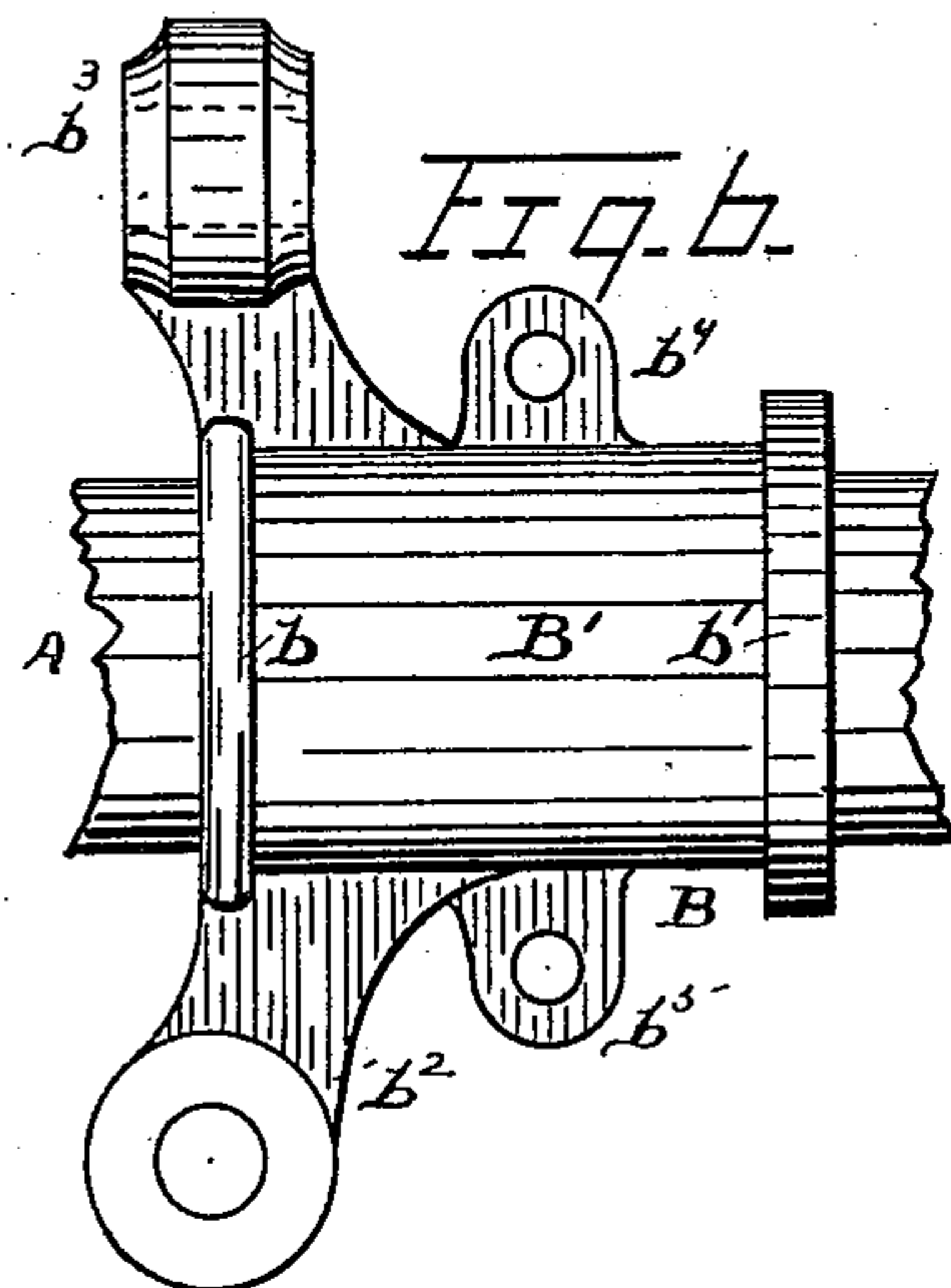
