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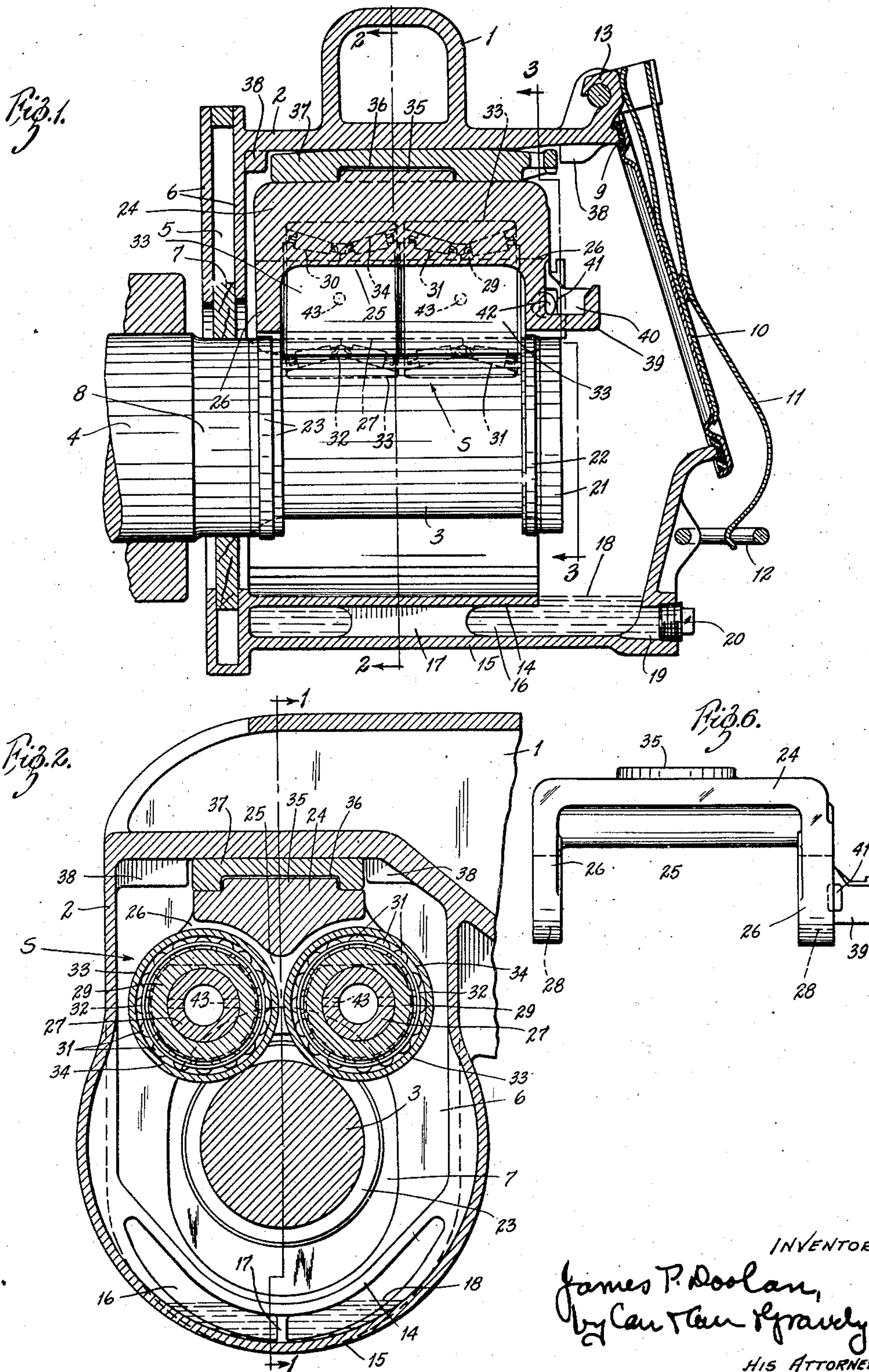
J. P. DOOLAN

2,267,680

JOURNAL BOX BEARING CONSTRUCTION

Filed Feb. 23, 1940

2 Sheets-Sheet 1





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Fig. 3.

