No. 688,153. Patented Dec. 3, 1901.

W. R. AYER.

COMBINATION TOOL.

(Application filed Aug. 9, 1901.)

(No Model.)

Fig. 1.

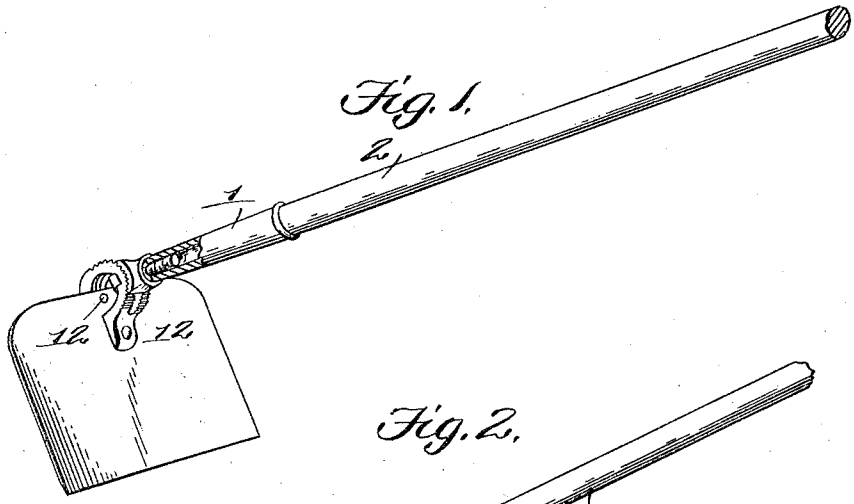


Fig. 2.

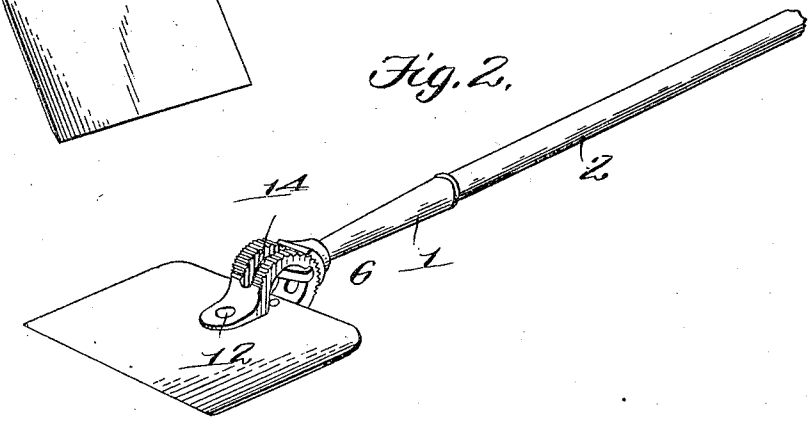


Fig. 3.

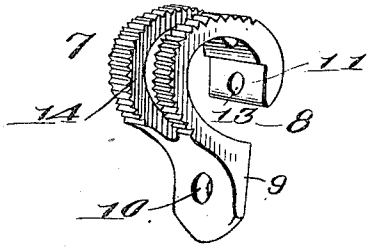


Fig. 4.

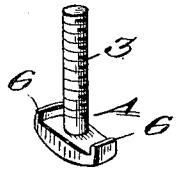
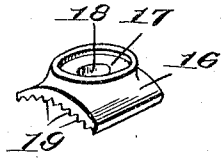


Fig. 5.



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UNITED STATES PATENT OFFICE.

WALTER R. AYER, OF PLANCHETTE, LOUISIANA.

COMBINATION-TOOL.

SPECIFICATION forming part of Letters Patent No. 688,153, dated December 3, 1901.

Application filed August 9, 1901. Serial No. 71,500. (No model.)

To all whom it may concern:

Be it known that I, WALTER R. AYER, a citizen of the United States, residing at Planchette, in the parish of Point Coupee and State of Louisiana, have invented new and useful Improvements in Combination-Tools, of which the following is a specification.

My invention relates to certain new and useful improvements in combination-tools, and has special reference to a device adapted to be used primarily as a hoe, but having a blade adjustably mounted on the handle in such manner that said blade may be readily adjusted to various angles, either to facilitate its use in hoeing or to transform the device into a different character of implement—such, for instance, as a spade or shovel.

The main object of my invention is to provide an improved means for adjustably connecting the blade of the hoe to the handle, whereby said blade may be readily and quickly adjusted to the desired angle.

A further object is to provide an improved means for securing the blade to the head of the hoe.

With these objects in view the invention resides in the features of construction and combinations of parts hereinafter described, and particularly pointed out in the claims.

I have illustrated the invention in the accompanying drawings, wherein—

Figure 1 is a perspective view showing the device as adjusted for use as a hoe. Fig. 2 is a similar view showing the device adjusted to render it capable of use as a spade or shovel. Fig. 3 is a perspective view of the head of the hoe. Fig. 4 is a detail view of the clamping-bolt, and Fig. 5 is a similar view of a socket member designed to coöperate with the head of the hoe.

