

(No Model.)

J. F. BENDER.

TIRE BENDER.

No. 387,848.

Patented Aug. 14, 1888.

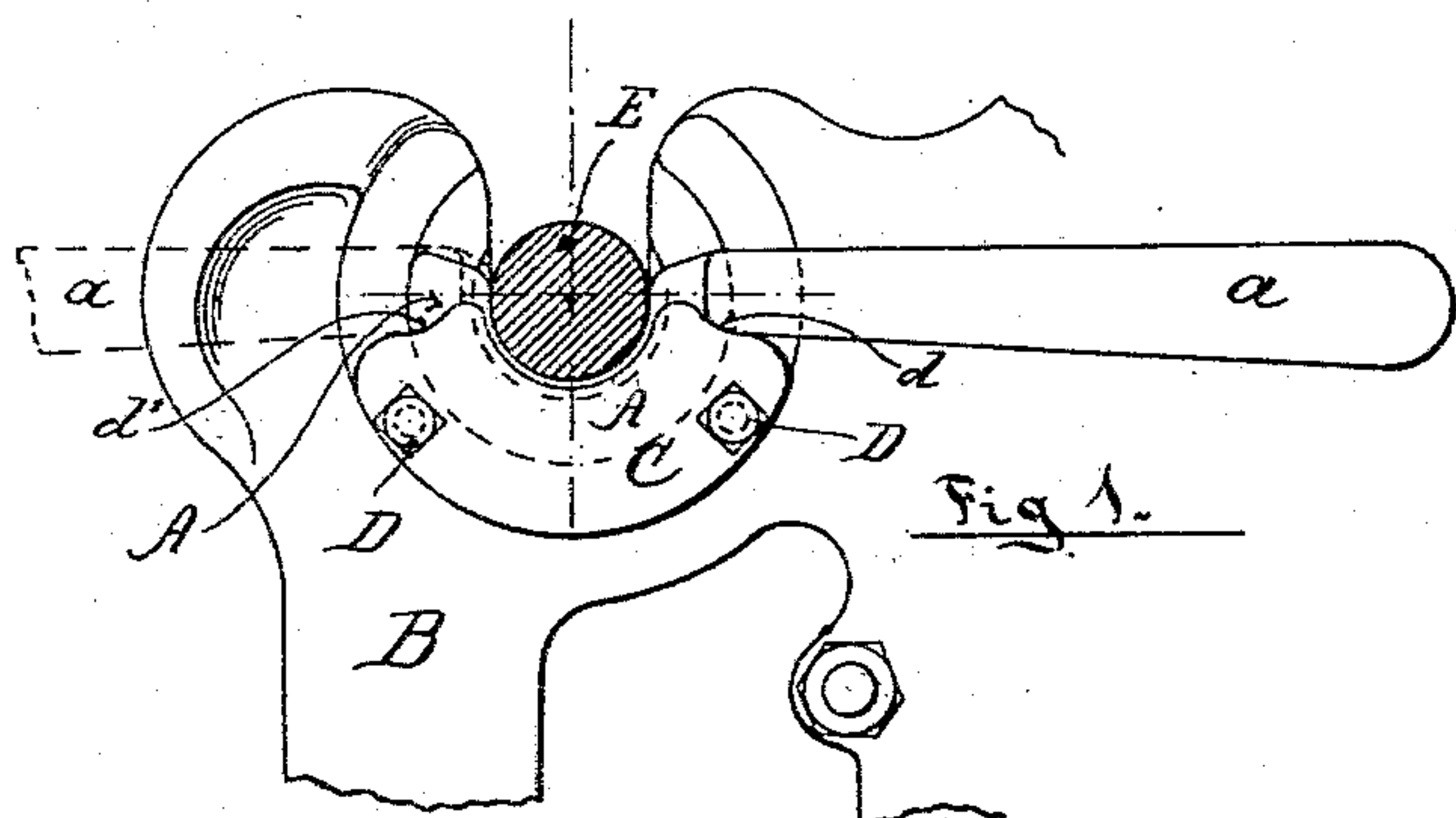


Fig 1.

