

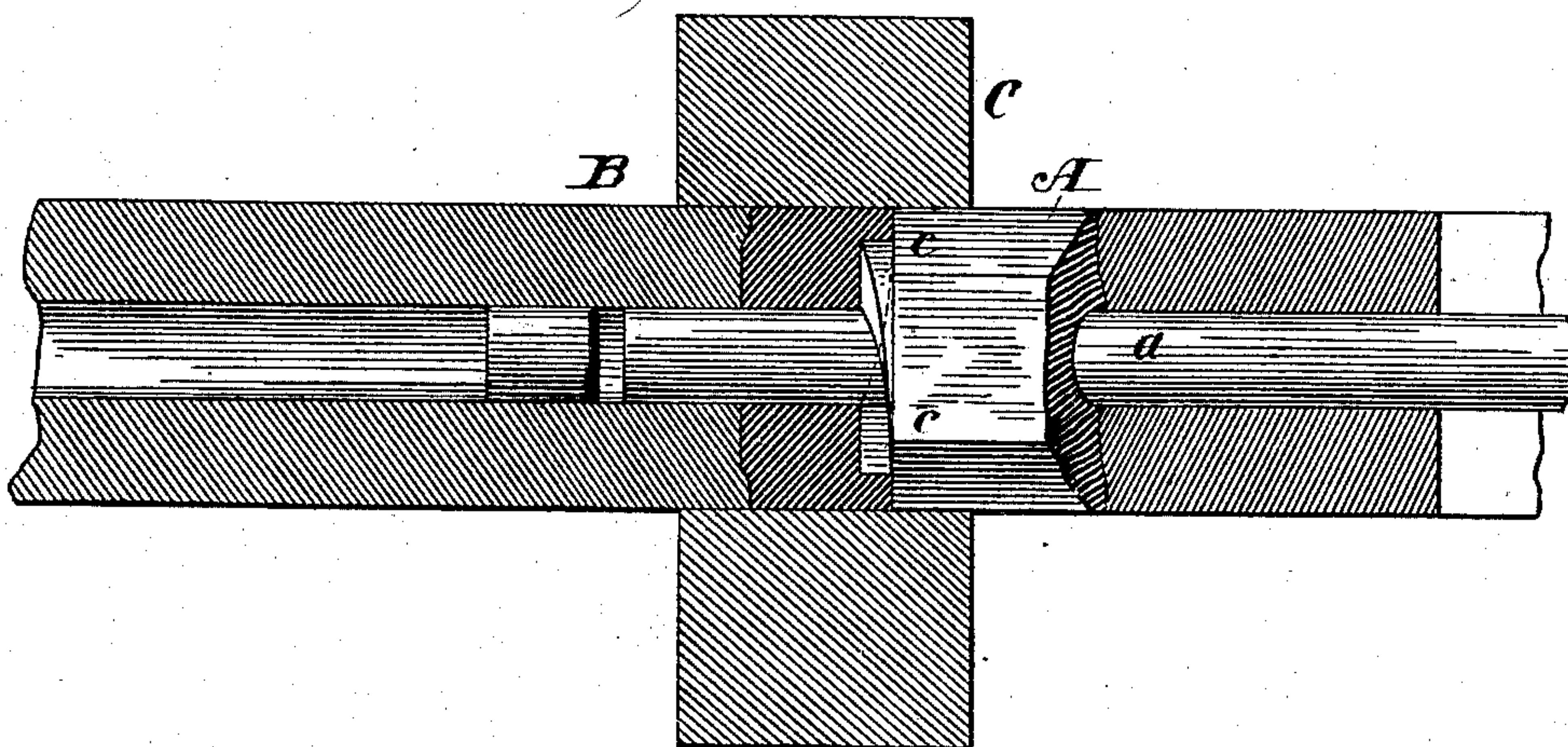
(No Model.)

W. GRAY.  
Nut Making Dies.

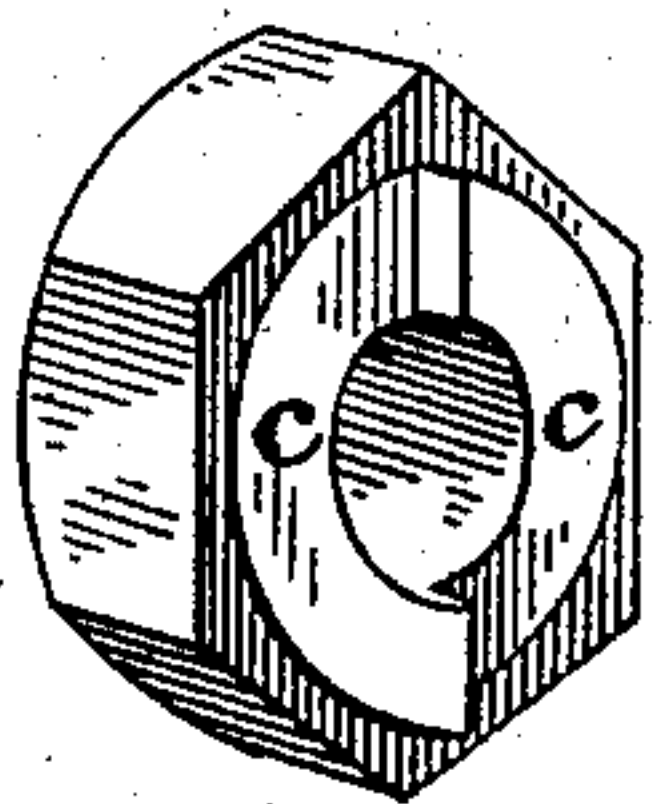
No. 238,890.

