

(No Model.)

4 Sheets—Sheet 1.

M. G. HUBBARD.
JOURNAL BEARING FOR CAR TRUCKS.

No. 389,965.

Patented Sept. 25, 1888.

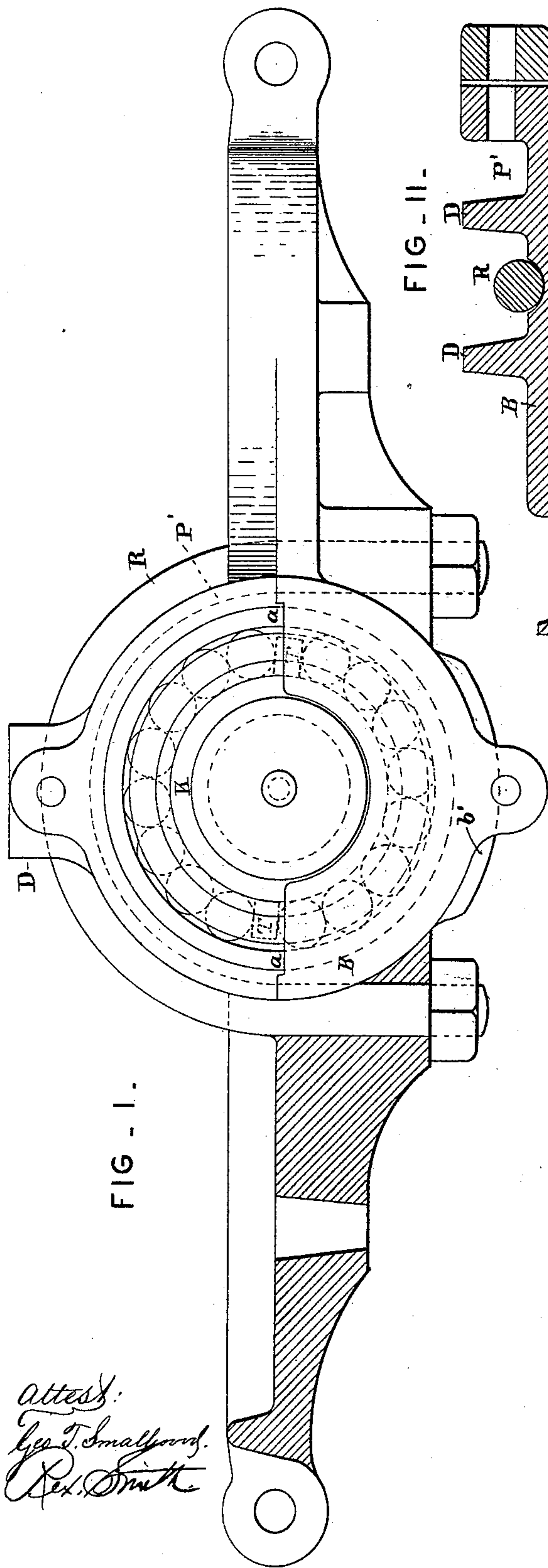


FIG. I.

attest:
Geo. T. Smallwood.
Per. Smith

FIG. II.

