

J. F. WELCH.

Wheel and Axle Connection.

No 68,820.

Patented Sept. 10, 1867.

Fig. 1.

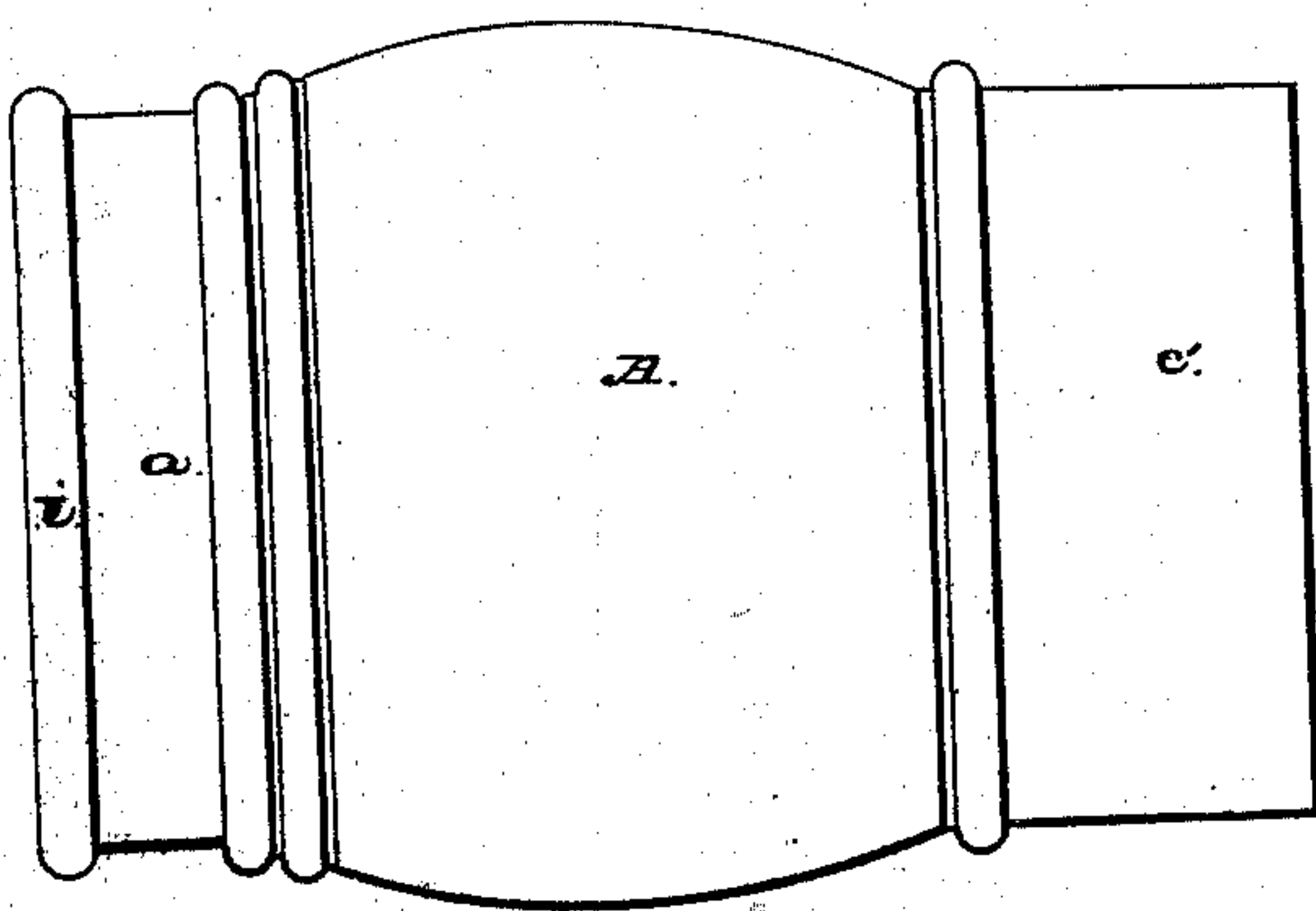


Fig. 3.

