

I. S. VAN WINKLE.

MACHINE FOR PUNCHING AND SHEARING METAL.

No. 178,035.

Patented May 30, 1876.

Fig. 1.

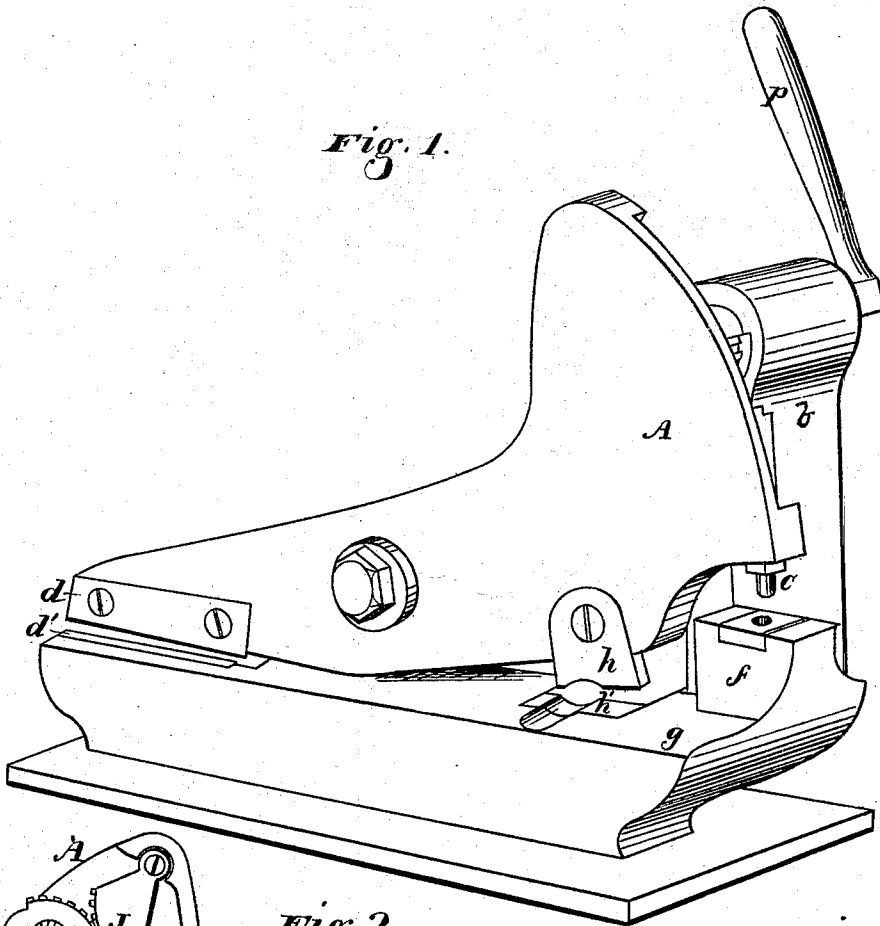


Fig. 2.

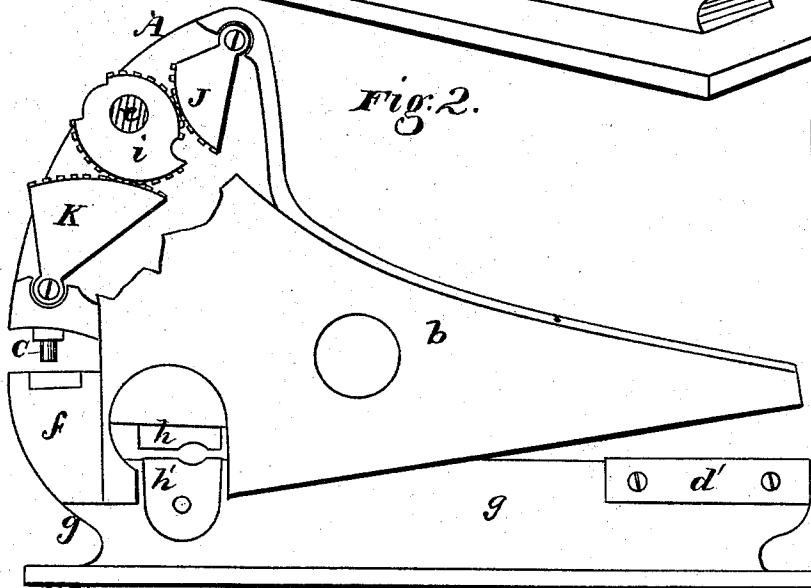
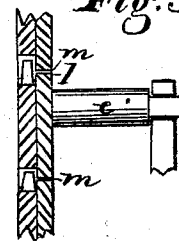


Fig. 3.



