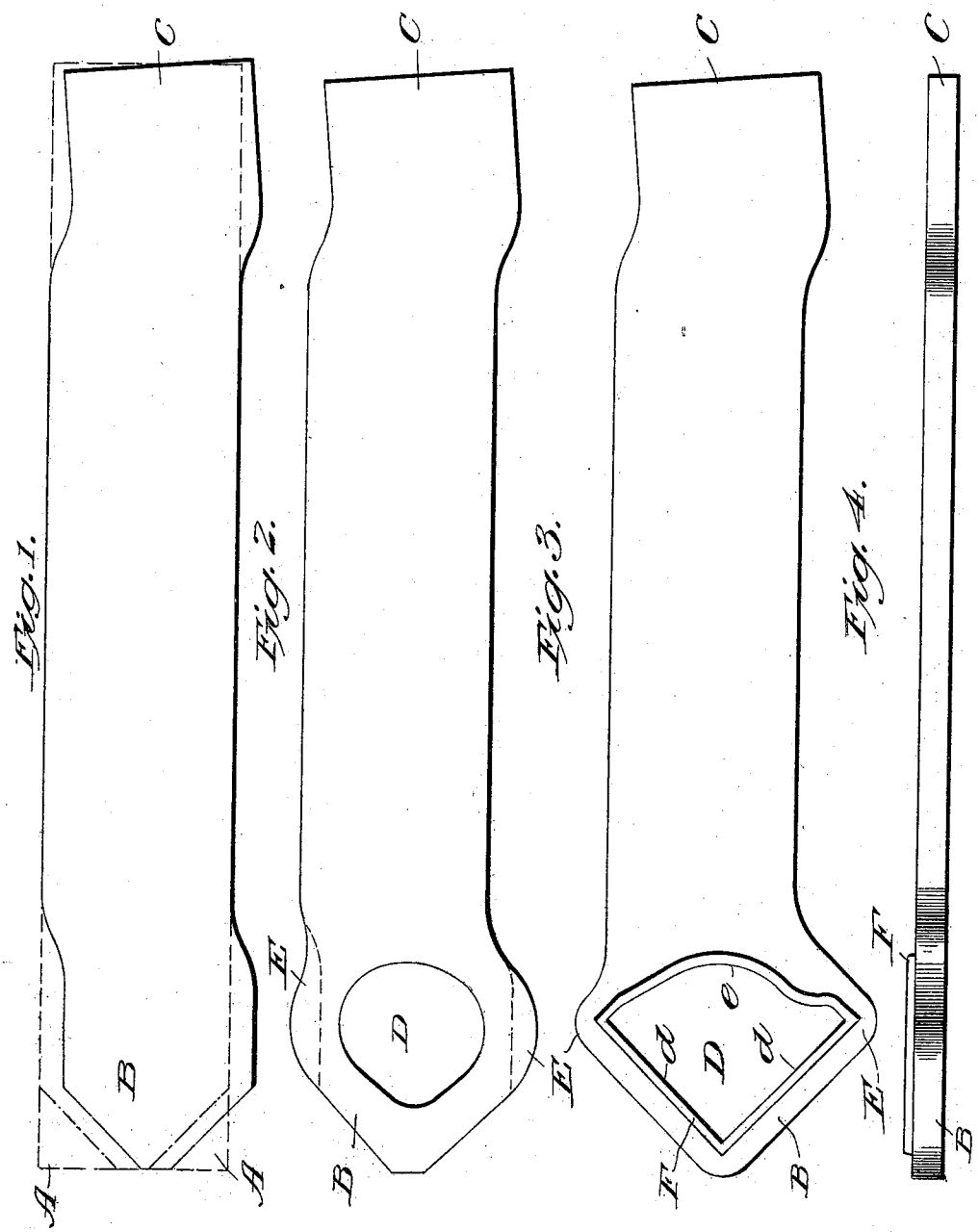
P. T. HANDIGES.

PROCESS OF MAKING FULCRUMS FOR BRAKE BEAMS.

APPLICATION FILED MAR. 1, 1910.

