

(No Model.)

M. N. BRAY.
MANUFACTURE OF TUBULAR RIVETS.

No. 256,117.

Patented Apr. 11, 1882.

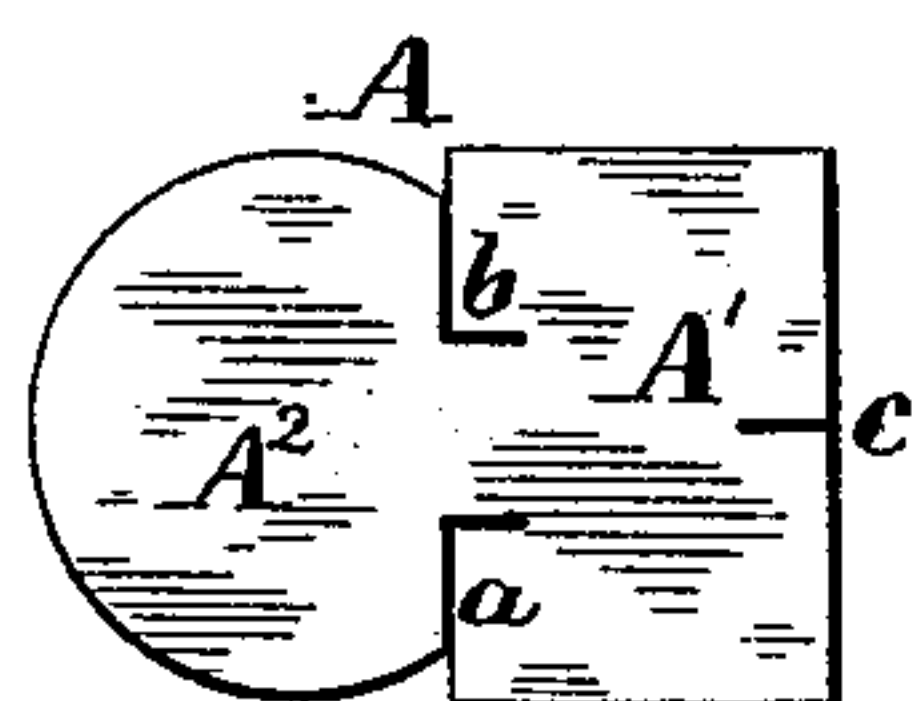


Fig. 1.



Fig. 2.

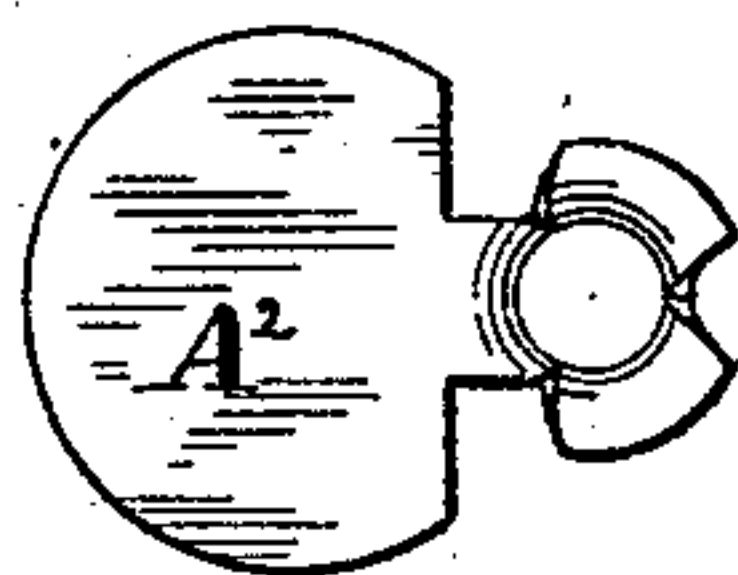


Fig. 4.