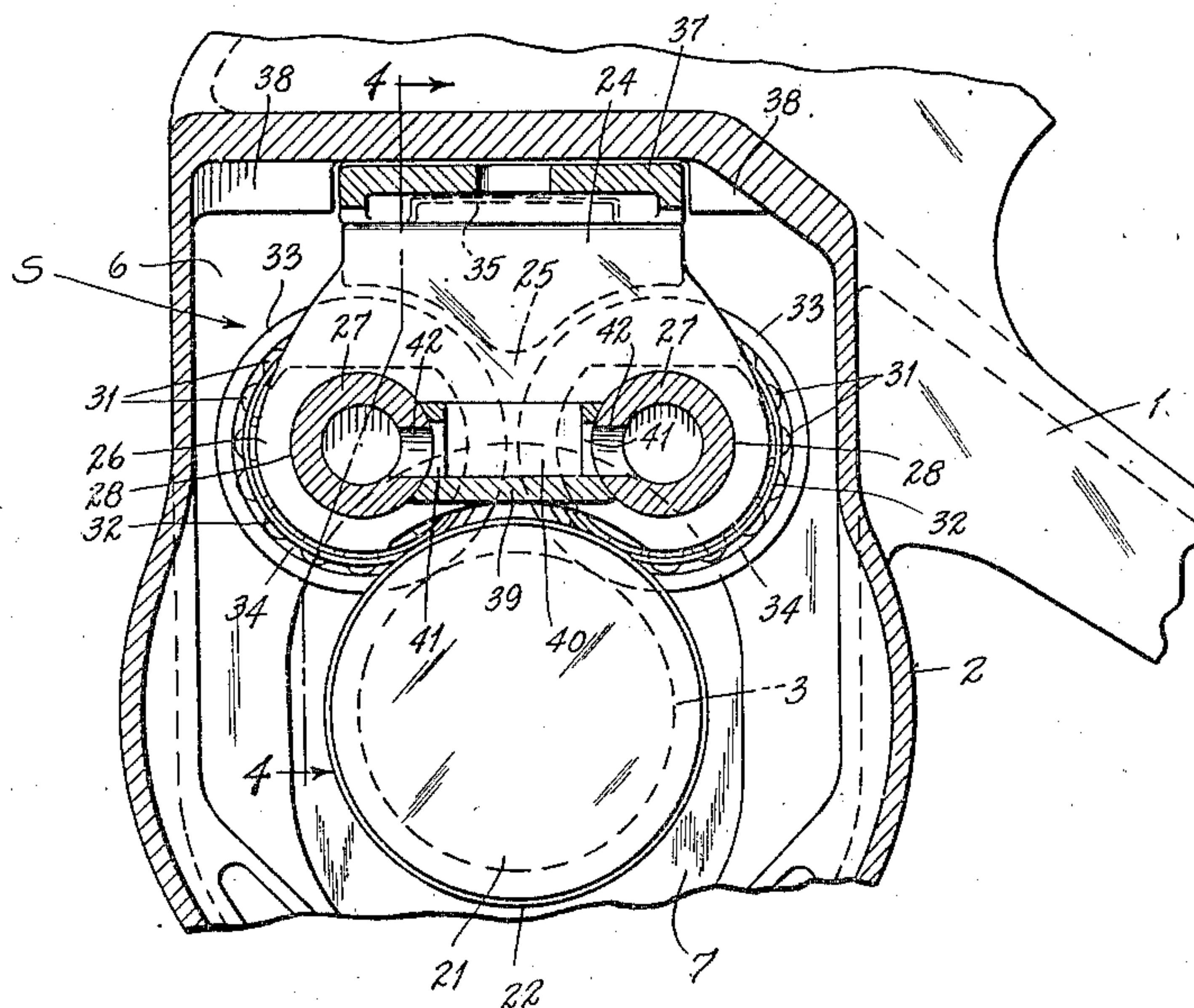


Fig. 5.

