

No. 768,217

PATENTED AUG. 23, 1904.

R. L. ELLERY.
ROLLER BEARING.

APPLICATION FILED OCT. 28, 1903.

NO MODEL.

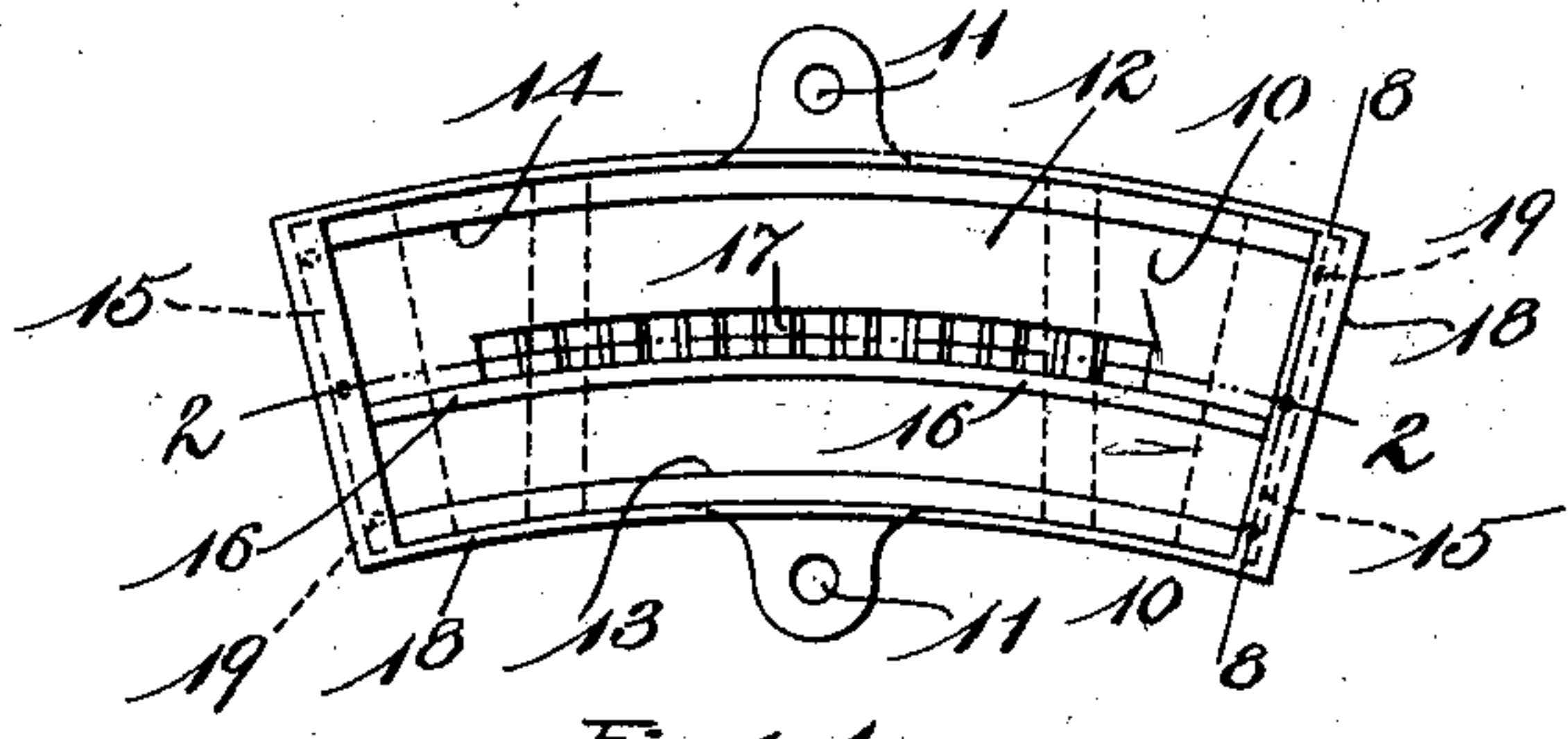


Fig-1-

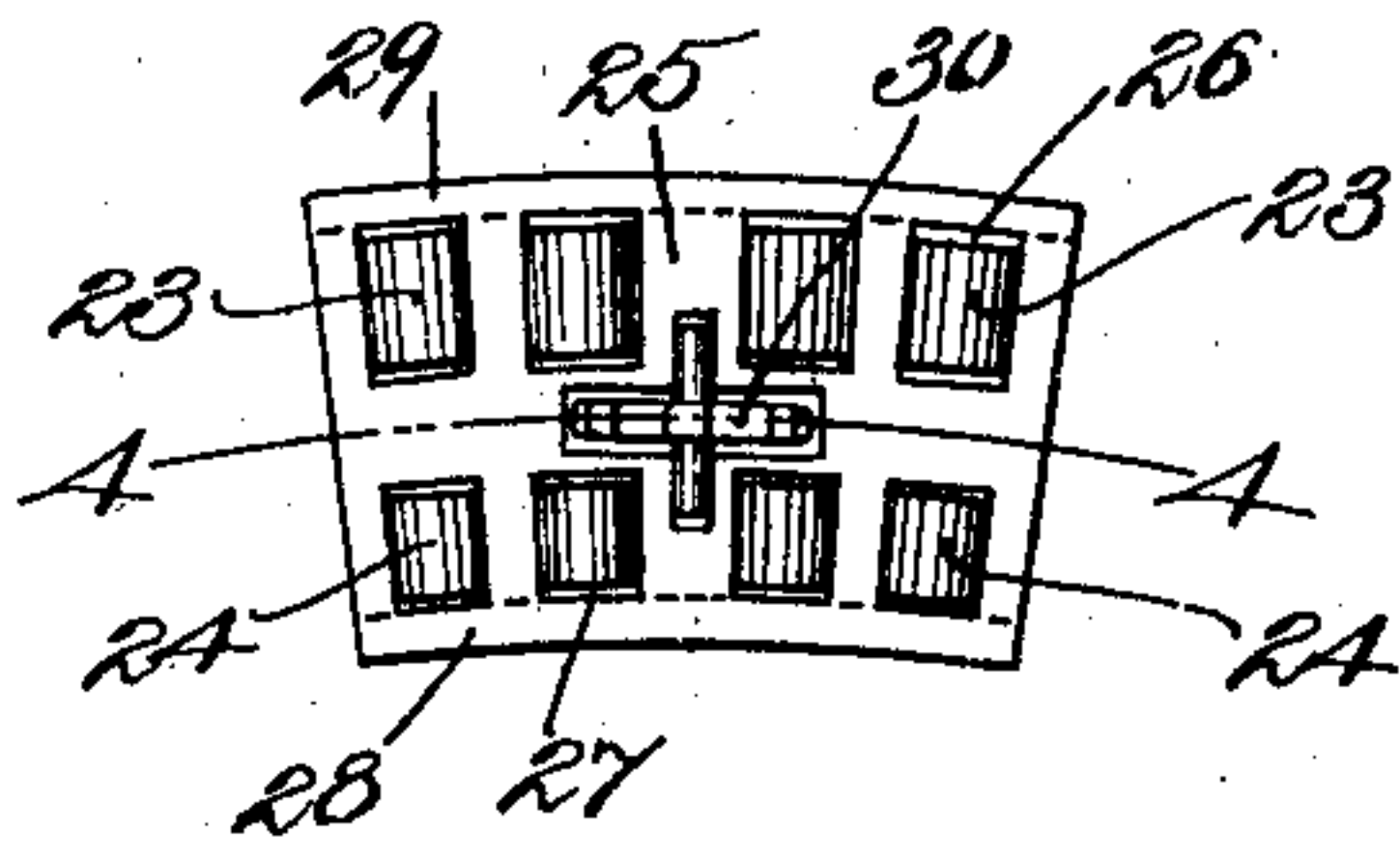


