

G. JOHNSTON.
RAILWAY VEHICLE COUPLING.
APPLICATION FILED APR. 6, 1907.

1,058,753.

Patented Apr. 15, 1913.

Fig. 1.

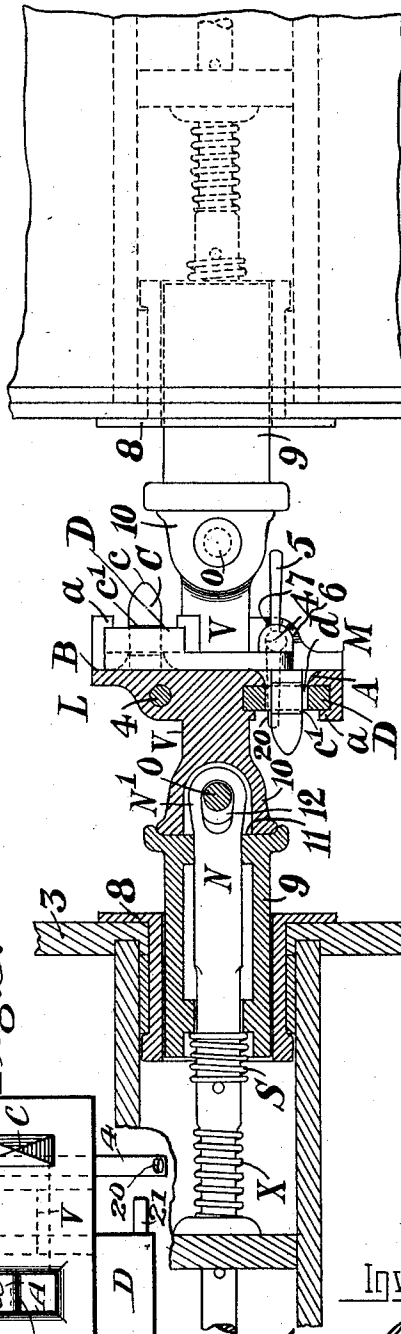
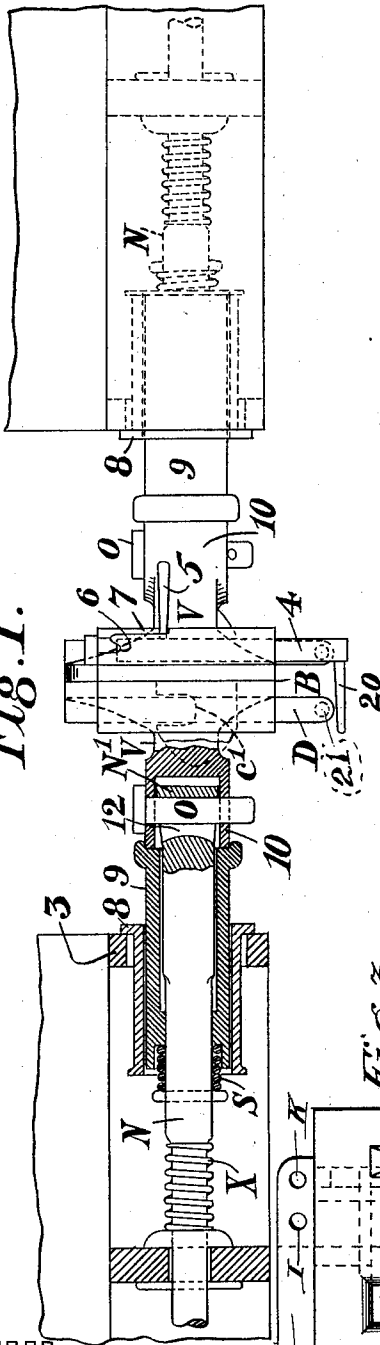
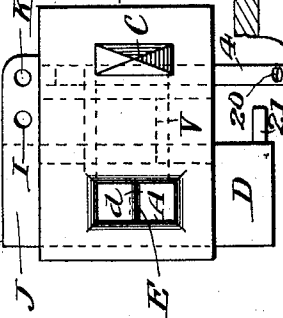


Fig. 2.

Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE JOHNSTON, OF LIVERPOOL, ENGLAND.

RAILWAY-VEHICLE COUPLING.

1,058,753.

Specification of Letters Patent.

Patented Apr. 15, 1913.

Application filed April 6, 1907. Serial No. 366,779.

To all whom it may concern:

Be it known that I, GEORGE JOHNSTON, a subject of the King of Great Britain, residing at Liverpool, in the county of Lancaster, in the Kingdom of England, engineer, have invented certain new and useful Improvements in Railway-Vehicle Couplings, for which application has been made in Great Britain, No. 9,970, dated April 28, 1906.

This invention relates to central buffers and couplings for railway and like rolling stock, which will automatically couple up when brought into contact.

The present invention provides a central buffer and coupling, that will couple up with the buffer faces in touching contact, so as to avoid the defect of loose couplings, and yet enable a train of tightly coupled vehicles to go around curves, or enable vehicles to be coupled on a curve.

In the accompanying drawings—Figure 1 is a side elevation partly in section; Fig. 2 a plan view with one of the buffers in section; Fig. 3 a face view of one of the buffers.

Referring to Figs. 1, 2, and 3, my central buffer is made with a body part V provided with a flat face B which is wider than the said body V. In this face B is a bell-mouthed rectangular hole A right through it at one side of the center line, in such a position as to be clear of the body part V. Equidistant on the other side of the center line, the buffer face B carries a draw hook C which is a fixture on the front face and projects therefrom. The drawhook C consists of a flat tongue of metal with tapered nose *c* and the top edge of this tongue has a vertical notch *c'* which extends about half way down the tongue. The buffers at each end of the vehicle are made in pairs, so that when two vehicles come together the flat hooks C of each buffer will enter the rectangular bell mouthed hole A in the other, and be guided into the exact position required at opposite sides of the buffer bodies V. By this construction therefore the hooks when they enter the holes are clear of the body portion V, that is the body is in the center line of the buffer with the hooks clear of it on the outside. This enables the pivots O to be located nearer the buffer face B than is the case, in the construction shown and described in my Patent No. 875,434, dated December 31, 1907, because the nose of

the hooks can if desired extend past the pivots O.

Mounted on the rear surface of each buffer face B immediately behind the hole A and in the path of the hook C where it enters the bell mouth and guided by guides *a* is a vertical coupling bolt D. This bolt is of flattened shape, of less width than the notch *c'*, and the guides *a* have parallel sides extending down to the bottom edge of the buffer face. The bolt is formed with a rectangular orifice *d* to receive the draw hook C and with a chamfered edge E at the top on its front face. The said bolt being of such a width that the top of its aperture can drop into the notch *c'* in the draw hook to engage the same, and form a tight interlocking connection therewith, without play or slackness.

4 is a pin sliding in guides at rear of the buffer face. The top end of this pin abuts against the head J of the coupling bolt D.

5 is a handle on the bolt 4. If this handle be lifted it will lift the pin 4 and then by turning the handle so as to rest on the abutment 6, it holds the coupling bolt in the raised position. If the handle 5 be given a part of a turn it will drop down into the slot 7 and thus lower the coupling bolt also.

On two vehicles coming together, the draw hooks C enter the bell mouths A and the orifices in the bolt D, and their noses coming against the chamfered edges E aforesaid, lift the bolts D, and then immediately the hooks C have passed through the orifices, the bolts D fall into the notches *c'* (provided the handle 5 is not locked to hold them raised) thus engaging the notches and fastening the buffers together. The moment however the bolts D are raised by either one of the handles clear of the notches *c'* the two buffers can be separated. The vertical bolts D project above the buffer face B and are provided with a head J each carrying a projecting stud I, which when two vehicles come together enter corresponding holes K in the bolt heads of the adjacent buffer. These lock the two bolts so that to uncouple the vehicle it is only necessary to lift one of the bolts D and the other will be lifted also.

