

No. 891,205.

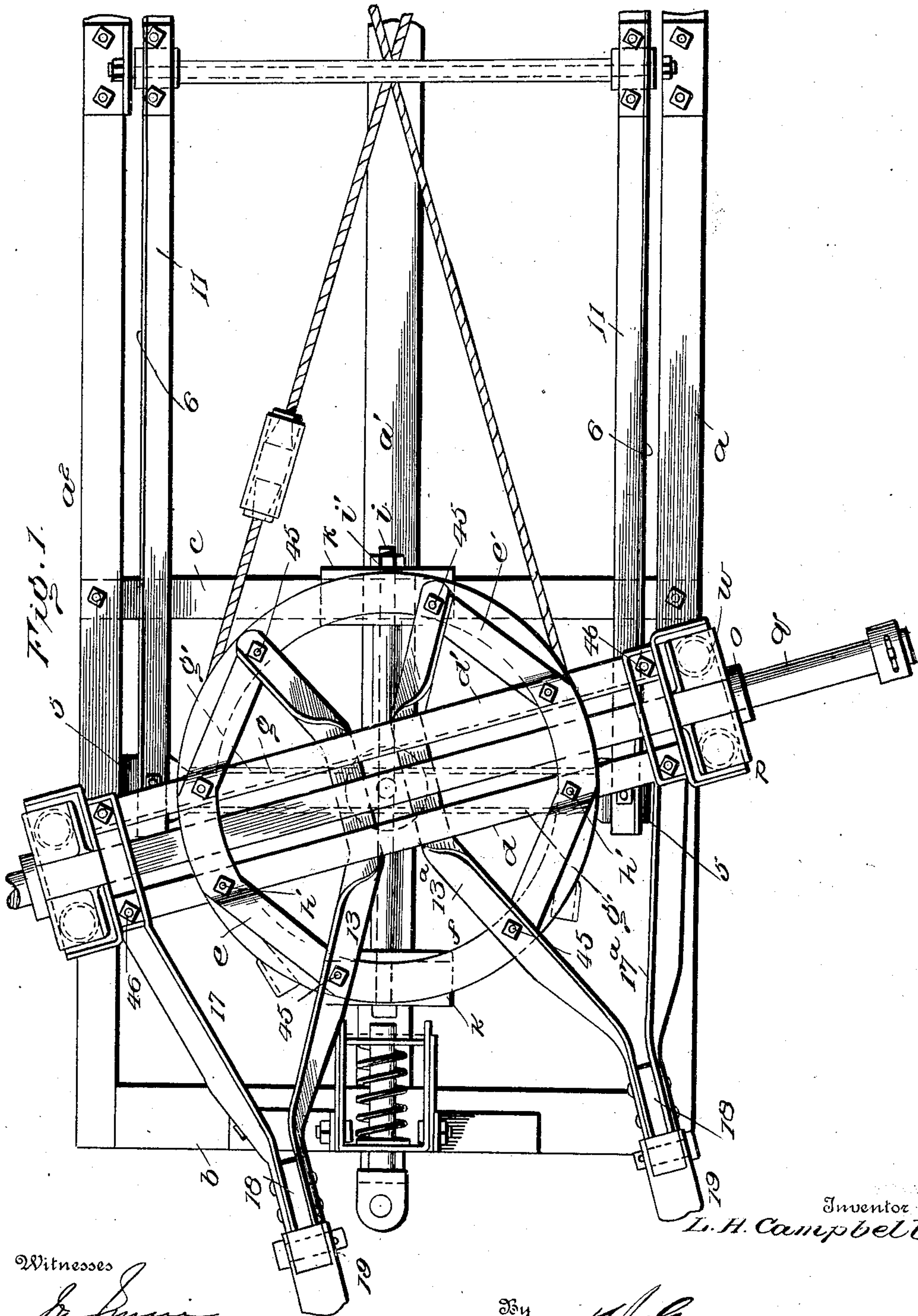
PATENTED JUNE 16, 1908.

L. H. CAMPBELL.

STEERING WHEEL GEAR FOR ROAD VEHICLES.

APPLICATION FILED DEC. 31, 1904.

