B. W. DAVIS.

AUTOMATIC COUPLING.

APPLICATION FILED NOV. 30, 1915.

1,198,705.

Patented Sept. 19, 1916.

2 SHEETS—SHEET 1.

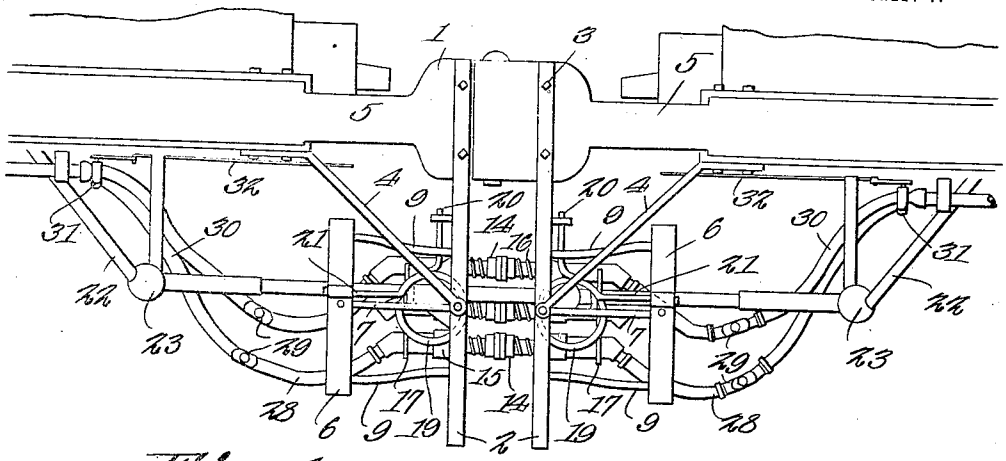


Fig. 1.

