

J. W. CREMIN.

Improvement in Axles for Vehicles.

No. 120,418.

Patented Oct. 31, 1871.

Fig. 1.

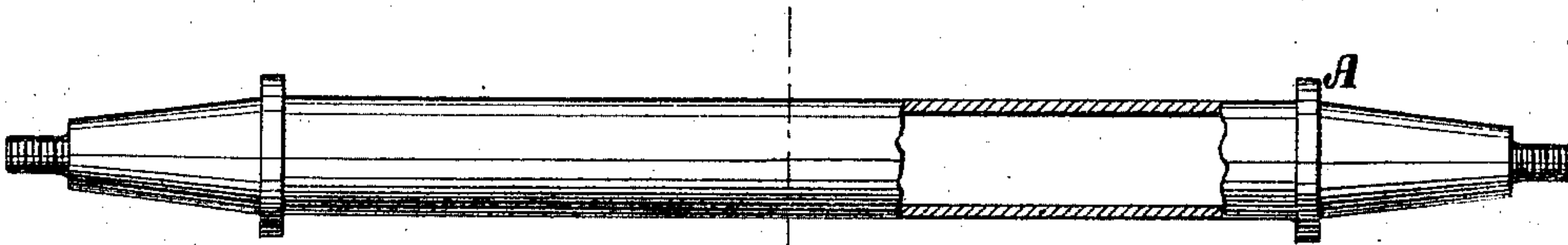


Fig. 10.

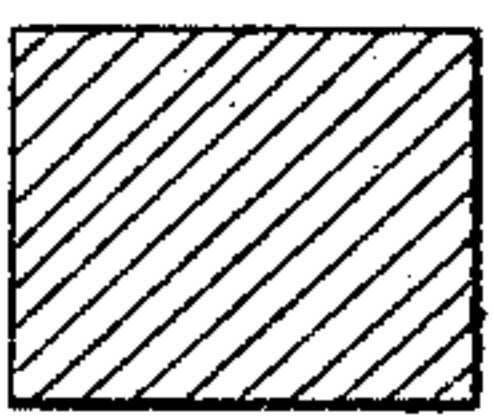


Fig. 11.

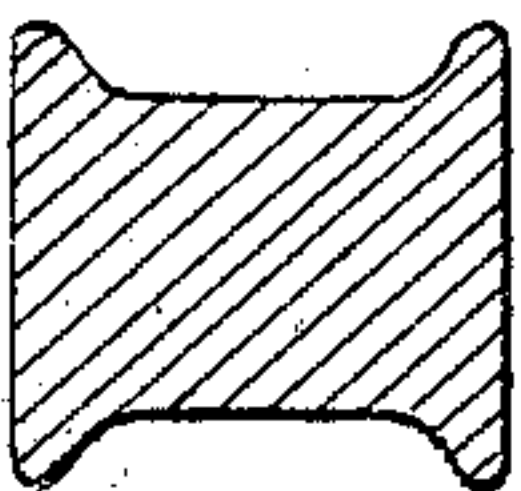


Fig. 2.

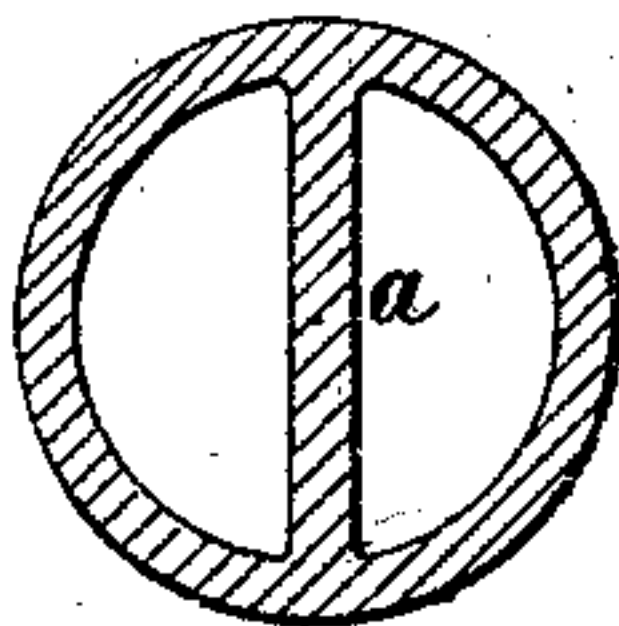


Fig. 12.

