

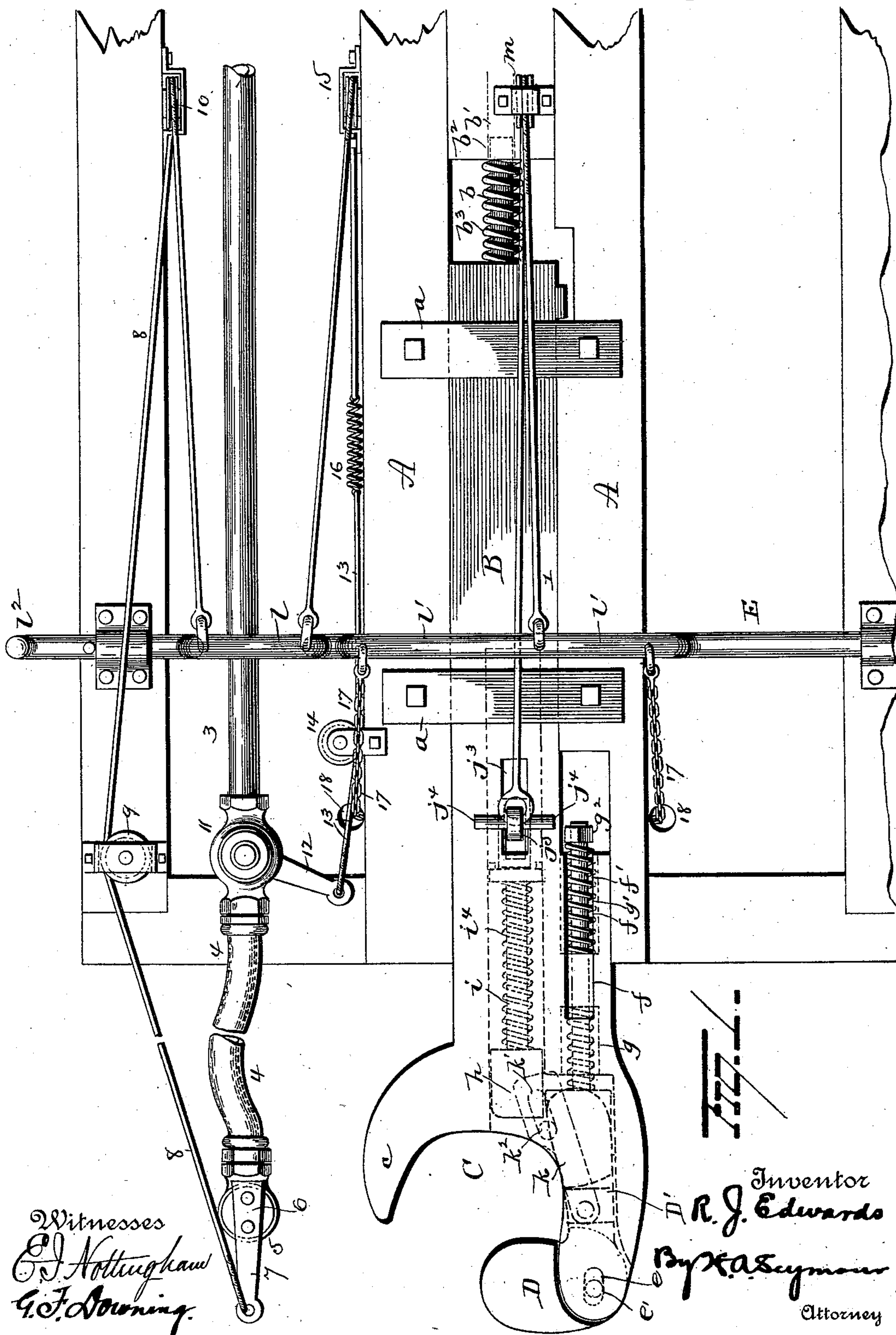
(No Model.)

3 Sheets—Sheet 1.

R. J. EDWARDS.
CAR COUPLING.

No. 536,860.

Patented Apr. 2, 1895.



Witnesses
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G. F. Downing.

