

S. Vanstone.

Making Nut Blanks.

N^o 83,745.

Patented Nov. 3, 1868.

Fig. 2.

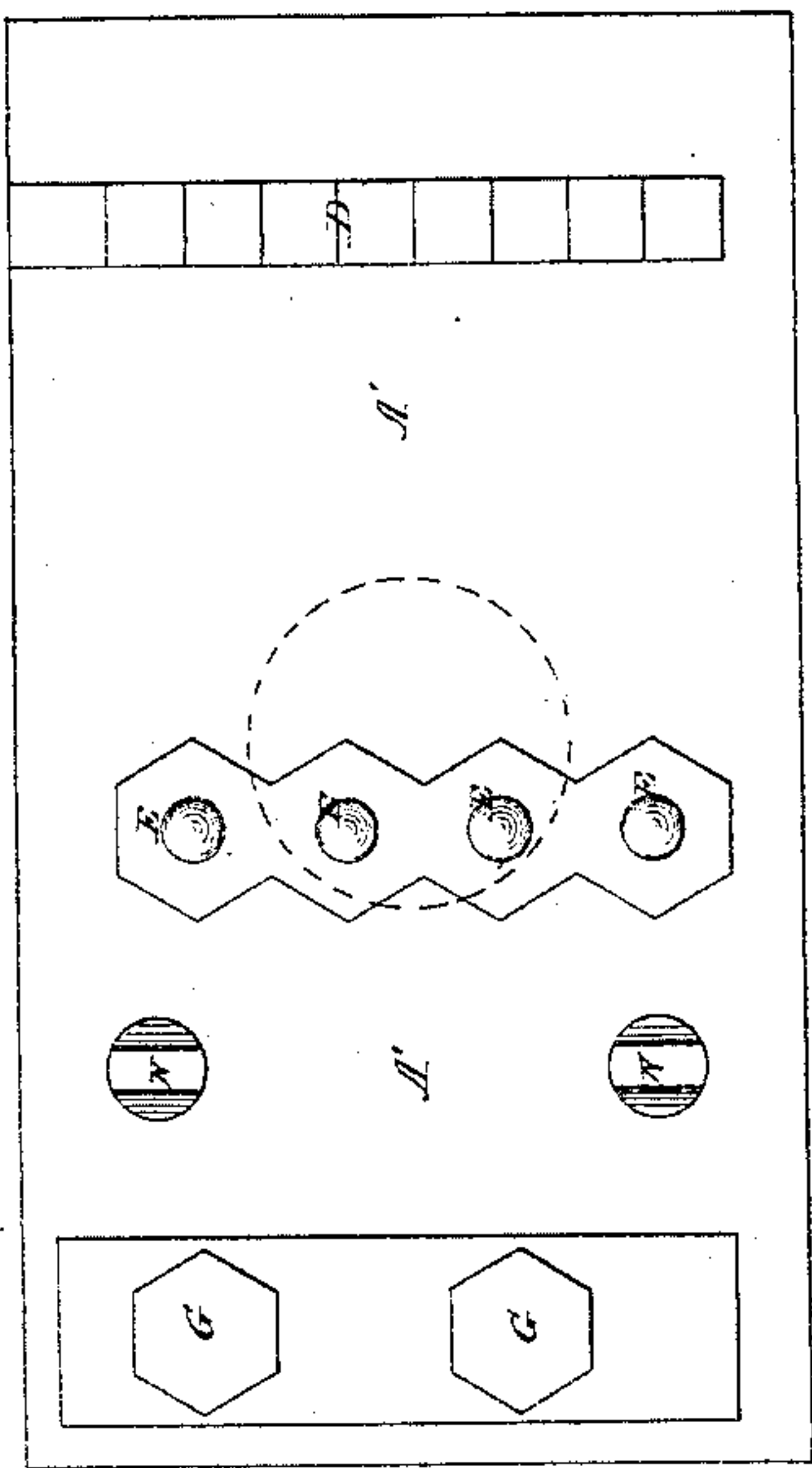


Fig. 3.

