

(No Model.)

C. T. SCHOEN. MANUFACTURE OF CENTER BEARING PLATES.

No. 491,192.

Patented Feb. 7, 1893.

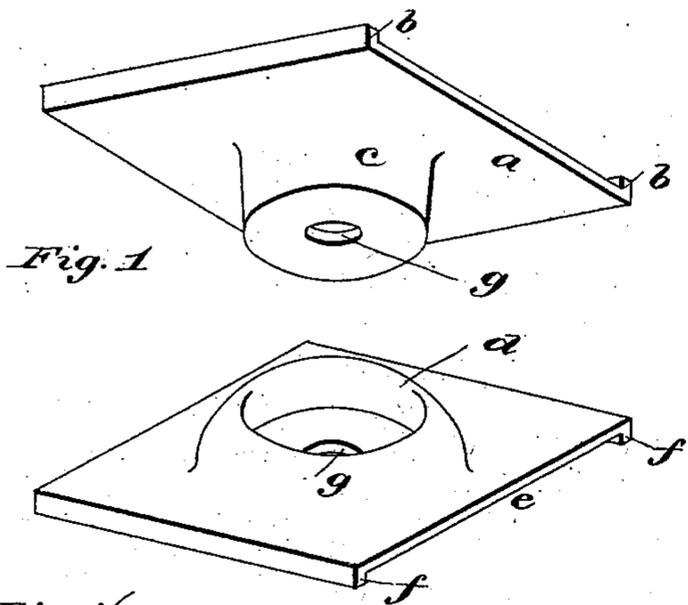


Fig. 1

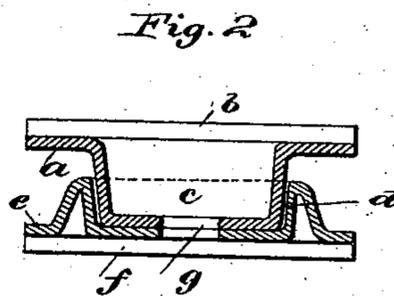


Fig. 2

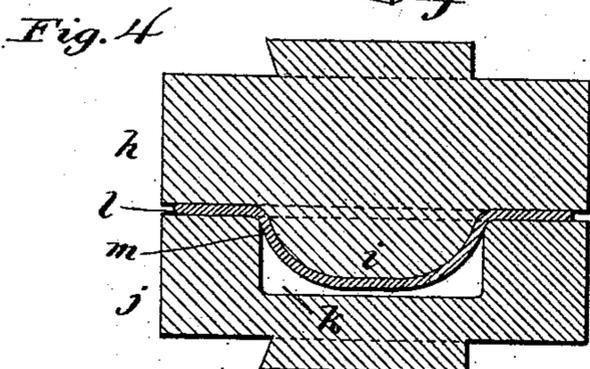


Fig. 4

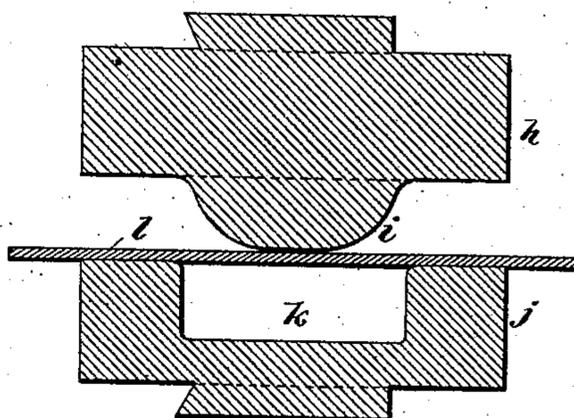


Fig. 3

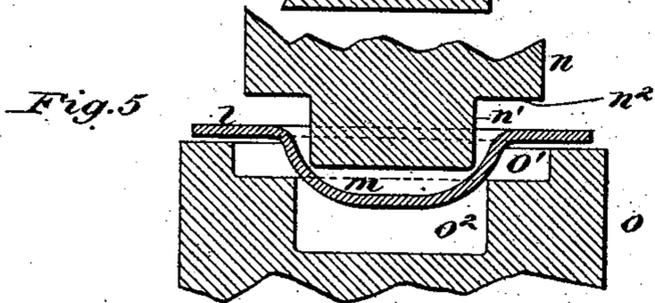


Fig. 5

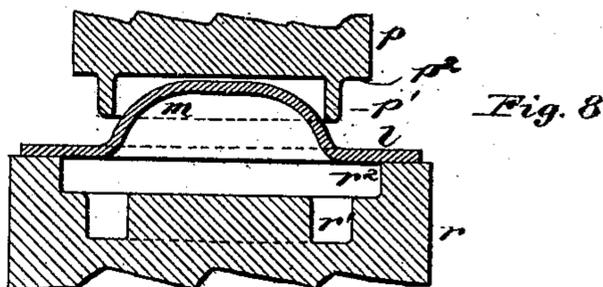


Fig. 8

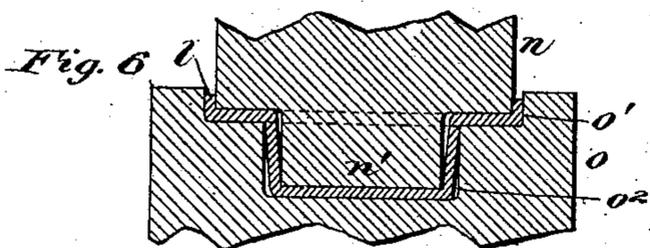


Fig. 6

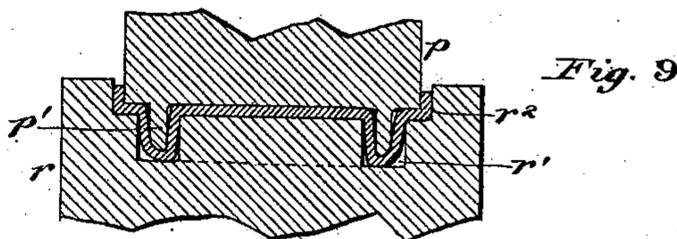


Fig. 9

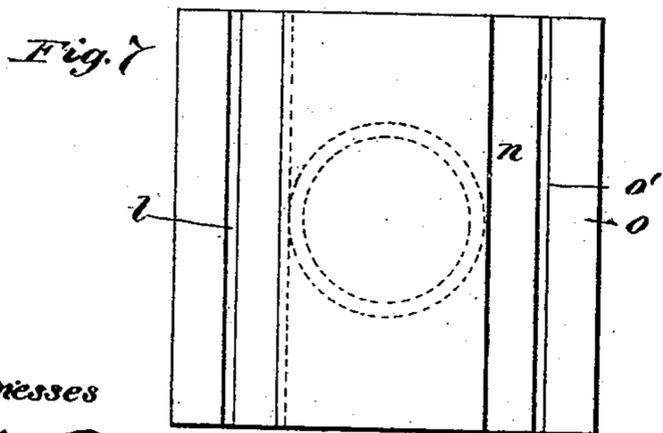


Fig. 7

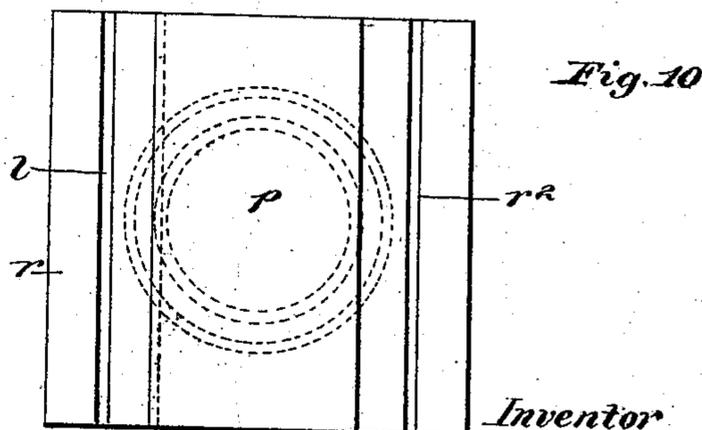


Fig. 10

Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES T. SCHOEN, OF ALLEGHENY, PENNSYLVANIA.

MANUFACTURE OF CENTER-BEARING PLATES.

SPECIFICATION forming part of Letters Patent No. 491,192, dated February 7, 1893.

Application filed April 19, 1892. Serial No. 429,807. (No model.)

To all whom it may concern:

Be it known that I, CHARLES T. SCHOEN, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Processes of and Apparatus for Making Center-Bearing Plates, of which the following is a full, clear, and exact description.

The object of this invention is to provide for the economical and expeditious manufacture of center-bearing plates for railway cars from sheet or plate metal, preferably steel.

In practicing my invention, I take a blank of the appropriate metal, of somewhat greater area than the finished article, and subject it to a series of operations by dies by which the blank is stamped or embossed to produce the finished article. By stamping or embossing I mean to distinguish my operation from drawing. In the latter operation there is a molecular disturbance and rearrangement, while in the former there is little or practically none, but on the contrary the blank's form or configuration superficially is changed. These distinctions, I need hardly say, are well recognized in the art. Where there is molecular change, the operation is termed drawing, and where there is none, or practically none, the operation is designated "pressing," and the article is known as a "pressed" article. A drawn article is not of uniform or practically uniform thickness throughout, while a pressed article is of essentially uniform thickness throughout.

I will proceed now to a full description of the principle of my invention, and the best mode in which I have contemplated applying that principle, and will then particularly point out and distinctly claim the part or improvement which I claim as my invention.

In the accompanying drawings illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is a perspective view of the top and bottom plates constituting a center-bearing constructed in accordance with my invention. Fig. 2 is a longitudinal section of these plates assembled. Figs. 3 and 4 show in cross section the first operation dies for each plate. Figs. 5 and 6 show in cross-section and in two positions the finishing dies for the top plate,

and Fig. 7 shows these latter dies in plan. Figs. 8 and 9 show in cross-section and in two positions the finishing dies for the bottom plate, and Fig. 10 is a plan view of the last named dies.

