

(No Model.)

W. P. T. JOPE.

DIE FOR TAPERING SHOVEL MOLDS.

No. 263,709.

Patented Sept. 5, 1882.

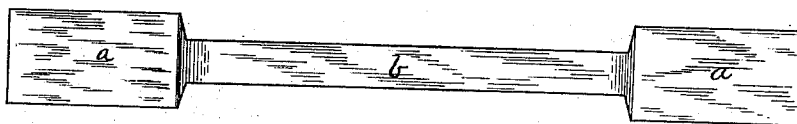


Fig. 1.

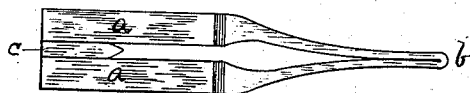


Fig. 2.



Fig. 3.

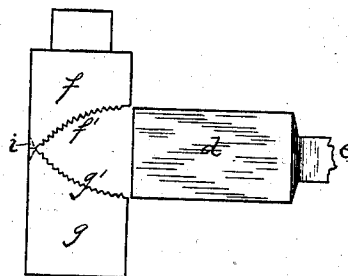


Fig. 5.

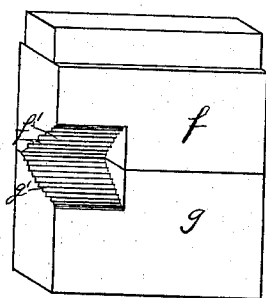


Fig. 4.

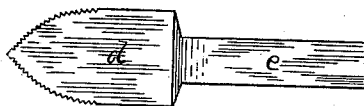


Fig. 6.

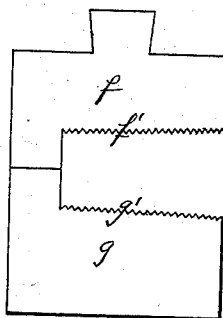


Fig. 7.

Witnesses.

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DIE FOR TAPERING SHOVEL-MOLDS.

SPECIFICATION forming part of Letters Patent No. 263,709, dated September 5, 1882.

Application filed April 24, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM P. T. JOPE, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Dies for Tapering Shovel-Molds; and I do hereby declare the following to be a full, clear, and exact description thereof.

Heretofore in the manufacture of shovels it has been customary to draw out the lower end of the blank, or "mold," as it is termed in the works, under a pair of slightly-convex hammer-dies previous to rolling or plating them out to the proper thickness. These hammer-dies operate upon the edges of the blank, and are designed to draw it out into a tapering form. The mold is a short thick rectangular article, having a greater longitudinal than lateral diameter, and at one end it is provided with projections extending from the middle of the sides, which, when plated out, form the straps. It is drawn out under the hammer-dies before mentioned to a rough tapered shape, so that when rolled or plated by the action of rolls or hammer-dies upon its sides it will have the general shape and outline of the desired shovel. The edges are then sheared to the pattern of the shovel, and the blank is finished up by hardening and polishing it.

The operation heretofore practiced is objectionable in that it is liable to draw the edges down irregularly, sometimes making one nearly straight, while the other is much rounded. The result of this is great waste in the final shearing of the blank. Another objection is that the operation of the dies upon the edges of the mold is to draw the edges out more than the center, so that there is formed in the end of the blank a sort of cavity or recess, which, when the blank is rolled out, is increased by the stretch of the metal, and requires it to be sheared of such recess or indentation, thus increasing the waste necessitated in cutting the shovel to shape.

To enable others skilled in the art to make and use my invention, I will now describe it by reference to the accompanying drawings, in which—

Figure 1 is a view of the mold after the first

step of its formation. Fig. 2 is a view after the second step. Fig. 3 is a view of the mold when ready for the operation of my improved dies. Fig. 4 is a perspective view of my improved dies. Fig. 5 is a side view, showing how the mold is presented to them. Fig. 6 is a view of the mold after being operated upon thereby. Fig. 7 is a side elevation of a die for shaping spades and similar articles.

Like letters of reference indicate like parts in each.

The mold is formed of two short thick rectangular pieces of metal, *a*, united by a thin narrow strip, *b*, Fig. 1. The piece *B* is bent at the middle until the two slabs *a* are laid upon each other, either with or without a center bit of steel between them, which bit forms the cutting-edge of the completed shovel. After this step the mold is in the condition shown in Fig. 2. It is then placed under a suitable hammer, and the slabs *a a* and bit *c* are formed into one solid thick rectangular body, *d*. (Shown in Fig. 3.) The strip *b* forms the straps *e* of the mold, which in its completed state and ready for the operation of my improved dies is shown in Fig. 3 by an edge view. A side view is shown in Fig. 5.

I construct the dies by which the mold is tapered as shown in Fig. 4. Here there are two dies, *f g*. The lower die, *g*, is secured upon the anvil-block in the usual way, and the upper die, *f*, is secured in the drop or hammer. Each of these dies is provided with a tapering serrated jaw, which is of the form to give the desired taper to the edges of the mold. These jaws are shown at *f' g'*. They are serrated laterally for the purpose of biting upon the edges of the mold and preventing its slipping or being thrown back against the workman. Where, as in Figs. 4 and 5, the taper of these edges is abrupt there is danger of their forcing back the mold *d*, when placed between them, with great force unless some provision is made for them to bite upon the mold and prevent its escaping. I therefore serrate them as described. It is to be remembered that the blow of the hammer *f* is delivered with great force and rapidity, so that the danger from this source would be great if the

faces of the jaws were smooth. The mold *d* is presented, as shown in Fig. 5, edgewise, and when the upper die, *f*, rises it is inserted a short distance into and rested upon the serrated surfaces of the lower die, *g*. As repeated blows of the die *f* are delivered upon it it is fed farther in, so that it shall be plated down into a tapered shape, which is the counterpart of the jaw-cavity, and is shown in Fig. 6.

It is apparent that all the molds made in the dies will be of the same shape, and that when such molds are rolled or plated out to form the shovel they will draw into substantially the same shape as the molds, which, being of about the shape of the proposed shovel, will cause the rolled or plated-out blank to require but little shearing to bring it to shape. In the old way, where, as before stated, the mold was tapered more to one side, the work of rolling or plating was rendered very difficult in the attempt of the roller to draw the blank into shape. This is entirely obviated by my improvement. By my invention I obtain uniformity of shape, reduce the labor and cost of manufacture, and save material.

The dies shown in Fig. 7 are designed for the manufacture of spades and other tools, such as canal and coal shovels, and all kinds of draining-tools having but slight taper. In this form of die it is not absolutely necessary that the sides be serrated, as there is much

less danger of the blank being cast out by the operation of the dies. When, however, the taper is more abrupt this is necessary.

If desired, the meeting faces of the die-cavity may be drawn to a cutting-edge, as indicated by dotted lines at *i* in Fig. 5, so that when the dies meet they will cut off any projection or teat which may be formed upon the end of the mold in drawing it down to a tapered shape.

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

1. A pair of dies for tapering shovel-molds, recessed so that when closed they form a tapered working-cavity, substantially as and for the purposes described.

2. A pair of dies for tapering shovel-molds preparatory to rolling or plating, having a tapering-cavity which is laterally serrated, substantially as and for the purposes described.

3. A pair of dies for tapering shovel-molds preparatory to rolling or plating, having a tapering cavity which is laterally serrated, and provided with cutting-edges at the inner end of the die-cavity, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 22d day of April, A. D. 1882.

WILLIAM P. T. JOPE.

Witnesses:

T. B. KERR,

W. B. CORWIN.