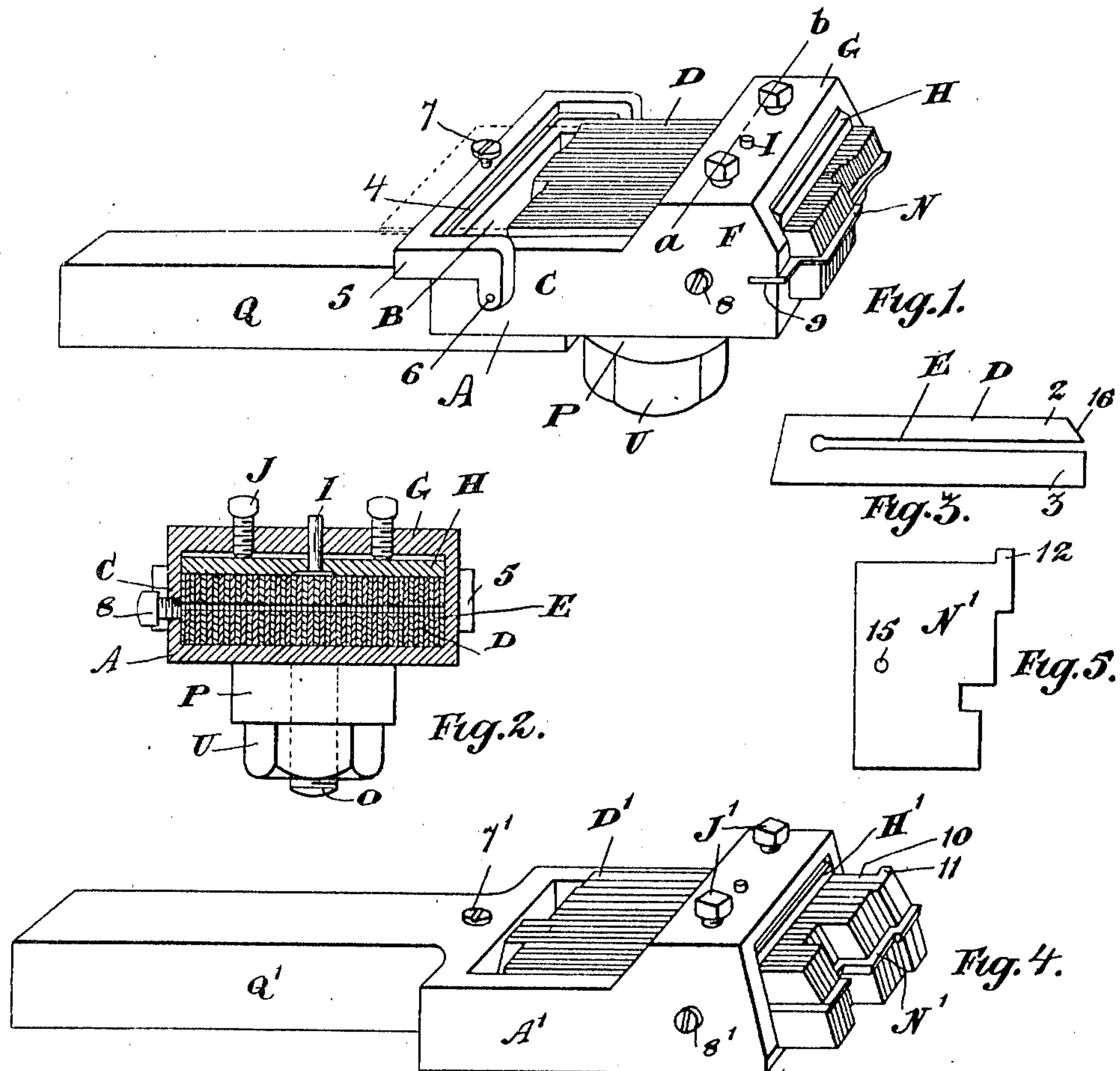


O. J. P. CRICK.  
FORMING TOOL.  
APPLICATION FILED MAY 19, 1909.

966,658.

Patented Aug. 9, 1910.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

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## FORMING-TOOL.

966,658.

Specification of Letters Patent.

Patented Aug. 9, 1910.

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*To all whom it may concern:*

Be it known that I, OWEN JOHN PITTS CRICK, a subject of the King of Great Britain, residing at Toronto, in the county of York and Province of Ontario, Canada, have invented certain new and useful Improvements in Forming-Tools, of which the following is a specification.

My invention relates to improvements in forming tools, and the objects of my invention are, firstly, broadly, to provide a forming tool which can be readily given the desired configuration of cutting edge with the least possible expenditure of time; secondly, to enable a thin removable forming cutter to be used; thirdly, to support the said thin cutter in such a manner as to prevent breakage of the same; fourthly, to construct my forming tool so that the cutter may be given the desired adjustment; fifthly, to provide a forming tool having a forming-cutter with its cutting edge of the desired shape and co-extensive with the design to be given to the work, and thus absolutely prevent the finished article from having any ridges on its surface, which will unavoidably result if a plurality of separate blades be used to form the cutter, and sixthly, to reduce the amount of steel required in the manufacture of forming tools.