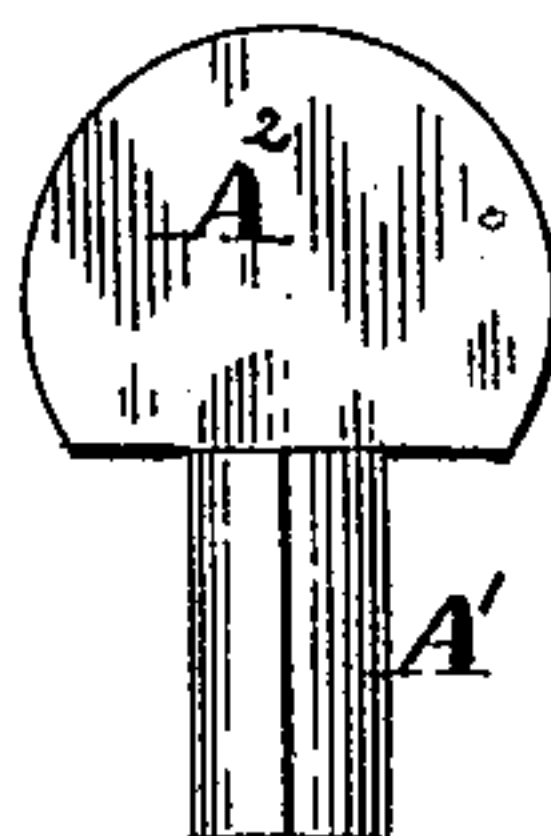


Fig. 3.

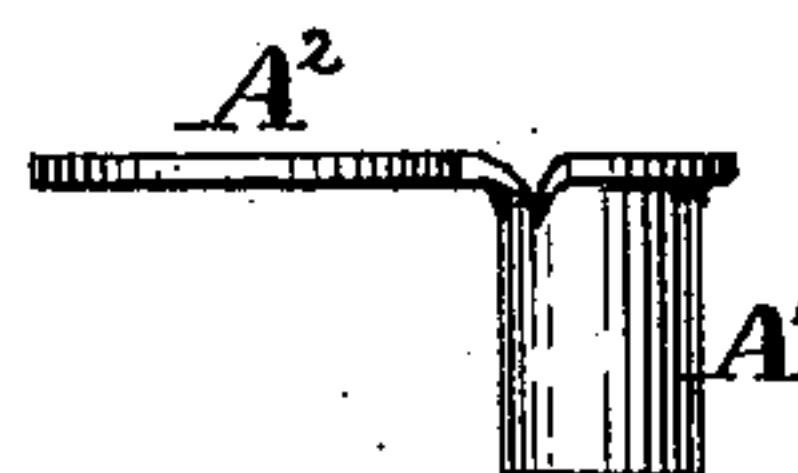


Fig. 5.

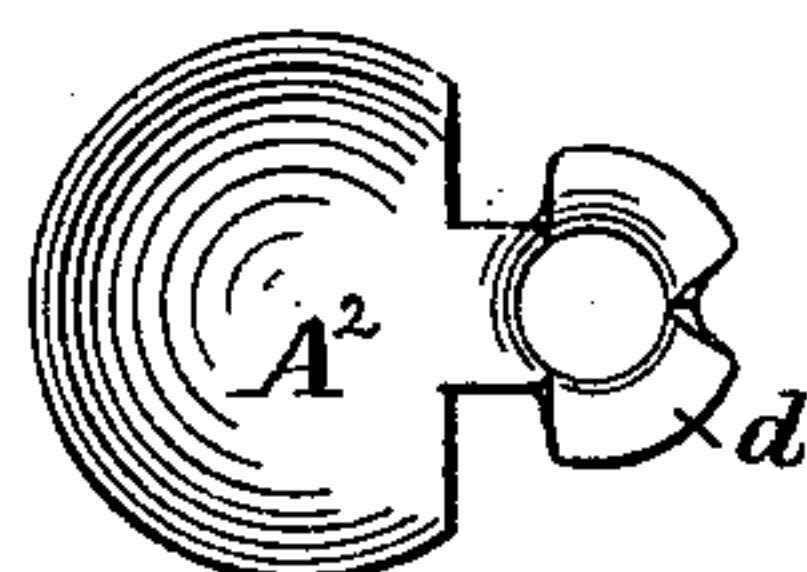


Fig. 6.