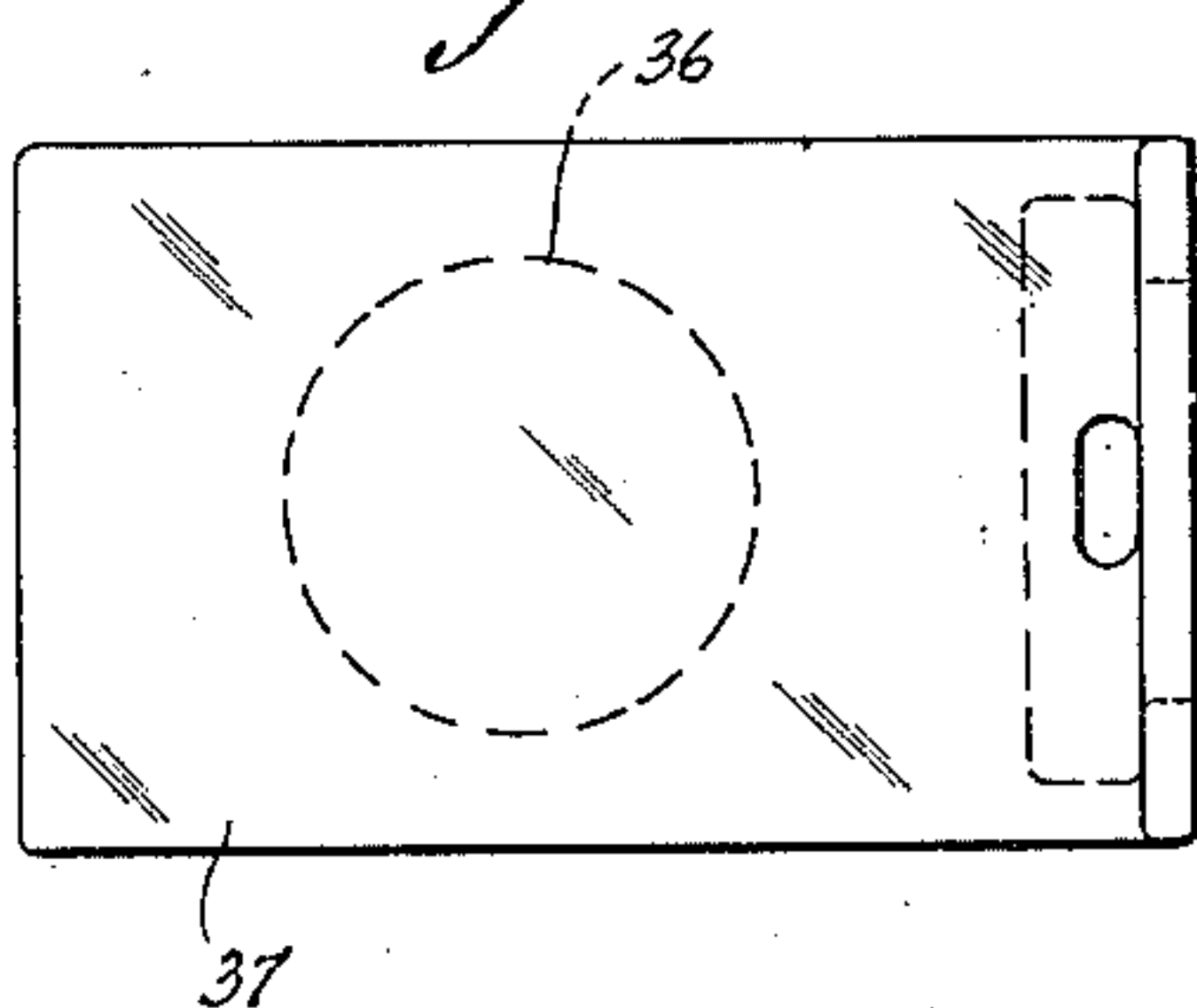


Fig. 7.

