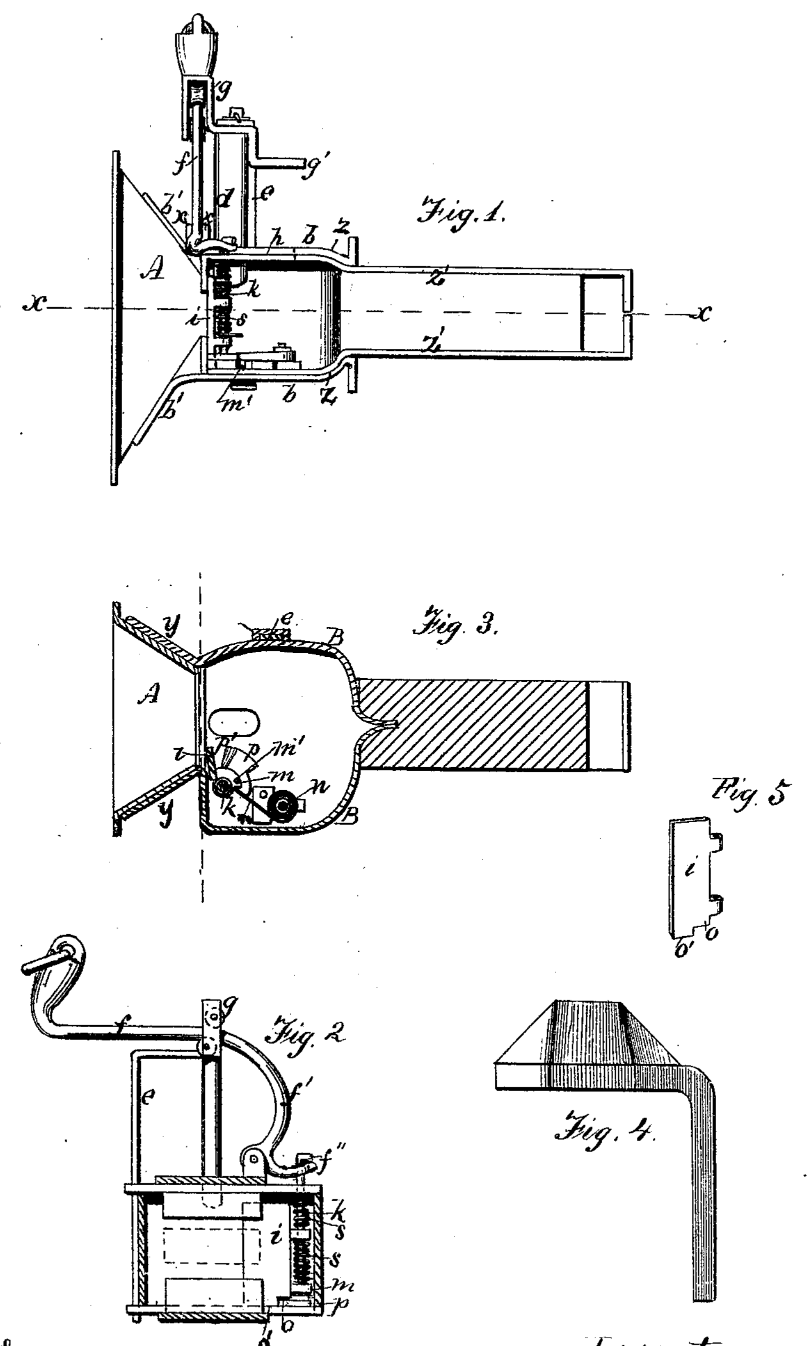
N. H. DOLSEN.

CAR-COUPLING.

No. 183,148. Patented Oct. 10, 1876.



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NINIAN H. DOLSEN, OF CHATHAM, ONTARIO, CANADA.

IMPROVEMENT IN CAR-COUPLINGS.

Specification forming part of Letters Patent No. **183,148**, dated October 10, 1876; application filed June 17, 1876.