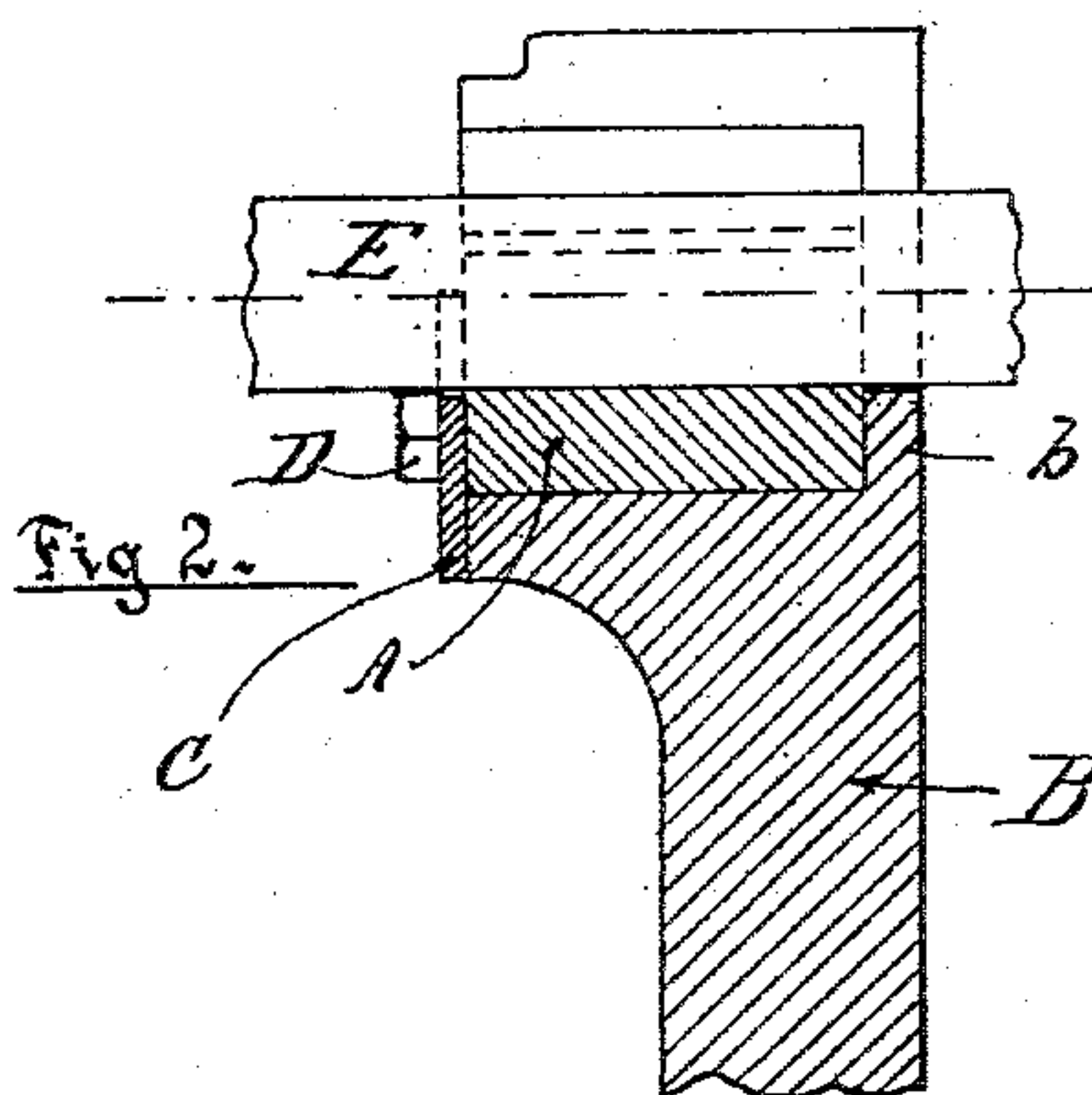


Fig 2.

Fig 3.

