

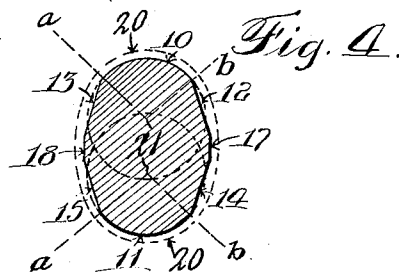
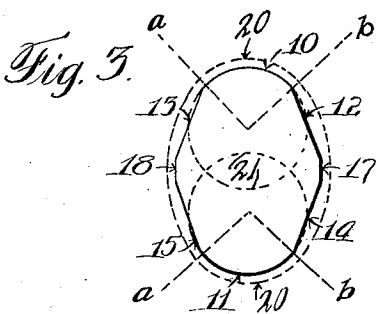
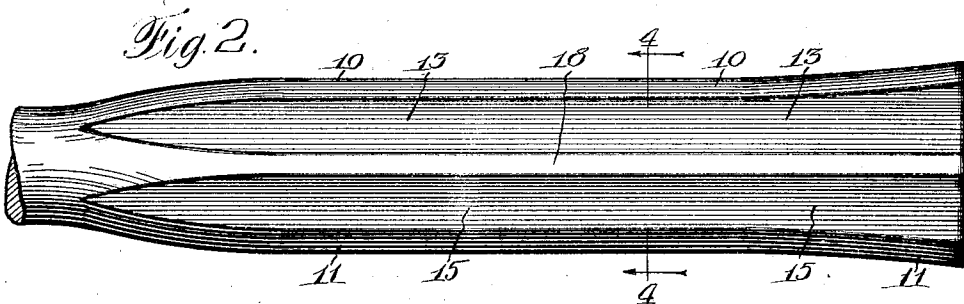
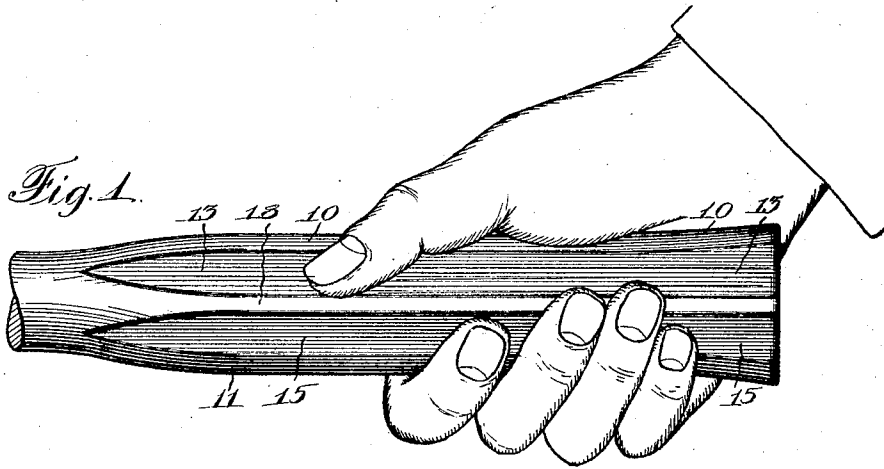
April 7, 1925.

1,532,822

I. S. KEMP

TOOL HANDLE

Filed May 10, 1923



Inventor  
Irving S. Kemp  
By Luther Johns  
att'y.

## UNITED STATES PATENT OFFICE.

IRVING S. KEMP, OF EVANSVILLE, INDIANA.

## TOOL HANDLE.

Application filed May 10, 1923. Serial No. 638,065.

*To all whom it may concern:*

Be it known that I, IRVING S. KEMP, a citizen of the United States, residing at Evansville, Vanderburg County, Indiana, have invented certain new and useful Improvements in Tool Handles, of which the following is a specification.

The present improvements relate to the handles of such tools as hammers, hatchets, etc., and its object is to provide a handle according to which an unusually firm and comfortable grip may be had by the operator's hand, whereby the control of the instrument and its satisfactory use are improved.

In the accompanying drawings, which form a part of this specification, Figure 1 shows the grip end of such a handle as it is normally gripped by the operator's hand; Fig. 2 is an enlarged side view of the grip end of the handle; Fig. 3 is an end view of the handle; and Fig. 4 is a cross sectional view as on the line 4-4 of Fig. 2.

Since these improvements relate only to the grip portion of such handles, only that portion is illustrated. This grip portion is sufficiently long to accommodate comfortably the hand of the operator. The general shape of the handle in cross view is approximately elliptical but such elliptical contour is modified by the provision of various straight lines, as viewed in cross section, which constitute chords of the assumed substantially elliptical shape.

Having reference to the way a hammer is ordinarily held for driving a nail vertically downward, the grip portion is provided with an upper rounded or convex surface 10 and an oppositely-disposed or lower rounded or convex surface 11, these surfaces being convex outwardly, or away from the longitudinal axis of the handle and are at the ends of the long diameter of the assumed ellipse. These upper and lower rounded surfaces 10 and 11 are shown as extending from end to end of the grip portion.

Extending from the upper rounded surface 10 is a pair of substantially plane or flat surfaces 12 and 13, and extending from the lower rounded surface 11 is a pair of

substantially plane or flat surfaces 14 and 15. As viewed in cross section, as in Figs. 3 and 4, these flat surfaces 12, 13, 14 and 15 are defined by lines having the same reference characters respectively and which diverge outwardly from where they merge into the rounded surfaces respectively. Looking at Fig. 3 or Fig. 4, which represent cross sectional construction at substantially all places from end to end of the grip portion, the periphery or contour of this grip portion is defined by a curved line 10 and a pair of straight lines 12 and 13 merging thereinto and extending divergently therefrom, a curved line 11 and a pair of straight lines 14 and 15 merging thereinto and extending divergently therefrom, the lines 12 and 14 being so directed that they will intersect each other at a wide angle, if produced, and the same being true with respect to the lines 13 and 15. Instead of having these lines meet each other I preferably provide a short line 17 on one side and 18 on the other, which are indicated in Figs. 1 and 2 as narrow substantially plane or flat surfaces extending substantially from end to end of the grip portion, and which construction has the property of softening the corners, by providing more obtuse angles at the middle sides of the grip portion as a whole while yet maintaining corners there to improve the hand-hold upon the device.

