(No Model.)

C. L. SHELDON.

METHOD OF FORMING CARRIAGE AXLES.

No. 375,387. Patented Dec. 27, 1887.

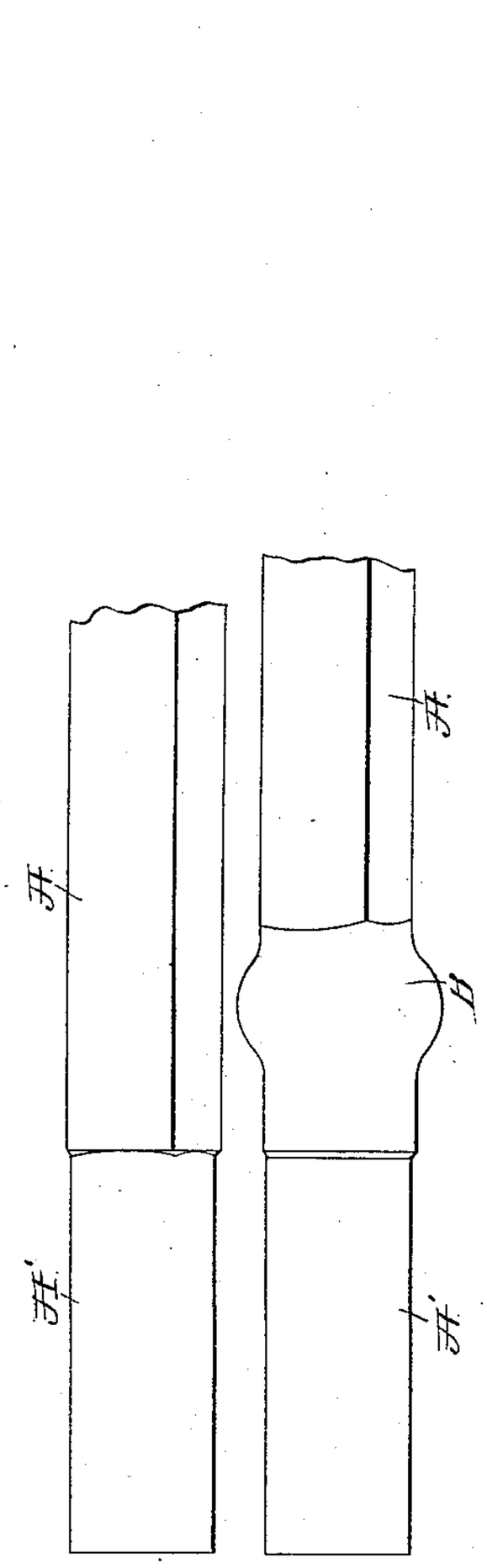

Fig. 1.

Fig. 2.

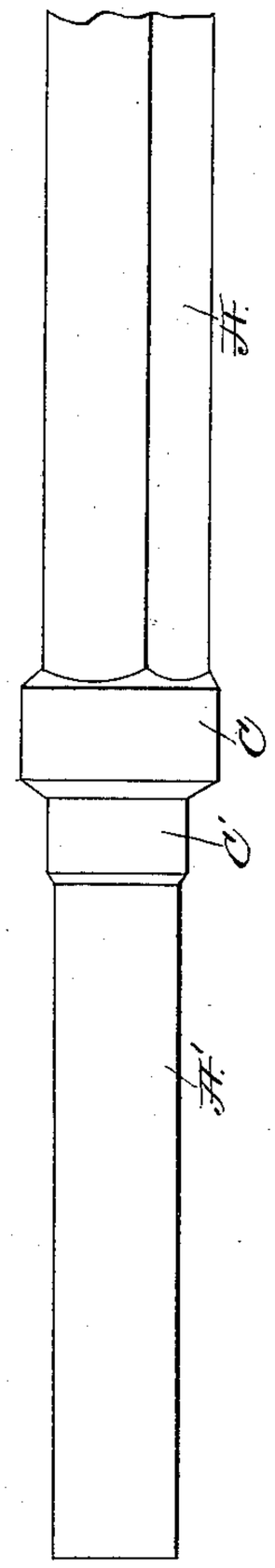

Fig. 3.