The construction of my preferred form of invention, and the alternative forms thereof, will be described in the following specification, and the parts I claim as new will be pointed out in the claims forming part thereof.

Figure 1 is a perspective view of my preferred form of forming tool. Fig. 2 is a vertical cross-section on the line *a—b*, Fig. 1. Fig. 3 is a side elevation of one of the cutter holders shown in Figs. 1 and 2. Fig. 4 is a perspective view of an alternative form of my invention. Fig. 5 is a plan-view of the cutter supported in the forming tool shown in Fig. 4.

In the drawings, like characters of reference indicate corresponding parts in each figure.

In order to change the configuration of the cutting edge of forming tools as now manufactured, it is necessary to file the cutting edge so as to make it conform to the desired configuration, and it is well known that this operation is a tedious and lengthy one. Now by means of my invention my

forming tool can be given any desired cutting edge very quickly.

A is any suitable box or casing which is preferably provided with an open portion B. Positioned between the side walls C of said box or casing are the cutter holders D. In the forms of my invention shown in Figs. 1 to 4, the cutter holders are each provided with a longitudinal slot E. Near the front of the box or casing, the side walls C are made higher than elsewhere, as shown at F, and these portions F are connected together by a bridge G integrally formed therewith. Positioned underneath the bridge G and between the portions F, is a pressure bar H. By any suitable means, such as a pin I secured in said pressure bar, and extending up through the bridge G, the said pressure bar is held in position. J are set screws held in the bridge G and normally contacting the pressure bar H. N is the forming cutter which is made thin enough to be received by the slots E formed in the cutter holders D. When the cutter holders D have been adjusted as hereinafter particularly described, in order to give proper support to the forming cutter, the said forming cutter is inserted in the slots E, and the set screws J are then screwed down, thus causing the pressure bar H to press down upon said cutter holders and so clamp tightly in place the forming cutter. The tool is now ready to be used after the usual manner. The said box or casing is provided with a threaded stem O which passes through the head P of the arm Q, which arm is fixed in the tool post of the lathe or tool holder, (not shown) in the usual way. U is a nut screwing on the threaded stem O. By the construction just described it will be understood that the box or casing A can be adjusted around its stem O.

Upon referring to Figs. 1 and 4 it will be seen that the cutter holders conform to the configuration of the cutting edge of the forming cutter, more or less, and are removed far enough away from the edge of said forming tool as not to interfere with its working.

By the parts before described the forming cutter is clamped tightly between the dividing portions 2 and 3 of the cutter holders, and therefore it will be understood that the said forming cutter is given the desired support so as to prevent same from breaking.



Should it be desired to replace the forming cutter N with a forming cutter having a different configuration of cutting edge, the set screws J are loosened so as to permit the forming cutter N to be removed. The forming cutter to be used in place of the forming cutter N is then passed into the slot 4 formed in the frame 5, which frame is pivoted by the pins 6 in the side walls C. When the forming cutter has been positioned (see dotted lines Fig. 1) it is clamped in place by means of the screw 7 held in the frame 5. The set screw 8, the function of which will be hereinafter described is loosened after the removal of the forming cutter N, and as the set screws J have already been loosened, it will be understood that the cutter holders D are free to be moved. The forming cutter having been positioned in the frame 5, the cutter holders D are moved inward so that their inner ends bear against the cutting edge of said forming cutter thereby giving the outer ends of said cutter holders the desired configuration. In order to hold the cutter holders in this position, the set screw 8 is tightened up. The forming cutter is then removed from the frame 5 and inserted in the slots E in place of the forming cutter N and moved far enough inward to allow the cutting edge thereof to be properly supported. The set-screws J are then tightened up and the tool is then ready to be used.

By making a slot 9 in one or both of the side walls C near the front ends, it will be understood that I can make use of the box or casing A to give support to a forming cutter which is wider than the width over all of the cutter holders D.

In the alternative form of my invention shown in Fig. 4, the box or casing A<sup>1</sup> is integrally formed with the arm Q<sup>1</sup>, and therefore the said box or casing has not the range of adjusting movement possessed by the box or casing shown in Fig. 1. In this alternative form of my tool, the pressure bar H<sup>1</sup> is provided, as are also the set-screws J<sup>1</sup> and 8<sup>1</sup>. One of the cutter-holders 10 of the cutter-holders D<sup>1</sup> is provided with an offset 11. This cutter holder is a means that I may employ in place of the slot 9 (see Fig. 1) for giving proper support to an overhanging portion 12 of the forming cutter N<sup>1</sup>.

It will be noticed upon referring to the drawings that the cutter holders D and D<sup>1</sup> extend above the top of the walls C so that the forming cutter will be easily positioned in their path of movement when they are to be adjusted so as to give their front ends the desired configuration.