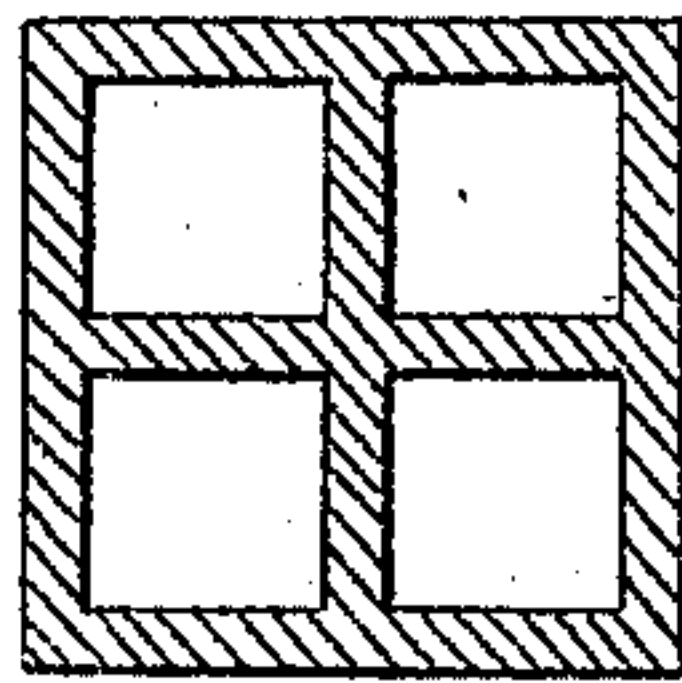


Fig. 3.

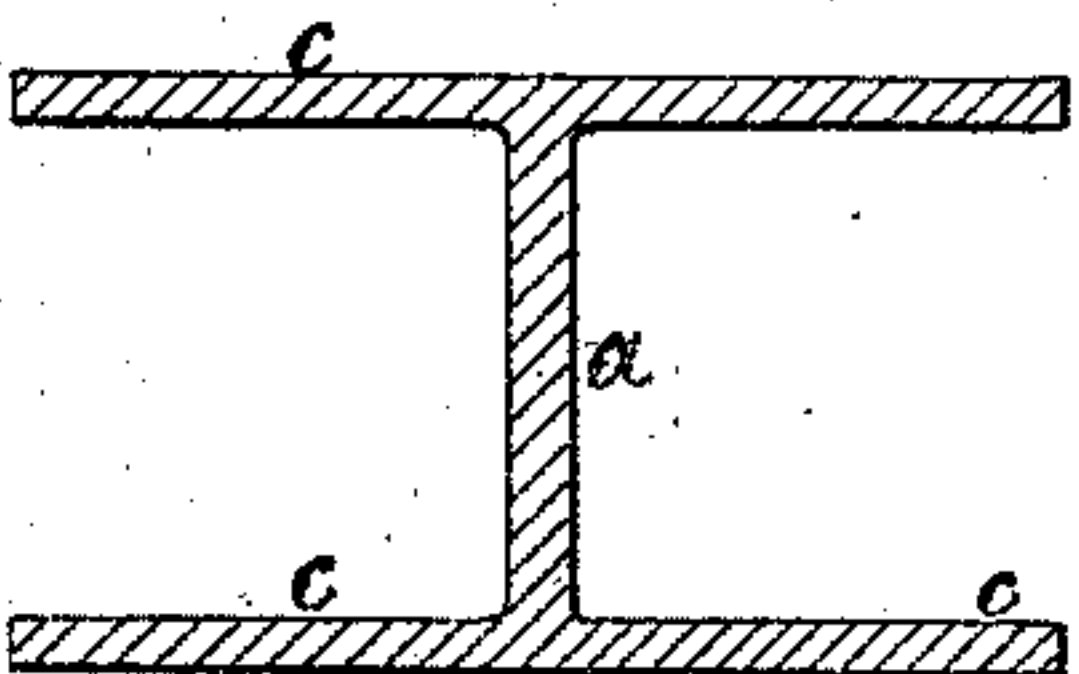


Fig. 4.

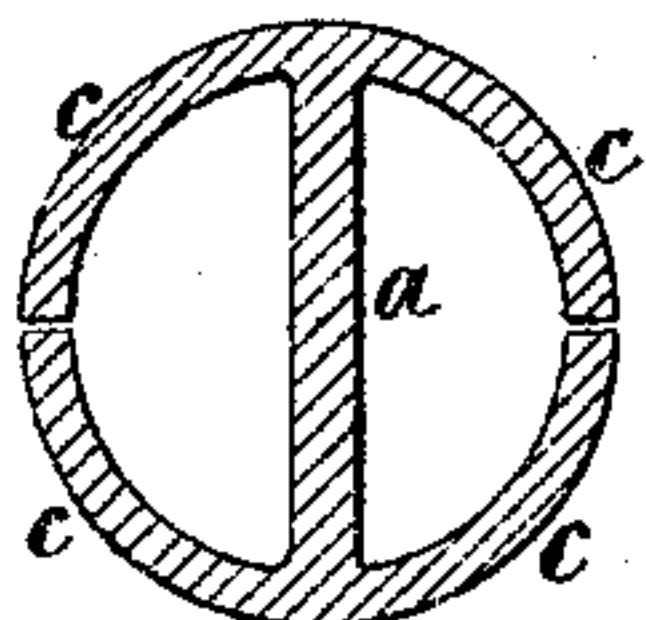


Fig. 5.

