The provision by the invention of the groove 23 positioned on the body member 10 in a certain relation and position with respect to the head 11 and the punch 19, overcomes this existant difficulty. After the nail F has been withdrawn to a position such as shown in Fig. 8, the tool is withdrawn and inserted below the head of the nail with the nail received in and extending

through the groove 23, as illustrated in Fig. 9. In this position of the tool the punch 19 forms the fulcrum point upon which the body 10 is swung upwardly to withdraw the nail F, and further provides a fulcrum or bearing which grips the board E in such a manner as to insure the tool remaining in proper position during operation thereof. Due to the elevation of the groove 23 by the punch 19 it is apparent that the nail F is withdrawn or extracted with a minimum of lateral or transverse force exerted thereon, the pull being substantially longitudinally of the nail, hence the nail can be extracted without material bending thereof. Preferably, the width of the groove 23 is greater than the average diameter of the nails used for boxes and crates, so that, a nail will be gripped by the outer ends of the groove on opposite sides of the nail.

Thus, from the foregoing description of the operation of the tool of the invention in opening wire or metal band bound boxes, it is seen that the slotted edge implement 12 provides means for breaking the wires or bands, and the head 11 with the assembled implements, cutter 20, punch 19, hammer 18, and grooved operating lever 10, provide a unit of cooperating implements for extracting the nails with which a box is fastened to permit opening of the box, the nails being extracted in such a manner that they are not materially bent and may be re-used without further work thereon.

Another example of an application of the punch 19 and cooperating fulcrum surface 13 of the head 11, is illustrated in Fig. 10. A cotter-pin P is shown in position extending through a bolt R, with the punch 19 of the invention extending through the eye of the cotter-pin and the convex surface 13 of the head 11 bearing against the bolt R and forming a fulcrum point upon which the body member 10 can be swung upwardly to cause the punch 19 to withdraw the cotter-pin P.

The various implements composing the unit combination tool of the invention can be used for various purposes and it will be clear from the drawings in connection with the foregoing description that the invention provides a tool which, although peculiarly adapted to the opening of boxes and crates of the wire or metal ribbon bound type, is also of general utility. By the construction of the invention a unit tool is provided which embodies and presents cooperating implements forming means for performing the necessary functions in the operation of opening wire or metal ribbon bound boxes and crates. The construction of cooperating claw head, punch, cutter, and grooved operating lever forms nail extracting means of high efficiency and universal utility.

It is evident that various changes, varia-

tions, and modifications might be resorted to without departing from the spirit and scope thereof, and hence I do not wish to limit the invention to the exact construction
5 herein.

Desiring to protect my invention in the broadest manner legally possible, what I claim is:

1. A tool of the character substantially
10 as described, comprising a body member forming an operating lever, a claw head at one end of said body member and extending laterally from a side thereof, a cutting blade
15 extending laterally from the opposite side of said body member adjacent said claw head, and the said claw head formed with a convex outer surface forming a fulcrum for operation of said claw head, the said
20 cutting blade providing a supplemental fulcrum and edged material engaging member for operation of the said claw head.

2. A tool of the character substantially as described comprising a body member forming an operating lever, a punch extending
25 laterally from a side of said body member, said body member provided with a transverse nail-receiving groove disposed a distance inwardly from and substantially parallel with said punch, and the said punch

forming a fulcrum and material-engaging
30 member to permit operation of said body member as a lever to extract a nail received in said transverse nail groove.

3. A combination tool embodying a lever-
35 like body member having at one end a fulcrum forming claw head, and a cotter-pin extractor rigid with and projecting laterally from said head, the said claw head so positioned with respect to said extractor as to provide a fulcrum for operation thereof.
40

4. In a tool, a body member forming an operating lever, a claw head at one end of said body member extending laterally from
45 a side thereof, a cutting blade extending laterally from the opposite side of said body member adjacent said claw head and disposed longitudinally of the body, said claw head having the outer side thereof forming
50 a fulcrum for operation of the head, and said cutting blade terminating at the outer end thereof in an edge portion so disposed with respect to said head as to provide a material engaging member and supplemental fulcrum for operation of said claw
55 head.

Signed at Pittsburgh, Pa., this 29th day of July, 1922.

JACOB M. HEASLEY.