Referring now to the drawings, the numeral 1 indicates a metal socket-piece adapted to receive the handle 2 of the hoe, which handle may be made of wood, as usual. The socket-piece 1 is provided at its outer end with a screw-threaded opening which is designed to receive the screw-threaded shank 3 of the clamping-bolt 4. Said bolt, as shown, has a T-head provided at its ends with downwardly-extending flanges 6. The head of the hoe is indicated by the numeral 7 and is substantially annular in shape, a portion of the annulus, however, being cut away, as indicated at 8, to provide a space for a purpose to be presently described. Extending outwardly from one edge of its opening is a projection 9, having a flat outer side and provided with an aperture 10. The inner side of the annulus, adjacent to the opposite edge, is flattened or recessed, as indicated at 11. The flattened portion 11 and the outer side of the projection 9 are in different planes and are at such a distance apart that, as shown in Fig. 1, the blade of the hoe may be inserted through the opening 8 and its outer side lie flush against the flattened inner side 11 of the head and its inner side flush with the flattened outer side of the projection 9. When so positioned, the blade may be secured to the head by means of bolts or rivets 12, passed through the aperture 10 in the projection 9 and through a similar aperture 13 in the opposite edge portion of the annulus. The annulus or head, as shown, is relatively wide, and its central portion is cut away for the greater portion of its circumferential length to provide a slot 14. Through this slot the shank 3 of the clamp-bolt is designed to be inserted and screwed into the opening in the socket-piece 1. In this position the flanges 6 will embrace opposite sides of the annulus and tend to hold the same in firm fixed relation relatively to the handle when the parts are assembled. The outer side of the annulus or head 7 is toothed or corrugated, as indicated at 15, for a purpose which will presently be described. The numeral 16 indicates a socket member which is adapted to be placed on the end of the socket-piece 1 before the head is secured in position. To this end its inner side is provided with an annular recess 17, adapted to fit snugly over the end of the socket-piece, and an aperture 18 extends centrally through said socket member in order to permit the shank 3 of the clamp-bolt to be passed through it. The outer side of the socket member 16 is curved on the same arc as the annular head 7, and its surface is saw-toothed or corrugated, as indicated at 19, to correspond with the similar saw-teeth or corrugations on the outer side of the head.

In assembling the parts the socket member 16 is first placed upon the end of the socket-piece 1. The blade having been secured to

the head 7, the clamp-bolt 4 is placed in position in the head. This may be done by turning said clamp-bolt so that its T-head may be passed through the slot 14 in the head and then turning it to cause the T-head to extend at right angles to the said slot. The shank 3 is now passed through the opening 18 in the socket member 16, and by turning the handle 2, the socket-piece 1 of which will revolve in the recess 17, the screw-threaded aperture 2, engaging the shank of the bolt, will quickly bring the head 7 and the socket member 16 together, and the engagement of the saw-teeth or corrugations of the head 7 with those of the socket member 16 will hold said head firmly in any position to which it has been turned. If it be desired to change the adjustment of the blade from a given position, all that is necessary is to place the foot upon the blade of the hoe and to turn the handle to the left or in the unscrewing direction. A few turns of the handle in this direction will release the engagement between the head 7 and the socket member 16, when said head may be turned to the position desired, and the handle is then turned in the reverse direction to clamp the parts together, as previously described. When clamped in position, the flanges 6 of the T-head embracing the opposite sides of the head 7 prevent lateral displacement of said head, while the engagement of the saw-teeth, as previously stated, will operate to hold the head in firm fixed relation to the handle.

It will be seen that by my improved manner of securing the head to the handle I dispense with the necessity of using implements—such as screw-drivers, wrenches, or the like—for adjusting the head of the tool, so that when it is desired to adjust the blade all that is necessary to do is to revolve the handle in one direction to release the head, so that it may be turned, and when it has been turned to the desired position to revolve the handle in the opposite direction. This adjustment may be readily and quickly made at any time.

As the socket-piece 1 constitutes, in effect, a portion of the handle, this part will not be separately designated in the claims.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A combination-tool, comprising a handle having at one end a screw-threaded opening, an apertured socket member rotatably mounted on said end and having a curved outer side, a slotted head carrying a blade and having a curved surface adapted to engage the curved side of the socket member, and a headed bolt passed through said slot and having a screw-threaded shank engaging in the screw-threaded opening of the handle.

2. A combination-tool, comprising a handle having a screw-threaded opening provided in one end, an apertured socket member rotatably mounted on said end and provided with a corrugated outer side, a head carrying a blade and having a curved portion provided with corrugations adapted to engage those of the socket member and provided with an elongated slot, and a screw-threaded bolt passed through said opening and through the opening in the socket member and engaging in the screw-threaded aperture of said handle and having a T-head bearing against the inner side of the head of the tool.

3. A combination-tool, comprising a handle having an end provided with a screw-threaded opening, an apertured socket member rotatably mounted on said end and having a curved outer side provided with corrugations, a head substantially in the form of an annulus and provided on its outer side with corrugations and having an elongated slot, a screw-threaded bolt passed through said opening and engaging the screw-threads of the handle, said bolt having a T-head provided with flanges for embracing opposite sides of the head of the tool, and a blade carried by said head.

4. In a combination-tool, in combination with a handle, a head adjustably mounted thereon, comprising an annular body having a portion cut away to provide an opening, a projection extending outward from one edge of said opening, a blade having one edge portion inserted through said opening and engaging the inner side of the annulus, the inner side of said blade resting upon said projection, and rivets securing the blade to said projection and said annulus, respectively.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WALTER R. AYER.

Witnesses:
J. E. LACOUR,
W. SMITH.