

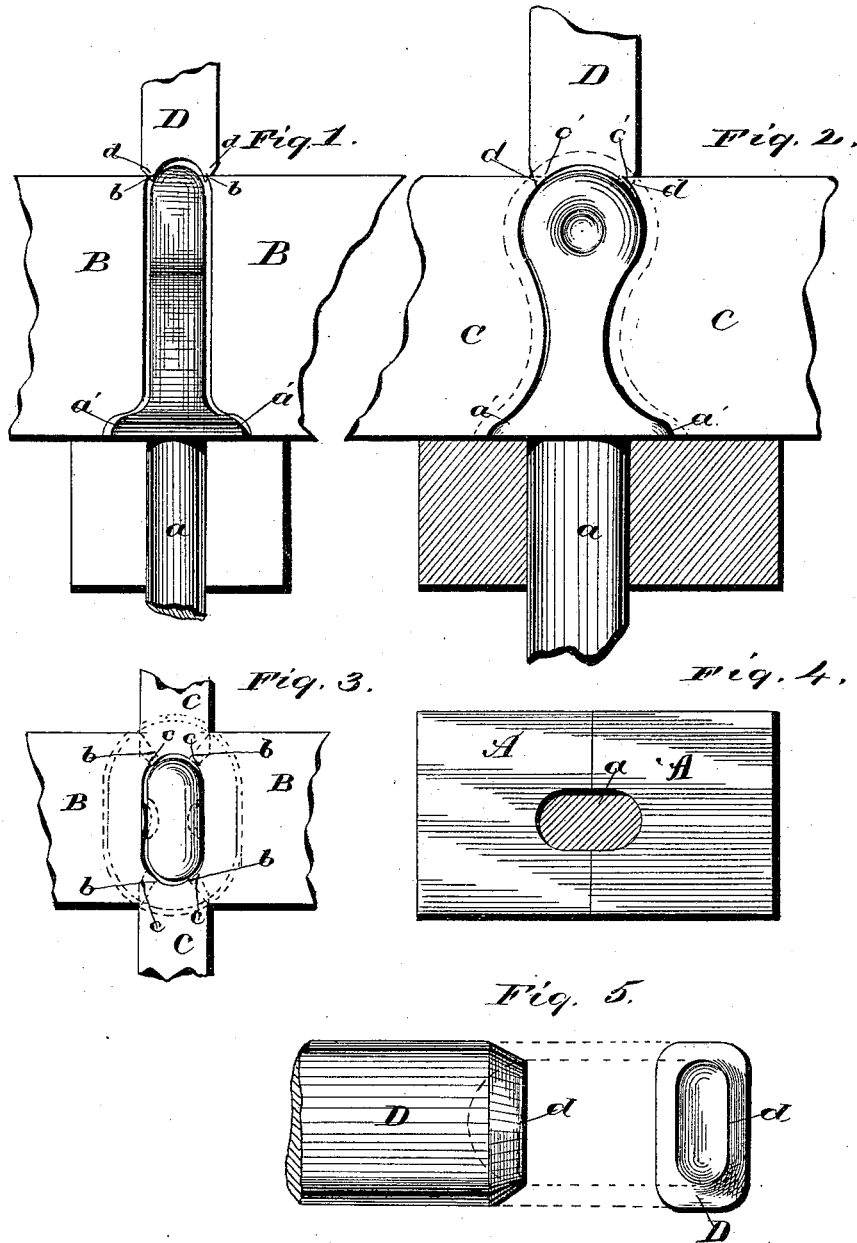
(No Model.)

F. A. IDDINGS.

SHAPING DIE.

No. 304,526.

Patented Sept. 2, 1884.



Frank A. Iddings.
INVENTOR

WITNESSES

Wm M. Monroe.
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by
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UNITED STATES PATENT OFFICE.

FRANK A. IDDINGS, OF WARREN, OHIO.

SHAPING-DIE.

SPECIFICATION forming part of Letters Patent No. 304,526, dated September 2, 1884.

Application filed February 6, 1884. (No model.)

