

(No Model.)

2 Sheets—Sheet 1.

O. S. STEARNS.

SELF ADJUSTING BEARING FOR CAR AXLES.

No. 281,157.

Patented July 10, 1883.

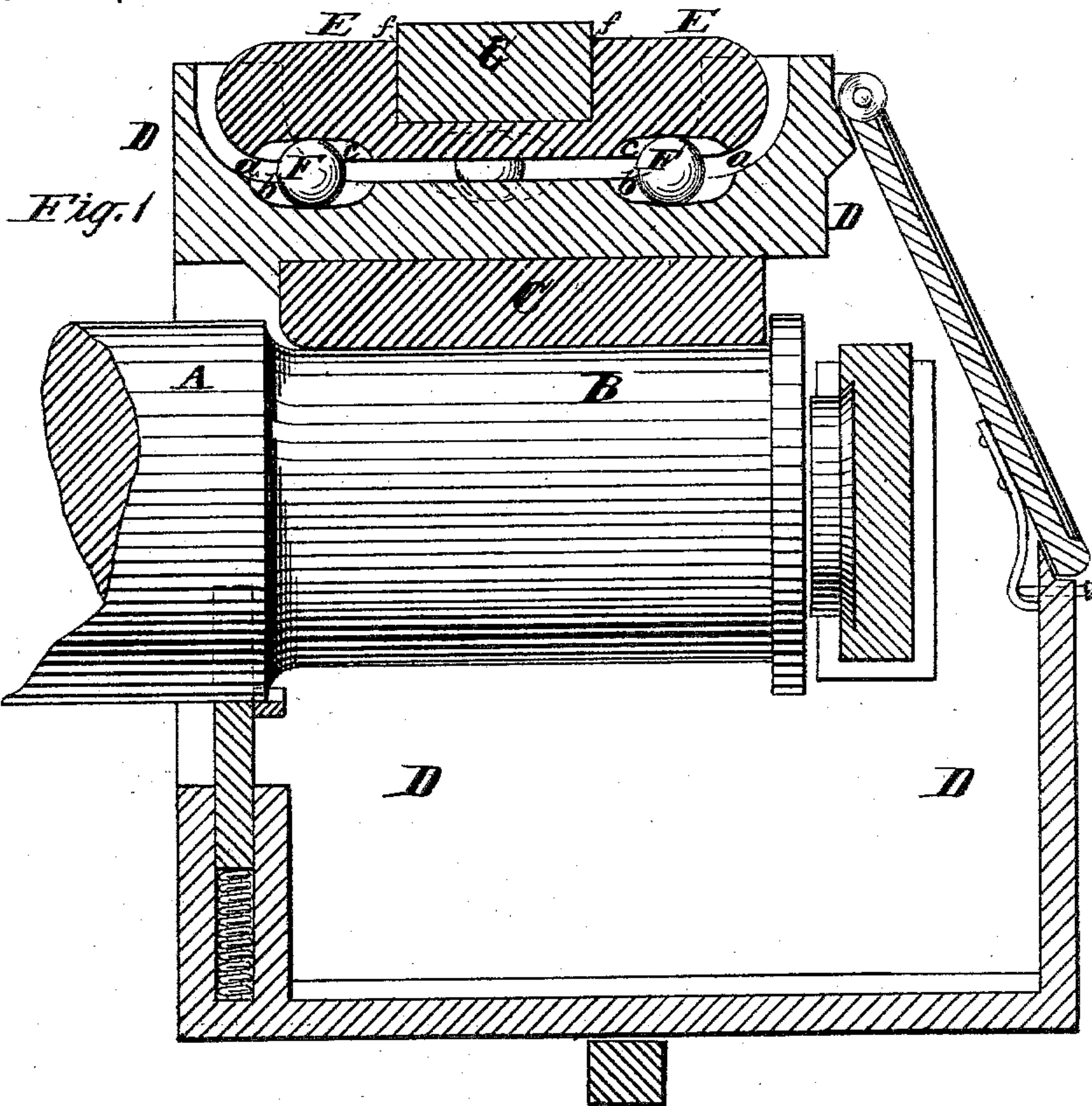
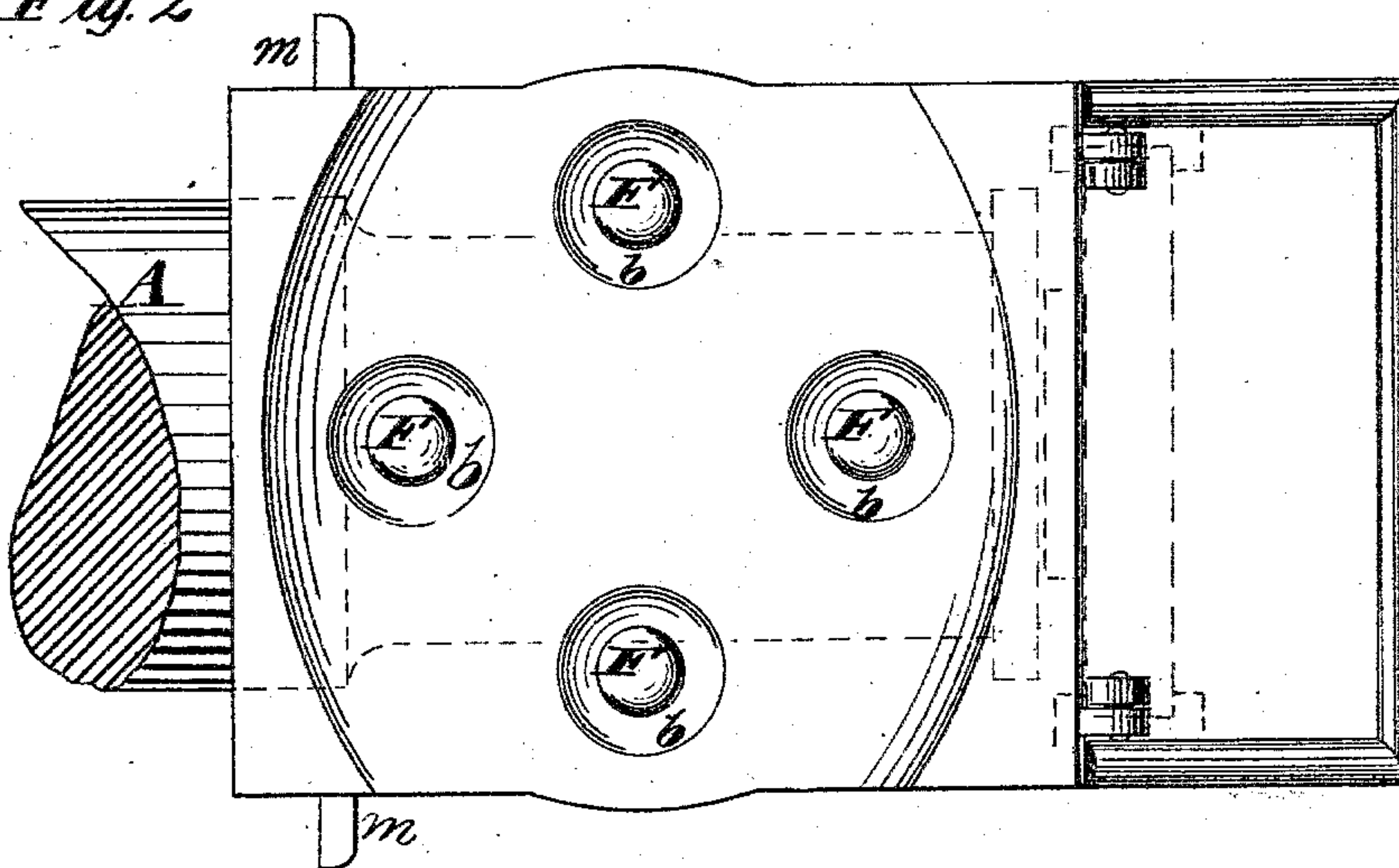


