

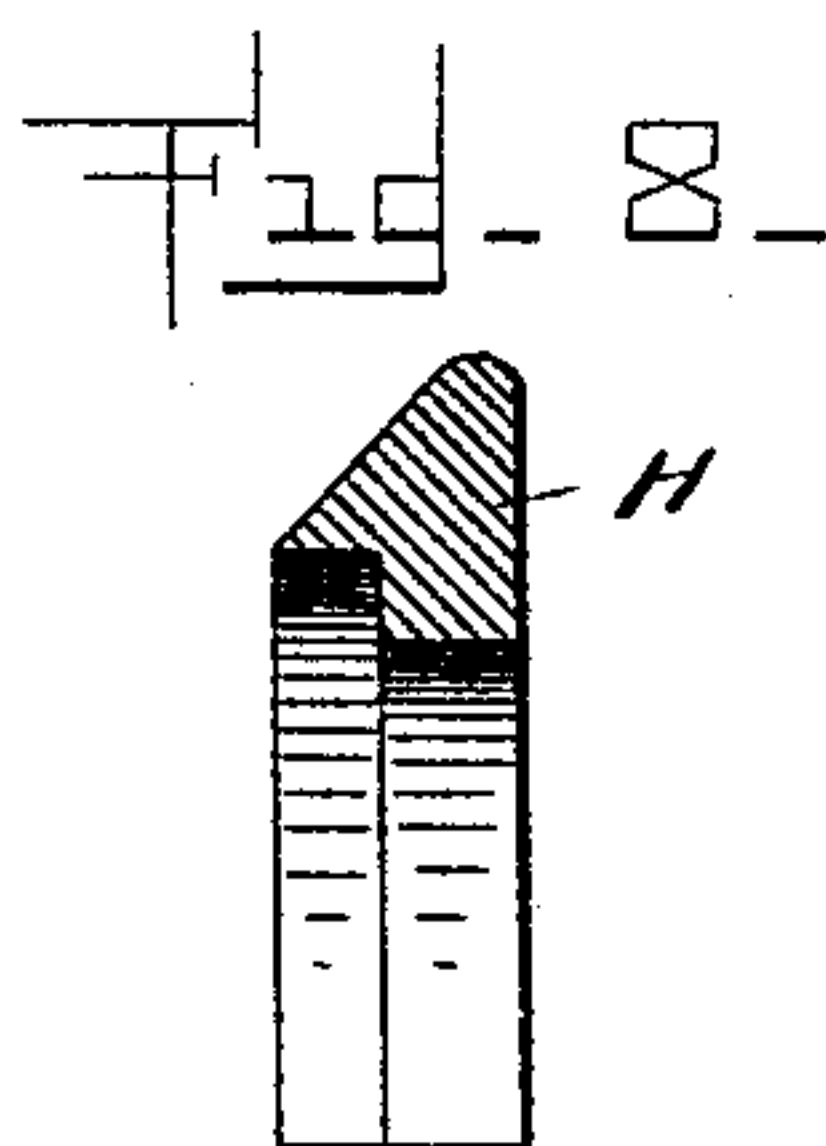
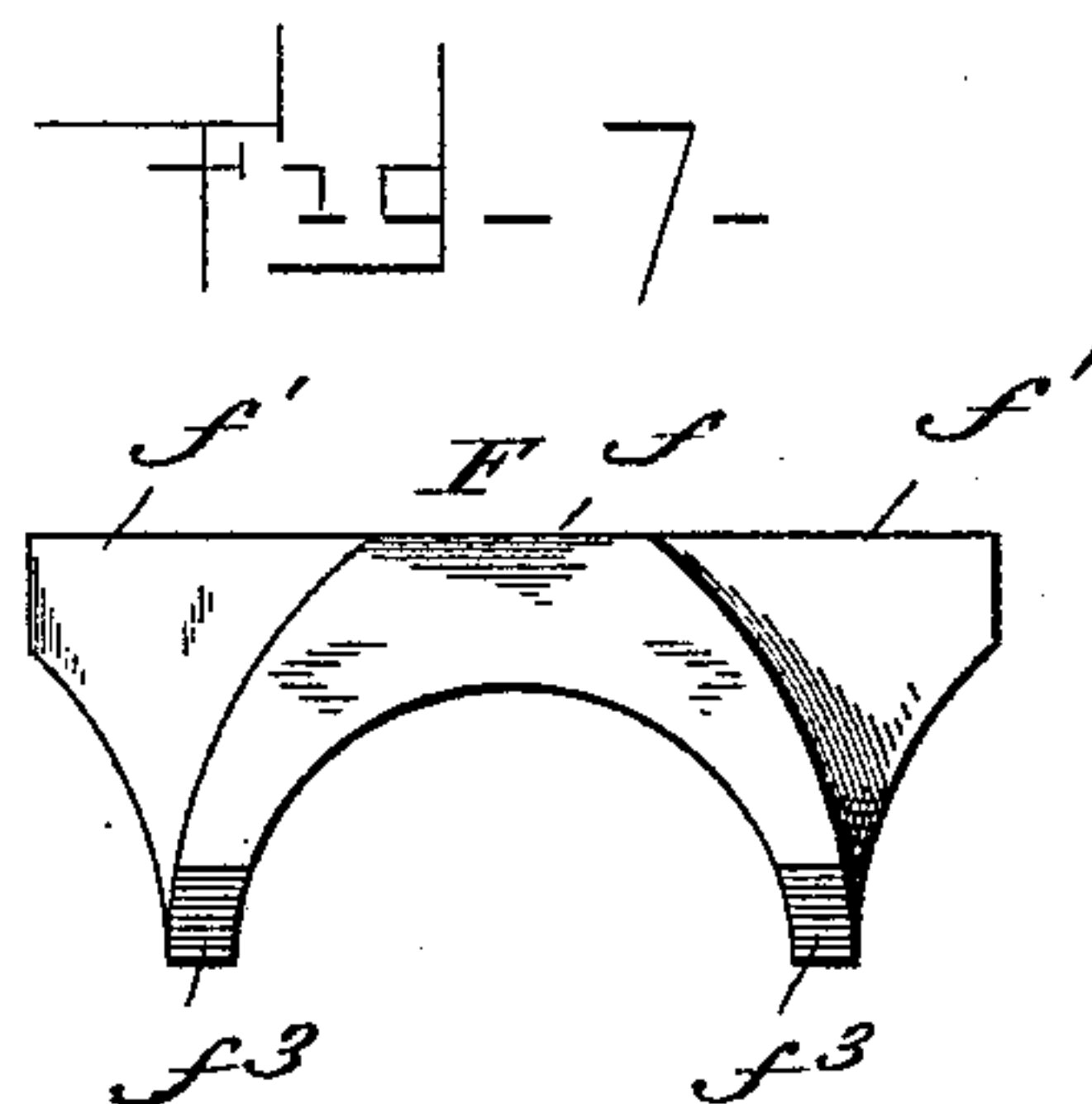
