June 8, 1926. 1,587,767

J. A. FATICO

COMBINATION AX AND ADZ

Filed May 4, 1925 2 Sheets-Sheet 1

Fig. 1.

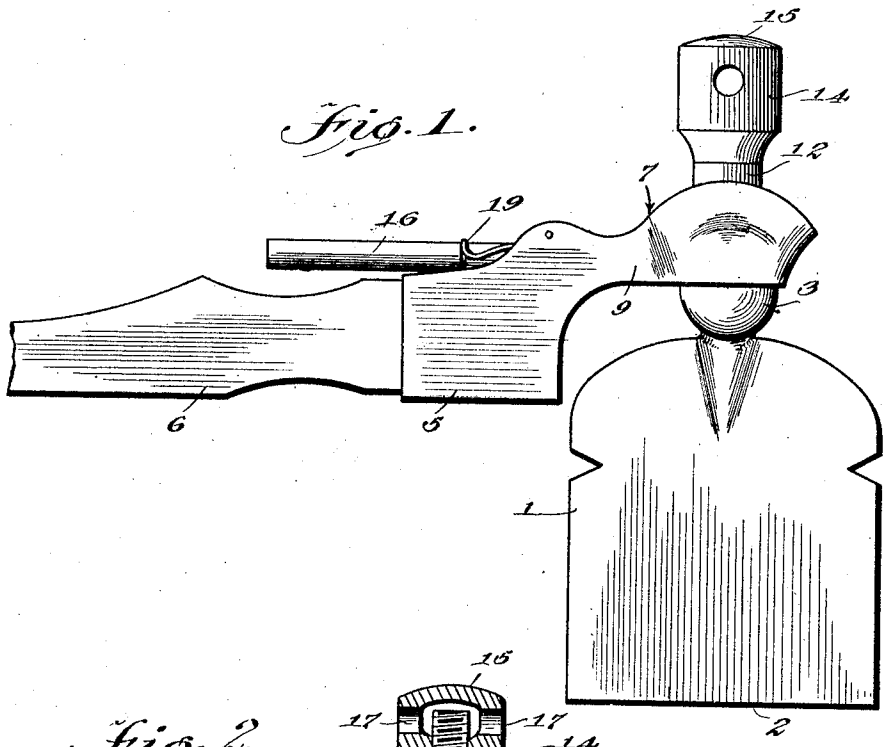


Fig. 2.

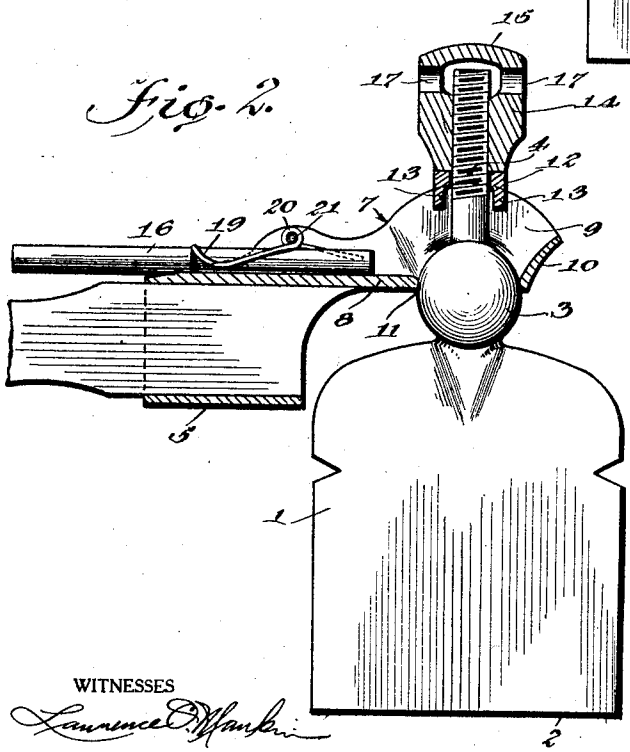
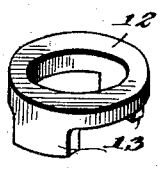


Fig. 3.



WITNESSES

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Fig. 4.

