(No Model.)

W. CHISHOLM.

DIES FOR MAKING SHOVELS.

No. 260,662. Patented July 4, 1882.

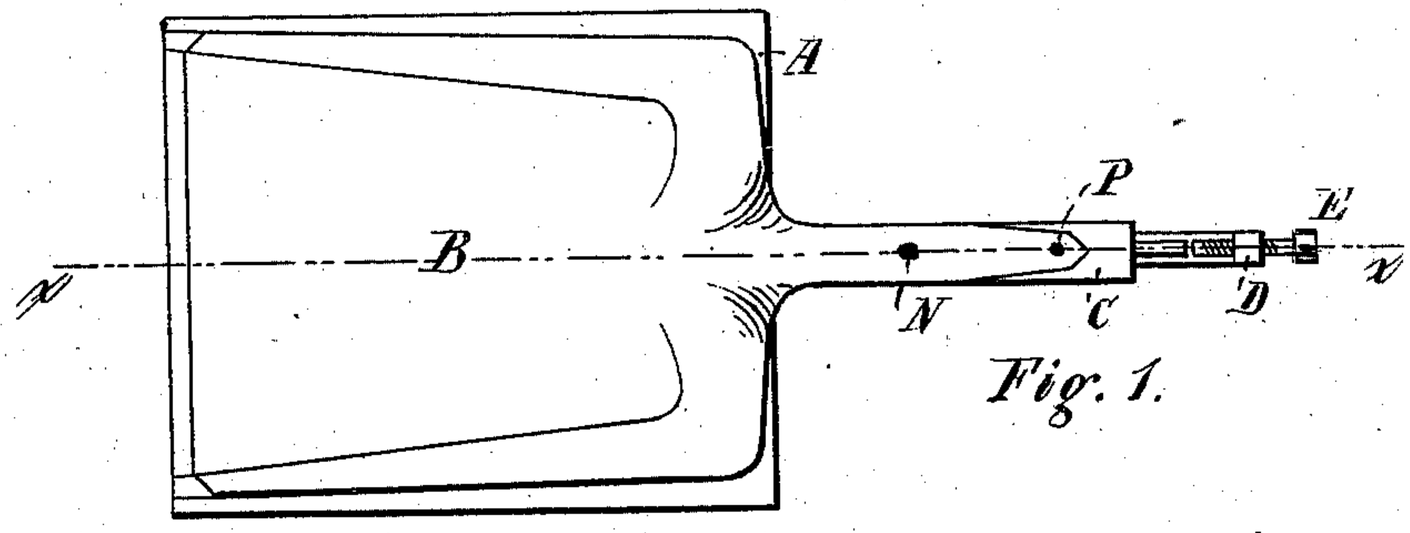

Fig. 1.

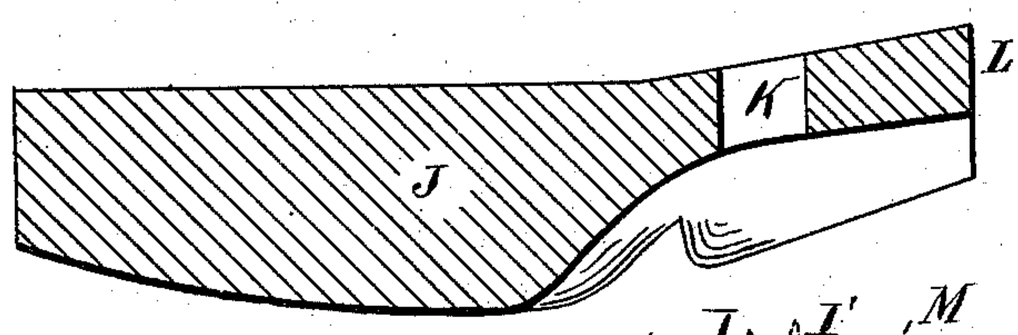

Fig. 2.