Fig-3-

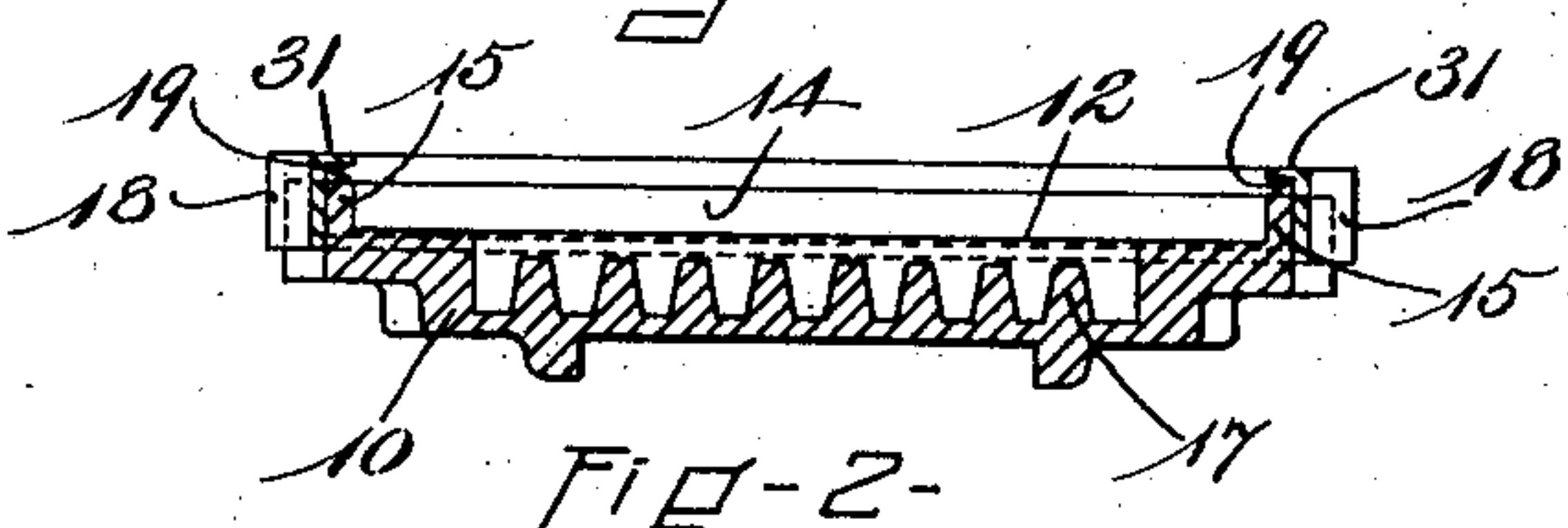


Fig-2-

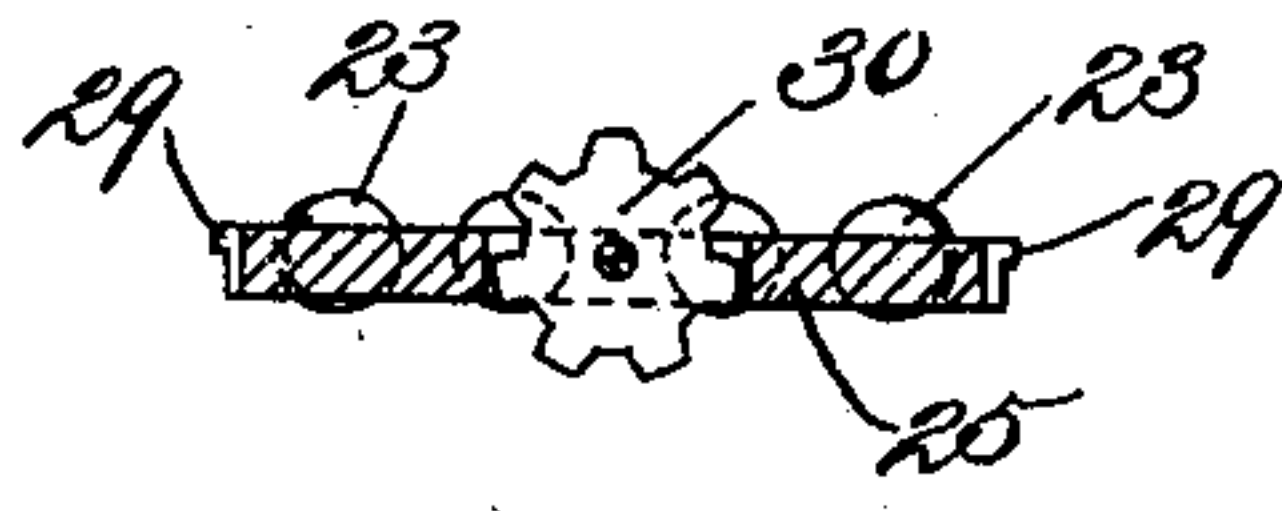


