

(No Model.)

W. E. KEELER.
METHOD OF MAKING SHOVELS.

No. 488,503.

Patented Dec. 20, 1892.

Fig. 1.

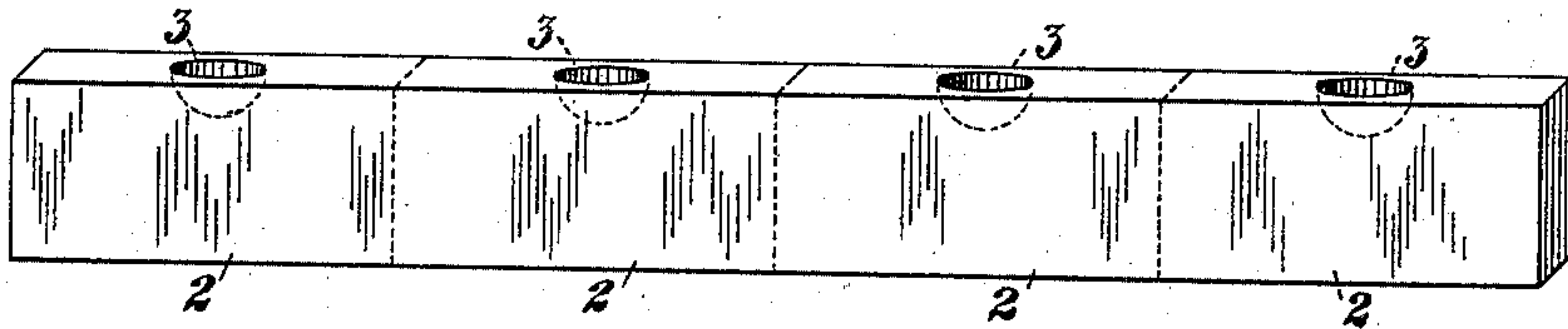


Fig. 2.

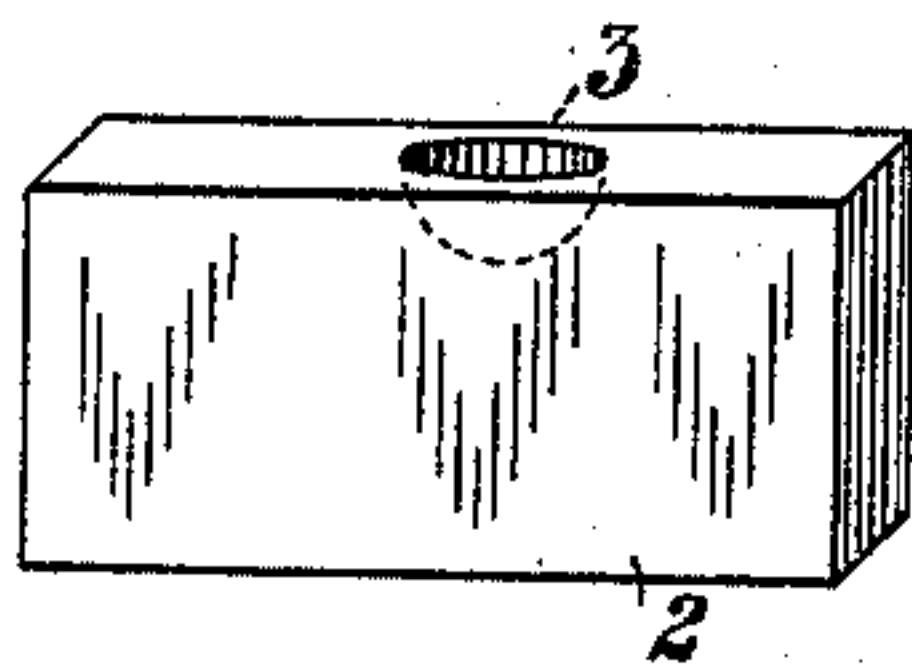


Fig. 3.

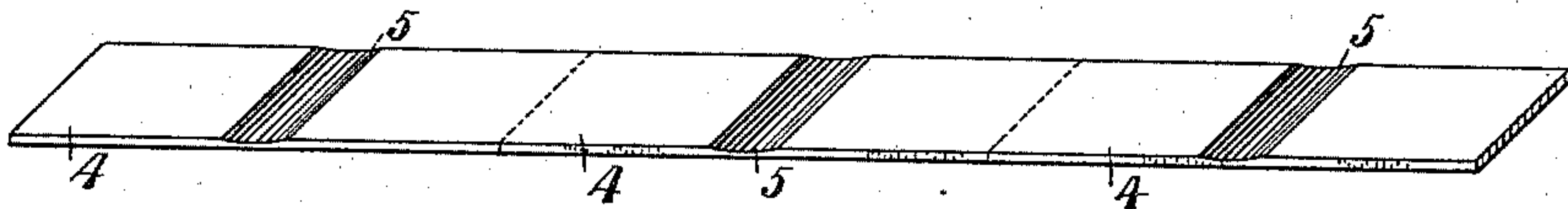


Fig. 4.