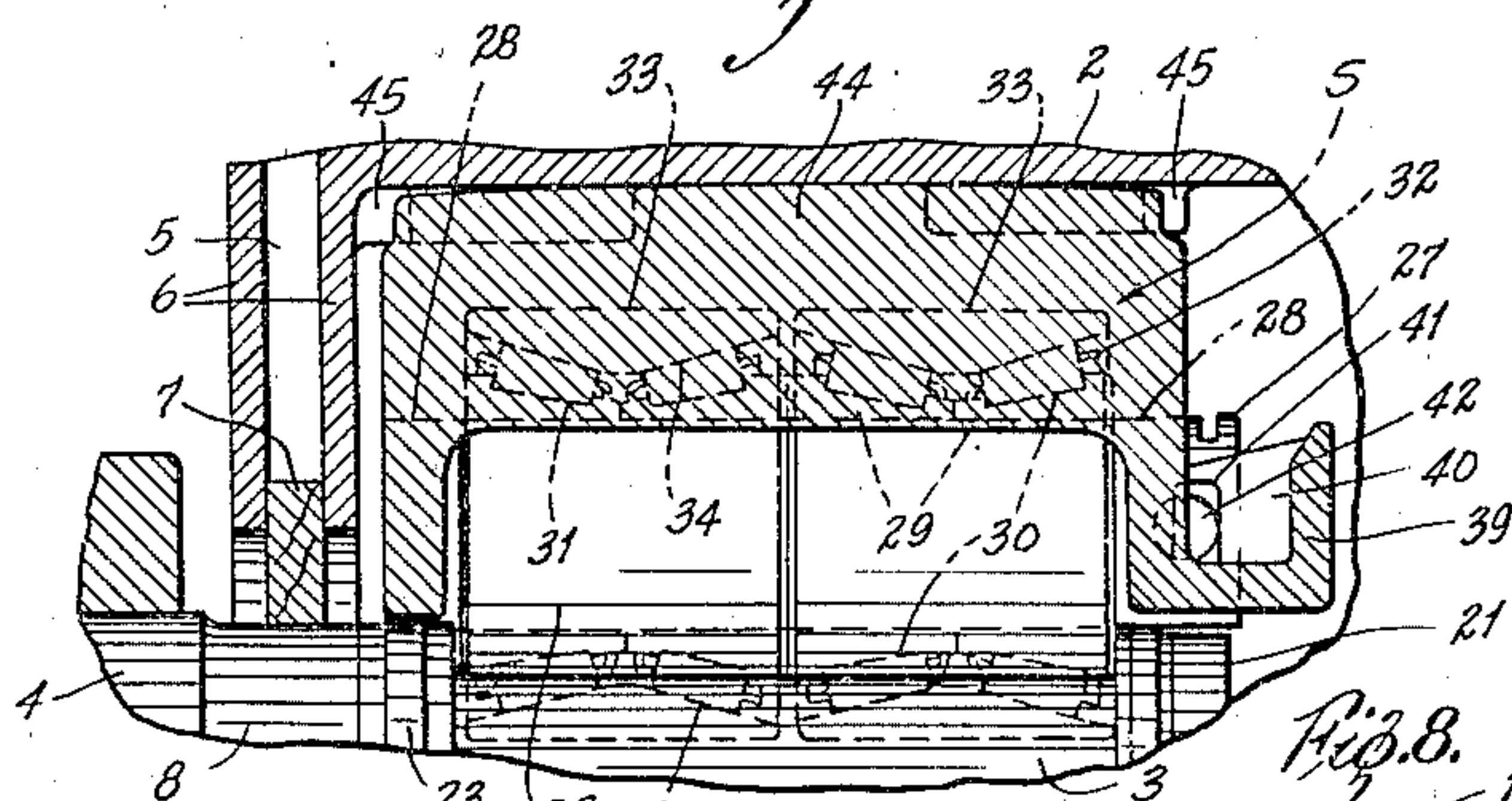


Fig. 4.

