Oct. 11, 1938. W. A. READY 2,132,541

MANUFACTURE OF SHOVELS AND THE LIKE

Filed Dec. 4, 1935 2 Sheets-Sheet 1

Fig. 1.

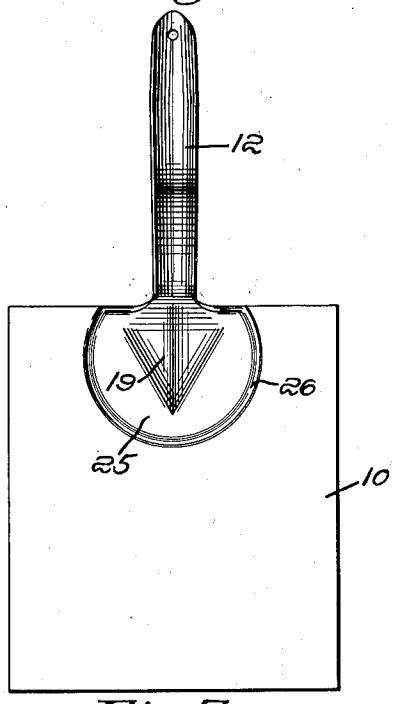


Fig. 2.

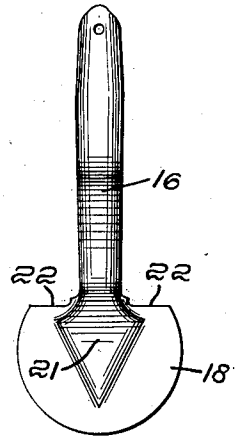


Fig. 3.

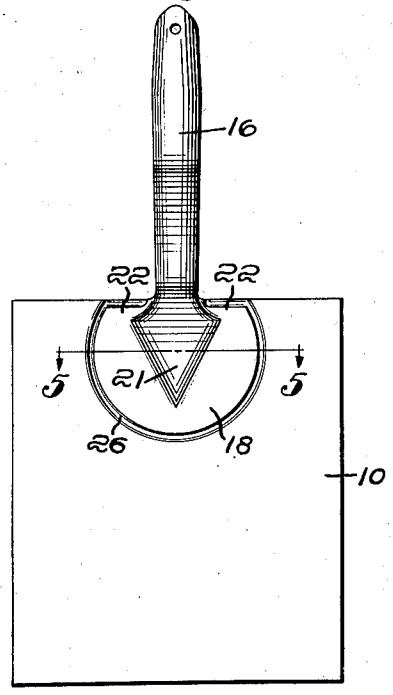
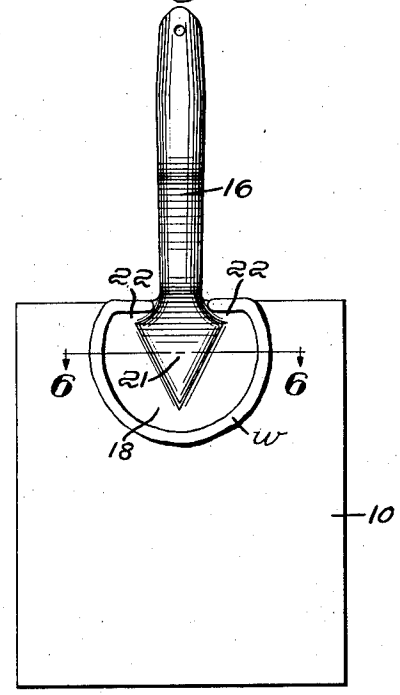


Fig. 4.



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Oct. 11, 1938. W. A. READY 2,132,541

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Filed Dec. 4, 1935 2 Sheets-Sheet 2

Fig. 5.

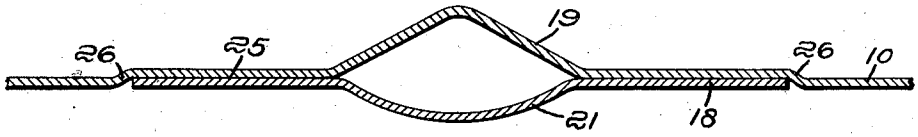


Fig. 6.

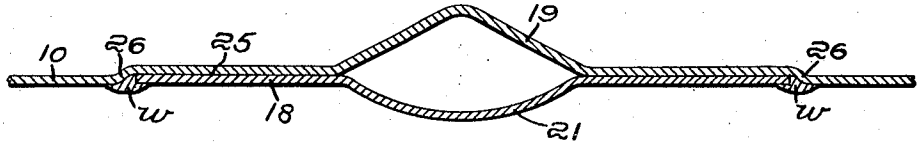


Fig. 7.