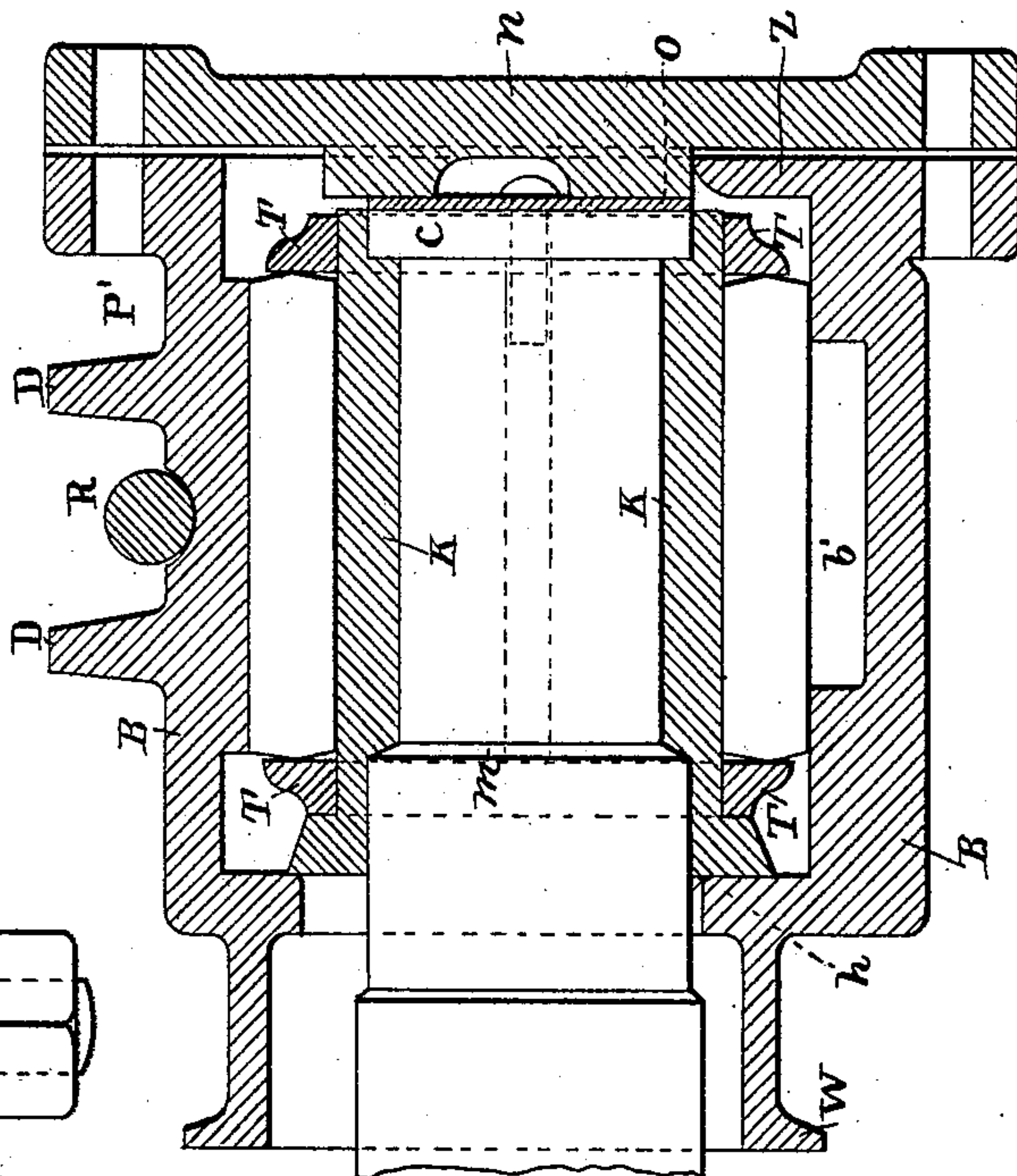


FIG. IV.

