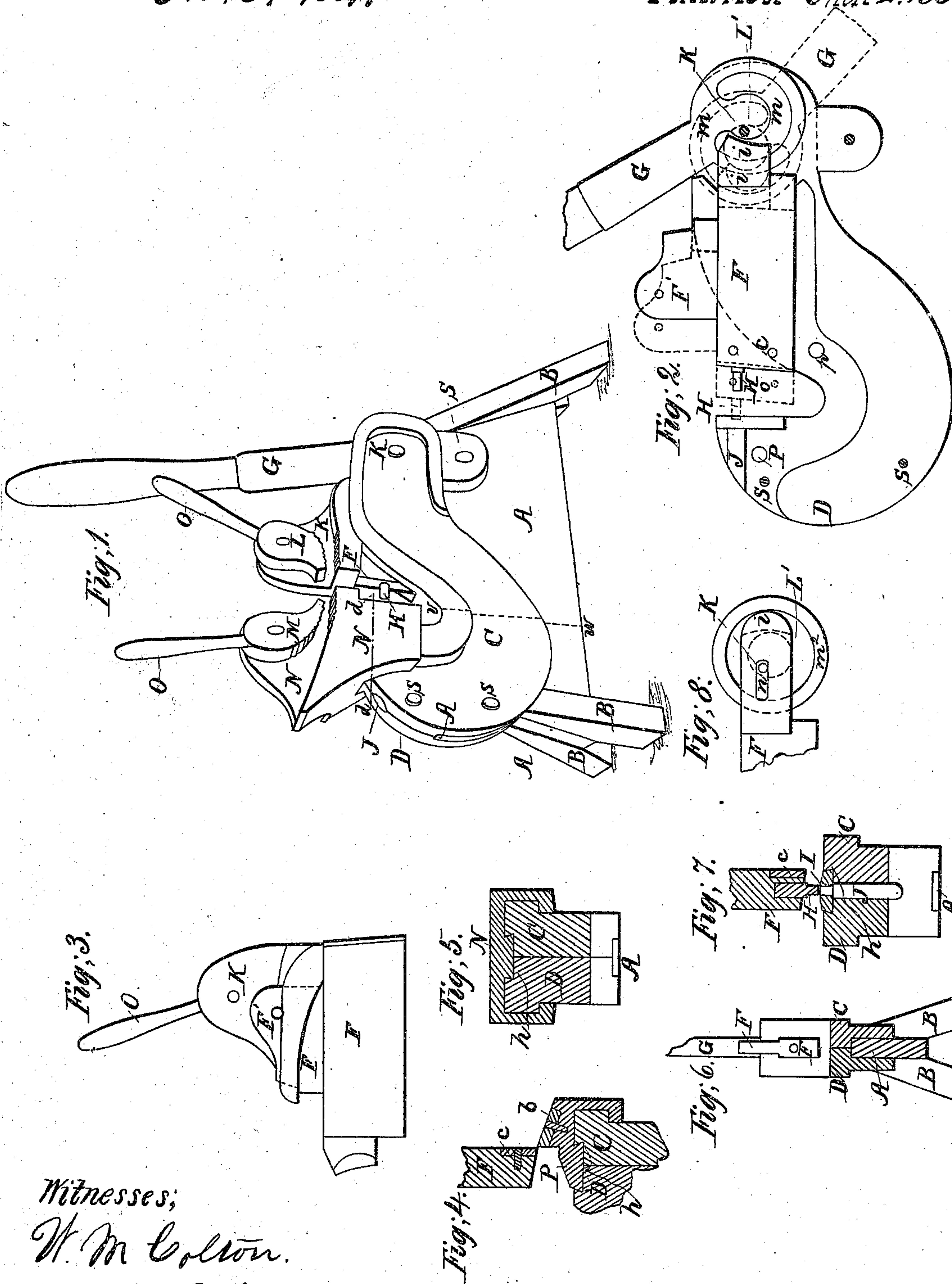


*D. C. Burdick,*

*Punch Shears.*

*No. 87,464.*

*Patented Mar 2, 1869.*



*Witnesses;*  
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# United States Patent Office.

DENNIS C. BURDICK, OF MILTON, WISCONSIN.

Letters Patent No. 87,464, dated March 2, 1869.

## IMPROVED PUNCH, SHEARS, AND IRON-SHRINKER, COMBINED.

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, DENNIS C. BURDICK, of Milton, Rock county, in the State of Wisconsin, have invented a new and useful Improvement in a Punch, Shears, and Iron-Shrinker, for cutting, punching, and shrinking iron and other metals; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, the same letter representing the same part in each figure.

