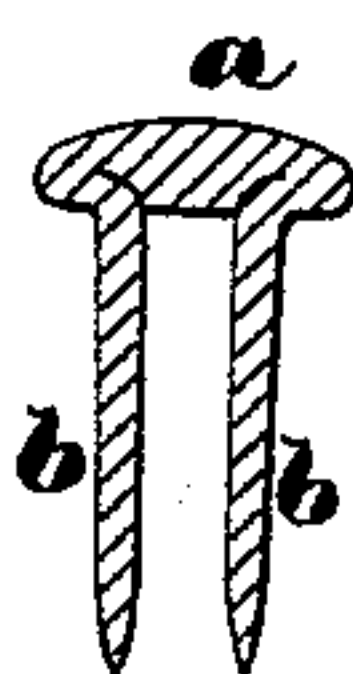
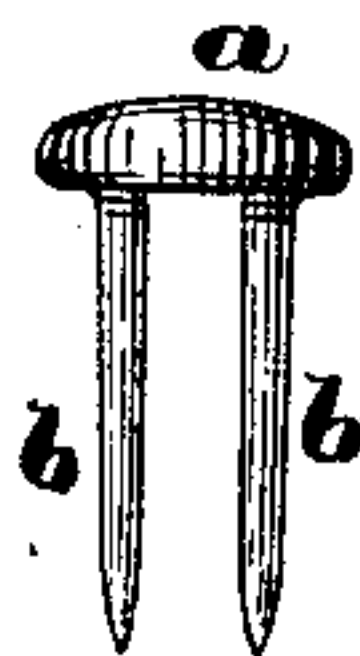
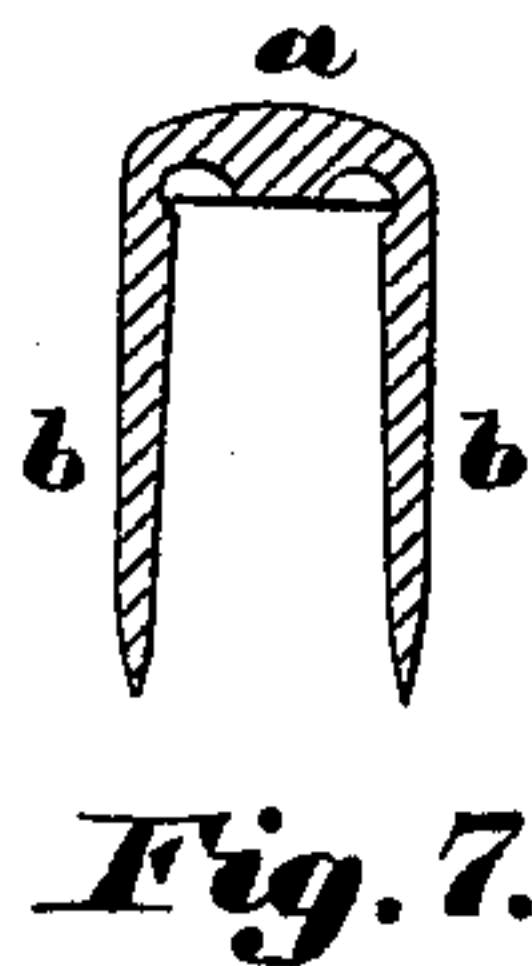