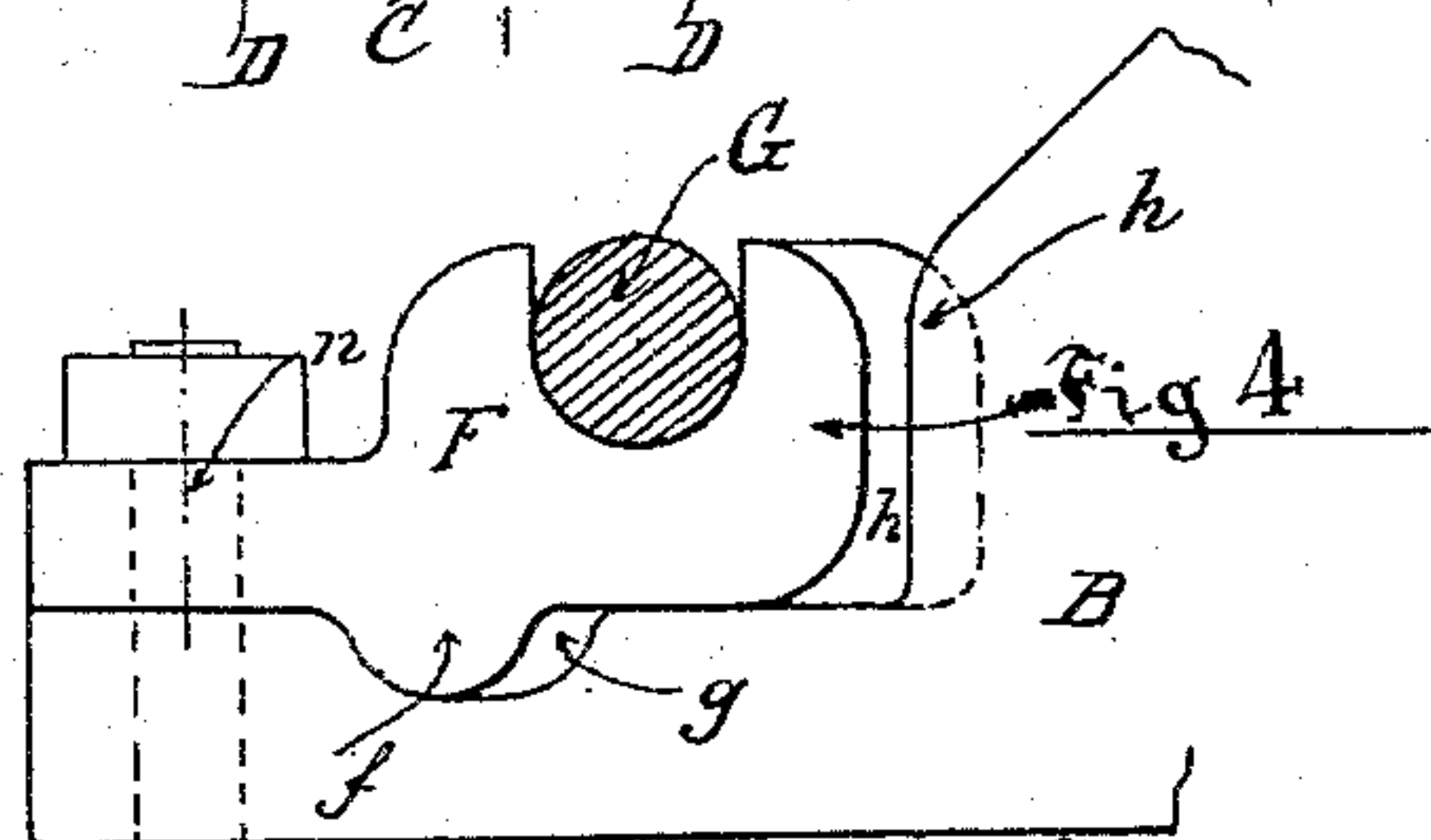