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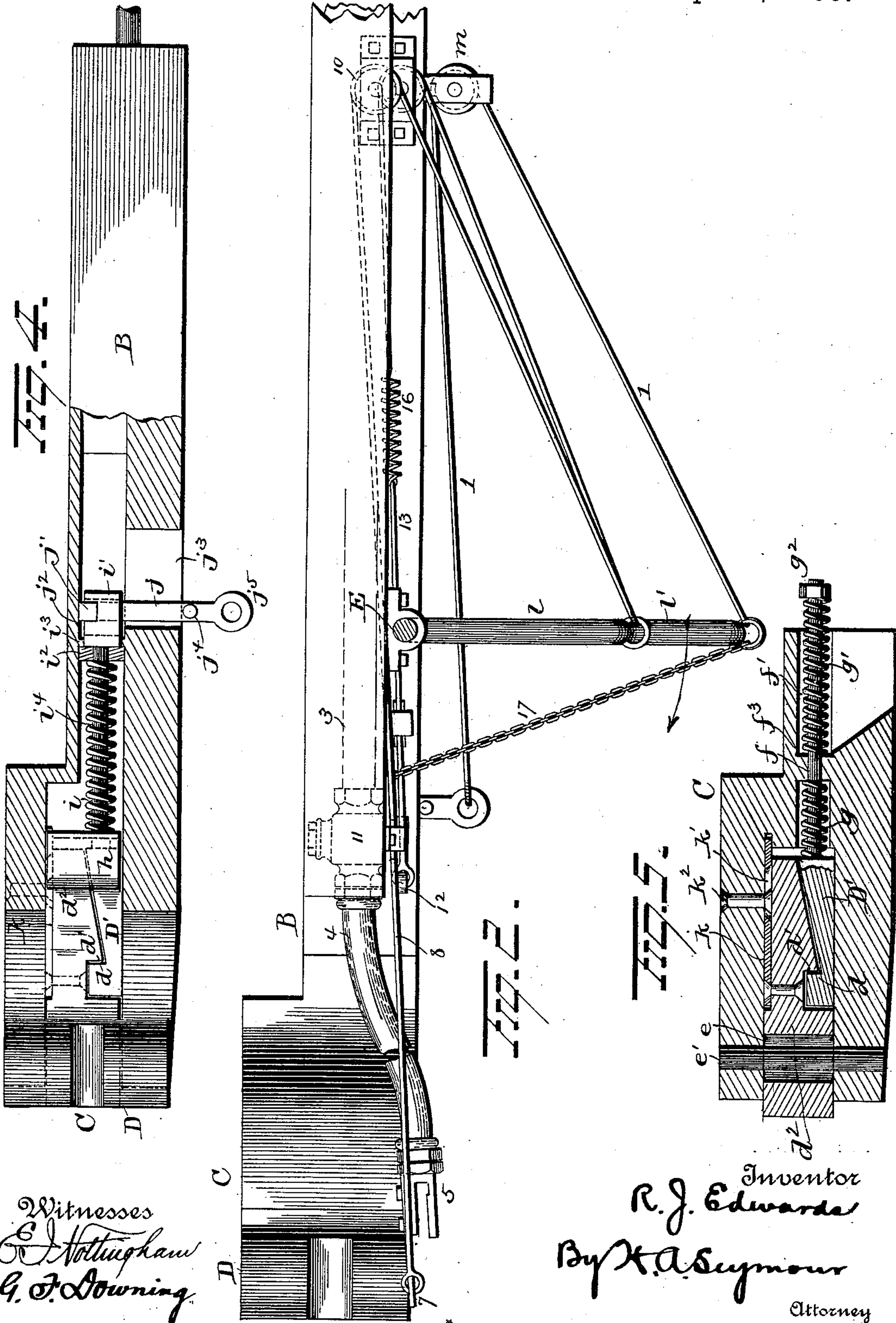
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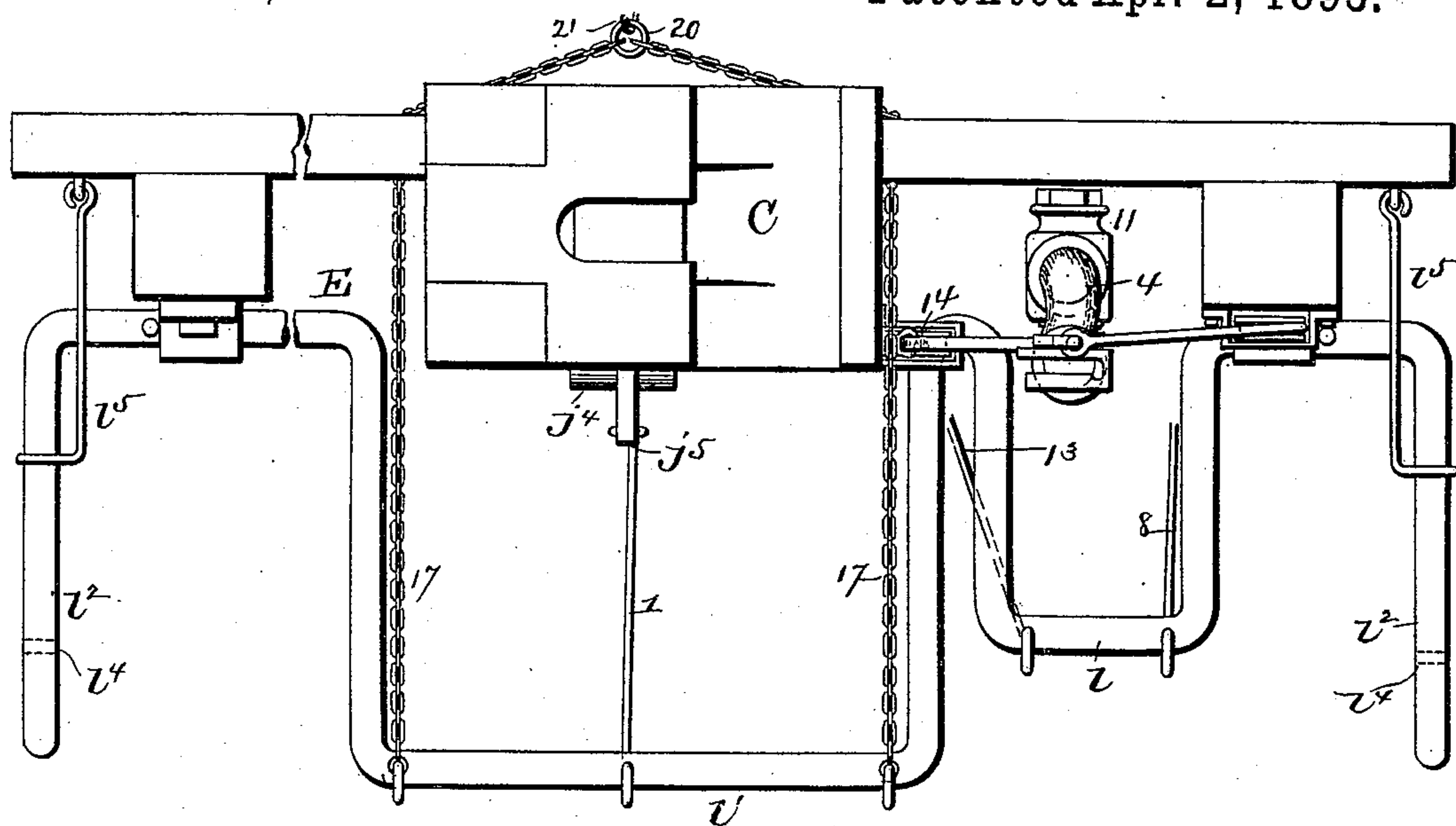