The screws 7<sup>1</sup> in Fig. 4 are used for the same purpose as the screws 7, Fig. 1. The forming cutters used with the form of my invention shown in Fig. 4, for instance the forming cutter N<sup>1</sup>, are each provided with a hole 15 to receive the screws 7<sup>1</sup>.

It will be noticed that the front edges 16 of the portions 2 of the cutter holders are sloped backward, thus providing a clearance for the metal shavings.

From the foregoing specification it will be understood that as the cutter is formed integrally, there will be no possible chance of its cutting edge leaving ridges on the surface of the article.

While I have described what I consider to be the best embodiment of my invention, I desire to be understood that the principles can be embodied in different forms, and I desire not to be limited beyond the requirements of the prior art and the terms of my claims.

What I claim as my invention is:

1. As a new article of manufacture, a forming-tool comprising a support; a plurality of movable slotted cutter-holders held therein, and a forming-cutter comprising a blade held in the slots of said cutter-holders, and having its cutting-edge extending beyond the same.

2. A forming tool comprising a box or casing; a plurality of longitudinally slotted movable cutter holders adjustably held in said casing; a forming cutter held in the slots of said cutter-holders and having its edge extending beyond the front ends of said cutter holders, and means for clamping the said cutter holders and forming cutter in place.

3. A forming tool comprising a box or casing provided with a transversely extending bridge; a plurality of longitudinally slotted movable cutter holders adjustably held in said casing; a forming cutter held in the slots of said cutter holders and having its edge extending beyond the front ends of said cutter holders; a pressure bar positioned underneath said bridge and normally resting upon said cutter holders, and means for clamping said pressure bar down upon said cutter holders so as to hold the same and said forming cutter firmly in position.

4. A forming tool comprising a box or casing provided with a transversely extending bridge; a plurality of longitudinally slotted movable cutter holders adjustably held in said casing; a forming cutter held in the slots of said cutter holders and having its edge extending beyond the front ends of said cutter holders; a pressure bar positioned underneath said bridge and normally resting upon said cutter holders; means carried by the side of said box or casing in order to clamp said cutter holders in their adjusted position while the said forming cutter is placed; and means for clamping said pressure bar down upon said cutter holders so as to hold the same and said forming cutter firmly in position.

5. A forming tool comprising a box or casing; a plurality of longitudinally slotted



movable cutter holders adjustably held in  
 said casing; a forming cutter held in the  
 slots of said cutter holders and having its  
 edge extending beyond the front ends of  
 5 said cutter holders; a slotted frame pivoted  
 to said box or casing near the rear end  
 thereof and designed to hold the forming  
 cutter in position while the cutter holders  
 are given the desired configuration at their  
 10 outer ends; a set screw carried by said slotted  
 frame; clamping means carried by said box  
 or casing so as to hold said cutter-holders  
 in their adjusted position when the forming  
 cutter is being inserted in the tool, and means  
 15 for clamping said cutter-holders and said  
 forming cutter firmly in place.

6. A forming tool comprising a box or  
 casing; a plurality of longitudinally slotted  
 20 movable cutter holders adjustably held in  
 said casing, and having their rear ends con-  
 structed so that the said cutter holders may  
 be reversed and positioned so as to be used  
 as cutters; a forming cutter held in the slots  
 of said cutter holders and having its edge  
 25 extending beyond the front ends of said  
 cutter holders, and means for clamping the  
 said cutter holders and forming cutter in  
 place.

7. A forming tool comprising a box or  
 30 casing; a plurality of longitudinally slotted  
 movable cutter holders adjustably held in  
 said casing, and having the front ends of  
 their upper portions cut off at a backward  
 inclined angle; a forming cutter held in the

slots of said cutter holders and having its 35  
 edge extending beyond the front ends of  
 said cutter holders, and means for clamping  
 the said cutter holders and forming cutter  
 in place.

8. A forming tool comprising a box or 40  
 casing provided in one of its sides at its  
 front end with a horizontal slot; a plurality  
 of movable cutter-holders adjustably held  
 in said casing being each provided with a  
 longitudinal slot which is in alinement with 45  
 the slot formed in said casing; a forming  
 cutter held in the slots of said cutter holders  
 and in the slot formed in said casing and  
 having its cutting edge extending beyond  
 the edge of said cutter holders, and means 50  
 for clamping said cutter holders and form-  
 ing cutter in place.

9. As a new article of manufacture, a  
 forming-tool comprising a support; a form-  
 ing-cutter carried by said support; a plu- 55  
 rality of individually-movable supports car-  
 ried by said support and designed to be held  
 therein so as to give support to the cutting  
 edge of said forming cutter, and means  
 whereby said movable supports are firmly 60  
 held in position.

In testimony whereof I have affixed my  
 signature in presence of two witnesses.

OWEN JOHN PITTS CRICK.

Witnesses:

WM. S. JORDAN,  
 D. S. TOVELL.