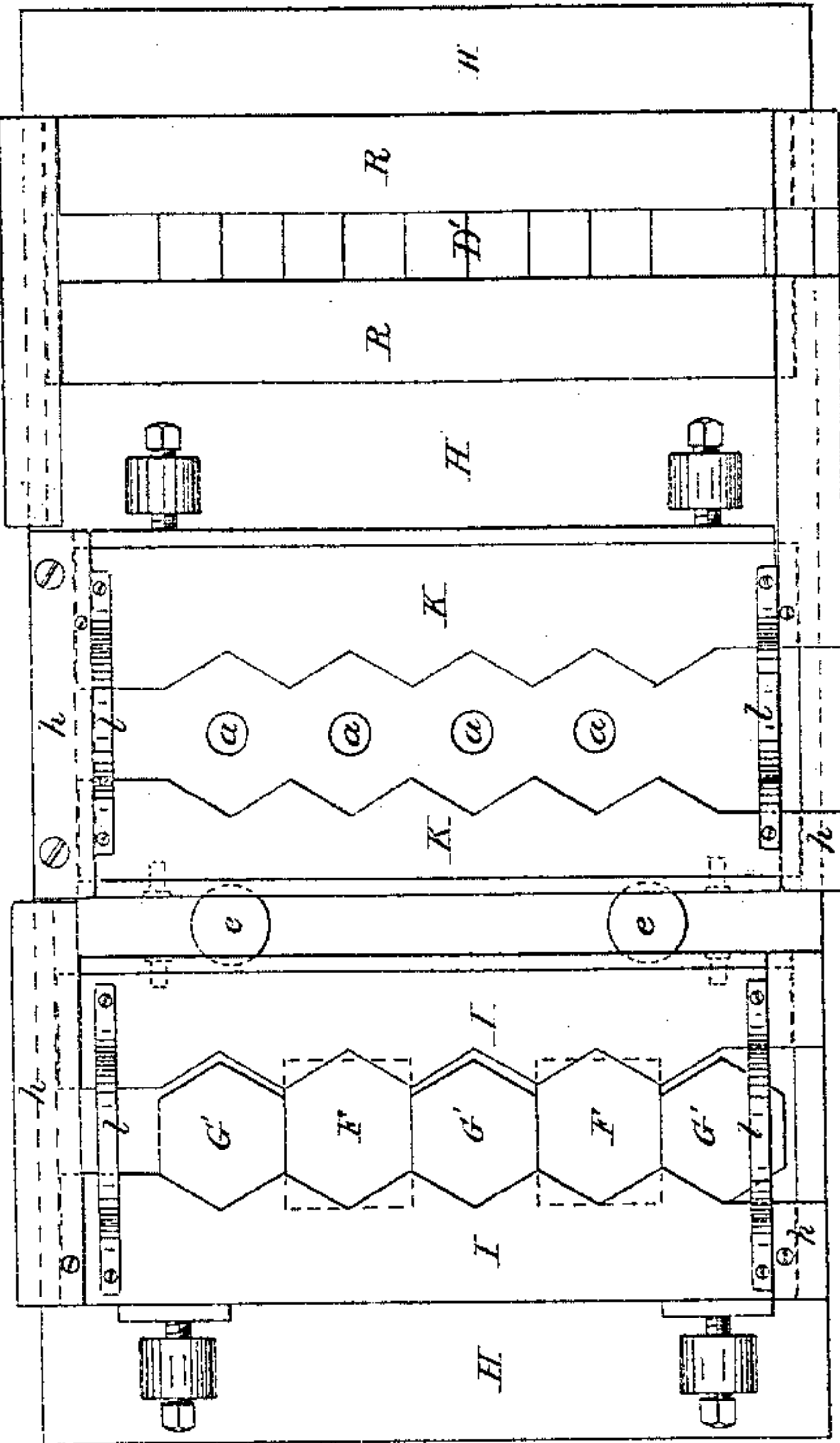


Fig. 8.

