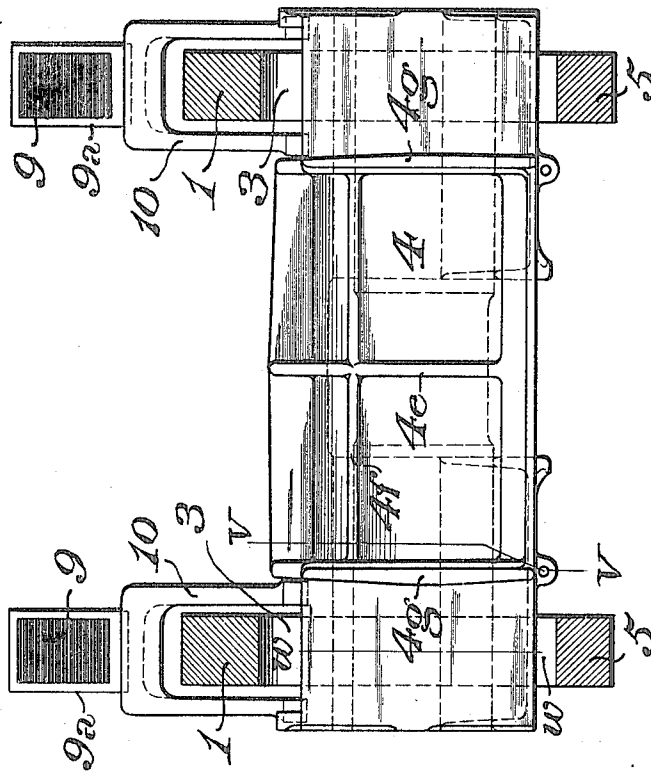
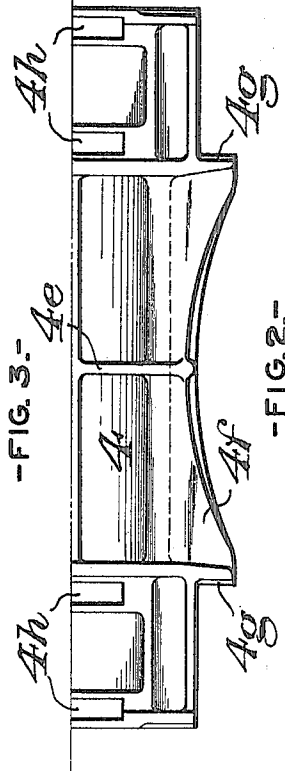


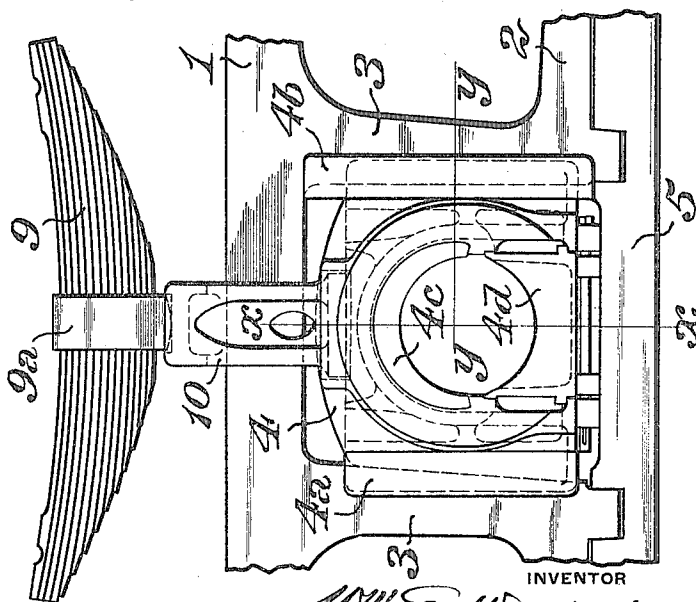
W. E. WOODARD.
LOCOMOTIVE DRIVING BOX.
APPLICATION FILED JAN. 27, 1915.

Patented June 1, 1915.
2 SHEETS—SHEET 1.

1,141,294.



-FIG. 1.-



WITNESSES

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INVENTOR

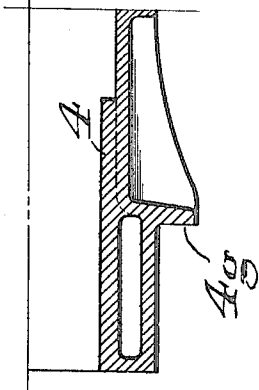
W. E. Woodard.
by J. W. Snowden, Att'y.

