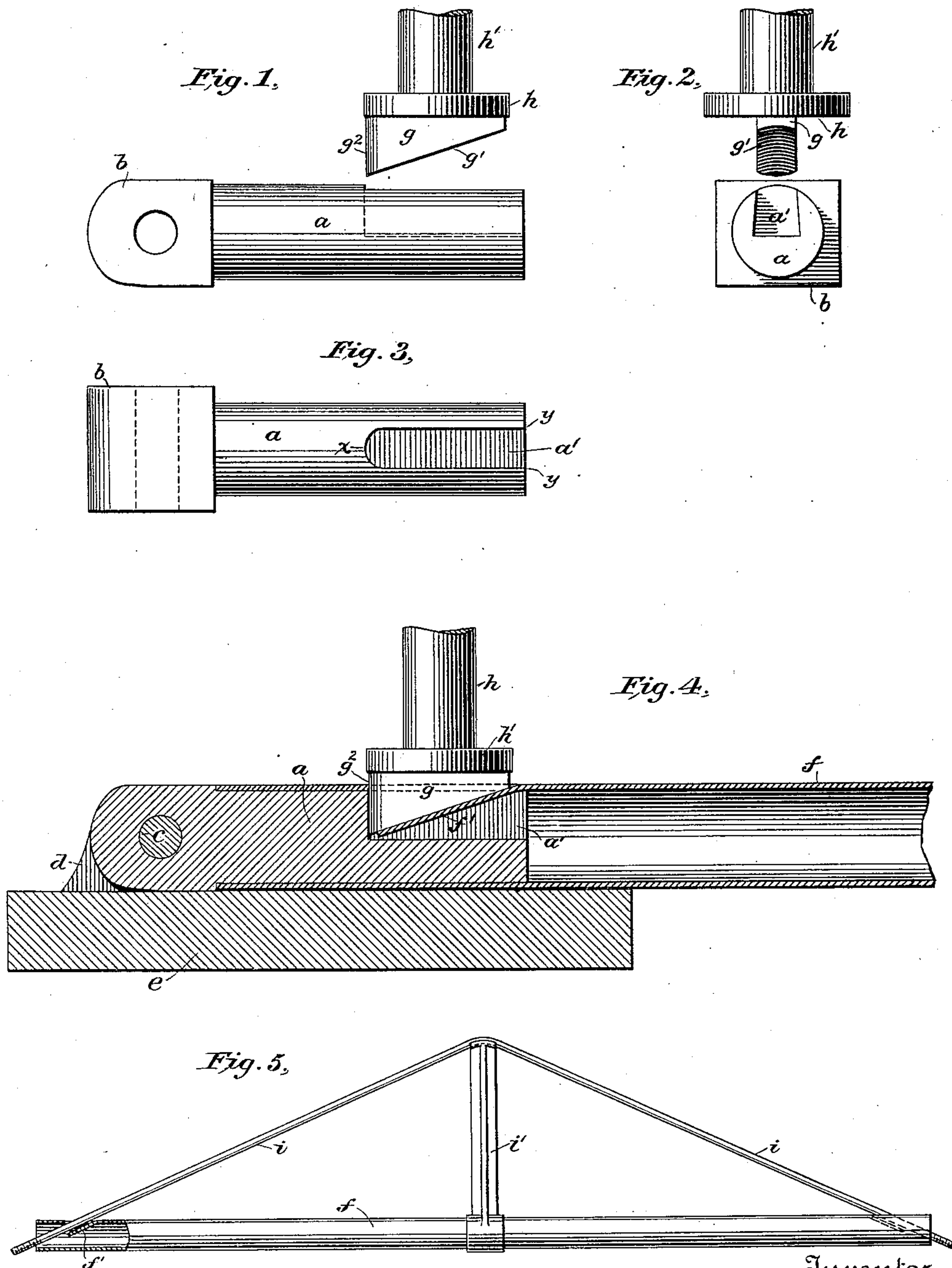


(No Model.)

C. H. WIESING.
DEVICE FOR SLOTTING TUBES.

No. 410,723.

Patented Sept. 10, 1889.



Witnesses

Geo. W. Dreck.
Edward Thorpe.

Inventor

Charles Henry Wiesing,
By his Attorneys
Walter Henson.

UNITED STATES PATENT OFFICE.

CHARLES HENRY WIESING, OF LIME ROCK, CONNECTICUT.

DEVICE FOR SLOTTING TUBES.

SPECIFICATION forming part of Letters Patent No. 410,723, dated September 10, 1889.

Application filed December 17, 1888. Serial No. 293,875. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HENRY WIESING, a citizen of the United States, residing at Lime Rock, county of Litchfield, State of Connecticut, have invented certain new and useful Improvements in Devices for Slotting Tubes, of which the following is a specification, reference being had to the accompanying drawings, forming part hereof.

This invention relates to that class of metal-working dies adapted especially to operate upon pipe or metal in hollow cylindrical or pipe form, and has for its object the construction of dies adapted to effectively and rapidly perform such operations. It is designed more particularly to cut and bend portions of pipes so as to form slots, by shearing the metal on one end and the two sides of the slot and bending down the tongue thus formed. Pipes used as car-brake beams are often slotted near each end for the admission of truss-rods, and my invention is especially adapted for cutting such slots. The complete die consists of two parts—a male and a female die—and may be used in any ordinary press.