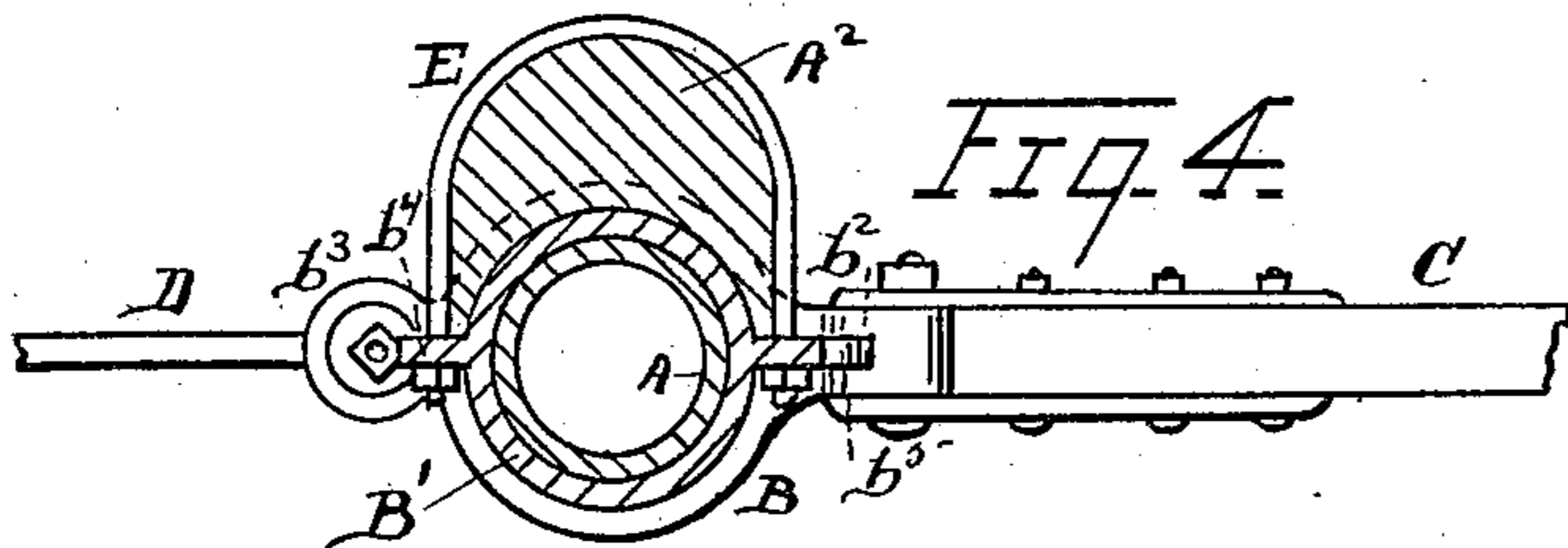