To all whom it may concern:

Be it known that I, NINIAN H. DOLSEN, of Chatham, in the Province of Ontario and Dominion of Canada, have invented certain new and useful Improvements in Car-Couplings; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation with the pin raised and part of the shell removed to show the interior construction. Fig. 2 is a front view of the coupling. Fig. 3 is a horizontal section through lines *x x*, Fig. 1; and Fig. 4 shows the cap for cover for the parts exposed.

Similar letters of reference in the accompanying drawings denote the same parts.

My invention relates to automatic couplings for cars; and consists of improved details of construction, which will be more fully set forth, and illustrated in the drawing which accompanies and makes part of this specification.

The shell or casing of my improved coupling is composed wholly of wrought-iron in the form of plates. The front part of the head is made with a wide and flaring mouth, by the inclined sides of which the link may be guided into its place when, from any cause, it stands in the opposite draw-head in a lower plane than that of the draw-head to which it is to be coupled.

I am aware that this form of mouth of the draw-head is not new; but in order to insure lightness and sufficient strength, such as is absolutely necessary for these structures, I form this flaring mouth out of sheet metal, and strike or swage it into proper shape. In the drawing this flaring head is marked A.

The sides of the draw-head are composed of sheet metal, and are formed in the shape shown in Fig. 3. They are indicated at B B. The rear ends extend backward between the upper and lower straps, and may be riveted together. They thus serve to strengthen the upper and lower straps, and prevent the parts from bending and breaking by the frequent concussions. The forward ends *y y* are slightly turned outward, and are riveted firmly to the sides of the flaring head. The top and bottom pieces *b b* may also be cut from sheet metal of suitable thickness, in shape to cover the head formed by the two side pieces. These covers extend rearward at proper distance, and form the means for connection with the car.

The forward ends *b' b'* are turned upward and riveted to the flaring mouth-piece in the same manner as the sides. The top and bottom pieces are shown as formed each of two parts, the inner having an inwardly-turned flange, which abuts against the flaring mouth, and the outer pieces, which are riveted to the mouth, having an out-turned flange at the rear to furnish a stop for the bunter in its rearward movement. These two pieces may be cut of one width, and placed, when at a welding-heat, under a hammer and welded and spread to sufficient width.

This construction forms a solid and light shell, all the parts of which may be easily and cheaply made, and any part of which, when broken or worn, may be replaced.

I now proceed to describe the operating parts of the coupling. The pin *d* is of ordinary construction, except that it is a little flattened. It drops through the holes in the top and bottom of the shell. In its movement up and down it is guided by an arm, *e*, which is bent at right angles above, and fastened to the top of the pin *d*. The vertical portion slides in guides formed on the edges of the upper and lower plates of the shell. Just in front of the pin, and a little on one side, is a pair of lugs, *x x*, between which a lever, *f*, is pivoted. This lever is bent, as shown, and terminates in a reverse curve, and may have a weight fixed on this end, if the bar itself is not heavy enough, and, if required, may also be provided with a ring for the purpose of attaching a cord or chain thereto. The opposite end of this lever is curved, as shown at *f'*, so as to catch under a swinging lug, *f''*, on the upper end of a vertical pivot which projects through the upper

shell. This lug has a bevel on one side, so that the arm *f'*, as it strikes the lug in its descent, pushes it aside, and, passing, lodges and is caught underneath in such a manner as to hold the weighted end raised.

The longer end of this lever passes through an arm, *g*, fixed upon the upper end of the pin, and the effect, as plainly appears, is, that the pin is raised when the weighted end of the lever is elevated. The loop through which this lever passes is formed of one piece of metal, bent to inclose two friction-rollers, between which the lever passes. The other part is bent to fit horizontally on the head of the pin, and is fastened thereto. The bar is then bent twice, to form the part *g'*, and this projection, when the pin is forced down by the lever and its weight, passes through the slot *h* in the upper plate, and rests upon the end of the link. Thus the weight serves to hold the pin down and prevent it from being thrown out by the jolting of the car, and also to hold the link in a horizontal position.

