

C. W. WAILEY.  
DIE FOR FORMING COTTON TIES.

No. 67,236.

Patented July 30, 1867.

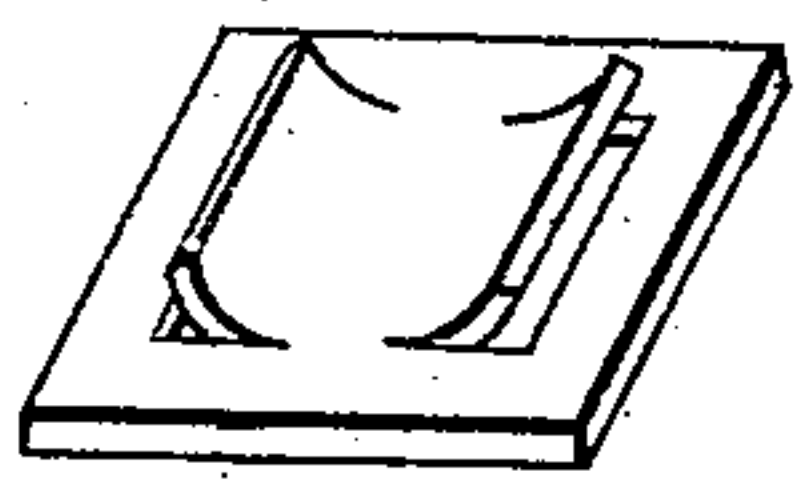
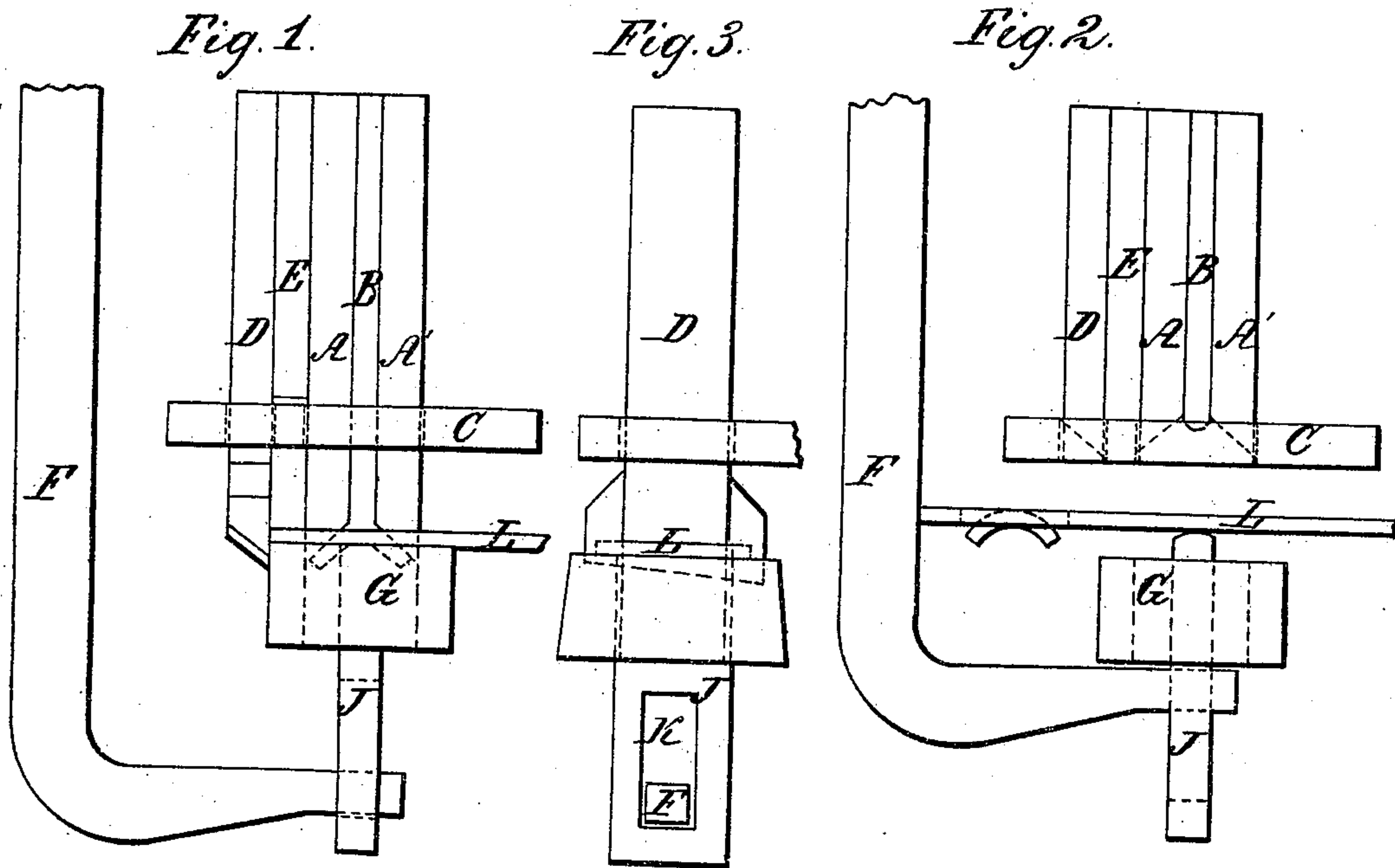


