

(No Model.)

E. J. VRAALSTAD.  
AXLE.

No. 549,552.

Patented Nov. 12, 1895.

Fig. 1.

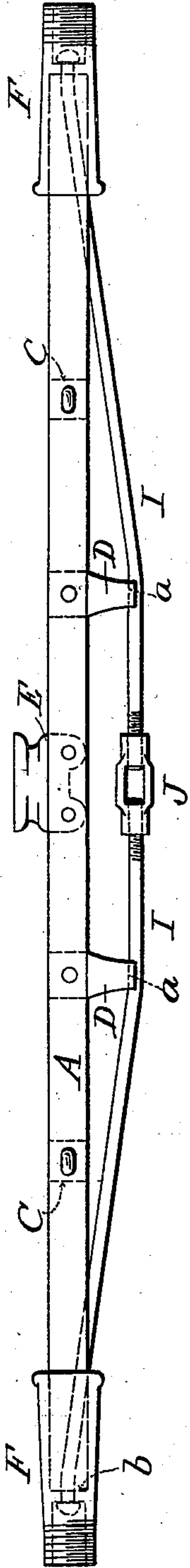


Fig. 2.

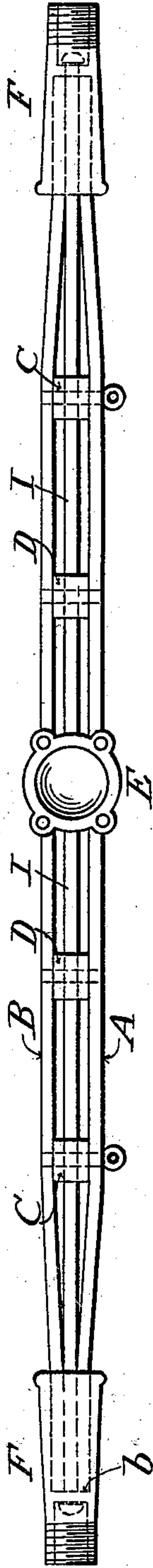


Fig. 3.

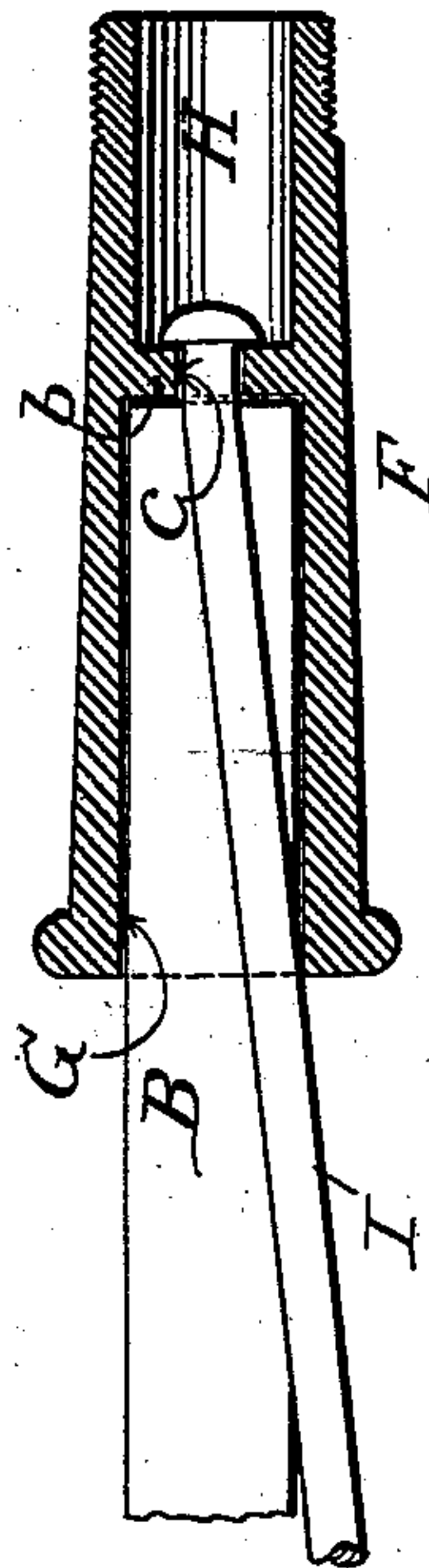


Fig. 4.