Figure 1 of the accompanying drawings is a front elevation showing the male and the female die placed one above the other in the relative positions they occupy when in the cutting-press. Fig. 2 is an end elevation of the same, and Fig. 3 is a plan view of the lower or female die. Fig. 4 is a central sectional elevation showing the dies in the operation of slotting a pipe. Fig. 5 is a plan showing a truss-rod inserted in slots, such as are cut in a pipe by my improved die.

The female die consists of a cylindrical part or stud *a*, a depression or groove *a'*, formed in one end of the cylindrical part or stud *a*, and means for securing the die to the bed-plate of the press. The cylindrical part or stud *a* is made to fit loosely within the pipe to be operated upon. The pipe is pushed over this stud *a*, which forms a holder and core for the same during the cutting operation, preventing flattening or other distortion of the pipe during such operation. The depression or groove *a'* is shaped along its upper edge to the outline of the cut to be made. It is open at one end, extending through the end of the stud *a*. The female die is provided with a squared part *b* at one

end of the cylindrical part or stud *a*. The squared part is larger than the cylindrical part, and the shoulder thus formed is shown finished at right angles to the cylindrical surface, and when used for that purpose acts as a positive stop to the pipe placed over the stud *a*, thus fixing the distance of the slot cut in the pipe from the end of the pipe. This squared part *b* is provided with a hole, through which passes the cylindrical bolt or pin *c*, adapted to fit in holes in lugs projecting from the bed-plate of the press. One of such lugs is shown at *d*, Fig. 4, projecting from the bed-plate *e*. The female die is securely held by the pin *c*, but has preferably a slight freedom of movement to facilitate placing the pipe over it. The pipe is indicated in the drawings by letter *f*.

The male die consists of the punch *g*, the flange *h*, and the stem *h'*. The stem *h'* fits the head of the press, and the flange *h* bears against the same to hold the punch *g* in place. The punch *g* is shaped to fit within the groove *a'* of the stud *a*, and its lower face *g'* is inclined obliquely to the adjacent face of the stud *a*, and this face *g'* is preferably slightly concaved, as shown. The end *g²* of the punch is preferably rounded, as shown. This punch *g*, acting in conjunction with the female die, performs the double function of shearing the metal along one end and the two sides of the slot and of bending down the tongue thus formed to the desired position.

The cut or shear is made by the edges of the end *g²* and the sides of the punch *g* acting against the corresponding edges around the depression *a'*, and the bending is caused by the inclined lower face *g'*, which bears directly upon the metal of the pipe and forces the tongue cut by the shearing-edges down into the depression *a'*. Fig. 4 shows the dies at the completion of the cutting and bending operation. *f'* is the tongue bent down in the depression *a'*.

The peculiar construction of the dies causes a gradual uniform and shearing cut to be made. The metal is first cut above the point marked *x* in Fig. 3, and then as the punch *g* descends the cut gradually travels toward the ends over the points marked *y y* in said Fig. 3. The bending also takes place gradually and in a similar manner.

At the completion of the operation, after the punch has been raised clear of the pipe, the pipe can be readily removed from the stud *a* of the female die, as the depression *a'*, in which the tongue *f'* projects, is open at its outer end, and the other end of the same pipe, or another pipe, can be placed upon the stud and the operation repeated.

It is obvious that my improved die performs its work rapidly, efficiently, and economically.

The construction of the die is simple, and the parts are strong and durable.

The shape of the slot cut may, it is evident, be altered from that shown in the drawings.

The dies are preferably made of tool-steel, and tempered to the work they are to perform.

The slot cut by my improved die is especially adapted for receiving rods or bolts that enter the pipe at an angle, such as the truss-rod employed to brace a pipe used as a brake-beam. Fig. 5 shows a pipe *f* with slots such as are made by my improved die cut near each end, and a truss-rod *i* passing over a strut *i'* projecting from the central part of the pipe and passing through the slots and out through the open ends of the pipe.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a metal-working die, the combination of a female die having a depression or groove therein extending out through one end thereof with a male die shaped to fit within such depression, the face of the male die which comes in contact with the surface of the metal to be punched being obliquely inclined to said surface of the metal, substantially as shown and described.

2. In a tube-slotting die, the combination of a combined female die and holder for the tube, consisting of a cylindrical stud having a depression or groove therein extending out through one end thereof, the upper edge of

which groove forms the cutting-edge of the female die, with a male die shaped to fit within such depression or groove, the face of the male die which comes in contact with the surface of the tube to be punched being obliquely inclined to said surface, and the lower end and two sides only of said inclined face of the die acting as the cutting-edge, substantially as shown and described.

3. In a tube-slotting die, the combination of a combined female die and holder for the tube, consisting of a cylindrical stud having a depression or groove therein extending out through one end thereof, the upper edge of which groove forms the cutting-edge of the female die, and said stud having at its other end an enlarged part, whereby it is secured to the bed-plate of the press, the shoulder of which enlarged part forms a stop for the tube placed upon the holder, with a male die shaped to fit within such depression or groove, the face of the male die which comes in contact with the surface of the tube to be punched being obliquely inclined to said surface, and the lower end and two sides only of said inclined face of the die acting as the cutting-edge, substantially as shown and described.

4. In a tube-slotting die, the combination of the combined female die and holder for the tube, consisting of the cylindrical stud *a*, the depression or groove *a'* formed therein extending out through one end thereof, and the square end *b*, adapted to be secured by a bolt to the bed-plate of the press, with the male die, consisting of the punch *g*, having the inclined face *g'*, and provided with a stem and flange for securing it to the moving head of the press, substantially as shown and described.

CHARLES HENRY WIESING.

Witnesses:

GEO. B. THORPE,

CHAS. D. KNOX.