Fig. 2



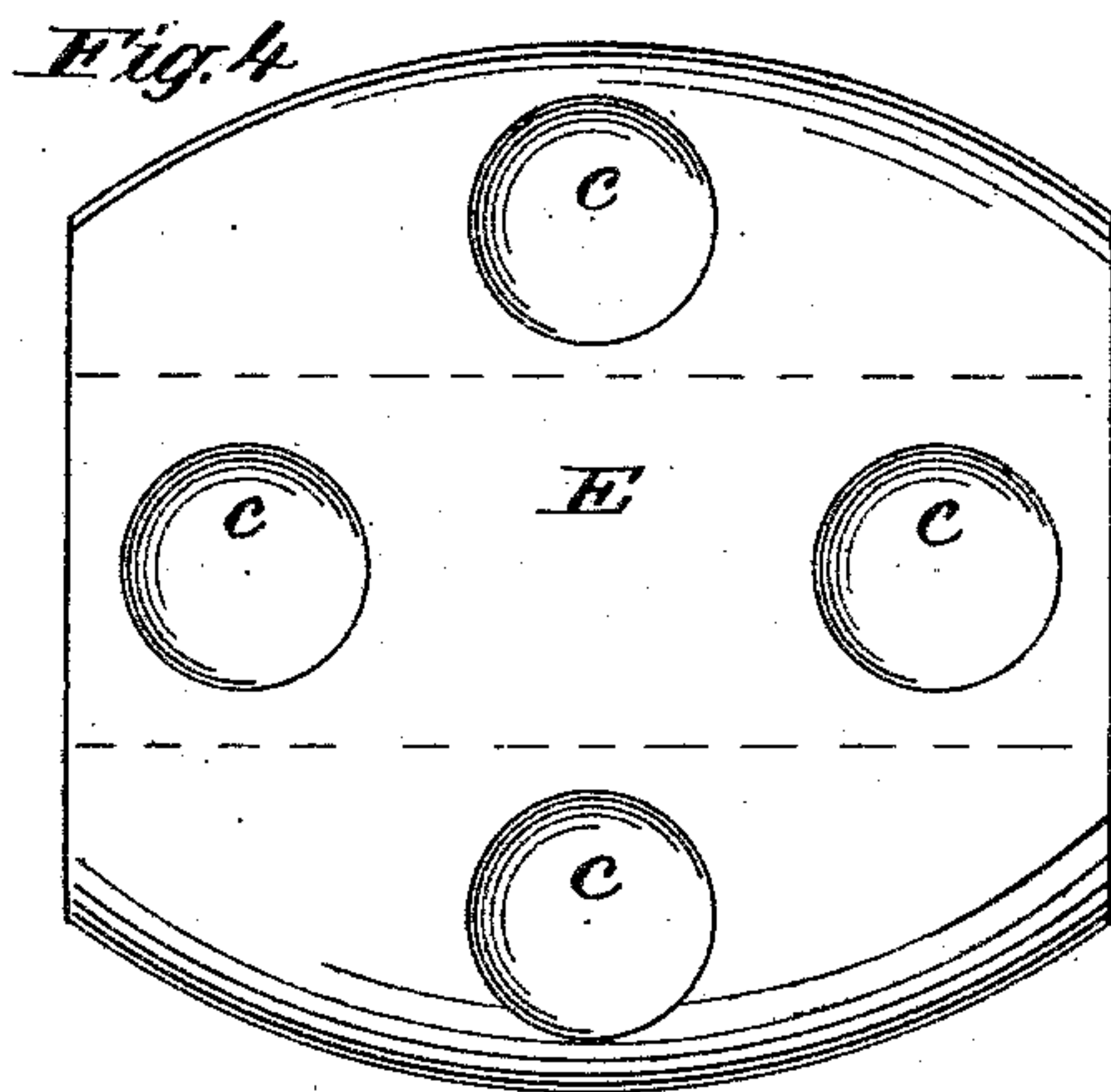
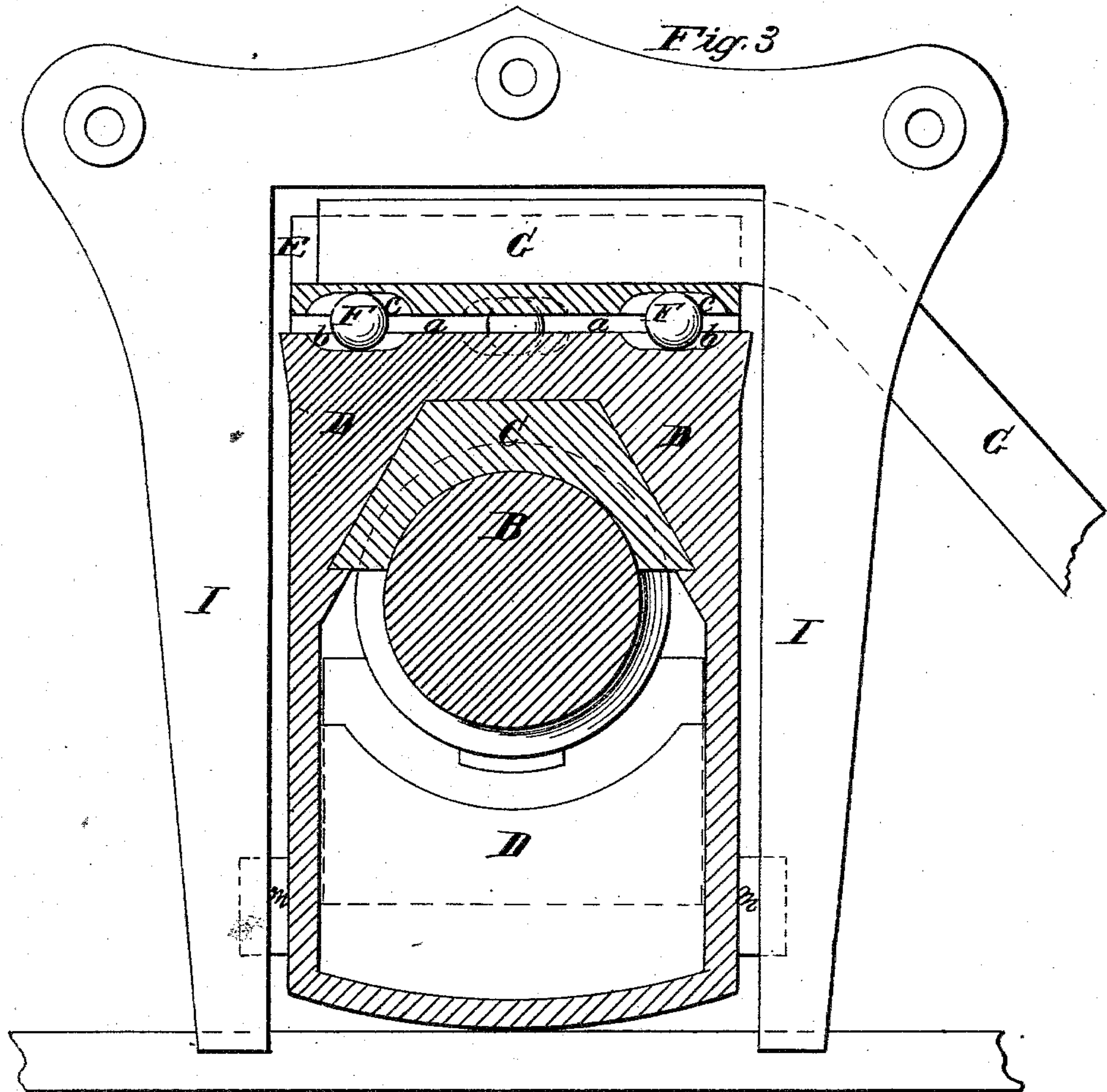
Witnesses.
Robt W. Matthews
Thomas C. Crossman.