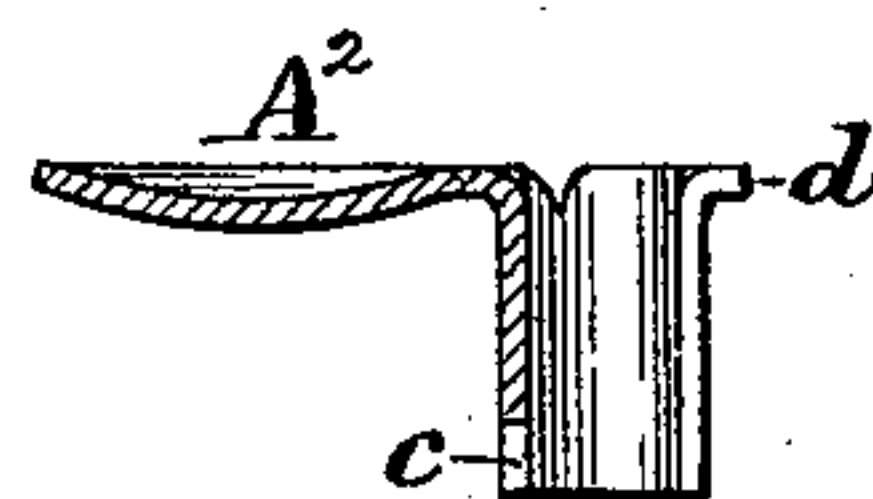


Fig. 7.

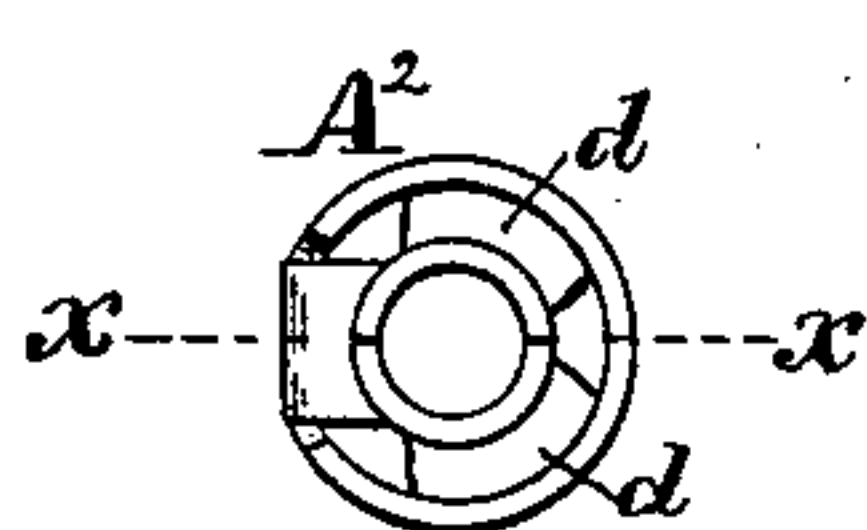


Fig. 8.

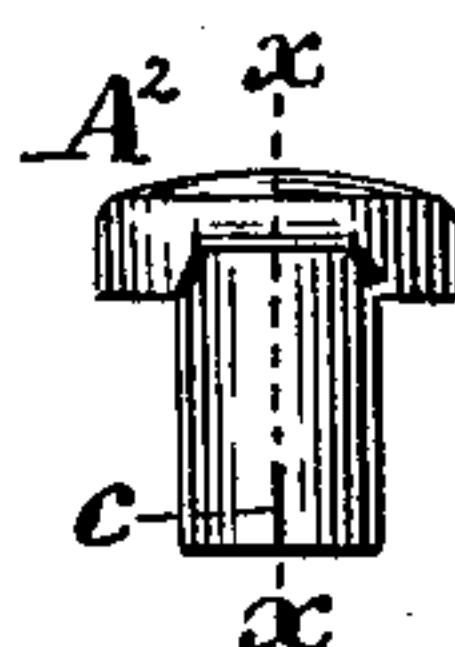


Fig. 9.