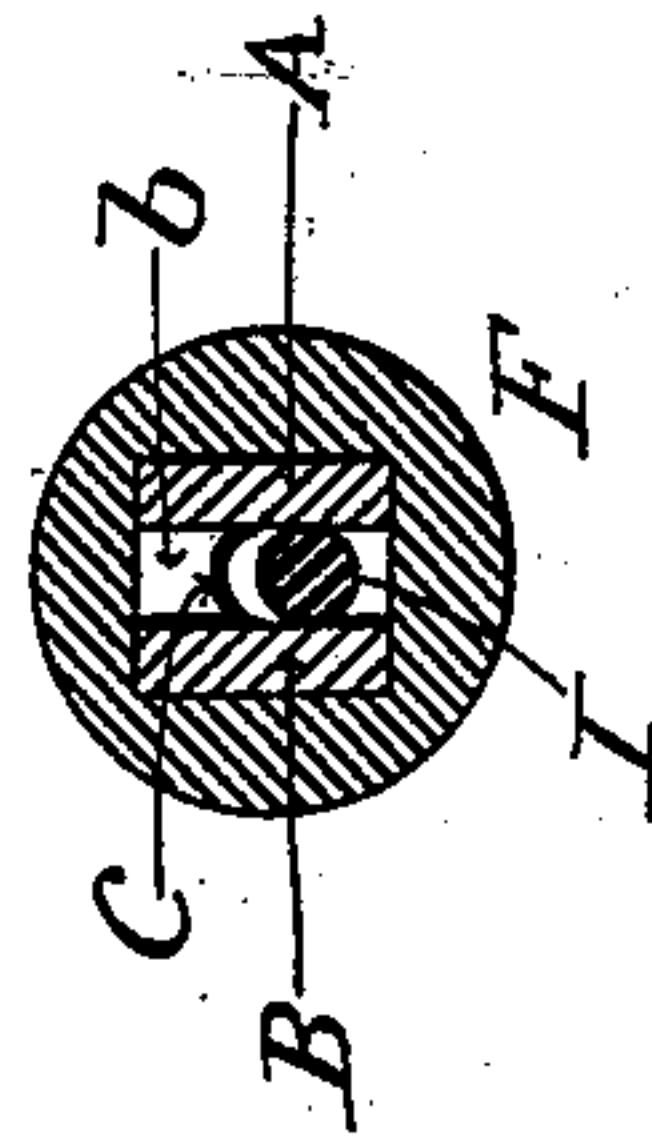
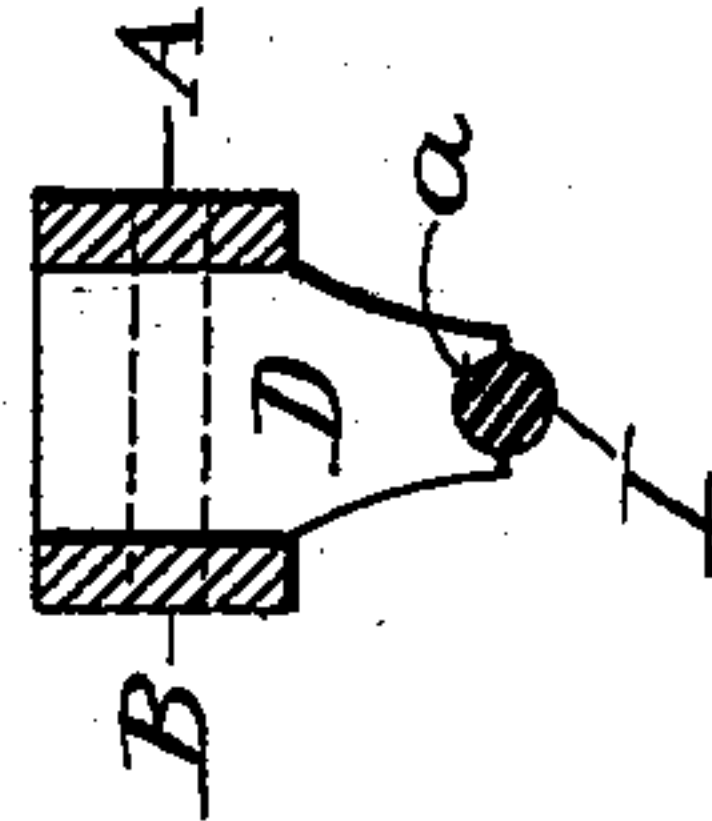


Fig. 5.



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C. B. Bull.  
C. B. Bull.

Inventor,  
Edward J. Vraalstad  
by Dodge & Sons,  
Attys

# UNITED STATES PATENT OFFICE.

EDWARD J. VRAALSTAD, OF BUFFALO, NEW YORK.

## AXLE.

SPECIFICATION forming part of Letters Patent No. 549,552, dated November 12, 1895.