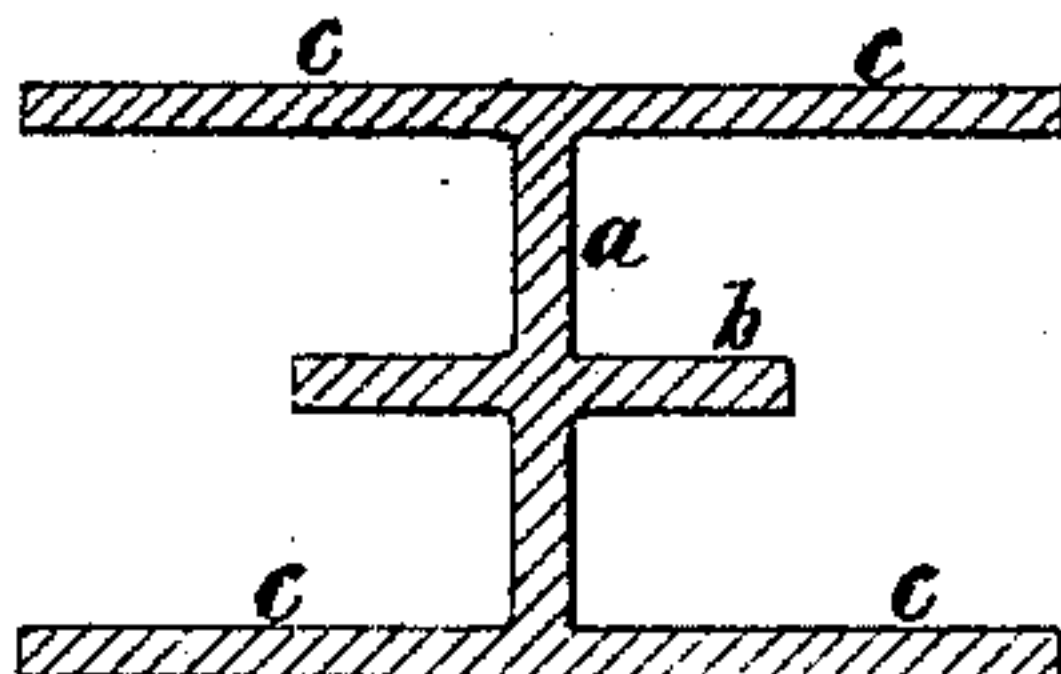


Fig. 6.

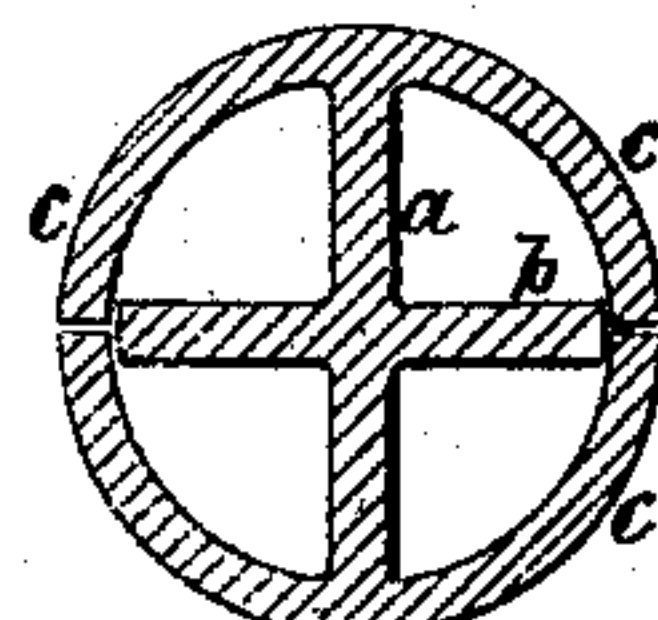


Fig. 7.