Patented March 15, 1881.

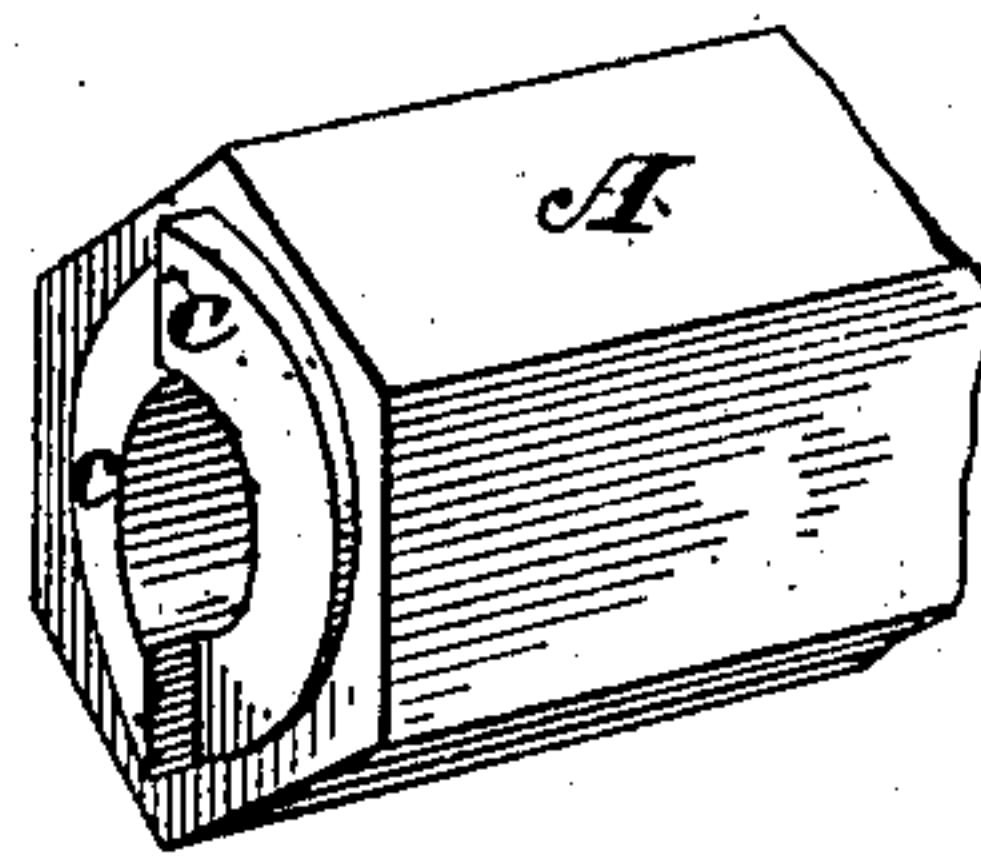
*Fig. 1.*



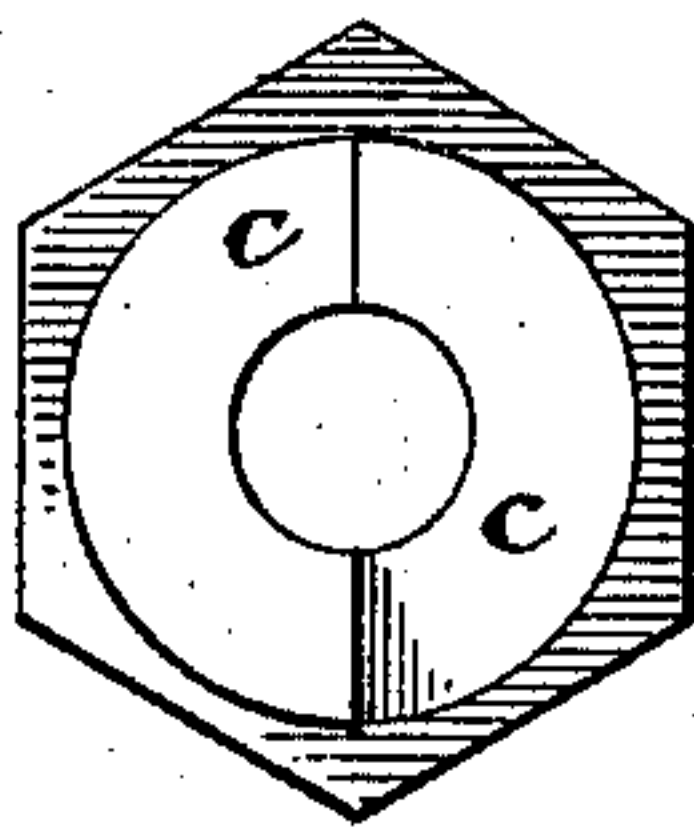
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



*Attest:*

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# UNITED STATES PATENT OFFICE.