4 SHEETS—SHEET 1.



Witnesses

*J. L. Wheeler*  
Jno. Wheeler

By

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Attorney

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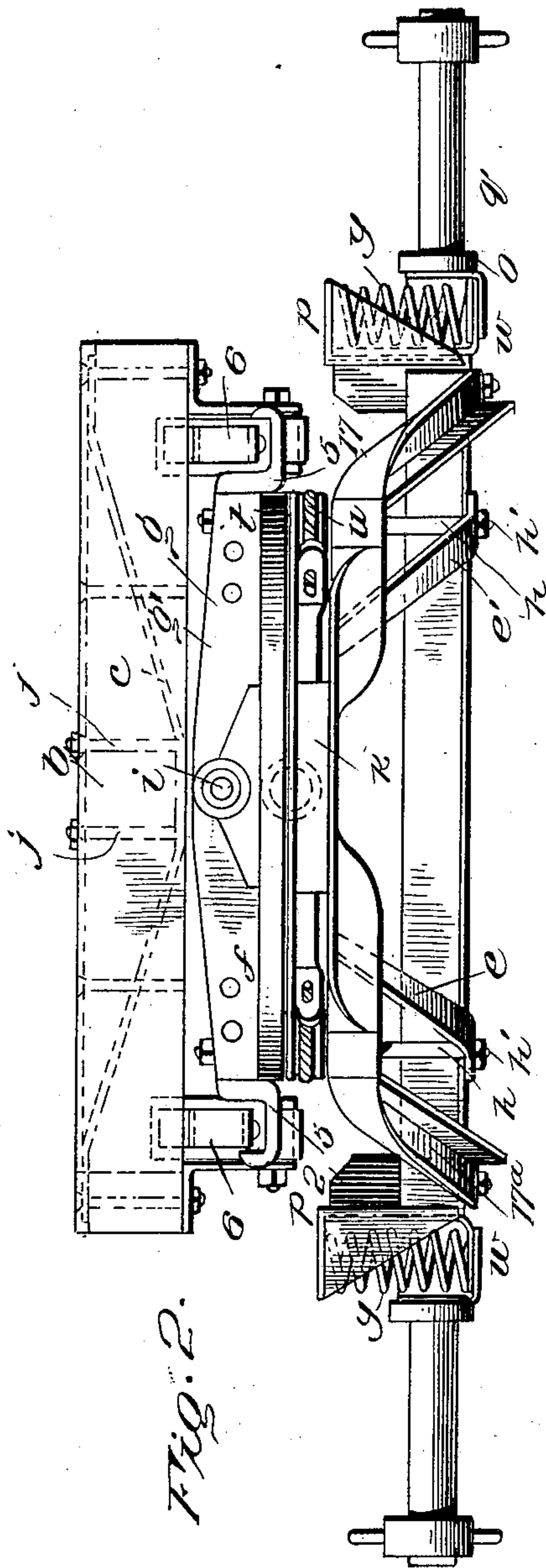
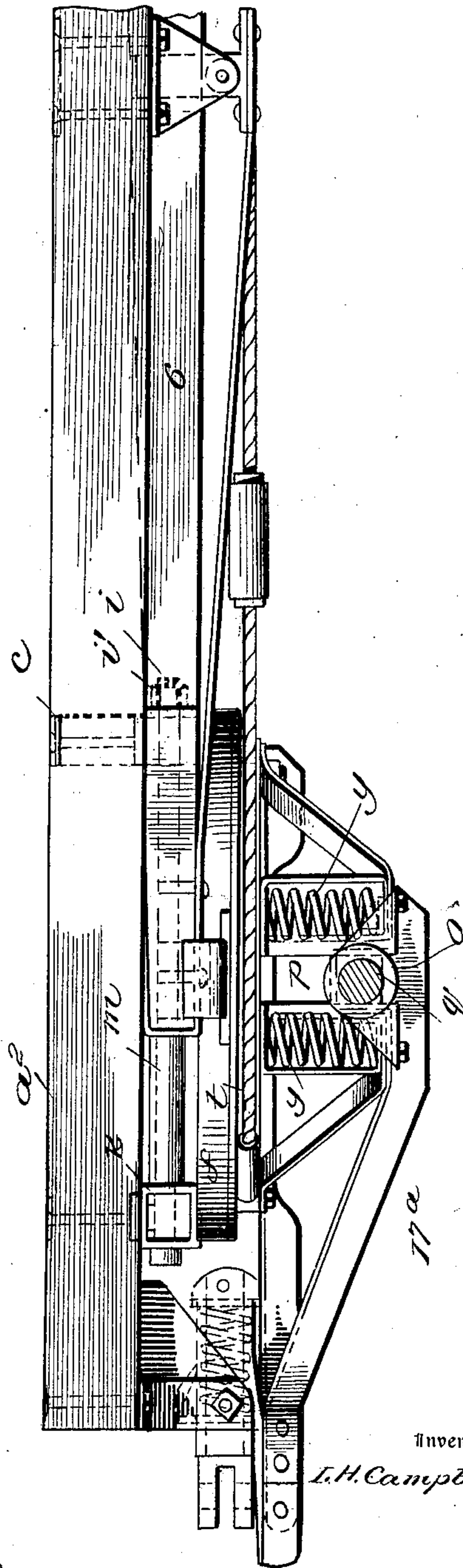


Fig. 2.

Witnesses

*John M. Wheeler.*

Fig. 3.



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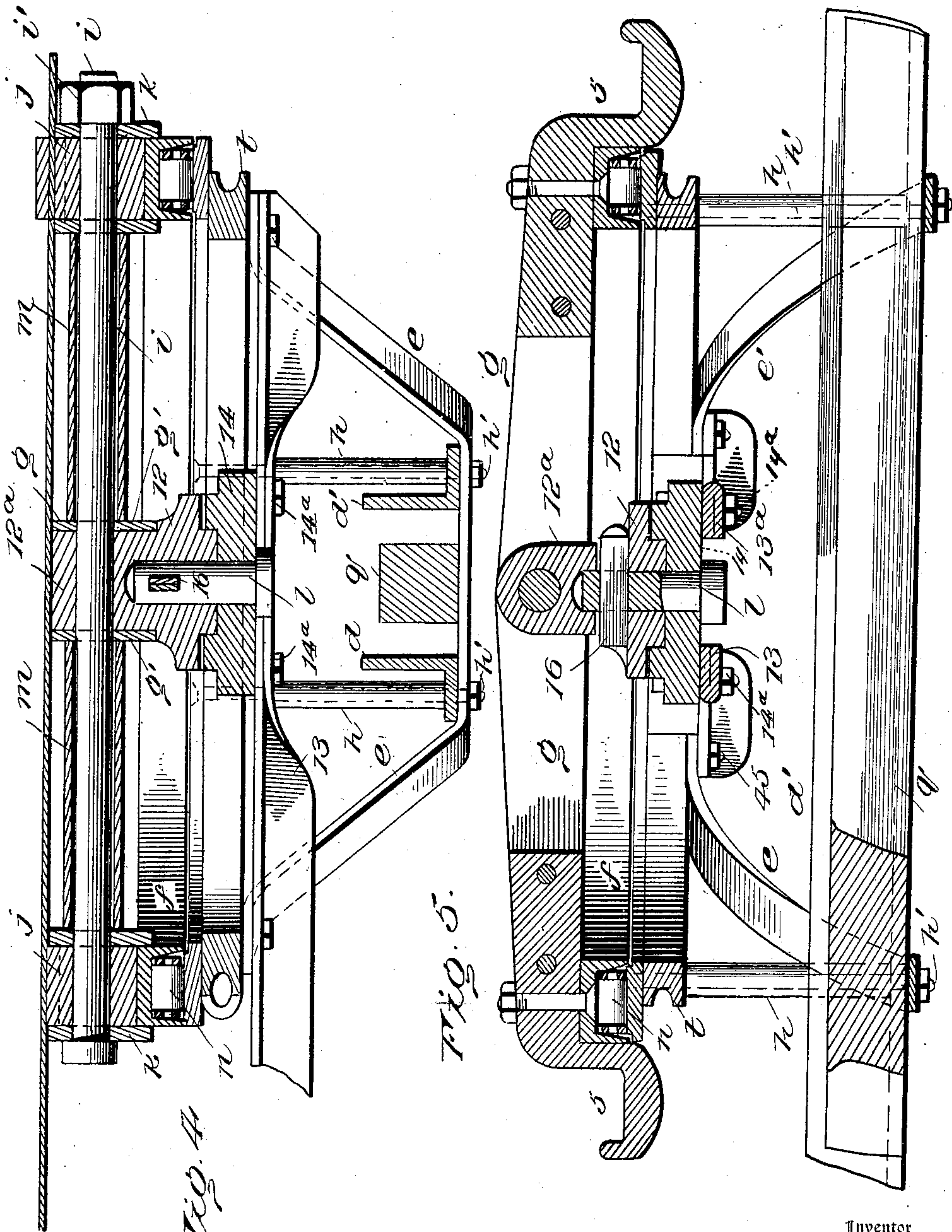
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4 SHEETS—SHEET 3.