To all whom it may concern:

Be it known that I, FRANK A. IDDINGS, of Warren, in the county of Trumbull and State of Ohio, have invented certain new and useful
5 Improvements in Shaping-Dies; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

10 My invention relates to shaping-dies, the object being to provide dies that will overlap each other on the blank as they successively strike it, by means of which the forging will be free from fins and other roughness.

15 With this object in view my invention consists in certain features of construction and in combination of parts hereinafter described, and pointed out in the claim.

My improved dies are designed to be operated in that class of machines in which seven
20 dies usually constitute a set, and are operated in the following manner: The first two are grasping-dies for holding the blank, and against which the metal is upset in forming
25 heads, shoulders, &c., by an upsetting-die moving in line with the blank, and striking it on the end. The face of this die may be flat, concaved, crowning, or otherwise, as may be required to shape the end of the forging as
30 desired. The remaining four dies are arranged in pairs that move in planes that are at right angles to each other, the two pairs striking the blank alternately, and the dies of each pair striking the blank simultaneously
35 and on opposite sides. The dies heretofore used in this class of machines were adapted to form bolt-heads and other angular forms, but in operating on curved and irregular surfaces would leave ridges or fins at places where the
40 edges of different dies struck the blank.

My improved dies are made to overlap each other on the blank, so that portions of the blank will be operated on by two dies moving in
45 planes that are at right angles to each other, by means of which no fins or ridges are formed, but the work, when completed, is smooth and in every way desirable.

In the accompanying drawings, Figure 1 is a plan view of the grasping-dies, side dies, and
50 heading or upsetting die, and an edge view of the finished work. Fig. 2 is a plan view

showing the heading-die, the edge dies, and the side of the finished work, and, in section, the grasping-dies. Fig. 3 is an end view of the finished work and of the side and edge
55 dies, and in dotted lines at the corners the overlapping of the dies on the blank. Fig. 4 is a side elevation of the grasping-dies when closed, and a section of the blank. Fig. 5 is an elevation of the side and face of the heading or upsetting die.

The piece of work selected to illustrate my invention is a flat coupling-pin for a car. The pin has rounded edges and a handle-shaped
65 end, as shown in Figs. 1 and 2. The blanks are cut from iron of suitable shape. A transverse section of the blank used in making this draw-pin is shown at *a*, Fig. 4.

A represents the grasping-dies, between which the blank *a* is inserted when the dies
70 are open. The faces of these dies are shaped to fit the blank, and of course are changed when a different-shaped blank is required.

B are the side dies that shape the flattened
75 sides of the work.

C are the dies that shape the edges, and D the die that upsets the blank and shapes the
80 end thereof. If the work is round in cross-section, the faces of the dies B and C will be alike. Any shoulders—such, for example, as shown at *a'*—are formed against the grasping-
85 dies, first, by the action of the upsetting-die, and, second, by the dies B and C, that compress the metal at other parts, leaving it free to expand at the shoulder.

In Fig. 3, at *b*, are shown the corners of the dies B at the extreme limit where they engage the blank. In like manner is shown, at *c*, the
90 extreme part where the dies C engage the blank. Between the points *b* and *c* both sets of dies alternately engage the blank, so that no ridges or fins are made, but the work at these points is as smooth and well finished as at other parts. The overlapping corners of each die should be dressed back a trifle, so that the
95 extreme corners will not mar the work.

In Fig. 1 is shown the overlap of the dies B, and the die D from *b* to *d*.

In Fig. 2 is shown the overlap of the dies C and the die D from *c* to *d*.
100

Many different articles may be shaped and given a smooth finish by my improved dies.

That with the dies heretofore in use could at best only be "roughed out," and would require another operation to finish the work.

What I claim is—

- 5 The combination, with grasping-dies and a series of shaping-dies arranged in pairs, each pair moving in planes at right angles to the other pair, and each die constructed to overlap or reach beyond the lines where the adjacent dies engage the blank, of an upsetting-
10 die the face of which is constructed to over-

lap or reach beyond the line where the shaping-dies engaged the blank, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 15
29th day of January, 1884.

FRANK A. IDDINGS.

Witnesses:

DISNEY ROGERS,
M. C. McNABB.