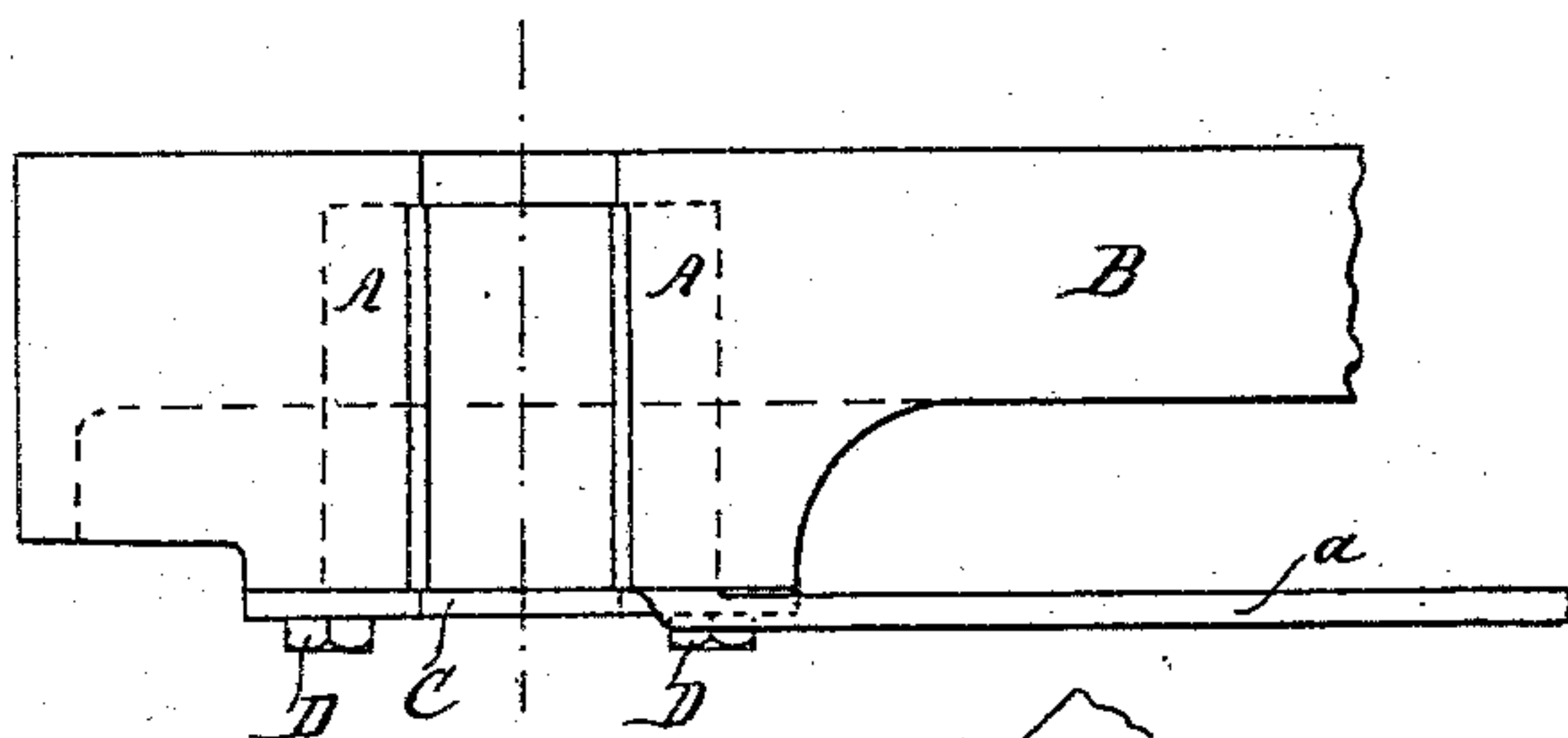


