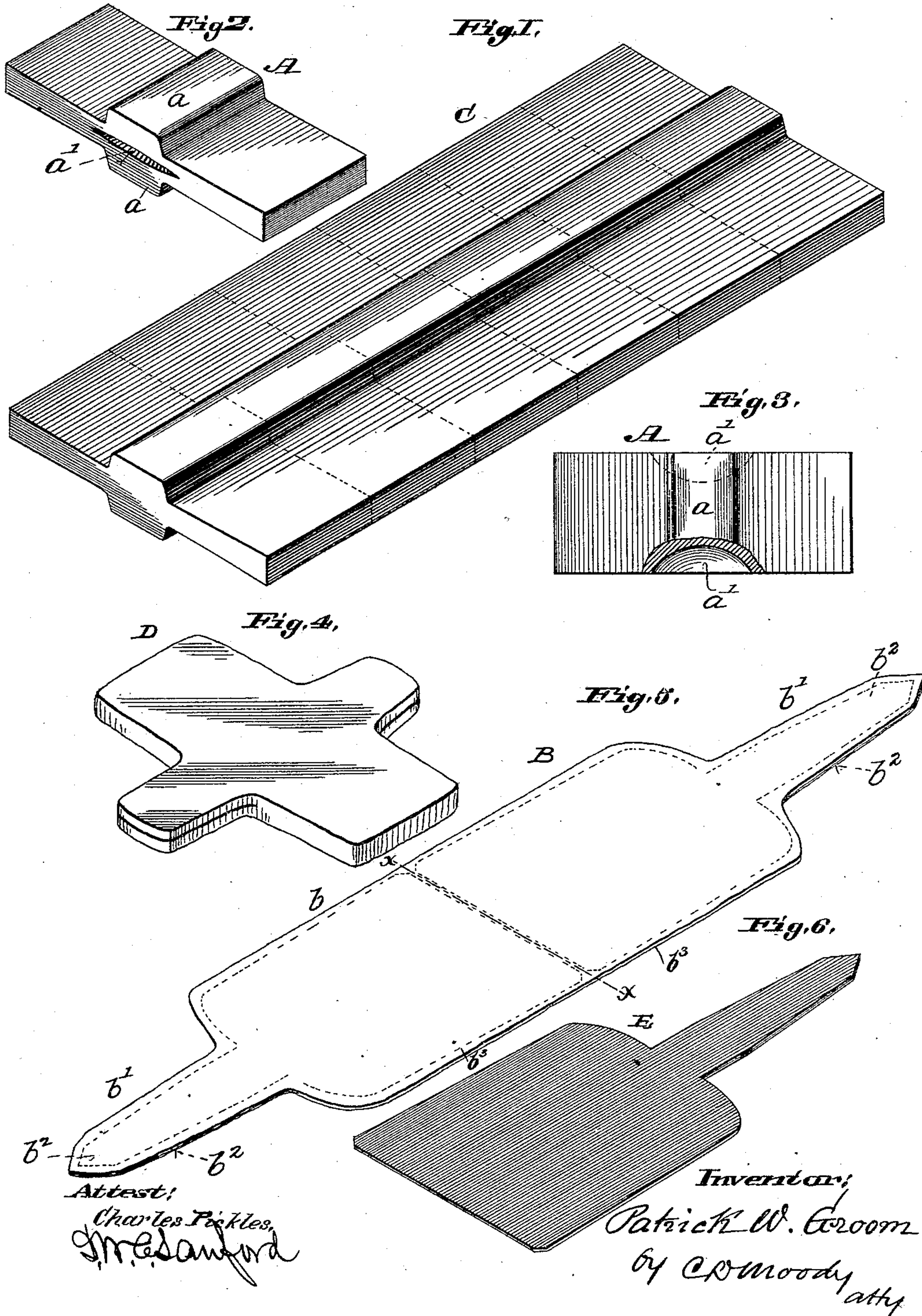


(No Model.)

P. W. GROOM, Dec'd:  
J. KENNEDY, Administrator.  
MANUFACTURE OF SHOVELS.

No. 430,014.

Patented June 10, 1890.





# UNITED STATES PATENT OFFICE.

PATRICK W. GROOM, OF ST. LOUIS, MISSOURI; JOSEPH KENNEDY ADMINISTRATOR OF SAID PATRICK W. GROOM, DECEASED.

## MANUFACTURE OF SHOVELS.

SPECIFICATION forming part of Letters Patent No. 430,014, dated June 10, 1890.

Application filed December 10, 1886. Serial No. 221,202. (No model.)

*To all whom it may concern:*

Be it known that I, PATRICK W. GROOM, of St. Louis, Missouri, have made a new and useful Improvement in the Manufacture of Shovels, of which the following is a full, clear, and exact description.

Hitherto in making shovels and other analogous tools having handle-straps integral with the body of the tool it has been customary, in preparing the blank from which the tool is made, to form the tang, or that portion of the blank from which the handle-straps are made, at the side and in the plane of the body of the blank. In consequence of this the bar from which the blanks are made cannot well be cut up without some loss, and the difficulty is increased if the blank is shaped to form two tools therefrom, and whether a double or single blank is used the splitting of the tang is necessarily subsequent to its formation.