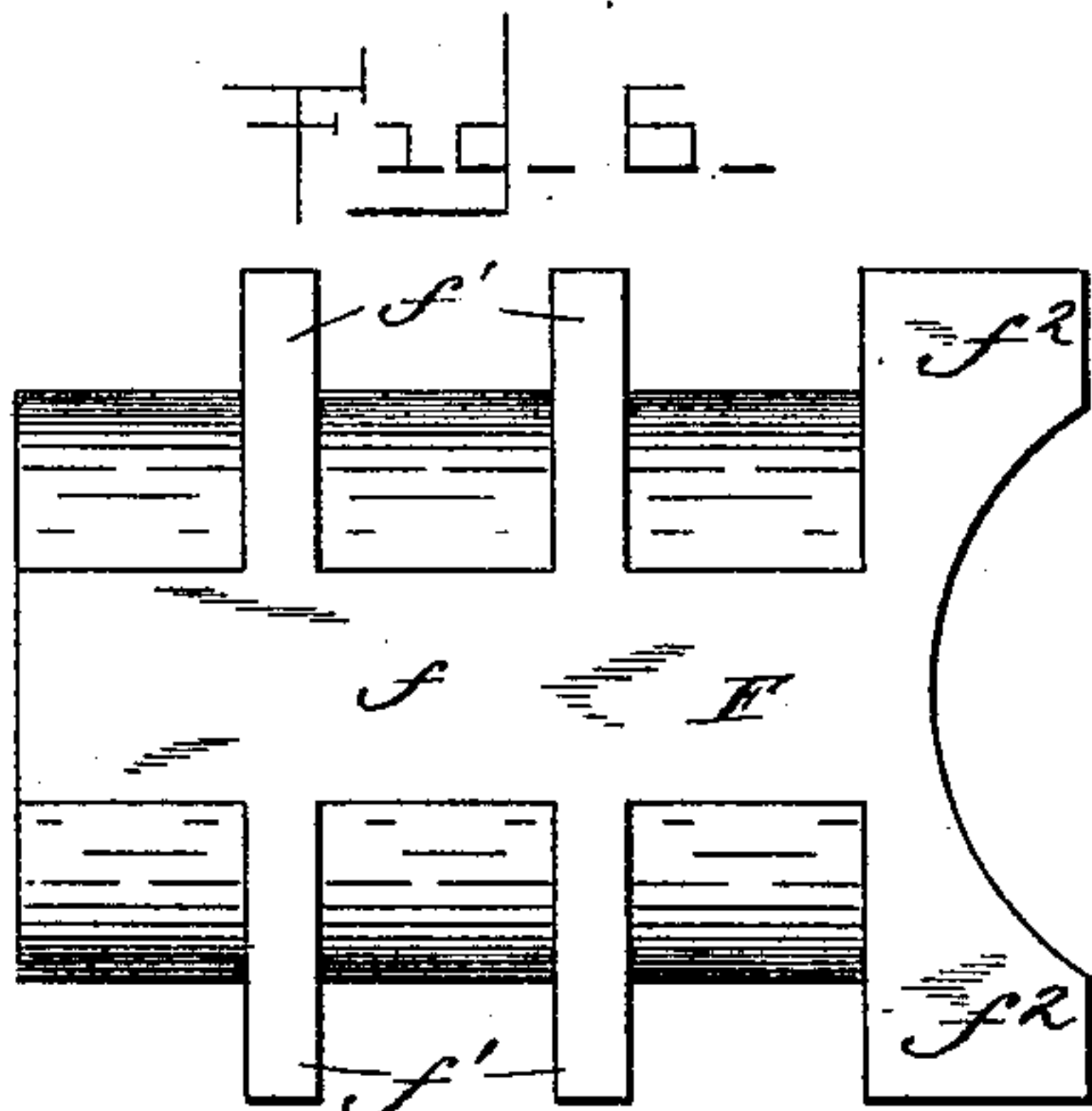
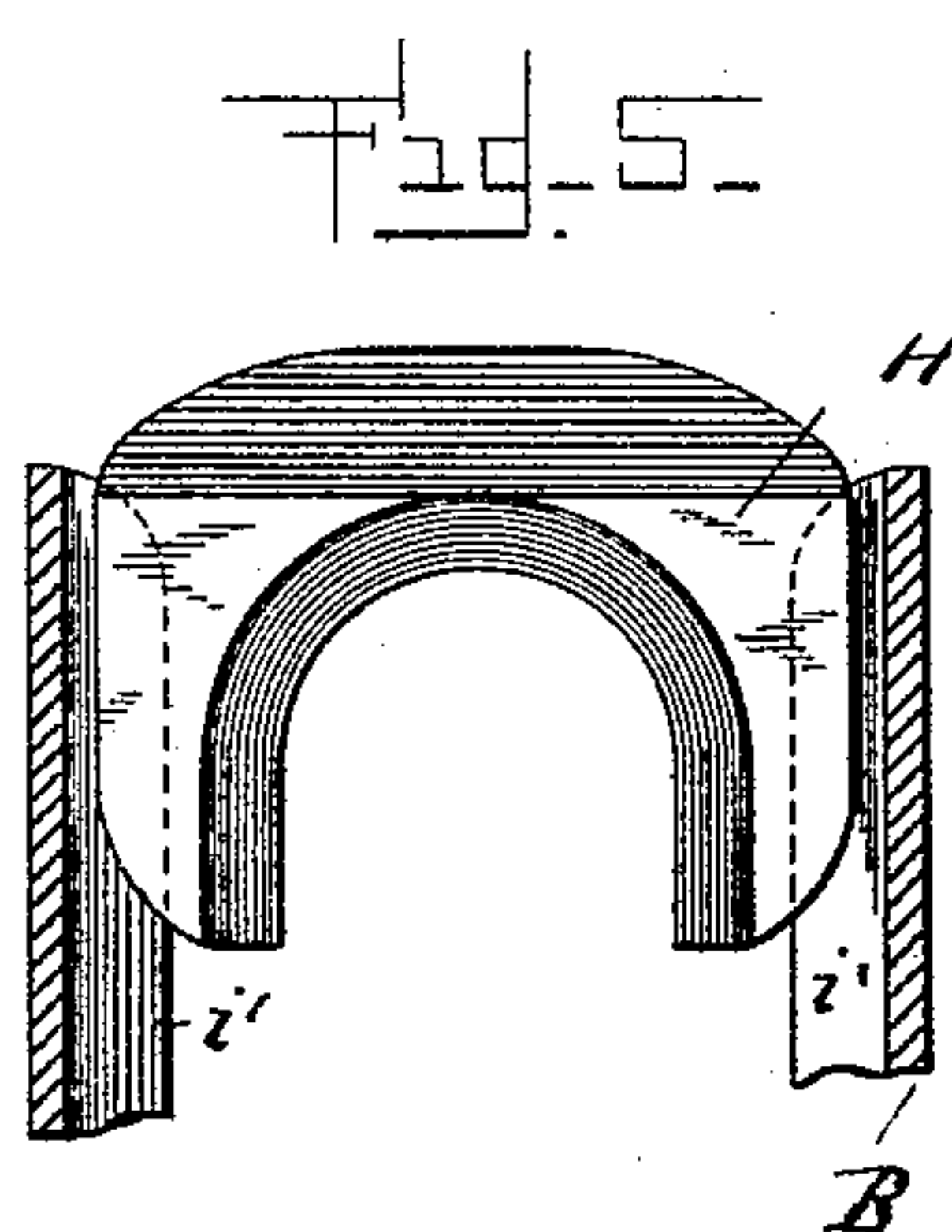
