

No. 706,896.

Patented Aug. 12, 1902.

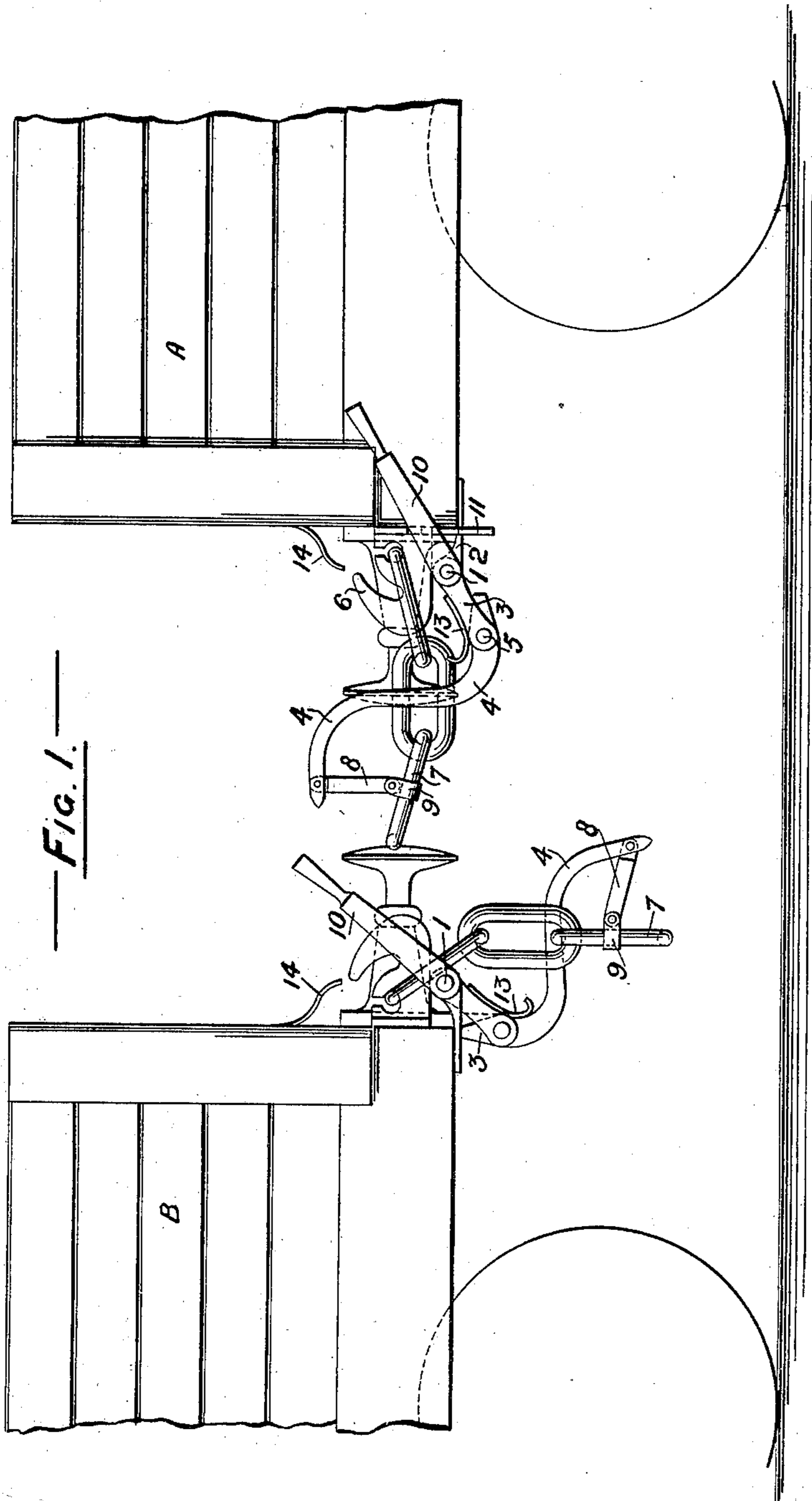
A. BROOKER.