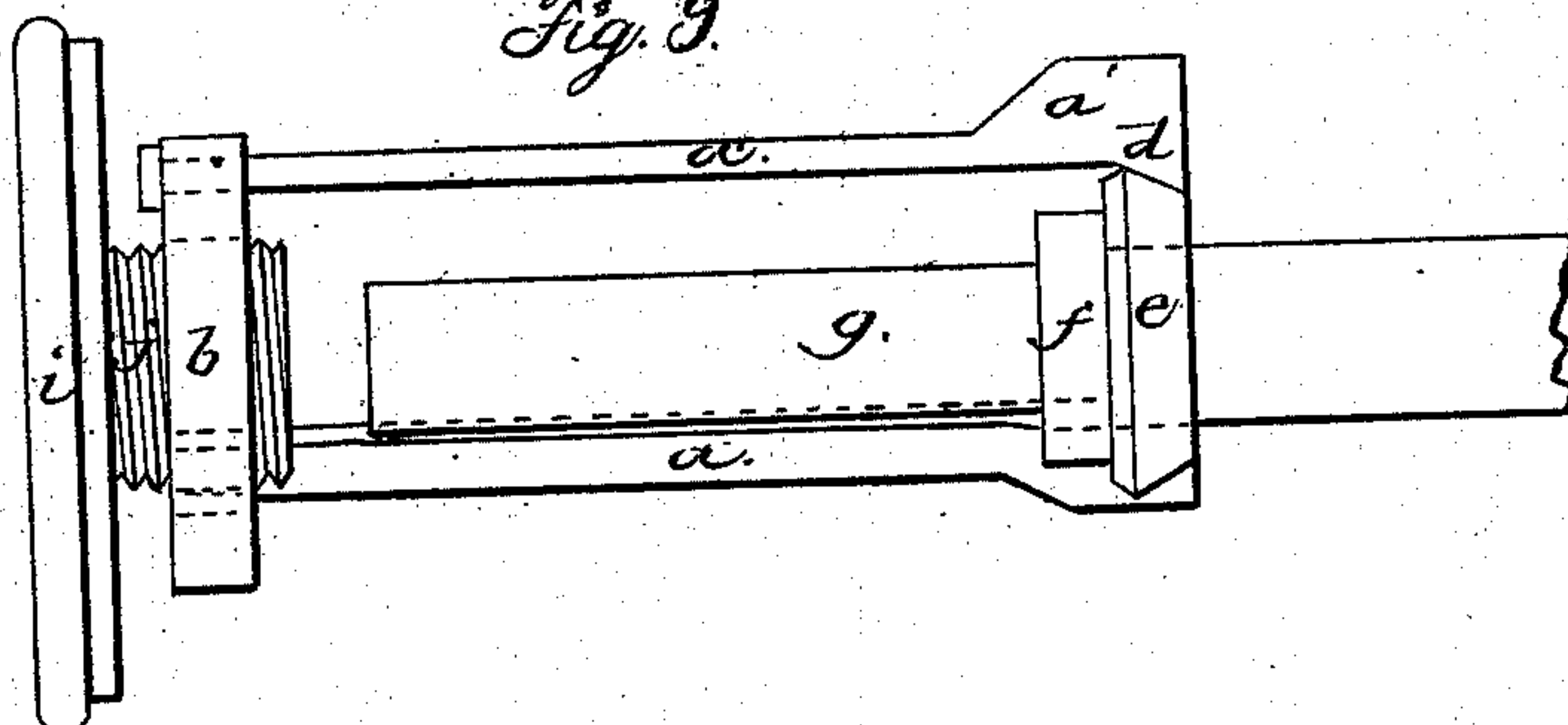