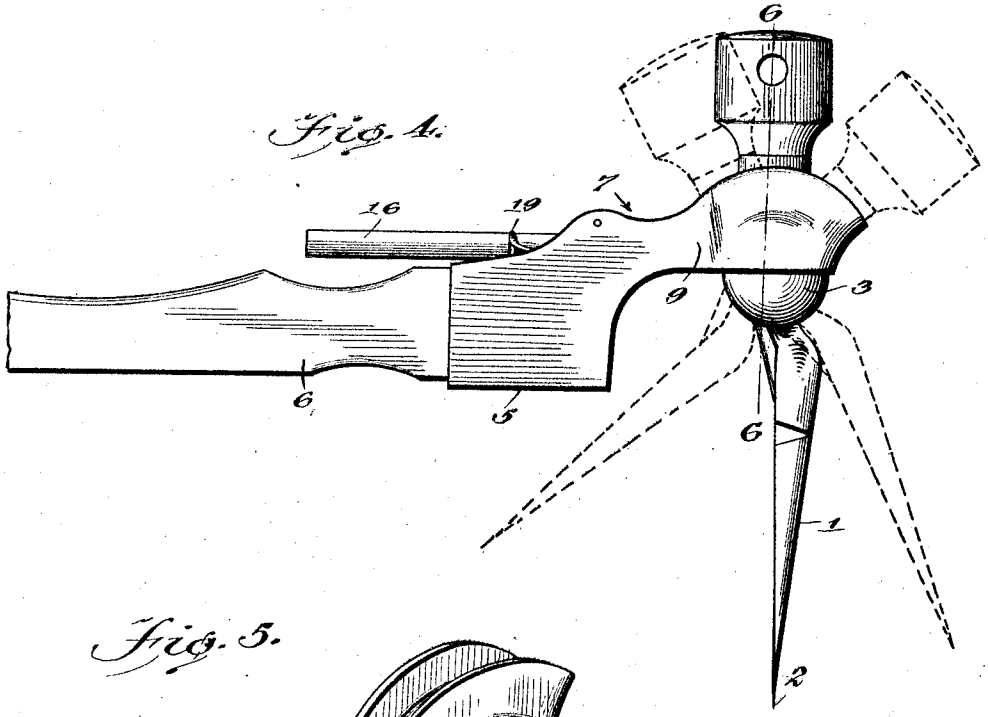


Fig. 5.

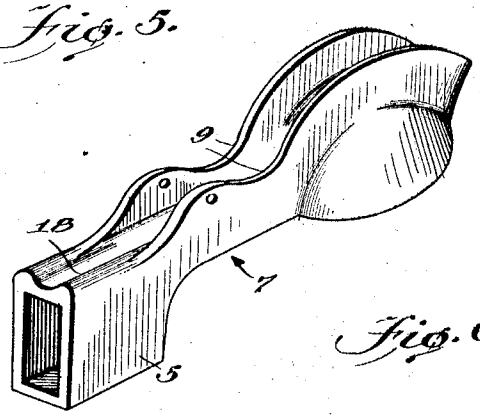


Fig. 6.

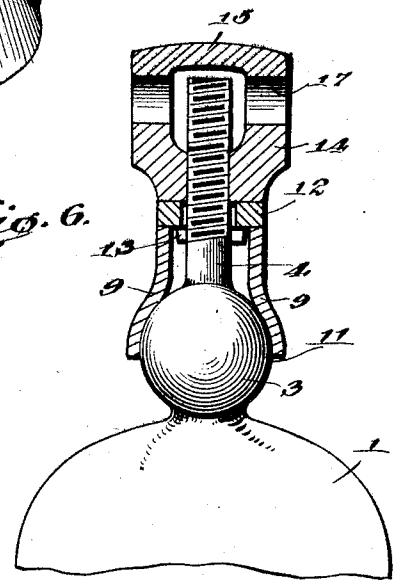
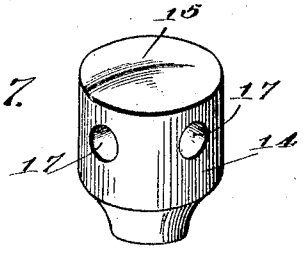


Fig. 7.



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UNITED STATES PATENT OFFICE.

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COMBINATION AX AND ADZ.

Application filed May 4, 1925. Serial No. 27,901.

My invention is a combination ax and adz, and it consists in the combinations, constructions and arrangements herein described and claimed.

An object of the invention is the provision of a tool having a head adjustable at will to adapt the tool for use as an ax or hatchet or as an adz.

A further object of the invention is the provision of a tool of the character described having a head including bit or blade and poll portions and means for adjustably connecting the head of the tool with a handle or helve so that the angular relation of the longitudinal axis of the head of the tool to the axis of the handle can be varied within limits at will and the head can be secured firmly, although releasably, to the handle in any one of a plurality of adjusted positions.

