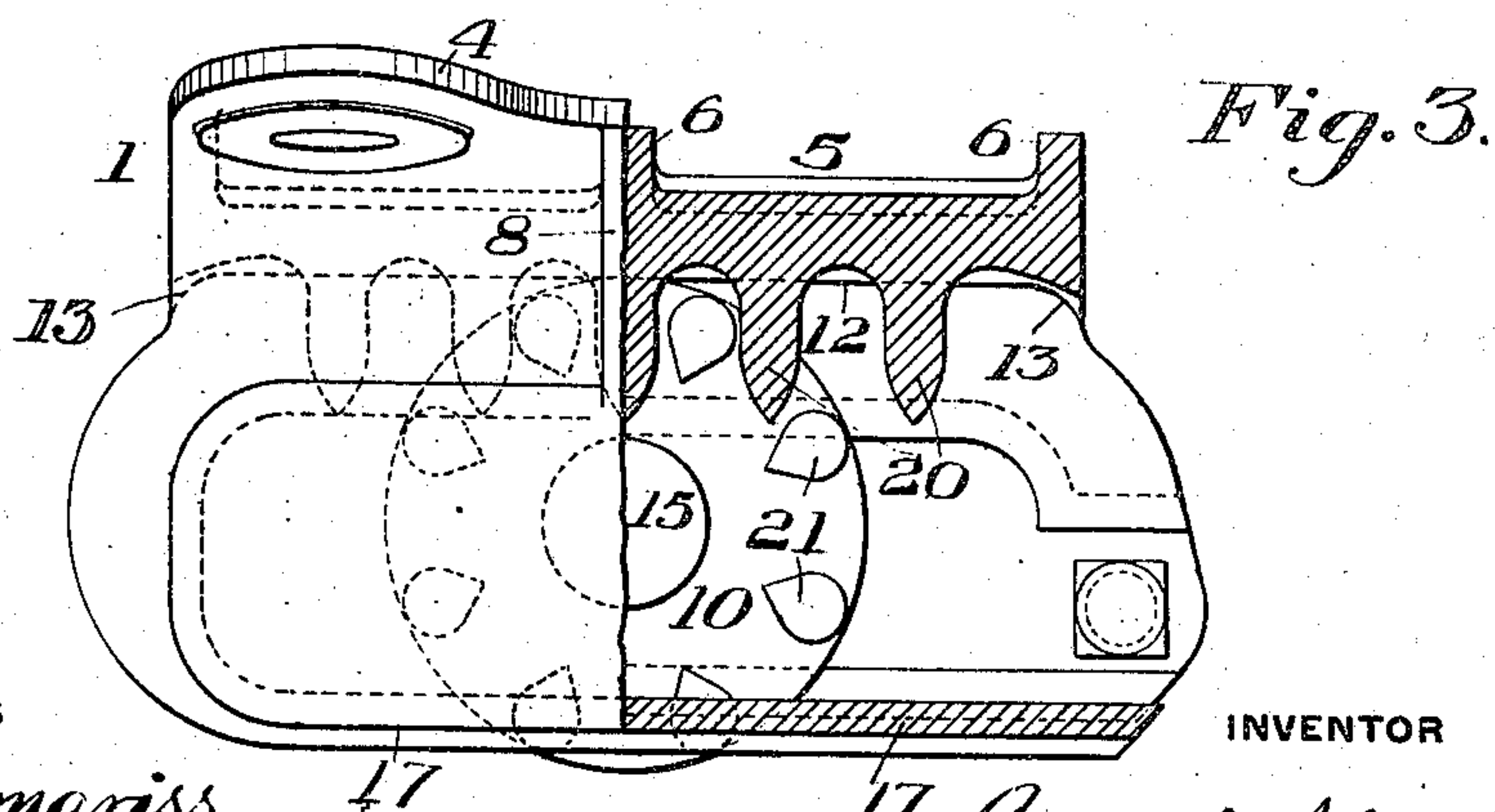
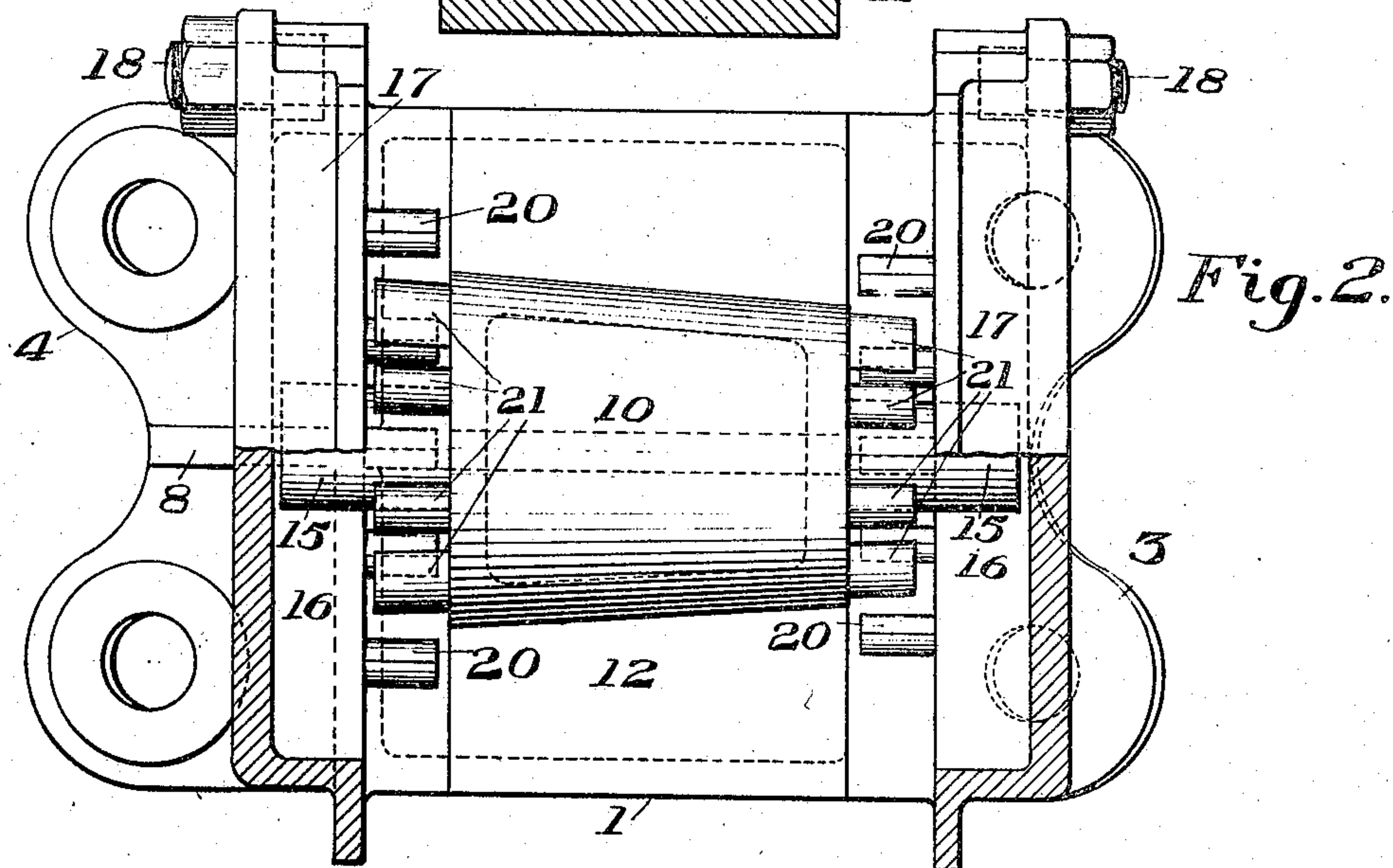