The nature of my invention consists in using a double eccentric, or double cam for moving the punch and cutting-bar back and forth as the machine is operated; also, in attaching a movable shear or cutter to a horizontal punch-bar; also, in attaching a shear or cutter to a movable cap, to be attached to a machine when in use, without the necessity of bolt or screw; also, in attaching gripes to caps, that may readily be attached to the machine when used for shrinking-purposes, and removed, without loss of time, when the machine is used for cutting and punching-purposes; also, in making the point of a punch hollow, when used in combination with a horizontal bar; also, in making the sides of the machine in two parts, so that when put together, they receive the working-mechanism, and the wooden frame on which the machine stands; and also, in the general arrangements of the parts composing the machine.

Figure 1 is a perspective view, with the gripes for tire-shrinking purposes attached ready for use;

Figure 2 is a longitudinal view of the interior, one of the side-pieces being removed, showing the connection of eccentric and lever with the punch and cutter-bar;

Figure 3 is a view of a gripe detached, and giving a reversed view from that shown in fig. 1;

Figure 4 is a horizontal section, showing the mode of attaching the shears or cutting-edges to their places on the machine;

Figure 5 is a horizontal section of one of the gripes and cap by which it is attached to the machine;

Figure 6 is a vertical cross-section from *w* to *v*, in fig. 1;

Figure 7 is a horizontal section, showing the punch-bar, one shear, punch, punch-block, or die, and the aperture for the punch-chips to free themselves as the machine is operated; and

Figure 8 is a section, showing the eccentric or cam of a different form from that shown in fig. 2.

A and B compose the frame-work on which the superstructure or machine rests, or any suitable support may be used.

C and D are the sides of the machine, in two parts, which, when put together and held by bolts S, contain and support the working-mechanism.

F is the punch-bar, having at one end the punch H and shear *c*, while at the other end of the bar, the embossment or projection *i* fits the circular groove *m*, in the eccentric L', the eccentric having its pivot at *k*.

As the lever G is moved, the eccentric and punch-bar, with punch H and shear *c*, assume the position shown by red lines.

The aperture J serves to free the chips made in punching iron and other metals.

Also, as the punch-bar is moved forward, the gripe formed by K and L for upsetting tire, or other article, is moved also toward the stationary gripe M and N', the gripes being corrugated or toothed, as shown, to hold the article fast that it is desired to upset.

The gripe K is attached to the moving-bar by means of a mortise that fits projection F' of the bar F, while the part N, of the gripe M and N', is hollow and fits the parts O and D, as shown in fig. 5, a part thereof fitting the recess *h*, that receives the punch-die or block I, shown in fig. 7.

This device saves the necessity of bolts or pins to fasten the gripe N to the parts O and D.

When used for cutting-purposes, as iron and other metals, the gripes are removed, and the shears *b* and *c* shown more particularly in fig. 4, *c* being attached to the bar F, and *b* attached to the part P.

Part P is placed on parts O and D, as shown, without the need of bolts or pins.

In operating the machine as an upsetter, the gripes are placed on the machine, as described. The iron, or other metallic article, after being properly heated, is placed in the gripes, and fastened by moving the levers O O toward each other, and then, by moving the lever G, as described, the iron is upset.

To use the machine for punching, the gripes are removed, and the die I and punch H are put in their places, as shown in fig. 7, and the operation is performed by moving the lever G, as before described.

The point of the punch may be made hollow, to facilitate making the perforation.

To use the machine as shears, remove the die and punch. The shear *c* remains on the punch-bar, not needing to be removed when used as a punching-machine or as an upsetter. The part P having attached to it the shear *b*, is slipped to its place on parts O and D, as shown in fig. 4, and is used, as before described, by moving lever G.

Thus, by these slight changes, three machines are produced, each efficient and convenient, and with but little increased expense more than the cost of one machine.

It will be observed that the eccentric, with its groove *m*, and the embossment *i*, on the bar F, serve to move the bar as the lever is moved back and forth; also, that the eccentric-groove may be made in an entire



circle, as in  $m^2$ , in fig. 8, instead of the manner shown in fig. 2; also, that the eccentric and bar F may be operated by the lever G, or in any suitable manner.

I am aware that machines for cutting, punching, and upsetting, have been made, and do not broadly claim such combined machine independently of my manner of combining and operating them; but

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

The arrangement, upon the stand A, of the centrally-

bisected parts C D, supporting the bar F, cam L', and lever G, gripes K L, part N, and gripes M N, punch and die H I, movable part P, and shear  $c b$ , the parts being adjusted, and all constructed to operate substantially as set forth.

DENNIS O. BURDICK.

Witnesses

W. M. COLTON,

J. S. BLISS.