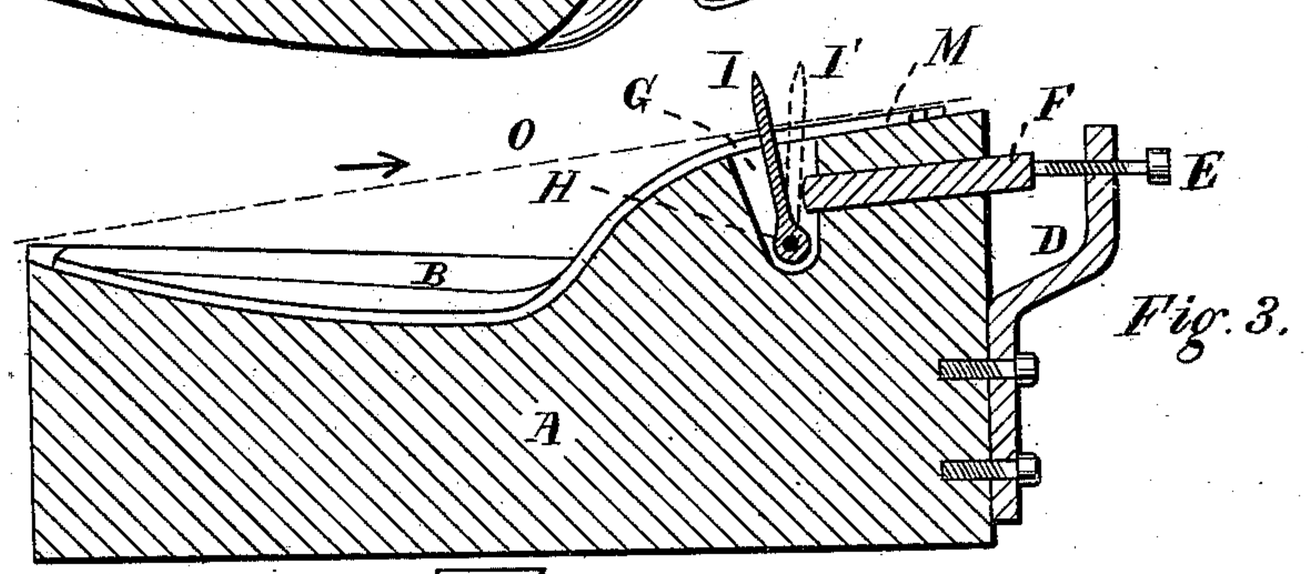

Fig. 3.

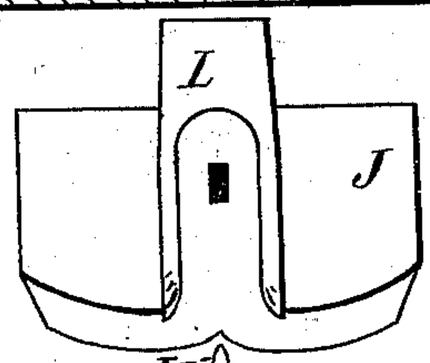

Fig. 4.

Fig. 5.

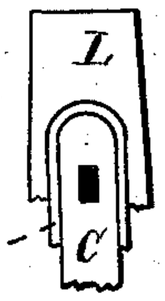

Fig. 6.

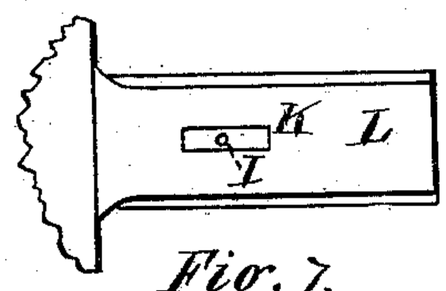

Fig. 7.

Witnesses.
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By

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UNITED STATES PATENT OFFICE.

WILLIAM CHISHOLM, OF CLEVELAND, OHIO.

DIES FOR MAKING SHOVELS.

SPECIFICATION forming part of Letters Patent No. 260,662, dated July 4, 1882.

Application filed March 31, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM CHISHOLM, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Gage-Dies for Making Shovels; and I do hereby declare that the following is a full, clear, and complete description thereof.

The nature of my improvement in dies for making shovels relates to a gage mechanism connected with the said dies; and it consists of a gage-pin pivoted to the shank of the die, and adjusting-slide and set-screw, also connected with the shank, as more fully hereinafter set forth.

The purpose of the said improvement is to guide or gage each successive plate for the shovel with sufficient accuracy that the blade and shank thereof will be all of a uniform shape and prevent any lateral deflection or displacement in the line of their length, whereby the blank plates uniformly cover the die and shank, causing a regular proportion and symmetry in all parts of the article. The improvement may be employed in the manufacture of spades, scoops, forks, and other similar articles for the same purpose. Reference is only more particularly made to shovels as a leading example of this class of implements.

