No. 665,997. Patented Jan. 15, 1901.

L. CROWELL.

LEAD TRUCK SWIVEL FOR LOCOMOTIVES.

(Application filed Nov. 16, 1900.)

(No Model.)

Fig. 1.

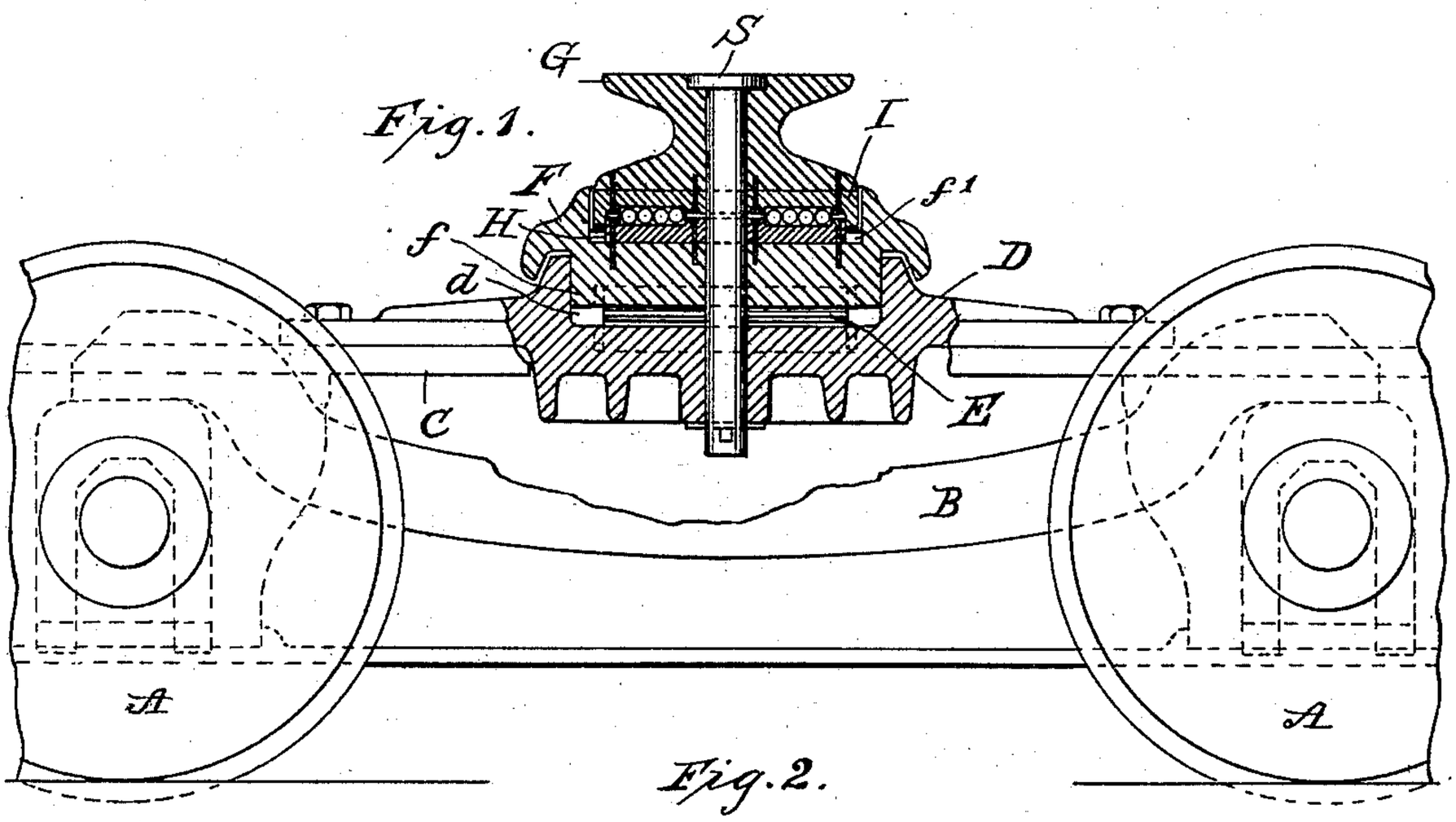

Fig. 2.