Witnesses

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4 SHEETS—SHEET 4.

Fig. 6.

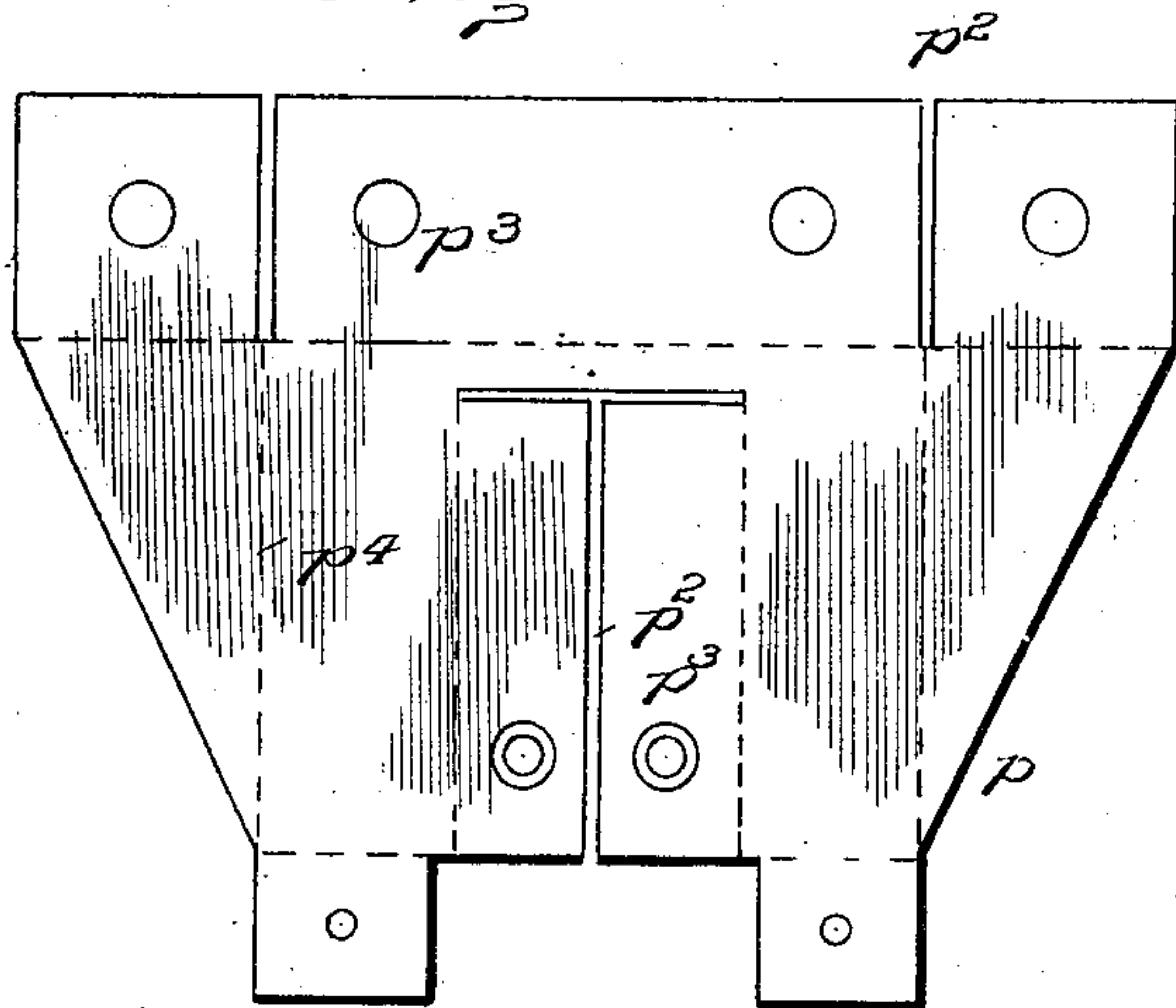


Fig. 7.