The top plate *a* has the edge flanges *b, b*, to fit the body bolster, and the projection *c* to fit the socket *d* of the bottom plate *e*, and this bottom plate may have the edge flanges *f, f*, to fit the truck bolster. Openings *g* are punched or otherwise formed in the projection and socket for the passage of the king-bolt. This is the most usual form of pressed steel center-bearings.

The first operation dies consist of a male die *h* having the rounded or curved projection *i*, and the female die *j* having the cavity or matrix *k*. A heated flat blank *l* of greater area than the finished article is laid between these dies as in Fig. 3, and then pressed as indicated in Fig. 4, the projection *i* crowding down the center *m* and pulling in the surrounding metal of the blank, and thus the metal is not subjected to what is technically known as drawing, but, is as it were, folded or bent to shape. To form the top plate, the blank is taken to the finishing dies, Figs. 5, 6 and 7, in which *n* is the male die provided with the frusto-conical projection *n'* and shoulder *n²*, and *o* is the female die provided with the matrix *o'* to co-operate with the shoulder *n²* to form the body and edge flanges, and the matrix *o²* to co-operate with the projection *n'* to form the projection *c*. This operation also is performed without drawing the metal and as in the first operation. The lower or bottom or truck plate is also formed from a blank treated to the first operation dies (Figs. 3 and 4), but such blank is inverted in the dies, Figs. 8, 9 and 10. Of these dies, the male *p* has the annular projection *p'* and the shoulder *p²*, while the female die *r* has the matrix *r'* to co-operate with the annular projection *p'* to form the socket *d*, and has the matrix *r²* to co-operate with the shoulders *p²* to form the body and edge flanges.

In the making of these plates it has been demonstrated that a flat blank seventeen inches on the outside will be taken up to fifteen inches in the finish, and that there will be not a thirty-second of an inch drawing or thinning of the metal in three-eighths thick-

ness, and this is practically inconsequential. The first operation is as though slack were put in the blank, and the finishing is simply a taking up of this slack by a sort of bending or folding operation. By this process and by these dies, steel plate center bearing plates may be produced very economically, expeditiously, and accurately, without appreciably thinning or drawing and thereby weakening the metal, all which has been demonstrated in practice.

What I claim is:—

1. The improvement in the art of die-stamping center-bearing plates from wrought metal, which consists in preparing a plate of suitable size and of substantially uniform thickness throughout, such as flat sheet or plate steel, and forming therein a central depression of greater area than the projection finally formed therefrom and leaving a surrounding flat portion to constitute the body and flanges of the center-bearing plate, and then bending the depressed portion into final shape without materially drawing or thinning the metal, and forming the flanges, substantially as described.

2. The improvement in the art of die-stamping center-bearing plates from wrought metal, which consists in preparing a plate of suitable size and of substantially uniform thickness throughout, such as flat sheet or plate steel, and forming therein a central depression of greater area than the projection finally formed therefrom and leaving a surrounding flat portion to constitute the body and flanges of the center-bearing plate, and bending the said centrally depressed portion of the blank into frusto-conical shape, without materially drawing or thinning the metal, substantially as described.

3. The improvement in the art of die-stamping center-bearing plates from wrought metal, which consists in preparing a plate of suitable size and of substantially uniform thickness throughout, such as merchant sheet or plate steel, and forming therein a central depression of greater area than the projection

finally formed therefrom and leaving a surrounding flat portion to constitute the body and flanges of the center-bearing plate, and bending the said centrally depressed portion of the blank into frusto-conical shape without materially drawing or thinning the metal, and at the same time bending the flanges, substantially as described.

4. A series of dies for stamping up or pressing center-bearing plates from plate or sheet metal, comprising a set of first operation dies having a rounded or curved projection and a complemental matrix of greater dimensions than the finished product, and a set of finishing dies having a frusto-conical projection and flange-forming shoulders, and complemental matrices, substantially as described.

5. A series of dies for stamping or pressing up center-bearing plates from plate or sheet metal, comprising a set of first operation dies having a rounded or curved projection and a complemental matrix of greater dimensions than the finished product, and a set of finishing dies having an annular projection and flange-forming shoulders and complemental matrices, substantially as described.

6. A series of dies for stamping up or pressing center-bearing plates from plate or sheet metal, consisting of a set of first operation dies having a rounded or curved projection and a complemental matrix of greater dimensions than the finished product, and sets of finishing dies for completing the pair of plates from like blanks produced by the first operation dies, one of such sets of finishing dies having a frusto-conical projection and adjacent flange-forming shoulders and complemental matrices, and the other set of finishing dies having an annular projection and adjacent flange-forming shoulders and complemental matrices, substantially as described.

In testimony whereof I have hereunto set my hand this 18th day of April, A. D. 1892.

CHARLES T. SCHOEN.

Witnesses:

J. M. GREENE,
WM. H. SCHOEN.