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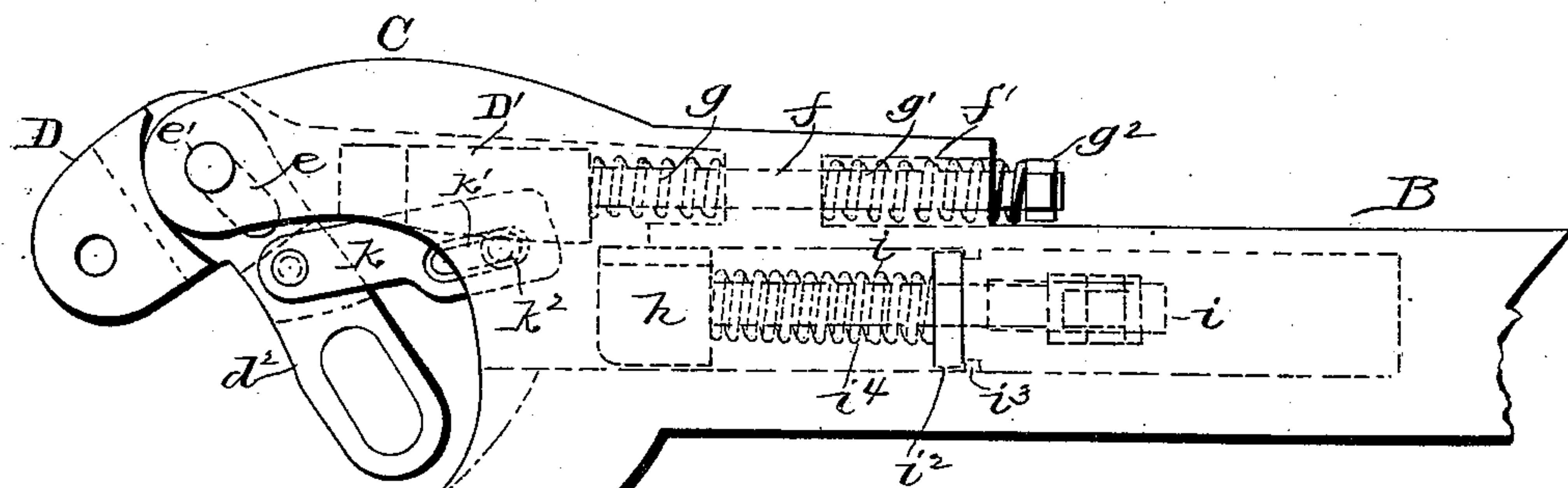
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THE