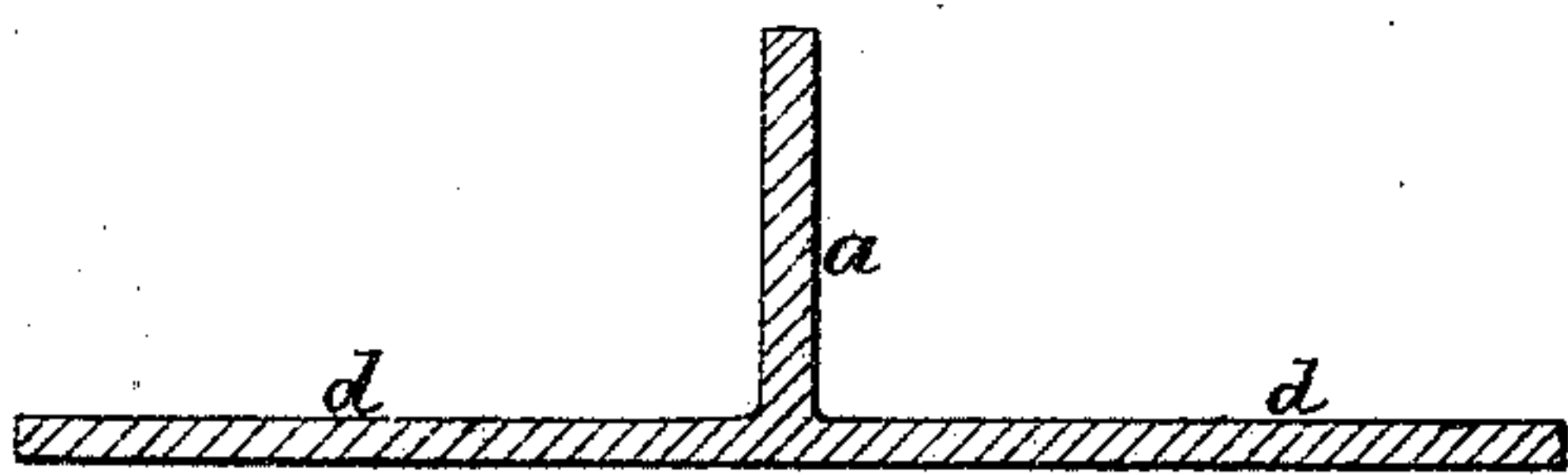


Fig. 8.

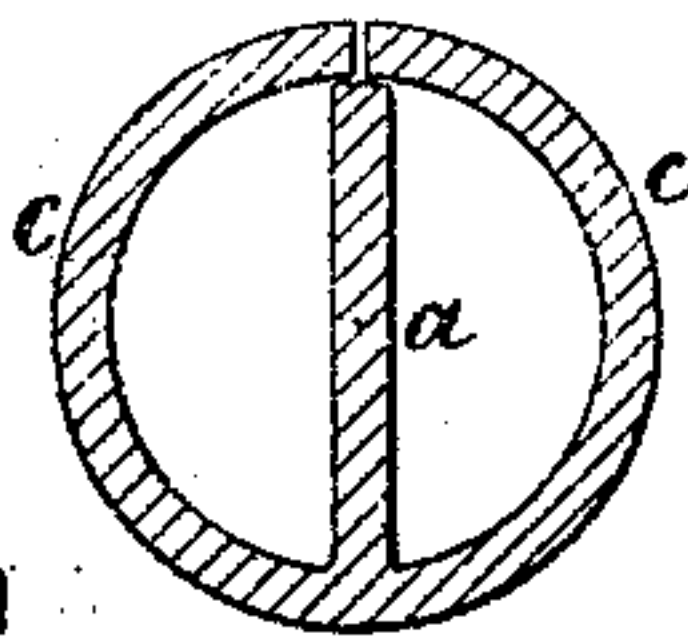
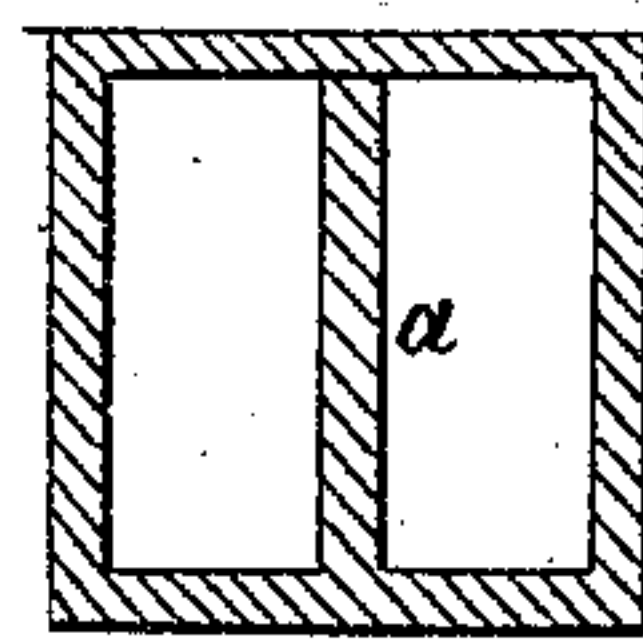