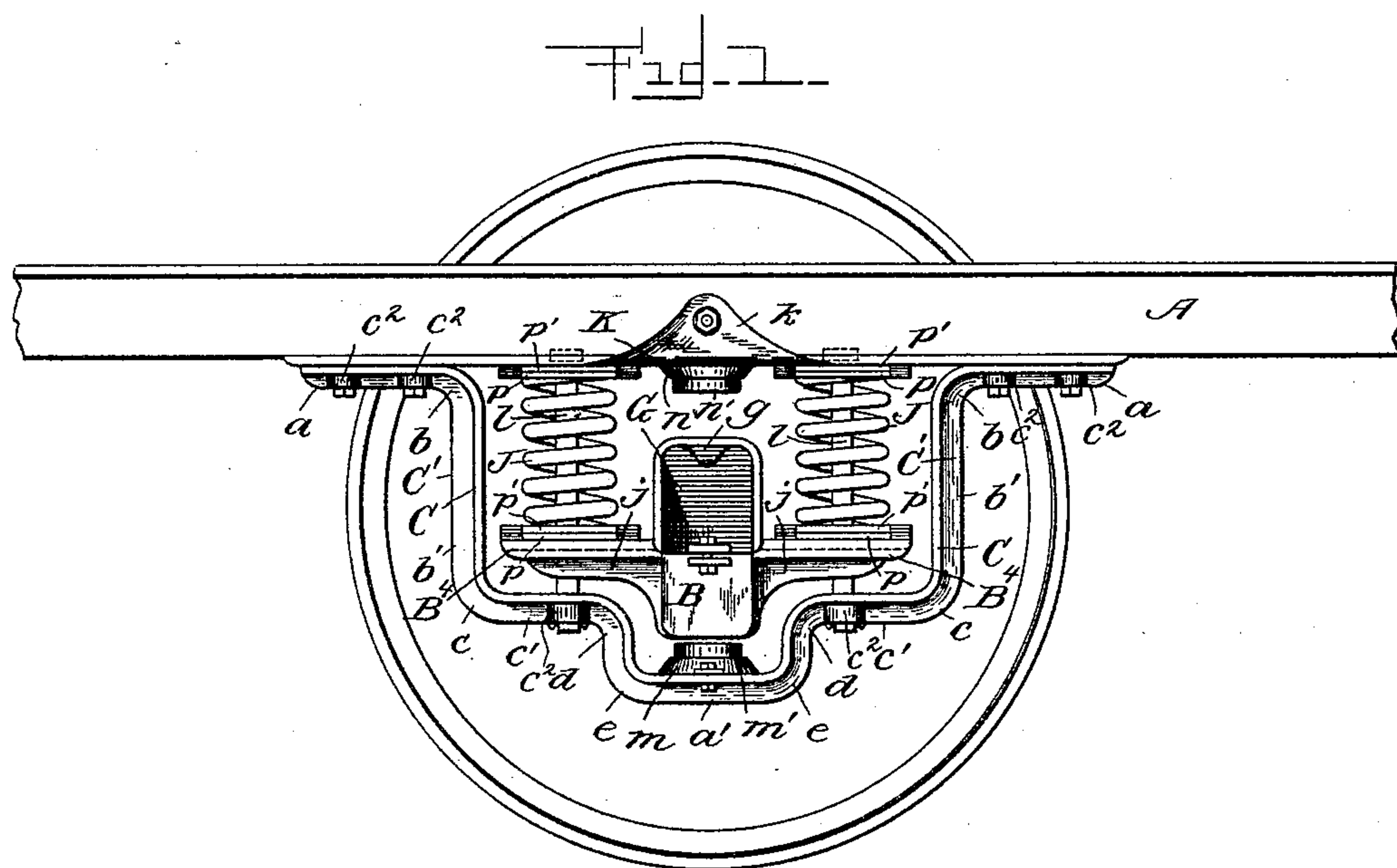
(No Model.)