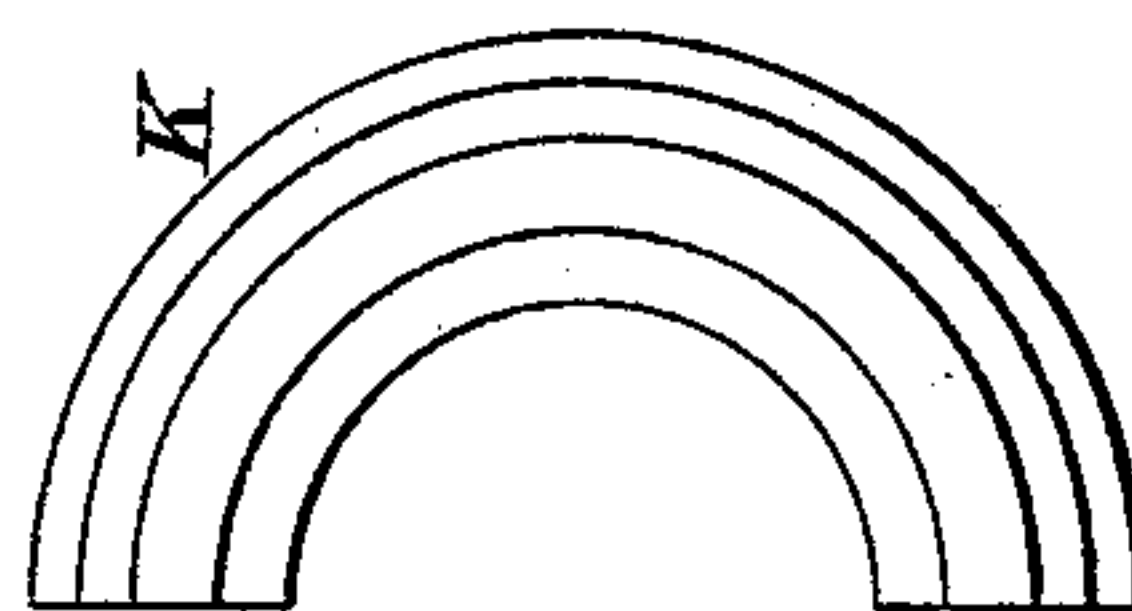
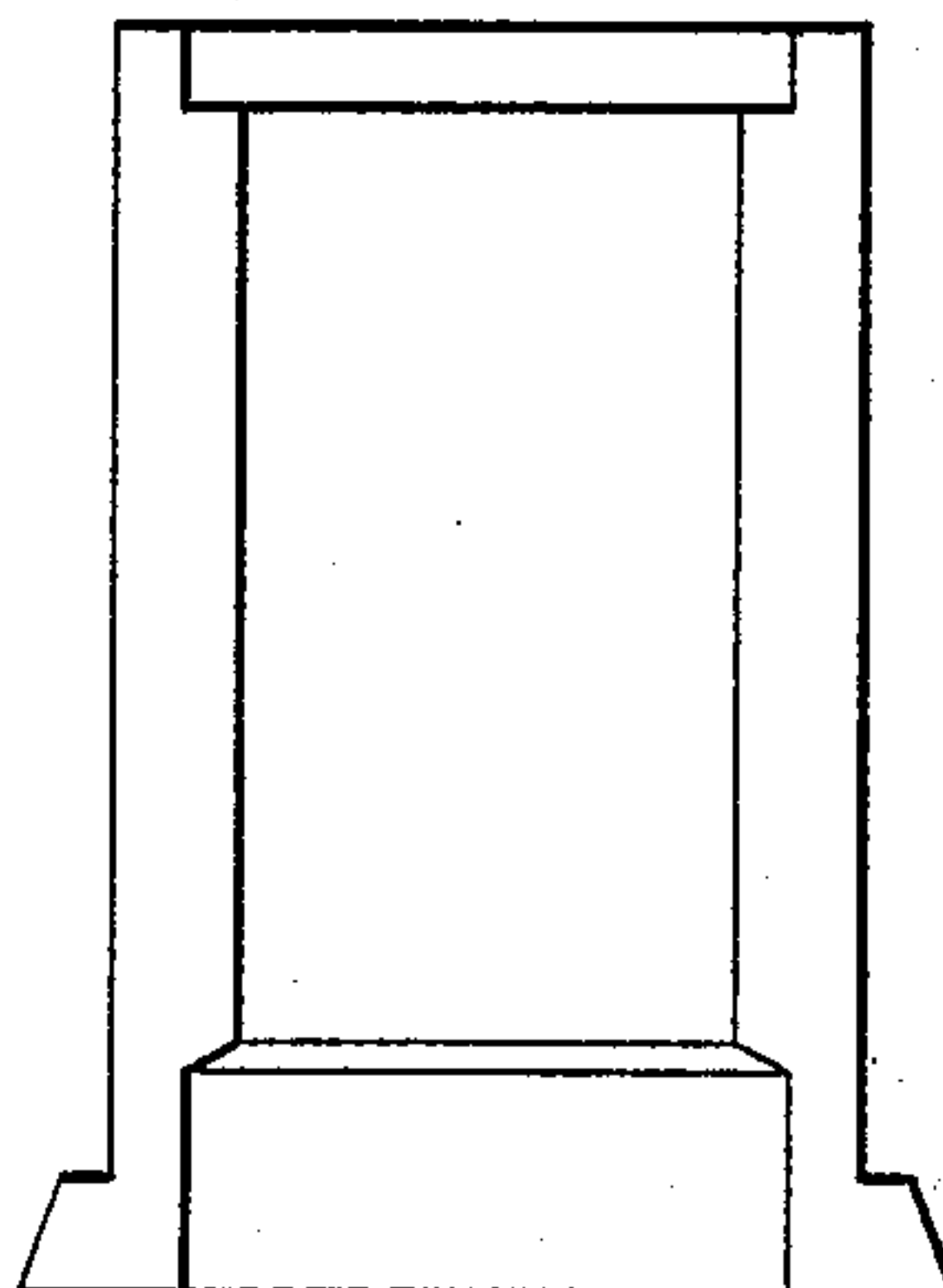


