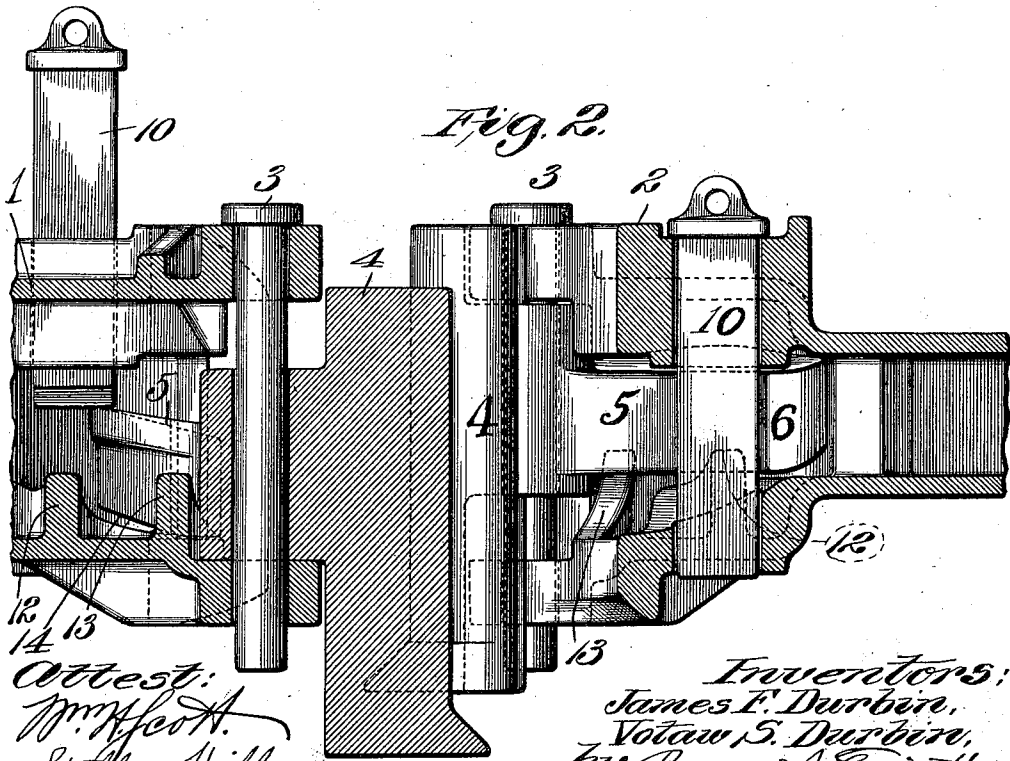
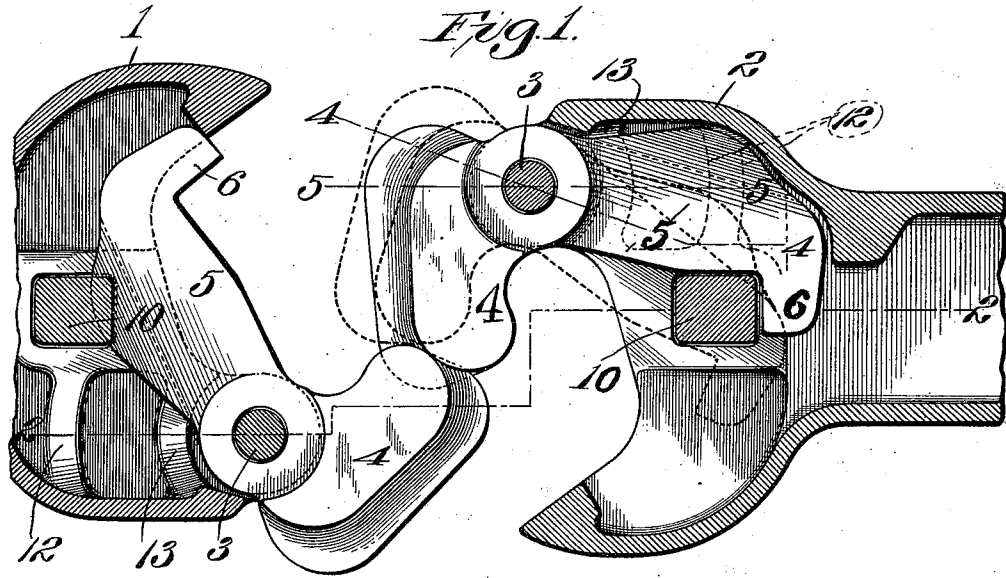


J. F. & V. S. DURBIN.
RAILWAY CAR COUPLING.
APPLICATION FILED MAY 31, 1910.

1,000,591.

