

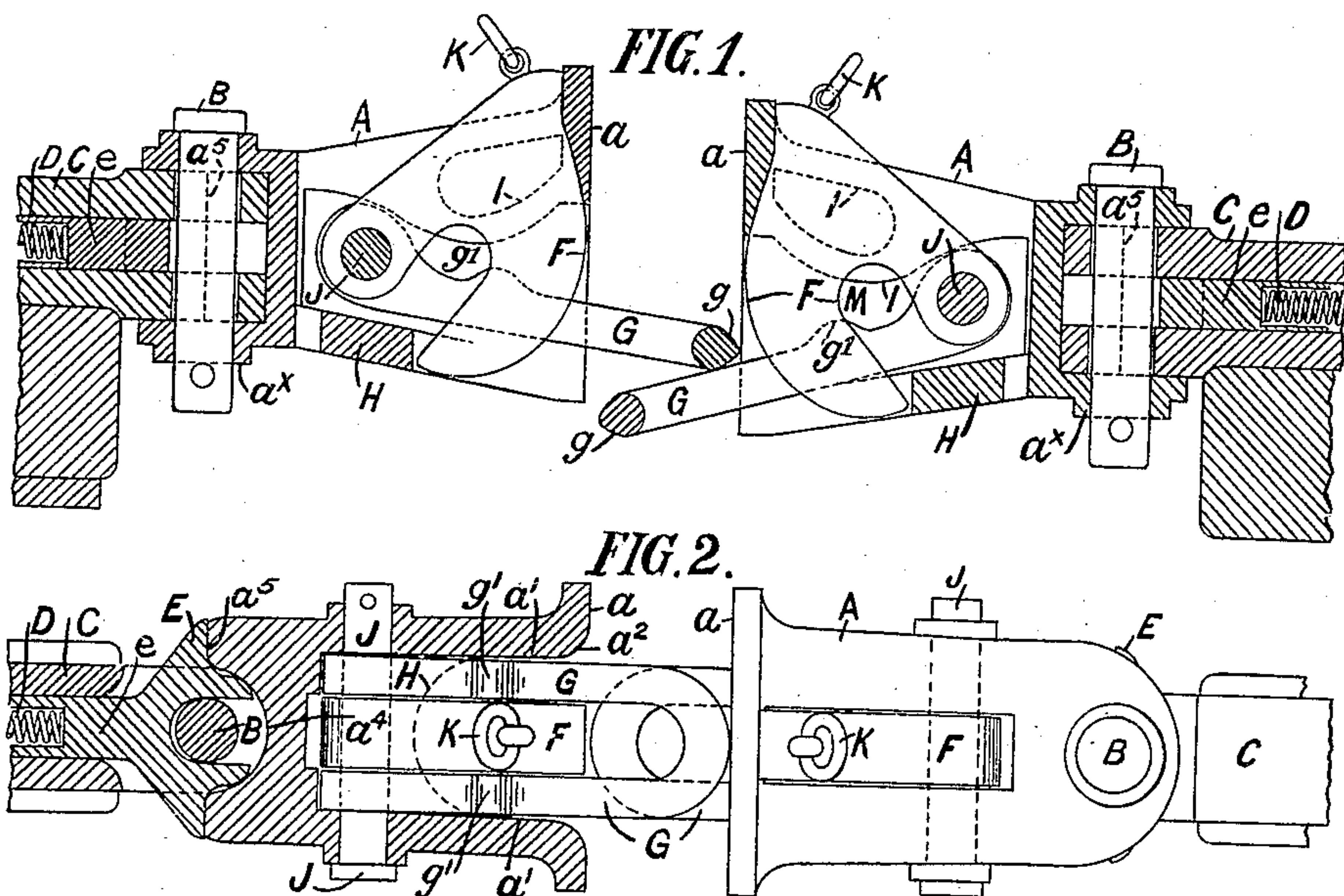
No. 875,434.

PATENTED DEC. 31, 1907.

G. JOHNSTON.

CENTRAL BUFFER AND COUPLING.

APPLICATION FILED JAN. 7, 1905.



Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE JOHNSTON, OF LIVERPOOL, ENGLAND.

CENTRAL BUFFER AND COUPLING.

No. 875,434.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed January 7, 1905. Serial No. 240,056.

To all whom it may concern:

Be it known that I, GEORGE JOHNSTON, a subject of the King of Great Britain, residing in Liverpool, in the county of Lancaster, in the Kingdom of England, engineer, have invented certain new and useful Improvements in Central Buffers and Couplings, for which application has been made in Great Britain, No. 12,778, dated June 6, 1904.

This invention relates to central buffers and couplings which will automatically couple up, and in which coupling hooks are used for engaging draw-links or shackles.

In the accompanying drawings: Figure 1 is a vertical section of two opposing buffers; Fig. 2 a plan thereof partly in section.

In carrying the invention into effect, I pivot the buffer-head A to the buffing and draw-bar C so that the former is not rigidly united to the latter but is capable of turning on its axis in order to facilitate the buffers of adjacent carriages remaining in line or substantially so, when the carriages are on curves. By this arrangement the faces a of the buffers can be made flat, and the buffing action distributed over the whole face of the buffer. It will be noticed also that the buffer is formed with a jaw a^x at the rear into which the draw-bar C enters and is pivoted, and that the draw-bar end abuts against the bottom a^4 of the jaw, whereby the entire buffer blows are received by the draw-bar and not by the pin B. Abutting the jaw the buffer is provided with a flat face or shoulder a^5 . The buffing and draw-bar C is made hollow at the end for a short distance and in this is placed a spiral spring D. The buffer-head A is pivoted at B to the bar C and its flat face a^5 abuts against a yoke E whose shank e is mounted in the hollow end of the said bar C against the spiral spring D. This spring keeps the yoke pressed firmly against the flat face a^5 of the buffer so that the buffer A is normally kept in line with the bar C by the yoke pressing against it. By exerting a little force, however, the buffer-head can be turned to one side or the other and the spring D is compressed by the yoke but the buffer will at once resume its position when the force that turned the buffer laterally is removed.