Fig-4-

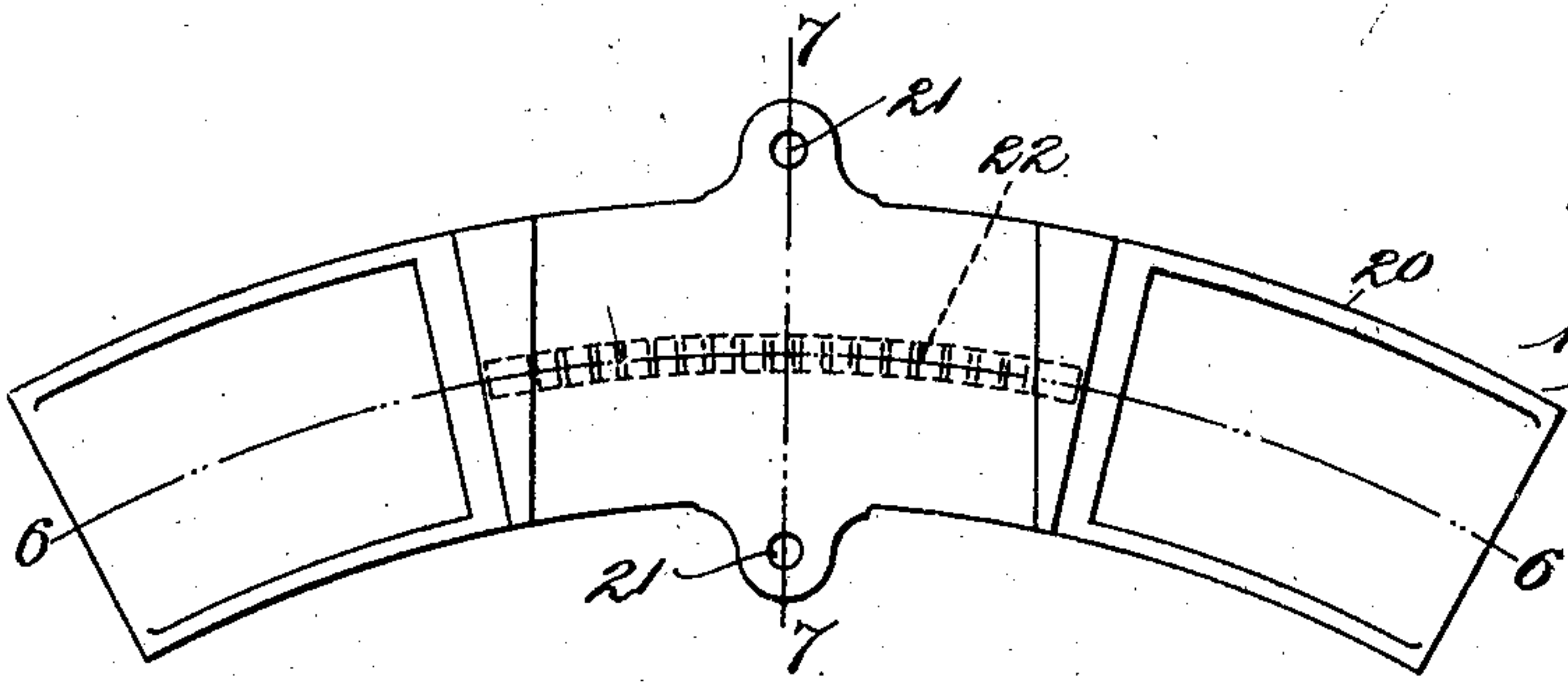


Fig-5-

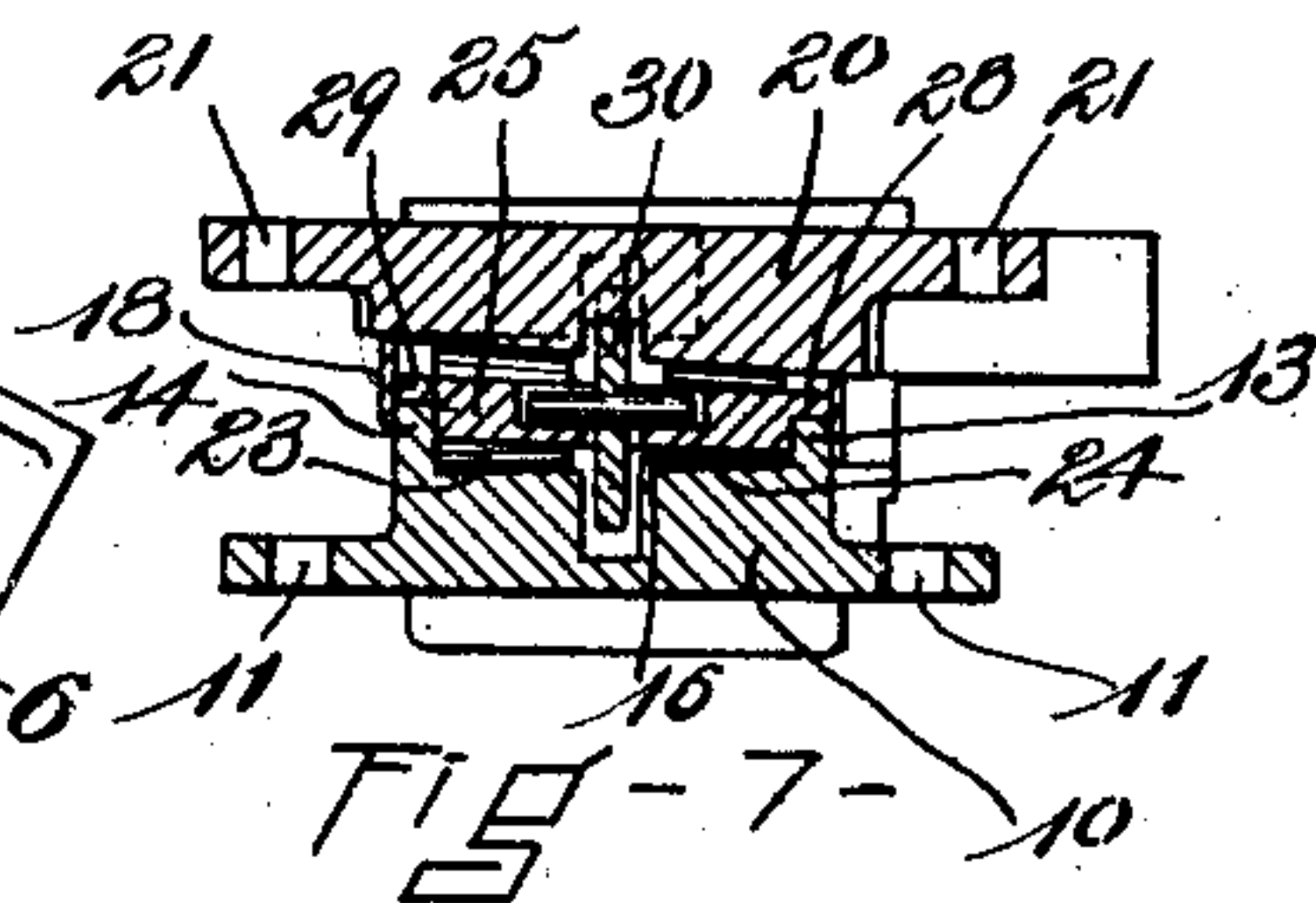