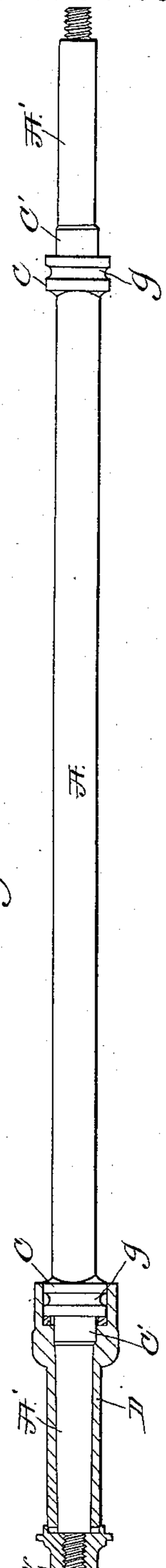

Fig. 4.

Witnesses.
Fred L. Emery
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Inventor.
Charles L. Sheldon,
by Crosby & Gregory Attys

UNITED STATES PATENT OFFICE.

CHARLES L. SHELDON, OF AUBURN, NEW YORK, ASSIGNOR TO THE SHELDON AXLE COMPANY, OF WILKES-BARRÉ, PENNSYLVANIA.

METHOD OF FORMING CARRIAGE-AXLES.

SPECIFICATION forming part of Letters Patent No. 375,387, dated December 27, 1887.

Application filed November 26, 1886. Serial No. 219,931. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. SHELDON, of Auburn, county of Cayuga, and State of New York, have invented an Improvement in the Method of Forming Axles, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In another application, Serial No. 189,391, filed January 22, 1886, I have described one method by which iron or steel axles for carriages may be made from one piece or bar of iron or steel.

This present invention has for its object to produce carriage-axles of the class referred to of a single bar or piece in a novel and efficient manner and by a different method from that set forth in the said application.

My improved method for making axles will be pointed out in the claim at the end of this specification.

Figure 1 represents a portion of one end of an axle-blank subjected to the first operation of rounding. Fig. 2 represents a portion of one end of an axle after being subjected to the second operation of upsetting. Fig. 3 represents the axle shown in Fig. 2 after being subjected to the third step of the process; and Fig. 4 shows the entire axle after it has been finished, one end of the axle being provided with a box to enter the usual hub.

In accordance with this my present invention to produce an axle from a single piece or bar of iron or steel, I take a bar, A, which has been cut to the proper or desired or standard length, which length varies according to the class of axles to be made, and while one or both ends of the said bar are hot one or both ends are placed in or between dies and rounded by a swaging operation to form an axle-arm, A′. The bar A, while its ends are still hot, is then upset to a given point in usual manner to leave near each rounded end A′ a collar-forming enlargement, B, and then, while hot, the opposite ends of the bar are placed in or between gripping-dies, which, by a swaging operation, transform the enlargement B into a large annular solid collar, C, and a shoulder, C′. (See Fig. 3.) The uniform length of the axle between the shoulders C′ is approximately insured by the gripping-dies, which are closed upon the bar A at certain fixed points.

To save space upon the drawings, I have in Figs. 1, 2, and 3 shown but one end of the bar A; but it will be understood that the end of the bar which is broken off is just the same as the end shown. After subjecting the bar to the action of the dies, as described, the bar is placed in a machine, is centered and acted upon by a tool, the surface of the collar C, shoulder C′, and the arm A′ are turned true, the collar C is provided with the annular groove *g*, and the ends of the arms A′ are reduced and threaded for the reception of the nuts N, and in such condition the arms are adapted to receive upon them a box of usual construction, as at D′. (See Fig. 4.)

In case there should be a slight variation in the length of the journals of the axle the said journals may be lengthened by turning down or making shorter the shoulder C′, and in case of variation in the length of the axle between the collars the said axle may be elongated by drawing under the hammer either cold or hot.

I claim—

That improvement in the art of making carriage-axles which consists in subjecting a bar at each end to the action of dies to round the said ends, then upsetting the bar to form an enlargement near each rounded end, thereafter subjecting the enlargements and rounded ends of the bar to the action of dies to round the enlargement and form a solid collar and shoulder, and to form arms of the rounded ends, then turning the collar, shoulder, and arms and providing each end of the axle with a screw-thread, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES L. SHELDON.

Witnesses:
E. S. NEWTON,
S. F. RATHBUN.