Fig 4.

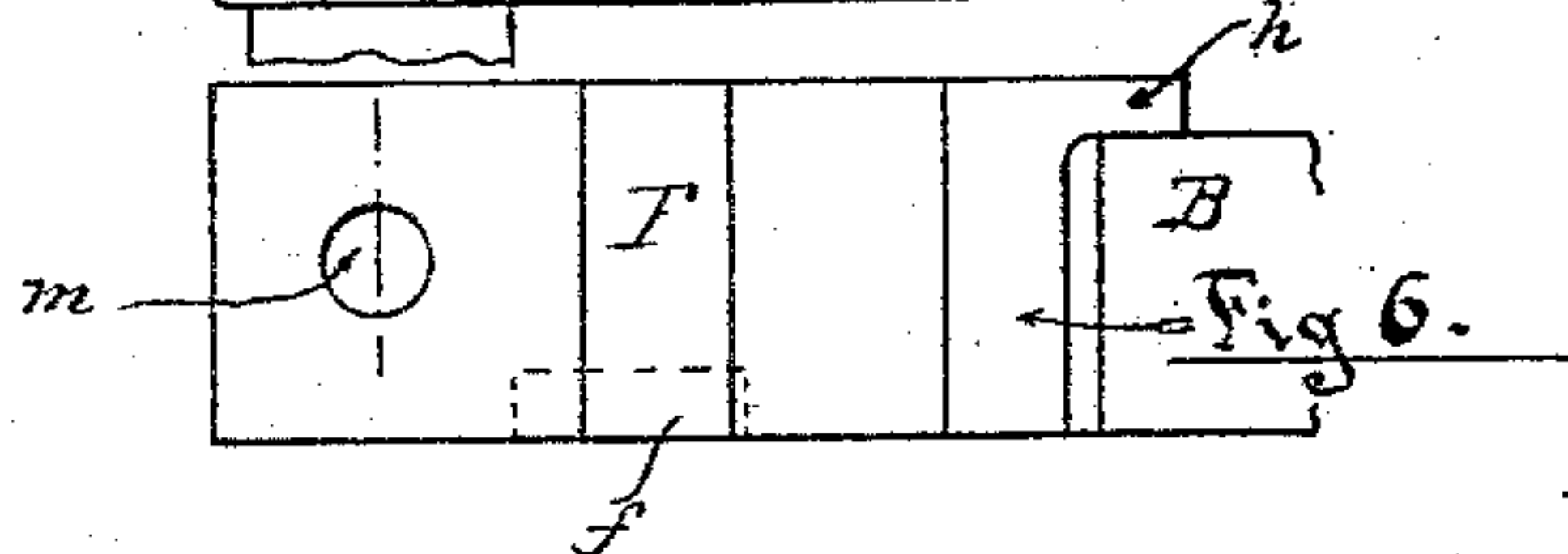


Fig 6.