2 Sheets—Sheet 1.

M. G. HUBBARD.
CAR TRUCK.

No. 500,129.

Patented June 27, 1893.



Witnesses =

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T. A. Lay Jr.
R. J. Bone Jr.

Inventor=

Moses G. Hubbard,
By A. L. Smith Hon
Atty.

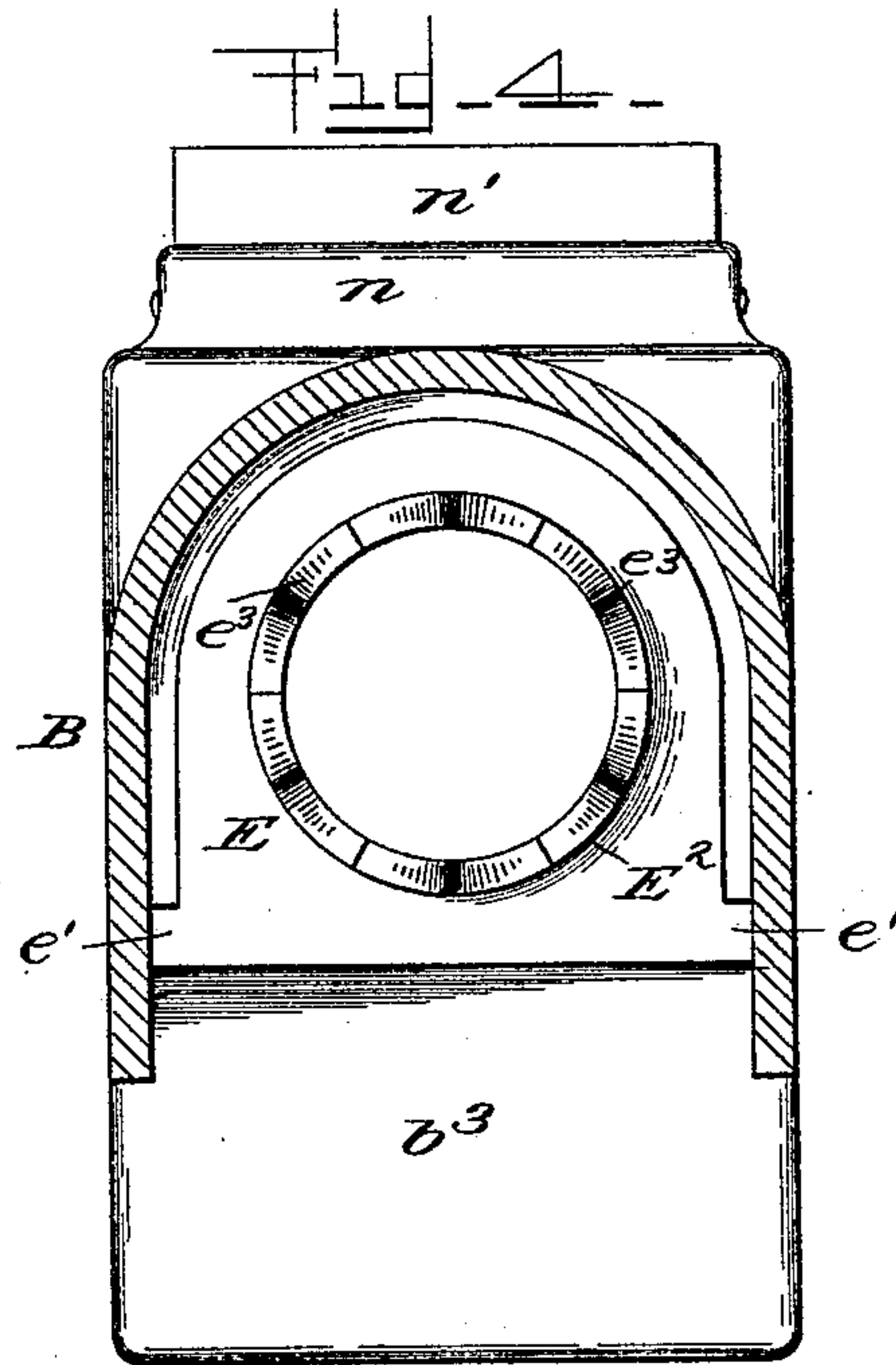
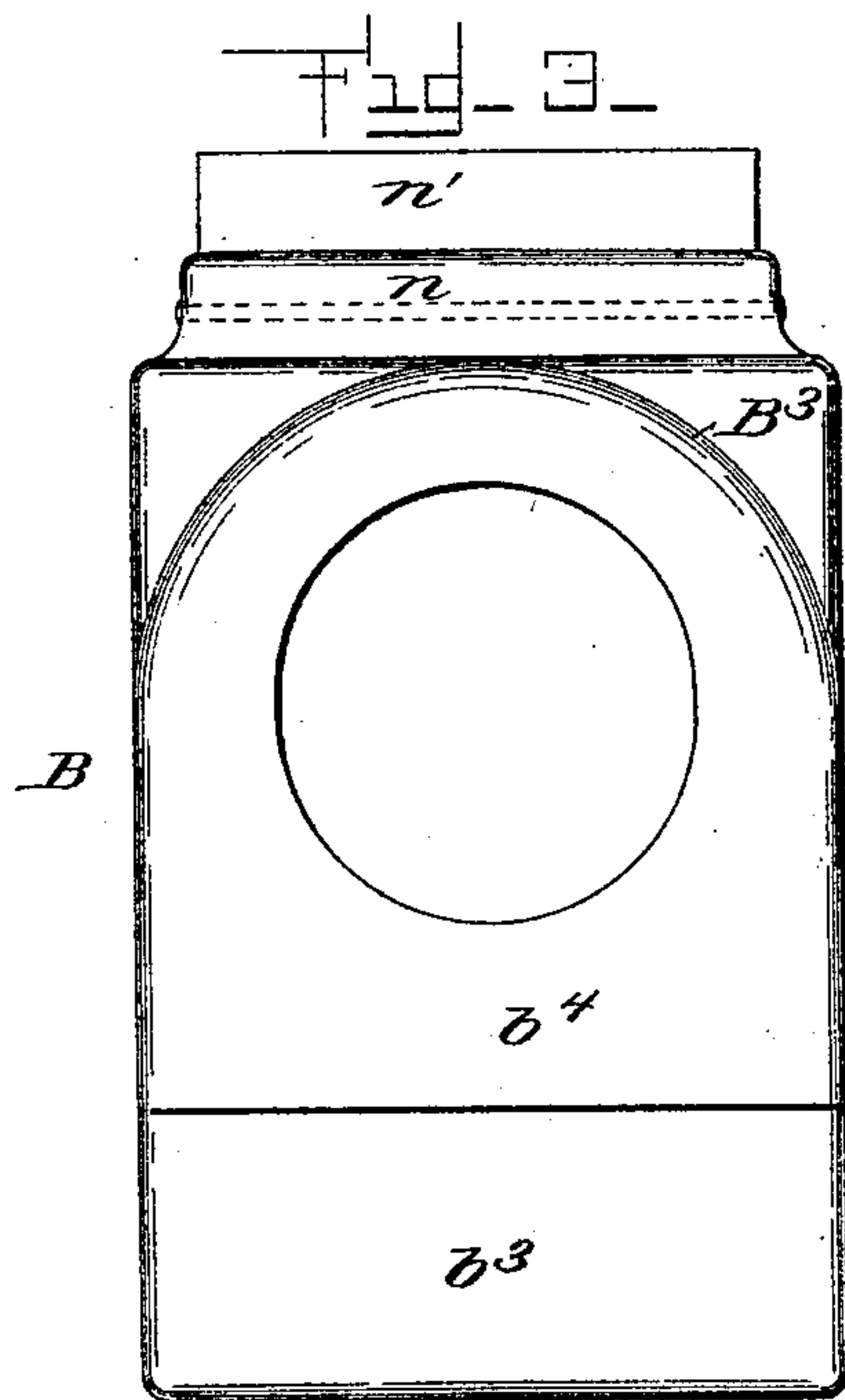
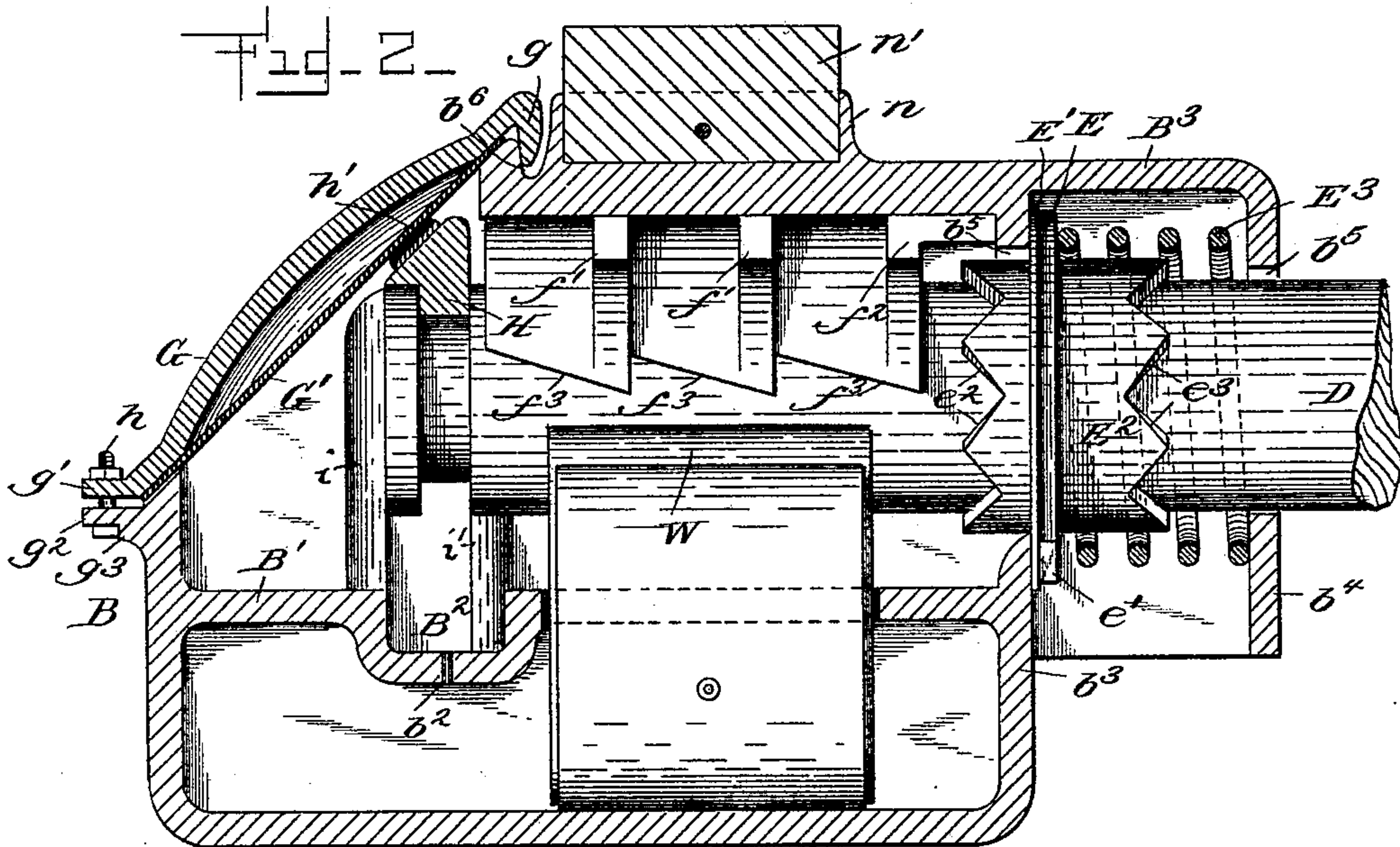
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2 Sheets—Sheet 2.

