

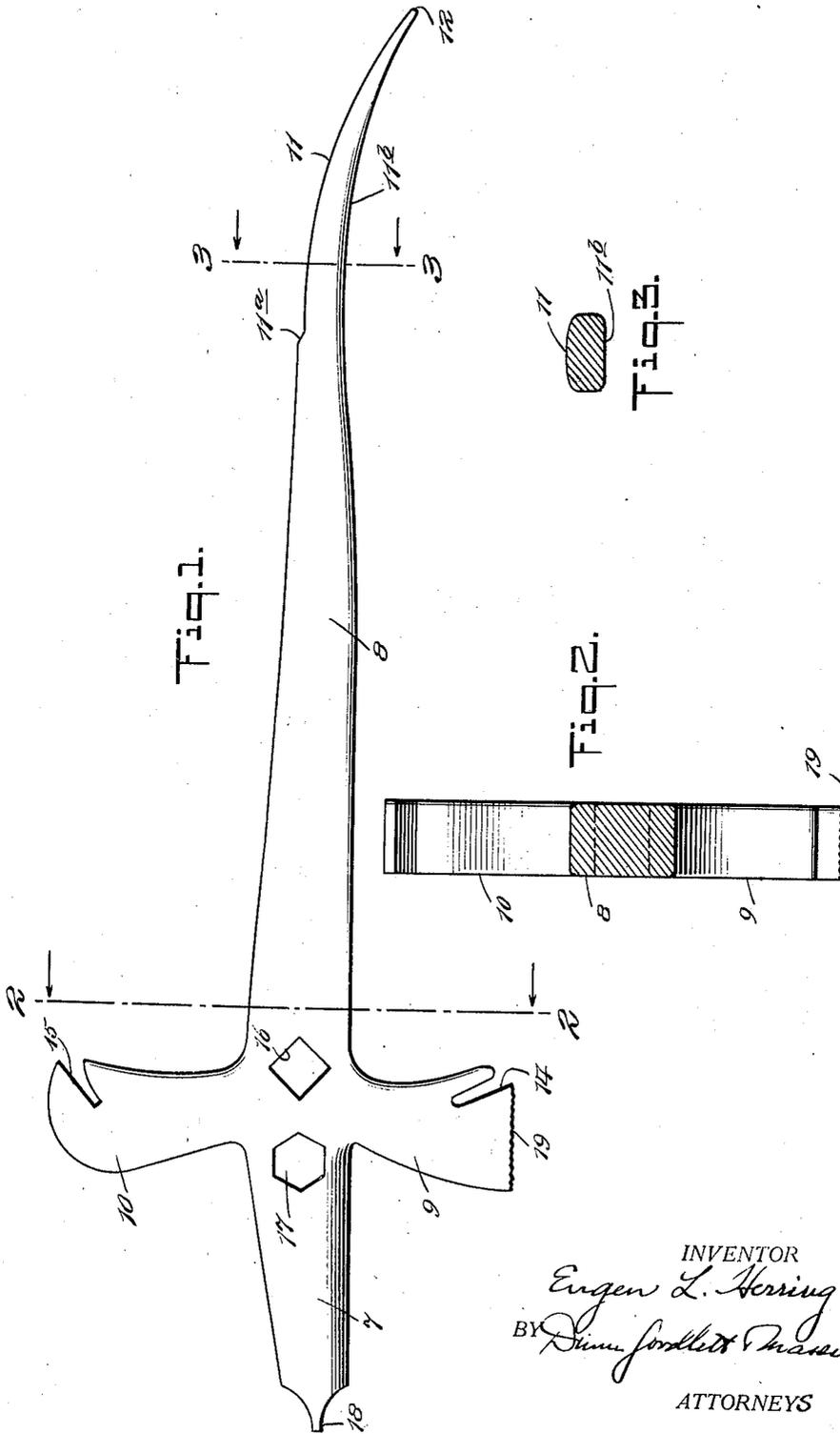
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COMBINATION TOOL

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UNITED STATES PATENT OFFICE.

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COMBINATION TOOL.

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To all whom it may concern:

Be it known that I, EUGEN L. HERRING, a citizen of the United States, residing at 1901 W. Palafox Street, Pensacola, county of Escambia, and State of Florida, have invented new and useful Improvements in Combination Tools, of which the following is a specification.

The present invention relates generally to improvements in combination tools, and is more especially directed to a combination tool which is specifically adapted for use in operating on parts or accessories of motor vehicles and the like.

The primary object of the present invention is to provide a tool which is susceptible of a multiplicity of uses, so that various kinds of work may be performed on a motor vehicle or on parts thereof with a minimum of effort.

My invention further contemplates a combination tool of the aforesaid character, which may be economically produced and in which each element embodies all of the attributes of an individual tool designed for the particular purpose for which such element is intended, each of such elements also being capable of use for other purposes as may suggest themselves to the user. Obviously, by the combination of a plurality of useful tools in a compact unitary structure, storage space is conserved, the expense of tool upkeep is reduced, and the user is assured that any implement of the combination is always at hand, when it is desired to change from one to another in performing any work, to which they may be applied.

As is well known, there are various tools manufactured for operating socket wrenches, straightening rims of the fixed and demountable types for automobile wheels and the like; also, numerous types of tire irons are provided, some of which may be employed in "breaking" demountable wheel rims of the so-called split types, so that a properly equipped tool kit must of necessity contain several individual tools, with the consequent disadvantages flowing from the provision of adequate storage space, the possible loss or theft of the tools, and the inability of the user to locate the desired tool at the time when it is needed.