Fig. 5.

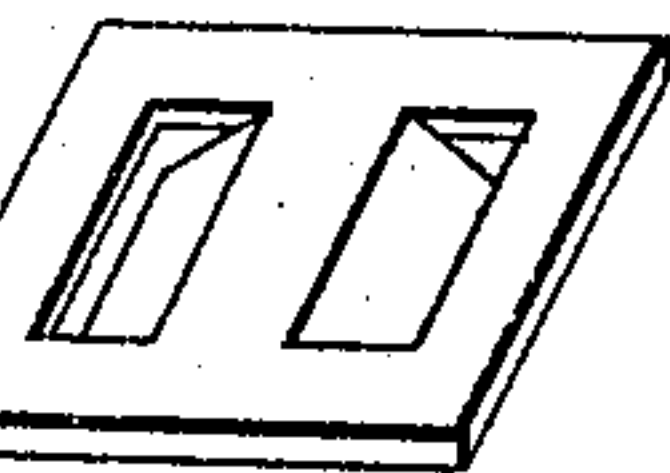
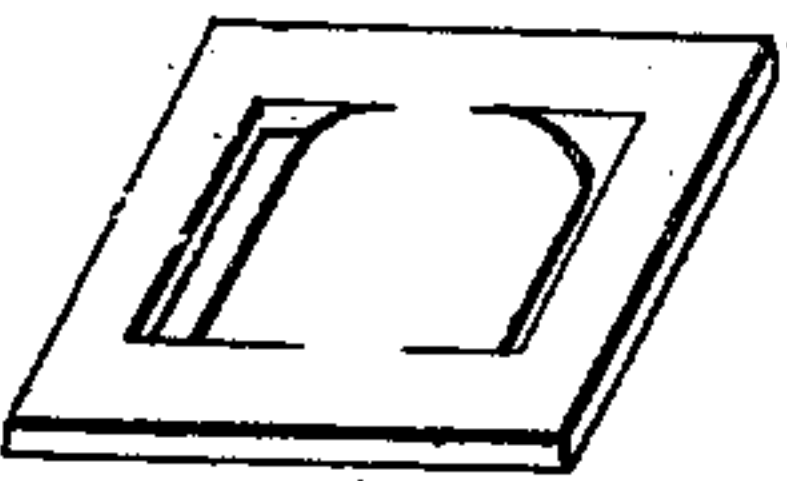


Fig. 6.