In shunting operations where it is required that the buffers do not automatically couple up when two vehicles come together, the bolts D in the buffers are prevented from falling down to engage the coupling hook

by being held raised by means of the handle 5. Consequently when two vehicles come together, the hook C of one buffer L will enter the bell mouth A, and pass into the adjacent buffer, but will not be engaged by the bolt D because the latter is held raised by the handle 5. The coupling hook C of the other buffer M will also enter its adjacent bell mouth A, and raise the coupling bolt D, and the studs I, which project from the face on each bolt head J, will enter the corresponding holes K in their adjacent bolt heads, so that this other bolt D cannot fall to engage the coupling hook C because it is held up by the studs I engaging in the holes. Consequently no coupling of the vehicles takes place, and the two vehicles can be separated. The coupling bolt D of the buffer L can fall when the two vehicles are separated but it cannot fall so long as the hooks are in the bell mouths, until the handle 5 on the adjacent buffer M is released.

The buffer is pivoted to the buffing and draw-bar N at O, so that the former is not rigidly united to the latter but is free to move through a horizontal arc upon the pivot pin O as a center, to facilitate the buffers of adjacent carriages remaining in line when the carriages are on a curve. 8 is a guide fixed in the headstock 3; 9 a plunger mounted in said guide. A jaw 10 at the rear of the buffer body V receives the end of the draw-bar N, and through these the pivot pin O is passed, and the jaw 10 abuts against the flat face 11 of the plunger 9. The hole 12 for the pivot pin O is somewhat elongated as shown. S is a spring which exerts pressure against the plunger 9 and tends to keep the buffer in line with the draw-bar N, but the said spring allows a radial movement of the buffer in a horizontal arc to adapt the parts to the curvature of the rails. Further when two vehicles come together on a curve the impact of the two buffer faces coming together, will turn the buffers to one side or the other, so that the draw-hooks will enter the bell mouths at right angles to the buffer face. When the vehicle gets in a straight line the buffer will by the force of the spring S resume its position in line with the draw-bars N. Furthermore if two vehicles on coming together are unequally loaded so that one buffer is lower than the other the nose of the hooks C cannot pass direct into the bell mouths A, because the bell mouths and hooks are out of line. Consequently the

nose of the hook C which is on the lower level, striking against the bottom edge of the adjacent bell mouth A, will cause the buffer face to turn through a vertical arc, the slackness of the pin O in the hole 12, and the shaping of the draw-bar end N' permitting of this. Thus the hook C impinging against the adjacent bell mouth A, will bring the hook and bell mouth of one buffer, into alinement with the hook and bell mouth of the other buffer, although the body of one of the buffers and its draw-bar, may be considerably below the other. Instead of using the pins I and holes K on the head of the coupling bolt I can substitute therefor a finger 20 projecting at right angles from the bottom of the pin 4. The action will be the same, namely that if the handle 5 be raised the upper end of the pin 4 will lift one of the coupling bolts, while the projecting finger at the lower end, will lift the other coupling bolt.

X are the buffing springs mounted on the draw bar N. When the impact between the two buffers occurs, springs S in both buffers are first partly compressed without moving draw bar N until the head of each draw bar bottoms the slot in the head V. Thereafter springs X take up the impact and are compressed thereby.

I declare that what I claim is:—

A central buffer consisting of a buffer body having a face formed by two opposite lateral extensions, one extension having a bell mouth hole through it, the other extension having a draw hook on its face equidistant with the said hole from the central line of the body to permit the hole and the hook to operatively engage respectively with a hook and a hole of a like buffer, the hook of one buffer entering entirely through the hole of the other buffer, whereby the hooks of said buffers lie laterally clear of the bodies of the buffers, and a slide mounted in suitable guides at the rear of each buffer extension adjacent to its hole and adapted to engage the hook of the other buffer after it has passed through said hole to tightly lock said buffers together.

In witness whereof, I have hereunto signed my name this 26th day of March 1907, in the presence of two subscribing witnesses.

GEO. JOHNSTON.

Witnesses:

G. C. DYMOND,
JOHN McLACHLAN.