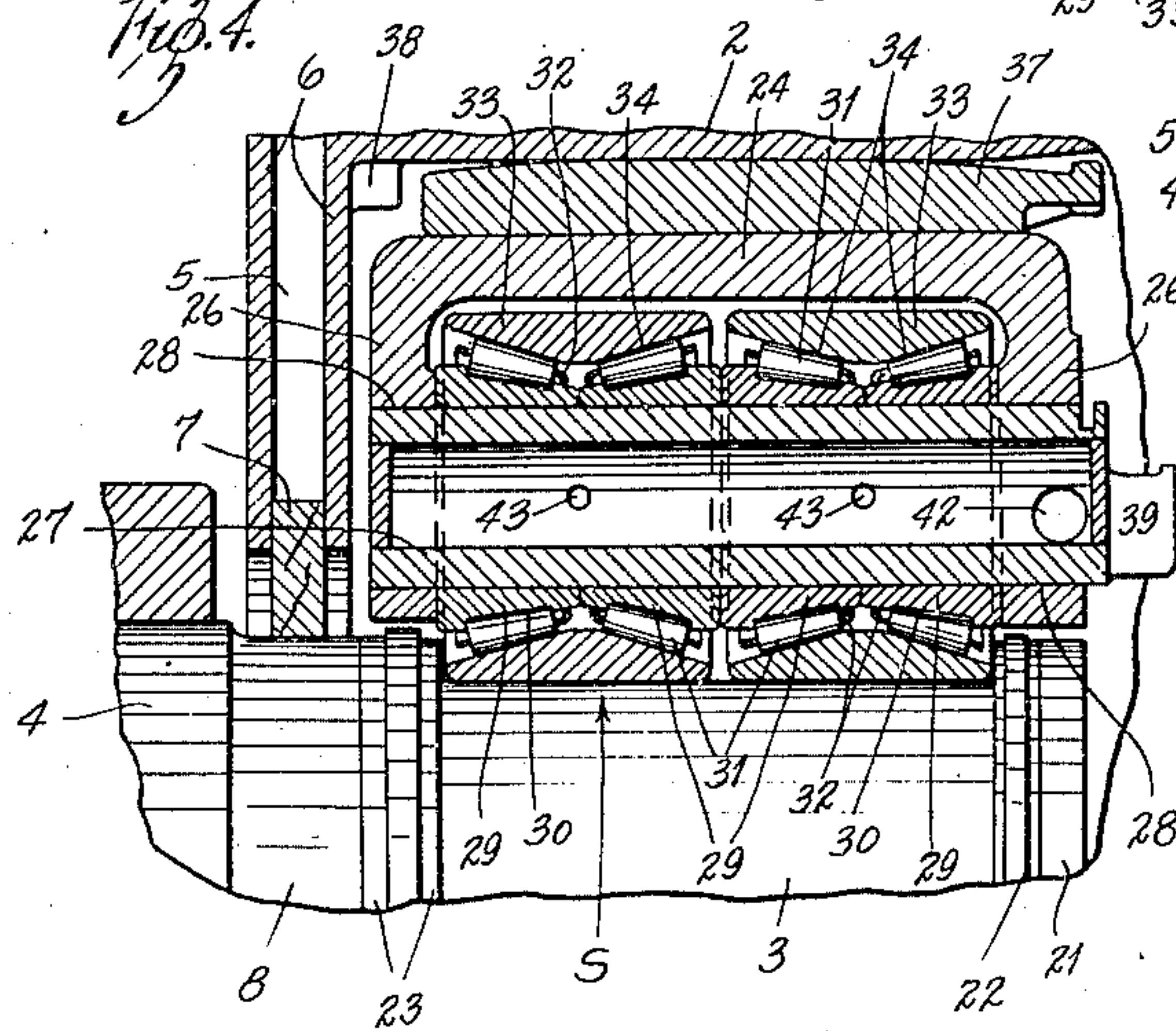