981,645. **Patented Jan. 17, 1911.**

2 SHEETS—SHEET 1.



WITNESSES

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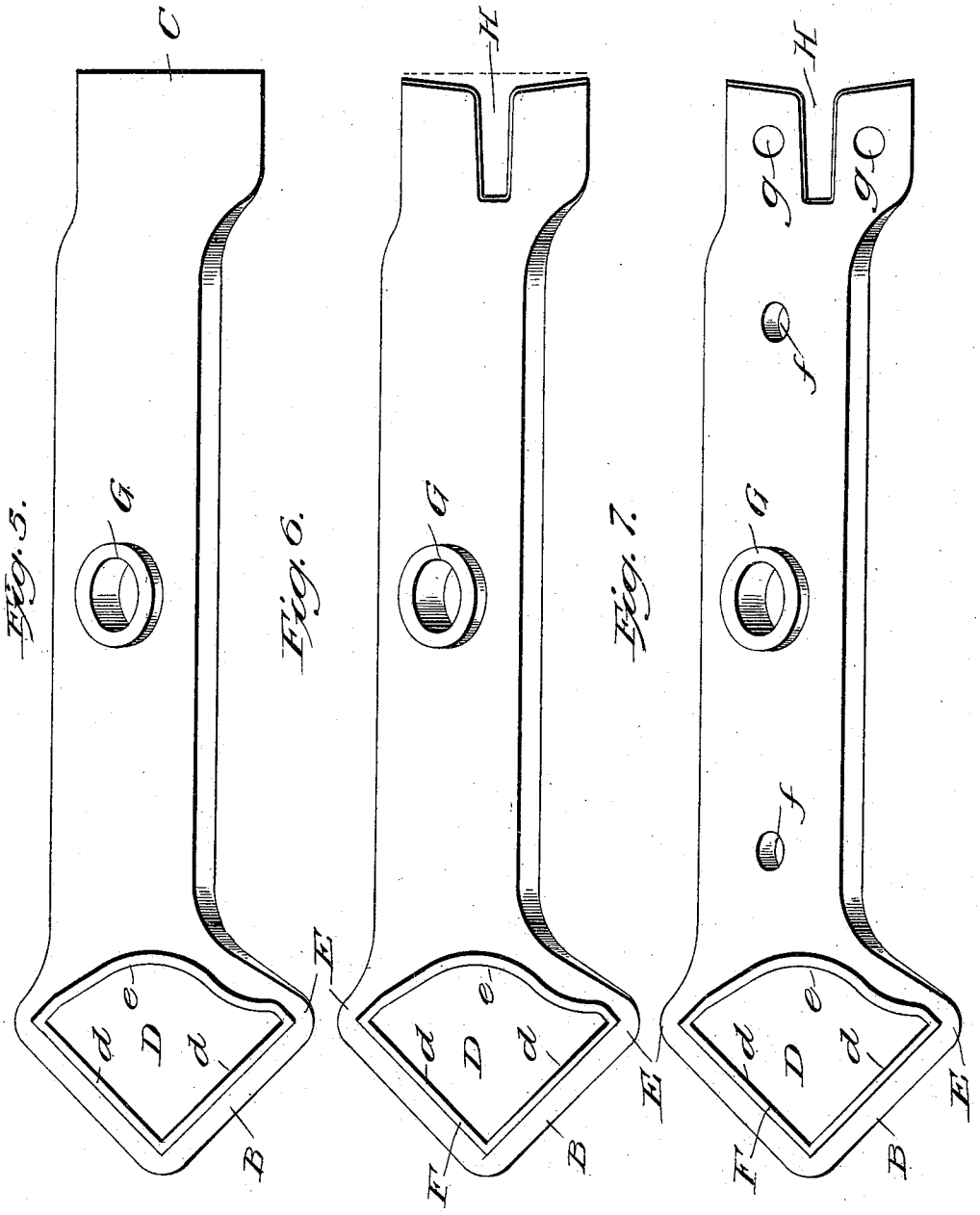

Fig. 5.

Fig. 6.

Fig. 7.

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UNITED STATES PATENT OFFICE.

PHILIP T. HANDIGES, OF CLEVELAND, OHIO, ASSIGNOR TO THE DAMASCUS BRAKE BEAM CO., OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

PROCESS OF MAKING FULCRUMS FOR BRAKE-BEAMS.

981,645. Specification of Letters Patent. **Patented Jan. 17, 1911.**

Application filed March 1, 1910. Serial No. 546,702.

To all whom it may concern:

Be it known that I, PHILIP T. HANDIGES, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Processes of Making Fulcrums for Brake-Beams, of which the following is a specification.

The present invention has reference to the process of forging the strut or fulcrum members for brake beams of the trussed bar type, and is especially adapted for making such parts as disclosed in my co-pending application, Serial No. 546,665 and bearing the date of March 1st, 1910. The fulcrum in question is the pattern designed for the brake beam known as the Waycott brake beam.

The method of manufacture herein disclosed is distinct in that the strut is formed in a two-part forging, both members whereof are made independently and of such shape as will effect the tensioning of the fulcrum against its respective compression and tension members through the same means which secures the fulcrum to the compression member.

In Figures 1 to 7 of the accompanying drawings, the forgings are shown in the various successive stages of their manufacture.

