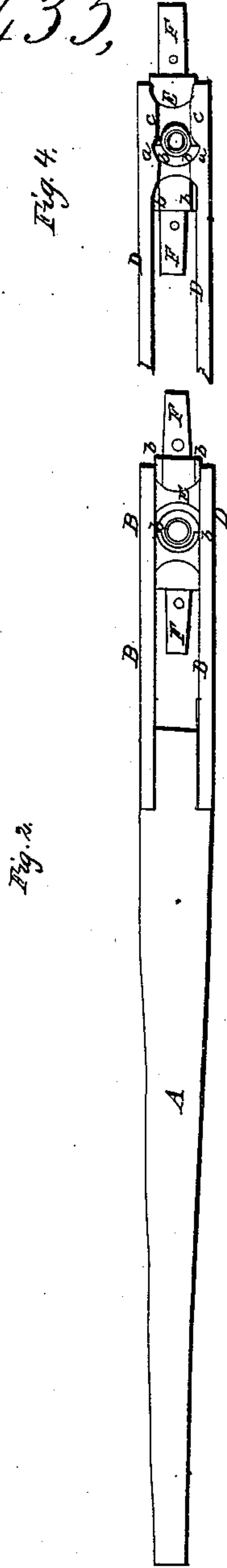


*S. Merrick,*

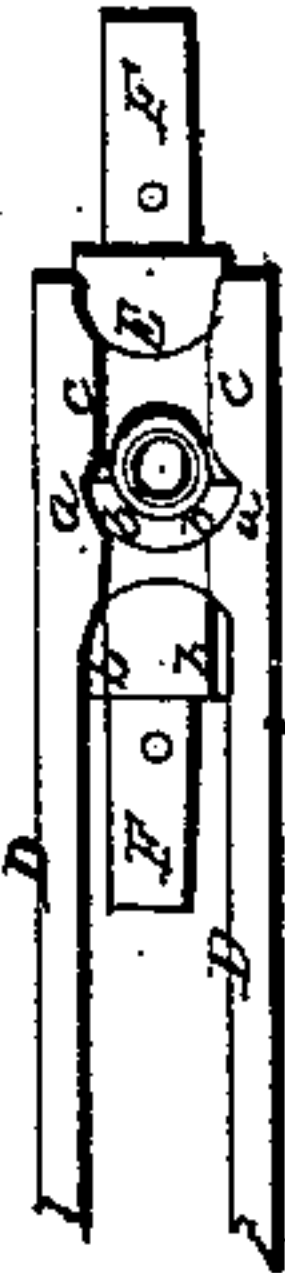
*Punch,*

*No. 5,435,*

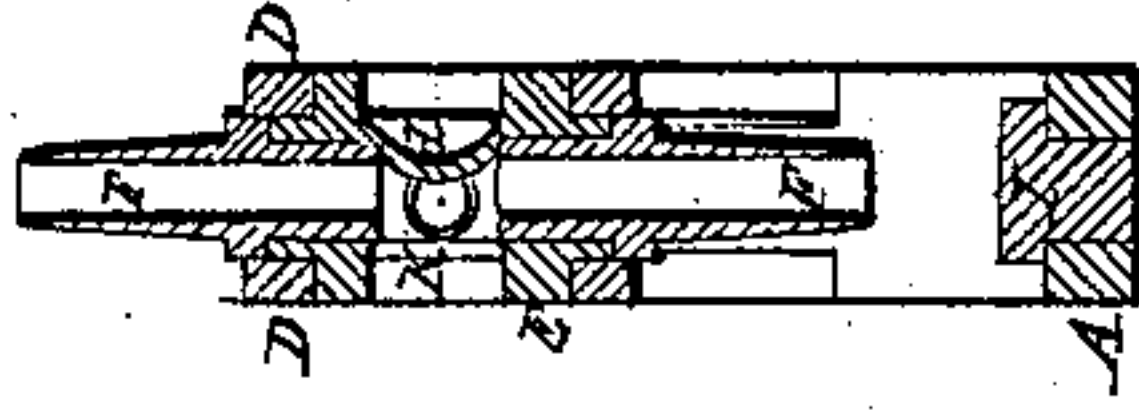
*Patented Feb. 8, 1848.*



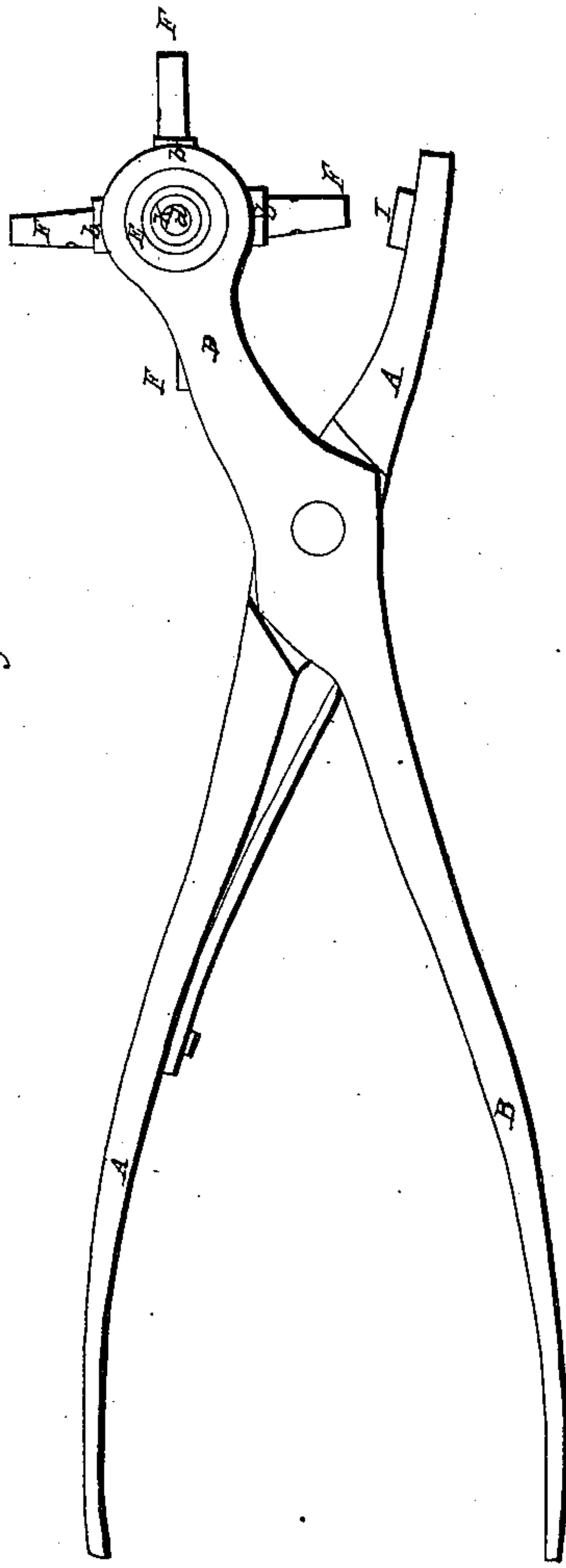
*Fig. 4.*



*Fig. 3.*



*Fig. 1.*



# UNITED STATES PATENT OFFICE.

SOLYMAN MERRICK, OF SPRINGFIELD, MASSACHUSETTS.

## IMPROVEMENT IN REVOLVING SPRING-PUNCHES.

Specification forming part of Letters Patent No. 5,435, dated February 8, 1848.

*To all whom it may concern:*

Be it known that I, SOLYMAN MERRICK, of Springfield, in the county of Hampden and State of Massachusetts, have invented a new and useful Improvement in the Revolving Spring-Punch on which Letters Patent No. 636 of United States of America were granted to me on the 17th day of March of the year 1838; and I do hereby declare that the same is fully described and represented in the following specification and accompanying drawings, letters, figures, and references thereof.

Of said drawings, Figure 1 denotes a side elevation of my improved punch. Fig. 2 is a top view of it. Fig. 3 is a vertical and transverse section taken through the series of revolving punches. Fig. 4 is a view of the under side of the holding-jaws and the rotating series of punches.

In said figures, A denotes the bed-lever of the punches; B, the punch-lever, or that which supports or carries the series of rotating punches F F F F, which are sustained and revolve between spring-jaws D D.

I is the bed or block, of copper or other proper material, in conjunction with which the lower punch acts during the operation of punching a hole in a piece of leather.

E is the cylinder to which the several punches are fastened. In the instrument described in the schedule of the Letters Patent hereinabove mentioned the spring jaws or sides D D of the punch-lever were provided with curved recesses or circular catches, as seen at G G in Fig. 3 of the drawings of said Letters Patent. The said recesses were for the purpose of clasping and holding the lower punch, and of course all the others, stationary while being used. In practice it is found that they do not answer the purpose intended.

By careful inspection of the manner in which the punch is made to operate on a piece of leather placed on the bed I it will be observed, when it enters and while it is passing through the leather, that, as it moves in the arc of a circle and is in form a straight frustrum of a cone, a force will be exerted against it in a direction which causes it to move a little outward or toward the contiguous end of the lever A. This force, constantly acting whenever the instrument is used, soon wears the recesses G G in such manner as to render it very difficult to punch a hole through any piece of leather or other substance in the manner re-

