

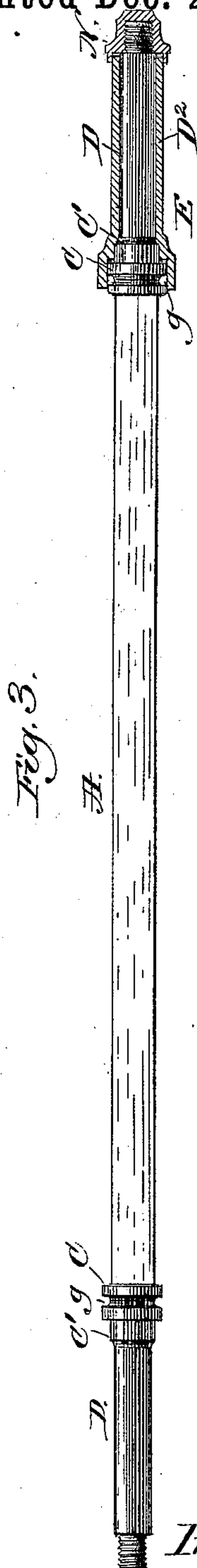
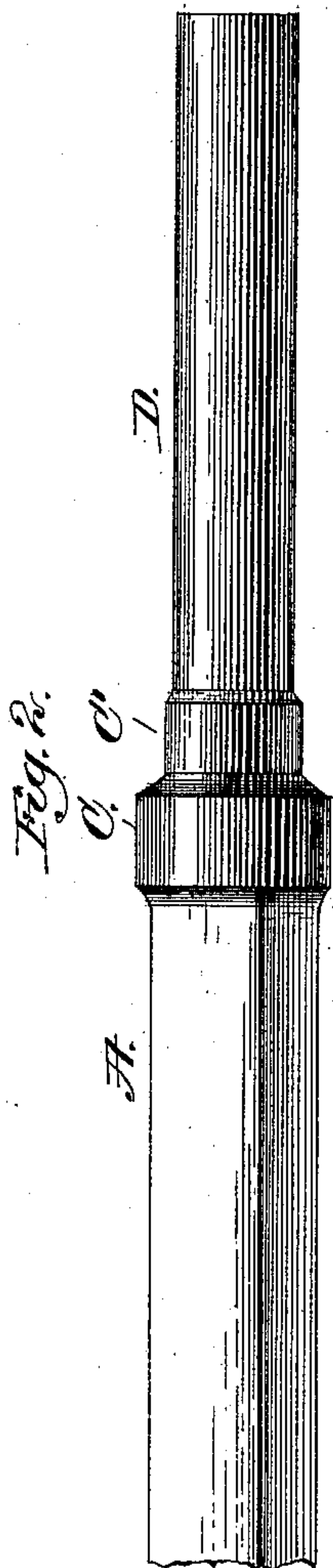
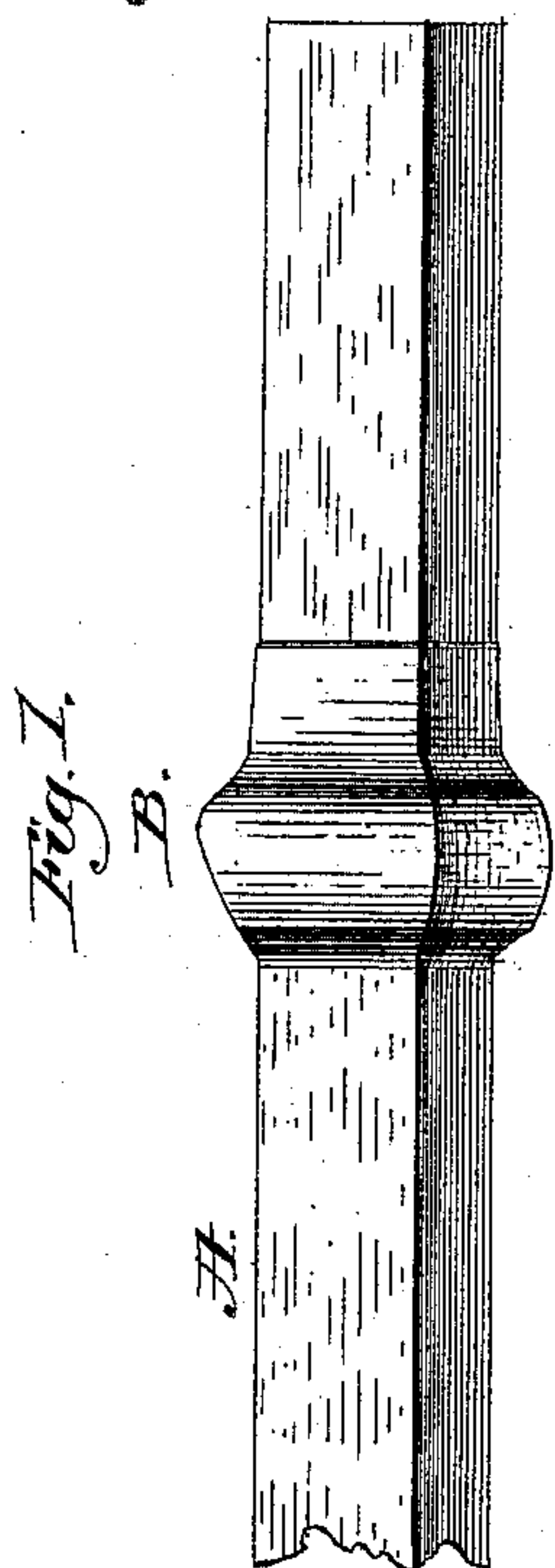
(No Model.)