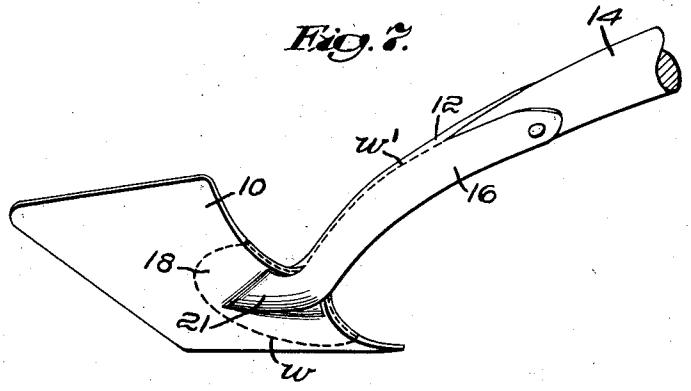
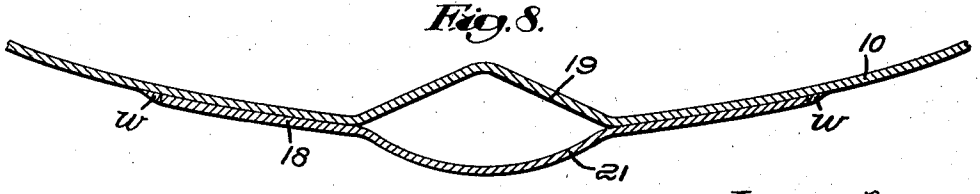


Fig. 8.



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UNITED STATES PATENT OFFICE

2,132,541

MANUFACTURE OF SHOVELS AND THE LIKE

William A. Ready, Brookline, Mass., assignor to Ames Baldwin Wyoming Co., Parkersburg, W. Va., a corporation of Delaware

Application December 4, 1935, Serial No. 52,864

5 Claims. (Cl. 76—113)

This invention relates to the manufacture of shovels or like tools having a blade and a handle-receiving socket formed at least in part by a separate piece of metal having an end portion welded to the blade proper and in its more specific aspects to the manufacture of shovels of the types known as plain-back shovels and back-strap shovels wherein the separate piece is an enlarged head overlying an unbroken face of the blade to form a frog designed to receive the end of the handle. The object of my invention is to provide an improved method for making such tools, facilitating their manufacture and providing a stronger article.

My invention will be well understood by reference to the following description taken in connection with the accompanying drawings wherein by way of example I have shown my invention applied to a shovel of the back-strap type and wherein:—

Fig. 1 is a rear plan view of a partly formed blade;

Fig. 2 is a similar view of a partially formed back strap;

Fig. 3 is a rear plan view showing the parts assembled;

Fig. 4 is a similar view at a later stage in the process of manufacture;

Figs. 5 and 6 are enlarged sections on the lines 5—5 and 6—6 of Figs. 3 and 4 respectively;

Fig. 7 is a perspective view of a portion of the completed shovel; and

Fig. 8 is a section therethrough on the same plane as Figs. 5 and 6.

The tool herein shown is of the back-strap type and comprises the blade 10 having the front strap 12 extending from the rear edge thereof, the strap being either integral or effectively integral with the blade proper. As shown in Fig. 1, I prefer to shape this strap 12 in the blank at least approximately to the desired cross section to cause it to fit the wooden handle 14 and to the desired profile to give the proper lift to the shovel. The socket for receiving the handle is completed by means of a back strap, as shown in Fig. 2, comprising a strap or tongue proper 16, which may likewise be given a cross-sectional curvature and longitudinal profile to permit it to mate with and cooperate with strap 12 to form the socket, and an enlarged head 18 which overlies the blade and is marginally welded thereto along its sides from the rear edge of the blade on one side of the center to the rear edge on the other. Herein as in my copending application, Serial No. 52,863, filed Dec. 4, 1935, this head is formed by the shoulders 22 extending laterally from the strap 16 and a forward boundary curved throughout its width and having its greatest transverse dimension at an intermediate point, herein being formed as the major segment of a circle. The central portions of the blade 10 on the one hand and of the enlarged head 18 on the other in line with the straps 12 and 16 respectively may be pressed outwardly at 19 and 21 as shown to form the frog for receiving the end of the handle.

The shovel is completed by the assembly of the partially preformed parts shown in Figs. 1 and 2. I press or offset a portion of the blade at the base of the strap 12 forwardly to provide the depression 25 corresponding in form to the enlarged head 18. Preferably this depression is spaced slightly inwardly from the rear edge of the blade so that a wall 26 is provided corresponding both to the curved margin of that head and to the shoulders 22 thereof. The depth of the depression, as seen in Fig. 5, may correspond substantially to the thickness of the head 18 and the area of the bottom of the depression to its area. Due to the thickness of the material the wall 26 will lie at an angle, as best shown in Fig. 5, and thus when the head 18 is laid into the depression, as in Figs. 3 and 5, a groove is provided between the wall 26 and the outer edge of the head which may be of substantially triangular section as illustrated in those figures. The head is then welded into position by the addition of welding metal *w* applied to fill up the groove as by means of electric arc welding. In the preferred form of the invention shown the weld *w* extends not only around the curved edge of the head 18 but also along the shoulders 22 thereof.

