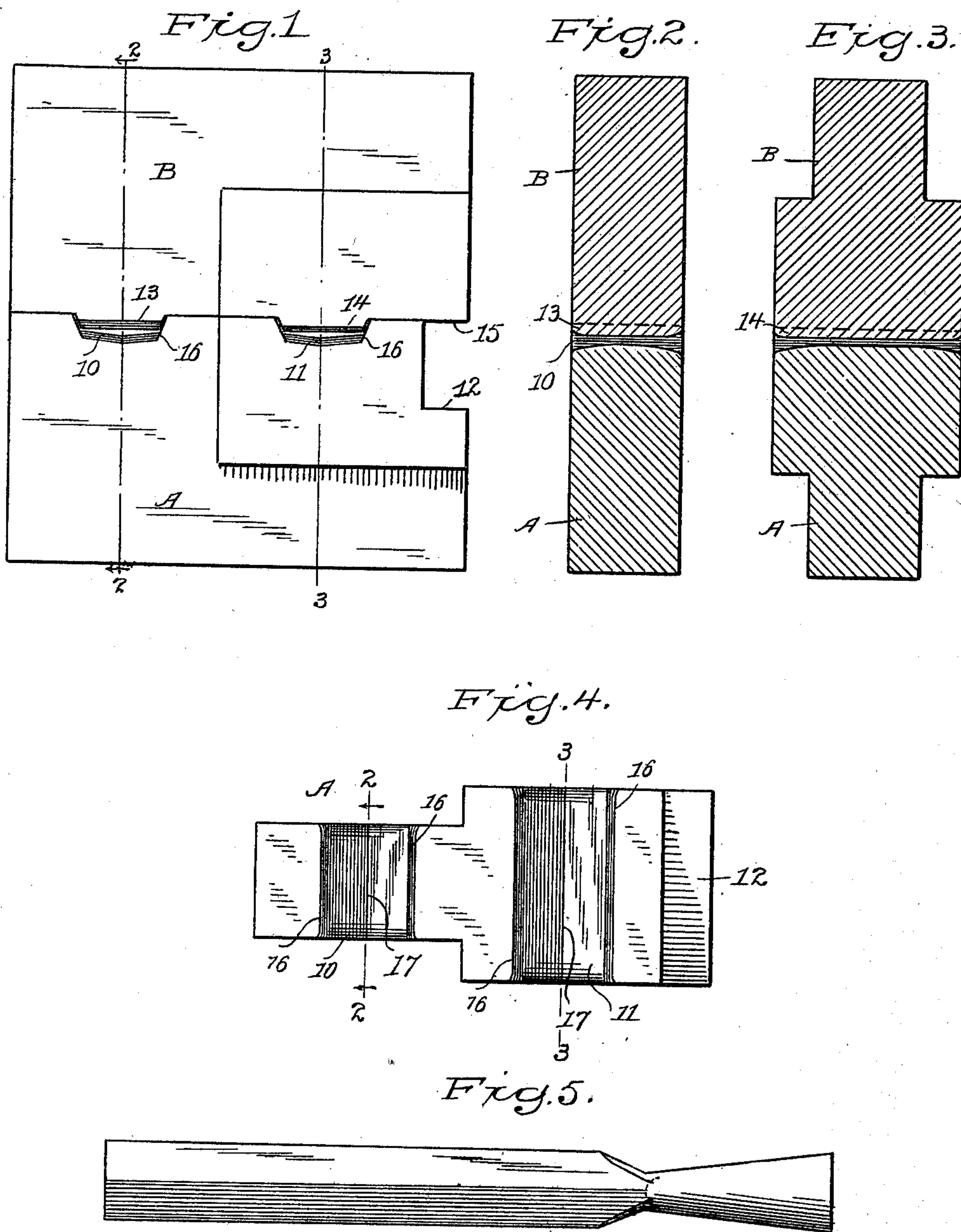


No. 670,742.

Patented Mar. 26, 1901.

J. SWAN.
DIE FOR MAKING CHISELS.
(Application filed Jan. 24, 1901.)

(No Model.)



WITNESSES.

H. A. Lamb.
S. H. Atherton.

INVENTOR.

James Swan
By A. M. Webster
Atty.

UNITED STATES PATENT OFFICE.

JAMES SWAN, OF SEYMOUR, CONNECTICUT.

DIE FOR MAKING CHISELS.

SPECIFICATION forming part of Letters Patent No. 670,742, dated March 26, 1901.

Application filed January 24, 1901. Serial No. 44,595. (No model.)

To all whom it may concern:

Be it known that I, JAMES SWAN, a citizen of the United States, residing at Seymour, county of New Haven, State of Connecticut, have invented new and useful Dies for Making Chisels, of which the following is a specification.