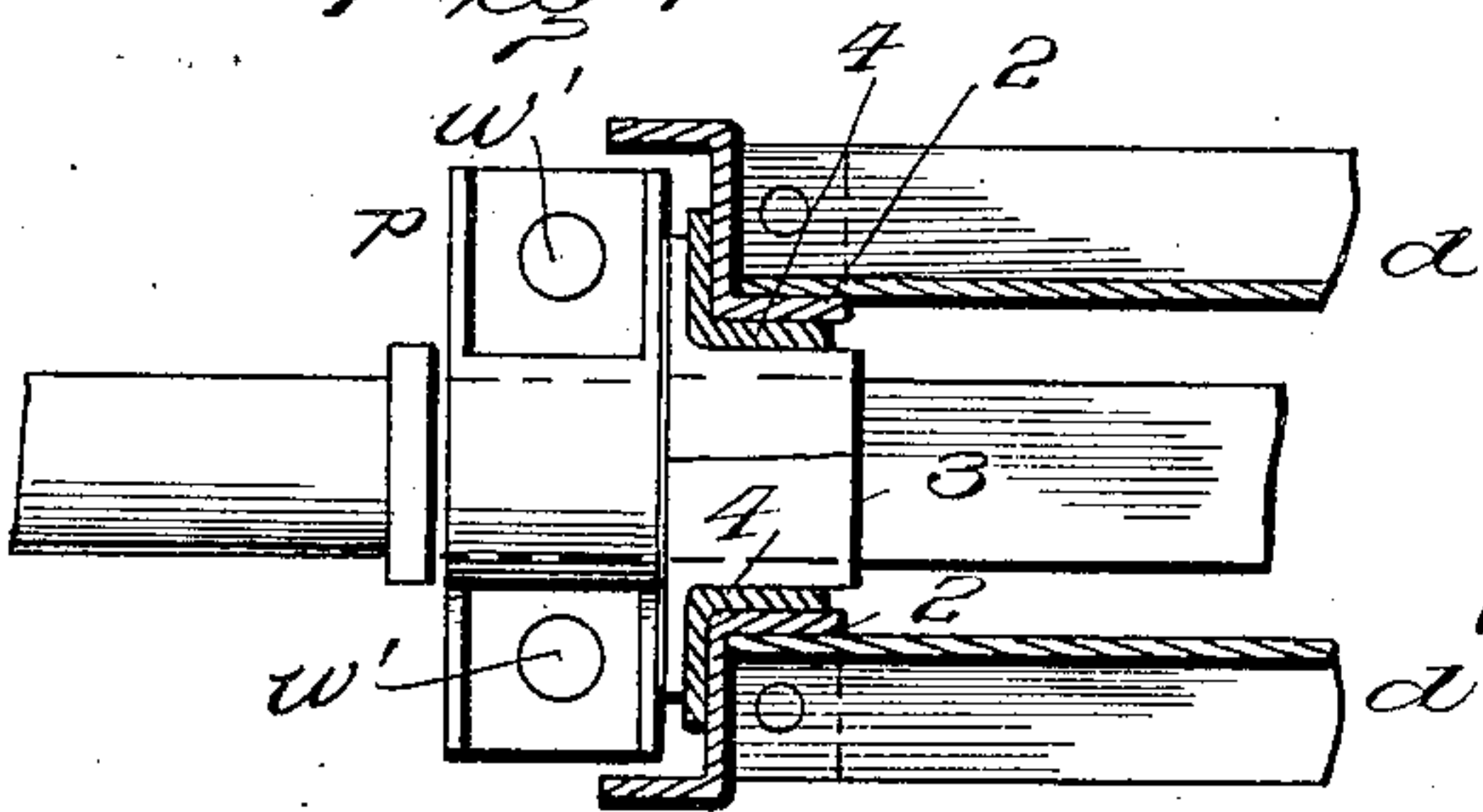


Fig. 9.

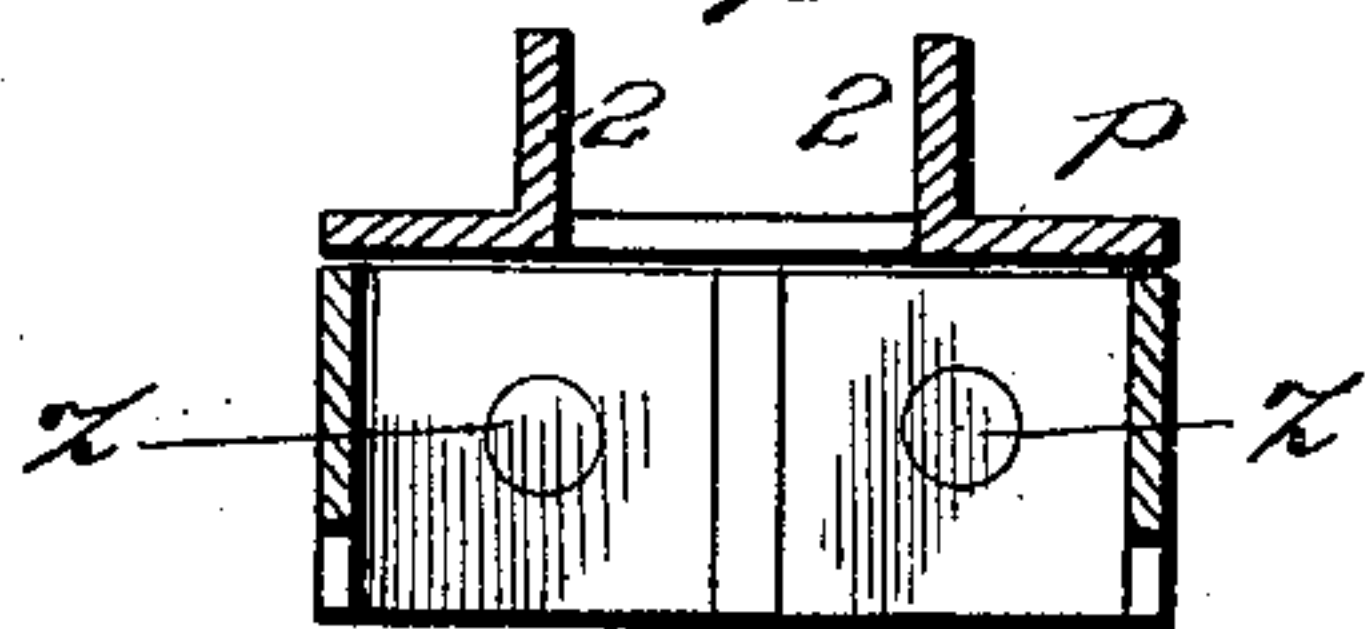


Fig. 12.