In its initial shape the blank has that form shown in dash outline in Fig. 1, and on the first operation the corners A are trimmed off along the lines shown therein. The second operation consists in offsetting both ends B and C to that form shown in full lines (Fig. 1). The next step (see Fig. 2) consists in perforating the end portion B with an eye D, and in expanding the opposite side portions E of said eye from the outline shown in dash to that shown in full lines therein. In the third operation (see Figs. 3 and 4), the eye D of the forging is further enlarged and the width of the surrounding metal thereof proportionally reduced as indicated in the figure. In this further treatment of the eye D, the same is formed with two straight edges *d* disposed at right angles to each other whereby to permit of the attachment of the eye to the compression member of the brake beam, which in this instance would be an angle bar of V-shape in cross section. The front edge *e* of the eye is herein slightly bowed or curved whereby the eye of the strut may have sufficient resiliency to permit of its compression for securement to the compression member. In the expanding of the eye from that form shown in Fig. 2 to that shown in Figs. 3 and 4, the metal on the marginal edge thereof is turned outwardly in the form of a ridge or embossment F, which in addition to increasing the strength of the eye portion of the forging further affords a bearing for that member upon the compression member of the brake beam. In the fifth operation, the bar is torsionally deflected adjacent the eye D and the end portion C to an angle of about 40°, thus disposing the bar intermediate those parts at a diagonal to the dividing plane of the compression and tension gripping members of the fulcrum. Simultaneously with the torsioning operation, the bar is formed with an embossed aperture G, which with the aperture of the adjacent strut member provides the necessary journal bearing for the braking lever. In the next step (see Fig. 6), the end portion C is cut away or bifurcated to provide a slot H which affords the necessary bearing for the tension member of the brake beam, and which in this instance would be a T-angle bar. Finally, in the seventh and eighth successive operations (Fig. 7), the forging is perforated in its diagonal portion at *f* and bifurcated end at *g* to receive rivets for holding, respectively, the spacing members for the strut parts, and the saddle piece for the tensioning member.

What is claimed is:—

1. The process of forming a forged steel fulcrum part which consists in offsetting the ends of the blank piece, perforating one of said offset ends with an eye, and in torsionally deflecting the bar adjacent the said offset ends.

2. The process of forming a forged steel fulcrum part which consists in offsetting the ends of the blank piece, forming one of said ends with an expanded eye, torsionally deflecting the bar adjacent the offset ends and disposing that part intermediate thereof at a diagonal to the plane of the offset portions.

3. The process of forming a forged steel fulcrum part which consists in offsetting the ends of the blank piece; secondly in forming an eye in and partially expanding one of said offset ends; third, in further expanding the eye and forming an embossment around the edge thereof; and finally in torsionally

deflecting the bar adjacent the said offset ends and disposing the portion intermediate thereof at a diagonal to the plane of the offset portions.

4. The process of forming a forged steel fulcrum part which consists in offsetting the ends of the blank piece; secondly, in forming an eye in and partially expanding one of said offset ends; third, in further expanding the eye and providing a depression therein to afford resiliency; and finally in torsionally deflecting the bar adjacent the said offset ends and disposing the portion intermediate thereof at a diagonal to the plane of the offset portions.

5. The process of forming a forged steel fulcrum part which consists in offsetting the ends B and C thereof; secondly, in forming a perforation D in the offset portion B, and in expanding said portion at E E; third, in further expanding the eye portion giving thereto straight edges *d*, *d*, an inwardly curved edge *e*, and in forming an embossed ridge F surrounding the aperture; fourth, in torsionally deflecting the bar adjacent the offset ends and disposing the portion intermediate thereof at a diagonal to the plane of the offset portions; and finally, in bifurcating the other end of the bar to receive the tension member and forming apertures *f* and *g* for rivets.

6. The process of forming a forged steel fulcrum part which consists, first, in cutting off the corners A from one end of the blank; second, in offsetting the ends B and C; third, in forming an eye D in the offset portion B and partially expanding said offset portion at E, E; fourth, in further expanding the eye and forming the same with straight edges *d* disposed at right angles to each other, and with an inwardly curved edge *e* and an embossed ridge F surrounding the aperture; fifth, in torsionally deflecting the bar adjacent the offset ends B and C, disposing the bar intermediate thereof at a diagonal to the plane of the offset portions, and forming an embossed aperture therein; sixth, in bifurcating the other end of the bar to receive the tension member; and finally in perforating the diagonal and bifurcated portions at *f* and *g* to receive rivets.

The foregoing specification signed at Cleveland Ohio this 16th day of February, 1910.

PHILIP T. HANDIGES.

In presence of—
E. D. PUGH,
G. W. CLEMMONS.