Patented Aug. 15, 1911.

2 SHEETS—SHEET 1.



Attest:
Wm. H. Scott
Stella Hill

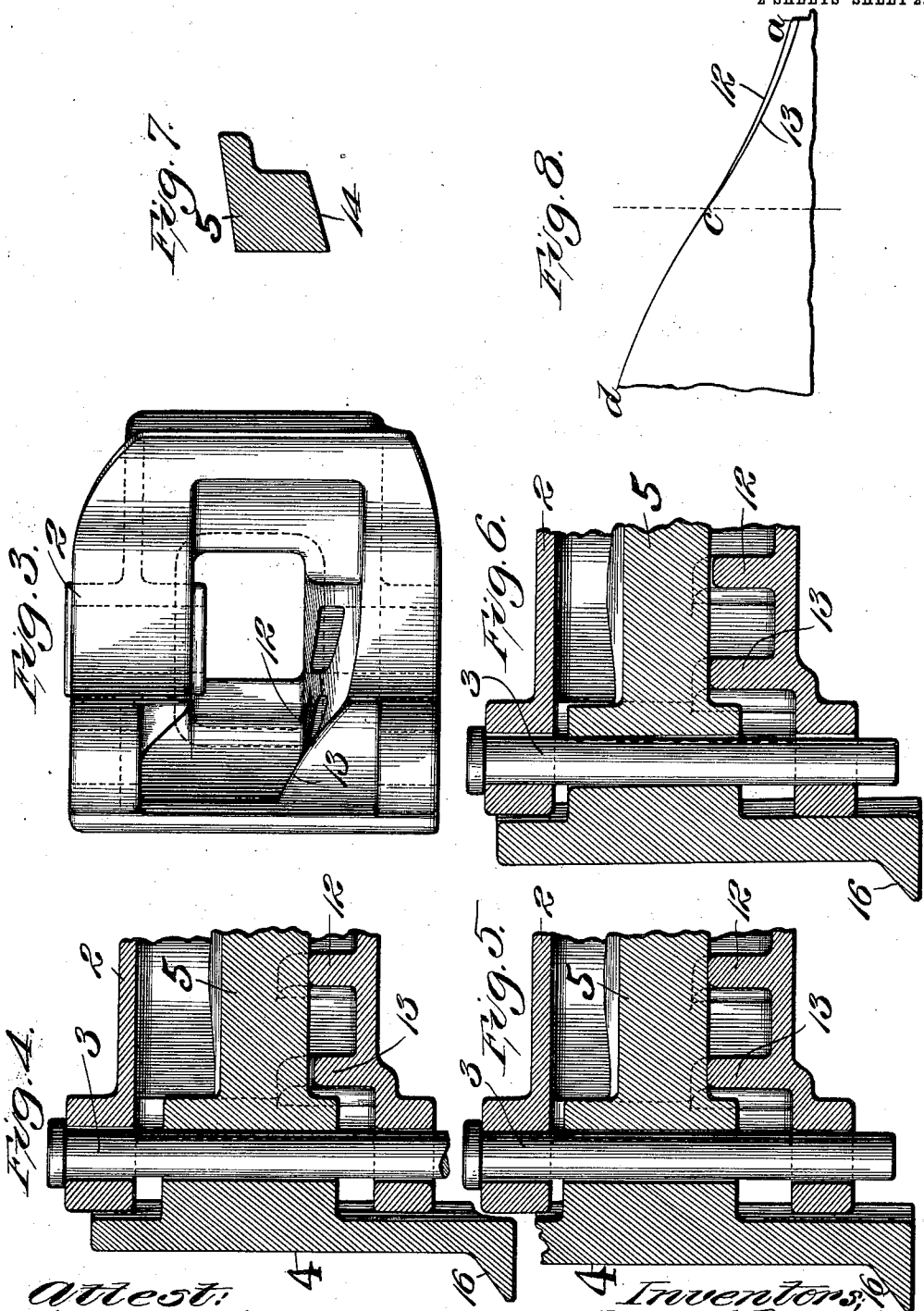
Inventors:
James F. Durbin,
Volaw S. Durbin,
by Bruce A. Elliott
Atty.

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Votaw S. Durbin,
by Bruce S. Elliott
Att'y.

UNITED STATES PATENT OFFICE.

JAMES F. DURBIN AND VOTAW S. DURBIN, OF FORT SCOTT, KANSAS.

RAILWAY-CAR COUPLING.

1,000,591.