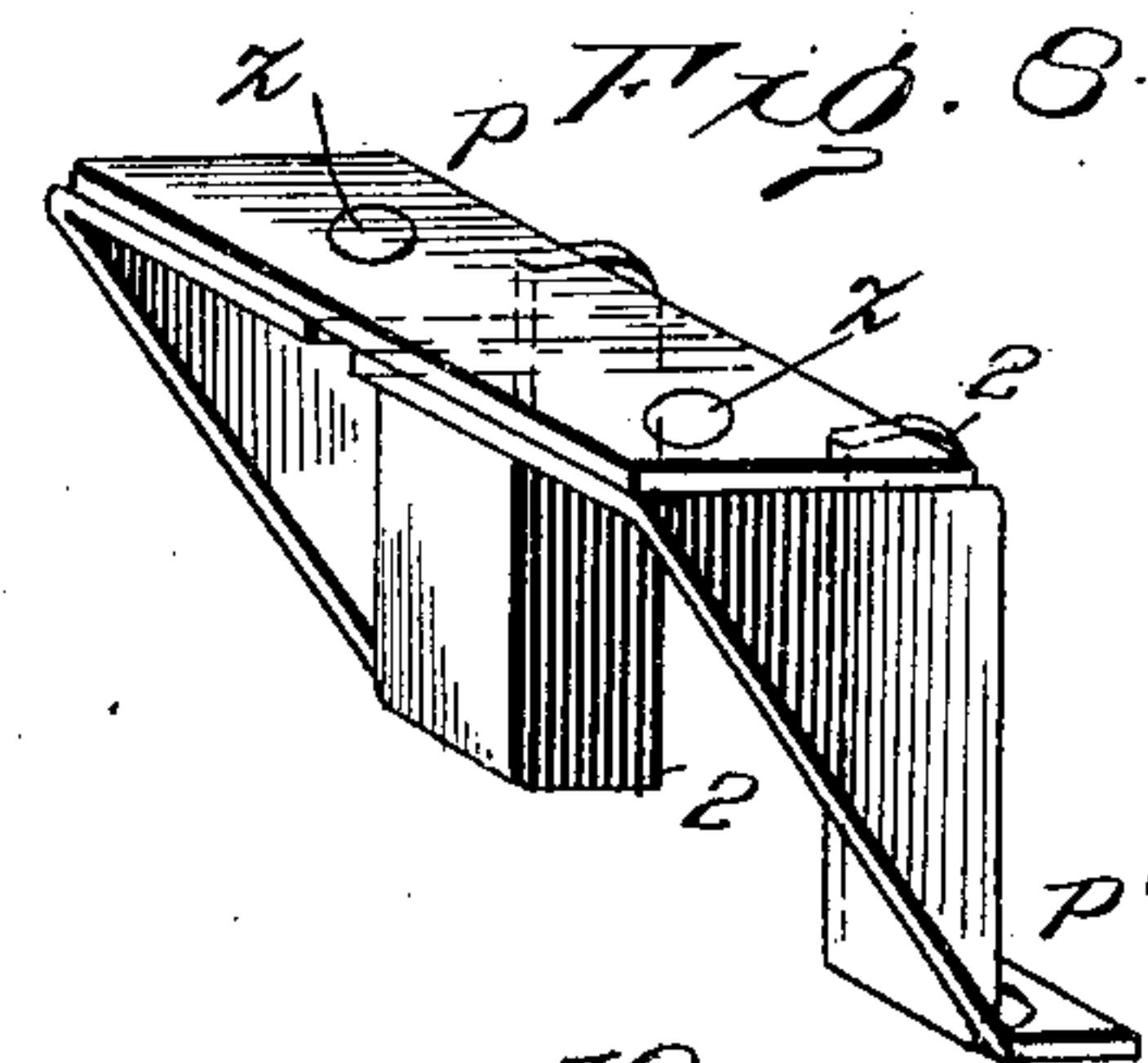
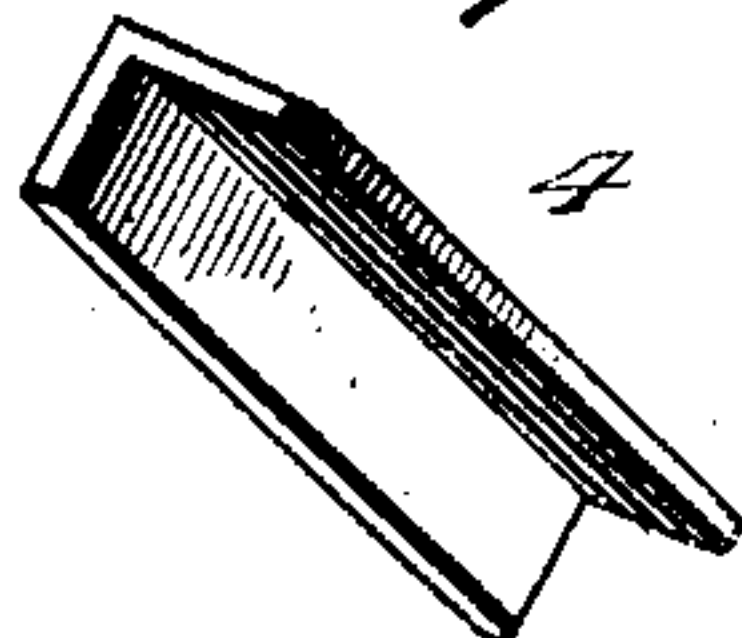


Fig. 10.