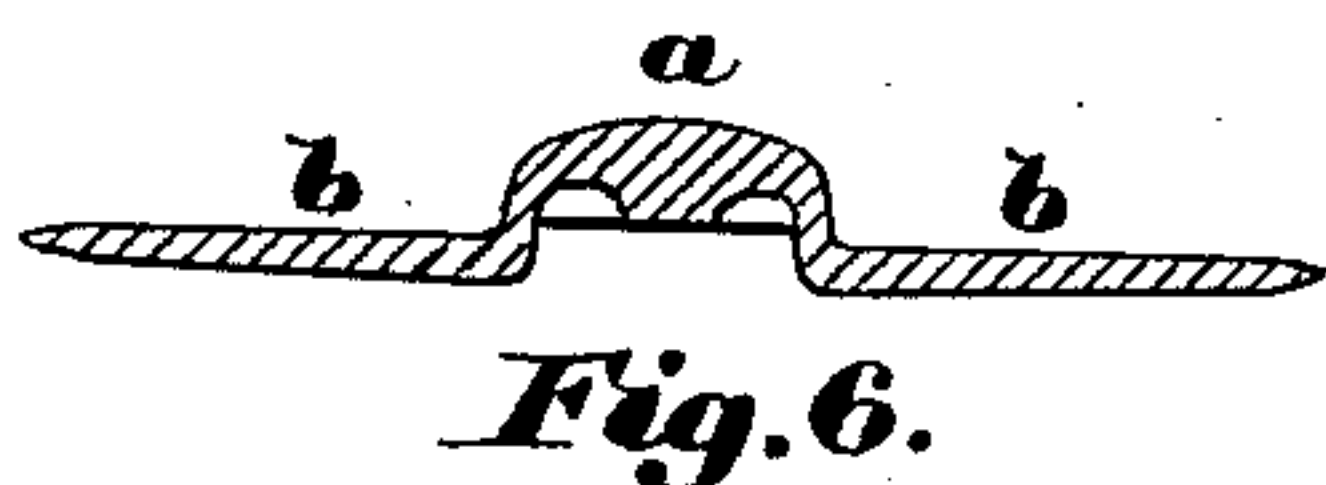
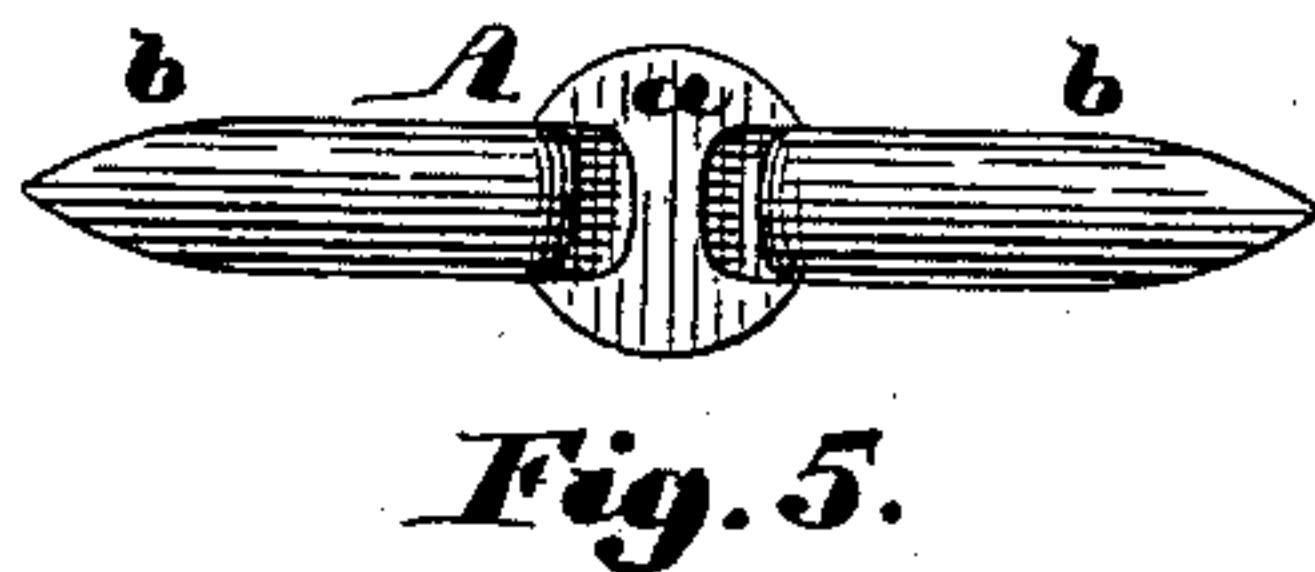