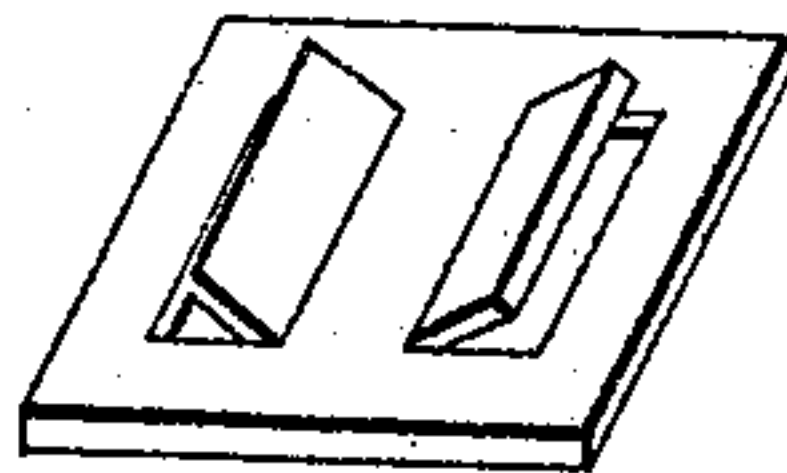
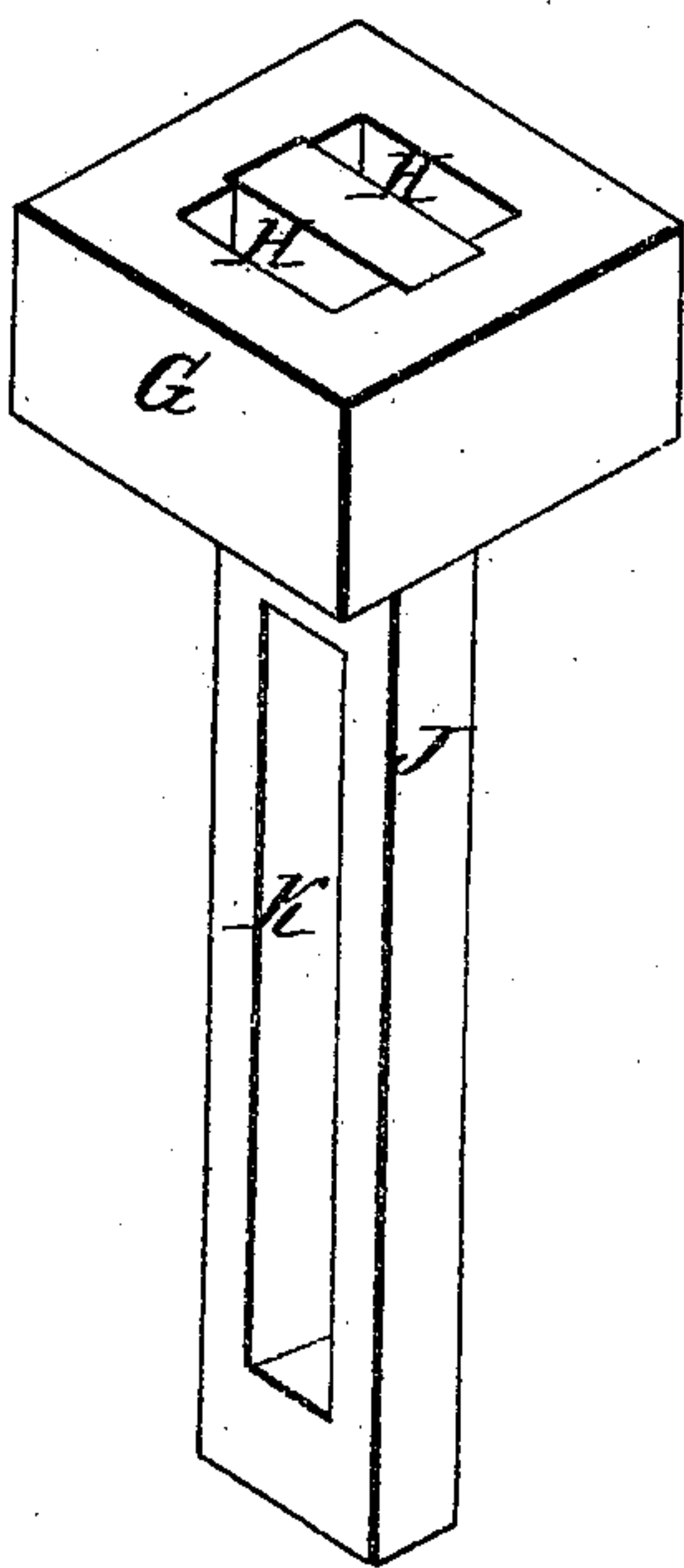