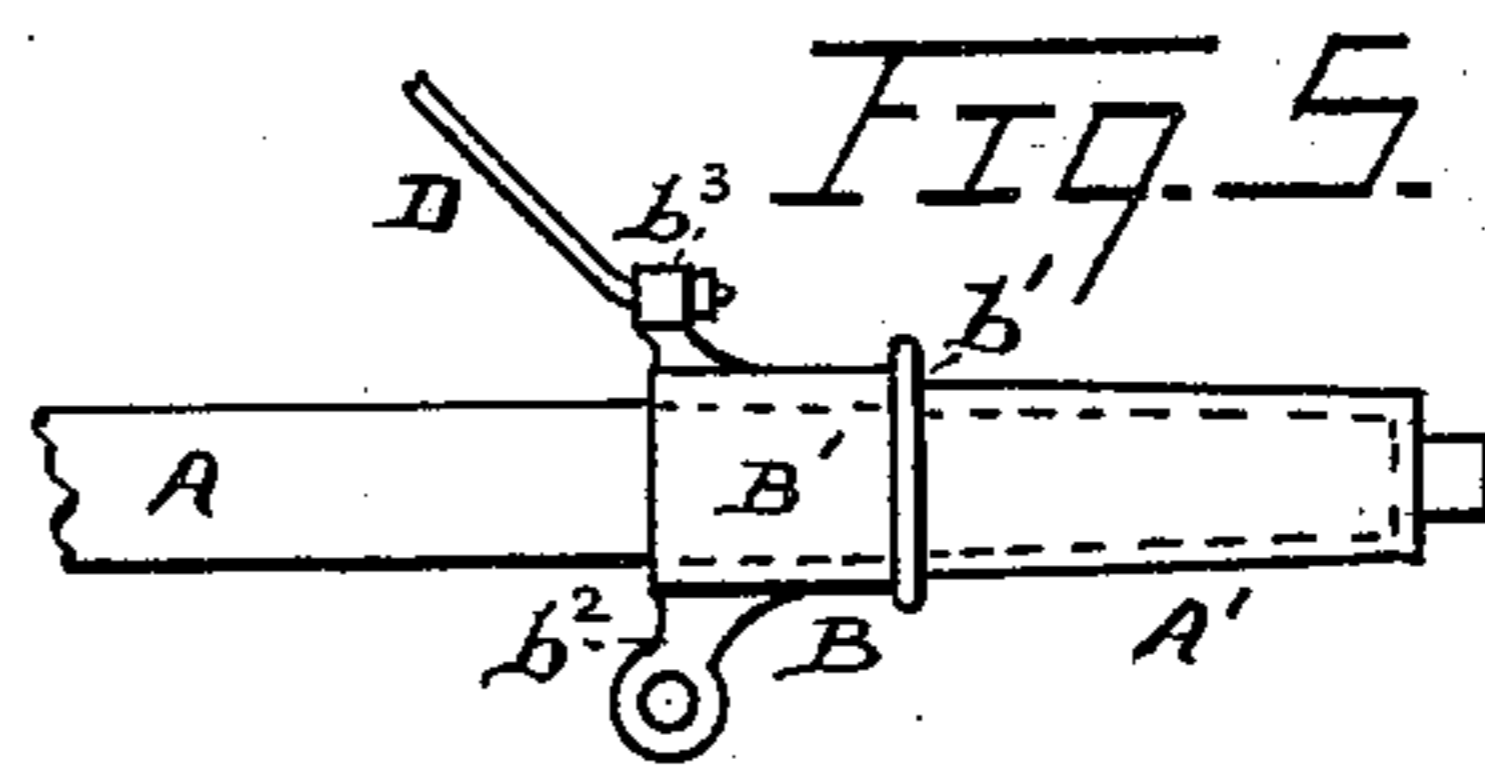
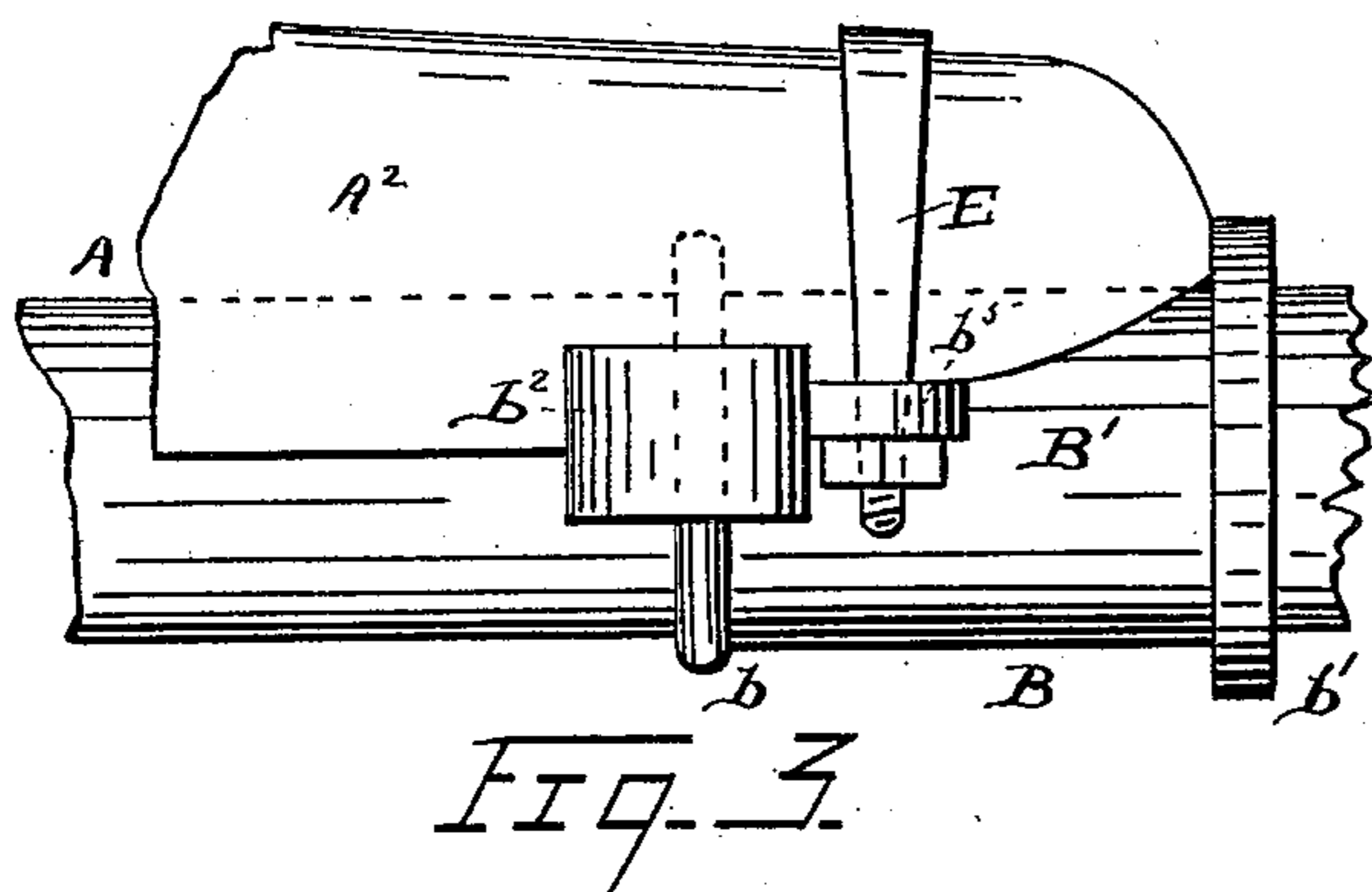