The lug *f''* is on the upper end of a vertical pivot of a gate, *i*, which swings partly across the opening in the draw-head, in such a manner that the link, upon entering, will unavoidably strike it and push it from its place.

As the gate is hinged at the side, it turns as it is pushed by the entrance of the link, and in so turning it turns the pivot marked *k*, and thereby removes the lug *f''* from the curved arm of the weighted lever, allowing it and the pin to fall.

By this operation the entrance of the link is made to cause the pin to drop which holds the link in place.

The connection of the gate to the pivot is peculiar, and requires more particular description. The gate is hung loosely by means of loops on the pivot, so that, without other connections, it would turn freely thereon. It is pressed forward in front of the entrance, so as to encounter the link partly by the spiral spring *s*, which is slipped over the pivot, and bears by one end against the gate, and by the other against the inner face of the shell.

As shown in the drawings, the spring is wound from the center outward, so as to leave a central loop bearing on the gate, and two free ends resting against the shell. In addition to this there is a sector, *m*, through a square hole in the acute angle of which the squared end of the pivot *i* passes, so that these two parts turn together.

The sector *m* is pressed forward by a spring, *n*, bearing against one edge. This tends to keep the lug on the top of the pivot thrown backward, so as to hold the bent end of the lever which actuates the pin.

The gate is constructed as shown detached in Fig. 5. The lower edge is cut partly away, as shown at *o o'*, and of these edges *o'* is slightly beveled.

Underneath the sector above described is a second piece, of somewhat similar construction, as shown at *p*. It is formed with a round hole at the point or acute angle, and through this passes the pivot, made there of corresponding form. This lower sector is made with a recess, into which a pin, *m'*, on the upper sector moves and strikes in the motion of the upper on the lower, so that, when the upper has swung forward a prescribed distance, the pin will strike in the bottom of the recess and carry the lower sector therewith. At the same time the depth of the recess is such that the free motion of the upper sector is not interfered with. This lower sector is made with the forward edge beveled, as shown at *p'*, and this part is brought into such relation to the lower end of the gate that the beveled edge *o'* comes opposite the incline *p'*.

The lower edge *o* falls opposite the front edge of the upper sector, and fits squarely against it. Now, as this upper sector is fixed to the pivot, the effect of the first rearward movement of the gate is to push back this sector and turn the pivot. This turns aside the lug which holds down the curved end of the lever, and lets fall the weighted arm, and therewith the pin. The further movement of the gate causes the beveled end *o'* to ride upon the incline *p'*, thus lifting the gate at the part *o* above the upper sector and freeing it therefrom.

The parts have sufficient backward movement to allow the link to enter before the pin drops. Since, after the gate has mounted the upper sector, it is no longer connected therewith, this sector acts independently on the pivot, and leaves it ready to turn with the lug on its upper end, and catch the curved end of the weighted lever, as aforesaid.

I claim as my invention—

1. In a car-coupling, the flaring mouth, made of one piece of wrought-iron and swaged or pressed into shape, as set forth.

2. In combination with the flaring head, the upper and lower plates, made of wrought-iron, and riveted thereto by their outwardly-bent ends, as set forth.

3. The side plates, the forward ends of which are riveted to the flaring mouth, and the rear ends brought together and extended back between the upper and lower plates, as set forth.

4. The inner and outer plates, composed of the parts *b b z z*, connected to each other and to the flaring head, and the outer having the upturned rear ends, as set forth.

5. The guide *e*, passing through ears formed on the upper and lower plates, and connected to the upper end of the pin, in combination with the curved lever passing through loop in said pin, as set forth.

6. The loop and arms *g g'*, formed of one piece, and connected to the upper end of the pin, as set forth.

7. The curved lever, pivoted, as described, passing through a loop on the upper end of the pin, and having a catch at the opposite end, as set forth.

8. The gate-latch formed with lower ends *o o'*, and loosely hinged on the pivot, which carries the lug on its upper end, in combination with the sectors *m* and *p* and the springs *s s*, as set forth.

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Witnesses:

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