The buffer head is shaped in a suitable manner with a cavity a' inside wide enough to receive a coupling hook F as well as a coupling shackle G. This cavity can be made straight at the sides a' and rounded or

chamfered at the buffer mouth a^2 . It has a sloping bottom H for a part of its length, and the top is closed by the part I except at the place where the coupling hook F is. The coupling hook F as well as the shackle G is mounted upon a pin J which passes horizontally and transversely through the buffer head A. The hook F when down is contained almost completely within the buffer head A, and does not project out in front at all, but part of the shackle G projects out in front of the buffer head.

The hook F is practically in the center line of the buffer head A and draw-bar C, and within the shackle G. The weight of the hook F is such that even when raised, it falls down again, whenever the force that raised it, is released until stopped by a part a of the buffer.

The buffers at each end of the vehicle are made exactly similar, and both are provided with coupling shackles G, which rest on the sloping bottom H of the buffer, so that when two vehicles are brought together, the coupling shackles G of both buffers approach each other in a sloping position, and furthermore the shackles being chamfered at their projecting ends g , insure one of the shackles riding up the other shackle, and entering the mouth of the buffer A and being engaged by the hook F. This action takes place, even if one buffer is on a lower plane than the adjacent buffer. The shackle G of the buffer that is on the highest plane slides up the shackle G of the adjacent buffer on the lower plane, and is engaged by the hook F, the shackle in one buffer and the hook in the other, coupling the two vehicles together. The shackle on the lower level therefore, merely forms a sloping plane for the other shackle to slide into position to be engaged by the hook. If desired the hook F can be held raised by being suspended by a chain or other device, and thus prevent the coupling hook falling down, K being an eyelet to which the chain can be attached. The coupling hook F could thus be retained in its raised position during shunting operations, so that the vehicles will automatically couple together.

The mode of action is as follows:—When two vehicles come together, the draw-shackle G of one buffer slides up the shackle G of the other buffer, and enters the buffer mouth, and is guided into position by the straight sides a' , and the chamfered front a^2 . The

shackle when it comes against the coupling hook F (or between the coupling hook and the shackle) in its passage into the buffer head, raises it, and as soon as the shackle has entered the buffer and has been guided into position, the coupling hook F at once falls by gravity through the shackle G and thus automatically fastens the buffers together. It is the shackle G of the buffer on the highest level that slides up the shackle of the buffer on the lower level, and so becomes engaged by the hook F, one shackle therefore merely acting as an inclined plane for the other one to slide up, and when the two buffers are coupled together, the projecting end of that shackle lies just under the opposing buffer in a space provided for it. In order to insure that the pull on the pin J of the coupling hook F be substantially horizontal, I arrange the fixed abutments I on the inside of the buffer head A at the top. Against these the shackle G abuts where it enters the buffer mouth, so that even if the vehicles are unequally loaded the shackles coming against these abutments I will insure the pull being in a substantially horizontal line. Also there are preferably lumps or abutments *g'* on the shackles, and the end of a shackle when coupled is held in the space or cavity M formed by parts F G *g'* I, the object being to hold the end of the shackle in the center line of the pin J.

One great advantage of this invention is that any two buffers can be coupled together automatically, and the defect so objected to in the ordinary central buffer, is avoided, viz. that one buffer has to contain a hook and the other a link and therefore if a vehicle gets turned round, and two opposing links or two opposing hooks come together, the vehicles cannot be coupled until one of the hooks is substituted for a link and vice versa.

A further advantage is that my buffer will

couple up to the ordinary central couplings of railway stock fitted up with side buffers, a hook and link being provided in that case coupling on to the shackle of my buffer and the hook of the draw-bar in the opposing vehicle.

I declare that what I claim is:—

1. In an automatic buffer and coupling comprising a buffer head formed with the lower portion of its mouth cut away, a shackle pivotally mounted in said buffer head, and a hook mounted on said shackle pivot, said hook projecting beyond the buffer head in a sloping plane.

2. An automatic buffer and coupling, comprising a buffer-head, a pin mounted therein, a draw hook mounted in the center line of said buffer upon said pin and a coupling shackle mounted upon said pin, said shackle being chamfered at its projecting end and so arranged as to be held normally in a sloping position for the purposes set forth.

3. In an automatic buffer and coupling, the combination of a draw bar, a pin vertically mounted therein, a buffer-head pivoted on said pin, a yoke mounted in said draw bar at the rear of said buffer head and spring means for holding said yoke firmly against said buffer-head for the purposes set forth.

4. In an automatic buffer and coupling, a buffer head formed with an abutment on its upper interior surface, a shackle pivotally mounted within said buffer head and an abutment formed on the upper surface of said shackle and adapted to engage the abutment on the interior of said buffer head.

In witness whereof, I have hereunto signed my name this 21st day of December 1904, in the presence of two subscribing witnesses.

GEO. JOHNSTON.

Witnesses:

G. C. DYMOND,

JOHN McLACHLAN.