

(No Model.)

W. A. McCool & W. G. ALGEO, Jr.  
DIE FOR METAL DRAWING.

No. 567,605.

Patented Sept. 15, 1896.

Fig. 1.

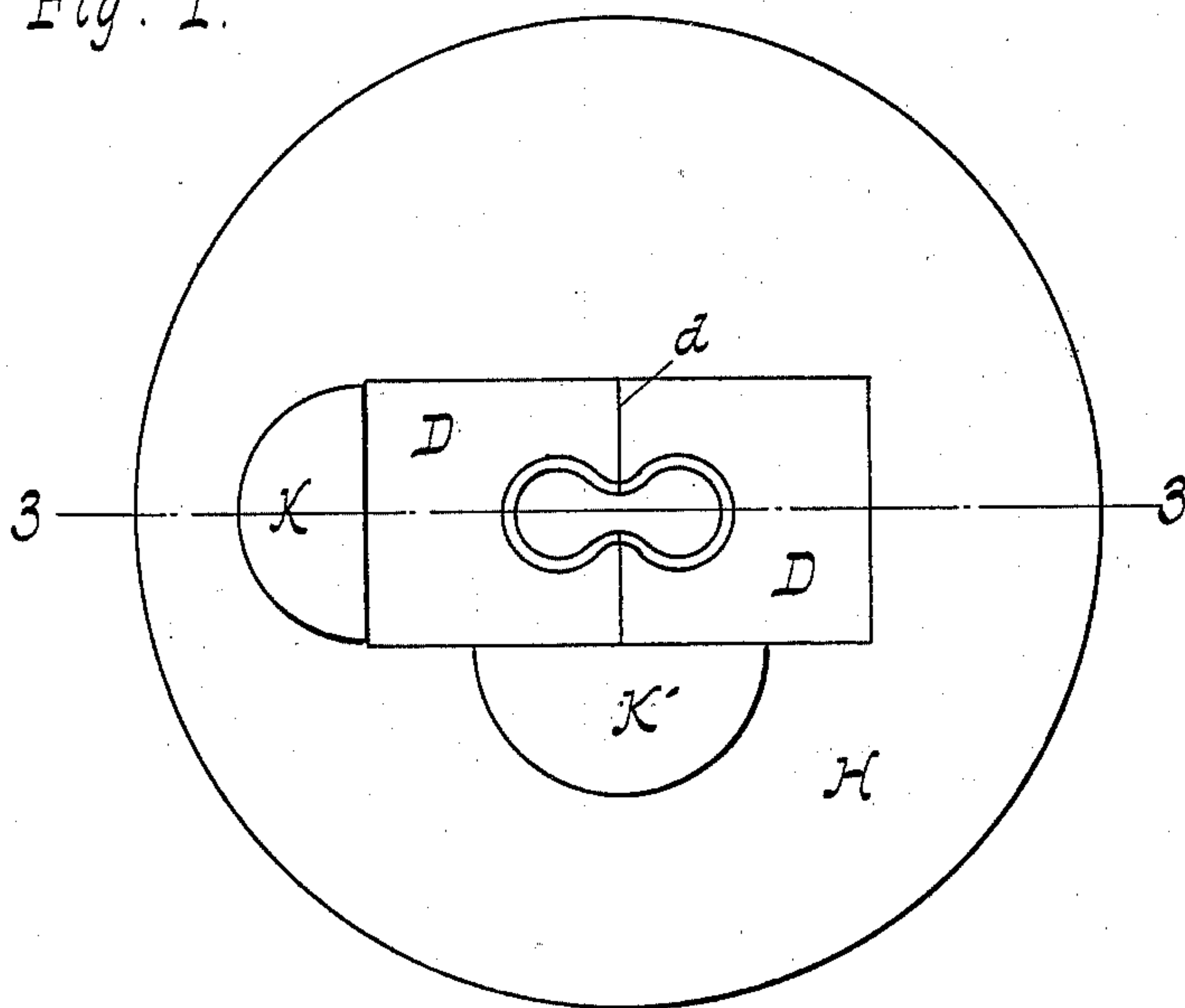


Fig. 2.