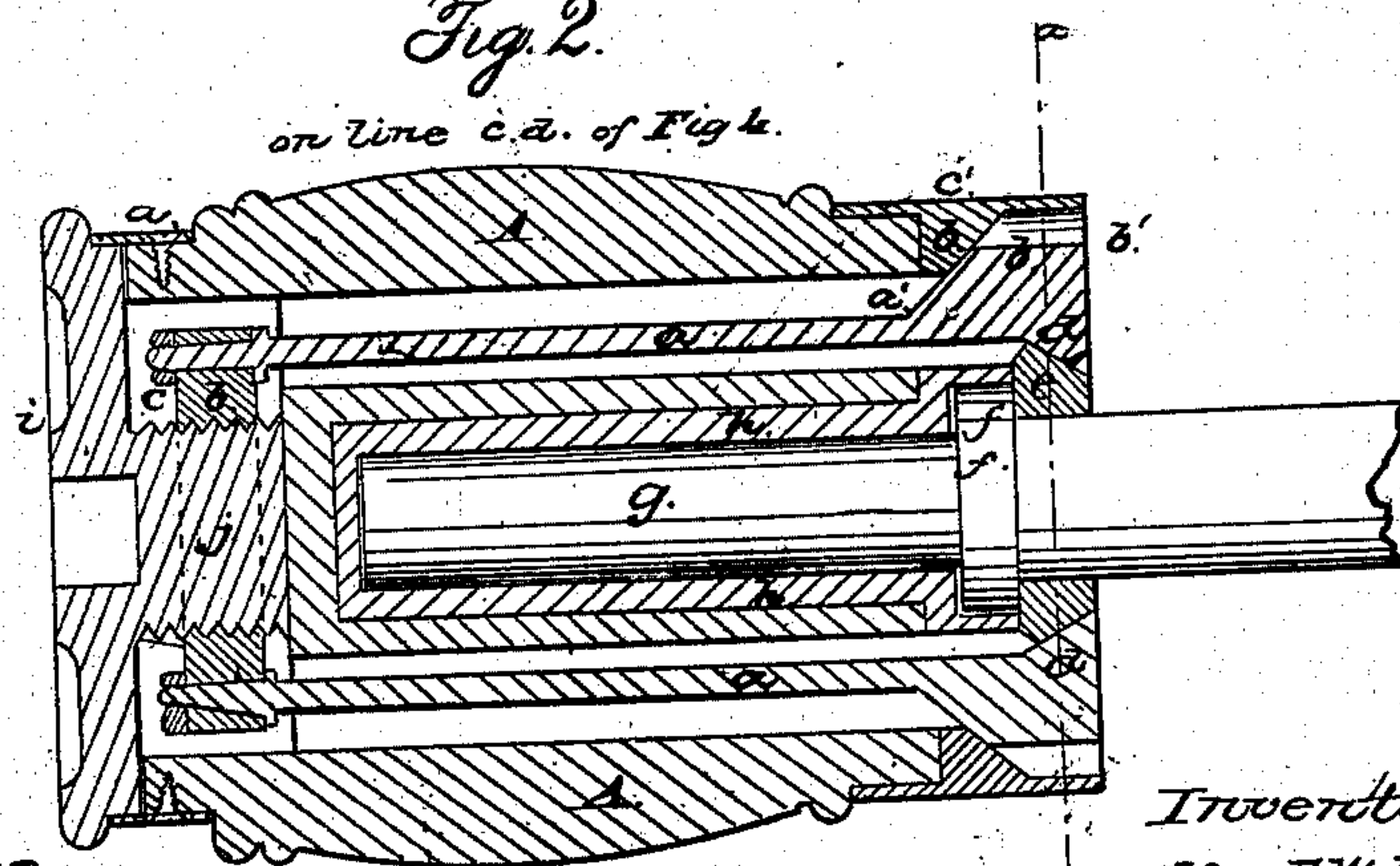