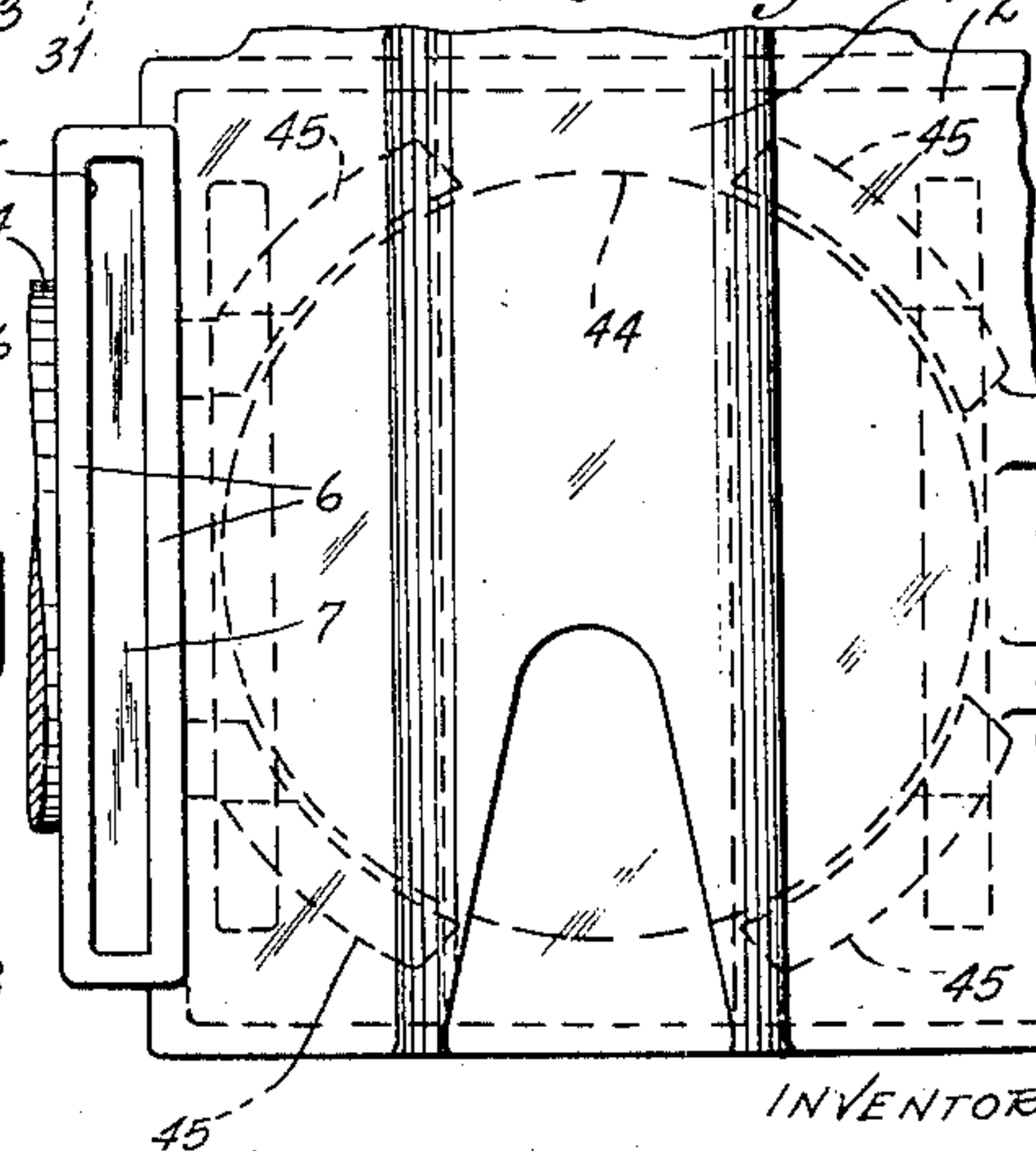