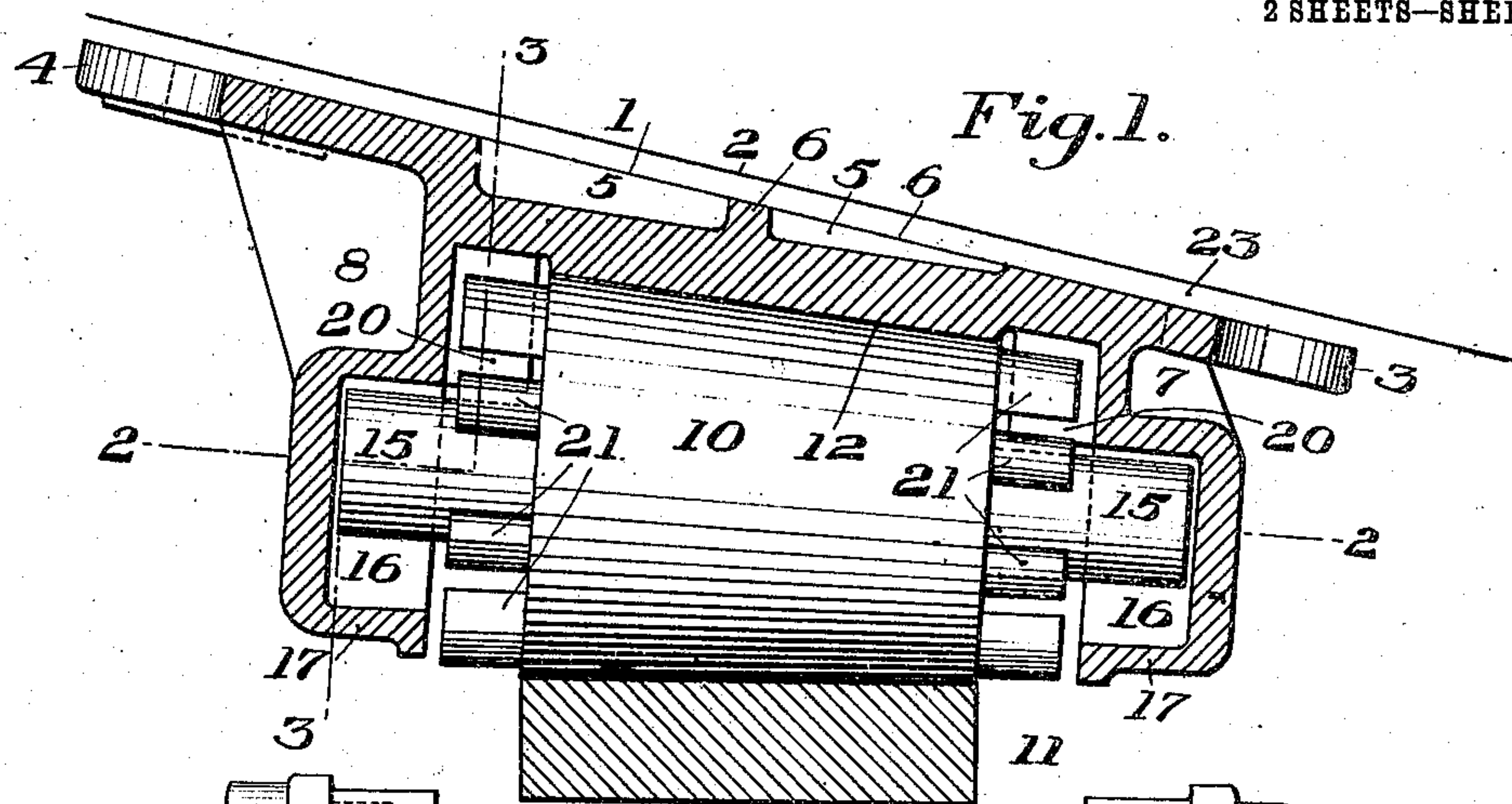