My present invention, as will be manifest from the objects heretofore set forth, is designed to overcome the disadvantages residing in the maintenance and use of a plurali-

ty of tools; and while, as aforesaid, my device is especially designed for employment in conjunction with motor vehicle wheels and associated elements, it may be advantageously used for other purposes.

In the present disclosure, I have elected to illustrate and describe a preferred embodiment of my invention. It is understood, however, that my invention may take other forms without departing from the spirit and scope thereof, and that I reserve unto myself all rights to the full range of equivalents, both in structure and uses, to which I may be entitled under my invention in its broadest aspect.

In the drawings:

Fig. 1 is a plan view of my improved combination tool, and

Figs. 2 and 3 are transverse sections respectively on the lines 2—2 and 3—3 of Fig. 1.

Referring now to the drawings in detail, in which like characters of reference are employed to designate similar parts in the several views, the tool, which is of a cruciform outline and may be a forging, casting or the like, comprises a stub or head-end 7, a shank 8, and lateral extensions 9 and 10. The head-end 7, which may be of an annular or other suitable cross-section, is preferably tapered towards its end, so as to be adapted to enter the socket of the actuating element of a lifting-jack or the like, whereby the tool, by grasping the shank 8 in proximity to its end, may be used as a handle or lever for functioning the jack raising or lowering mechanism.

As will be observed, the shank 8 tapers to a relatively flat edge 12, the adjacent portion thereof being curved, as shown at 11, and formed with an abutment or shoulder 11^a to provide a tool which corresponds to the usual tire iron. In the use of this tool, the edge 12,—the corners of which are preferably rounded to prevent injury to the tire,—is forced beneath the bead of the tire which rides upon the surface 11^b, to permit the abutment or shoulder 11^a to contact with the tire rim. It will be evident that, using the said abutment or shoulder 11^a as a fulcrum, sufficient leverage may be obtained by grasping the stub-end or an adjacent portion of the tool to pry the tire from off the rim with relatively little effort and irrespective of whether the rim is of the demountable or fixed type. Obviously this tire tool may also

be employed as a rim breaking tool,—that is to say, where a rim of the split type is being operated upon,—the edge 12 of the tool being employed to spread the sections of the rim, so that they may be sprung out of engagement with each other in the well-known manner.

The lateral extensions 9 and 10 of my improved combination tool are shown with inwardly extending angularly disposed recesses 14 and 15, respectively. These recesses are designed to conform to and engage the flanges of straight side or clincher rims of the types employed in motor vehicle wheel construction, for the purpose of employing my combination tool to straighten the rim flanges in those instances where flanges become bent, by contact with street curbing or other obstructions, or from hammer blows when the tires are being removed from or replaced thereon. Each of the recesses 14 and 15 is of the correct configuration, and is located at the proper angle with relation to the lateral extension of the tool in which it is formed, to conform to and engage or embrace the flange of the rim of the type for which it is designed, so that by the user grasping the shank 8 sufficient leverage may be obtained with a minimum amount of effort, to restore the distorted portion of the rim flange to its original position of alignment. That is to say, recesses 14 and 15 are dissimilar, and dissimilarly inclined, as to their general directions of lengthwise extension, relative to the general line of extension of handle 8; the recess 14 having substantially parallel sides, for engaging a straight side rim, and the recess 15 having one straight side and one curved side, for engaging a clincher rim. These recessed lateral extensions 9 and 10 may also be employed in re-aligning the felly bands of the wheels and for various other purposes where their configuration will suggest their employment to the user.

Preferably adjacent to the lateral extensions 9 and 10 and in the body portion of the combination tool, I provide the rectangular and hexagonal apertures 16 and 17, which are designed to receive the shanks of universal socket wrenches of either the square or hexagonal type. When the socket

wrenches are in engagement with the nuts or studs, as the case may be, they may be readily manipulated by the use of my improved combination tool, by the operator grasping the shank 8 or any convenient part thereof which will afford sufficient leverage to perform the work in hand.

In addition to the stub-end or head 7 being capable of employment for cooperation with the socket element of the actuating mechanism of a lifting-jack, it also provides a convenient location for the screw-driver bit 18 which is formed at the extremity thereof by abruptly cutting away the opposite surfaces of the said stub or head-end 7 in proximity to its extremity, as clearly shown in Fig. 1 of the drawings.

It will be noted that the lateral extension 9 differs somewhat in configuration from the lateral extension 10 so as to provide a surface which will enable the user of my combination tool to employ the same for any purpose wherein a hammer may prove useful or desirable. The impact surface of the said lateral extension 9 is provided at the extremity thereof, as shown at 19, and is preferably of the flat type. If desired, the said impact surface 19 may be slightly roughened as by the provision of intersecting lines or serrations extending obliquely or transversely thereof, as the case may be.

As heretofore stated, it is evident that my invention is susceptible of many uses other than those specifically pointed out, and the location of the various elements may be changed to fit special requirements of production and use, without departing from the spirit and scope of my invention as herein set forth and defined by the appended claim.

What is claimed is:

As an article of manufacture, a tire tool comprising a shank, opposing arms extending from said shank, angularly disposed slots within said opposing arms, said slots being of dissimilar shapes and dissimilar inclinations relative to the handle and each slot being adapted to contact with a distorted wheel rim of a certain type, whereby to restore the distorted portions of said rims upon actuation of said shank.

EUGEN L. HERRING.