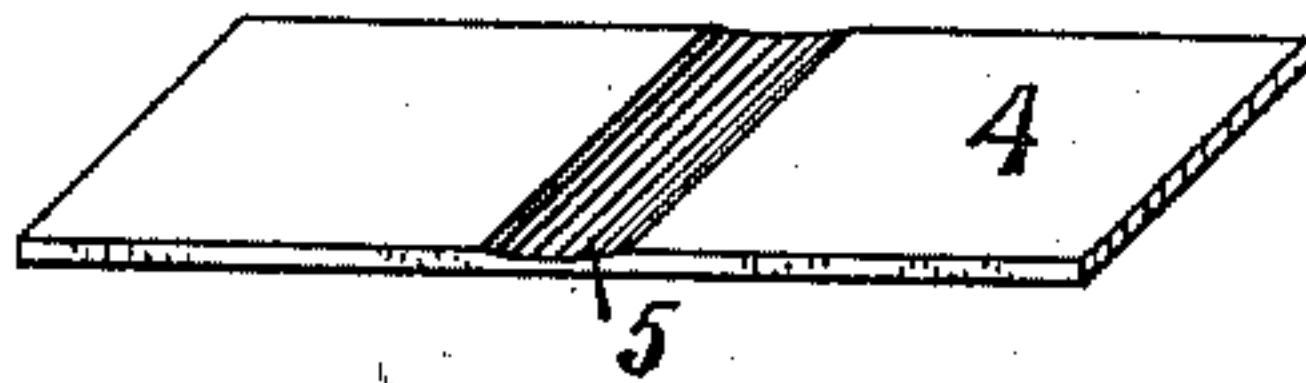


Fig. 5.

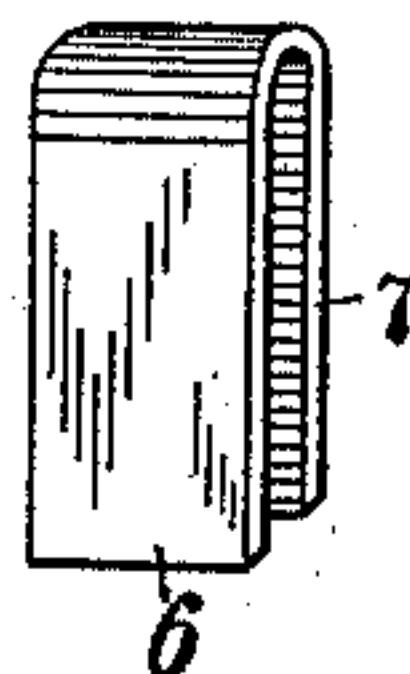


Fig. 6.