A. STUCKI.
 ROLLER SIDE BEARING.
 APPLICATION FILED JULY 17, 1908.

930,901.

Patented Aug. 10, 1909.

2 SHEETS—SHEET 1.



WITNESSES

Walter Samariss
 E. Pearl Porter

INVENTOR

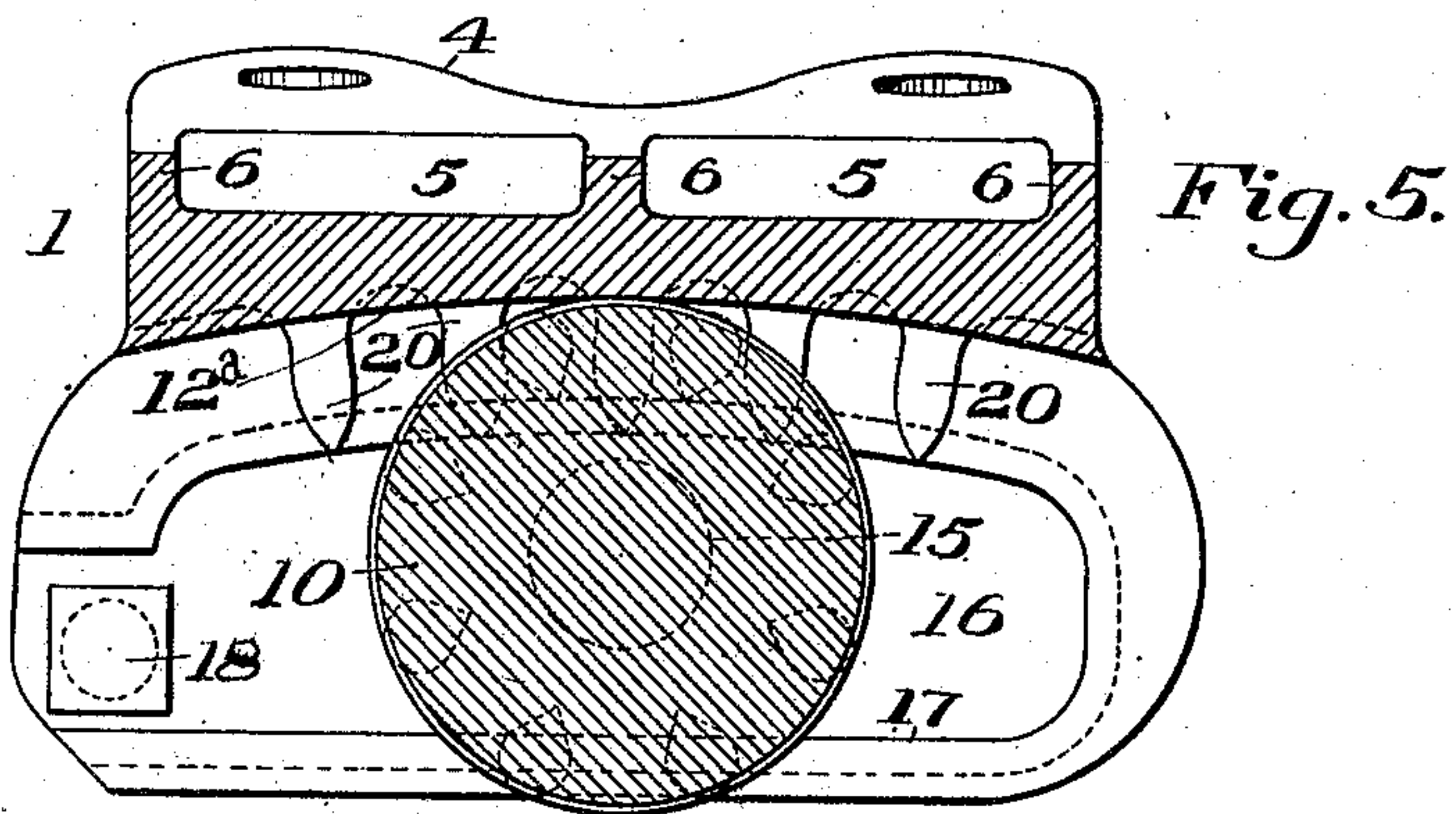
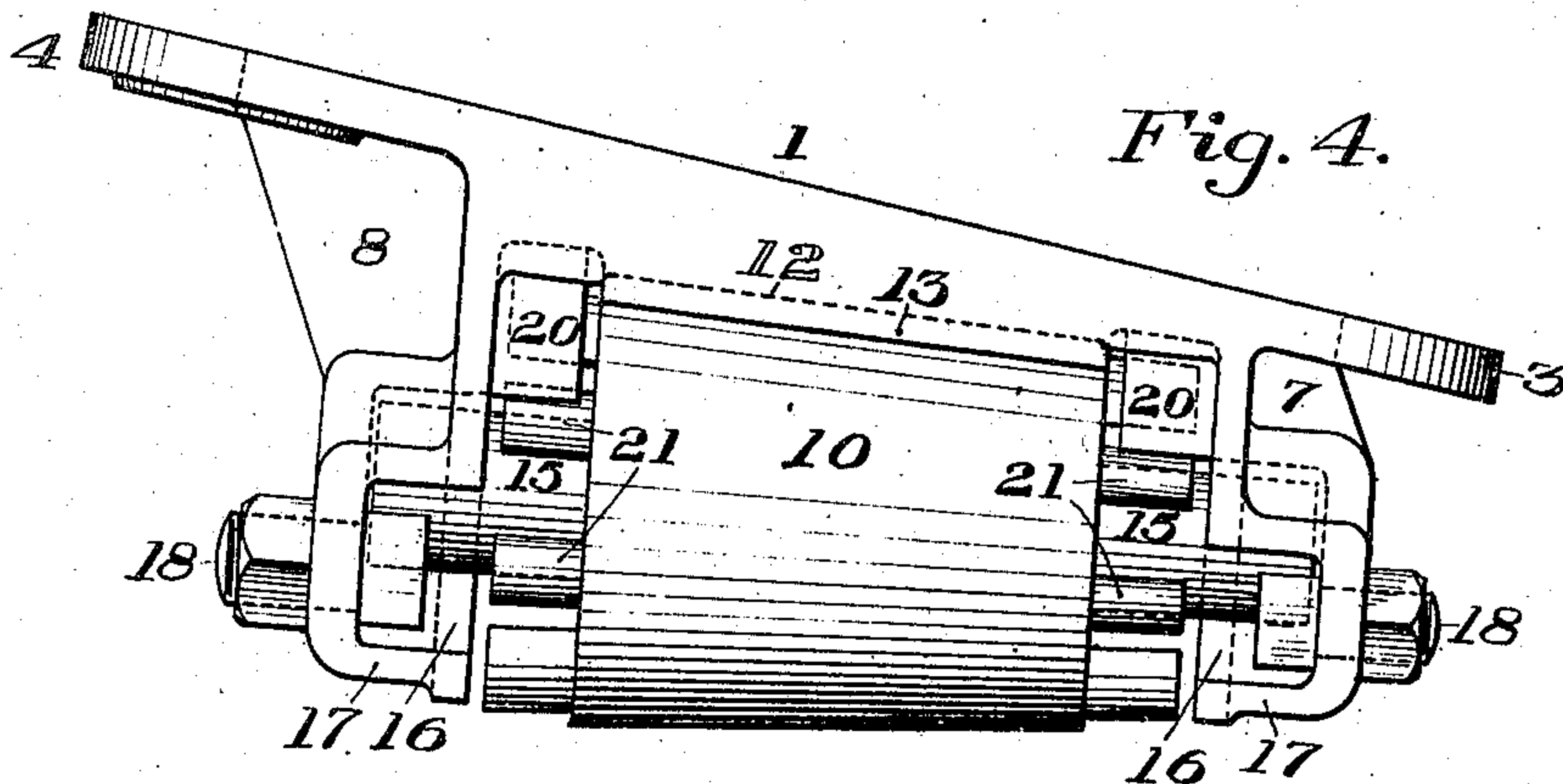
Arnold Stucki
 By Fredk W. Whites
 His attorney.