FIG. III.



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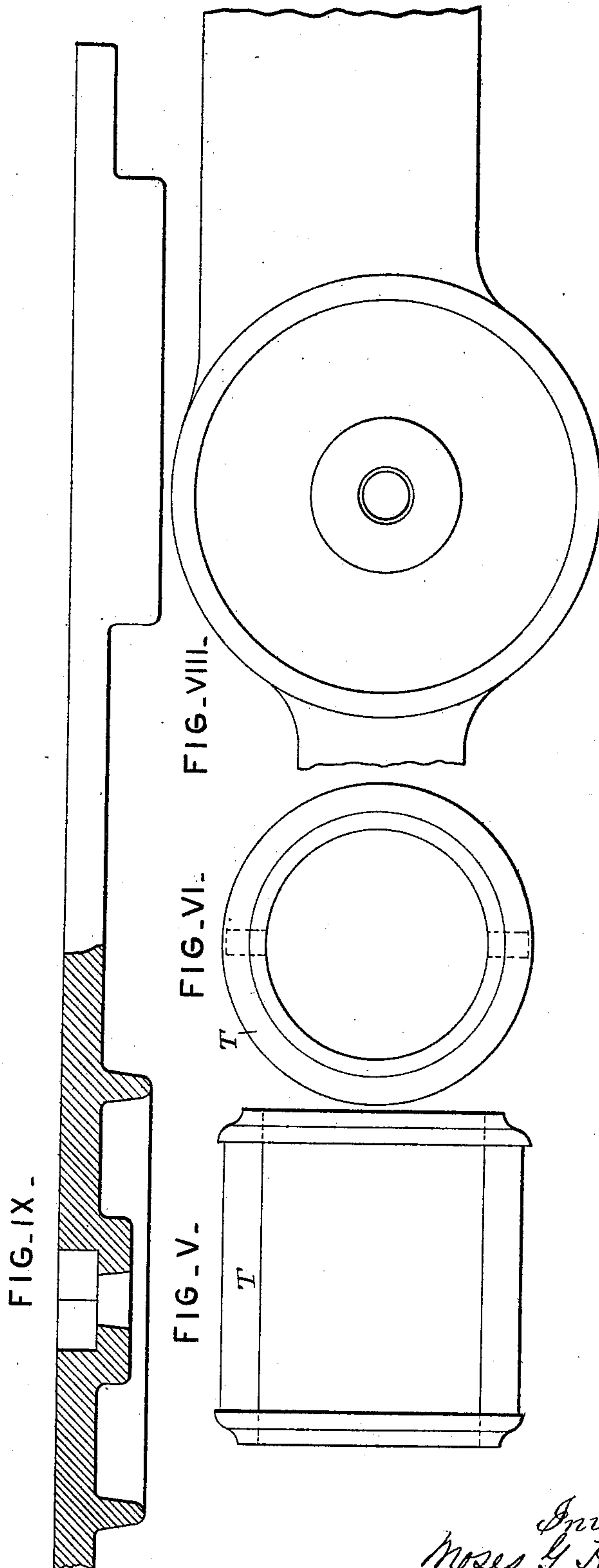
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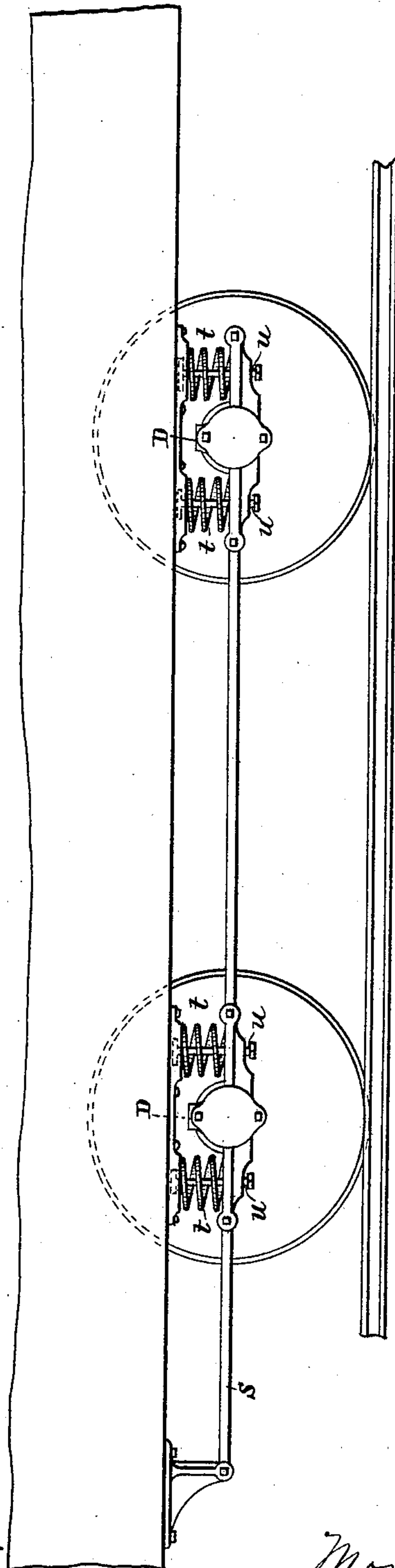
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FIG. VII -