Witnesses

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ISAAC S. VAN WINKLE, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN MACHINES FOR PUNCHING AND SHEARING METAL.

Specification forming part of Letters Patent No. **178,035**, dated May 30, 1876; application filed March 13, 1876.

To all whom it may concern:

Be it known that I, ISAAC S. VAN WINKLE, of San Francisco city and county, State of California, have invented a Machine for Punching and Cutting Metals; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention without further invention or experiment.

This invention relates to an improvement in machines for punching and cutting metal; and it consists, first, in a swinging head-piece, having a punch and knives, arranged to be operated alternately by a peculiar cam movement, as hereinafter described and claimed; second, in a weighted handle, in combination with said cam movement, whereby the machine can be operated by a single operator, substantially as set forth and claimed.

The swinging head or cross piece A, which is operated by the cam movement, is pivoted upon a support, *b*, and carries a punch, *c*, and cutting-knife *d*, one at each end, and also an intermediate cutting blade, *h*, somewhat different in character from the former.

The arrangement of punch and cutters in this machine necessitates a somewhat peculiar conformation of support or frame-work, that shown in the present instance being exceedingly simple and convenient, to wit: The part *b* affords bearing for the shaft *e* of the cam movement, and for the swinging head A, and also serves as a guide for the same. The extension or block *f* of part *b* has a bed-die for the punch *c*, and upon the part *g* the lower knives or jaws *d'* *h'* of the cutter, of which the end cutter *d'* is designed for cutting sheet metal, and the cutter *h'* for cutting rods and bars.

The swinging head-piece A is preferably recessed for the reception of the several operative parts of the cam movement, which consists of an involute or heart-shaped cam, *i*, secured upon shaft *e*, and provided with cogs, which gear with corresponding teeth upon two segmental cam-gears, J K, pivoted to the swinging head-piece. The cogs arranged upon each of these cam-shaped surfaces are in width equal to about one-half the width of said sur-

faces, and of such depth that all pressure will come entirely upon the smooth bearing-surfaces *l m m* of the several cams, and the gearing serve for traveling purposes only.

The cam-segments J K are arranged to gear with the heart-shaped cam-gear *i*, so as to travel in opposite directions during the movement of said cam, whereby the punch and cutters may be alternately operated at pleasure.

The shaft *e* has a square or suitably shaped end for engaging with an independent weighted handle, *p*. This handle should have considerable weight for the following important purposes: It being desired to operate the punch by a single operator, and in cases where considerable force is required, the handle is fitted on shaft *e* in an elevated position, and, by reason of its weight, is easily depressed, and the punch brought down upon the metal. If it is now desired to raise the punch and close the cutting-jaw, the handle is taken off and again fitted onto the shaft in a reverse position, corresponding to the one assumed in order to depress the punch.

It will be observed that in the operation of this machine the line of pressure in the cam movement is in a right line between the axial bearings of the segmental cam, by reason of which the shaft *e* may be made of minimum size, if desired; also, the pressure being upon plain bearing-surfaces, the cogs are not liable to be broken.

The apparatus may be used for any metal-work, including the punching, forming, and pressing boxes, cans, and embossing.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The swinging head-piece A, carrying a punch, C, and cutters *d h*, constructed as described, and operated by the cam-gear *i* J K, substantially as shown, and for the purpose set forth.

2. The weighted handle *p*, in combination with the shaft *e*, cam-gears *i* J K, and swinging head-piece, substantially as specified.

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Witnesses:

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