Other objects and advantages of the invention will be apparent from the following description, and the accompanying drawings, in which—

Figure 1 is a side elevation of the tool with the head secured to the handle with the axis of the head disposed substantially at right angles to the longitudinal axis of the handle and the blade portion of the head in position to adapt the tool for use as an ax or hatchet,

Figure 2 is a longitudinal vertical section through the structure shown in Figure 1,

Figure 3 is a perspective view of a presser ring which is comprised in the device,

Figure 4 is a view similar to Figure 1, showing in full lines the head secured to the handle with the blade in position to adapt the tool for use as an adz and extending at right angles to the axis of the handle and showing in dash lines the head secured to the handle in two different other positions, in each of which the longitudinal axis of the head extends obliquely to the longitudinal axis of the handle,

Figure 5 is a perspective view of a ferrule which is comprised in the device,

Figure 6 is a section substantially along the line 6—6 of Figure 4,

Figure 7 is a perspective view of a cap which is comprised in the tool and forms the poll portion of the head.

The head of the improved tool comprises a blade or bit portion 1 having the cutting edge 2 at its outer end. The blade 1 may taper in thickness from its inner to its outer end as shown in Figure 4 and is integral with a shank which extends from the middle part of the blade at the inner end of the latter. This shank comprises an enlarged substantially spherical portion 3 and an outer reduced substantially rod-like externally screw threaded attaching end portion 4. A ferrule comprises an eye portion 5 for the reception of an end portion of the helve or handle 6. The eye portion 5 is substantially rectangular in cross section. The eye portion 5 of the ferrule is integral with a substantially channel-shaped attaching and supporting portion generally indicated at 7. The attaching and supporting portion 7 of the ferrule has a web which consists of one end wall of the eye portion 5 and a prolongation 8 at the outer end of said end wall of the eye portion of the ferrule. The attaching and supporting portion 7 of the ferrule also comprises a pair of side flanges 9 which may be joined integrally at their inner ends to the side walls of the eye portion 5 of the ferrule, the side walls of the portion 5 and the flanges 9 of the portion 7 of the ferrule being located at opposite sides of the web of the attaching and supporting portion 7 of the ferrule. The flanges 9 of the attaching and supporting portion of the ferrule are connected at their outer ends by a cross member 10 which may be integral with both the web of the portion 7 of the ferrule and with the flanges of the portion 7 of the ferrule. The cross member 10 may have the inner wall thereof slightly convex in curvature from its juncture with the web of the portion 7 of the ferrule to its outer edge as best seen in Figure 2.

A circular opening 11 of slightly less diameter than the diameter of the substantially spherical portion 3 of the shank of the head of the tool is formed in the prolongation 8 or in other words the web of the attaching and supporting portion 7 of the ferrule at a distance beyond the outer end of the eye portion 5 of the ferrule which is slightly greater than one-half the width of the blade 1. The outer edges of the flanges 9 are convexly curved to lie in substantially the arcs of circles parallel to a circle struck by a radius moving about the center which is coincident with the center of the opening 11.

A spacing ring 12 is disposed loosely on the threaded end portion 4 of the shank of the head and has opposite lug portions 13 at its inner end extending between the

flanges 9 of the portion 7 of the ferrule and engaging with said flanges to hold the ring against rotation on the shank of the head. The poll of the head of the tool consists of a cap having a tubular body portion 14 provided with internal screw threads for engaging with the threads of the end portion 4 of the shank of the head and having a crown portion 15 which preferably is formed with a convexly curved outer face and which constitutes the striking or impact face of the head of the tool.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. The shank of the head is arranged with the substantially spherical portion 3 swiveled in the opening 11 which may be termed the socket for engaging with the spherical or ball portion of the shank of the head. The attaching end portion 4 of the head extends between the flanges 9 of the portion 7 of the ferrule beyond the convexly curved edges of the flanges.

The ring 12 is disposed loosely on the attaching end portion 4 with the lugs 13 between the flanges. The cap 14—15 is engaged with the attaching end portion 4 of the head and can be tightened against the ring so that the head will be secured to the ferrule with the longitudinal axis of the head disposed at right angles to the longitudinal axis of the handle or helve 6 as shown in full lines in Figures 1, 2 and 4 or with the longitudinal axis of the head disposed at an oblique angle to the longitudinal axis of the helve 6, two positions of the head when the longitudinal axis thereof is oblique to the longitudinal axis of the helve being shown by dash lines in Figure 4. The head of the tool may be secured to the ferrule by means of the poll 14—15 and the presser ring 12 so that the blade 1 will lie in the same plane as the longitudinal axis of the handle 6 as shown in Figures 1 and 2, whereby the tool will be adapted for use as an ax, or the blade 1 may lie in a plane which extends at right angles to the direction of length of the handle, whereby the tool will be adapted for use as an adz, as shown in Figure 4.