Fig. 8.



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## UNITED STATES PATENT OFFICE

2,267,680

## JOURNAL BOX BEARING CONSTRUCTION

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Application February 23, 1940, Serial No. 320,284

3 Claims. (Cl. 308—180)

My invention relates to railway car axle constructions. It has for its principal object to provide a simple and inexpensive journal box bearing construction wherein the bearing will properly adapt itself to the axle journal, and also to provide for uniform wear and increased life of the bearings. The invention consists principally in a journal box wedge having a circular recess in its underside and a bearing housing having a circular projection adapted to rest in the wedge recess, and in the parts and combinations and arrangements of parts hereinafter described and claimed.

Matter disclosed but not claimed in this application is covered by application for Lubricating device, Serial No. 320,285 filed February 23, 1940, and application for Journal box construction, Serial No. 320,283, filed February 23, 1940.

In the accompanying drawings wherein like reference numerals refer to like parts,

Fig. 1 is a longitudinal sectional view of a railway car axle construction embodying my invention, taken on line 1—1 in Fig. 2,

Fig. 2 is a view taken on line 2—2 in Fig. 1,

Fig. 3 is a view taken on line 3—3 in Fig. 1,

Fig. 4 is a view taken on line 4—4 in Fig. 3,

Fig. 5 is a plan view of the wedge,

Fig. 6 is a side view of the bearing housing,

Fig. 7 is a longitudinal sectional view of a modification of my invention; and

Fig. 8 is a plan view of the modification of my invention.

In the construction illustrated in the drawings, a railway truck car side frame 1 has a depending journal box 2 which is integral therewith. Projecting into the journal box through an opening in the inner side thereof is the reduced end or journal portion 3 of an axle 4. The drawings show one end portion only of one axle and its associated journal box, it being understood that each end of each axle of the railway car conforms to the construction shown in the drawings.

The inner end of said journal box is double walled having a space 5 between the walls 6 adapted to hold a suitable closure member 7 for sealing the axle 4. The upper portion of the inner end between the walls 6 is open whereby the closure member may be inserted. The closure member seats upon the axle adjacent to a shoulder 8 of said axle.

The outer end of the top portion of the journal box is provided with an opening 9 and with a closure cap 10 therefor, said closure cap being secured in position by means of a clamp spring

member 11 whose lower end is held by a loop 12 secured to the lower journal box portion. The top of the journal box is provided at its outer end with a lug 13 of the kind commonly used for hingedly securing present standard closure caps to the journal box; so that hinged caps of the present type may be used if desired. Said lugs support the upper end of the closure cap as shown in the drawings. Obviously, any suitable means may be used for closing the opening.

The lower portion of the journal box is provided with a false or secondary bottom 14 spaced from the real bottom 15 of said journal box to form a chamber 16 therebetween. This false or secondary bottom extends upwardly on either side of the journal a short distance where it merges into the sides of the journal box to form a semi-circular chamber. The false or secondary bottom is preferably integral with the sides and inner end of the journal box and a longitudinally extending stiffening rib 17 extends from the real bottom 15 to the false bottom 14. The false or secondary bottom extends from the inner wall of the journal box toward the outer, but a space is left between the end of the false bottom and the outer wall. Normally, the oil 18 in the journal box extends to a level even with the upper surface of the false bottom and the chamber between the false and real bottoms forms a sump for the oil. The lower portion of the outermost end of the journal box has an opening 19 extending therethrough whose outer end is threaded. A threaded plug 20 is screwed in the opening to retain the oil in the bottom of the journal box.

The reduced end 3 of the axle projecting into the journal box has preferably an enlarged end portion 21 but if desirable a stop ring or plate may be used. A spacing ring 22 is mounted on the axle adjacent to the enlarged end portion and spacing rings 23 are positioned on the axle abutting against the axle shoulder 8 adjacent to the inner end of the journal box.