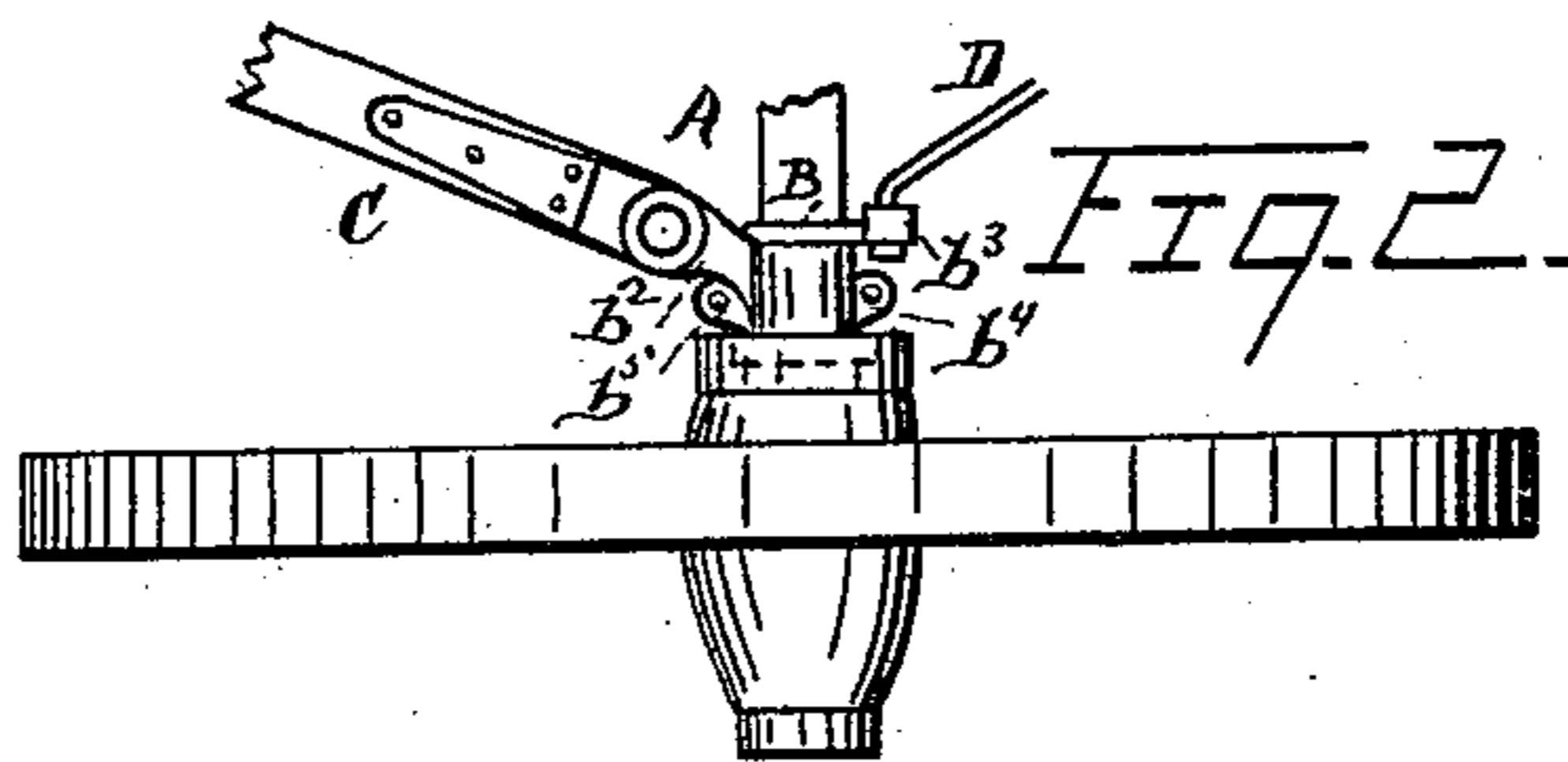