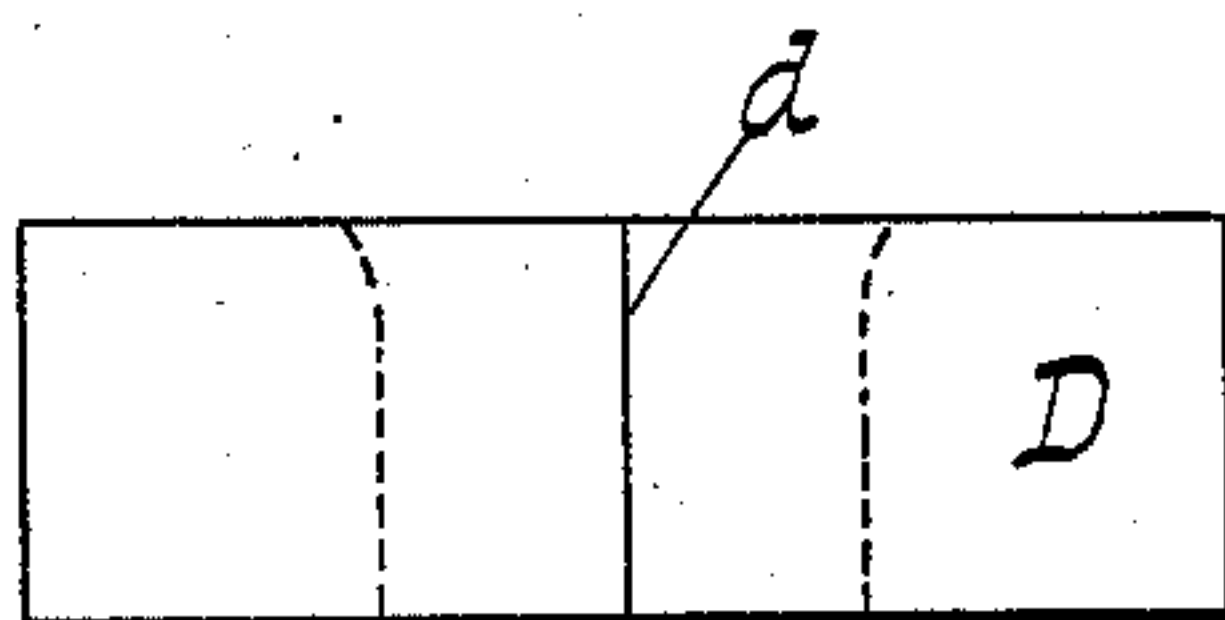
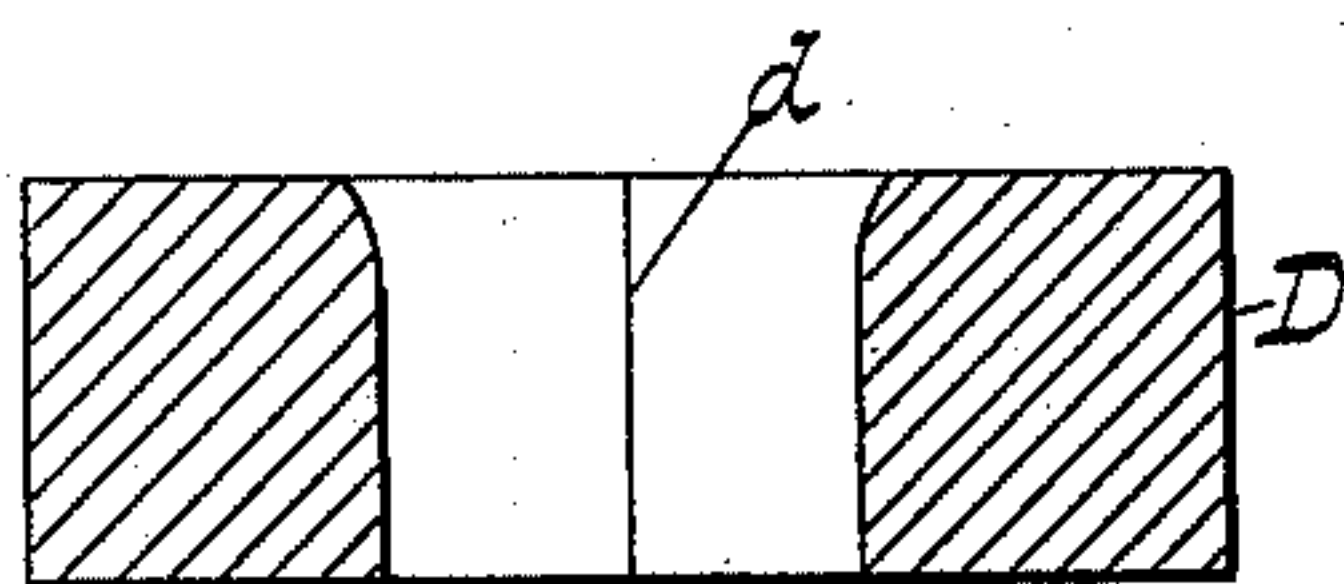


Fig. 3.



Witnesses:

George H. Somers,  
Frederick H. Davis,

Inventors

William Allen McCool,  
and William Gibson Algeo, Jr.,  
by Harold Binney  
Attorney.

# UNITED STATES PATENT OFFICE.

WILLIAM A. MCCOOL AND WILLIAM GIBSON ALGEO, JR., OF BEAVER FALLS,  
PENNSYLVANIA, ASSIGNORS TO THE UNION DRAWN STEEL COMPANY,  
OF SAME PLACE.

