

(No Model.)

W. P. T. JOPE.

DIE FOR TAPERING SHOVEL MOLDS.

No. 263,709.

Patented Sept. 5, 1882.

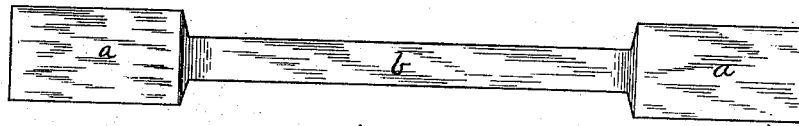


Fig. 1.

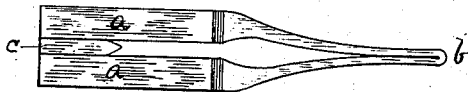


Fig. 2.



Fig. 3.

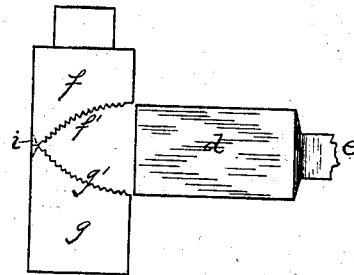


Fig. 5.

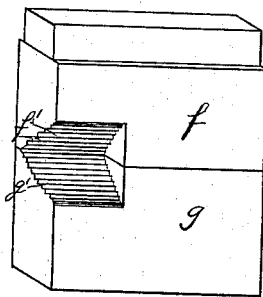


Fig. 4.

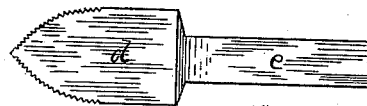


Fig. 6.

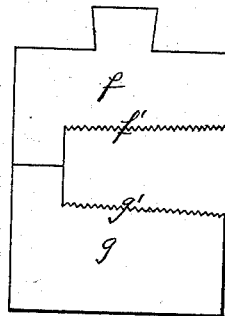


Fig. 7.

Witnesses.
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UNITED STATES PATENT OFFICE.

WILLIAM P. T. JOPE, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO
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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 fol-
lowing to be a full, clear, and exact descrip-
tion 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 ham-
mer-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 objec-
tionable 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 in-
creased by the stretch of the metal, and re-
quires it to be sheared of such recess or in-
dentation, thus increasing the waste neces-
sitated 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 im-
proved 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 rect-
angular 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 ham-
mer, 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 up-
per die, *f*, is secured in the drop or hammer.
Each of these dies is provided with a taper-
ing 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 ser-
rated laterally for the purpose of biting upon
the edges of the mold and preventing its slip-
ping or being thrown back against the work-
man. 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 remem-
bered that the blow of the hammer *f* is deliv-
ered 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.