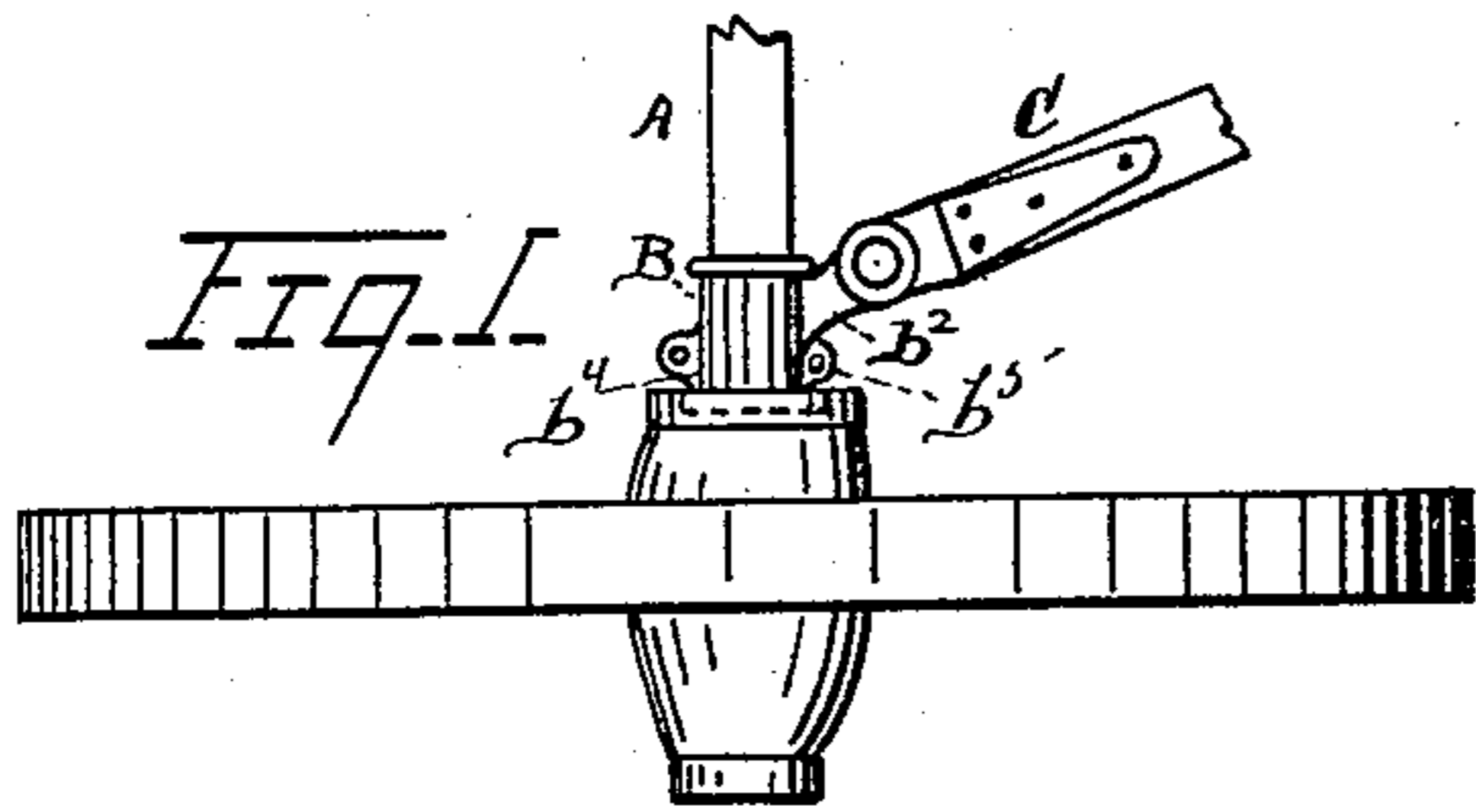