Fig. 2.

on line c. a. of Fig. 1.



Witnesses.

Chas. H. Griffin
G. W. Balch

Inventor:

John F. Welch

by his attorney

Frederick Curtis

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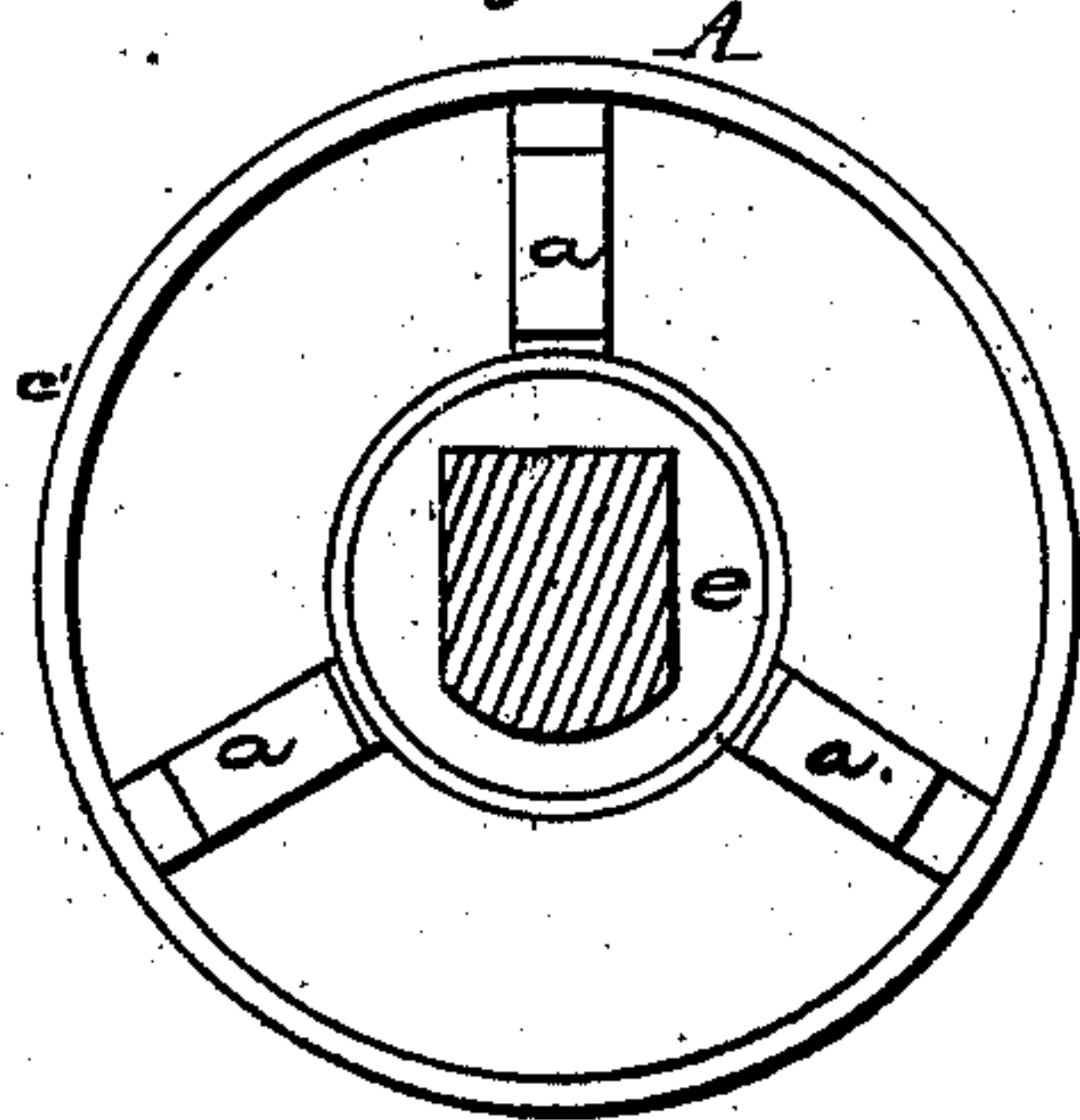


Fig. 5.



Fig. 6.

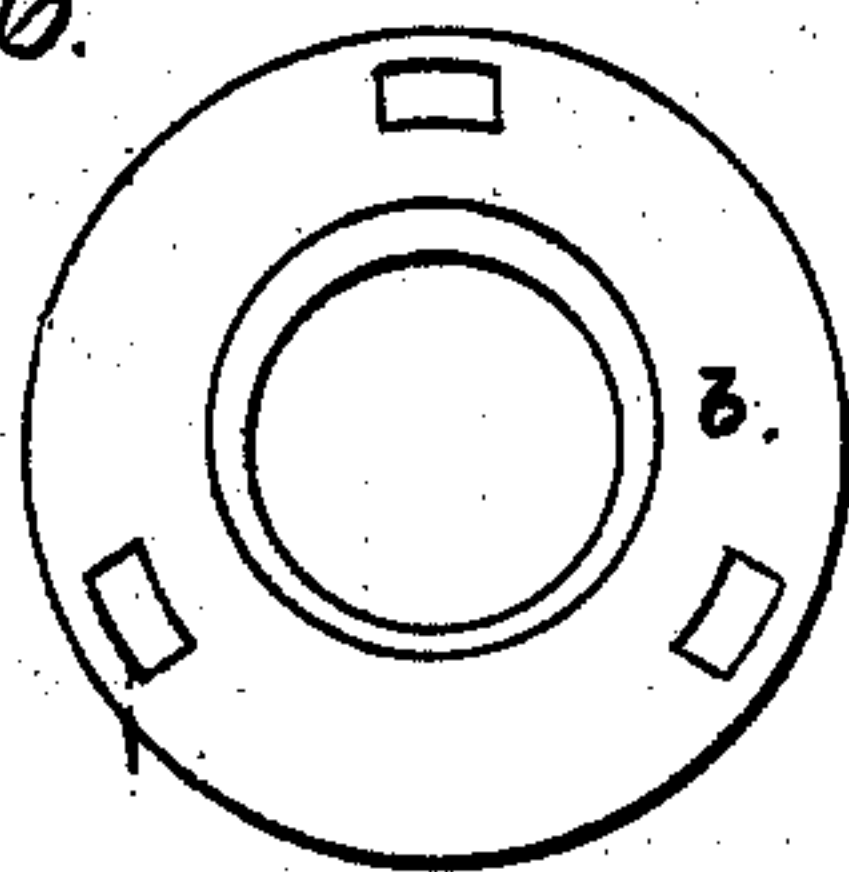


Fig. 7.