Fig. 9.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOSEPH W. CREMIN, OF NEW YORK, N. Y., ASSIGNOR OF ONE-THIRD HIS RIGHT TO GEORGE H. FAIRCHILD, OF JERSEY CITY, NEW JERSEY.

IMPROVEMENT IN AXLES FOR VEHICLES.

Specification forming part of Letters Patent No. 120,418, dated October 31, 1871.

To all whom it may concern:

Be it known that I, JOSEPH W. CREMIN, of New York city, in the county and State of New York, have invented a new and useful Improvement in Tubular Axles; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

My invention relates to improvements in the construction of tubular axles for vehicles of all kinds, and has for its object to make an axle that will be much stronger, lighter, and cheaper than the ordinary axles now in use; and it consists in the forming of tubular axles with one or more webs or plates of metal within them, connecting the walls or outer portions or shells to strengthen them against collapsing or smashing, the said strengthening-plates or webs and the outer portions all being formed from one plate of metal, previously formed out of a square or other-shaped bar or fagot, by means of rolls having graduated grooves adapted for gradually working the same into plates of suitable forms, and these bending them into the required tubular form by rolls having suitable graduated grooves, the edges of the outer portions or edges being brought together and welded; and in some cases the edge or edges of the internal webs are welded to the outer portion at the same time, mandrels being used in the tubular spaces between the strengthening-webs to secure the requisite shape and to facilitate the welding of the metal, the said mandrels being withdrawn after the axles have been finished in uniform size throughout. Then the ends are tapered and otherwise suitably finished for the journals and for receiving the nuts or other fastenings to secure the wheels.

Figure 1 is partly a side view and partly a longitudinal section of an axle constructed according to my improvement. Fig. 2 is a transverse section of the same. Fig. 3 is an end section of an H-shaped bar of iron, representing one form which I propose to use for making the round axles with one strengthening-web, a sec-

tion of which is shown in Fig. 4 preparatory to having the edges of the outer portion welded. This form of bar is also suited to make the square axle represented in section in Fig. 9. Fig. 5 is a section of a bar of similar shape, but having ribs *b* on the part *a* that connects the parts *C* and forms the strengthening-web represented in Figs. 4 and 9, which ribs constitute another strengthening-web, *b'*, Fig. 6, when the bar is reduced to the complete form, whether square or round, said web being perpendicular to *a*. It will be noted that the outer edges of this web *b* will join the outer portion and be welded to it thereat. This I consider essential to the securing of a strong and permanent weld, which cannot be attained if the bar be rolled out in one broad piece, with two or four flanges to be brought together and welded at the edges in the center of the axle, when the plate is rolled into the complete form; for the point at which the weld is to be effected is so far from the rolls that the compression of the metal cannot be sufficient to effect a good weld. This bar or blank, Fig. 5, may be used to form a square axle with two strengthening-webs, the part *C* being suitably bent for that shape instead of being bent into semi-cylindrical form. Such an axle is represented in Fig. 12. Fig. 7 is an end section of a wide bar adapted to be rolled up and form the shell of the axle with only one weld of the edges, said plate having a flange at the center which will constitute the strengthening-web, said flange being welded at one edge to the shell. This bar is more especially adapted to make the round axle, but the square one may also be made from it; but I prefer the bars represented in Figs. 3 and 5 for making either form of axle. Fig. 10 is an end section of a bar such as I propose to use for making the bars or blanks of which the axles are to be made. Fig. 11 represents an end section of the same after one pass through the rolls, and indicates the manner in which the completed blank, Fig. 3, is produced. The modifications of the rolls for making the other blanks will be readily understood. Recesses of the proper size and shape can be made in the rolls to make the axle square

for about ten inches, to facilitate the fastening of the clips to the axle inside of the collars while the center portion would be circular. The collars might be made in a similar way by suitable grooves in the rolls, if considered desirable.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

Tubular axles having one or more internal

strengthening-webs *a b*, constructed substantially in the manner described.

The above specification of my invention signed by me this 2d day of August, 1871.

JOSEPH W. CREMIN.

Witnesses:

GEO. W. MABEE,

T. B. MOSHER.

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