A tool for use in turning the head 14—15 conveniently may have the form of a rod 16 which is adapted to be inserted in any one of a plurality of radial openings 17 in the body of the cap and then manipulated to turn the cap to loosen or tighten it. The rod 16 when not in use may be extended between the flanges 9 as shown in Figures 1, 2 and 4 and retained against a groove 18 in the inner wall of the web of the channel-shaped portion of the ferrule by means of the loop portion 19 of a substantially U-shaped spring member 20. The latter has the arms thereof bent intermediate their length to provide eyes through which a supporting pin 21 extends. The supporting pin 21 extends transversely of the substantially channel-shaped portion of the ferrule and the ends thereof are fast in the flanges 9.

Obviously, the invention is susceptible of embodiment in forms other than that illustrated in the accompanying drawings, and I therefore consider as my own all such modifications and adaptations thereof as fairly fall within the scope of the appended claims.

I claim:—

1. A tool of the character described comprising a helve, a ferrule having an eye portion engaged with the end portion of the helve and having a socket portion located beyond the outer end of the eye portion, the axis of said socket portion extending at right angles to the axis of said eye portion, a head having a blade portion formed with a cutting edge at one end and with a substantially spherical portion at its opposite end, said substantially spherical portion being turnably engaged with said socket, and means for releasably holding said substantially spherical portion of the head against turning in said socket.

2. A tool of the character described comprising a helve, a ferrule secured on an end portion of the helve and having a portion extending beyond the helve and formed to provide a socket, said socket being substantially circular in cross sectional contour, a head comprising a blade portion and a shank, said shank comprising a substantially spherical portion at its inner end adapted to rotate in engagement with said socket, the outer end portion of said shank being a screw threaded rod-like member, and means in threaded engagement with the threads on the outer end portion of said shank for securing said shank releasably against movement relatively to the walls of said socket.

3. A tool of the character described comprising a helve, a ferrule secured on an end portion of the helve and having a portion extending beyond the helve and formed to provide a socket, said socket being substantially circular in cross sectional contour, a head comprising a blade portion and a shank, said shank comprising a substantially spherical portion at its inner end adapted to rotate in engagement with said socket, the outer end portion of said shank being a screw threaded rod-like member, a presser ring disposed loosely on the outer end portion of said shank and engageable with the walls of said socket, and a cap having an internally screw threaded body portion engageable with the outer end portion of said shank and adjustable to and from position to force said presser ring tightly against the wall of the socket whereby said shank will be held against movement relatively to the walls of

said socket, said cap having radial openings in the body portion thereof, a rod adapted to be inserted in any one of said radial openings and manipulated to turn the cap, spring means carried by said helve for releasably holding said rod clamped against the ferrule when the rod is not in use.

4. A tool of the character described comprising a helve, a ferrule having an eye portion fitting on an end portion of the helve and having a substantially channel-shaped portion extending beyond the eye portion and at one side of the latter, the flanges of said channel-shaped portion being turned outward and the web of said channel-shaped portion having a circular opening located beyond the outer end of the eye portion, the axis of said circular opening extending substantially at right angles to the longitudinal axis of the eye portion, the flanges of said channel-shaped portion having the outer edges thereof convexly curved to lie in arcs of circles parallel to a circle struck by a radius moving about a center coincident with the center of said opening, said ferrule including a crossconnecting portion at the outer ends of said flanges, the wall of said opening and the inner walls of said flanges adjacent to said opening forming a socket having concavely curved walls, a head comprising a blade portion having a cutting edge at one end and a shank extending from the opposite end thereof, said shank comprising a substantially spherically shaped inner end portion engageable with said socket and a rod-like outer end portion extending between said flanges beyond said convexly curved edges of the flanges, a presser ring slidable on said rod-like portion of the shank and having lugs extending between said flanges, and a cap constituting the poll portion of the head and having a body portion in threaded engagement with the rod-like end portion of said shank and adjustable to and from position to clamp said ring tightly against the convexly curved edges of said flanges.

J. A. FATICO.