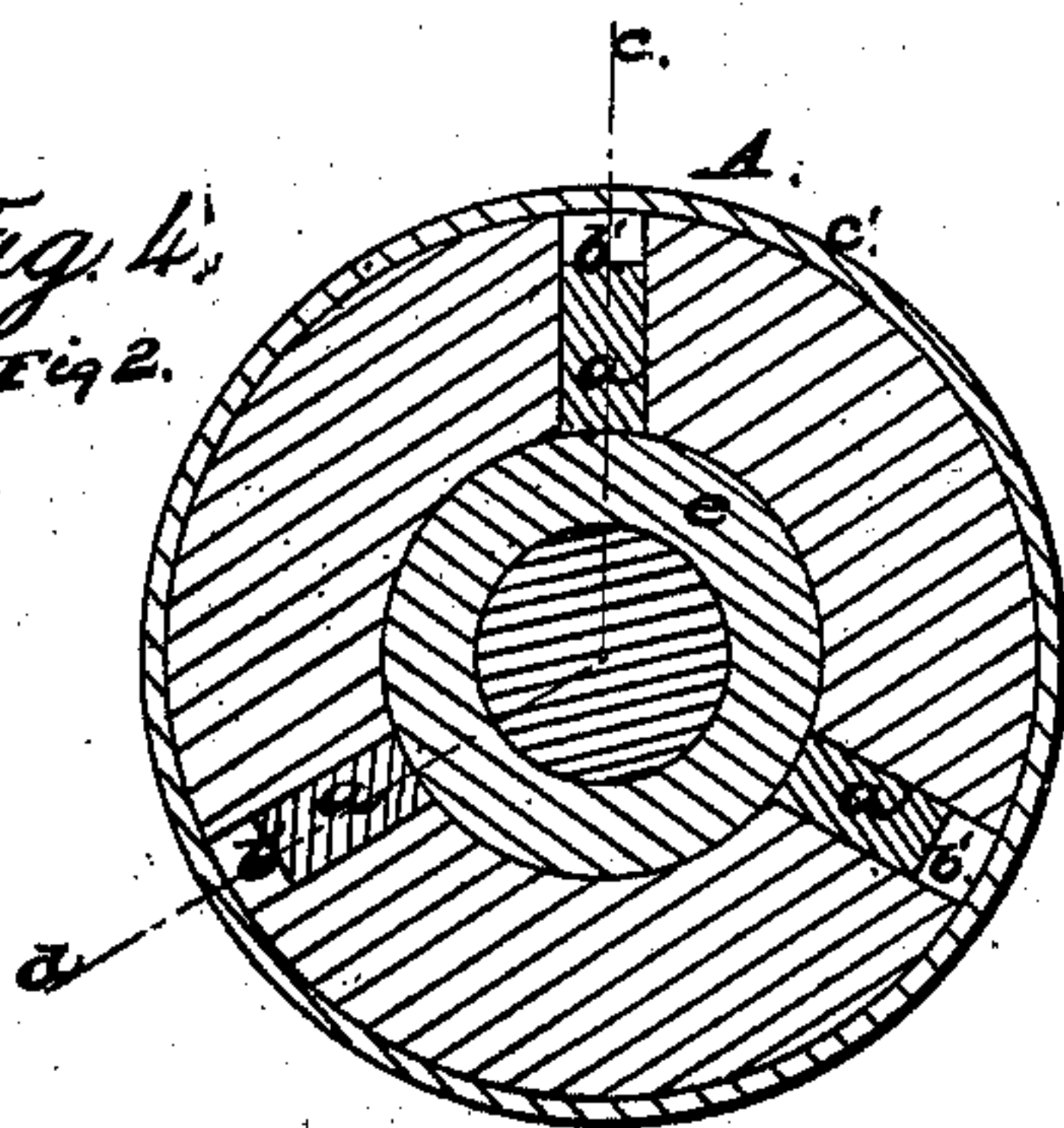


Fig. 8.



Fig. 4.

on line a. b. of Fig. 2.



Witnesses:

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United States Patent Office.

JOHN F. WELCH, OF HINGHAM, MASSACHUSETTS.