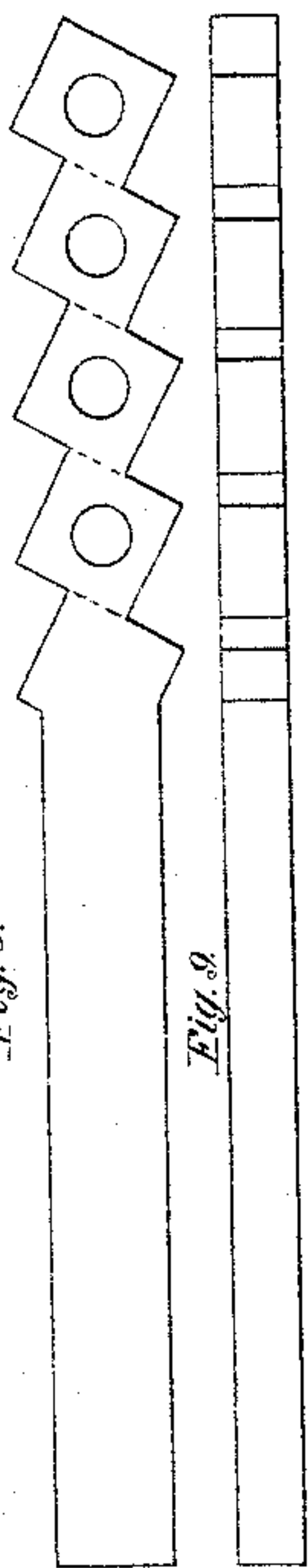


Fig. 9.



Fig. 10.



Fig. 11.

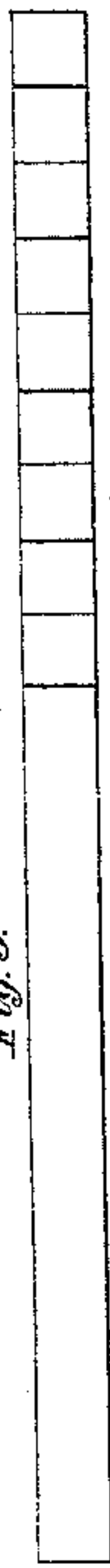


Fig. 12.