CONTROLLING DEVICE FOR COUPLINGS OF RAILWAY WAGONS.

(Application filed Oct. 2, 1901.)

(No Model.)

4 Sheets—Sheet I.



Witnesses

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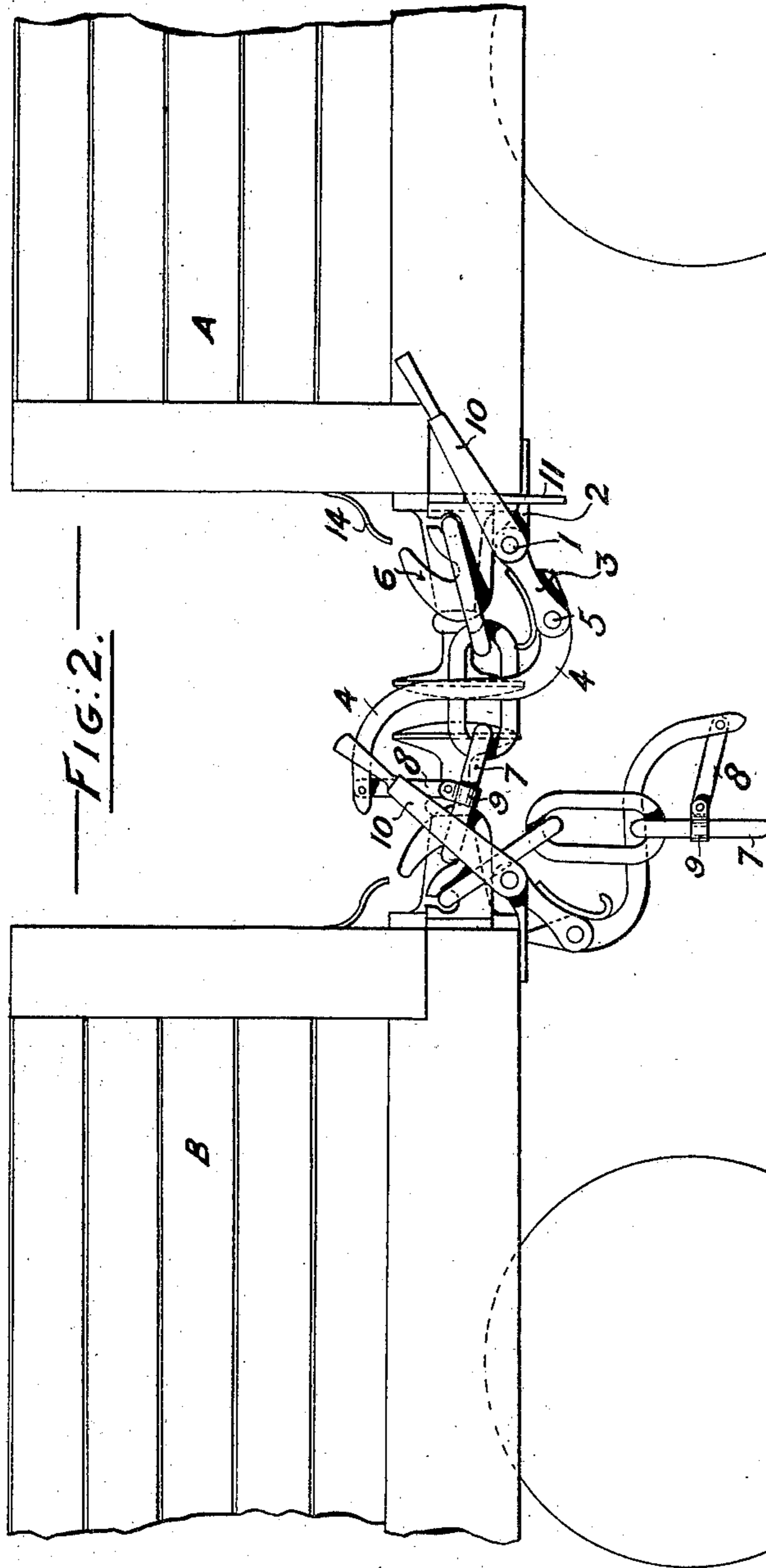
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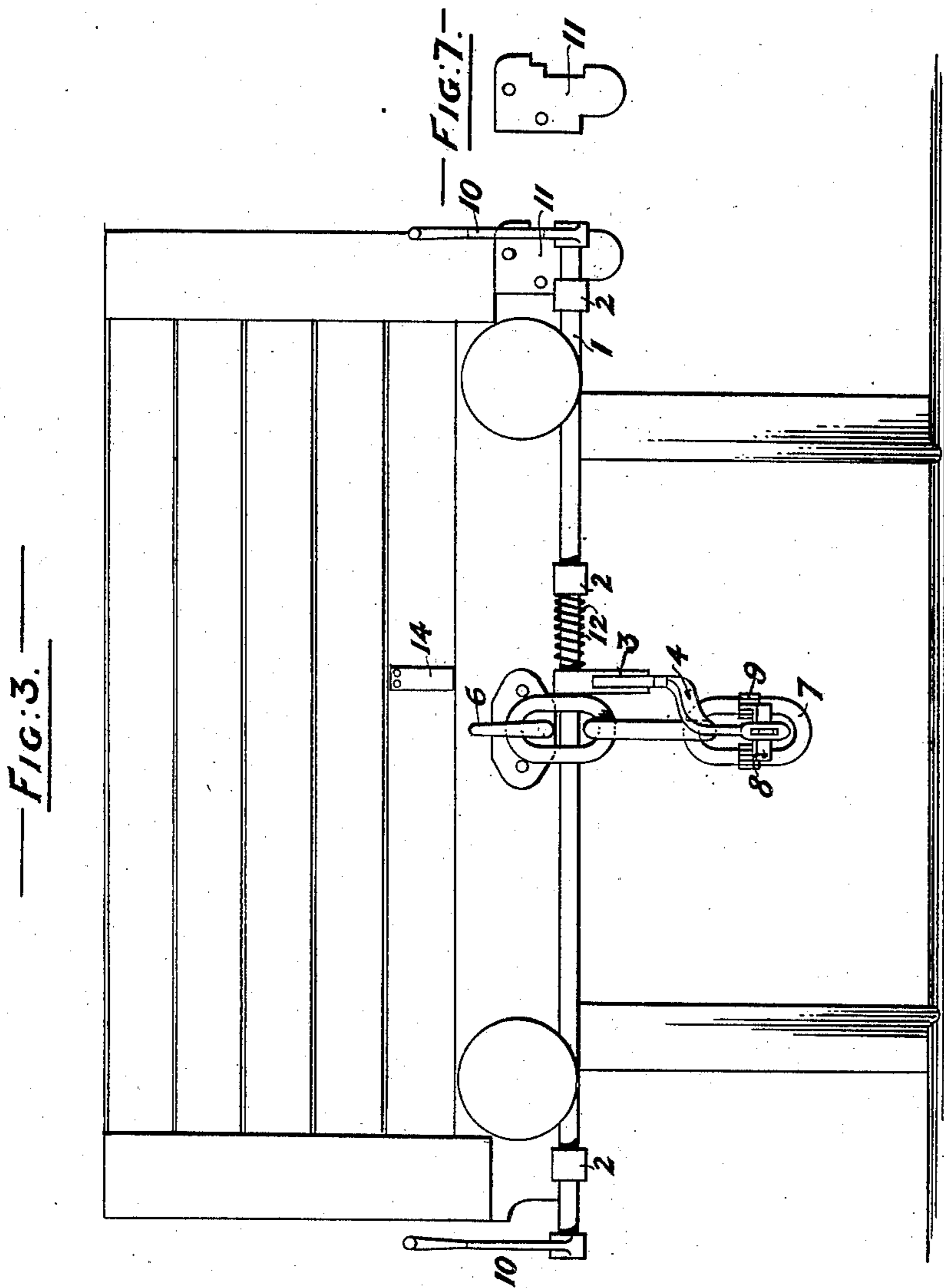