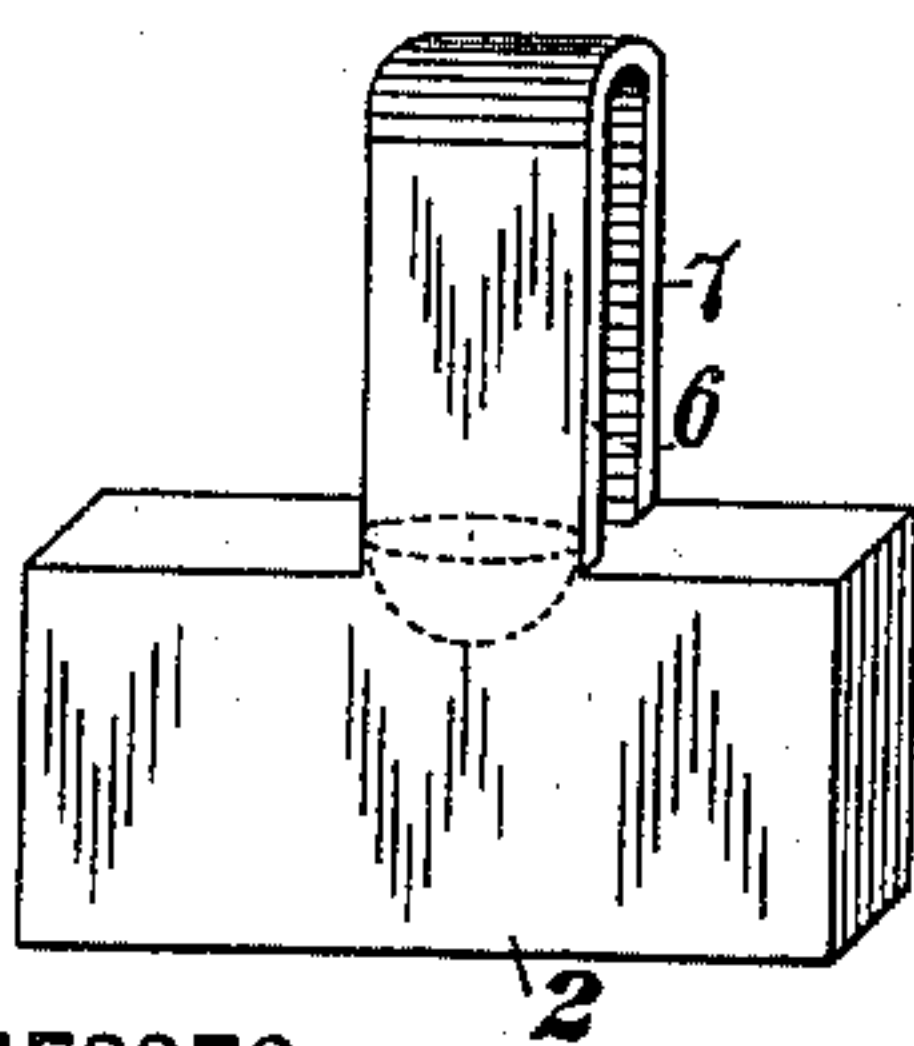
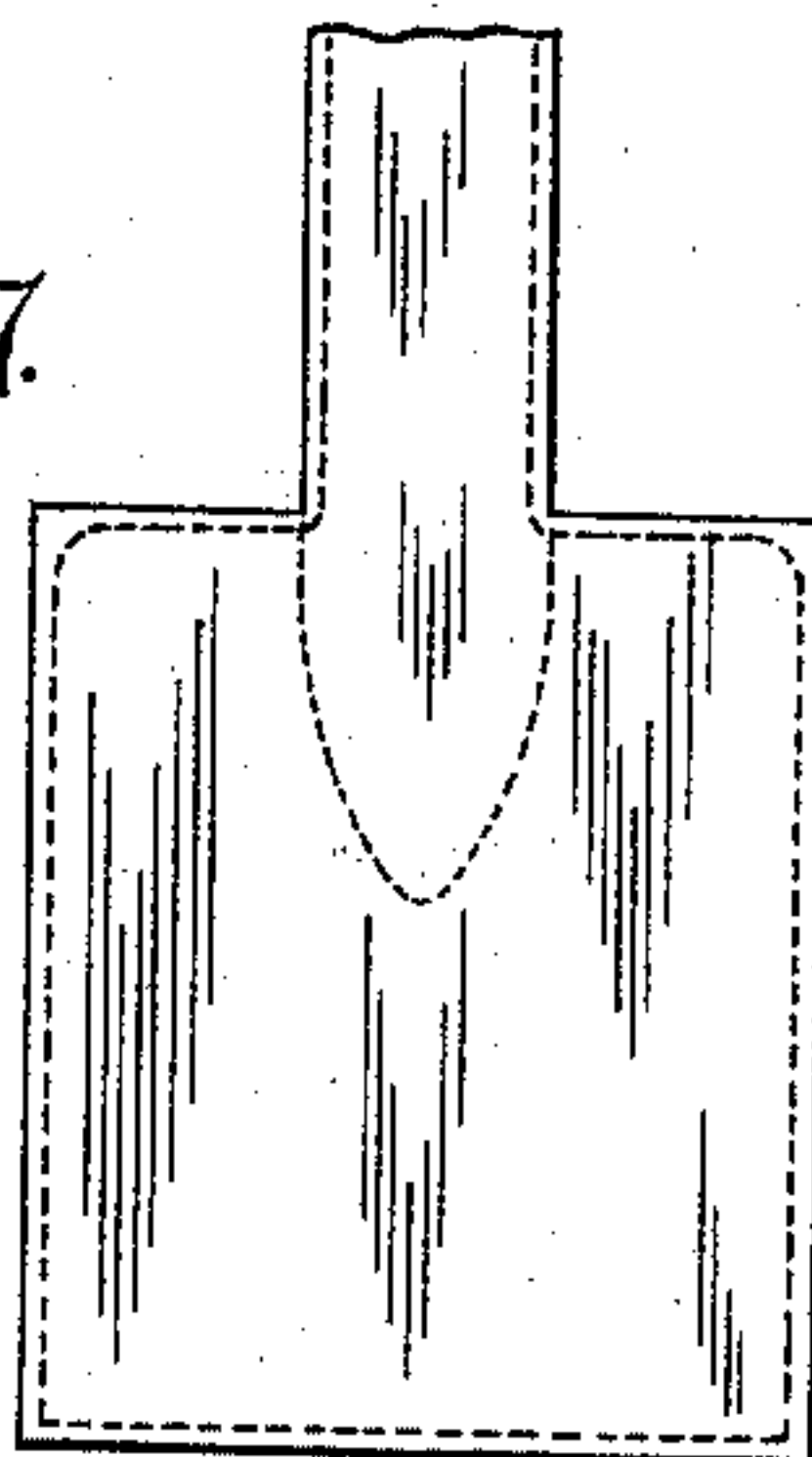


Fig. 7.