(No Model.)

S. E. OVIATT.
WAGON AXLE.

No. 463,668.

Patented Nov. 24, 1891.



Witnesses
John Schuman.
John F. Miller.

Inventor
Solomon E. Oviatt.
By his Attorney
Newell S. Wright.

UNITED STATES PATENT OFFICE.

SOLOMON E. OVIATT, OF LANSING, MICHIGAN, ASSIGNOR OF ONE-HALF TO
GEORGE COLWELL AND D. R. CORY, OF SAME PLACE.

WAGON-AXLE.

SPECIFICATION forming part of Letters Patent No. 463,668, dated November 24, 1891.

Application filed March 16, 1891. Serial No. 385,252. (No model.)

To all whom it may concern:

Be it known that I, SOLOMON E. OVIATT, a citizen of the United States, residing at Lansing, county of Ingham, State of Michigan, have invented a certain new and useful Improvement Relating to Wagon-Axles; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention has reference to certain new and useful improvements relating to wagon-axles and attachments thereto, as fully hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a plan view showing my invention applied to the rear axle. Fig. 2 is a similar view showing the invention applied to the front axle. Fig. 3 is a side elevation of certain parts. Fig. 4 is a vertical section. Fig. 5 shows the invention applied to a wagon-skein, and Fig. 6 is an enlarged view of the sleeve.

The object of my invention is to provide a wagon-axle with a sleeve of peculiar construction to facilitate the manufacture of wagons, also to strengthen the axle, and to provide means for attachment thereto of various parts of the wagon.

In carrying out my invention, A denotes any ordinary axle, to which my improved sleeve B is attached. I do not, however, limit myself to the attachment of the sleeve to an axle direct alone, for, as shown in Fig. 5, it may also be employed in connection with a skein A' of various constructions—as, for instance, with an ordinary steel or cast thimble-skein.

When applied to an axle, the sleeve may be applied to ordinary hollow axles, or to axles of other constructions, as may be desired.

The sleeve is formed with a tubular body B', provided with collars $b\ b'$, to give strength to the sleeve, the collar b' also serving as a bearing for the wheel. The body B' is formed

with a perforated arm b^2 , extending from one side thereof, affording means of connection to the sleeve of any desired attachment—as, for instance, shown at C.

If the sleeve is intended for use upon a forward axle, the said body is further provided with an eye b^3 for the attachment thereto of a draft-rod or analogous device, (shown at D.) The sleeve is also constructed for certain uses with perforated lugs $b^4\ b^5$, through which a clip E is extended, the clip uniting the axle-cap A², sleeve, and axle.

Where a steel or cast thimble-skein is employed, the sleeve may be engaged upon the end of the skein and so surround the wooden axle when in place. For such a use a clip E is not needed, and consequently in this case the lugs $b^4\ b^5$ may be dispensed with.

By means of such a sleeve it will be seen that there is no need of recessing the axle-cap to engage the hounds or draft-bars therewith. No tenons, gains, or mortises have to be formed upon the wood-work connected therewith; but the necessary connections may be made quickly, neatly, and without diminishing the strength of any part at any point, so that great economy and strength are secured thereby in the construction of wagons. By this construction, also, there is a very considerable saving of expense for bolts and other materials heretofore required.

As the employment of the sleeve dispenses with several parts heretofore essential, the collar b blends with the formation of the arms $b^2\ b^3$, adding strength to the construction.

The sleeve and its attaching-arms are made of solid casting.

What I claim as my invention is—

1. The sleeve herein described, consisting of a hollow body formed of a solid casting provided with collars $b\ b'$, a lateral attaching-arm b^2 upon one side thereof, a lateral draft-rod-attaching arm b^3 on the opposite side, and lateral clip-lugs $b^4\ b^5$, located on opposite sides thereof, substantially as described.

2. The combination, with an axle, of an axle-cap, a sleeve located upon the axle be-

tween the axle and the cap, provided with attaching-arms, and a clip extending over said cap and engaged with said sleeve, substantially as described.

- 5 3. The combination, with an axle, of an axle-cap in contact with the axle, a sleeve located upon the axle between the axle and the cap, provided with attaching-arms, and a clip

extending over said cap and engaged with said sleeve, substantially as described. 10

In testimony whereof I sign this specification in the presence of two witnesses.

SOLOMON E. OVIATT.

Witnesses:

N. S. WRIGHT,

JOHN F. MILLER.