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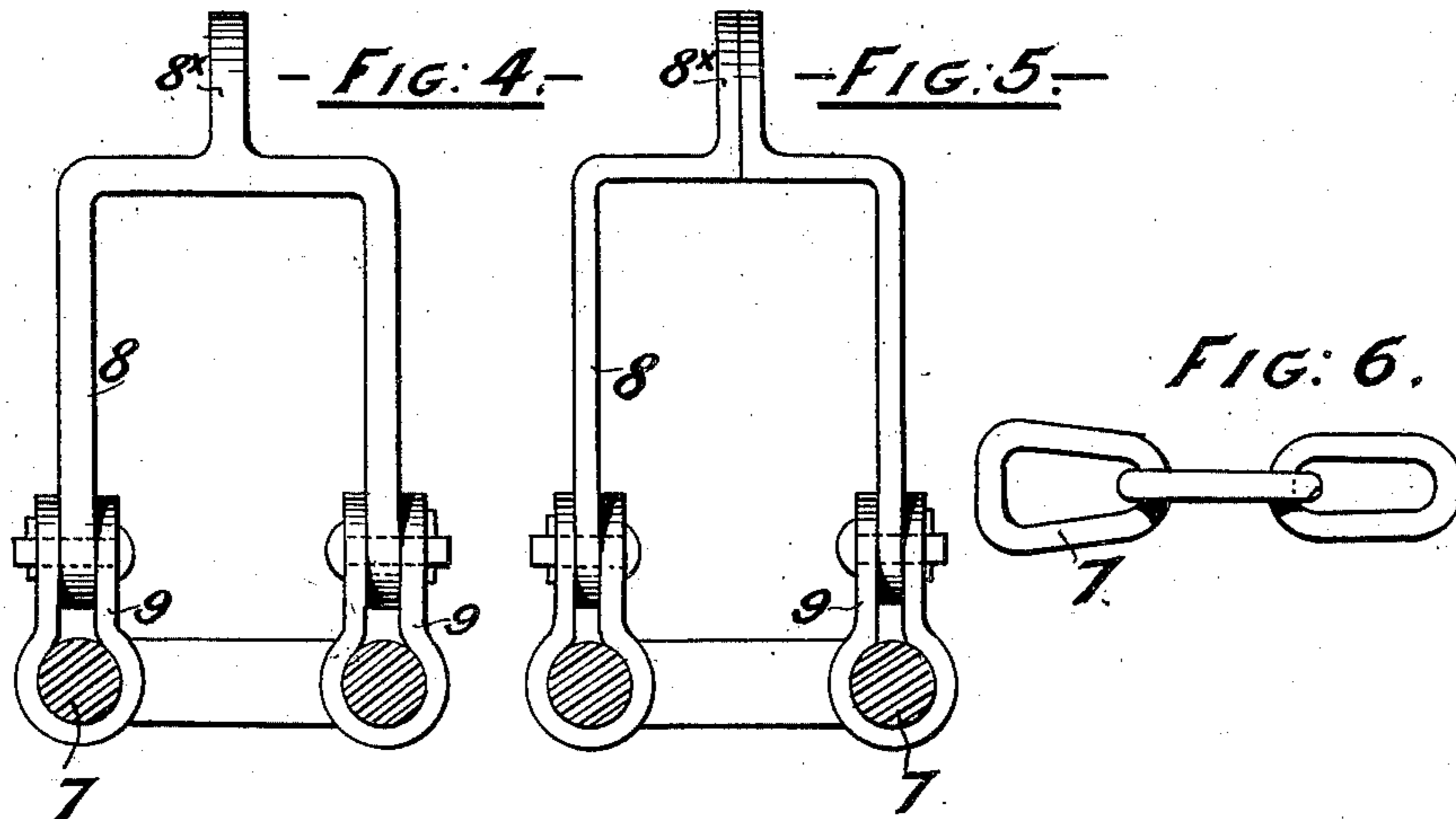
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# UNITED STATES PATENT OFFICE.