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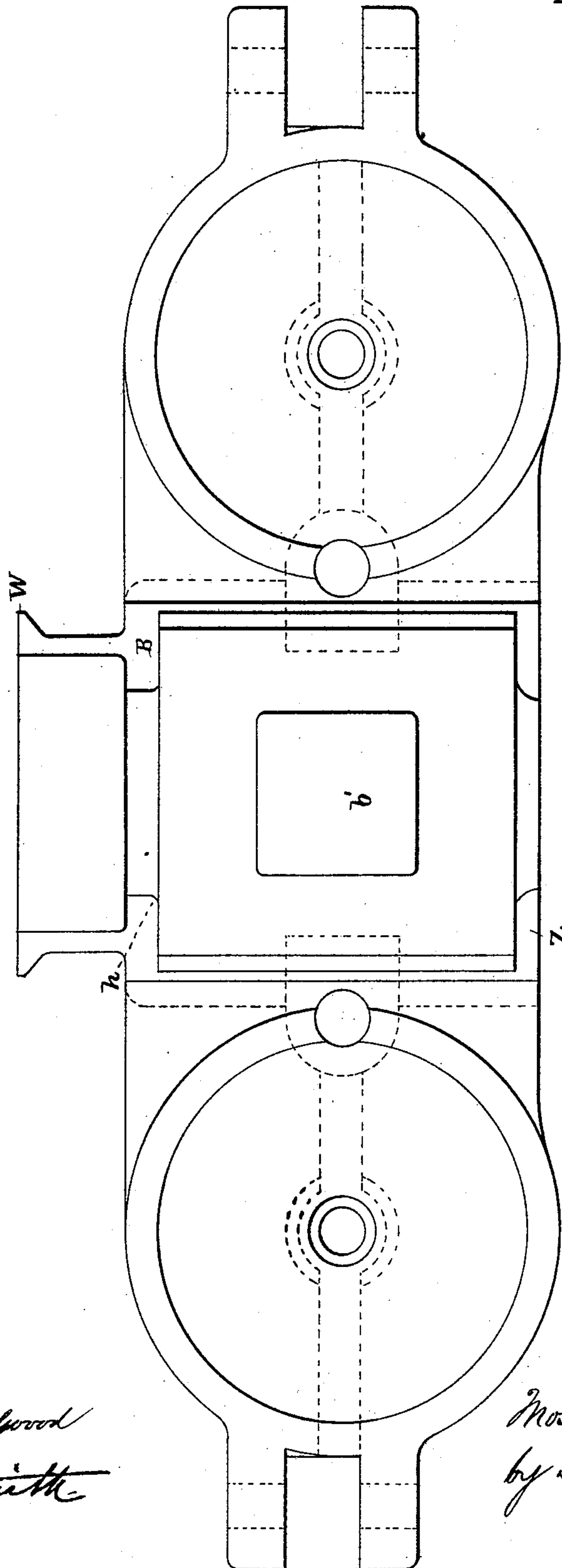
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FIG. X -



