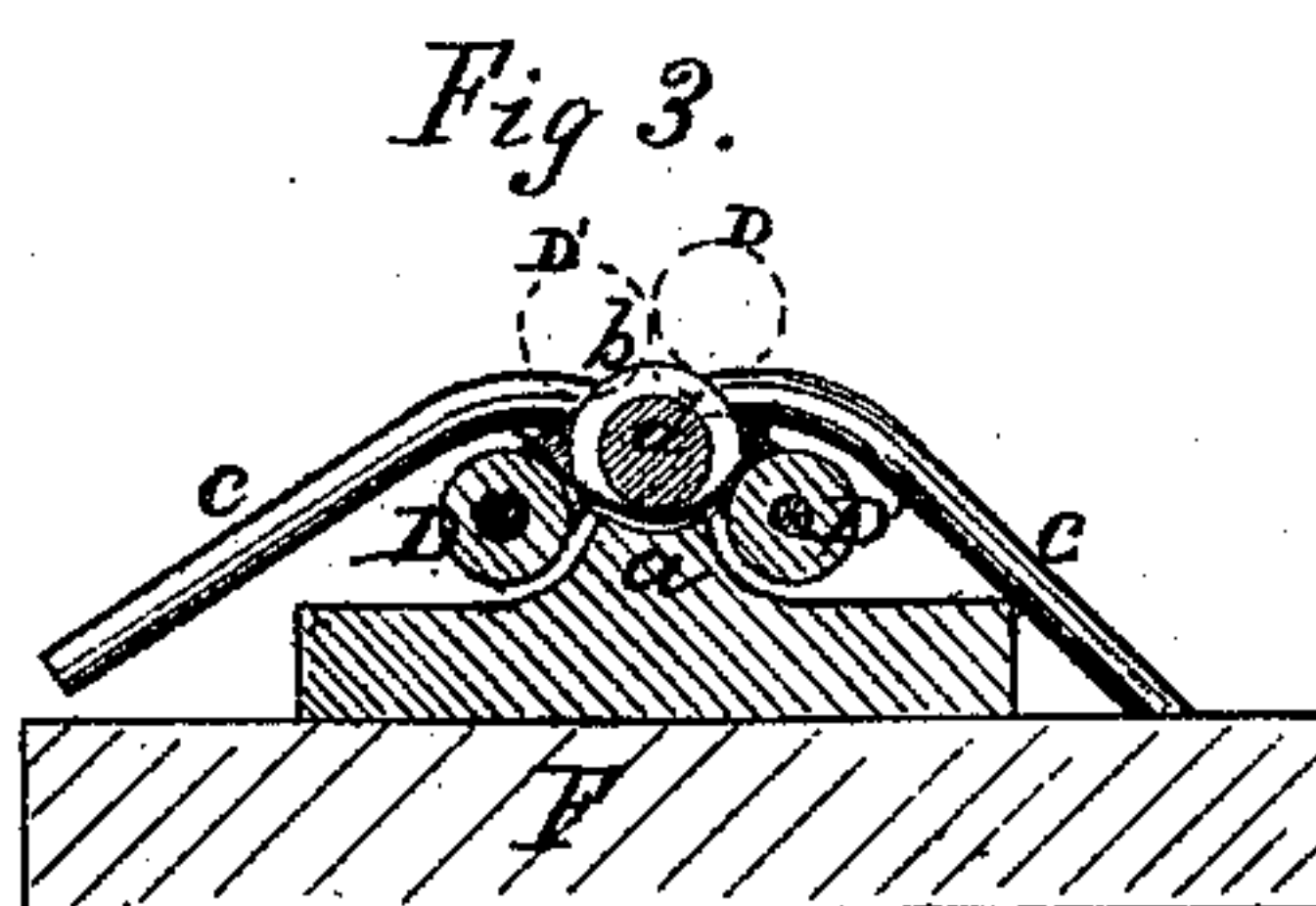
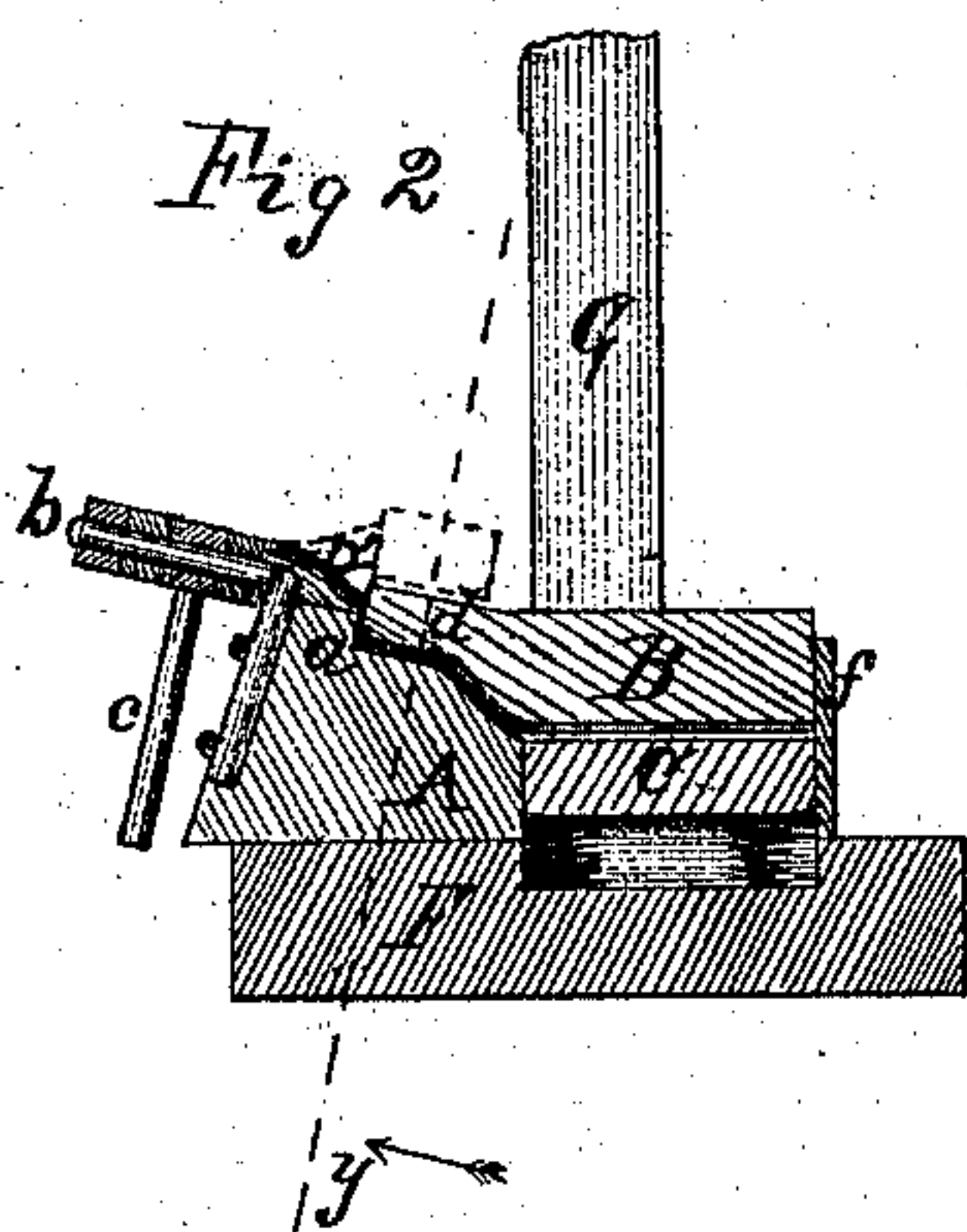