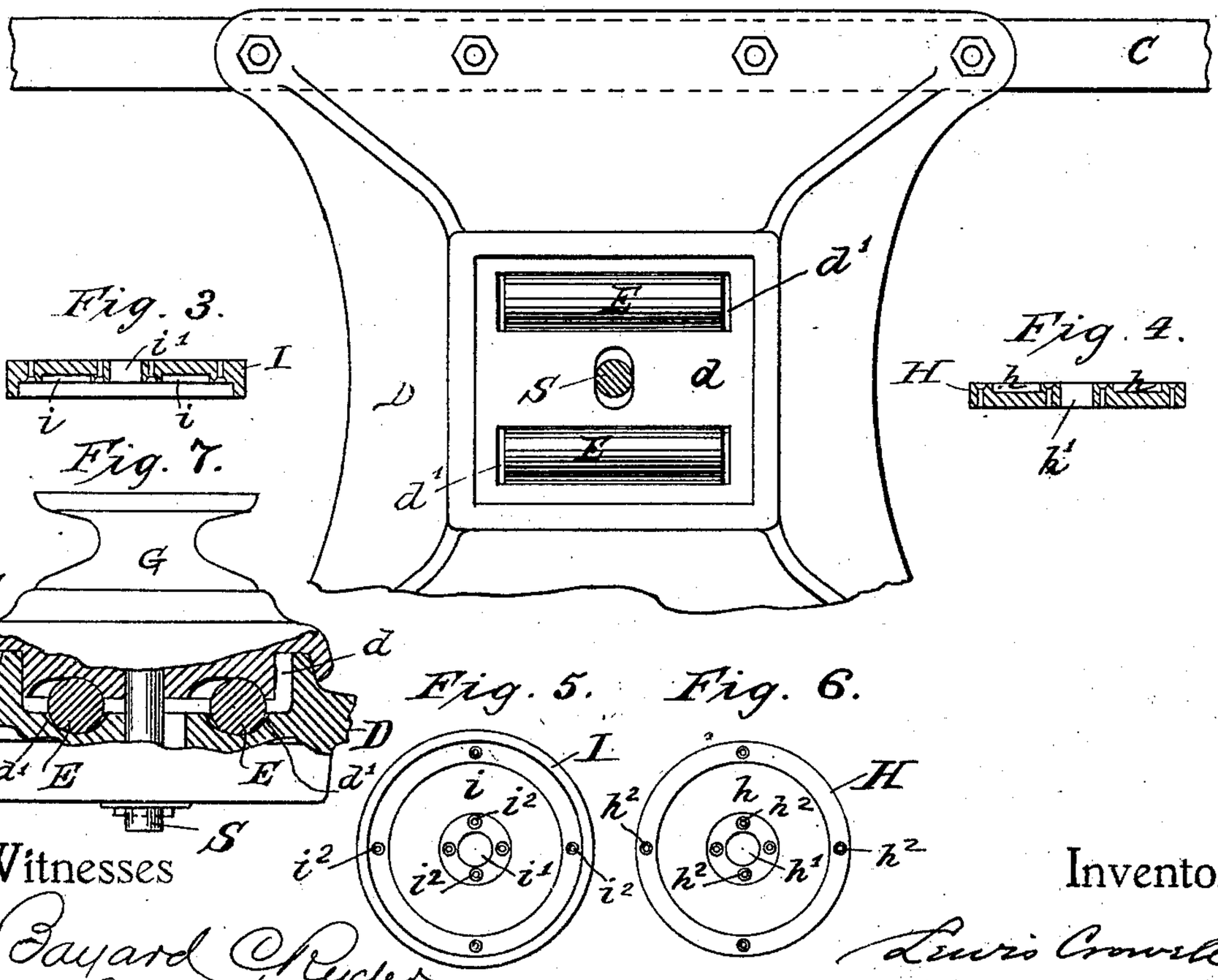

Fig. 3.

Fig. 4.

Fig. 7.

Fig. 5.

Fig. 6.

Witnesses

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UNITED STATES PATENT OFFICE.

LEWIS CROWELL, OF CONCORD, NEW HAMPSHIRE.

LEAD-TRUCK SWIVEL FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 665,997, dated January 15, 1901.

Application filed November 16, 1900. Serial No. 36,720. (No model.)