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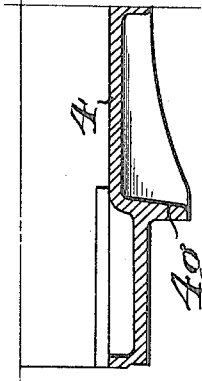
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2 SHEETS—SHEET 2.

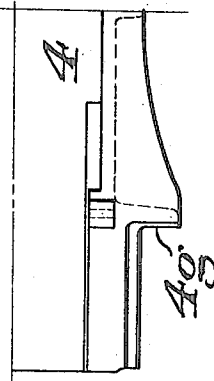
-FIG. 7.-



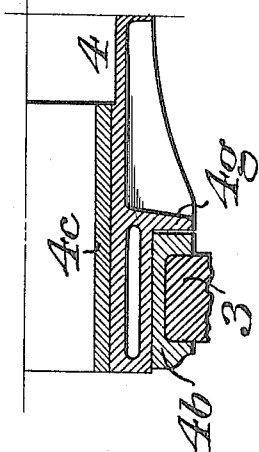
-FIG. 8.-



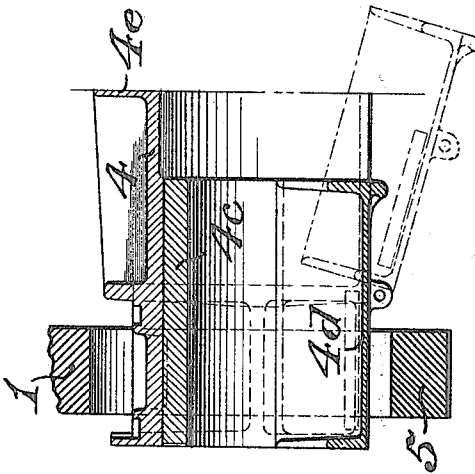
-FIG. 9.-



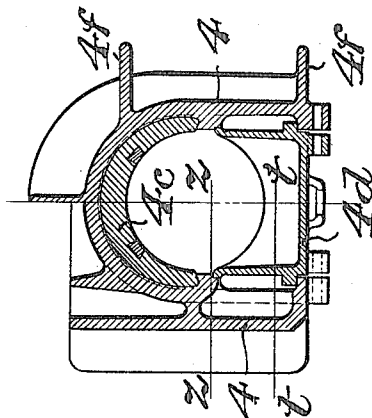
-FIG. 6.-



-FIG. 5.-



-FIG. 4.-



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UNITED STATES PATENT OFFICE.

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LOCOMOTIVE DRIVING-BOX.

1,141,294.

Specification of Letters Patent.

Patented June 1, 1915.

Application filed January 27, 1915. Serial No. 4,624.

To all whom it may concern:

Be it known that I, WILLIAM E. WOODARD, of Schenectady, in the county of Schenectady and State of New York, have invented a certain new and useful Improvement in Locomotive Driving-Boxes, of which improvement the following is a specification.

My invention relates to journal boxes for locomotive driving axles, in which the area of bearing surfaces on the axle is increased to a materially greater extent than that which is obtainable in ordinary practice, an instance of which is exemplified in Letters Patent of the United States No. 1,024,620, granted and issued to Francis J. Cole, under date of April 30, 1912.

The object of my invention is to provide a driving box of such type, which shall be of simple and inexpensive construction, readily applicable to and removable from the axle journals, and, in the operation of which, weight transmitted to the axle through the springs and saddles shall be uniformly distributed over the journal bearings, thereby insuring uniform wear throughout their length and preventing uneven wear at their ends.

The improvement claimed is hereinafter fully set forth.

In the accompanying drawings: Figure 1 is a side view, in elevation, of a locomotive frame pedestal showing, in end elevation, a driving box embodying my invention in position therein; Fig. 2, a vertical transverse section through the side members of a locomotive frame, showing a side view, in elevation, of the driving box; Fig. 3, a half plan view of the driving box; Fig. 4, a vertical transverse section, the right hand half of which is taken on the line *v v* of Fig. 2, and the left hand half on the line *w w* of the same figure; Fig. 5, a partial vertical longitudinal section, on the line *x x* of Fig. 1; Fig. 6, a partial horizontal longitudinal section on the line *y y* of Fig. 1; Figs. 7 and 8, similar sections, on the lines *z z* and *t t*, respectively, of Fig. 4; and, Fig. 9, a partial bottom view.