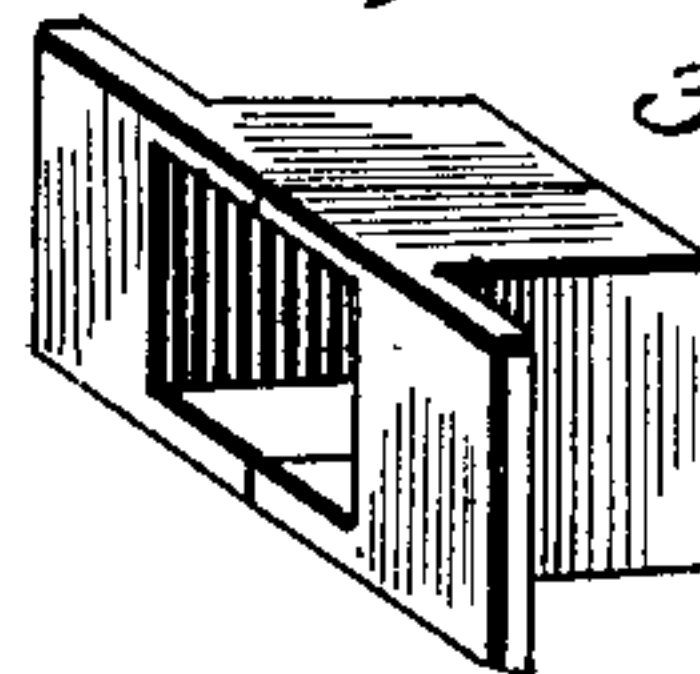
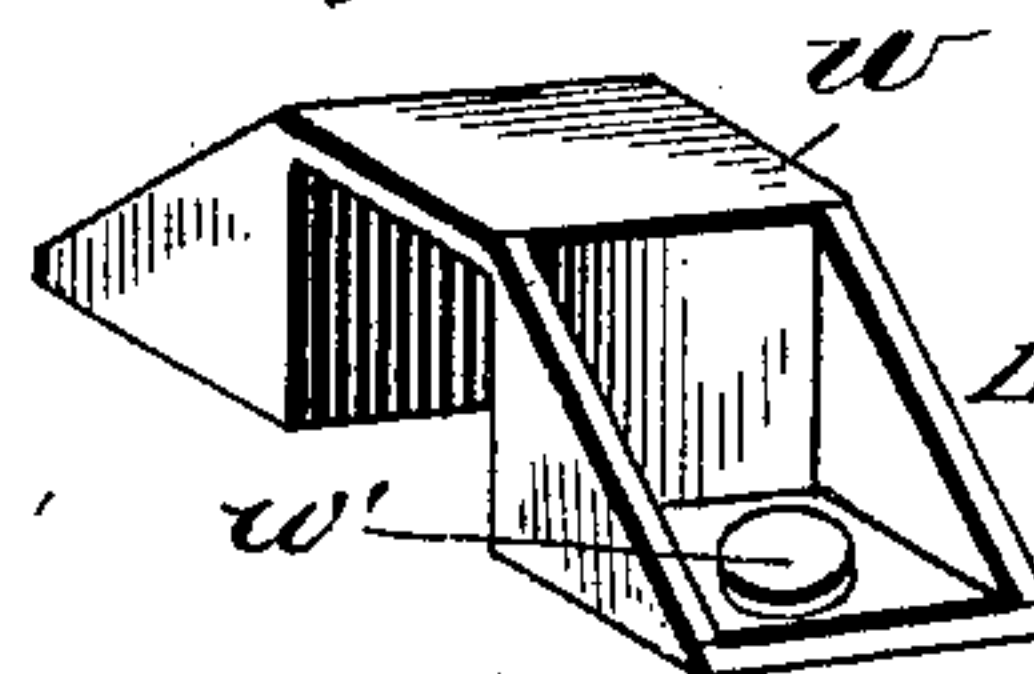


Fig. 11.



Witnesses

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# UNITED STATES PATENT OFFICE.

LOUIS H. CAMPBELL, OF PORTLAND, OREGON, ASSIGNOR OF ONE-HALF TO A. A. LINDSEY,  
TRUSTEE, OF PORTLAND, OREGON.

## STEERING-WHEEL GEAR FOR ROAD-VEHICLES.

No. 891,205.

Specification of Letters Patent.

Patented June 16, 1908.

Application filed December 31, 1904. Serial No. 239,217.

*To all whom it may concern:*

Be it known that I, LOUIS H. CAMPBELL, a citizen of the United States, and a resident of Portland, in the county of Multnomah and State of Oregon, have invented a new and useful Improvement in Steering-Wheel Gear of Road-Vehicles, of which the following is a specification, reference being had to the accompanying drawings as constituting a part thereof.

My invention relates generally to that part of the running gear of road vehicle which includes the front, swiveling or steering wheel gear, and the draft and steering appliances therewith connected.

The object of this invention is to simplify the construction of such wheel gear; and in connection therewith to obtain light weight, and reduced cost, without sacrificing strength or durability. Furthermore, to obtain a wheel gear which is of all-metal construction, and also to obtain the particular beneficial results hereinafter fully set forth.

To this end my invention comprises the devices and combinations hereinafter described and claimed.

In the drawings:—Figure 1 is an inverted plan of the swiveling or steering wheel gear of a vehicle incorporating my invention; Fig. 2 is a front end view, right side up, of the parts shown in the preceding figure. Fig. 3 is a side elevation of the same parts; Fig. 4 is a central longitudinal section of the same parts; Fig. 5 is a corresponding transverse central section; Fig. 6 is a detail of construction of the pedestals *p*; Fig. 7 is a partial plan section on a line corresponding with the upper face of the axle *q*, and illustrates the means for mounting the vehicle on the axles; Fig. 8 is a perspective of one of the pedestals *p*, an end elevation of which is seen in Fig. 2; Fig. 9 is an inverted plan section of said pedestal *p*; and Figs. 10, 11 and 12 are details of construction, which will later be more fully described.