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2 SHEETS—SHEET 2.



WITNESSES

Walter Samaniss
 E. Carl Porter.

INVENTOR

Arnold Stucki
 By Frank H. Winter
 His Attorney.

UNITED STATES PATENT OFFICE.

ARNOLD STUCKI, OF PITTSBURG, PENNSYLVANIA.

ROLLER SIDE BEARING.

No. 930,901.

Specification of Letters Patent.

Patented Aug. 10, 1909.

Application filed July 17, 1908. Serial No. 443,993.

To all whom it may concern:

Be it known that I, ARNOLD STUCKI, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Roller Side Bearings, of which the following is a specification.

This invention relates to side bearings for railway cars.

10 The object is to provide a side bearing which is absolutely frictionless, and which performs all of the other necessary functions of side bearings, and which is inexpensive both as to first cost and subsequent
15 repair.

The invention comprises a side bearing construction and the arrangement of parts hereinafter described and claimed.

20 In the accompanying drawings Figure 1 is a vertical section through the bearing taken parallel with the longitudinal axis of the bolster; Fig. 2 is in part an inverted plan view and in part a horizontal section on the line 2—2 Fig. 1; Fig. 3 is in part an
25 end view and in part a vertical transverse section on the line 3—3, Fig. 1; Fig. 4 is a side view of the bearing; and Fig. 5 is a vertical transverse section showing a modification.

30 In the drawings the side bearing has been shown as adapted to be applied to a body bolster of tapering form. It can, however, be applied to either a truck or body bolster and of either tapering or straight form.