M. G. HUBBARD.
CAR TRUCK.

No. 500,129.

Patented June 27, 1893.



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 R. J. Benge Jr.

Inventor=

Moses G. Hubbard,
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UNITED STATES PATENT OFFICE.

MOSES G. HUBBARD, OF CHICAGO, ILLINOIS.

CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 500,129, dated June 27, 1893.

Application filed September 27, 1892. Serial No. 447,041. (No model.)

To all whom it may concern:

Be it known that I, MOSES G. HUBBARD, a citizen of the United States, and a resident of Chicago, county of Cook, and State of Illinois, 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 relates to the construction of the pedestal and the axle journal box, and to the appliances connected with the journal box for controlling the supply of oil to the journal, preventing its escape and waste, and access of dust or other foreign matter, and, to certain details of construction and arrangement of parts, as hereinafter described and claimed, the object being to attach the journal box and springs in an improved manner and to keep the journals thoroughly well oiled, exclude dust and avoid heating and to prevent rattling of the parts. It is especially designed for use on cars and will be understood from the following description, reference being had to the accompanying drawings, in which—

Figure 1, is a side view of a portion of a car body or truck, showing the pedestal, journal box, &c., in side elevation. Fig. 2 is a vertical, transverse section through the journal box. Fig. 3, is an inner end view of the box and Fig. 4, a vertical section near said end, showing the "quiescent" washer in side elevation, and Figs. 5, 6, 7 and 8, are detail views of the end-thrust key and journal bearing plate, hereinafter referred to.

A indicates one of the car or truck side sills, B the journal box and C the pedestal for the support of said box. The pedestals are made in the open, pendent-loop form, shown in Fig. 1; that is to say, the open, upper end, has outwardly turned arms or feet a , a , through which the pedestal is bolted to the sill, said feet being connected by curves at b , b , with pendent vertical portions, b' , b' extending to curves c , c , and thence inward toward each other, horizontally at c' , c' , to down curves d , d ; they are again bent inward at e , e , and united by a straight horizontal portion a' , forming the bottom of the loop. The loop, thus formed has a wide, central, stiffen-

ing rib C extending its entire length on its outer surface, provided with bosses c^2 , for the bolts which unite it to the car or truck sill, as shown. By the construction described, a strong pedestal is obtained without unnecessary weight of metal, and well adapted to the purposes for which it is designed.