WITNESSES

A. M. Corwin
A. L. Gier

INVENTOR

William E. Keeler
by W. Baxwell & Sons
his Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM E. KEELER, OF BEAVER FALLS, PENNSYLVANIA, ASSIGNOR TO
HIMSELF AND CHRISTIAN F. GRAU, OF SAME PLACE.

METHOD OF MAKING SHOVELS.

SPECIFICATION forming part of Letters Patent No. 488,503, dated December 20, 1892.

Application filed May 11, 1892. Serial No. 432,635. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. KEELER, of Beaver Falls, in the county of Beaver and State of Pennsylvania, have invented a new and useful Improvement in Methods of Making Shovels, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of the rolled bar for the shovel blanks. Fig. 2 represents a blank cut therefrom. Fig. 3 is a similar view of a rolled bar for the strap blanks. Fig. 4 illustrates one of the blanks severed therefrom. Fig. 5 is a view of the strap blank when bent into form for attachment to the shovel blank. Fig. 6 shows the same united together; and Fig. 7 is a front view of the rolled blank showing in dotted lines the finished shovel.

My invention relates to the manufacture of shovel blades, and it consists in an improved method whereby the difficulties and consequent cost of former processes are greatly lessened, and a more serviceable article produced; and to enable others to practice my invention, I will now describe the same, in connection with the accompanying drawings.

To form the body of the shovel I employ a bar of steel 2 as shown in Fig. 1, this bar being provided along one edge with a series of recesses 3, which serve to form the socket in the finished shovel and are preferably formed in the rolling of the bar, though they may be formed after the rolling, if desired. This bar is cut up into blanks of the form of Fig. 2, the bar being divided on the dotted lines of Fig. 1, thus bringing the recesses in the middle of the blank. To form the straps the strip 4 of Fig. 3 is employed, this strip being provided along one side with a series of cross grooves 5, which facilitate the bending of the straps. This strip is divided on the dotted lines shown, thus producing the blank of Fig. 4, the groove being midway of its length, and the blank is then bent while cold into the double strap form of Fig. 5, the two portions 6 and 7 of the same being substantially parallel with each other. The two blanks are then assembled in the position of Fig. 6 and electrically welded together in such position,

the two parts of the strap blank inclosing the recess 3. After such welding the blank is rolled into the form of Fig. 7, the portions 6 and 7 forming the straps, their connections being severed after rolling and the recess 3 being elongated into the socket for the handle as shown. The blank for the straps is preferably of iron or semi steel, so that the straps are pliable so as to enable them to be easily fitted to the handle, while the body blank is preferably of high carbon steel.

The advantages of my construction are obvious. By forming the body and strap blanks separately, steel or iron of any desired quality may be used in each, and the butt-welding of the same together by electricity firmly unites them and makes them practically integral with each other. The process is cheap and easily carried out and does not require skilled labor therefor, while the article produced is superior in every way to those of former processes.

Many variations may be made in the form of the blanks, the grooves and the recesses without departure from my invention; since

What I claim is:—

1. The method of making shovels consisting in forming a recess in an unfinished body-blank of greater thickness than the shovel, butt-welding a strap-blank thereto, and then finishing the same.

2. The method of making shovels, consisting in rolling a bar with a series of recesses therein, severing the same into unfinished blanks of greater thickness than the completed shovels each blank having a single recess therein, butt-welding a strap blank thereto, and then finishing the same; substantially as described.

3. The method of making shovels, consisting in forming a recess in an unfinished body-blank of greater thickness than the completed shovel, bending a strip into two portions substantially parallel with each other, and butt-welding the same to the body blank; substantially as described.

4. The method of making shovels consisting in forming a body blank with a recess therein, forming a strap blank with a groove therein, bending the grooved part until the two parts are substantially parallel with each

other, butt-welding the same to the body blank, and finishing the same; substantially as described.

5 5. The method of making shovels, consisting in forming a recess in an unfinished body-blank of greater thickness than the completed shovel, electrically welding a strap blank thereto, and rolling the same; substantially as described.

10 6. The method of making shovels, consisting in rolling a bar with a series of recesses therein, severing the same into blanks, rolling

a strip with grooves therein, severing the same into blanks, and bending the same into parallel strap form, butt-welding the two blanks together, and then rolling the same; substantially as and for the purposes described. 15

In testimony whereof I have hereunto set my hand this 23d day of April, A. D. 1892.

WILLIAM E. KEELER.

Witnesses:

WM. GRAU,
D. C. BRADEN.