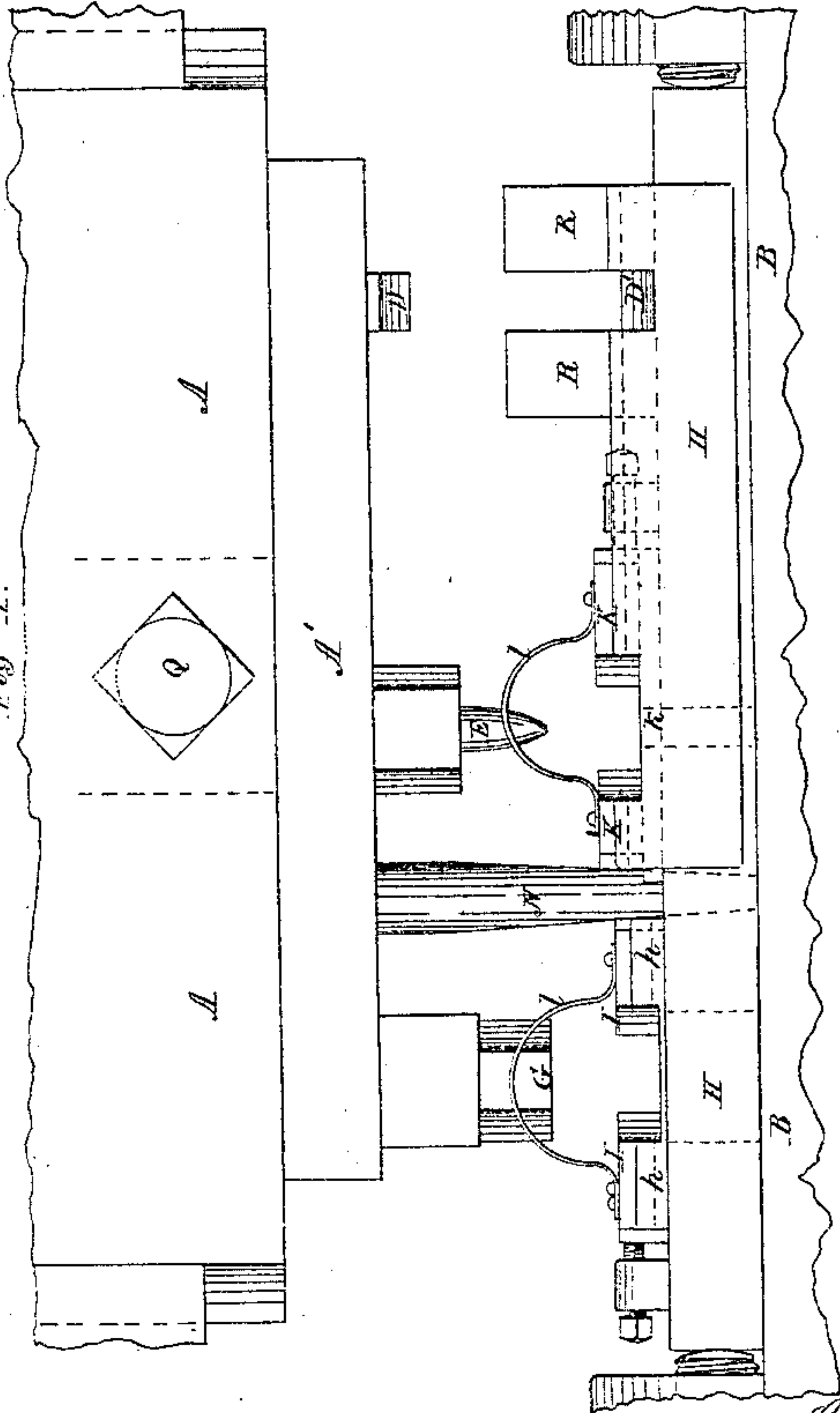


Fig. 6.

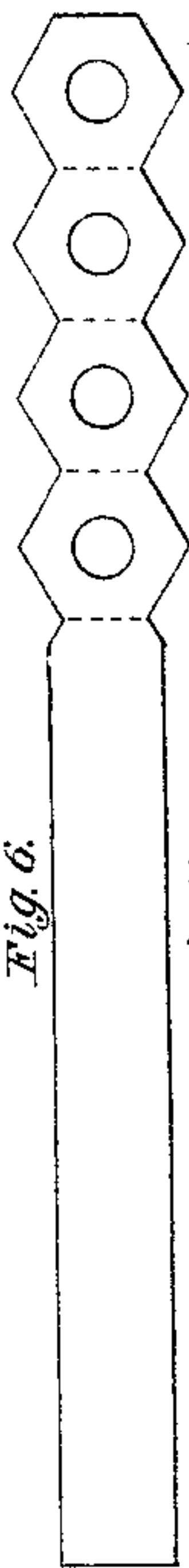


Fig. 7.



Witnesses:
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SAMUEL VANSTONE, OF PROVIDENCE, RHODE ISLAND.

Letters Patent No. 83,745, dated November 3, 1868.

IMPROVED MACHINE FOR MAKING NUTS.

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, SAMUEL VANSTONE, of Providence, in the county of Providence, and State of Rhode Island, have invented a new and improved Mode of Making Nut-Blanks; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a front elevation of the part of a nut-machine which embodies my invention.

Figure 2 is a plan of the series of formers and punches, and

Figure 3 is a plan of the dies and jaws which co-operate therewith in performing the several operations of my improved mode of making nut-blanks.

Figures 4 and 5 represent the metal bar from which the nuts are made, after undergoing the first operation for hexagonal nuts.

Figures 6 and 7 represent the same after the second operation.

Figures 8 and 9 represent said bar after the first and second operations of converting the same into square nuts.

Similar letters indicate corresponding parts in all the figures.

It has been the general practice heretofore to punch nut-blanks cold from the metal, the eye or hole for the bolt being first punched through, after which the metal around the eye is punched out in proper form, by means of suitably-formed punches and dies, in a power-press. By this method, however, the fibres of the metal become separated with punching the hole through the centre of the cold bar of metal, and the nuts are, in consequence, unsound, and liable to split open by the operation of "tapping." There is also, attending this method of making nuts, a considerable waste of material, and owing to the considerable power and strength of material required, only one nut can be made at a time; and on account of these and other objections, endeavors have been made to work the metal hot, with a view, generally, of improving the quality of the manufacture, and my invention belongs to this latter class of inventions, that is, to modes of making nut-blanks from heated metal.

My invention consists in giving a form to the edges of a heated bar of iron, corresponding to that of the angular edges of a number of connected nut-blanks, by compression, by means of suitable swaging-dies, constructed as hereinafter described, so that by a subsequent operation the bar may be divided into sections, each of which constitutes a perfectly-formed nut-blank.