My present invention is a carrying forward and development of the invention set forth and described in Letters Patent No. 398,910, granted to me March 5, 1889, and has for its object to provide a set of dies that will perfectly form firmer and framing chisels and other tools having tops consisting of two planes lying at a very obtuse angle to each other and intersecting each other at the center, which is highest, it being essential in the manufacture of this style of chisels that the dies be so constructed that the blank will be perfectly centered during the drawing operation. I have therefore developed and improved the dies set forth and described in my said former patent, so as to perfectly form chisels and other tools requiring to be accurately centered during the drawing operation. It will of course be understood that the upper die is carried by a power-hammer and the lower die is supported in the ordinary or any preferred manner. These features are therefore omitted from the drawings, as in my said former patent.

Figure 1 is a front elevation of a set of dies in the closed position, said set comprising a pair of breaking-down and drawing dies, a pair of finishing-dies, and a pair of gage or edging dies; Fig. 2, a section on the line 2 2 in Fig. 1—that is, through the breaking-down and drawing dies; Fig. 3, a section on the line 3 3 in Fig. 1—that is, through the finishing-dies; Fig. 4, a plan view of the lower dies, and Fig. 5 is an inverted plan view of a chisel-blade as formed by my novel dies.

A denotes a block of metal, in which the lower breaking-down and drawing die 10, the finishing-die 11, and the lower gage or edging die 12 are formed, dies 10 and 11 being female dies, and B denotes a block of metal upon which the upper breaking-down and drawing die 13, the upper finishing-die 14, and the upper gage or edging die 15 are formed, the upper breaking-down and finishing dies being male dies.

It will of course be understood that the dies must correspond in shape with the chisel or other tool to be produced. As chisels are ordinarily made thickest at the base or handle end, it follows that the front end of each lower die must be more or less lower than the rear end, depending, of course, upon the special style of chisel to be produced. The upper and lower breaking-down dies (denoted, respectively, by 10 and 13) I usually make from an inch and a quarter to an inch and a half long. The exact length of these dies, however, is not of the gist of my invention and may be left to the judgment of the manufacturer.

In practice chisels and other tools of this character are usually made in inverted position—that is to say, the top of the chisel receives its shape from the lower breaking-down and finishing dies and the bottom of the chisel receives its shape from the upper breaking-down and finishing dies. In the present instance as the tops of the chisels consist of two planes which meet at the center, the center being highest, it follows that the bottoms of the breaking-down and finishing dies must have the reverse shape. The bottoms of the breaking-down and finishing dies (seen in cross-section or in end view) are inclined from the lower edges of the sides, which I have indicated by 16 and which may taper more or less, depending upon the special style of chisel to be produced, toward the center, which I have indicated by 17, the center being the lowest. The bottom of the lower breaking-down die is from end to end a more or less convex curve—that is to say, it is made highest at the center and curves downward more or less toward each end. This is in order to enable the operator to manipulate the blank freely during the drawing operation. The lower finishing-die is rounded more or less at the ends for the same purpose. In practice I ordinarily make the finishing-dies approximately double the length of the breaking-down dies, as stated in my said former patent referred to, although the length of both sets of dies may be varied in accordance with the judgment of the manufacturer. The upper breaking-down die and upper finishing-die are male dies and may be described as blocks which pass into the upper portions of the lower dies, so that the

drawing operation is performed in the lower portions of the lower dies. In other words, the lower dies are made of greater depth than the thickness of the blanks to be operated upon, so that the chisel or other tool is necessarily centered with perfect accuracy while being drawn. The finishing-dies may in practice be made slightly smaller in cross-section than the breaking-down dies, so that the chisels or other tools will be turned up perfectly. The ends of the upper breaking-down die and upper finishing-die may be rounded more or less, as clearly shown in Figs. 2 and 3. The upper and lower edging-dies (denoted, respectively, by 12 and 15) are formed in blocks A and B, as clearly shown in Fig. 1. After each operation the chisel is passed through the edging-dies, so as to keep the edges straight and also to keep the chisel the exact width required.

Having thus described my invention, I claim—

1. A set of dies of the character described consisting of lower breaking-down and finishing dies whose bottoms consist of two planes inclining from the sides to a center line which is lowest, and upper breaking-down and finishing dies adapted to enter the upper portion of the lower dies so that the drawing operation will be performed in the lower portion of the lower dies and the blanks will be accurately centered.

2. A set of dies of the character described consisting of lower breaking-down and finish-

ing dies of greater depth than the width of the blanks to be operated upon and having their greatest depth at the center line, and upper breaking-down and finishing dies adapted to enter the upper portion of the lower dies, substantially as shown, for the purpose specified.

3. The combination with lower breaking-down and finishing dies of greater depth than the width of the blanks to be operated upon and having bottoms inclining downward from the sides to the center line which is lowest, the lower breaking-down die being substantially a convex curve from end to end, of upper breaking-down and finishing dies substantially flat upon their bottoms and adapted to enter the upper portions of the lower dies.

4. Dies of the character described consisting of a lower die whose bottom consists of two planes inclining from the sides to a center line which is lowest, and an upper die adapted to enter the upper portion of the lower die so that the drawing operation will be performed in the lower portion of the lower die, substantially as shown, for the purpose specified.

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

JAMES SWAN.

Witnesses:

LEWIS A. CAMP,
G. E. MATTHIES.