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UNITED STATES PATENT OFFICE.

RICHARD J. EDWARDS, OF GALENA, ILLINOIS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 536,860, dated April 2, 1895.

Application filed December 15, 1894. Serial No. 531,934. (No model.)

To all whom it may concern:

Be it known that I, RICHARD J. EDWARDS, a resident of Galena, in the county of Jo Daviess and State of Illinois, have invented certain new and useful Improvements in Coupling Devices for Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in coupling devices for railroad cars,—one object of the invention being to so construct the devices that the cars can be readily coupled or uncoupled automatically either when standing still or while in motion and regardless of the position of one car relatively to the other, whether on a straight track or a curve.

A further object is to so construct a coupling of the "master car builders'" type that the pin which connects the movable jaw to the draw head will be relieved of strain.

A further object is to provide means whereby to cushion the movable jaw and prevent the breaking of the same when subjected to concussion produced by the meeting or coming together of two couplings.

A further object is to provide means whereby to permit the yielding movement both forwardly and rearwardly of the movable or pivoted jaw of the coupling.

A further object is to so construct a car coupling of the type above mentioned, that the locking device will not be made to receive the pressure of the movable or pivoted jaw against it.

A further object is to construct the movable jaw and connect it with the draw head in such manner that the pulling strain brought to bear against it will be directly in line with its length and not laterally against the locking device.

A further object is to so construct the coupling that the locking device will always be capable of free movement to permit the uncoupling of the cars, whether the cars be standing still, or in motion and whether or not a pulling strain is being exerted on the couplings of the respective cars.

A further object is to so construct a coupling

of the type hereinbefore mentioned, that a "pin and link" movement of the couplings relatively to each other will be had.

A further object is to reduce the pivotal parts of the coupling on which strain is liable to come.

A further object is to so construct devices for coupling cars and the pipes between the cars for the air brakes, that all of said couplings will be operated by a single movement in one direction of a crank shaft or other operating device.

A further object is to produce means whereby a car coupling, the couplings of the air brake pipes and the cocks or valves in said pipes, can be operated to uncouple cars by a single movement of the crank shaft or operating device in one direction.

A further object is to generally improve coupling devices of the character above referred to and to so construct them that they shall be simple and effectual, in all respects, in the performance of their functions.

A further object is to so construct a car coupling that danger of uncoupling when the cars are running on a curved track will be obviated.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as hereinafter set forth and pointed out in the claims.

In the accompanying drawings: Figure 1 is a bottom plan view illustrating my improvements. Fig. 2 is a side elevation. Fig. 3 is an end view. Figs. 4 and 5 are detail sectional views illustrating parts of the coupling. Fig. 6 is a view illustrating the positions of the parts when the coupling is open.

A, A, represent the draft timbers of a car and B the draw-bar of a coupling, disposed between said timbers so as to be capable of longitudinal movement and prevented from displacement by means of straps *a*. At the forward end of the draw-bar, the draw-head C, embodying my improvements of the same, is located. The draw bar is made at the rear end with a socket *a'*, into which a rod *b* is inserted, said rod being also made to enter a socket or perforation *b'* in a block *b²* secured

to the framework of the car. On this rod, between the draw bar and block b^2 , a buffing spring b^3 is located.