Secondly, in the use of a series of two or more tapering-pointed punches for punching the eyes of a number of connected nut-blanks at a time, in combination with a pair of compressing-jaws, suitable for holding and compressing such blanks, to operate in such a manner, that while the heated bar is held between the jaws, the pointed punches are forced par-

tially through from one side of the bar, and then, by reversing the bar, so as to present the opposite side, the punches are forced completely through, and the material thereby forced from the centre into the body of the nut-blanks.

Thirdly, in the use of a set of compressing-jaws, in combination with a set of cutting-punches of corresponding form and size to the bar of connected nut-blanks, arranged and operating in the plunger and chuck of a power-press, to clip and separate the blanks from each other and from the bar, when they are completed.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same.

In fig. 1 of the drawings, A represents a portion of the plunger of an ordinary power punching-press, and B represents a portion of the bed of the same beneath the plunger. In the plunger A is secured, by the set-screw Q, a metal plate, A', on the face of which is formed a crimping former, D, figs. 1 and 2, a set of tapering-pointed punches, E E E E, and a set of cutting-punches, G G. Opposite these, respectively in the chuck H, is arranged a crimping former, D', corresponding in form to that (D) on the plunger; a pair of compressing-jaws, K K, figs. 1 and 3, sliding in guides, h h, at each end, and held asunder by means of springs, l l; and between said jaws, in the chuck, is a number of centre holes, a a a a, for the reception of the pointed ends of the punches E of the plunger; and opposite the cutting-punches G there is a pair of compressing-jaws, I I, operating like the jaws K; and between said jaws, in the chuck, are situated three cutting-studs, G' G' G', with two apertures, F F, through the chuck, between the two outside studs G', and the middle one, through which the nuts, that are cut from the bar by the punches G, fall beneath the machine.

There are two tapering studs, N N, protruding from the face of the plate A, and extending down into two apertures formed in the chuck at e e, fig. 3, between the two sets of jaws K and I. The office of these studs is to set up the jaws upon the bar of nut-blanks by the downward movement of the plunger, and to direct the pointed punches E E, which, with the plunger, descend, so that the points of the punches will pass through the metal bar, which is held and compressed at the same time between the jaws K K, operated by the wedge-shaped studs N N. When the punches ascend, the bar is released by the jaws, and is turned over, and again thrust between the jaws, so that the punches may be forced through from the opposite side of the bar, which, owing to the pointed shape of the punches, forces the metal from the centre into the body of the nut, and completes the eye in each of the connected blanks, which being done, the bar thus formed is thrust between the jaws I I, and while compressed and held therein, the cutting-punches G G descend between the studs G' G' G', and cut the several nut-blanks from each other and from the bar, leaving the

end of the bar G^2 in proper shape to form another nut. The bar is then heated, and again wrought into form by the same successive operations.

I have, in the drawings, shown the several parts as adapted to the making of hexagonal nuts; but it will be seen that the same devices can be so far altered in form as to enable me to make square nuts in a connected form, as shown in figs. 8 and 9, and octagonal or other-shaped nut-blanks with the same facility; the shape of the crimping former being altered so as to impart the requisite angle to the sides of the nuts according to their form, and the cutting-punches and cutting-studs being altered in like manner to conform to the shape of the bar as it comes from the crimping former.

I would also explain that the cutting-punches and studs $G G^1$ (from the fact that only the two adjacent edges of each are subjected to the cutting-process at any one operation) may be made adjustable, and turn on an axis, so that when one cutting-edge becomes dull, a fresh edge may be brought into use with but little delay and alteration. The pointed punches E may also be removable, so that others of different size

may be substituted and used with the same size or form of nut-blanks.

The crimping-device, by means of which the bar of connected nut-blanks is formed, may be adapted to the operation of rolling or swaging, as well as to that of direct compression, herein described, and such adaptation is contemplated and claimed.

Claims.

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

1. The combination of the crimping-jaws $D D'$, pressing-jaws $K K$, and punches $E E$, with the plunger-plate A' and bed-plate B , all constructed and arranged substantially as described.

2. In combination with the subject-matter of the foregoing clause of claim, the jaws I , studs G , and punches G , arranged substantially as described.

3. Also, in combination with the bed-plate B , plunger-plate A' , and jaws $I I$ and $K K$, the tapering studs $N N$, arranged and operating substantially as set forth.

Witnesses:

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