Specification of Letters Patent. Patented Aug. 15, 1911.

Application filed May 31, 1910. Serial No. 564,116.

To all whom it may concern:

Be it known that we, JAMES F. DURBIN and VOTAW S. DURBIN, citizens of the United States, residing at Fort Scott, in the county of Bourbon and State of Kansas, have invented new and useful Improvements in Railway-Car Couplings, of which the following is a specification.

Our invention relates to car couplers of the automatic type, and has for its object to provide a novel construction for insuring the opening of the knuckles automatically, and which means shall present the minimum of frictional resistance to the closing of the coupler.

We are aware that various contrivances and constructions have been devised and patented for accomplishing the same purpose we have in view, and without attempting to deal with such devices specifically, we would simply state that many of them are open to the objection that they cannot be employed on car couplers of the standard type, others are so complicated as to be impracticable, and still others, if meeting the above objections, are inoperative for practical purposes for the reason that the resistance offered to the closing of the knuckle is so great as to cause excessive wear, and frequently breakage, of the parts.

Our invention aims to present an entirely practicable and simple means for accomplishing the purposes stated, and the employment of which necessitates no change in the general construction of the standard type of car coupler. Furthermore, a coupler-head provided with our improvement may be used in connection with the standard coupler-head which has not such improvement.

In the accompanying drawings:—Figure 1 is a sectional plan view illustrating two coupler-heads in position to be coupled, the coupler-head at the right having its knuckle locked in a closed position, and the knuckle of the opposing head being in an open position. Fig. 2 is a cross section on the line 2—2 of Fig. 1. Fig. 3 is an end view of a coupler-head provided with our improvement, the knuckle being removed. Fig. 4 is a section on the line 4—4 of Fig. 1, with the knuckle in the position indicated by the dotted lines; that is to say, the knuckle being in the position it occupies before it is in the closed or locked position indicated in the full lines. Fig. 5 is a section on the line

5—5 of Fig. 1, showing the position of the knuckle in the closed position. Fig. 6 is a view similar to Fig. 5, but showing the position of the knuckle as it starts to open. Fig. 7 is a cross section through the tongue of the knuckle; and Fig. 8 is a diagrammatic view showing the points of relative coincidence and departure of the surfaces of the two inclined bearings employed for accomplishing the object of the invention.

Referring now to the drawings, the numerals 1, 2 indicate corresponding coupler-heads of the standard type, each head having mounted therein, on a knuckle-pin 3, a knuckle 4, having a tongue 5 provided at its rear end with a hook 6. The hooks 6 of the respective knuckles are adapted to engage behind locking-pins 10, these parts being of the usual or any preferred construction. The heads 1 and 2 are hollow as usual, and in the floor of each, on the same side as the knuckle-pin 3, are provided two inclined bearings 12, 13, respectively, having substantially parallel lines of direction and as the construction for each coupler-head is the same, we will describe the construction with reference to the coupler-head 2, shown to the right in Figs. 1 and 2.

Referring more particularly to the views shown on Sheet 2 of the drawing, it will be seen that we provide two distinct inclined bearings which engage with the inclined under side 14 of the tongue 8. As illustrated by Fig. 8, the bearing 13, which is toward the front of the coupler-head, is inclined upward toward the side thereof from a point on the coupler-head indicated by the point *a*, to a point corresponding to the point *c*, at a greater degree than the inclination of the bearing 12 for the same distance, while from the point *c* to the point *d*, corresponding to the side of the coupler, the degree and plane of inclination are substantially coincident. In other words, from the point *a* to the point *c* the upper surface of the bearing 13 is lower than the same surface of the bearing 12. By this arrangement of bearing surfaces we obtain the advantage of securing an easy closing movement of the knuckle by insuring that the minimum frictional resistance shall be opposed to such movement. First premising that there is always a slight play between the knuckle and the knuckle-pin, the manner in which the arrangement of the two inclined surfaces will facilitate the closing

movement of the knuckle will be more readily understood from an inspection of Figs. 4, 5 and 6, and the operation will now be described.