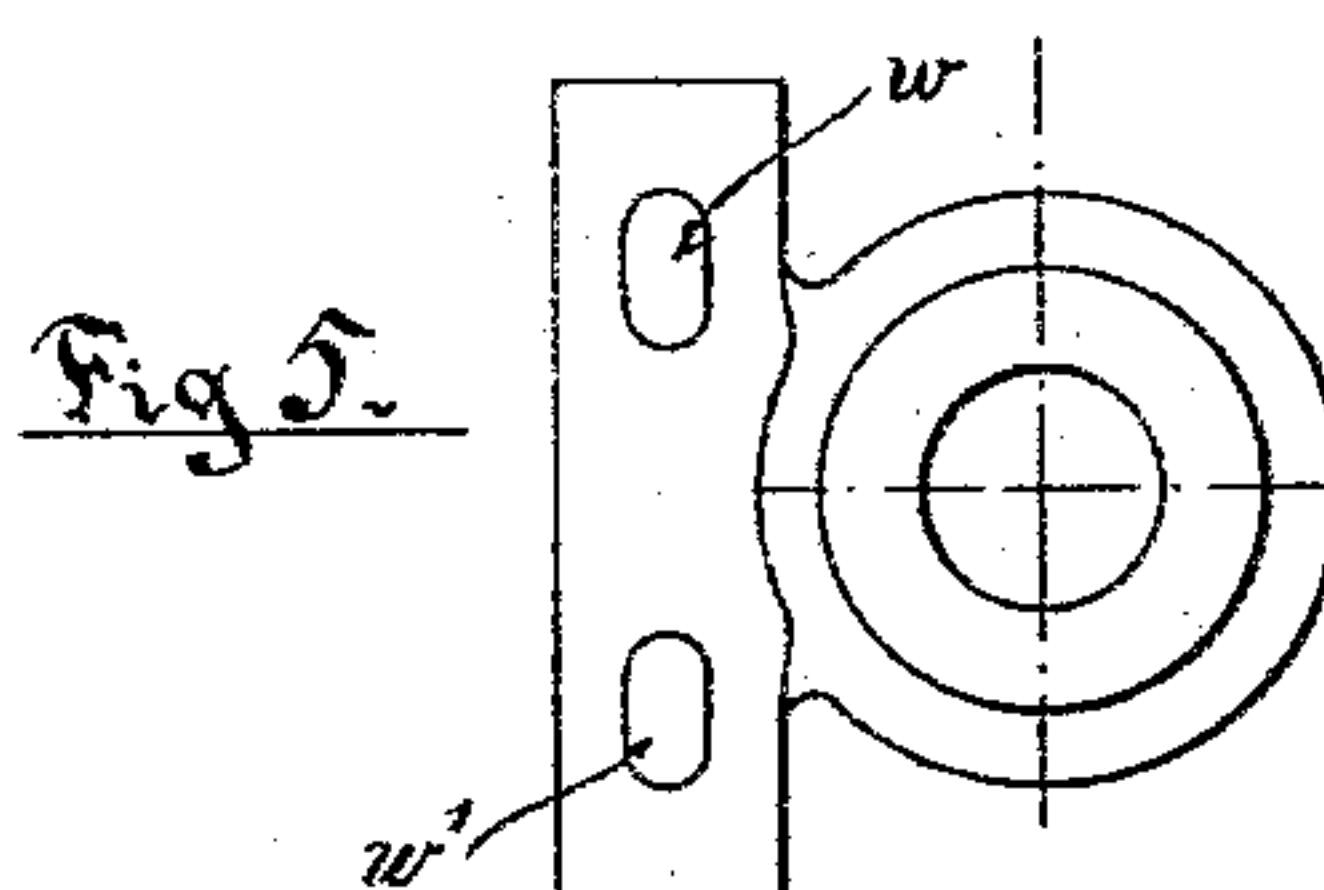


Fig 5.

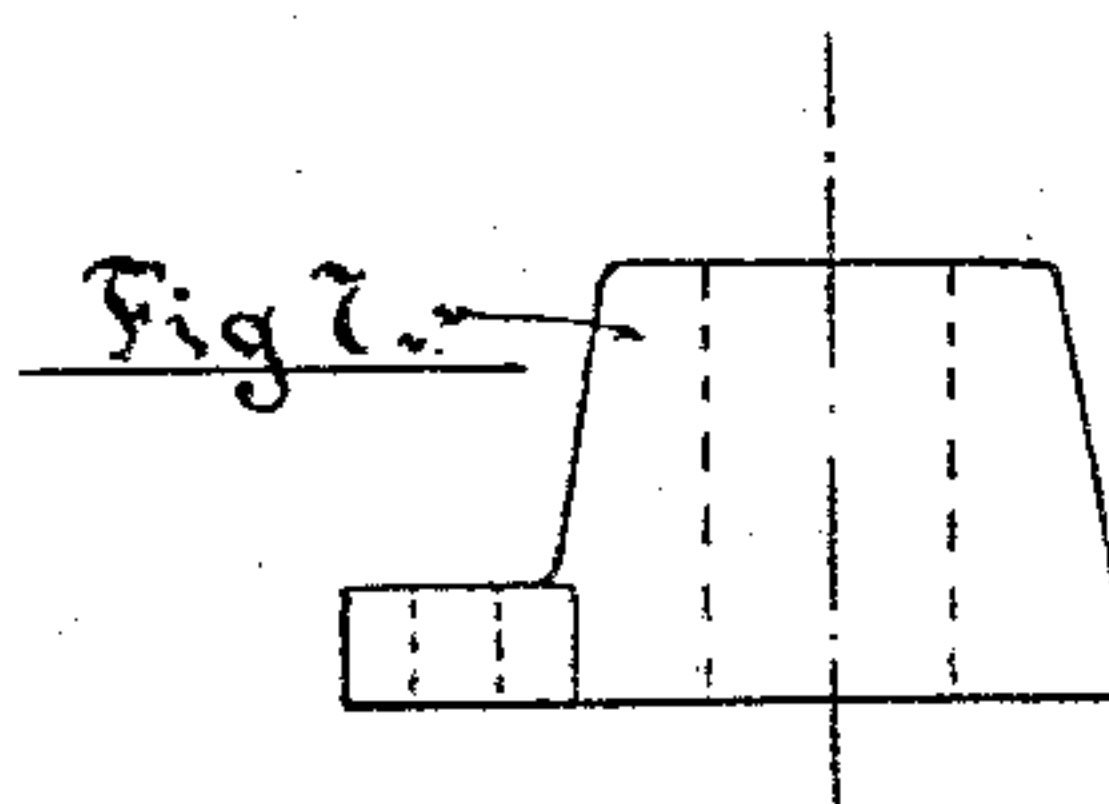


Fig 7.

Witnesses:  
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*Jacob F. Bender.*  
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His Attorney's.



# UNITED STATES PATENT OFFICE.

JACOB F. BENDER, OF COLUMBIA, PENNSYLVANIA.