The draw head is made with the usual rigid jaw c and with a movable or pivoted jaw, which latter comprises a knuckle D adapted to engage the corresponding part of another coupling, and a movable block D' having a shoulder d to be engaged by a shoulder d' on the shank d^2 of the knuckle, and the shoulder d' is preferably somewhat rounded so as to insure its engagement and interlocking with the shoulder d . The shank of the knuckle is disposed within the draw head and provided with an elongated slot e , through which a pin e' passes, said pin also passing through the top and bottom walls of the draw head and serving to connect the knuckle thereto so as to permit it to have a slight movement longitudinally of the coupling, as more fully explained farther on in this description. The block D' of the movable jaw is provided with a stem f which projects into a socket or housing f' made parallel with the longitudinal axis of the draw bar. Within the housing or socket f' an enlargement is made so as to produce two shoulders f^2, f^3 . A spring g encircles the stem f and bears at its respective ends against the shoulder f^2 and block D' of the movable jaw. Another spring g' encircles the stem f and bears at its respective ends against the shoulder f^3 and a nut g^2 at the free end of the stem, said springs and the stem being projected by being inclosed within said housing or socket.

A locking block h is located within the back of the drawhead and disposed parallel with the rearwardly extending portion of the movable jaw, the function of said block being to retain the movable jaw in a locked position when the coupling is in use. A shank or rod i is screwed into the locking block h and extends rearwardly into a socket in the draw bar and at its rear end is provided with a hollow block i' . In advance of the block i' , a washer i^2 encircles the rod i and has a bearing against a suitable shoulder i^3 within said socket. Between this washer and the locking block h , a spring i^4 is located on the rod i to maintain said locking block normally in its locked position relatively to the movable jaw.

One end of an arm j is provided with a T-head j' and passed through the hollow block i' and then turned so as to cause said T-head to enter a recess j^2 in the block i' . The arm j projects through an elongated slot j^3 in the draw bar and is adapted to slide in said slot, being guided in its movements by pins j^4 projecting therefrom and moving alongside the draw bar. The arm j is provided at its free end with a loop j^5 for the attachment thereto of a cord or chain, as more fully explained hereinafter.

By the construction and arrangement of parts above described I attain multifold advantages and improvements over couplings as heretofore constructed so far as I am aware.

By connecting the knuckle to the draw head

so as to permit a movement thereof independently of the draw head, both in a direction parallel with the longitudinal axis of the same and a pivotal movement, I am enabled to swing the knuckle around sufficiently far to permit the ready coupling of cars on a curved track and render the operation of coupling cars sure, automatic and effectual,—but it is desirable to prevent the knuckle being swung around too far, or so as to move the rearwardly projection thereof too far to be properly operated by another coupling during the operation of coupling, and for this reason I pivotally connect one end of a plate k to the rearwardly projecting portion of the knuckle, the other end of said plate being made with an elongated slot k' , for the reception of a pin k^2 projecting from the inner wall of the draw head. While this plate will permit the proper extent of pivotal and longitudinal movement of the knuckle it will serve to limit the movements of said knuckle for the purpose above mentioned. By the provision of the spring g' the knuckle will be permitted to have a yielding forward movement, while the spring g will allow the knuckle to yield rearwardly. By thus making the knuckle yielding it is not liable to be broken by the jerking of the cars as would be apt to occur. The spring g' will permit the knuckle to yield when two couplings come together and thus liability of breaking the knuckle from concussion will be avoided. It is evident that the buffer spring in rear of the draw bar will co-operate with the spring, g, g' to insure the proper yielding or cushioning action of the parts of the coupling.

By making the movable jaw in two parts (viz., the knuckle D and block D' with its stem) and causing said parts to interlock in a plane parallel with and to one side of the plane of the locking block h , the draft will be in line with the axis of the interlocking parts of the jaw and a portion of the strain will fall upon the shoulder f^3 through the intervention of the cushioning spring g' . The locking block will not therefore, be subjected to pressure of the shank of the knuckle against it and said locking block will be permitted to have a free, uninterrupted movement when operated to permit the uncoupling of two cars. It will be seen therefore, that the cars can be uncoupled while the cars are in motion, no matter what amount of strain pressure there may be on the knuckle. This feature renders the coupler very valuable for use in car yards where the cars are shifted and when it is desired to make what is known as flying switches. It is often necessary in uncoupling cars provided with couplings as heretofore constructed, to back the engine to relieve the binding action of the parts of the couplings before they can be operated. This is entirely obviated by my improved arrangement above set forth.