Fig-7-

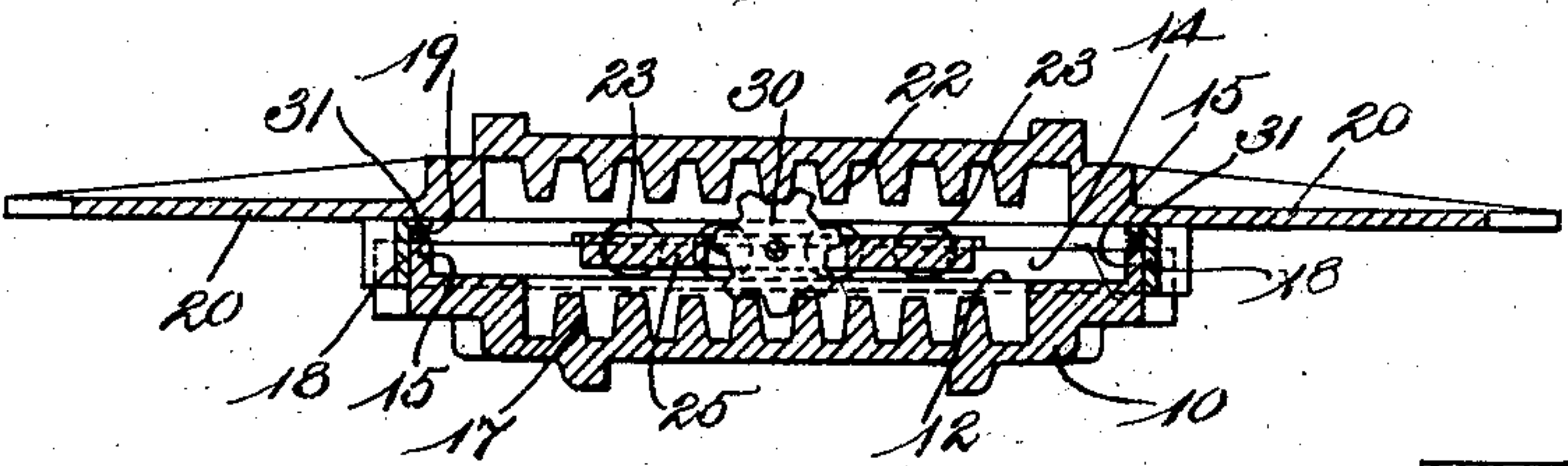


Fig-6-

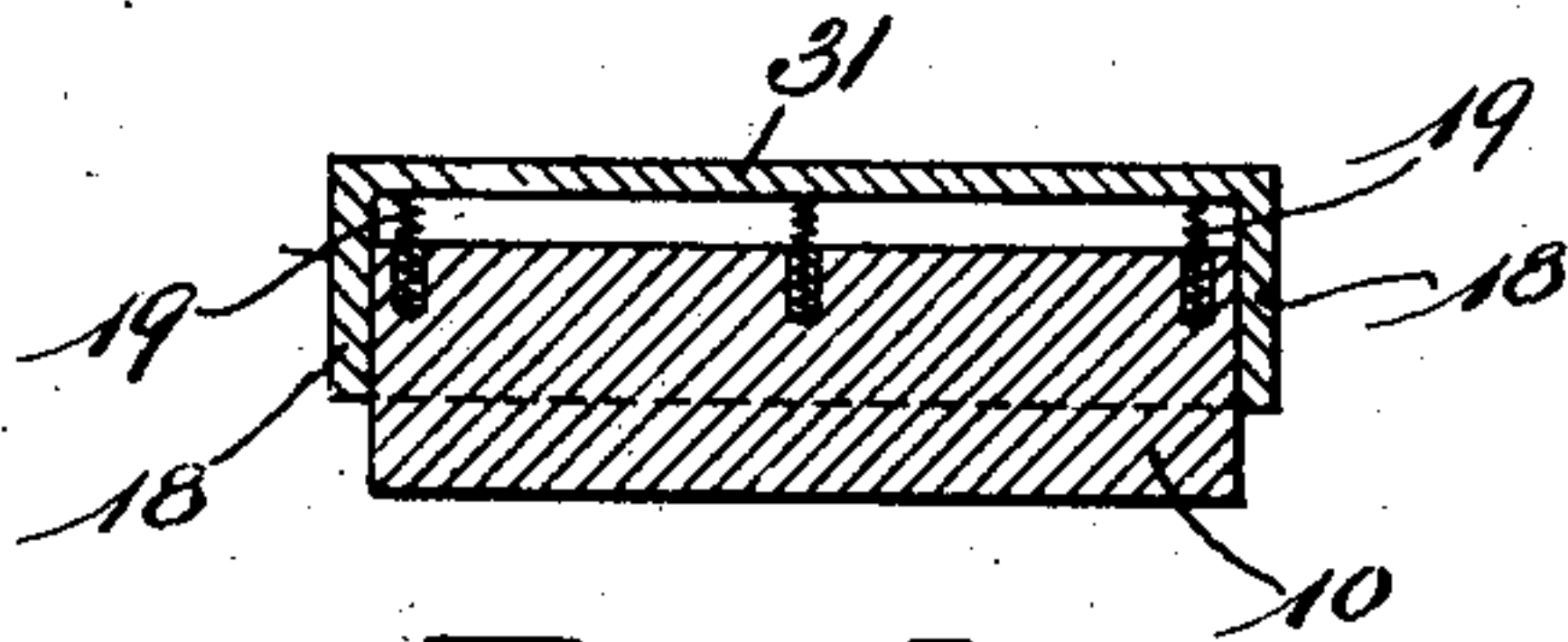


Fig-8-

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UNITED STATES PATENT OFFICE.