ALBERT BROOKER, OF EASTLEIGH, ENGLAND, ASSIGNOR OF ONE-HALF TO  
DOMINIC FAGIOLI AND WILLIAM BAILEY, OF EASTLEIGH, ENGLAND.

CONTROLLING DEVICE FOR COUPLINGS OF RAILWAY-WAGONS.

SPECIFICATION forming part of Letters Patent No. 706,896, dated August 12, 1902.

Application filed October 2, 1901. Serial No. 77,261. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT BROOKER, wagon-maker, of 32 West View, George street, New Town, Eastleigh, in the county of Hants, England, have invented certain new and useful Improvements in Controlling Devices for Couplings of Railway-Wagons, (for which I, DOMINIC FAGIOLI, and WILLIAM BAILEY, have made application for a patent in Great Britain, No. 7,382, bearing date the 10th of April, 1901,) of which the following is a specification.

Railway-wagons which are adapted to carry goods or merchandise are frequently fitted with what are known as "three-link couplings." In this form of couplings as at present constructed each wagon is similarly provided with a draw-bar having a hook formed at its end, and the stem of each hook carries one end of a chain, generally composed of three links, one of such links passing through a hole formed in the stem of the hook, and thus when out of operation the three links would be free to depend from the stem of the hook. In the usual course of operations when two wagons so fitted are brought together an attendant enters between the wagons and places the end link of the coupling-chain over the hook of the opposite wagon. Such a proceeding is highly dangerous and is the cause of much injury and loss of life. The grave objections which exist to this practice are well known, and with this particular type of three-link coupling efforts have been made to effect the coupling and uncoupling of the wagons without the necessity of the attendant entering between the same. Thus an operating-shaft extending transversely of the end of the wagon and having handles at each side by which it can be partly rotated has been proposed, and such a shaft has carried operating-levers, between the ends of which the end link of the coupling has been connected. The end link has been connected to the ends of the operating-arms by pins upon the links engaging the ends of the arms, and then the operating-arms have in some cases been jointed. It has also been proposed to employ rigid arms from the transverse shaft and to connect the end link to each of the arms by chains.

Now my present invention refers to an improved construction and combination of parts adapted to more advantageously control this form of three-link wagon-coupling, and according to my invention I employ the transverse shaft having end operating-handles, the shaft being mounted in bearings upon the end of the wagon, and about centrally upon this shaft I fix a crank, to the end of which there is a single knuckle-jointed arm, the end of which extends upward and is bent centrally above the end coupling-link, and that link is pivotally suspended from the up-standing end of the knuckle-jointed arm by a yoke-piece. The knuckle-joint of the arm is of such a character that the arm can turn upwardly upon the crank, but not downwardly.

My invention will be readily understood by reference to the accompanying drawings, whereon—

Figure 1 shows in side elevation so much of the adjacent ends of two wagons as is necessary to illustrate the application thereto of my invention, the coupling being shown held in the position it would assume when about to be coupled. Fig. 2 is a similar view showing the wagons coupled. Fig. 3 is an end view showing the coupling thrown out of action. Fig. 4 is a detail view, drawn to a larger scale than the previous figures and showing a vertical transverse section through the last link of the coupling, with my yoke-and-arm suspension device connected thereto. Fig. 5 is a detail view similar to Fig. 4, showing a modified construction of the yoke-and-arm suspension device. Fig. 6 is a plan view of a three-link coupling-chain hereinafter referred to. Fig. 7 is a detached end elevation of a notched plate.

In carrying my invention into practice I fit each end of each wagon, such as the two wagons marked A B, with precisely similar devices, and it will therefore be sufficient if I now describe an example of construction of the mechanism upon one end of one of the wagons—say that marked A.

Extending transversely across the end of the wagon A and from side to side thereof is the operating-shaft 1, supported in bracket-bearings 2 from the end of the wagon. A

similar shaft, as I have before stated, has already been proposed to be used for operating this class of coupling.