Fig. 4.



Witnesses;  
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# United States Patent Office.

CHARLES W. WAILEY, OF NEW ORLEANS, LOUISIANA.

*Letters Patent No. 67,236, dated July 30, 1867.*

## IMPROVEMENT IN DIES FOR FORMING COTTON-TIES.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, CHARLES W. WAILEY, of the city of New Orleans, parish of Orleans, and State of Louisiana, have invented a certain new and useful Improvement in Dies for Stamping Malleable and Wrought-Iron Cotton-Ties, that have lips or lugs projecting from one of their sides, as in the case of my own invention as patented on the 9th day of October, 1866, my patent being afterwards reissued, to wit, on the 19th day of February, 1867, and other ties of somewhat similar formation; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figures 1 and 3 are front and side elevations of my invention when the die is closed down upon the matrix in the act of stamping out a buckle or tie.

Figure 2, a view of the die and matrix, when the former is raised above the latter preparatory to the act of stamping.

Figure 4, a sectional view, showing the matrix that gives form to the buckle, with its movable bar for throwing the buckle out of the matrix after it has been stamped; and

Figures 5 and 6, views of the buckles that are produced by the combined action of the die and matrix.

Experience has recently demonstrated that in baling cotton, iron hoops or bands are far preferable to ropes on very many accounts, and that buckles, having projecting lips on one of their sides, are the best contrivances that have as yet been devised for fastening the ends of such bands together.

My invention has for its object the easy, rapid, and exact formation of such buckles when the same are made of wrought or malleable iron; and it consists of a new combination of well-known mechanical parts or instrumentalities. But my invention will be better understood by referring to the drawings.

In figs. 1 and 2 A and A' represent the cutters of the die proper, and the cutting ends of the same having the proper bevel or inclination to give the necessary projection to the lips of the buckles; and B a centre piece that is placed between them, and upon the end of which are formed the raised letters to make such stamped inscription upon the buckle as may be desired, as for example, "C. W. WAILEY, patented October 9, 1866," midway between the projecting lips and upon the upper or outer side of the buckle. These cutters and centre pieces constitute my die proper, but connected with these parts, and separated from the cutter A by the intermediate bar E, is another cutter, whose office it is to cut off the buckles after they have been formed, from the bar or plate of iron, out of which they are fabricated. This cutter is marked D, and by reference to fig. 3 it will be seen that its edge is so inclined with reference to the transverse axis of the plate, out of which the buckles are stamped, and its own line of motion, that its action in cutting the buckles off is oblique or shear-like, and that thus the cutting of said plate is more easily and smoothly done than if its edge were at right angles with its line of motion, and struck upon the plate squarely. The cutters A A' and D, with the intermediate or separating-bars B and E, are held together and adjusted by means of a suitable clamp-key or set-screw, that, forming no part of my invention, are not shown upon the drawings. They, the die, etc., work through and are kept in proper position by the guide C, which, although it is adjustable, is immovably fixed in its place whilst the apparatus is in operation. Underneath the die proper, consisting, as we have seen, of the cutters A A' and centre piece B, is a matrix, G, composed of a steel block, in the centre of which is a rectangular opening, H. Transversely across this opening, and coincident with the line of the edges of the cutters A A', and so placed as to be exactly under the centre piece B, is a movable bar or bridge, J. When the buckle to be stamped is to be of the form shown at fig. 6, the upper end of the bar J is cut squarely across, as is shown at fig. 4; but when the buckle has curved projections, as shown at fig. 5, the said upper end is rounded so as not to present a flatter surface or sharper edges than as shown at figs. 1 and 2. The movable bar J is provided with an opening, K, below the matrix G, into which the bent arm F is introduced, with the view of giving to the said bar a reciprocating up-and-down motion, the point of greatest depression being just so far as to allow the upper end of said bar to occupy the same plane with the upper surface of the matrix G. The bent arm F, and the cutters A A' and D, with the intermediate pieces B and E, are all connected with and operated by an eccentric or cam, so regulated or adjusted that they all operate simultaneously and in the same direction. Hence, when the cutters or die is brought down upon the matrix to form a buckle, the arm F forces the bar J,