ROBERT L. ELLERY, OF PORTSMOUTH, NEW HAMPSHIRE.

ROLLER-BEARING.

SPECIFICATION forming part of Letters Patent No. 768,217, dated August 23, 1904.

Application filed October 28, 1903. Serial No. 178,819. (No model.)

To all whom it may concern:

Be it known that I, ROBERT L. ELLERY, a citizen of the United States, residing at Portsmouth, in the county of Rockingham and State of New Hampshire, have invented new and useful Improvements in Roller-Bearings, of which the following is a specification.

This invention relates to antifriction side bearings for car-trucks, the object of the invention being to provide a strong, durable, efficient, and easily-operated device particularly adapted to car-trucks which are pivotally attached to the body of a car.

The object of the invention is, further, to provide an antifriction side bearing so constructed as to prevent dust from entering the interior of said side bearing and interfering with the action of the antifriction-rollers.

The invention consists in an antifriction side bearing for cars comprising in its construction a base-plate provided with a guideway, a series of journalless rollers movable in said guideway, a slotted spacing-frame constructed to receive said rollers and keep them apart, and a gear journaled independent of said rollers and meshing into a rack fast to or integral with said base-plate, in combination with a top plate constructed to be attached to a car-body and provided with a rack constructed to mesh into said gear.

The invention again consists in the instrumentalities hereinbefore set forth, in combination with a slidable spring-supported dust-plate surrounding said base-plate and projecting upwardly therefrom against the bottom of said top plate.

The invention finally consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings, Figure 1 is a plan view of my improved base-plate with the dust-plate connected thereto. Fig. 2 is a section taken on line 2 2 of Fig. 1. Fig. 3 is a detail plan view of the spacing-frame together with the antifriction-rollers and gear. Fig. 4 is a section taken on line 4 4 of Fig. 3. Fig. 5 is a plan view of my improved antifriction side bearing. Fig. 6 is a section taken on line 6 6 of Fig. 5. Fig. 7 is a section taken on line 7 7

of Fig. 5 looking toward the right. Fig. 8 is an enlarged detail section taken on line 8 8 of Fig. 1.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 10 is a base-plate provided with holes 11 11, through which bolts may be inserted to fasten said base-plate to the truck of a car. The top of the base-plate 10 is provided with a curved guideway 12, having side walls 13 14 formed upon curves whose axial centers are coincident with the pivotal center of a car-truck and having end walls 15 15 radial to said side walls 13 and 14. A curved guide-wall 16 is provided intermediate the side walls 13 and 14, and adjacent to said guide-wall 16 is a rack 17.

The base-plate 10 is surrounded on four sides by a dust-plate 18, constructed to slide vertically upon said base-plate and held upwardly by springs 19 19, the upper end of said springs bearing against the under side of a flange 31, extending inwardly from the upper edge of said dust-plate, and the lower end of said springs bearing against the top of the end walls 15 15. The top plate 20 is constructed to be attached to the body of the car by means of bolts projecting through holes 21 21 in said top plate. The under side of the top plate 20 is a plane surface, with the exception of that portion of it in which a rack 22 is provided. The top plate 20 bears upon two series of journalless rollers 23 23 and 24 24. These rollers in operation rotate with their peripheries bearing upon the base-plate 10 in the guideway 12 and have their axial centers all located in the same horizontal plane, the peripheries of said rollers converging toward a common point, said point being the pivotal center of the truck and the center about which the curved side walls 13 14 and guide-wall 16 are described.