35 The side bearing comprises a suitable frame or housing 1 having its upper face formed on an incline to correspond with the taper of the bolster, which is indicated at 2. The housing is provided with inwardly
40 and outwardly projecting flanges 3 and 4, respectively, apertured for receiving bolts or rivets for connecting the bearing to the bolster. The bearing face of this housing or frame is cored out, as at 5, in order to
45 lighten the same and is provided with suitable ribs indicated by 6, in order to give the necessary strength and bearing surface. This housing or frame is provided with a
50 downwardly projecting inside web 7 and outside web 8, said housing being open at its ends to clear the roller in its extreme positions, and also being open at the bottom to permit the roller to project through the same and contact with the cooperating bearing or bolster 11. The bottom face of the
55 top portion of the housing is provided with

a flat solid surface 12 on which the roller 10 can travel. Said surface is slightly curved at its ends as at 13 to prevent accidental shocks to the roller trunnions. The roller 60 is perfectly free to travel in the housing. It is provided with journal portions or trunnions 15 which project into grooves or guide ways 16 formed in the inner and outer webs 7 and 8 of the housing. The trunnions are 65 considerably smaller than the vertical dimensions of these grooves or guide ways so that the roller is free to rise or fall to a considerable extent, but cannot fall out, being sustained by the bottom flanges 17 on the
70 guide ways. The grooves or guides 16 are closed at one end and open at their opposite ends to permit the insertion and removal of the roller. The roller is held from accidental escape from the housing by suitable stops 75 placed at the open end of the housing, the stops being shown in the form of short bolts 18 extending through the housing walls and having their heads lying in the outer or open ends of the grooves or guide ways 16. 80 Any other suitable stop, such as pins, brackets or clamps, can be used.

In the preferred form the housing is provided at both the inner and outer sides with a downwardly projecting rack formed by 85 the long teeth 20, and each end of the roller is provided with cooperating teeth in the form of projections 21. The long teeth of the rack compensate for the up and down movement of the roller and keep the parts 90 in mesh, no matter whether the roller is up or down. The intermeshing gears of the roller and rack serve not only to hold the roller in proper position and prevent the same from assuming a diagonal or askew 95 position, but also serve as means for moving the roller with all angular movements of the bolsters relative to each other, and this irrespective of whether the body bolster is lifted off the roller or not. It is perfectly obvious 100 that as long as the body bolster is tilted so as to rest on the roller the latter will travel with all changes in the angular positions of the bolsters. When the body bolster, however, lifts so that the side bearings are no 105 longer pressed together the roller ordinarily would not travel with the changes in the angular positions of the bolsters. The gears on roller and rack, and especially the long teeth of the rack provide for this, whether 110 the bearings are pressed together or not. The consequence is that the roller is always

in proper position to receive the weight of the car body whenever the bolsters come together, and this entirely irrespective of the angular positions of the bolsters.

5 The roller, it will be observed, is entirely free to travel in the housing, its top rolling along the surface 12 in the housing and its bottom rolling on the bottom bearing or truck bolster. The trunnion portions merely
10 serve to prevent the roller from dropping out of the housing and are not designed when rolling, to come into contact with the top and bottom walls of the guide ways in the housing. The consequence is that the
15 bearing is as nearly absolutely frictionless as it is possible to obtain. Furthermore, by having a freely traveling roller as shown having rolling contact both with the upper and lower bolsters the angular travel of said
20 bolsters may be very great, and still the travel of the roller itself be only half as large, which in turn does away with excessively long bearing surfaces. In other words, as the roller rolls both on the top
25 and bottom surfaces the travel of its axis laterally is practically only one-half of the arc described by the change in the angular positions of the bolsters.

30 The bearing is of very simple construction and there are no parts subjected to severe blows so that breaking is practically impossible. The roller can be readily removed and replaced when necessary.

The bearing has been shown with a roller
35 of conical form in order to fit the same to a tapering bolster, and also to compensate for the arch-shaped path of the roller and make the latter absolutely frictionless. Cylindrical rollers, however, might be used with
40 fairly good results. The bearing is shown as spaced slightly from the bolster, such as by the space 23, in order to receive a shim when the car is new and permit the removal of the shim in case the bolster should sag.
45 The bearing can be readily adapted to a straight bolster, that is, one that is not tapering, and can be applied to a truck bolster instead of a body bolster, although the latter is preferred. While the bearing
50 is shown as provided with one roller, this is not essential as the number of rollers may be increased if desired.