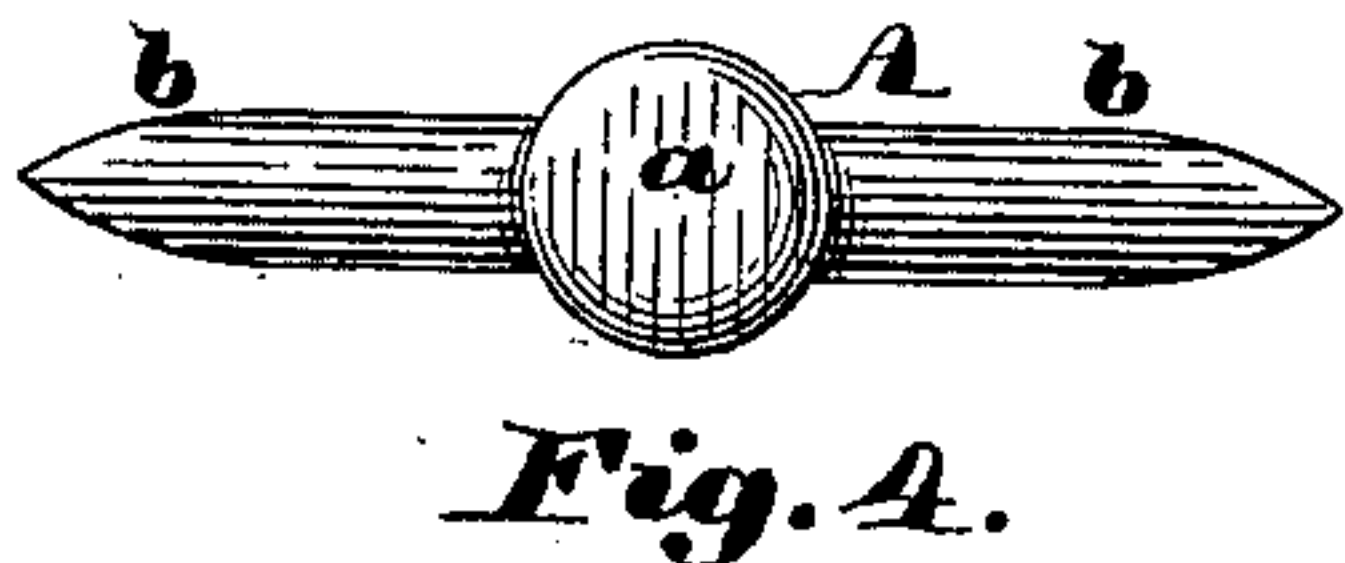
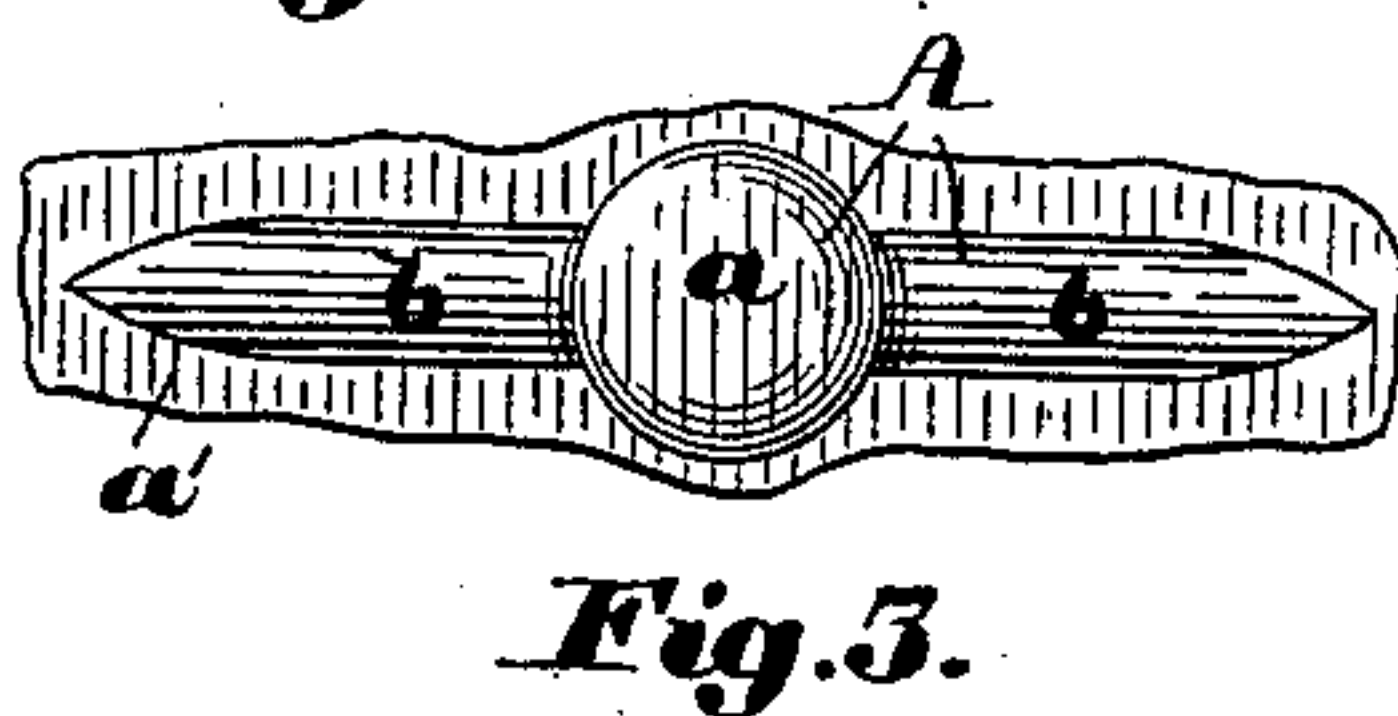
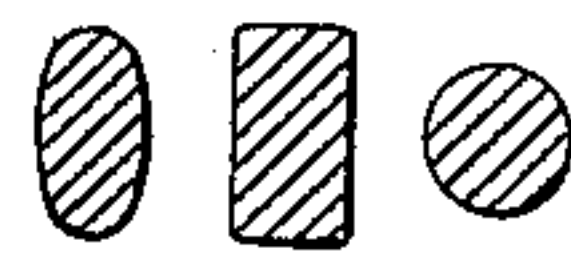