## TIRE-BENDER.

SPECIFICATION forming part of Letters Patent No. 387,848, dated August 14, 1888.

Application filed July 30, 1887. Renewed April 9, 1888. Serial No. 270,032. (No model.)

*To all whom it may concern:*

Be it known that I, JACOB F. BENDER, of Columbia, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in Tire-Benders; and I do hereby 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.

Heretofore in so-called "tire-benders" in order to remove the tire it has been necessary by various means to draw the upper or center roll laterally through its bearing in the frame. This class of tire-benders cannot be used to advantage for the reason that collars for keeping the tire from warping would require too much time to be loosened and fastened every time the roll was to be removed.

Another objectionable feature is the necessity of having one bearing in the frame as large as the roller itself, this principle creating an undue amount of friction.

The object of my invention is to provide a center-roll bearing for a tire-bending machine which will allow the said roll to be removed from the frame in a vertical direction, both bearings of said roll being any diameter less than the body of same, said roll being adapted to have warping collars on it, when so desired, which need not be removed in order to take said roll from its position in the frame.

Another objectionable feature has been to provide adjustable bearings for the end roll, to which a portion of the gearing is attached, and also for the driving-shaft, which is adapted to engage with said end roll.

My invention consists, first, in a tire-bending machine having in combination with the frame a bearing for the journals of the center roll, composed of a cast-iron ring with a lever attached. Said ring is open at the top, so that the shaft can be removed. When the machine is working, the lever is turned one hundred and eighty degrees, bringing the ring on top of the shaft, in which position the shaft is locked.

It further consists, in combination with the frame, of adjustable bosses to support the end roll thereby. Said roll has a lateral adjustment.

It further consists, in combination with the journal-bearing, of bosses for the driving-shaft having vertical adjustments.

Figure 1 shows a front view of the bearing for the top shaft; Fig. 2, a vertical section through the center of Fig. 1. Fig. 3 is a top view of same. Figs. 4 and 6 show the boss for the end roll, and Figs. 5 and 7 show the boss for the driving-shaft.

In Figs. 1, 2, 3, A represents the bearing of top shaft with a lever, *a*, attached to it. This bearing is supported around its sides by the main frame B. At the ends A is supported by a lug, *b*, and the wrought-iron plate C. Plate C is fastened to the cast-iron frame B by means of set-screws D. When the machine is in use, the lever *a* is turned one hundred and eighty degrees, as shown in dotted lines, in which position the shaft E is entirely secured. Bearing A is kept on its place by the lever *a*, that rests on the plate *c* at *d d'*.

In Figs. 4 and 6, F is the bearing for the shaft G. *f* is a lug that slides in a groove, *g*, of the cast-iron frame B, and the lug *h* slides behind the frame B. These two lugs keep the boss from turning. The hole *m* will be drilled after the gearings are finished on the shafts, and an exact fitting can be attained in this manner. If the bolts *n* are made a smaller size than the hole *m*, the gearings can, after being used, be adjusted all that is necessary to take up the lost motion.

In Figs. 5 and 7 holes *w w'* are made oblong, so as to make the bosses adjustable.

I do not limit myself to any particular construction of partially-rotating boss or actuating-lever; neither do I restrict myself to the particular construction of actuating-lever herein shown and described.

My improvement involves a radical departure in the construction and principle of withdrawing the center roll vertically from the frame of a tire-bending machine, the invention consisting, broadly, in a tire-bending machine having the central roller-bearing bosses actuated by suitable levers adapted to partially rotate in the frame, whereby, when in one position, said central roller may be removed vertically from the frame, and when in the reverse said roll cannot be removed in any direction.



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

1. In a tire-bending machine, the combination, with the central roller and the frame, of partially-rotating bearing-bosses for the upper central-roller journals, said bosses being actuated by suitable levers and adapted to fit sockets in said frame, and provided with openings  
10 corresponding with similar ones in said frame through which the roller-journals may be removed when so desired, substantially as shown.

2. In a tire-bending machine, the combina-

tion, with the frame, of a bearing-boss for the  
end roller, the same being bolted to the frame and adjustable, substantially as set forth.

3. In combination with the frame, a bearing-boss for the driving-shaft bolted to the frame, and adjustable, substantially as shown  
20 and described.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

JACOB F. BENDER.

Witnesses:

W. J. FORDNEY,  
D. H. KULP.