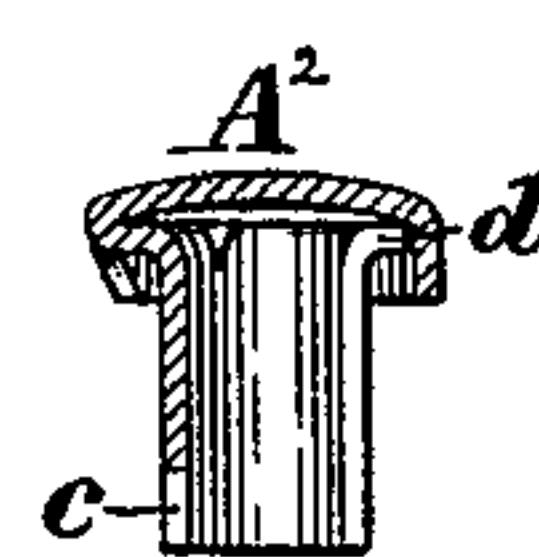


Fig. 10.

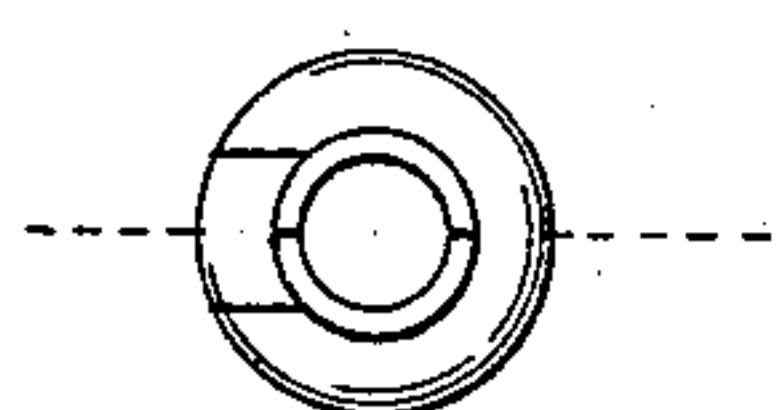


Fig. 11.



Fig. 12.

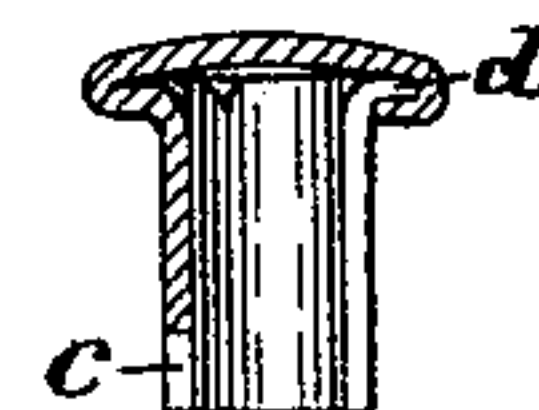


Fig. 13.