The rollers 23 and 24 are kept apart by a spacing-frame 25, provided with slots 26 26 and 27 27 to receive said rollers 23 and 24, respectively. The spacing-frame 25 is provided with flanges 28 29, which rest upon the top of the side walls 13 and 14, respectively, and thus is held in the same horizontal plane as the axial centers of said rollers. The flanged

sides 28 and 29 are described on a curve from the same center as the base-plate and top plate hereinbefore described. A gear 30 is journaled in the spacing-frame 25 and meshes
5 into the racks 17 and 22 in the base-plate and top plate, respectively. It will be seen that the springs 19, holding the dust-plate 18 up against the lower face of the top plate 20, prevent any dust from entering the interior
10 of the guideway 12 and interfering with the efficient action of the rollers 23 and 24.

The end thrust of the rollers 23 23 will be taken by the side wall 14 and the end thrust of the rolls 24 24 by the intermediate guide-
15 wall 16.

The object of the gear 30 and of the racks 17 and 22 is to preserve the proper relative location between the top plate and base-plate and the spacing-frame, together with the rolls
20 therein.

It will be seen that a space is provided in the spacing-frame 25 adjacent to the sides of the gear 30 and at the ends of the axle thereof and also that the width of the racks 17
25 and 22 is greater than the width of the teeth of the gear 30, so that the top plate 20 and the base-plate 10 have opportunity to move laterally with relation to each other without cramping said gear.

30 The operation of my improved roller-bearing is as follows: The base-plate is fast to the truck, the top plate to the car-body, and the rollers are free to roll along the guideway 12 between said base-plate and top plate, said
35 rollers being kept apart by the spacing-frame 25. It is evident that as the truck turns upon its pivot with relation to the car-body, or vice versa, the plates 10 and 20 will move longitudinally with relation to each other and
40 the rollers 23 and 24 and spacing-frame 25 will move between said plates in a manner well known to those skilled in art, and as the rollers 23 and 24 move upon the base-plate 10, said rollers being conical in form and con-
45 verging toward the center of the truck, it is evident that they will roll without sliding or grinding between the two plates, thus reducing the friction from a sliding friction to a theoretically perfect or rolling friction. It
50 will also be seen that the dust-plate being held against the under surface of the top plate 20 and projecting downwardly therefrom around the side walls 13 14 and end walls 15 will prevent dust from entering the guideway 12
55 and interfering with the perfect action of the device. Furthermore, it will be seen and understood that if under any of the varying circumstances to which such devices are subjected the weight of the car should be re-
60 moved to a sufficient extent from the rollers so that they would be free to roll, together

with the spacing-frame, to one or the other end of the base-plate, and thus change the proper relative location of the spacing-frame to the top and base plates, such action will
65 be counteracted and prevented by the gear 30 and racks 17 and 22, into which said gear meshes.

Having thus described my invention, what I claim, and desire by Letters Patent to se-
70 cure, is—

1. An antifriction side bearing for car-trucks comprising in its construction a base-plate provided with a guideway, a series of journalless rollers movable in said guideway,
75 a slotted spacing-frame constructed to receive said rollers and keep them apart, a gear journaled independent of said rollers in said spacing-frame, a rack fast to said base-plate and meshing into said gear, a top plate construct-
80 ed to be attached to a car-body, and a rack fast to said top plate and meshing into said gear.

2. An antifriction side bearing for car-trucks comprising in its construction a base-
85 plate provided with a guideway, a series of journalless rollers movable in said guideway, a slotted spacing-frame constructed to receive said rollers and keep them apart, a gear journaled independent of said rollers in said spac-
90 ing-frame, a rack fast to said base-plate and meshing into said gear, a top plate constructed to be attached to a car-body, a rack fast to said top plate and meshing into said gear, and
95 a slidable spring-supported dust-plate surrounding said base-plate and projecting upwardly therefrom against the bottom of said top plate.

3. In an antifriction side bearing for car-trucks, a base-plate provided with a guideway
100 having curved side walls, a series of conical journalless rollers movable in said guideway, the axes of said rollers located in the same plane and radial to the arc of a circle, and a slotted spacing-frame adapted to receive said conical
105 rollers and keep them apart, said spacing-frame resting upon and extending laterally entirely across the top of said side walls and held by said side walls in said plane, a rack
110 fast to said base-plate, a top plate adapted to be fastened to a car-body resting upon said rollers, a rack fast to said top plate, and a gear journaled independent of said rollers in said spacing-frame and meshing into said
115 racks.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ROBERT L. ELLERY.

Witnesses:

CHARLES S. GOODING,
ANNIE J. DAILEY.