Letters Patent No. 68,820, dated September 10, 1867.

IMPROVEMENT IN WHEELS AND AXLE-CONNECTION.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Be it known that I, JOHN F. WELCH, of Hingham, in the county of Plymouth, and State of Massachusetts, have invented an Improved Wheel and Axle Connection; and do hereby declare the following to be a full, clear, and exact description of the same, due reference being had to the accompanying drawings, making part of this specification, and in which—

Figure 1 is a side elevation.

Figure 2, a vertical longitudinal section.

Figure 3, an inner end elevation, and

Figure 4, a transverse section of a carriage-wheel hub provided with my invention.

Figure 5 is a side view of one of the jaw-clamp bars of the invention.

Figure 6 is an inner side view, and

Figure 7 a section of the clamping-nut to be hereinafter described.

Figure 8 is a side view of the loose ring encircling the axle, and

Figure 9, a representation of the axle-journal, with a portion of my invention applied to it.

The object of this invention is to produce a strong, simple, and efficient device for locking a carriage-wheel to its axle, the invention consisting of a radial series of bars, formed with annular jaws disposed within the hub, and surrounding the axle-journal, and jointed to the periphery of a sliding screw-nut, which is advanced or retracted within the hub by means of a screw, applied to or making part of the outer cap-plate of the hub, this advancing and retracting of the nut causing a corresponding movement of the jaws with respect to a loose collar or ring surrounding the axle, in such manner as to either lock the hub to the axle or allow it to be removed therefrom, substantially as hereinafter explained.

As shown in the accompanying drawings, A denotes the hub of a carriage-wheel properly recessed for receiving a series of bars, *a a a*, which extend nearly through it, the outer end of these bars being jointed, in any suitable manner, to the periphery of a cylindrical nut, *b*, which is disposed within a chamber, *c*, formed in the outer end of the hub, the inner ends of the bars *a a a* having angular jaws or projections *d d d* formed upon them, which abut or bring up against a loose ring, *e*, which encircles the axle, and revolves in contact with the inner face of a collar, *f*, formed upon the axle-journal *g*, which is supported within a box, *h*, applied to the interior of the hub in the usual manner. Each bar *a* is further provided with an inclined bearing, *a'*, opposite the jaw *d*, to impinge against the bottom of a recess, *b'*, formed in a metallic sleeve, *c'*, applied to the inner end of the hub, as represented in the drawings. The outer cap-plate of the hub is shown at *i* as extending into and guided by a short sleeve, *a*, surrounding the end of the hub, the plate *i* having a screw, *j*, applied to its inner face to screw into the nut *b* before referred to.

When it becomes necessary to remove the wheel a jack is to be placed under the axle, and the wheel raised off the ground in the usual manner. By then turning the plate *i* in a backward or reverse direction to that in which the wheel usually revolves, the screw *j* will advance the nut *b*, and remove the jaws *d d d* from contact with the ring *e*, and allow the wheel to be removed from the axle in order to clean or oil its journal, or for any other purpose, which being done, the wheel is replaced and the plate *i* turned in the opposite direction, by which means the screw *j* will retract the nut *b*, and the jaws *d d d* be drawn tightly up against the ring *e*, and force it in contact with the inner end of the journal-box *h*, as shown in fig. 2 of the drawings, thus, by means of the collar *f*, securely locking the wheel to the axle, the inward movements of the jaws being caused by the action of the inclined bearing *a'* within the recess *b'*.

If considered necessary, a packing may be placed between the ring *e* and the end of the journal-box, which will effectually prevent escape of the lubricating material.

The act of drawing the wheel off the axle will force the arms *a a a* apart. I have contemplated, however, applying a spring to each of them to accomplish this purpose.

I have also contemplated applying a spring-catch to the hub, in such manner as to prevent rotation of the screw *j* during the act of backing the vehicle, although in practice it will probably not be found necessary.

A device constructed as above described is simple, durable, and highly efficient. By its employment a wheel may be applied to or removed from its axle in a very short space of time, and without the use of any implement. The union of the wheel and axle can always be perfectly maintained, thus preventing wear of the parts, and noise or rattle incident to many other modes of connection.

I claim the above-described device for locking a carriage-wheel to its axle, consisting of the plate *i*, with its screw *j*, the nut *b*, and the jaw-bars *a a a*, combined together, and operating in connection with the ring *e* applied to the axle, substantially as shown and explained.

JOHN F. WELCH.

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FREDERICK CURTIS.