5 Assuming the knuckle to be in the open position, when the coupler-heads are brought together the knuckle is forced to, or slightly beyond, a true vertical position in the direction of the head, and the rear part
10 of the tongue 8 will have its inclined under side 14 resting on the bearing 12, which is farthest removed from the point of application of power, that is, the front of the knuckle, and where, consequently, the leverage, and the pressure exerted by the tongue
15 on the bearing 12, is less than would be the case if the tongue were resting solely on the incline 13. There is, therefore, practically no tendency for the tongue, or the edge
20 thereof, to bite into the metal of the incline 12, and thereby oppose the passage of the tongue over the same, as occurs where a single incline at the front of the coupler is employed. Furthermore, the degree of inclination of the incline 12 being relatively
25 small, the tongue will easily ride up and over the same. This movement continues until the tongue reaches the point indicated by *c*, in Fig. 8, on the incline bearing 12, where the planes of the upper surfaces of the bearings 12 and 13 are substantially coincident, and from this point to the point *d* the tongue will ride over and rest upon both bearings. From the point on the bearings
30 corresponding to the point *c*, indicated in Fig. 8, to the upper end of the bearings, the degree of inclination of said bearings is greater than that of either of them from the point *a* to the point *c*, for this greater incline, especially of the forward bearing 13, is necessary to insure a certain and quick descent of the tongue to cause the knuckle to open. By having the tongue travel on both bearings in its passage thereon corresponding to the distance between the points
45 *c* and *d*, the relatively rapid rise of the tongue may be effected without thereby permitting the said tongue to be canted sufficiently to cause it to bind on the knuckle-pin or to bite into either bearing surface. It is necessary, as stated, that the knuckle shall open easily and rapidly, and with certainty, and this we secure by taking advantage of the slight play between the knuckle
50 and the pin whereby the weight of the lower part of the knuckle will cause a slight cant of the latter, which is sufficient to lift the tongue 8 off of the bearing 12 so that it will rapidly descend and ride over the forward bearing 13 only, which, owing to the quickness of its pitch, and its location in proximity to the knuckle-pin, will insure a more certain and rapid descent than if the tongue was supported only by the bearing 12. This
60 will be clearly apparent from an inspection

of Fig. 6 in connection with Fig. 3. In operation it will be seen, therefore, that we first secure a slow upward movement of the tongue with subsequently a more rapid one, in the closing operation; while in the opening operation the knuckle simply descends
70 over the single bearing 13, whereby we obviate the frictional contact of the tongue with the two bearings and also secure rapidity and certainty in the opening movement.
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A feature aiding in the operation of our improvement is the provision of an inclined lip 16 surrounding the lower edge of each knuckle, the purpose of which, in operation, is to prevent the knuckle from dropping out of the opposing coupler-head in the event that either draw-bar should be pulled from its car. These lips are provided on the lower end of the knuckle at the front side
85 and the added weight thereof, when the knuckle is released, aids in causing the said knuckle to assume the position shown in Fig. 6.

We claim:

1. In a car coupler, a head having two inclined bearings, located at different distances from the front thereof and having substantially parallel lines of direction, the forward bearing, for a portion of its length, having its bearing surface on a lower plane than the rear bearing, and a knuckle loosely pivoted in said head and having a tongue adapted to have its under side cooperate with said bearings under the play of the knuckle on its pin, whereby said tongue will first engage and ride upward on the rear bearing in the closing movement of the knuckle and will first engage and ride
100 downward on the front bearing in the opening movement of the knuckle.

2. In a car coupler, a head provided with two inclined bearings located at different distances from the front of the coupler, the rear bearing having a less inclination and being relatively higher through a portion of its length than the forward bearing, and substantially coinciding in inclination and height with the forward bearing throughout the remainder of its length, a knuckle loosely pivoted in said head, and having a tongue provided with an inclined lower side adapted, when the knuckle is released, under the play of the knuckle on its pin, to be lifted from the rear and ride only on the forward bearing, and in the closing movement of the knuckle, to first engage and ride upward on the rear or higher bearing.
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115
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3. In a car coupler, a head provided with two inclined bearings located at different distances from the front of the coupler, the rear bearing having a less inclination and being relatively higher through a portion of its length than the forward bearing, and substantially coinciding in inclination and
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height with the forward bearing through-
out the remainder of its length, a knuckle
loosely pivoted in said head and having a
tongue provided with an inclined lower side
5 adapted, in the closing movement of the
knuckle, to first engage and ride upward on
the rear or higher bearing, and a weight in
the form of a projection on the lower end of
the front side of said knuckle operating,
10 when the knuckle is released, under the play
of the knuckle on its pin, to cant the upper
end of the knuckle forward, and thereby
cause said tongue to rest upon and ride
downward on the forward bearing.

In testimony whereof, we have hereunto 15
set our hands in presence of two subscribing
witnesses.

JAMES F. DURBIN.
VOTAW S. DURBIN.

Witnesses to the signature of James F.
Durbin:

STELLA HILL,
C. T. HUNN.

Witnesses to the signature of Votaw S.
Durbin:

LENA M. CARLE,
JENNIE ANDERSON.

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