## DIE FOR METAL-DRAWING.

SPECIFICATION forming part of Letters Patent No. 567,605, dated September 15, 1896.

Application filed October 22, 1895. Serial No. 566,466. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM A. MCCOOL and WILLIAM GIBSON ALGEO, Jr., of Beaver Falls, Pennsylvania, have invented a new and  
5 useful Improvement in Dies for Metal-Drawing, of which the following is a description, referring to the accompanying drawings, which form a part of this specification.

The object of the invention is to produce a  
10 die which may be used for fine work where almost absolute accuracy of size is needed, and which may be adjusted to take up or compensate for any wear or enlargement of the die without in any way sacrificing the  
15 rigidity of the die as held in the die block or holder, and without necessitating a recutting of the mouth or throat of the die.

To these and certain other incidental purposes, which will hereinafter be more fully  
20 set forth, our invention consists of the process or method by which the wear of the die is compensated for, and, in addition, our invention includes the apparatus constructed, arranged, combined, and used substantially  
25 in the manner hereinafter described, illustrated, and claimed.

The nature of the invention will be clearly understood from a description of the accompanying drawings.

30 In the drawings, Figure 1 is a face view of a die-block with one of the dies designed for forming bars from which the links of the sprocket-chains of bicycles may be cut. Fig. 2 is a side elevation of the die; Fig. 3, a cross-  
35 section of the die on the plane 3 3 of Fig. 1.

Throughout the drawings like letters of reference indicate like parts.

Briefly stated, the invention is as follows: In the case of a sprocket-chain link for bicycles and in other instances where it is essential to keep the length of the link or object to be made accurately the same it is necessary to compensate for the wearing away of the die by the repeated drawing of the bars  
40 through it. We accomplish this by splitting the die transversely to the line or dimension of the bar, which must be kept accurately gaged, and when a sensible enlargement of the die has taken place we remove the die from  
50 the die-holder and plane off from one or both

of the meeting faces of the two parts of the die enough metal to exactly compensate for the wear and elongation of the die. The die is then replaced in the die-block or die-holder and the keys driven in. When so cut away  
55 and restored to the original dimensions, the die may be used until it has been again appreciably enlarged, when the process may be repeated. It is clear that as the die is composed of but two parts having two plane faces  
60 pressed rigidly together neither the strength nor the rigidity of the die is in any manner sacrificed.

In the figures, D illustrates the die or draw-plate, H the die block or holder, and K and  
65 K' the two keys. The die is divided on the plane *d* into two members, as shown, and these are forced rigidly together and held in place by the key K. The key K' confines the die transversely between the plane face of the  
70 key and the opposing face *h* of the die-holder, so that absolute alinement of the two parts of the die is always secured. When the die has worn away or enlarged an appreciable amount, say, one-thousandth of an inch, it is  
75 taken from the holder and the face *d* of one or both dies is planed off one-thousandth of an inch. The dies are then placed back in position, and of course the increased length of the die due to the wearing away will be  
80 accurately compensated for. We construct the two keys K and K' of the cross-section shown, so that they will present on one side a plane face and on the other a slightly tapered-off cylinder or cone. This form of key when  
85 placed in a correspondingly-shaped seat is free to turn and adjust itself so that the plane face will lie absolutely parallel with and against the face of the die and insure greater accuracy and more even distribution of the  
90 confining pressure which holds the die in place.

Having now fully set forth our invention, we claim as new, and desire to secure by these Letters Patent of the United States, together  
95 with all such variations as may be made by mere skill in the art, and with only such limitations as are expressed or by law implied in view of the related arts, as follows:

1. In combination with a die-holder, a draw 100



plate or die therein consisting of two parts  
separable upon and in contact at a line or  
plane  $d$  which divides or cuts the throat of  
the die, means bearing upon the said two  
5 parts in the said plane of separation for forc-  
ing the said two parts into accurate alinement,  
and means forcing the two said parts rigidly  
together, whereby the said die may be rigidly  
secured in accurate alinement and constitute,  
10 when in use, a substantially integral draw  
plate or die, substantially as set forth.

2. In combination with a die-holder, the  
draw plate or die  $D$  mounted therein and con-  
sisting of two parts separable at the line or  
15 surface  $d$  which divides or cuts the throat of

the die transversely, and the keys,  $K K'$  of the  
semiconical or semicircular cross-section, one  
key forcing the two separable portions of the  
die together and the other key bearing upon  
both portions of the die equally and alining 20  
them, substantially as set forth.

In testimony whereof we have hereunto set  
our hands, at Beaver Falls, Pennsylvania,  
this 16th day of October, 1895.

WILLIAM A. MCCOOL.

WILLIAM GIBSON ALGEO, JR.

In presence of—

F. N. BEEGLE,

JOS. O. ROUZER.