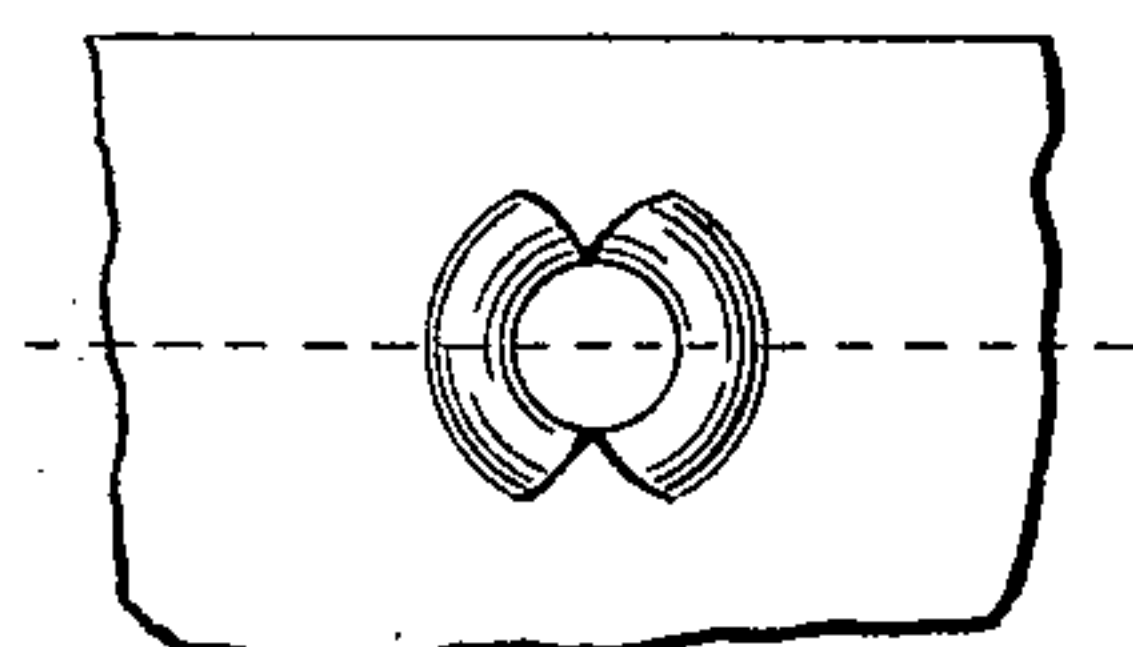


Fig. 14.

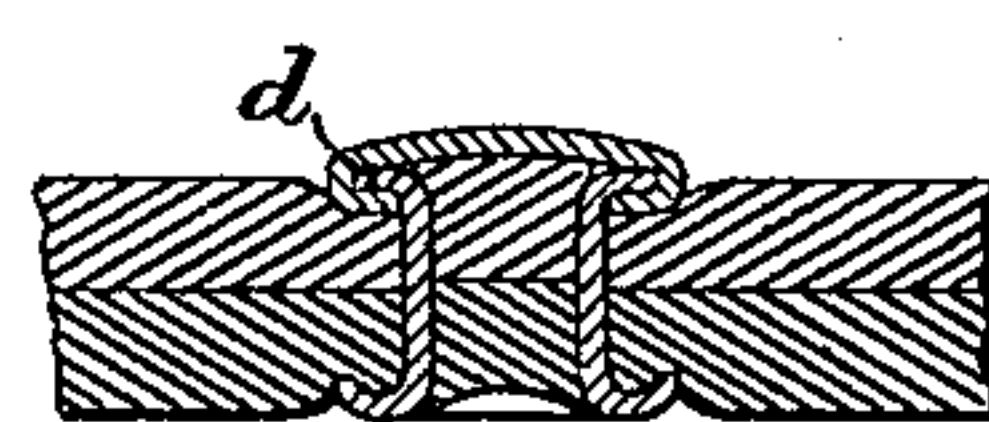


Fig. 15.

Witnesses:

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UNITED STATES PATENT OFFICE.

MELLEN N. BRAY, OF BOSTON, MASSACHUSETTS.

MANUFACTURE OF TUBULAR RIVETS.

SPECIFICATION forming part of Letters Patent No. 256,117, dated April 11, 1882.

Application filed February 13, 1882. (No model.)

To all whom it may concern:

Be it known that I, MELLEN N. BRAY, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in the Manufacture of Tubular Rivets, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to the construction of tubular rivets from sheet metal; and it consists of a sheet-metal blank of peculiar shape, and provided with certain slits or incisions for forming a rivet having a tubular body and a closed or capped head, as will be more fully described.