It is important that the side thrust check bolt should be conveniently removable to detach the journal box—and equally important that it should be safely locked in such manner that it will not unscrew or work loose in service. Therefore I construct it with a square head and screw it up into a nut resting in a suitable socket on the upper side of the upper plate, or I form a suitable boss on the said plate and tap the hole through it to fit the screw on the upper end of said check-bolt and screw the said bolt up into it. Or the said bolt may be passed down through the said upper plate and through the lower end of the pedestal and a square nut thereon under the pedestal. To make a safe arrangement in either of these attachments, I form on the under side of the pedestal, a small beveled shoulder or rib, on one or more sides of the head or nut, and as the head or nut is screwed into position it snaps down past the said beveled shoulder or rib, and is held there by the slightly elastic downward pressure of the pedestal. The bevel of the said shoulder or rib is necessary to permit the head or nut to be turned backward to remove the said side thrust check bolt when it is desired to detach the journal box or pedestal.

The journal box, indicated at B, is made in the form substantially as shown in Figs. 2, 3 and 4, having an upper, or journal compartment, an oil reservoir beneath said compartment and an inner end extension in the form of a hood, at B^3 , the flooring partition B' separating the journal compartment from the oil reservoir, being provided with a small trough B^2 , having a perforation b^2 , through which any surplus of oil passes to the oil chamber below. The journal compartment and oil receptacle terminate at their inner end, in a vertical wall b^3 , perforated to admit the end of the journal and a pendent wall b^4 , at the inner end of the hood extension is also perforated, for a like purpose, the per-

forations being slightly elongated above the axle as shown at b^5 , to allow for wear of the bearing plate.

Within the hood portion B^3 , is arranged what I term a "quiescent" washer E , which is held pressed snugly against the wall b^3 , or an interposed leather washer E' , by a coiled spring E^3 , surrounding the axle D . The washer E , is made preferably to conform to the shape of the hood B^3 , arching on top and standing, with its top and vertical sides removed slightly from the hood, the sides near the bottom having projecting lips $e' e'$, which rest in contact with the sides of the hood and hold the washer quiescent.

The washer is provided with a hub or sleeve E^2 , conforming in internal diameter to the diameter of the journal, and projecting on both sides of the washer plate. The ends of the sleeve or hub are scalloped or notched, forming curves, or double inclines, e^2 or e^3 , which serve to wipe the shaft and crowd the oil on the one side, outward toward the end of the journal and preventing its escape; and on the other side pushing foreign matter inward, away from the washer and journal. The hood B^3 , being open at the bottom, dust and other foreign matter wiped off by the inclines e^3 , will be free to drop out to the ground.

F , Figs. 6 and 7, indicates the journal bearing plate, conforming on its lower, concave face to the journal resting therein. The upper surface of these bearing plates may be made flat, but to save unnecessary weight of material, are made preferably arching, in form, with a flat upper surface at f and wing extensions thereof at f' , f^2 , as shown, the part f^2 overlying the washer sleeve, being cut away on its rear edge as shown for like purpose. The lower edges of this plate are formed with a series of inclines f^3 , sloping upward outwardly and serving like the inclines on the washer E , to wipe the oil outward on the shaft, toward the end-thrust key. By the construction of the bearing plate and box, as described, the wedge-plate ordinarily used over the journal bearing plate can be dispensed with.

The outer ends of the side walls of the journal box proper are cut away on an incline to receive an arched cap plate G , having on its upper end a cam-shaped hook or lip g , which engages a notch or rib b^6 , on the outer end of the upper wall or roof of the box. The lower end of this cap plate has a perforated ear, g' , formed on it, through which and corresponding ear g^2 , on the outer end of the box, a bolt h , is passed for securing the lower end of the cap plate. The lug g^2 , has a shoulder g^3 , formed on one side of the bolt-hole, against which one side of the bolt-head rests, the bolt being thereby prevented from turning. The nut is screwed down on the upper end of the bolt and is prevented from backing off or becoming loose by its own gravity. The cap plate is made

concave on its inner face, over the end of the axle, and faced with a thin packing sheet G' , which may press on the end-thrust key H and act to hold it in place and prevent it from rattling, but, preferably a small spring h' is applied to the inner face of the cap plate for this purpose. The shape of this end-thrust key is shown in Figs. 5 and 8. At its outer edge, on its sides it is made in thickness to conform to the distance between parallel flanges i, i' , on the side walls of the box, with which it engages, its fork engaging the groove in the axle being of a thickness conforming to said groove. This construction prevents end play of the journal and of the key in the box.

On the sides of the box are formed seats at B^4, B^4 , for the car springs J, J , resting thereon, as shown in Fig. 1. These seats are provided underneath, with stiffening ribs j , of the double-bracket form, shown, which give great rigidity and strength without unnecessary weight of material.

Spring seat cap-plates K , are secured by vertical ears k , to the car sills A , directly over the boxes, and between these and the box seats B^4 , springs J are secured, one or more on each side of the box, side thrust bolts l, l , passing through the plates K , and springs, through oblong holes in the spring seats B^4 , which allow a limited lateral movement of said seats and through the horizontal portions c', c' , of the pedestal, as shown. These bolts allow the box to rise and fall freely while leaving the weight of the car supported by the springs and serve at the same time to strengthen the pedestal and to guide and limit the movement of the journal box.

The pedestal is provided directly underneath the journal box with a socket at m , in which a rubber spring m' is secured to relieve jar or sudden concussion, and the spring cap plates K are in like manner provided, on their lower faces, with sockets n , containing projecting springs n' . These springs may, if desired, be secured to the lower and upper faces of the journal box, with the same result of relieving the car from sudden concussion.

The partition flooring between the journal box and oil compartments, is perforated to receive a wick W applied to convey oil to the journal in the usual manner.

Rocker plates p, p' , are interposed at the ends of the springs J, J , between the spring seats B^4 and the springs, and also between the springs and cap plates K , similar in construction to those described in my patent dated January 5, 1892, numbered 466,349.

