

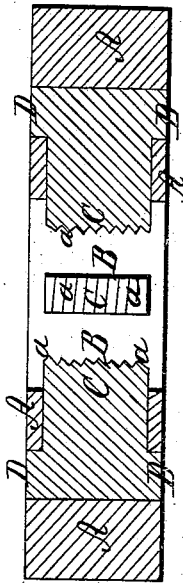
*C. G. Cross,*

*Screw-Cutting Die.*

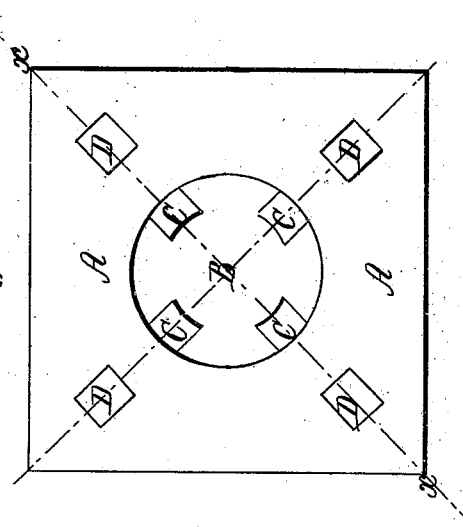
*No. 52,783,*

*Patented Feb. 20, 1866.*

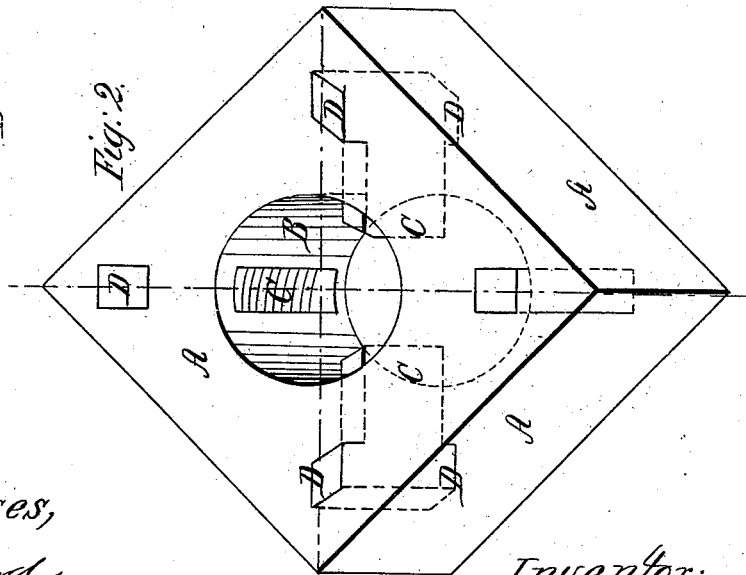
*Fig. 1.*



*Fig. 3.*



*Fig. 2.*



*Witnesses,*  
*L. L. Bond*  
*Chas. West.*

*Inventor;*  
*C. G. Cross*

# UNITED STATES PATENT OFFICE.

CHRISTOPHER G. CROSS, OF CHICAGO, ILLINOIS, ASSIGNOR TO HIMSELF  
AND CHARLES S. CRANE, OF SAME PLACE.

## IMPROVEMENT IN SCREW-CUTTING DIES.

Specification forming part of Letters Patent No. **52,783**, dated February 20, 1866.

*To all whom it may concern:*

Be it known that I, CHRISTOPHER G. CROSS, of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Dies for Cutting Screws; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 3 is a top view, full size; Fig. 1, a vertical section of the same at the red line *xx*; and Fig. 2 is intended to be a transparent perspective view, showing the steel pieces.

The nature and object of my invention consist in casting three or more steel dies for cutting screws into one solid block of cast-iron, and in making a perfect combination of the steel and iron, and in combining them together so as to make a perfect die, as is more fully set forth in my description of the method of making the same.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

I will first observe that my improved die is made of various sizes and dimensions—and no directions as to size will be needed, as proper dimensions suitable to the work required will be apparent, sufficient strength of metal being the only condition required in this respect. I first form pieces of steel in the shape shown at D D C, with a half-head, D, or with an enlargement of the end which is to be embedded in the cast metal, so that they cannot work out or get loose. I prefer for casting the half-head shown. When made in this manner I insert the end C in the core-print in the hole B, while the outer end, D, rests upon the bottom and against the top of the mold, giving it a firm position and holding it in place while

the molten iron is poured in. Before placing them in this position for casting I coat them with a solution of borax, which causes the cast metal to adhere closely to them and almost form a weld. When they are placed in the mold in the position indicated and the mold completed the balance of the casting is done in the usual way. When made of the size shown in the drawings, I use four of the pieces of steel D D C. For smaller sizes I use only three pieces. If the size is increased, a greater number may be used. When the casting is thus made the inner ends, C, of the steel pieces are brought to the diameter of a proper circle, and the thread-cutters *a a* cut in in the usual manner, and the die thus completed.

I do not contend that a die made in this manner is in point of durability any better than a die made of solid steel; but it will be found equally good and very much cheaper; and when worn out new ones can be made cheaper than solid-steel dies can be repaired, and the die so made is as solid and compact as one made entirely of steel; and, as the sides of the cutters are formed before they are cast in the die, I can produce clearer angles, and consequently better cutters, than can be made when formed entirely inside of the cavity B. They are tempered for use in the usual manner and are used in the same way in operation as other screw-cutting dies.

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

A screw-cutting die constructed of steel and cast iron or other suitable metal, substantially as set forth and specified.

CHRISTOPHER G. CROSS.

Witnesses:

L. L. BOND,  
E. A. WEST.