In carrying out the present improvement a different method is pursued. In the place of cutting the blanks from a flat bar they are cut from a bar having a central longitudinal rib upon its upper or under side, and preferably upon both its upper and under sides, so that when the blank is formed there is an excess of metal upon the bottom or top, and preferably equally upon both the bottom and top, of the central portion of the blank, and the blank is large enough to form two shovels, or whatever analogous tools are being made therefrom. The blank, by means of reducing-rolls or any of the customary appliances employed in the manufacture of shovels or similar tools, and by applying pressure to the rib or ribs of the blank, is reduced to a uniform thickness, or thereabout, and is extended longitudinally at the center to form a tang at each end of the blank. The blank is then reduced further until it is of a proper thickness for a shovel-blade, and is also elongated, the tangs as well as the body of the blank, and, if necessary, widened to be of sufficient superficies for a double-shovel blank, and is then divided midway in its length to form two sub-blanks, which, in the usual manner and with the usual means, are separately formed into the final shape of the tool. Although the tangs may each, to form the two

handle-straps, be split at a stage of the operation subsequent to a partial reduction of the blank, I think it is preferable, before the blank is at all reduced or altered in shape, to perforate it at each end at its center and afterward to reduce the blank. The perforation should be a cut parallel with the upper and lower faces of the blank, in width equal to and preferably slightly wider—say three-eighths of an inch at each side of the perforation—than the width of the central projections upon the blank, and in depth penetrating in a pointed form about an inch into the blank, and substantially as is indicated in the annexed drawings. The blank as it is rolled down is rolled endwise—that is, in the direction of the length of the projections upon the blank—and it elongates, not throughout its width, but more especially at its central portion opposite the projections above mentioned, and so as to form the tangs, respectively, at the ends of the main portion of the blank. In rolling the blank the tang projections elongate, or are apt to elongate, unequally—that is, that tang projection which points from the direction in which the blank passes through the rolls elongates more than the tang projection at the opposite end of the blank—and to equalize them it is the practice to reverse the blank, passing it first one end and then the opposite end through the reducing-rolls, which method causes the two tang projections to be ultimately formed symmetrically. The usual method—such as introducing sand into the perforation—prevents the metal from cohering again when the blank is subsequently rolled.

The annexed drawings, making part of this specification, illustrate the operation.

Figure 1 is a view in perspective of the bar from which the blanks are cut. The broken lines indicate, respectively, the lines where the bar is to be cut to form the blanks; Fig. 2, a view in perspective of a blank cut from the bar. The end of the blank presented shows the socket formed therein; Fig. 3, a plan of the blank, a portion at one end thereof being broken away to show the socket in that end, and at the opposite end of the blank the socket therein is indicated by the broken line; Fig. 4, a view in perspective of the blank



after its projections have been reduced to the thickness of the body of the blank, and the tangs thereby partially formed; Fig. 5, a view in perspective of the finished double-shovel blank, and Fig. 6, a view in perspective of one of the shovels cut from the blank of Fig. 5. The broken lines in Fig. 5 indicate the lines on which the shovels are cut from the blank. The first four views are substantially upon the same scale: The last two are upon a smaller scale.

The same letters of reference denote the same parts.

C, Fig. 1, represents the most desirable form of the bar from which to form the blanks, and A, Figs. 2 and 3, represents the most desirable form of the improved blank, for while the projections  $a$  thereof may in form in cross-section vary somewhat from the rectangular form shown, the blank, for instance, being in cross-section rather elliptical than cruciform, and the improvement in a measure be carried out, it is best carried out by means of a blank whose projections  $a$  are rectangular, substantially as exhibited in the drawings, as thereby the tangs can be formed with less labor and waste of material.

The bar C is of any suitable length, and it preferably is of such length as to enable it to be entirely cut up into blanks. The blank is then perforated at both ends, substantially as shown at  $a'$ , Figs. 3 and 4, after which it is, by means of plain cylindrical rolls, broken down and rolled into the shape shown at D, Fig. 4, and ultimately into the shape shown at B, Fig. 5—that is, a flat piece of metal having a rectangular body  $b$ , provided at each end with an elongated projection or tang  $b'$ , which, owing to the perforation  $a'$  made in the blank A, is in the two parts  $b^2 b^3$ . The piece B is divided transversely, as indicated by the broken line  $x$ , Fig. 5, into the two parts  $b^3 b^3$ , from each of which, and by means of the ordi-

nary tools used in finishing shovel-blades, a shovel-blade E, Fig. 6, having handle-straps integral therewith, is made. The handle-straps are formed from the parts  $b^2 b^3$ . When a blank having but a single projection—that is, a rib upon one side only of the body of the blank—is used, the perforation  $a'$  is preferably omitted. The bar C may be wider or narrower than the width of the finished shovel. If wider, any excess of metal which may ultimately appear in the blank B is trimmed off. If narrower, the desired width may be imparted to the blank B, either by virtue of the longitudinal rolling of the blank (which also causes the blank to be widened somewhat) or by any other suitable procedure.

I claim—

1. The herein-described improvement in the method of producing a double blank for shovels and analogous tools having handle-straps integral with the body of the tool, the same consisting in making a bar thicker longitudinally at its center than at its sides, then cutting said bar transversely into blanks and then reducing the blanks, as described, and forming tangs at the ends, respectively, of the blank.

2. The blank A, having the projections  $a$  and perforations  $a'$ , as described.

3. The improvement in the method of producing a double blank for shovels having handle-straps integral with the body of the tool, the same consisting in making a blank thicker longitudinally at its center than at its sides, then perforating said blank, as described, and then reducing said blank and forming tangs at the ends, respectively, of the blank, substantially as described.

Witness my hand.

PATRICK W. GROOM.

Witnesses:

C. D. MOODY,

C. C. LOGAN.