C. L. SHELDON.

METHOD OF MAKING CARRIAGE AXLES.

No. 375,388.

Patented Dec. 27, 1887.



Witnesses:
J. Hobday
John F. C. Printker

Inventor:
Charles L. Sheldon
by Lemuel Gregory attys.

UNITED STATES PATENT OFFICE.

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

METHOD OF MAKING CARRIAGE-AXLES.

SPECIFICATION forming part of Letters Patent No. 375,388, dated December 27, 1887.

Application filed January 22, 1886. Renewed July 5, 1887. Serial No. 243,445. (No model.)

To all whom it may concern:

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

Iron or steel axles for carriages as now commonly made for sale to carriage-makers are in four pieces, and the beds have to be welded together by a blacksmith.

The beds forming portions of the four usual pieces are commonly made a little longer than necessary, and more or less metal is cut away when making the weld.

The welding of the beds together, if well done, is a matter of considerable expense, and if not well done the axle-bed is materially weakened at that point, and with even a good weld the bed is not of such uniform strength as though it were of a single bar without a weld.

In my experiments to provide axles better suited to the requirements of the trade, stronger and more serviceable axles, and to also obviate the necessity of welding the beds as now practiced, I have provided an axle comprehending a bed and a box-receiving arm at each end thereof, the bed and arms being integral or without a weld; and it is in this sort of an axle that my invention consists.

Figure 1 represents a portion of one end of an axle blank subjected to the first operation of upsetting. Fig. 2 represents a portion of one end of an axle after being subjected to a second operation; and Fig. 3 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 the method practiced by me to produce an axle embodying my invention I take a bar, A, which has been cut to the proper or desired or standard length suitable for a forward or rear axle of a carriage, and in usual way, while one or both ends of the said bar are hot, one or both ends are upset to a given point, as shown at Fig. 1, to leave near each end of the said bar a collar-forming enlargement, B, and then, while hot, the opposite ends of the bar, upset as described, 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', the dies rounding the bar from the rear of the shoulder C' to its ends and forming the axle-arm D. The uniform length of the axle between the shoulders C' is approximately insured by the adjustment of the bar in the machine employed for upsetting.

To save space upon the drawings, I have in Figs. 1 and 2 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 surfaces of the collar C, shoulder C', and the arm D are turned true, the collar C is provided with the annular groove g, and the ends of the arms D 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 D².

Fig. 3 shows my completed axle.

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.

Prior to my invention I am not aware that the process herein described of making an axle without weld in its arm A between its two collars, C, was ever practiced, and by the process or method described the axle is made better in quality and of less cost.

I claim—

That improvement in the art of making carriage-axles which consists in upsetting a bar near each end to form an enlargement, then subjecting the enlargements and ends of the bar to the action of dies to round the enlargement and form a solid collar and shoulder and to round the ends of the bar to form arms, 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.

CHAS. L. SHELDON.

Witnesses:

HORACE B. FITCH,
CHAS. H. GILLAM.