Attest:
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UNITED STATES PATENT OFFICE.

MOSES G. HUBBARD, OF PHILADELPHIA, PENNSYLVANIA.

JOURNAL-BEARING FOR CAR-TRUCKS.

SPECIFICATION forming part of Letters Patent No. 389,965, dated September 25, 1888.

Application filed August 8, 1887. Serial No. 246,436. (No model.)

To all whom it may concern:

Be it known that I, MOSES G. HUBBARD, of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Car-Trucks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention consists in certain improved elements and combinations to form an anti-friction roller axle-journal bearing for car-trucks and other vehicles and other purposes, to promote durability and ease of draft.

My invention relates, first, to an improved form and construction of roller-guide to improve its capacity and its operation and cheapen its manufacture.

It further relates to an improved axle-casing and to its attachment to the axle-journal, and to the combination of the roller-guide and axle-casing in the manner and for the purposes hereinafter explained.

It further relates to the combination of the skeleton roller-guide and the anti-friction rollers to increase the number of rollers and cheapen the manufacture; and it further relates to the combination of an outer casing, the anti-friction rollers, and the enlarged axle-journal, with the skeleton roller-guide, and to the attachment of the axle-journal casing to the axle rigidly endwise thereof for taking the end-thrust, and to the arrangement and combination therewith of a flanged journal-box.

It further relates to a new arrangement and combination of the anti-friction rollers and the other parts named with vertical spiral springs to attain a more perfect self-adjustment of the rollers to the journal, and to an improved arrangement for protecting the rollers from sediment, &c.

My invention may be described as follows, reference being had to the accompanying drawings, in which—

Figure 1 is a front or end view of my improved anti-friction axle-journal bearing with its front cap removed, showing the end of the axle, the axle-casing K, the anti-friction rollers, the skeleton roller-guide T, and the outer casing or journal-box, B. Fig. 2 is a vertical section thereof. Fig. 3 is an inside view of one-half of one of the axle-journal casings,

and Fig. 4 an end view thereof. Fig. 5 is a side view of the skeleton guide T for the rollers detached. Fig. 6 is an end view thereof. Fig. 7 is a side view of the elastic self-adjusting attachment of the journal-box to the truck or car. Fig. 8 is a view of the under side of my spring-caps; and Fig. 9, a side view thereof, partly in section. Fig. 10 is a top view of the lower portion of the outer casing, B, of my anti-friction journal-bearing.

My skeleton roller-guide (shown in Figs. 5 and 6) is composed of two rings and two cross-bars connecting said rings, and in this skeleton form by reducing the cross-bars to the least possible number the cost of manufacture is reduced to a minimum and its capacity for containing a large number of rollers is greatly increased. In this form it is adapted to embrace and hold in position the divided casing K on the axle-journal, a half of which is shown detached in Figs. 3 and 4. This axle-journal casing serves to protect the journal from wear and to take the end-thrust of the axle in both directions, and also by enlarging the diameter it allows more rollers, which is very important, as the number of rollers determines to a great extent the durability of the whole arrangement.