My invention is herein exemplified as applied in connection with a locomotive engine, the frame of which is of the standard "bar" type, and comprises two side members, which are, as in present practice, spaced at the maximum distance apart available under the necessary limitation imposed by the width between driving wheel hubs. Each

of the side frame members comprises, so far as the portion thereof in which the driving axles are fitted is concerned, the usual top rail, 1, bottom rail, 2, and connecting vertical pedestals, each of which consists of a pair of pedestal jaws, 3, in which one of the end portions of an integral driving box, hereinafter described, is fitted between a wedge, 4^a, and a shoe, 4^b, in the ordinary manner. The open space between the sections of the lower frame rail, at the bottom of the pedestal, is spanned by a pedestal tie, 5, suitably connected to the bottom frame rail.

In the practice of my invention, the journals of the driving axle, which are, as usual, located on the inner sides of, and immediately adjoining, the wheel seats on which the driving wheels are fixed, are made of materially increased length, as compared with the ordinary practice, and the portion of the weight of the locomotive which is supported by the driving axle, is applied thereto through an integral driving box structure, 4, which is of substantially inverted channel or U transverse section, and slightly less in length than the distance between the driving wheel hubs, so as to be readily insertible on, and removable from, the driving axle journals, and is formed with vertical and horizontal exterior strengthening ribs, 4^c and 4^d. The journal bearings, 4^e, for the two journals of the axle, are fitted in the end portions of the driving box, and lubricant cellars, 4^f, are connected to the driving box, below the journal bearings, in the usual manner.

Continuous driving boxes, built up in connected sections, and having flanges on both the inside and outside of the pedestal shoes and wedges, have been heretofore known, and my invention differs from these, not merely in presenting an integral driving box structure, but also in the particular that the driving box bears on the inner sides only of the pedestal shoes and wedges, instead of on both the inner and the outer sides thereof as in the prior designs referred to. To this end, lateral flanges, 4^g, are formed on the driving box, at proper distances from its ends to abut against the inner sides of the pedestal shoes, 4^b, and wedges, 4^a, and the width of the driving box is made sufficiently greater than in the ordinary construction, to provide end bearing surfaces substantially as wide as the diameter of the hub faces of the driving wheels against which

they abut. Full bearing surfaces thereon are thereby provided, the frame pedestals being made correspondingly wider to accommodate the widened driving box. Under
 5 this construction, lateral pressure upon either of the end faces of the box, is transmitted through the body of the box and the flanges adjacent to its opposite end, to the shoes and wedges adjoining the latter, and
 10 thereby to the opposite frame member.

Transverse recesses, 4^b, are formed in the tops of the end portions of the driving box, for the reception of the legs of vertical spring saddles, 10, which support the bands,
 15 9^a, of the springs, 9, and transmit the weight acting on the springs to the driving box and axle. The middle planes of the spring saddles coincide with those of the frame members, and as the journal bearings extend in-
 20 wardly for a substantial distance from the frame members, their middle transverse planes are therefore located at a correspondingly smaller distance apart than those of the spring hangers. By reason, however, of
 25 the journal bearings being fitted in the integral driving box structure above described, the weight which is borne by the springs is distributed uniformly over the journal bearings and journals.

30 I claim as my invention and desire to secure by Letters Patent:

1. A driving box structure for a locomotive driving axle, consisting of an integral member, of substantially inverted U section,

adapted to receive a journal bearing at each 35 of its ends, and having end faces which are without flanges and are adapted to abut against wheel hubs, and lateral flanges adapted to abut against the inner sides of frame pedestal shoes and wedges. 40

2. A driving box structure for a locomotive driving axle, consisting of an integral member of substantially inverted U section, adapted to receive a journal bearing at each 45 of its ends, and having end faces which are without flanges and are of width substantially equal to the diameter of wheel hubs against which they are adapted to abut, and lateral flanges adapted to abut against the inner sides of frame pedestal shoes and 50 wedges.

3. A driving box structure for a locomotive driving axle, consisting of an integral member of substantially inverted U section, adapted to receive a journal bearing at each 55 of its ends throughout a distance substantially greater than the width of the adjoining frame member in which the driving box is to be fitted, and having end faces which are without flanges and are adapted to abut 60 against wheel hubs, and lateral flanges adapted to abut against the inner sides of frame pedestal shoes and wedges.

WILLIAM E. WOODARD.

Witnesses:

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 H. F. WELLER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."