The letters and numerals designate the parts referred to in the following description.

The class of vehicles shown in the drawings is of the low bodied type, comprising longitudinal sills *a*, *a'*, *a''*, and cross sills *b*, *c*. The latter represents one of the body bolsters, and the same is made in the form of an inverted arch bar, as shown by dotted outline in Fig. 2, so as to leave proper clearances for the ends of equalizing bars 6, 6,

the function of which is described in my application for Letters Patent for improvement in equalized oscillating gear for road vehicles, bearing even date herewith, and to which reference is hereby had. In fact, as a matter of convenience, the illustration shown in the drawings of this application are copies of the drawings in said accompanying application to the extent it was necessary to obtain a clear idea of the utility and scope of my invention herein described.

This application only concerns the construction of a swiveling wheel gear. Besides being particularly useful in the construction of a vehicle gear of the type illustrated and described in my said accompanying application for a patent, my invention herein described may also be advantageously used in many other types of vehicles.

The style of gear shown by me is of the platform type. It comprises parallel members *d*, *d'*, secured by braces *e*, *e'*, hollow posts *h*, and bolts *h'*, to the lower circle of the fifth-wheel *f*. The upper member of the fifth wheel is rigidly secured to the underside of the bolster *g*, which bolster and the fifth wheel are connected to the central sill *a'* by means adapting the vehicle body and the wheel gear to oscillate transversely independently of each other. Such connection is effected by means of an oscillating pin *i* extending through the bolster *g*, the ends of which pin are journaled in hinge lugs *j*, bolted on the underside of the sill *a'*, and shoes *k*, made with perforated flanges, which shoes are bolted on the upper member of the fifth wheel. The lower member of the fifth wheel rotates about a short king bolt 1. On the section of the oscillating pin *i*, intermediate of the bolster *g* and the shoes *k*, *k*, are sleeves *m*, *m*. *n*, *n*, are the common roller bearings of the fifth wheel *f*.

The bolster *g* consists of two plates *g'* between the ends of which are rigidly bolted stirrups 5, 5, in which to support the ends of said equalizing bars 6, 6. In the center of the bolster *g* is clamped the lug 12<sup>a</sup> of the male part of center casting 12, the clamping being effected by the tightening of the nut *i'* of the oscillating pin *i*. The female part 12 of the center casting is bolted to the longitudinal members or hounds 13, 13<sup>a</sup>, of the wheel gear. The king bolt 1 is secured in place by a split pin 16.

The objects I had in view in the particular



construction of the frame of the wheel gear just described was, to avoid any intricate forging, also to avoid any welding of parts, and to use as little material as possible. Furthermore, to so dispose the parts as to keep the height of body of vehicle as low as possible, and that the strain of the draft, of the load and the steering are most effectually distributed. Thus, it will be observed that the frame members or hounds 13, 13<sup>a</sup> and the braces *e*, *e'*, are bolted to the lower member of the fifth wheel *f* by bolts 45; that the bolts *h'* pass through the braces *e*, *e'*, the transverse member *d*, *d'*, and the lower members of the fifth wheel *f*; and the pedestal braces 17, 17<sup>a</sup>, are connected to the ends of the transverse members *d*, *d'*, by bolts 46. On the bolts *h'* intermediate of the lower circle of the fifth wheel and the ends of the angular members, *d*, *d'*, are tubular posts or sleeves *h*. When the construction includes grooved segments *t*, these are also secured in place by the bolts 45, *h'*. The members 13, 13<sup>a</sup> converge near their center and provide the support for and are bolted to the lower female part 14 of the center casting by bolts 14<sup>a</sup>; thus transmitting the draft strain through the medium of the upper part of the center casting and the oscillating pin *i* to the vehicle body. The extremities of the pedestals 17, 17<sup>a</sup>, are united with the extremities of the hounds 13, 13<sup>a</sup>, by eye-lugs 18, the latter providing the means for attaching the tongue or drawbar, of which the extremities 19 are alone shown. The disposition of the frame members 13, 13<sup>a</sup>, *e*, *e'*, and 17, 17<sup>a</sup>, and their connection, is such as to effectually take care of every strain to which the wheel gear will be subjected.

The axle *g* is made with integral collars *o*, and is supported at its two ends between the members *d*, *d'*, by pedestals *p*, and specially contrived means, details of which are shown in Figs. 6 to 12 inclusive. The object I have in mind in the construction and arrangement of the axle supports was, to seat the axle ends on and intermediate of two coil springs, by means allowing the use of springs of ample length, and allowing the axle ends ample vertical movement; the coil springs by reason of their disposition on both sides of the axle, are adapted to materially assist the holding of the axle ends in position.

The pedestals *p* may be conveniently made as illustrated in Fig. 6; which represents a blank, cut out of sheet metal, of the shape shown; having cuts *p*<sup>2</sup>, and perforations *p*<sup>3</sup>; being then folded on dotted lines *p*<sup>4</sup>, and riveted together in the shape illustrated in Fig. 8. The pedestals, however, may be made of a casting if preferred. Said pedestals are made with supporting lugs *p'* by which they are rigidly attached to the ends of parallel members *d*, *d'*.

On the ends of the axle *g* are placed saddles

*w*, (see Fig. 11). The saddles are made with spring retaining studs *w'* by which to hold the lower end of the coil springs *y*; and the heads of the rivets *z* on the under sides of the top of the pedestals *p*, are made large, so as to afford ample hold for the upper ends of the coil springs *y*. The pedestals *p* are further made with integral jaws 2, which are inserted within the two parallel members *d*, *d'*, as shown in Fig. 7. On the axle ends are placed axle shoes 3, made in two parts (see Fig. 10) in the shape of a box. Between the shoes 3, and the jaws 2 of the pedestals are placed wear plates 4 (see Fig. 12) made like sections of angle irons. The shoes 3, and 4 receive the wear otherwise received by the axle sides and pedestals jaws 2, and the arrangement is further such as to allow an inexpensive renewal of the parts worn.