To all whom it may concern:

Be it known that I, LEWIS CROWELL, a citizen of the United States, residing at Concord, in the county of Merrimac and State of New Hampshire, have invented certain new and useful Improvements in Lead-Truck Swivels for Locomotives; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to the lead-truck of a locomotive-engine.

Serious accidents have been known to occur owing to the lead-truck of a locomotive refusing to swivel or turn as readily as it should when the wheels of said truck suddenly strike a curve in the track, the result being that the rails spread, causing some one or more cars of a train to leave the iron or the flanges of the engine-truck wheels to climb over the rails at such point instead of following the curve, and it was the desire to provide means to guard against such accidents which enabled me to conceive the present invention, the important object of which is to so improve the swiveling elements of a locomotive lead-truck as to make it certain to turn and permit the flanges of the wheels to follow the rails when running upon the curve of a track.

My improvements are available as attachments to most any form of swivel-truck frame or may be embodied in a truck of especial construction and ready for attachment to the cylinder-saddles.

The invention consists in the novel arrangement and application to the lead-truck of a locomotive-engine of ball-bearings, upon which the same is swiveled, and other novel features of construction, as will be fully set forth in the following specification and claims, and clearly illustrated in the drawings accompanying and forming a part of the same, of which—

Figure 1 represents a broken side elevation of a locomotive lead-truck to which my improvements are applied, Fig. 2 being a broken plan view of portions of my improved truck, Figs. 3 and 4 being cross-sectional views, respectively, of the upper and under grooved plates, which are to be in practice separated by balls and which with the balls form the improved ball-bearings for a locomotive lead-truck, as seen in Fig. 1. Fig. 5 is an inverted plan view of the upper plate or that shown in Fig. 3, Fig. 6 being a plan view of the under plate, which is also shown in Fig. 4. Fig. 7 is a cross-section of the swivel portion of my improved locomotive lead-truck.

Similar reference-letters designate corresponding parts in all the views.

A represents wheels mounted on axles provided with the ordinary inside journal-boxes.

B represents equalizers which are supported on the journal-boxes and which themselves support suitable springs for the truck. (Not shown.)

C is the truck-frame, which is bolted to the lower center plate D, in which latter is formed a recess *d*, and in the recess are formed grooves *d'*, one at either side of the center of said plate and running longitudinally, and in each of these grooves is placed a roll E, as shown in Figs. 1 and 2.

G is the upper center plate, which is adapted to be attached to the cylinder-saddles of a locomotive, and F is an intermediate plate, of which the lower portion *f* rests within the recess *d* of the plate D and upon the rolls E, said part *f* being grooved, if desired, as shown by dotted lines in Fig. 1, for the reception of the upper face of said rolls. The upper face of the plate F is also recessed, as at *f'*, and said recess may contain balls adapted to support the plate G and form a ball-bearing upon which said plate may be swiveled; but I prefer to employ the detachable interlocking plates H I, the former being secured within the recess *f'* of the plate F and the latter secured to the bottom of the plate G, so that the necessary balls which are to form the swivel-bearing may not wear into and destroy said plates F G, the wear and tear falling only and wholly upon the smaller plates H I, which may be cheaply replaced as often as required by jacking up the forward end of the locomotive. These plates H I are provided in their adjacent surfaces with a recess, respectively, *h i*, of annular form and of a size sufficient to accommodate several hundred balls of small diameter, (three-eighths of an inch, more or less,) each plate being centrally perforated, respectively, at *h' i'* for the reception

of the center pin S, and also provided, respectively, with a series of perforations h^2 i^2, through which screws may be passed and threaded to either plate F or G, as shown, and by combining my improved roller side-swing motion and ball-bearing swivel in the construction of a locomotive lead-truck increased security is added railway travel.

Having described my improvements, what I claim is—

1. A locomotive lead-truck comprising, a ball-bearing swivel, and a roller side swing whereby said truck may more readily take and follow curves in the track.

2. A locomotive lead-truck provided with three center plates, the lower plate being bolted to the truck-frame and provided with rolls disposed longitudinally thereon, the intermediate plate being adapted to rest upon said rolls, suitable balls disposed between the adjacent surfaces of the upper plate and said intermediate plate, the said upper plate, and a center pin passing through all three plates, substantially for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

LEWIS CROWELL.

Witnesses:

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