It further consists in the process of forming tubular rivets having closed or capped heads from single pieces of sheet metal by punching from sheet metal a blank having formed therein suitable slits or incisions, bending or rolling a portion of said blank into the form of a tube or hollow cylinder, turning down the other portion of said blank into a position at right angles to the axis of the tube or hollow cylinder, and at the same time turning outward a portion of that end of said tube which originally formed the middle portion of the blank, so as to form an outwardly-projecting flange, swaging that portion of the blank that was not rolled into the tubular form, so as to make it slightly concavo-convex, turning said concavo-convex portion of the blank over upon the flanged end of the tube, with the convex side outward, turning its outer edge downward around the flange of the tube and then inward beneath said flange, and then swaging the head of the rivet in suitable dies to firmly lock the parts together and correct any irregularity in the shape of the head.

Figures 1 and 2 of the drawings are respectively a plan and edge view of the blank as it is punched from the sheet of thin metal. Fig. 3 is an elevation showing the blank after a portion of it has been rolled into the form of a tube. Figs. 4 and 5 are respectively a plan and a side elevation of the same after the cap portion of the blank and a portion of the walls of the tube have been turned outward or at right angles to the main body of the tube. Figs. 6 and 7 are respectively a plan and a central vertical section of the same after the cap portion has been swaged into a concavo-

convex form. Figs. 8 and 9 are respectively an inverted plan and an elevation of the same after the cap portion has been turned over upon the flanged end of the tube and turned down around said flange. Fig. 10 is a vertical section on line *x x* on Figs. 8 and 9. Figs. 11, 12, and 13 are respectively an inverted plan, an elevation, and a central vertical section of the finished rivet; and Figs. 14 and 15 are respectively an inverted plan and a central vertical section of a piece of leather with my improved rivet set therein.

In the manufacture of my improved rivet I first cut or punch from sheet metal the blank A, having cut therein the slits or incisions *a*, *b*, and *c*, arranged as shown in Fig. 1. I then roll the part A' of said blank into the form of a tube, as shown in Fig. 3, and then by another operation and the use of suitable tools turn the part A² and a portion of the end of the rolled-up section outward into a position at right angles, or nearly so, to the main body of the tube. The section A² is then subjected to the action of swaging-dies to render it concavo-convex, as shown in Figs. 6 and 7. The cap-section A² is then turned over upon the flanged end of the tube, and its edges are turned down around the edge of the flange *d*, as shown in Figs. 8, 9, and 10, and then by the next and final operation the edge of said cap-section is turned under the flange *d*, and the rivet is completed. This makes a very good rivet, capable of cutting its own way through the material and retaining the core cut from the material within the hollow of the tube, as shown in Fig. 15, at a comparatively small cost. The slit *c* and the joint in the tube opposite thereto will cause the rivet to clinch in two parts, as shown in Fig. 14.

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

1. The blank A, cut in the form shown, and provided with the slits or incisions *a*, *b*, and *c*, from which to form a tubular capped headed rivet, substantially as described.

2. The process of forming tubular rivets from sheet metal by first cutting a blank to the form shown in Fig. 1, and forming therein the slits or incisions *a*, *b*, and *c*, bending or rolling one section or portion of said blank into the form of a tube, turning or bending the other section or portion of said blank and

a portion of the end of the rolled-up or tubular section outward at right angles, or nearly so, to the axis of the tube, swaging the section so turned outward into a concavo-convex form, bending said concavo-convex section
5 over upon the flanged end of the tubular section to form a cap thereto, and turning the outer edge of said cap-section down around the edge of the flange of the tube and then un-

der said flange, substantially as and for the purposes described.

Executed at Boston, Massachusetts, this 9th day of February, A. D. 1882.

MELLEN N. BRAY.

Witnesses:

E. A. HEMMENWAY,
WALTER E. LOMBARD.