by coming into contact with the lower end of the opening K, into the position as shown at fig. 4, and when the die is raised, as seen at fig. 2, the arm F rises at the same time and lifts the bar J, by contact with the upper end of said opening, as shown at fig. 2, and in doing so causes the said bar to throw the buckle out of the matrix, and enables the operator to push forward the plate, out of which the buckles are struck, in time for the next downward movement of the die and its appendage, cutter D. The bar J may be immovably fixed to the matrix, if such an arrangement be preferred, but in that case it will be necessary to introduce a movable rod through its centre to perform the function of throwing up the plate and buckle. Steam or any other power may be used to drive my apparatus, the only necessary condition being that it is sufficient.

The operation of my invention is as follows: The machinery which operates it being put into motion, a plate or bar of iron, chosen with reference to a proper width and thickness, is placed over the matrix, when the die is raised, as seen at fig. 2, and the die in its downward movement strikes upon the plate and stamps or forces the buckle into the form as shown at fig. 5 or fig. 6, accordingly as the upper end of the bar J is square or rounded off; and at the same time the cutter D cuts off the end of the plate so as to make it square and smooth and of the prescribed length. The buckles being stamped and the end of the bar cut off, the die, etc., is at once raised off the plate, and the bent arm F being raised at the same time, the bar J is forced up by it, or, in case the bar J is immovable, the rod placed within it, and as it ascends lifts the buckle that has just been stamped out of the matrix. The instant this occurs the operator pushes forward the plate, which is marked L on the drawings, until its end comes into contact with the bent arm F; as shown at fig. 2. This arm is constructed and placed in relation to the cutter D with exact regard to the length to be given to the buckle, and hence when this cutter again descends it cuts off the buckle that has just been formed precisely at the point to insure a symmetrical shape, and an equal amount of space from the openings produced by the projection of the lips at both ends of the buckle, as shown at figs. 5 and 6, at the same instant that a new buckle is stamped by the die. This process is continued until the plate or bar of iron is worked up, when another is introduced between the die and matrix in the same way as was the first, and so on *ad infinitum*.

Having thus described the construction and operation of my invention, what I claim and desire to secure by Letters Patent, is—

1. The die A A' B, and cutter D, in combination with the separating-bar E, when constructed, arranged, and operating in the manner described for the purpose of stamping or cutting out buckles, to be used as "cotton-ties," from suitable plates or bars of iron, as set forth.
2. The combination of the said die and its appendages with the matrix G, when the latter is constructed as described, and is provided with the movable bar J, or its equivalent, as described for the purpose set forth.
3. The combination of the said die and its appendages, matrix G, and movable bar J, with the bent arm F, when these parts are constructed and arranged relatively to each other, substantially as described for the purpose set forth.

C. W. WAILEY.

Witnesses:

I. B. EUSTIS,  
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