Mounted under the car is a crank shaft E having two crank arms l, l' , the arm l being preferably about one-fourth the length of the

crank arm l' , and at the ends of said crank shaft handles or arms l^2 are located so that the shaft can be operated from either side of the car. To the crank arm l' , one end of a wire rope or chain 1 is connected, said rope or chain, after passing over a pulley m secured to the block b^2 , being extended forwardly and secured to the arm j of the locking block h . The pipe 3 of the air brake apparatus, is suitably located under the car and provided at its end with a flexible hose 4, at the free end of which, a pipe coupling 5 is located for connecting the air brake devices of one car with those of another. To the coupling 5, a plate 6 is secured and made with an arm or lever 7 to the free end of which a rope or chain 8 is secured. The rope or chain 8 extends rearwardly from its connection with the arm or lever on the pipe coupling and after passing over pulleys 9, 10, is extended forwardly and connected with the short crank arm of the crank shaft. A valve 11 is located in the air pipe 3 preferably near the connection of the hose therewith and from the stem of this valve an arm or lever 12 projects. To the free end of said arm or lever one end of a rope or chain 13 is connected, said rope or chain extending rearwardly from its connection with said arm or lever and, after passing over pulleys 14, 15, is again extended forwardly and connected to the short arm of the crank shaft. The rope or chain 13 is made in two parts and a spring 16 is interposed between the parts for a purpose which will presently be made apparent. From this construction and arrangement of parts it will be seen that when the crank shaft is turned forwardly the valve in the air pipe will first be closed. By the continued movement of the crank shaft (permitted by the spring section 16 in the rope or chain 13) the pipe coupling will be operated to disengage the parts thereof and the locking block h in the car coupling will be withdrawn to release the knuckle D and uncouple the cars. Thus it will be seen that the cars will be uncoupled, the pipe connections between the cars will be severed and the valve in the air pipe will be closed, by a single forward movement of the shaft. The arms or handles l^2 are made with perforations l^4 for the reception of hooks l^5 connected to the car, whereby to retain the parts in such position that the coupling of the cars cannot be effected, as desired. When the devices are applied to passenger cars it is desirable that means be provided whereby to operate them from the platform of the car. I therefore attach a chain or rope 17 to the long arm of the crank shaft and pass the same through perforations 18, 18, in the platform. To said chain or rope a loop 20 may be connected whereby to operate it, and the parts may be held in an inoperative position by means of a hook 21 connected to the platform of the car and adapted to enter one of the links of the chain 17.

My improvements are very simple in con-

struction and effectual, in all respects, in the performance of their functions.

Slight changes might be made in the details of construction of my invention without departing from the spirit thereof or limiting its scope and hence I do not wish to limit myself to the precise details of construction herein set forth, but,

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a car coupling, the combination with a draw head, of a pivoted knuckle connected thereto, means for limiting the movements of said knuckle, means for cushioning the movements of the knuckle in both directions and a locking device for said knuckle, substantially as set forth.

2. In a car coupling, the combination with a draw head, of a movable jaw connected thereto in such manner as to be capable of a longitudinal and a pivotal movement, and means for limiting the pivotal movement of the jaw, consisting of a plate pivoted at one end to the jaw and provided at its other end with an elongated slot and a pin projecting from the draw head through said elongated slot, substantially as set forth.

3. In a car coupling, the combination with a draw head, of a movable jaw comprising a pivoted and longitudinally movable knuckle having a shoulder a plate pivotally connected to the knuckle and to the drawhead and a longitudinally movable block having a shoulder to be engaged by the shoulder on the knuckle, substantially as set forth.

4. In a car coupling, the combination with a draw head, of a knuckle having an elongated slot, a pin passing through said slot and the draw head, a shoulder on said knuckle and a movable block having a shoulder to be engaged by the shoulder on the knuckle, means yieldingly connecting said movable block with the draw head and a plate pivotally connected to the knuckle and draw-head, substantially as set forth.