Between the journal portion 3 of the axle and the journal box is the bearing, indicated generally by S. In the construction illustrated, a trunnion bearing mounting is shown having a bearing housing or yoke 24 with a central recess 25 and downwardly extending end portions 26. Bearing tubes 27 extend longitudinally across the housing and the ends thereof are mounted in annular openings 28 in the downwardly extending end portions 26 of said housing. These tubes are closed at each end.

Mounted on the bearing tubes are anti-friction



bearings of the tapered roller type. In the construction illustrated, there are four bearing cones or inner raceway members 29 mounted on each bearing tube. The small end of each cone abuts against the small end of an adjacent cone. Each cone has a raceway portion 30 and a series of conical rollers 31 are mounted thereon. Suitable cages 32 are provided for the conical rollers. Two double cups 33 having bore portions tapering toward the middle to constitute conical raceways 34 are provided for the rollers. These cups bear against the journal portion of the axle.

The top surface of the bearing housing or yoke 24 has an upstanding circular boss or projection 35 adapted to extend into a circular recess 36 in a wedge 37 interposed between the top of the journal box and the bearing housing. The upper side of this wedge adjacent to the top of the journal box is higher in its central portion than at the edges thereof. Suitable lugs or projections 38 extending downwardly from the top of the journal box are adapted to retain the wedge properly in position.

Preferably integral with the outer end of the bearing housing or yoke and overhanging the end of the axle is an oil reservoir 39 having a central recess 40 adapted to receive oil. Passageways 41 in the end of the bearing housing lead from the oil reservoir 39 to openings 42 in the bearing tubes. Small passageways 43 in the bearing tubes are adapted to supply oil to the bearings.

Any suitable device may be used to supply oil to the reservoir.

The hereinbefore described car axle construction has many advantages. The swivel mounting for the bearing housing permits the bearings to adjust themselves to the axle journal and the bearing will not be affected by distortions of the frame. This wedge construction, therefore, insures uniform wearing of the bearing and consequently it wears longer and performs better.

In the modification illustrated in Figs. 7 and 8, the construction is, in general, similar to that described above. However, there is no wedge member and the bearing housing does not have the projection on the top thereof. In this modification, the top of the bearing housing 44 is circular. Arcuate lugs 45 depending from the top of the

journal box and preferably integral therewith are adapted to hold the bearing housing in position and provide a swivel mounting which permits the bearings to adjust themselves to the axle journal.

Obviously, the construction hereinbefore described admits of considerable modification and I do not wish to be limited to the precise construction shown.

What I claim is:

1. A car axle construction comprising an axle, a journal box into which said axle extends, a trunnion bearing mounting having a bearing housing above said axle, bearing tubes mounted in said bearing housing, roller bearings mounted on said bearing tubes and running on said axle, said bearing housing having a circular projection on the upper surface thereof, and a wedge member interposed between said bearing housing and the top of said journal box, said wedge member having a recess corresponding to said projection.
2. A car axle construction comprising an axle, a journal box into which said axle extends, a trunnion bearing mounting having a bearing yoke above said axle, said yoke having depending end members, bearing tubes mounted in said end members, bearing cones mounted on said tubes, tapered rollers for said cones, and bearing cups for said rollers whose lower portions are adapted to run on said axle, said yoke having a circular projection on the upper surface thereof, and a wedge interposed between the top of said journal box and said yoke, said wedge having a recess corresponding to said projection.
3. A car axle construction comprising an axle, a journal box into which said axle extends, a trunnion bearing mounting having a bearing yoke above said axle, said yoke having depending end members, bearing tubes mounted in said end members, bearing cones mounted on said tubes, tapered rollers for said cones, and bearing cups for said rollers whose lower portions are adapted to run on said axle, said yoke having a circular projection on the upper surface thereof, and a wedge interposed between the top of said journal box and said yoke, said wedge having a recess corresponding to said projection, having its upper surface convexly curved endwise.

JAMES P. DOOLAN.