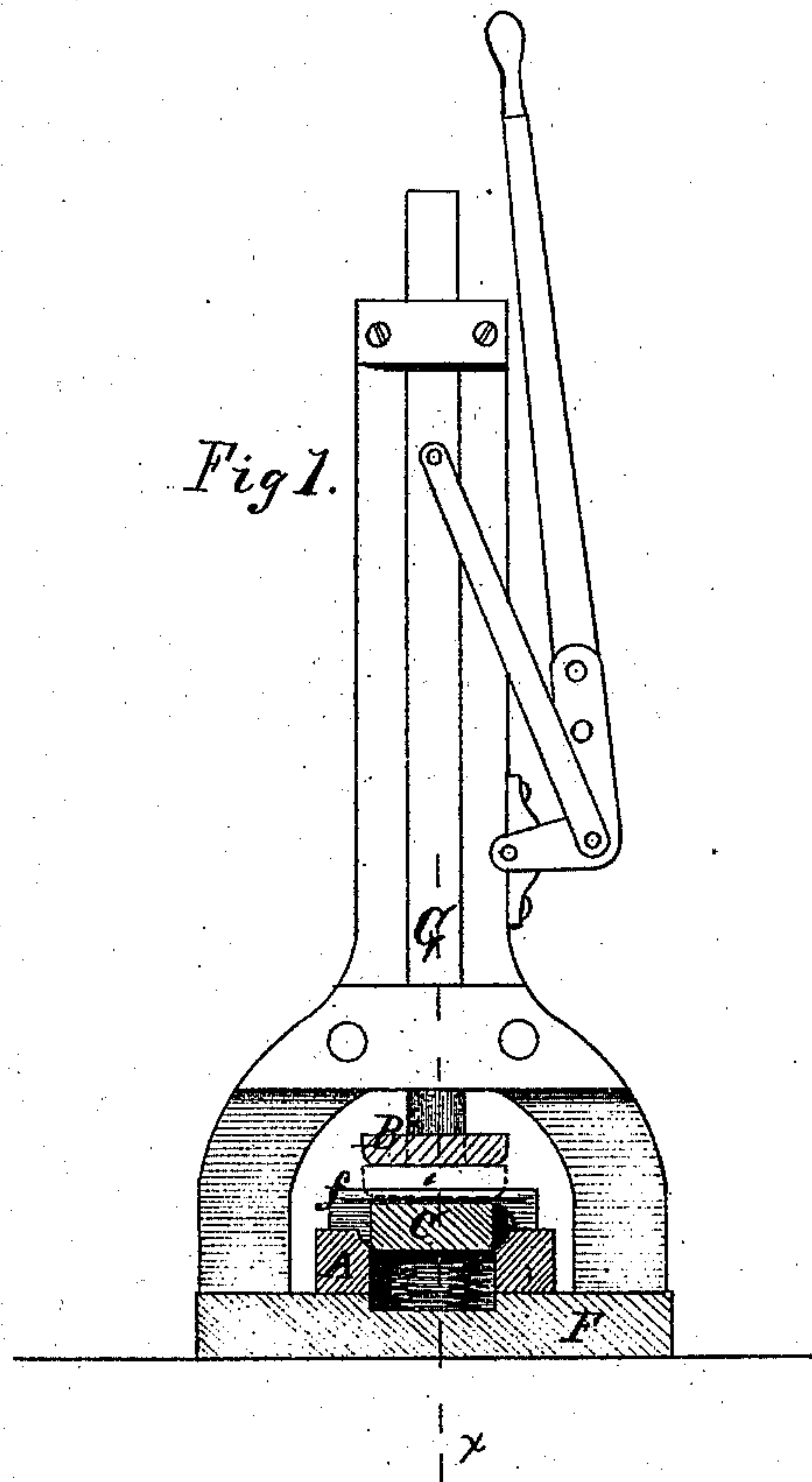