Inventor.
Oscar S. Stearns
per James A. Whitney
Atty

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UNITED STATES PATENT OFFICE.

OSCAR S. STEARNS, OF NEW YORK, N. Y., ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE STEARNS RAILWAY IMPROVEMENT COMPANY, OF NEW YORK.

SELF-ADJUSTING BEARING FOR CAR-AXLES.

SPECIFICATION forming part of Letters Patent No. 281,157, dated July 10, 1883.

Application filed December 2, 1881. Renewed June 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, OSCAR S. STEARNS, of the city, county, and State of New York, have invented certain Improvements in Self-Adjusting Bearings for Axles of Railway-Cars, &c., of which the following is a specification.

The object of this invention is to prevent the lateral binding of car-axles in their bearings, which, with the ordinary axle-boxes, occurs in turning or rounding curves, and which, from the inordinate friction produced, results not only in the heating of the journal, but also in a large consumption of lubricating material, the rapid wearing of the bearings, and the straining of the journals and adjacent parts.

My invention is designed to obviate these drawbacks by providing efficient means for retaining the journal always in exact line with the bearing in which it works, irrespective of any twist, torsion, or displacement which may ordinarily be brought to bear upon the housing or shell of the journal-box.

To this end my said invention comprises certain novel combinations of parts, whereby the aforesaid result is effectually secured.

Figure 1 is a central vertical sectional view representing my said invention and taken in a plane coincident with the axis of the journal. Fig. 2 is a plan view of the housing which forms part of the apparatus. Fig. 3 is a front view and partial transverse section representing my said invention, the front portion of the said view being that of the pedestal and equalizing-bar, while the other portions are indicated by the sectional part which is taken in a plane at right angles to that of Fig. 1. Fig. 4 is an inverted plan view of the saddle which forms part of the said apparatus.

A is the axle, of which B is the journal, the axle and its journal being of the usual or any suitable construction or configuration.

C is the bearing, placed upon the journal B in the ordinary manner.

D is the housing or shell of the axle-box, which may be of the usual or any suitable configuration, except that at its top it is chambered out or hollowed, as shown at *a* in Fig. 1, the bottom of this chamber, however, being substantially flat and having formed in it four or more cavities, *b*, which may be of hemis-

pherical shape, as shown in the drawings, or which may be of elongated semi-spheroidal or any other suitable form.