WILLIAM GRAY, OF BEARDSTOWN, ILLINOIS.

## NUT-MAKING DIES.

SPECIFICATION forming part of Letters Patent No. 238,890, dated March 15, 1881.

Application filed June 18, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM GRAY, of Beardstown, in the county of Cass and State of Illinois, have invented a new and useful  
5 Improvement in Nut-Making Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to nut-making machines, and is designed especially for the purpose of making, in an effective and convenient  
10 manner, the form of nut shown in Letters Patent granted me the 4th day of November, 1879, and numbered 221,299.

I take as a basis of my improvement well-known machines of suitable form, such as that shown in Letters Patent of Cole, granted September 28, 1858, numbered 21,599. The machines mentioned are designed to make hot-pressed nuts. For this purpose they consist  
15 of a die-box to contain the nut, two hollow reciprocating punches moving in opposite directions, and a piercing-rod working in the pressing-punches.

In the device shown the die-box and pressing-punches are exactly like those in common use, with this exception, that as the nut must be formed with inclined projecting rabbets on its face to engage with the washer shown in my patent before referred to, the face of one  
20 of the pressing-dies must be provided with such inclined rabbets. With the adoption of this necessary change of form in the die arose a necessity for devising a special relation of the piercing-rod to such dies and to the nut; and this constitutes my invention, and will  
25 now be more clearly described.

In the drawings I have represented simply the die-box, punches or dies, and perforating-rod, the die-box and perforating-rod being of  
30 ordinary form. All the other parts of the machine may also be of ordinary construction, and need not be here described.

In these drawings, Figure 1 represents a longitudinal central section through die-box and plungers; Fig. 2, a view of the nut; Fig. 3, an end view of the plunger, and Fig. 4 a plan view of the nut.  
35

The form of the nut is clearly set forth in my said Letters Patent. For the purpose of connection with the washers, which form a

part of my improved nut-lock, it is necessary to form on one side of the nut, about the perforation thereof, inclined rabbets, which constitute bearings for corresponding inclined projections in the washers. In order to form  
40 these rabbets by the same operation which forms the nut, I place on the end of the hollow punch or die A inclined projections *c c*, arranged centrally upon the punch or die and immediately about the hole, so that the inner face of the projecting inclines coincides with the inner surface of the perforated punch, the inclines forming a kind of broken neck or rim upon the punch. This is clearly shown in Fig. 3, in which the die is represented as detached.  
45 The inclined projections are two in number, as shown, each terminating at the vertical face of the other; but the number of inclines is, of course, to be adapted to the number required upon the nut. Through this die A passes the piercing-rod *a*, which perforates the nut at the same time that the die is pressed thereon. The punch or die B forms the opposite side of the nut, and has the ordinary motion in relation to the die-box C.  
50

I have placed the piercing-rod in the die A in order that said rod may not drive the metal toward said die, which is provided with the inclines, so that said rod cuts away from the faces of the inclines instead of toward them. This effectually avoids wearing the die, which is a difficult tool to sharpen, and which, if not kept with sharp edges, leaves a feather on the nut and renders it liable to wear loose.  
55

The die-box and dies may be of any required shape, and the movements of the parts are the same as in the machines in common use.  
60

It will be observed that substantially all that is required for my improved machine is to place the inclined projections, as shown in Fig. 4 of my said patent, on the face of the die around the hole or piercing-rod. Any ordinary nut-making machine may therefore be fitted, at small expense, to make my improved nuts.  
65

The punch A may be of square or polygonal form to correspond to the nut; but it is desirable to arrange the inclines upon the punch so as to bring the vertical faces of the inclined projections opposite. The object of this is to bring the largest amount of metal at these  
70 75 80 85 90 95 100

points, and thus to compensate for the loss of metal in the deepest part of the rabbet, which is next to the vertical faces.

Having thus described my invention, what  
5 I claim is—

In a machine for making nuts, the combination, with the die-box C and the pressing-punch B, of the die A, having the inclined projections on its face and the piercing-rod *a* within  
10 said die A, and adapted to move through the

die A toward the die B, whereby the rod cuts away from the inclines instead of toward them, as described.

In testimony whereof I have signed my name to this specification in the presence of two sub- 15  
scribing witnesses.

WM. GRAY.

Witnesses:

L. W. SEELY,

F. L. MIDDLETON.