I claim.

1. In a steering wheel gear, the combination of a bolster, fifth wheel, king bolt and bearings, two transverse angular frame members *d*, *d'*, frame members rigidly affixed to the ends of said transverse frame members and supporting the lower member of the fifth wheel and the lower bearing of the king bolt, means for attaching drafting and steering devices, pedestals rigidly affixed to the extremities of the transverse frame members, an axle intermediate of said members the ends of which axles project through vertical apertures therefor provided in said pedestals, means for holding the axle against shifting endwise, saddles astride of the axle ends, and coil-springs thereon, on which the pedestals rest, thereby supporting the frame of the wheel gear.

2. A steering wheel gear, comprising a bolster, fifth-wheel, king bolt and bearings, two transverse angular frame members *d*, *d'*, hounds 13, 13<sup>a</sup>, and braces *e*, *e'*, fastened to the lower circle of the fifth wheel; bolts extending through said braces, the transverse members and the lower circle of the fifth wheel and tubular posts on said bolts, the lower bearing of the king-bolt being bolted on the central converging parts of said hounds; pedestal-braces 17, 17<sup>a</sup>, fastened to the ends of the transverse frame-members, the outer extremities of said hounds and pedestal braces converging, means on said converging extremities to which to attach steering and draft appliances; pedestals rigidly affixed to the extremities of the transverse frame-members, and an axle intermediate of said transverse members the ends of which axle project through vertical apertures therefor provided in said pedestals, means for holding the axle against shifting endwise, saddles astride of the axle ends, and coil-springs thereon, on which the pedestals rest, thereby supporting the wheel gear.

3. In a steering wheel gear, the combination of a bolster, fifth-wheel, king-bolt and



bearings, two transverse angular frame-members  $d, d'$ , frame members rigidly affixed to the ends of said transverse frame-members and supporting the lower member of the fifth-wheel and the lower bearing of the king-bolt, means for attaching drafting and steering devices, pedestals rigidly affixed to the extremities of the transverse frame-members, an axle intermediate of said members the ends of which axles project through vertical apertures therefor provided in said pedestals, means for holding the axle against shifting endwise, saddles astride of the axle ends, and coil-springs thereon, on which the pedestals rest, thereby supporting the frame of the wheel gear, and means on the saddles and the pedestals adapted to hold the ends of the coil-springs in place.

4. In a steering wheel gear, the combination of a bolster, fifth-wheel, king bolt and bearings, two transverse angular frame-members  $d, d'$ , frame-members rigidly affixed to the ends of said transverse frame-members and supporting the lower member of the fifth-wheel and the lower bearing of the king-bolt, means for attaching drafting and steering devices, pedestals rigidly affixed to the extremities of the transverse frame-members, an axle intermediate of said members the ends of which axle project through vertical apertures therefor provided in said pedestals, means for holding the axle against shifting endwise, saddles astride of the axle ends, coil-springs thereon, on which the pedestals rest, thereby supporting the frame of the wheel gear, and means adapted to prevent the wear of the axle ends due to their vertical movement in the apertures of the pedestals.

5. In a steering wheel gear, the combination of a bolster, fifth-wheel, king-bolt and bearings, two transverse angular frame-members  $d, d'$ , frame-members rigidly affixed to the ends of said transverse frame-members and supporting the lower member of the fifth-wheel and the lower bearing of the king-bolt, means for attaching drafting and steering devices, pedestals rigidly affixed to the extremities of the transverse frame-members, an axle intermediate of said members the ends of which axle project through vertical apertures therefor provided in said pedestals, means for holding the axle against shifting endwise, saddles astride of the axle ends, and coil-springs

thereon, on which the pedestals rest, thereby supporting the frame of the wheel gear, means on the saddles and the pedestals adapted to hold the ends of the coil-springs in place, and means adapted to prevent the wear of the axle ends due to their vertical movement in the apertures of the pedestals.

6. In a steering gear, the combination of transverse angular frame-members  $d, d'$ , pedestals rigidly mounted on the ends thereof, an axle intermediate of said transverse members  $d, d'$ , the ends of which axle project through vertical apertures therefor provided in said pedestals, jaws 2, 2, integrally formed on both sides of the apertures of the pedestals, two-part removable shoes 3, encompassing the axle ends inserted between said jaws, wear-plates between said shoes and the jaws of the pedestals, saddles astride of the axle ends, and coil-springs thereon, on which the pedestals rest, thereby supporting the transverse frame-members  $d, d'$ .

7. In a steering wheel gear, the combination of a bolster, fifth-wheel, king-bolt and bearings, two transverse angular frame-members  $d, d'$ , frame-members rigidly affixed to the ends of said transverse frame-members and supporting the lower member of the fifth-wheel and the lower bearing of the king-bolt, means for attaching drafting and steering devices, pedestals rigidly affixed to the extremities of the transverse frame-members, an axle intermediate of said members the ends of which axle project through vertical apertures therefor provided in said pedestals, means for holding the axle against shifting endwise, jaws 2, 2, integrally formed on both sides of the apertures of the pedestals, two-part removable shoes 3, encompassing the axle ends inserted between said jaws, wear-plates between said shoes and the jaws of the pedestals, saddles astride of the axle ends, and coil-springs thereon, on which the pedestals rest, thereby supporting the transverse frame-members  $d, d'$ .

In testimony whereof, I have hereunto affixed my signature in the presence of two witnesses.

LOUIS H. CAMPBELL.

Witnesses:

R. R. DUNIWAY,  
T. J. GEISLER.