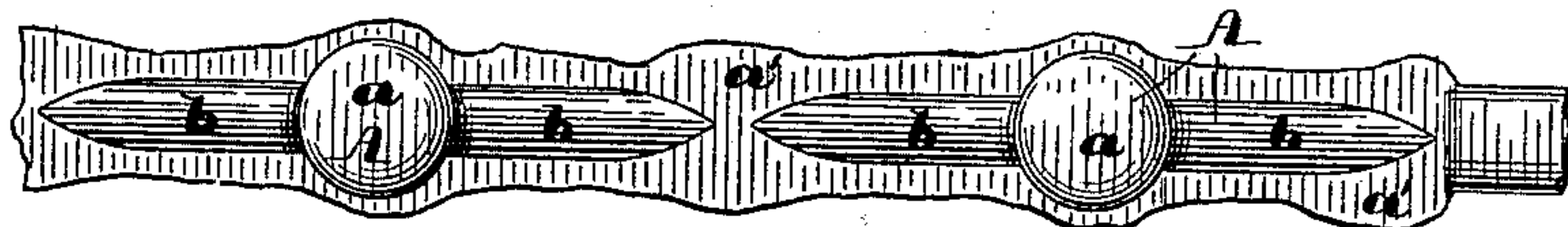
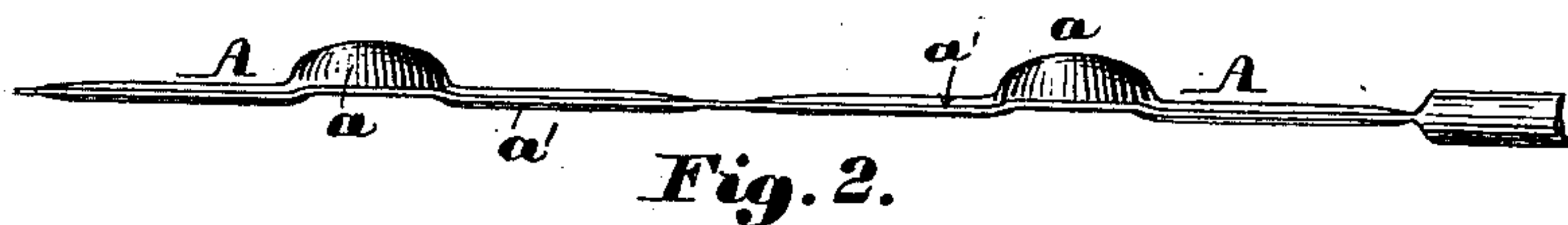