Upon the shaft 1, near the center of its length, I fix a comparatively short crank 3, and to the end of the crank 3 at 5 I joint a carrying-arm 4 by means of a knuckle-joint, this joint being so constructed that the arm 4 can only move upwardly relatively to the crank. The arm 4, considering, for instance, the coupling to be in the position of Figs. 1 or 2, extends upwardly above the coupling, and near its upper end is bent so as to come about centrally above the end link 7, the operating-shaft 1 extending below the draw-bar hook 6.

Connected by a pivot-pin to the upper end of the arm 4 is a pendent forked yoke 8, capable of turning freely upon the said pivot-pin, and the two lower ends of the forked yoke 8 are respectively pivoted to opposite sides of the end link 7. This pivoting is conveniently effected in actual construction by employing clips 9, bent around the side arms of the links 7, and to these clips the fork ends of the yoke 8 are pivoted.

It will be seen by the construction which I have so far described that no alteration whatever has been called for in so far as regards the draw-bar hooks or the links of the coupling. All the parts composing my controlling device are in fact capable of being applied to any wagon with this type of coupling without alteration to the said wagon or to its coupling. Moreover, the construction I have described has entirely obviated the employment of a pair of parallel carrying-arms, the single member 4 serving every purpose, cheapening the construction, and reducing the number of parts, all of which features in this class of coupling are of considerable importance in practice.

My novel combination of parts permits of the stable suspension of the link and renders it incapable of derangement in position by shocks which it may receive, while at the same time the end link 7 is still very freely suspended and is capable of considerable variation in its position relatively to the end of the wagon, so that it readily adapts itself to wagons in which what is termed the "strike" is very different. By the "length of strike of the wagon" I mean the distance through which the wagons will move together by the closing in of the buffers under compression of the buffer-springs after the said buffers have been brought into contact, and this distance varies with different constructions of wagons.

In the case of the present invention a small variation in the strike may be taken up by the swing of the yoke, whereas a larger variation may be taken up in the same manner with the addition of some motion of the arm 4 upon its joint 5.

In order to prevent the arm 4 being thrown too far backward, I provide the knuckle-joint with a spring 13 to bring the arm back auto-

matically to its normal position, and I may further fit a buffer-spring 14 on the end of the wagon to receive the arm if it is thrown backward excessively.

In order to operate the shaft 1, hand-levers 10 are provided at each end thereof at the side of the wagon, and I mount the shaft 1 in its bearings, so that it is capable of a slight endwise motion against the action of a spring 12.

One of the hand-levers 10 is adjacent to a notched plate 11, fixed to the wagon, so that by pulling or pushing the shaft endwise against the action of the spring 12 the hand-lever 10 can be engaged with or disengaged from the notches in the plate 11, Fig. 7, and thus the shaft is maintained in the angular position in which it has been placed.

At Fig. 4 the yoke 8 is shown as being formed in one piece; but for ease of manufacture I have sometimes found it preferable to make the yoke 8 of two separate pieces of metal bent and placed together, as shown at Fig. 5. The tongue 8<sup>x</sup> enters a slot formed through the end of the arm 4, a pivot-pin passing through the same transversely and through the said tongue 8<sup>x</sup>.

By this invention I am enabled to take a wagon with the three-link coupling as already constructed and without any alteration to the existing parts and whatever may be the strike of the wagon I can by fitting thereto the simple and inexpensive combination of appliances which I have described convert the said wagon so as to be capable of being coupled and uncoupled all by the operation or setting of either of the levers 10 at either side of the vehicle.

When two wagons are to be coupled together, so that wagon marked A is to be coupled to wagon marked B, the coupling of wagon B is lowered, as shown at Figs. 1, 2, and 3, so as to be out of action and leaving the hinged carrying-arm 4 inclined downward and holding the coupling-links below the draw-hook of wagon A. The coupling devices of the wagon A are then set in the position shown at Fig. 1 before the wagons are brought together, being held in this position by the handle 10 engaging in the notched plate 11. The end coupling-link 7 of wagon A is thus held or supported in an approximately horizontal position, as at Fig. 1, at the level of the bite of the draw-hook 6 of wagon B and so that when the wagons are brought together the suspended link 7 of the wagon A will rise on the inclined face of the draw-hook 6 of the wagon B and will fall into its bite and into the position shown at Fig. 2.