5. In a car coupling, the combination with a draw head, of a knuckle having a pivotal and a longitudinally movable connection therewith, a shoulder on said knuckle, a longitudinally movable block having a shoulder to be engaged by the shoulder on the knuckle, a rod extending from said block, shoulders on the draw head, a spring on said rod bearing at its respective ends against one of said shoulders and said block, and a spring on the rod bearing at one end against the other shoulder and a nut on the end of said rod to receive the other end of said last-mentioned spring, substantially as set forth.

6. In a car coupling, the combination with a draw head and bar having a socket or housing therein, of a movable knuckle connected to the draw head, a movable block adapted to be engaged by said knuckle, a rod extending from said block and inclosed by said housing, shoulders in the housing, a nut on

the end of the rod, and springs disposed between said shoulders and the nut and block respectively, substantially as set forth.

7. In a car coupling, the combination with
5 a draw head and bar, of a pivoted knuckle having a shank, of a movable locking block adapted to lie parallel with said shank, a rod connected with said locking block, a block at the rear end of said rod, an arm connected
10 with said last-mentioned block, a washer in the draw bar and a spring between said washer and the locking block, substantially as set forth.

8. In a car coupling, the combination with
15 a draw head and bar, of a movable knuckle connected thereto and having a shank, a locking block in the draw head adapted to lie parallel with said shank, a rod connected to said locking block, a hollow block at the other
20 end of said rod having a recess therein, an arm having an enlargement at one end to enter said recess, said arm being adapted to project through a slot in the draw bar, and means connected with said arm for operating the
25 locking block, substantially as set forth.

9. The combination with a car coupling having a movable jaw and a locking device for said jaw, an air brake pipe having a valve therein, and a pipe coupling connected with
30 said pipe, of a crank shaft, and connections between said crank shaft and the locking device of the coupling, the valve in the air pipe and the pipe coupling, said connections being so constructed and arranged that a single
35 movement forwardly of the crank shaft will act to close the valve in the air pipe, sever the pipe coupling and then operate the locking device of the car coupling to release the movable jaw, substantially as set forth.

10. The combination with a car coupling
40 having a locking device, an air pipe having a valve, and a flexible pipe having a pipe coupling, of a crank shaft, and devices connecting the crank shaft with the locking device of the
45 coupling, the valve in the air pipe and the pipe coupling, said devices being so constructed and arranged that upon a movement in one direction of the crank shaft, the said valve, the pipe coupling and the locking device will
50 be successively operated, substantially as set forth.

11. The combination with a car coupling having a locking device, an air pipe having a valve and a flexible pipe having a pipe coup-

ling, of an arm on the stem of the valve, an
55 arm or lever projecting from the pipe coupling, an arm connected with the locking device of the car coupling, a crank shaft, a connection between the crank shaft and the arm
60 of the locking device, a connection between said crank shaft and the arm or lever on the pipe coupling, and a connection between the crank shaft and the arm of said valve stem, said last-mentioned connection having a yielding
65 section, substantially as and for the purpose set forth.

12. The combination with a car coupling having a locking device, an air pipe having a valve and a flexible pipe having a pipe coupling, of a crank shaft, means for locking said
70 shaft, and connections between said shaft and the locking device, valve and pipe coupling, substantially as set forth.

13. The combination with a car coupling having a locking device, an air pipe having a
75 valve and a flexible pipe having a pipe coupling, of a crank shaft, connections between said crank shaft and locking device, valve and pipe coupling, so constructed and arranged that upon movement of the crank shaft in one
80 direction said locking device, valve and pipe coupling will be operated, and a hook connected to the car and adapted to engage an arm projecting from said crank shaft, whereby to retain the parts in an inoperative position,
85 substantially as set forth.

14. The combination with a car coupling, an air pipe having a valve therein and a pipe coupling, of a crank shaft, connections between said crank shaft and the coupling, valve
90 and pipe coupling for operating said devices, and means for operating the crank shaft, substantially as set forth.

15. In a car coupling, the combination with a draw-head, and a knuckle pivotally connected thereto, and capable of sliding therein,
95 of a plate having an elongated slot at one end and a pin passing through this slot for connecting the plate loosely to a part of the coupling, said plate pivotally connected at its other end
100 to the knuckle, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

RICHARD J. EDWARDS.

Witnesses:

PAUL KERZ,
J. J. JONES.