Placed over the bottom of the chamber *a* is a saddle, E, in the under side of which are formed cavities *c*, corresponding in shape and size to the cavities *b*, formed in the top of the housing, as hereinbefore explained, the cavities *c* being, furthermore, placed coincident with the cavities *b*, as represented in Figs. 1 and 3. Placed in the cavities aforesaid, and consequently interposed between the saddle E and the top of the housing D, are rollers F, which are preferably of spherical form, but which may be of any other suitable shape.

It is to be understood that the parts are so proportioned and arranged that the rollers F keep the saddle E out of contact with the bottom of the chamber *a*, so that the said saddle and any weight placed thereon will be borne upon the rollers F, and the pressure of such weight will be transmitted through said rollers to the top of the housing, and thence to the bearing C, resting upon the journal B.

In the top of the saddle E is formed a squared socket, *f*, which receives the adjacent end of the equalizing-bar G. The rollers F are so proportioned in size and shape to the size and shape of the cavities *b c* that said rollers are capable of a rolling movement in any direction horizontally.

Projecting laterally from the opposite sides of the lower part of the housing D, and at the rear or inner end thereof, are studs *m*, which pass behind the adjacent rear or inner surfaces of the pedestal I, which bestrides the housing in substantially the manner shown in Fig. 3. The studs *m* prevent the housing, together with the journal B and bearing C, &c., from being thrown too far outward toward the outer extremity of the said journal, and yet at the same time permit a slight longitudinal movement of the parts, as is necessarily incident in the rounding of curves, &c. There is, moreover, a space left between the sides of the housing and those of the pedestal, as shown in Fig. 3, in order to permit a swaying movement of the housing with reference to the pedestal and to the saddle whenever the exigencies of actual use shall require the same.

The operation of the apparatus is as follows: In the turning of a curve in a track, or under any other conditions involving a lateral twist or wrenching of the parts rigidly affixed to the surface of the housing D and its attached bearing C and journal B, the effect of such twist or wrench, instead of being transmitted to the housing D, and thence to the bearing C, is nullified by the movement of the saddle E upon the rollers F, which prevent the transmission of such twisting or wrenching motion through or beyond the said rollers F, so that the bearing C, being free from any such interference with its normal relation with the journal B, remains continually exactly in line with the said journal, and consequently in a position affording the smoothest and most perfect contact therewith, thereby avoiding all undue wearing, heating, abrasion, and other results of inordinate friction. This movement is of a twisting or wrenching character, and is necessarily greatest at the outer end of the journal, or, in other words, at the outer end of the housing, and least at the inner end of the latter.

It is to be observed, further, that while I have described the cavities *b* and *c* as of semi-spheroidal form, and have described the rollers F as of spherical shape, yet the said rollers may be of any other suitable configuration which will permit them to have a rotating or partially-rotating movement when subjected to the action arising from the change of position of the saddle E and the housing D in relation with each other, and in like manner the said cavities *b* and *c* may be modified in form to suit the configuration of the rollers.

The saddle E and the top of the housing D may be made of cast metal, and, when desired, may be hardened by any of the methods known in the founder's art. The rollers F may be made of chilled cast-iron or of hardened steel.

What I claim as my invention is—

1. The housing D, extended around the axle B and provided with the bearing C, interposed between the upper part of the said housing and the said axle, the saddle E, capable of a limited turning movement with reference to the housing D, and the rollers F, placed between the saddle E and the top of the housing D, the said parts being constructed and arranged in relation with each other to prevent the binding of the bearing C upon the axle B, all substantially as and for the purpose herein set forth.

2. The housing D, constructed with the series of cavities *b* and extended around the axle B, the bearing C, interposed between the top of the housing and the axle, the saddle E, constructed with the series of cavities *c*, placed above the housing D and capable of a limited turning movement with reference thereto, and the rollers F, placed in the coincident cavities *b* and *c*, the whole arranged for joint use and operation, substantially as and for the purpose herein set forth.

3. The combination of a saddle, E, constructed with a socket, *f*, the equalizing-bar G, housing D, bearing C, the journal B, and rollers F, interposed between the saddle E and the top of the housing D, all substantially as and for the purpose herein set forth.

4. The combination of the housing having the cavities *b* on its upper side and provided below with the studs *m*, the pedestal I, the saddle E, constructed with the cavities *c*, the rollers F, and equalizing-bar G, the whole arranged for joint use and operation, substantially as and for the purpose herein set forth.

OSCAR S. STEARNS.

Witnesses:

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