To uncouple the wagons upon the buffers of the same being brought together, the hand-lever 10 is operated from one notch to the next, and the carrying-arm 4 is thereby raised and lifts its suspended coupling-link 7 from out of the bite of the draw-hook of wagon B, and the setting of the coupling into position for either the operation of coupling or un-

coupling can be effected from either side of the vehicle, as aforesaid.

In those cases where new couplings are being constructed I prefer to shape the last link 7 of the coupling as I have illustrated at Fig. 6 in order to give a greater facility in passing around curves, although this construction is not absolutely necessary.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In controlling devices for railway-wagon couplings of that type wherein each wagon has a centrally-located draw-bar hook the stem of which carries a chain, the free end of which chain is to be passed on or off a like hook on the opposite wagon; the combination with the said chain, a horizontal operating-shaft extending transversely of the wagon from side to side thereof beneath the draw-bar hook, bearings on the end of the wagon to carry the shaft, operating-levers on each end of the shaft at the sides of the wagon, and a single crank fixed on the shaft near the center of its length; of a carrying-arm 4, consisting of a single member, a knuckle-joint connecting one end of the carrying-arm 4 to the crank permitting the arm to only have an upward motion relatively to the said crank, a bend in the arm 4 to bring its upper end in the central vertical plane of the coupling, the said upper end of the arm 4 extending above the said coupling-links, a pendent forked yoke pivoted to the upper end of the arm 4, and pivot-pins connecting the side members of the end coupling-link with the pendent ends of the forked yoke whereby the end link is pivotally suspended, substantially as set forth.

2. In controlling devices for railway-wagon couplings of that type wherein each wagon has a centrally-located draw-bar hook the stem of which carries a chain, the free end of which chain is to be passed on or off a like hook on the opposite wagon; the combination with the said chain, a horizontal operating-shaft extending transversely of the wagon from side to side thereof beneath the draw-bar hook, bearings on the end of the wagon to carry the shaft and in which the shaft is capable of both rocking and endwise motions, a helical spring on the shaft to maintain the same in its normal lengthwise position, operating-levers on each side of the shaft at the side of the wagon, a notched plate on the

wagon with which one of the operating-levers is normally brought into engagement by the spring to maintain the shaft in the angular position into which it has been placed, and a single crank fixed on the shaft near the center of its length; of a carrying-arm 4, consisting of a single member, a knuckle-joint connecting one end of the carrying-arm 4 to the crank permitting the arm to only have an upward motion relatively to the said crank, a bend in the arm 4 to bring its upper end in the central vertical plane of the coupling, the said upper end of the arm 4 extending above the said coupling-links, a pendent forked yoke pivoted to the upper end of the arm 4, and pivot-pins connecting the side members of the end coupling-link with the pendent ends of the forked yoke whereby the end link is pivotally suspended substantially as set forth.

3. In controlling devices for railway-wagon couplings of that type wherein each wagon has a centrally-located draw-bar hook the stem of which carries a chain, the free end of which chain is to be passed on or off a like hook on the opposite wagon; the combination with the said chain, a horizontal operating-shaft extending transversely of the wagon from side to side thereof beneath the draw-bar hook, bearings on the end of the wagon to carry the shaft, operating-levers on each end of the shaft at the sides of the wagon, a single crank fixed on the shaft near the center of its length, a carrying-arm 4, consisting of a single member, a knuckle-joint connecting one end of the carrying-arm 4 to the crank, permitting the arm 4 to move upwardly relatively to the crank, and a bend in the arm 4 to bring its upper end above and in the central vertical plane of the coupling; of a forked yoke 8, a tongue 8<sup>x</sup> on the upper arm of the yoke, a pivot-pin pivotally connecting the tongue of the yoke to the upper end of the arm 4, clips 9 bent around the side arms of the link 7, and pivot-pins pivotally connecting the ends of the pendent forks of the yoke to the said clips whereby the end link 7 of the coupling is pivotally suspended, substantially as set forth.

ALBERT BROOKER.

Witnesses:

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WM. A. MARSHALL.