Fig. 5 shows a modification in which the bearing surface 12^a for the roller in the housing
55 is curved or concave. I prefer to have a perfectly straight bearing surface, but the modification in Fig. 5 can be used in case it is desired that the weight of the car shall assist in righting the truck after leaving
60 a curve.

The side bearing described is of simple construction and inexpensive to make and maintain, is as near absolutely frictionless as is possible to obtain, and is theoretically
65 correct in that it fulfils all the necessary

functions and advantages of side bearings. It can be cheaply manufactured and of very durable or hard material. It is not subjected to excessive wear and cannot easily be broken. In case of injury from any source 70 it can be easily and readily repaired, as it contains practically only two pieces which can be very readily separated.

What I claim is:

1. A side bearing for railway cars comprising a one-piece housing or frame adapted for direct connection to the upper bolster and provided with a plane bearing surface, a roller in said frame having an uninterrupted surface arranged to roll on said bearing surface and being free to travel horizontally in said frame, and cooperating means on the housing and roller respectively for causing said roller to travel in said frame with all changes in the angular relation of the bolsters and irrespective of clearances between the bolsters. 75 80 85

2. A side bearing for railway cars, comprising a one-piece housing or frame adapted for direct connection to the upper bolster and provided with a plane bearing surface, a roller in said frame provided with an uninterrupted surface arranged to roll on said bearing surface, said roller being free to travel horizontally in said frame and being
95 freely movable vertically therein to remain in constant contact with the lower bolster during all normal clearances between the bolsters, and means for causing said roller to travel in said frame or housing with all
100 changes in the angular relation of the bolsters.

3. A side bearing for railway cars, comprising a one-piece frame or housing adapted for direct connection to the upper bolster and provided with a plane bearing surface, a roller in said frame provided with an uninterrupted surface arranged to roll on said bearing surface, said roller being free to travel horizontally in said frame and freely
105 movable vertically therein to remain in constant contact with the lower bolster during all normal clearances between the bolsters, and means connecting said roller and frame or housing and arranged to move said roller
110 horizontally with all changes in the angular relation of the bolsters. 115

4. A side bearing for railway cars, comprising a one-piece frame or housing adapted for connection to the upper bolster and
120 provided with a plane bearing surface, a roller in said frame provided with an uninterrupted surface arranged to roll on said bearing surface, said roller being free to travel horizontally in said frame or housing
125 and being freely movable vertically therein to remain in constant contact with the lower bolster during all normal clearances between the bolsters, and a rack on the frame and teeth on the roller arranged to move the
130

roller with all changes in the angular relation of the bolsters.

5. A side bearing for railway cars, comprising a frame or housing adapted for connection to a bolster, a roller free to travel horizontally in said housing and vertically movable therein to contact with the other bolster irrespective of normal clearances between the bolsters, a rack on the housing provided with long teeth, and teeth on the roller within the periphery thereof and meshing with said rack.

6. A side bearing for railway cars, comprising a one-piece frame or housing adapted for connection to the upper bolster and provided with a plane bearing surface, a roller in said frame provided with an uninterrupted surface arranged to roll on said bearing surface, said roller being free to travel horizontally in said frame or housing and being freely vertically movable therein to remain in constant contact with the other bolster during all normal clearances of the bolsters, and means between said roller and frame or housing arranged to move the roller horizontally with all changes in the angular relation of the bolsters and at a peripheral speed exactly equal to the lateral movement of the bearing surfaces contacting with said roller.

7. A side bearing for railway cars, com-

prising a housing or frame adapted for connection to a bolster and being open at one side, a roller free to move vertically and travel horizontally in said frame or housing and provided with journals projecting into guides therein, a barrier at the open side of said housing, gear teeth carried by the roller, and a cooperating toothed rack on said housing having teeth of such length as to always engage the teeth of the roller irrespective of vertical movements of the roller.

8. A side bearing for railway cars, comprising a housing adapted for connection to a bolster and being open on one side and provided with grooves or guides running to said open side, a roller free to move vertically and travel horizontally in said housing and provided with journals projecting into said grooves or guides, a barrier at the open ends of said grooves or guides, gear teeth carried by the roller, and a cooperating toothed rack on said housing having teeth of such length as to always engage the teeth on the roller irrespective of vertical movements of the roller.

In testimony whereof, I have hereunto set my hand.

ARNOLD. STUCKI.

Witnesses:

ALICE A. TRILL,
WILLIAM ARNOLD.