From the foregoing description it will be seen that when the car is moving in either direction, the oil will be conveyed up to the journal by the wick conductor, and by the operation of the inclines on the lower edges of the journal bearing, all of the oil which is not carried under the journal bearing will be pushed along toward the outer end of the

journal and deposited on the end-thrust key to keep it thoroughly lubricated, so it will neither wear nor rattle; any surplus oil will drop down into the small trough under the said end-thrust key and pass through the oil hole at the center of said trough and thus keep up a constant circulation of oil while the car is in motion. This action of the inclines on the lower edges of the journal bearing also tends to keep all oil from working along the journal toward the inner end thereof and this arrangement, together with the quiescent washer pressed uniformly against the inner end of the journal box, and the cams or inclines on the end of the hub of said washer, projecting into the journal box, effectually prevent all escape of oil from the inner end of the journal box.

Having thus described my invention, I claim as new—

1. In a street car gear, the pedestal C, attached to the car body side sill A, then turned downward by the curves *b* and *b*, to the lower curves *c* and *c*, and extending thence horizontally to the curves *d* and *d*, downward to the curves *e* and *e*, and straight across, uniting said curves *e* and *e*, and thus forming a complete pedestal of proper form to inclose the journal box B and the springs C and C, supporting and holding them in proper position in relation to each other and to the car, substantially as described.

2. The pedestal formed with the wide stiffening rib along the outside thereof, and having the bosses formed thereon for the bolt holes where the pedestal is bolted to the car body sill and where the side thrust bolts pass up through the pedestal, substantially as described.

3. In a street car gear, the journal box B having spring seats cast on its sides and extending out laterally therefrom to support the car springs, and formed with the rockers on their upper faces, the double brackets or braces located under the said spring seats to give them vertical strength and permit the oblong hole through the spring seat to allow it to vibrate laterally, in combination with the side thrust check bolts, substantially as described.

4. The combination with the journal box and the car supporting springs, of a rubber concussion spring secured directly over the journal box, and a similar concussion spring secured directly under the journal box, whereby all violent vertical movements of the car wheel or car are cushioned in both directions and the supporting springs are relieved from excessive strains in both directions, substantially as described.

5. The combination of the side thrust, check bolts, extending up through oblong holes in the spring seats with the car springs and rocker caps, whereby a limited lateral movement of the car wheel is attained, substantially as described.

6. The combination of the rigidly attached pedestal with the rockers, whereby lateral concussions against the pedestal are prevented or diminished, substantially as described.

7. In a journal box for a car gear, the combination with the hood at the inner end thereof, of the quiescent washer, spring and cam edged hub, for keeping dirt, &c., out from the inner end of the journal box, substantially as described.

8. The quiescent washer having the cam-edged hub projecting from each side thereof, the one on the outside for keeping dirt out of the journal box and the one on the inside, for keeping the oil in the journal box, substantially as described.

9. The rear wall of the covered hood forming a secondary inner end of the journal box against which the spring can press in forcing the quiescent washer against the inner end of the journal box in combination with the spring and washer to make the joint oil-tight, substantially as described.

10. The non-revoluble washer, held in position, circumferentially, by its square lower end and the sides of the hood substantially as and for the purposes described.

11. A journal box having a secondary bottom to form an oil receptacle under the journal, in combination with the trough located directly under the end thrust key and having an oil hole leading therefrom down into the oil receptacle, substantially as described.

12. The wick oil conductor for conveying the oil up to the journal in combination with the cam edges or inclines on the lower edges of the journal bearings, substantially as described.

13. The combination of the inclines on the lower edges of the journal bearing with the cams or inclines on the inner end of the hub of the quiescent washer, whereby the oil is forced away from the said washer, substantially as described.

14. The combination of the inner end of the journal box, the inner end of the covered hood, the journal, the quiescent or non-revoluble washer and the spring for pressing the same against the journal box, the hub having cams or inclines on either or both of its ends and the open bottom of the said covered hood, substantially as and for the purposes described.

15. The covered hood on the inner end of the journal box having an open bottom in combination with the quiescent non-revoluble washer and spring pressing between the journal box and the inner end of said covered hood, substantially as described.

16. The outer journal box cap having a cam-shaped hook on its upper end in combination with a journal box, having a cam-shaped rib on the upper outer end thereof, the bolt ear on the lower end of said cap and the corresponding ear on the end of the journal box, the vertical bolt passing up through the said ear the nut on its upper end and a square

head on its lower end, and the shoulder on the journal box near said bolt head to keep it from turning, substantially as described.

17. A journal box provided at its end with a quiescent washer formed with a cam-edged hub, in combination with a journal bearing having a wing projecting in the direction of and above the quiescent washer, for preventing the journal bearing from coming in contact with the cam-edged hub of said washer.

18. In a car journal box, the combination with the hood at the inner end thereof, of the quiescent washer, the spring and the cam edged hub projecting into the journal box, for confining the oil therein, substantially as and for the purpose described.

19. A journal box provided at its end with a quiescent washer formed with a cam edged

hub and a spring adapted to press the said washer against the journal box, substantially as described.

20. The combination of a pedestal which is slightly elastic vertically, a side thrust check bolt having a square head or nut on its lower end and the inclined shoulders or ribs formed on the lower side of the pedestal and adapted when the bolt or nut is screwed up tightly, to spring down and to lock the bolt or nut in position, substantially as described.

In testimony whereof I have hereunto set my hand this 30th day of August, A. D. 1892.

MOSES G. HUBBARD.

Witnesses:

REXFORD M. SMITH,
GEO. W. CLEMENT.