quired. The instrument, when so made, has been found to get out of order in a very short time and to such extent as to be of little value. In order to remedy the said defect I dispense with the curved recesses, and in lieu thereof I make a right-angular notch, *a*, in each spring-jaw, which notch I make to fit one of two projections or right-angular shoulders, *b b*, made on the sides of the punch, the form of said notches and said shoulders and their positions being represented in Fig. 4. The peculiar manner in which they operate together renders it impossible for the lower punch to move laterally toward the adjacent extremity of the lever A. Each punch of the series should be fitted with one or two right-angular shoulders. The notches *a a* are made in cam-projections *c c*, formed respectively on the spring-jaws, as seen in Fig. 4.

For the purpose of effectually discharging the little circles or cylinders of material separated from any article by the cutters, and which pass through the cutters and into the interior or space K of the cylinder E, I place in said space K a cone, *d*, or any proper equivalent inclined surface, which I arrange with respect to the discharging-mouths of the punches as seen in Fig. 3, or so that after the pieces of leather or other material have passed out of the punches they may be forced against the cone and by it directed laterally and out of the space K. Without some such contrivance the space K is very liable to become filled or choked by the pieces which are cut away from the leather or other material by the punches.

What I claim as my invention is—

1. The manner or mode in which I effectually prevent the punches from improperly moving while in act of cutting—viz., by one or more right-angular notches, one or more right-angular shoulders, in combination with or applied to them and the spring-jaws, substantially as specified.

2. The cone *d* as arranged with respect to the punches and combined with the space K of the cylinder E, substantially in manner and for the purpose as above specified.

In testimony whereof I have hereto set my signature this 17th day of May, A. D. 1847.

SOLYMAN MERRICK.

Witnesses:

GEO. ASHMAN,  
R. A. CHAPMAN.