(No Model.)

W. C. BRAY.  
PROCESS OF MAKING PRONGED RIVETS.

No. 428,826.

Patented May 27, 1890.



**Witnesses:**  
Walter E. Lombard  
C.A. McClure

**Inventor:**  
William Claxton Bray,  
by N. C. Lombard  
Attorney.

# UNITED STATES PATENT OFFICE.

WILLIAM C. BRAY, OF NEWTON, MASSACHUSETTS.

## PROCESS OF MAKING PRONGED RIVETS.

SPECIFICATION forming part of Letters Patent No. 428,826, dated May 27, 1890.

Application filed April 1, 1890. Serial No. 346,154. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM C. BRAY, of Newton, in the county of Middlesex and State of Massachusetts, have invented a new and useful Process of Making Pronged Rivets, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to the manufacture of pronged rivets; and it consists in an improved process of making pronged rivets, which will be readily understood by reference to the description of the accompanying drawings, and to the claims hereinafter given, and in which my invention is clearly pointed out.

Figure 1 of the drawings is a plan of a short section of wire as it appears after it has been subjected to pressure between two dies to swage or emboss thereon the outline of two blanks. Fig. 2 is an elevation of the same. Fig. 3 represents a plan of one blank before the fin has been removed. Fig. 4 is a plan, Fig. 5 an inverted plan, and Fig. 6 is a longitudinal section, of the blank after the fin is removed. Fig. 7 is a central longitudinal section of one form of a rivet produced by my improved process. Figs. 8, 9, and 10 are respectively an elevation looking at the edges of the prongs, an elevation viewed at right angles to Fig. 8, and a central vertical section of another form of rivet produced by my improved process; and Fig. 11 illustrates transverse sections of three different styles or kinds of wire from which the blanks may be swaged.

In carrying out my improved process of making pronged rivets I take a wire of soft iron or brass, either round, oval, or rectangular in cross-section, as shown in Fig. 11, and subject it to pressure between suitably-shaped dies to swage it into the desired shape to form the blank A. When removed from between the dies, after being subjected to the action thereof, the blank will have a thin fin  $a'$  of metal projecting therefrom, as shown in Figs. 1, 2, and 3, which is next removed by means of a male and female die, when the blank will appear as shown in Figs. 4, 5, and 6. The blank is then subjected to the action of suitably-shaped male and female dies

to bend the prongs  $b b$  of said blank into a position at right angles to the head  $a$ , as shown in Fig. 7.

If it is desired to form the rivet shown in Figs. 8, 9, and 10, the prongs are forced inward bodily toward each other to the position shown in Figs. 8 and 10 by means of suitable dies and a pressure applied in a direction at right angles to the length of said prongs.

By this process I am enabled to form a rivet from solid wire, provided with a head having a convex upper surface and a flat under surface, give to the prongs any desired cross-section and any degree or kind of taper, and bend the prongs under the head, so as to project therefrom at right angles to its flat face at the extreme edge of the head, as shown in Fig. 7, or at points removed therefrom toward the center of said head, as shown in Figs. 8 and 10, without the use of cutting, or milling, or drilling tools, except the dies for removing the fin, and as a consequence the rivets can be produced very cheaply.

This process has been partially described, but not claimed, in two other applications of mine of even date herewith.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The process of making pronged rivets from solid wire, which consists in swaging a section of wire to form a blank comprising a head and two prongs projecting from opposite sides of said head in a plane parallel to the under surface of the head, and give said blank the desired transverse sections, then trimming the fin from said blank, and then bending the prongs under the head and into positions at right angles to the under surface of the head, and their outer surfaces at a distance apart equal to the diameter of the head.

2. The process of making pronged rivets from solid wire, which consists in swaging a section of the wire to form a blank having the desired cross-section of prong and head, with said prongs extending from opposite sides of said head and in a plane parallel to the under surface of the head, removing the fin from said blank, bending said prongs at



right angles to the under side of the head,  
with their outer surfaces at a distance apart  
equal to the diameter of the head, and then  
moving the greater part of said prongs bodily  
5 toward each other and folding a portion  
thereof next to the head under said head,  
substantially as described.

In testimony whereof I have signed my

name to this specification, in the presence of  
two subscribing witnesses, on this 28th day 10  
of March, A. D. 1890.

WILLIAM C. BRAY.

Witnesses:

N. C. LOMBARD,

WALTER E. LOMBARD.