H. O. Ganyard,

Shovel Die.

No. 100,521.

Patented Mar. 8. 1870.



Witnesses:

J. H. Clement
Geo. A. Parker

Inventor

Henry O. Ganyard

United States Patent Office.

HENRY O. GANYARD, OF ROCHESTER, NEW YORK, ASSIGNOR TO AMI HILLS, OF SAME PLACE.

Letters Patent No. 100,521, dated March 8, 1870.

IMPROVED DIE FOR FORMING SHOVELS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, HENRY O. GANYARD, of Rochester, in the county of Monroe, and State of New York, have invented certain new and useful Dies for Forming Shovels; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is an elevation of an ordinary press, showing my improved dies in section.

Figure 2 is a vertical section at the dotted line *x*, fig. 1.

Figure 3 is a transverse section at the diagonal dotted line *y*, fig. 2.

The object of my invention is to provide a device for forming the bowls and sockets of shovels (and other similar articles which are made from one piece of metal) at one operation, and its nature will be understood by reference to the specification and drawings.

To enable others to make and use my invention, I will describe its construction and operation.

The matrix A and die B, the latter having a projecting horn *d*, upon which the handle-socket is formed, are attached, respectively, to the bed F and ram G of the press, in any suitable manner.

The matrix is provided with a yielding bottom, C, which may be of any desired area less than the flat portion of the shovel or the concaved portion of the matrix.

That part of the matrix, *a*, in which the socket of the shovel is formed, may or may not be attached to the matrix.

The bottom C may be supported by stiff metallic or rubber springs, or by a suitable connection between it and the ram G, whereby the die A and bottom C descend together into the matrix, having the plate to be formed clamped between them. By this arrangement it will be seen that the blank shovel is prevented from wrinkling or warping in the bottom as it is forced into the mold.

For the purpose of forming the socket for the handle, I provide the hinged folders D D', figs. 2 and 3, oscillating upon the axis *b*, and operated by levers *c*.

The axis *b* is secured to the matrix or socket-bed *a*, and is located in a line with the center of the horn *d* when the die B is at the lowest extremity of its stroke, as shown in fig. 2.

When the bowl of the shovel is formed in the matrix, the folders turn down at the side of the horn *d*, and the blank lies over them, as shown by the heavy line in fig. 3. After the die descends, each of these folders is partially revolved upon the axis *b*, by means of the levers *c*, as indicated by the dotted circles in fig. 3, pressing the metal over the horn *d* of the die.

It will be observed that one of the folders, D', is located somewhat nearer than D to the axis *b* and horn *d*. This is necessary, since one portion of the handle-socket laps over the other for the purpose of riveting together. The nearer folder D' is, therefore, used and returned to its place previously to the further one, D.

Rollers may be provided upon these folders to reduce the friction upon the blank.

After the shovel is thus formed, the die B is lifted and the shovel drawn off in the direction of the horn *d*.

A stop, *f*, is provided, against which the end of the blank is set, and similar guides may be used upon the side to center it.

By means of this invention I am enabled to perfectly form a shovel or similar article, of any size or weight, at one operation, and it is particularly applicable to the manufacture of the shovel patented by J. T. Page, July 21, 1868.

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

1. As an improvement in machines for pressing shovels, the die A, having a spring or yielding bottom C, in combination with the follower B, all operating substantially as and for the purposes set forth.

2. The combination of the dies A, B, and C, mandrel *d*, and bending-rollers D and D', constructed and arranged substantially as described.

HENRY O. GANYARD.

Witnesses:

F. H. CLEMENT,
GEO. T. PARKER.