For a more full and complete description of the said improvement and its operation reference will be had to the following specification, and to the annexed drawings, making part of the same, in which—

Figure 1 is a plan view of the lower die with the shovel in place. Figs. 2 and 3 are vertical longitudinal sections of the upper and lower dies in the direction of the line *x x*, Fig. 1. Figs. 4 and 5 are back end views of the upper and lower dies. Fig. 6 is an end view of the dies and shank together. Fig. 7 will be referred to in description hereinafter.

Like letters of reference refer to like parts in the several views.

The means for working the dies are not shown, as they may be operated by any of the ordinary devices employed for such purposes.

In the drawings, A, Fig. 1, represents a face view of the lower die, and B the shovel in place thereon. To the shank C of said die is secured by bolting or otherwise the bracket D, Figs. 1 and 3, to which is threaded the adjusting set-screw E, which is in line, or nearly so, with the slide-gage F, the adjusting-screw being brought in contact with one end of the gage F, and the other end terminating in a slot, G, in which is pivoted, at H, the adjustable gage-pin I, Figs. 6, 7.

In the upper die, J, is a slot, K, in which the pin enters when the dies are brought in contact to swage the shovel-blank into shape. The upper die is shaped to form a counterpart to the lower die, and when the two dies are in contact the shank L of the upper die laps down on the shank C of the lower die, as seen in Fig. 6, with the strap M of the shovel between. By this means the strap is formed at the time the plate is being swaged into shape by the upper and lower sections of the dies for forming the blade. Before the blank plate is subjected to the dies it is trimmed to the required shape and the rivet-holes N P are made in the strap, Fig. 1. When the plate is heated to the proper degree it is placed upon the lower die, A, so that the gage-pin I will pass through the hole N, as indicated in Fig. 3.

The plate is to be pushed in the direction of the arrow until the pin is in the position of I′, against the adjustable gage F, which is in contact with the set-screw E, the plate being in the line O. While in this position the upper die, J, is forced down on the lower one, and as soon as it reaches the plate it will begin to bend and curve it into a shovel shape, as seen at B, Fig. 3. In this changing of the flat blank to the configuration of a shovel, spade, or scoop the metal, by the action of the dies, will stretch and have a sliding movement in the line of its length, and will draw the gage-pin from I′ in the direction of I, Fig. 3. As the upper die is brought in contact with the plate the pin I enters the slot K in the shank thereof. By this arrangement of the gage mechanism, in connection with the dies, the successive plates are all gaged alike in the direction of their length, and as the gage-pin has no lateral movement it gages and controls the metal in its width or lateral direction with such accuracy as to insure a uniform distribution of the metal and symmetry to the implement.

Without this improvement the heated metal blank, while being subjected to the dies, is lia-

ble to be drawn and stretched, both in the line of its length and laterally, so unequally as to materially injure the relative proportions and a uniform distribution of metal in the shovel, &c. By the arrangement of the sliding gage F and adjusting set-screw E more or less longitudinal vibration may be given to the pin I by sliding the gage F to or from the pin and setting the screw in contact with said slide, as seen in Fig. 3. By this means it can be made conformable to various locations of the hole N in the shanks of different shovels, and more or less movement may be given to the pin in the line O, as may be required for the shovel, by adjusting the slide-gage F and set-screw E, or their equivalents, in the manner described.

Instead of the pin I being hinged or pivoted at H, it may have a sliding or reciprocating movement; but the axle or vibratory movement of the pin, as described, is preferred.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a shovel, scoop, or spade forming die, a pivoted pin in the shank thereof, having an axial movement in the line of the shovel length, and arranged to extend through a hole in the strap of the article, for gaging the plate to insure a uniform distribution of metal when being swaged and compressed into shape and symmetry to the implement when finished, substantially as described.

2. In dies for making shovels and other similar implements, an adjustable gage-pin having a movement in the line of the shovel length, in combination with a sliding gage in the shank of the die and the adjusting-screw, arranged in relation to said gage and pin substantially as described, and for the purpose set forth.

3. In combination with the dies for making shovels, scoops, &c., a pivoted gage-pin, E, and adjusting devices for determining the movement of said pin when in the hole of the shank and while the blank is being formed into shape by said dies, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM CHISHOLM.

Witnesses:
J. H. BURRIDGE,
W. H. BURRIDGE.