In Figs. 3 and 4 the surrounding dotted lines 20 show how slightly the handle departs in cross view from a truly elliptical figure. The circles 21 shown partly by dotted lines are formed by continuing the respective arcs of the upper and lower curved surfaces 10 and 11. The dotted lines *a* and *b* in these figures are drawn from the respective centers of the circles 21 and define the extent of the arcs of the surfaces 10 and 11 in cross view, shown to be substantially ninety degrees. Some departure may be made from the extent of this arc, but it should be relatively long to provide the desired fit of the handle within the hand and the desired comfortable "feel" of the tool when in use. It will be noted from Figs.

3 and 4 also that the proportions of the handle and the radius of the circles 21 are such that the circles deeply overlies or intersect each other, the overlap shown by Fig. 4 extending substantially from center to circumference of the circles respectively. In Fig. 3 the overlap is not quite as great owing to the fact that the handle has a flaring end somewhat altering the proportions. This flaring end improves the operator's hold or grasp upon the grip end of the handle.

Fig. 1 indicates the advantages from the form of grip portion herein shown and described. It will be noted that the upper convex surface 10 comes at a place where various parts of the hand and thumb overlies the handle, and that the lower rounded or convex surface 11 is surrounded by the fingers. In order to hold the handle firmly quite a considerable degree of pressure must be exerted by the hand, which can be done according to these improvements without annoying or hurting the palm or fingers by sharp edges. The result in this respect is quite notable over that of what is known as the octagon grip in which the contour as viewed in cross section is that of an oblong octagon and the upper and lower portions engaged by the hand have well-defined and sharp edges and the hand grip upon the octagon structure is far from being comfortable, nor does it fit into the hand nearly as well as does the present device.

It will be noted from Fig. 1 that the thumb naturally rests upon the flat surface 13. Just across and back of the thumb as it is illustrated the third joint section of the forefinger naturally rests against the flat surface 12. It will be noted further that the first joints of the fingers come to rest upon another flat surface 15, and the finger tips come to this location easily and comfortably without passing over any abrupt elevation since the lower surface 11 merges softly into the surface 15. On the reverse side of the handle illustrated in Fig. 1 the palm and other inside portions of the hand contact the straight sides there present with an unusually comfortable feel. The axis of the operator's arm and wrist is at a materially great angle with respect to the axis of the tool handle as the handle is ordinarily held in use, and in that position of the hand upon the handle the provision of flat surfaces as shown causes the handle to fit into the hand at substantially all points of contact without throwing portions of the hand out of their natural position for a good grip.

The result of the construction is both an unusually comfortable feel of the hand upon the handle and an unusually firm and strong grip, and one which is substantially the same at all times of use, and therefore the proper relationship between the posi-

tion of the hand and the operating end of the tool can better be acquired and controlled.

Such tools as hammers and hatchets are reversed in the hand from time to time so that what is at one time the upper surface becomes at another time the lower. Since the upper and lower halves of the grip portion are similarly formed the same results are had either way the handle is held.

I contemplate as being included in these improvements such modifications of and departures from what is specifically illustrated and described as fall within the scope of the appended claims.

I claim:

1. A handle for hammers, hatchets and the like comprising a grip portion sufficiently long to accommodate the operator's hand and being substantially elliptical in general outline in cross view, and having oppositely disposed upper and lower convex surfaces defined in cross view substantially by arcs, such arcs being so positioned that circles produced therefrom respectively intersect each other, said convex surfaces being of materially great length to provide a relatively wide rounded surface at the top and also at the bottom of the handle, there being an upper pair and a lower pair of substantially flat sides on said grip portion, the upper and lower sides merging into said upper and lower convex surfaces respectively, the upper sides diverging from each other and the lower sides diverging from each other.

2. A handle for hammers, hatchets and the like comprising a grip portion sufficiently long to accommodate the operator's hand and being substantially elliptical in general outline in cross view, and having oppositely disposed upper and lower convex surfaces defined in cross view substantially by arcs, such arcs being so positioned that circles produced therefrom respectively intersect each other, said convex surfaces being of materially great length to provide a relatively wide rounded surface at the top and also at the bottom of the handle, there being an upper pair and a lower pair of substantially flat sides on said grip portion, the upper and lower sides merging into the upper and lower convex surface respectively, the upper sides diverging from each other and the lower sides diverging from each other, there being a relatively narrow substantially flat surface at opposite sides of the grip portion approximately midway between the top and bottom of the grip portion in cross sectional view.

3. A handle for hammers, hatchets and the like comprising a grip portion sufficiently long to accommodate the operator's hand and being substantially elliptical in general outline in cross view, and having oppositely

disposed upper and lower convex surfaces substantially defined in cross view by arcs, such arcs being so positioned that circles produced therefrom respectively intersect each other, said convex surfaces being approximately ninety degrees in length as measured on the arc of such circles, there being an upper pair and a lower pair of substantially flat sides on said grip portion, the upper and lower sides merging into the upper and lower convex surface respectively, the upper sides diverging from each other and the lower sides diverging from each other, there being a relatively narrow surface at each side of the grip portion intermediate adjacent ones of said substantially flat surfaces.

IRVING S. KEMP.