Application filed May 27, 1895. Serial No. 550,822. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD J. VRAALSTAD, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Axles, of which the following is a specification.

My invention relates to axles, the construction and objects of which will be hereinafter set forth.

In the drawings, Figure 1 is a side elevation of the axle; Fig. 2, a top plan view, and Figs. 3, 4, and 5 sectional views showing certain details of construction.

The object of my invention is to produce a trussed metallic axle provided with removable skeins.

So far as I am aware those axles heretofore used which employed a removable skein have been constructed partly of wood and partly of metal, and were, from the nature of their construction, unable to withstand any considerable weight or any great strain.

Referring to the annexed drawings, A and B designate, respectively, the bars which form the body proper of the axle. These bars are formed of malleable iron or steel, about two and one-fourth inches in breadth by five-eighths of an inch in thickness, and when in position are so placed that the weight of the load will come upon their edges.

At a suitable distance from the ends and between the bars are placed spacing-blocks C C, bolts or rivets being passed through both bars and the blocks, thus securely fastening the parts together. The width of these blocks is about the same as the breadth of the bars, though I do not desire to confine myself to any exact proportion of parts.

D D indicate the chairs for the truss-rod, and are secured between the bars A and B about midway between the spacing-blocks C and the center of the axle. The lower ends of the chairs extend below the lower face of the axle and terminate, preferably, in a curved seat *a* for the reception of the truss-rod.

At the center of the axle there is secured a block E, which fits in between the bars A and B, said block being provided with a socket-joint for convenience in securing it to the body of the vehicle in connection with which

the axle is to be used. Obviously the block might be provided with a vertical opening for the reception of the ordinary king-bolt, or where the axle is to be used as a fixed one a simple spacing-block will suffice.

F F indicate the skeins, which are cored out, forming sockets or openings G H in each end thereof. The wall or web *b* separating the sockets from each other is provided with an opening *c*, through which the truss-rod I passes. This truss-rod is formed of two parts, which are headed at their outer ends and connected at their inner ends, about midway of the length of the axle, by means of a turnbuckle J.

In assembling the parts the bars A and B are bolted or secured together, with the spacing-blocks C C, chairs D D, and block E interposed. The ends are then sprung or bent nearly together and the skeins passed thereon. The threaded ends of the sections of the truss-rod are then passed through the opening *c c* between the bars A and B under the chairs D D, and are finally united at the center by the turnbuckle J. By turning the turnbuckle the truss-rod will be put under tension and the skeins will be drawn squarely and firmly against the ends of the bars A and B.

By this construction I secure a strong, rigid, and durable axle the skeins of which are readily removable and which also performs the function of holding together the ends of the bars of which the axle-body is composed. The drawing or springing of the bars together at their ends forms a stiff and unyielding body, which, taken in connection with the truss-rod, enables me to use much lighter material than could otherwise be done to secure the requisite strength.

Having thus described my invention, what I claim is—

1. A metallic axle composed of bars or rods, metallic skeins mounted upon and serving to hold the ends of said bars in place; and a truss rod uniting said skeins.

2. A metallic axle composed of bars or rods, bent or sprung together toward their ends, metallic skeins mounted upon and serving to hold the ends of said bars in place; and a truss rod uniting said skeins.

3. In an axle, the combination of the bars



A and B; the interposed spacing blocks and chairs; the metallic skeins fitting over the ends of the bars; and the adjustable and removable truss rod uniting the skeins.

5 4. In combination with a metallic axle, a skein provided with sockets in its opposite ends, a web or wall separating said sockets; an opening in said walls; and a headed truss rod passing through said opening and bearing  
10 against the web or wall.

5. In an axle, the combination of the bars A and B; metallic skeins fitting over the ends of the bars; and a truss rod passing through the skeins and between the ends of the bars;  
15 whereby the skeins may be drawn tightly upon the ends of the bars and the truss rod clamped between said ends.

6. An axle comprising two separated bars set up edgewise and converging at their ends;  
20 skeins mounted upon and embracing the ends

of the bars; and a truss rod between the bars and connected at the ends to the skeins.

7. In an axle, the combination of the bars A and B; the interposed spacing blocks and chairs; the skeins provided with sockets for  
25 engaging the ends of the bars, and having an opening through the end wall of the sockets; a truss rod comprising two sections, headed and threaded at their opposite ends, said sections adapted to be passed through the open-  
30 ings in the skeins, between the ends of the bars, under the chairs, and fastened by a turnbuckle, substantially as described.

In witness whereof I hereunto set my hand in the presence of two witnesses.

EDWARD J. VRAALSTAD.

Witnesses:

J. B. OLMSTED,

J. W. OLMSTED.