The back strap and the blade being thus joined as shown in Figs. 4 and 6, the surplus metal at the weld may be milled or ground off. In the case of a back-strap shovel as herein disclosed, I prefer to retrude or press back the depression 25 so that the upper surface of the blade outwardly of the frog is a continuous surface.

I prefer also to weld together the opposed edges of the straps 12 and 16 along the sides of the handle, as indicated at *w'* in Fig. 7, in the manner described in my Patent 1,989,063, Jan. 22, 1935. The blade 10 may then be trimmed, if necessary, and is shaped to final form in the usual manner. The handle 14 may be steamed and forced into the rigid socket formed by the welded together straps 12 and 16. In Fig. 7 the welds *w* and *w'* are indicated conventionally by dotted lines.

The several parts described are preferably

formed of high carbon steel and may be heat treated after assembly as described to give the desired strength and resiliency to the tool.

I am aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and I therefore desire the present embodiment to be considered in all respects as illustrative and not restrictive; reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

I claim:

1. A method of making shovels and the like comprising the following steps:—forming a blade and a cooperating elongated sheet metal element one end of which is adapted to extend over the blade at the rear end thereof with the rest extending rearwardly from the blade to be transversely bent to fit about a handle, offsetting an area of the blade corresponding in form to an end portion of said element, laying the end portion in the offset, welding the margin thereof to the wall of the offset by added metal and retruding the offset area.

2. A method of making shovels of the strap type comprising the following steps:—forming a blade having a strap extending from the rear edge of the blade, the parts being of substantially finished thickness, forming separately a cooperating strap having an enlarged head, the parts of the latter strap being of substantially finished thickness, offsetting a portion of the blade between its sides at the base of the first strap to provide a pocket having a bottom of substantially the area of said enlarged head and an outwardly flaring wall extending from the rear of the blade on one side of the strap to the rear edge at the other side, the wall being of an altitude substantially corresponding to the thickness of the head, positioning the head in the pocket with its margin opposing the wall to define therewith a groove of substantially triangular section and fusing extraneous metal into the groove to weld the head marginally to the blade.

3. A method of making shovels of the strap type comprising the following steps:—forming a blade having a strap extending from the rear edge of the blade, the parts being of substantially finished thickness, forming separately a cooperating strap having an enlarged head, the parts of the latter strap being of substantially finished thickness, offsetting a portion of the blade between its sides at the base of the first strap to provide a pocket having a bottom of substantially the area of said enlarged head and an outwardly flaring wall extending from the rear of the blade on one side of the strap to the rear edge at the other side, the wall being of an altitude substantially corresponding to the thickness of the head, positioning the head in the pocket with its margin opposing the wall to define therewith a groove of substantially triangular section, fusing extraneous metal into the groove to weld the head marginally to the blade and retruding the offset area.

4. A method of making shovels of the strap type comprising the following steps:—forming a blade having a strap extending from the rear edge of the blade, the parts being of substantially finished thickness, forming separately a cooperating strap having an enlarged head, the parts of the latter strap being of substantially finished thickness, offsetting a portion of the blade between its sides at the base of the first strap and slightly forward thereof to provide a pocket having a bottom of substantially the area of said enlarged head and an outwardly flaring wall extending from the rear of the blade on one side of the strap to the rear edge at the other side and along the rear of the blade into close adjacency to the strap, the wall being of an altitude substantially corresponding to the thickness of the head, positioning the head in the pocket with its margin opposing the wall to define therewith a groove of substantially triangular section and fusing extraneous metal into the groove to weld the head marginally to the blade.

5. A method of making shovels of the strap type comprising the following steps:—forming a blade having a strap extending from the rear edge of the blade, the parts being of substantially finished thickness, forming separately a cooperating strap having an enlarged head having a forwardly facing margin free of abrupt changes of direction, the parts of the latter strap being of substantially finished thickness, offsetting a portion of the blade between its sides at the base of the first strap to provide a pocket having a bottom of substantially the area of said enlarged head and an outwardly flaring wall extending from the rear of the blade on one side of the strap to the rear edge at the other side, the wall being of an altitude substantially corresponding to the thickness of the head, positioning the head in the pocket with its margin opposing the wall to define therewith a groove of substantially triangular section and fusing extraneous metal into the groove to weld the head marginally to the blade.

WILLIAM A. READY.