The axle-journal casing is made in two parts to adapt it to the ordinary axle-journal, having a collar, *c*, on its outer end and a shoulder, *m*, at its inner end, which serves to hold or attach the casing rigidly endwise of the axle to adapt it to take the end-thrust in both directions independently of the rollers by contact with the outer plate, *n*, at one end and with the shoulder *h* of the journal-box at its inner end. When used on a plain journal, it requires to be riveted thereto in the form of a cylinder around the journal. This axle-journal casing with the skeleton cage is adapted to employ a great number of rollers with the most perfect guide for them and at the least possible cost for fitting, as the roller-guide is composed of the least possible number of guiding-surfaces, and it guides and controls the rollers as perfectly as the more complicated and more expensive devices heretofore employed. The outer end cap, *n*, is adapted to hold the axle at its outer end to aid in resisting its end-thrust, and the rollers are left entirely free to

occupy the working position given them by the skeleton roller-guide without variation. The upper cap, P', is held in position by the loop-bolt or staple R, which is secured at its lower end by screw-nuts.

When my self-adjusting journal-box (more fully described in another application for improvement in car-trucks, &c.) is combined with my anti-friction draft-link patented by me September 22, 1885, the arrangement attains a perfect self-adjustment of the journal-boxes to the axle-journals and the freest and best action of the springs, as more fully described in my said patent. This arrangement is shown in Fig. 7, in which the springs are interposed between the truck or car and the journal-boxes and form an elastic attachment of the journal-boxes to the truck or car-frame. I have found this arrangement entirely effectual in attaching friction journal-boxes to the truck or car, and their durability and perfect operation thereby greatly increased, and when this self-adjusting quality of the journal-box to the axle-journal is combined with the above-described anti-friction roller-bearing its operation in almost every respect is materially improved. In Fig. 7 the springs are shown at *t t t t*, and the draft-link *s* is pivoted to the car at one end, and at the other end it is pivoted to the journal-box on each side of the car. The springs are similar to the spiral torsion-springs described in my application for a patent filed July 5, 1887, allowed December 3, 1887, Serial No. 243,341. At the bottom of my journal-box I form a depression, *b'*, Figs. 2 and 10, to serve as a sediment receptacle to permit sediment, &c., to settle where it will not be carried up to interfere with the working of the rollers, and I form a track along the sides of this depression for the rollers to roll upon, as shown. In an arrangement somewhat similar heretofore made the rollers were much smaller at their ends than in their center, which would cause them to slide while resting upon their ends on the said tracks and soon wear out the tracks; but my rollers, having parallel sides or uniform diameter, will always roll upon said tracks, and will therefore not wear them injuriously.

Having now described my invention, I claim—

1. A skeleton roller-guide composed of two rings and two cross-bars, for the purpose substantially as described.

2. An inner axle-casing constructed in two parts, for the purpose substantially as set forth.

3. The combination of the skeleton roller-guide, constructed as described, with the axle-casing, constructed and arranged substantially as and for the purpose specified.

4. In an anti-friction roller-journal bearing, the combination of the anti-friction rollers and a skeleton roller-guide having two pockets, each containing half of the whole number of rollers, whereby the number of the rollers is increased, substantially as set forth.

5. The combination of the outer casing, the anti-friction rollers, and the enlarged axle-journal, with a skeleton roller-guide containing several rollers in each pocket, for the purposes substantially as described.

6. The combination of the outer casing, the anti-friction rollers, and the skeleton roller-guide, with an axle-casing rigidly attached to the axle endwise thereof, for the purposes substantially as described.

7. The combination of the axle-casing rigidly attached to the axle endwise thereof, the flange on the inner end of the outer casing, and the plate on the outer end thereof with the anti-friction rollers for receiving the end-thrust in both directions independently of the rollers, substantially as specified.

8. The combination of the axle-journal casing rigidly attached to the axle endwise thereof, the skeleton roller-guide, the anti-friction rollers, and the journal-box, whereby the axle is protected from wear, the number of rollers greatly increased, and the end-thrust taken in both directions independently of the rollers, substantially as set forth.

9. The combination of the anti-friction rollers and the skeleton roller-guide with the vertical spiral spring and the journal-box, whereby the parallelism of the said anti-friction rollers with the axle-journal is preserved, for the purposes substantially as specified.

10. An anti-friction roller axle-journal box having a depression in its bottom for sediment and having tracks along the sides of the depression for the rollers to roll on, in combination with anti-friction rollers having parallel sides or uniform diameter, substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand this 22d day of July, A. D. 1887.

MOSES G. HUBBARD.

Witnesses:

M. G. HUBBARD, Jr.,
EDWARD E. PAXSON.