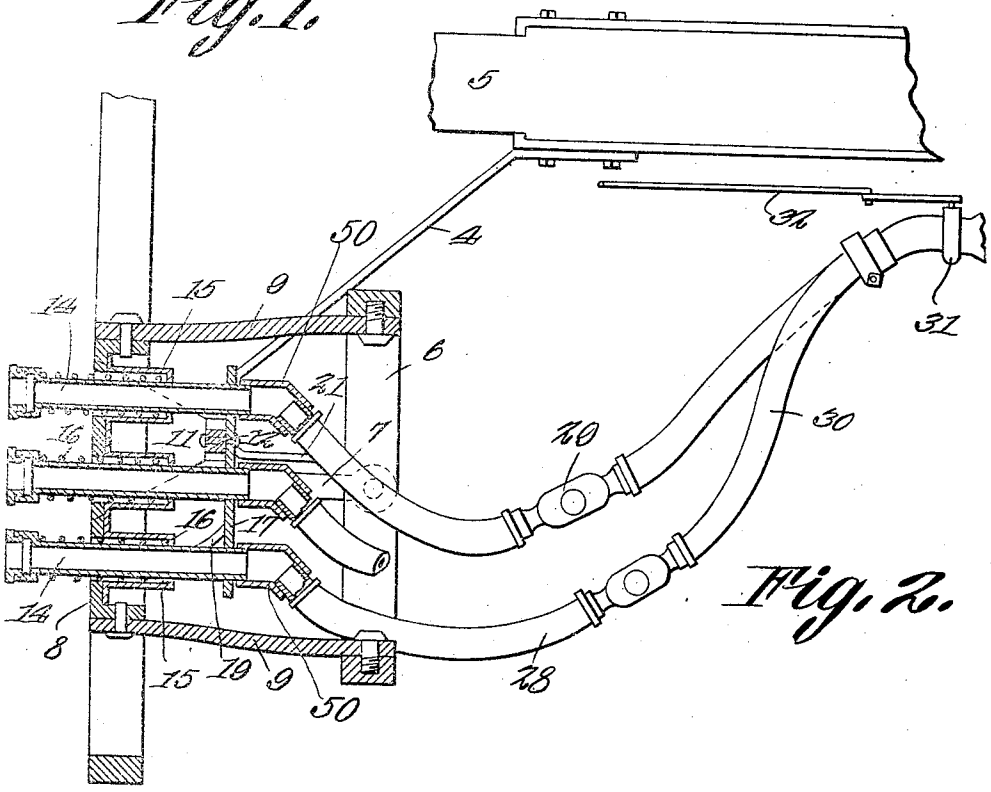


Fig. 2.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

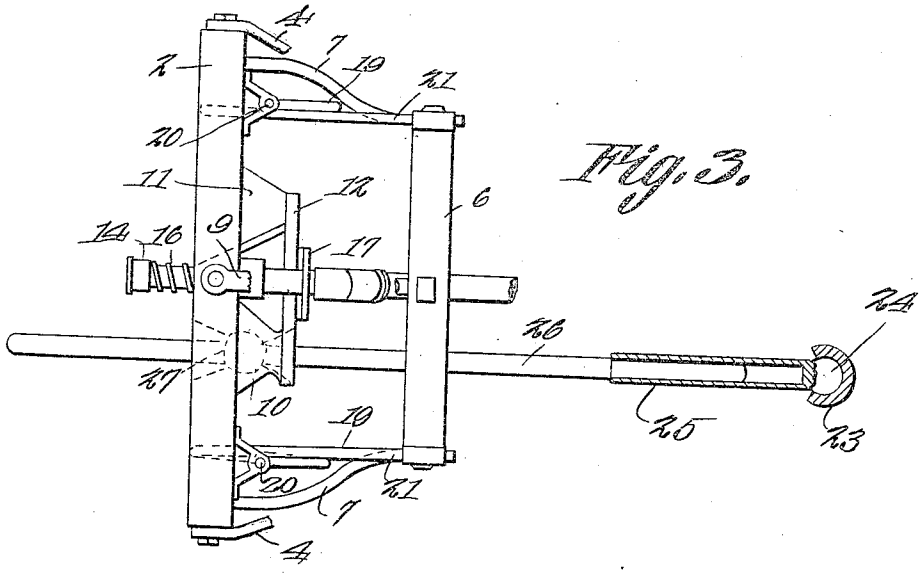
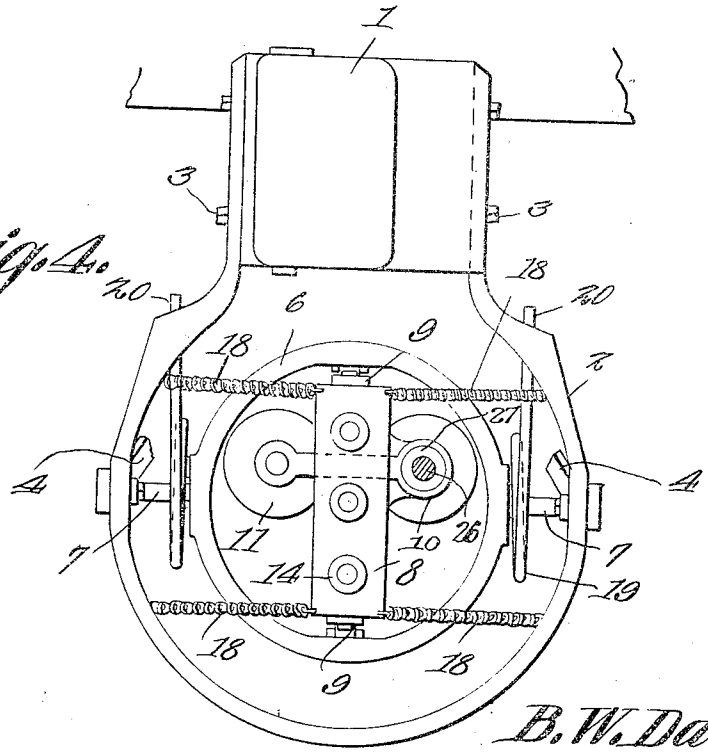



Fig. 4.




Witnesses

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# UNITED STATES PATENT OFFICE.

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## AUTOMATIC COUPLING.

1,198,705. Specification of Letters Patent. Patented Sept. 19, 1916.

Application filed November 30, 1915. Serial No. 64,288.

*To all whom it may concern:*

Be it known that I, BENJAMIN W. DAVIS, a citizen of the United States, residing at Evanston, in the county of Uinta and State of Wyoming, have invented a new and useful Automatic Coupling, of which the following is a specification.

The device forming the subject matter of this application is adapted to be employed for coupling up train pipes on railway vehicles.

The invention aims to provide novel means for supporting and alining the ends of the train pipes.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the present invention appertains.

With the above and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawing:—Figure 1 shows in side elevation, portions of a pair of railway vehicles, equipped with the couplers forming the subject matter of this application; Fig. 2 is a fragmental vertical section wherein sundry parts appear in elevation; Fig. 3 is a top plan showing one of the coupling mechanisms; Fig. 4 is a front elevation of the structure shown in Fig. 3.

In the accompanying drawings, the numeral 5 indicates the draw bar of a car, equipped with a coupler head 1. Fixed to the coupler head 1 by means of securing elements 3, is a depending, loop-shaped main frame 2 which, if desired, may be sustained by the draw bar 5 by means of braces 4.

Disposed to the rear of the main frame 2 is an auxiliary frame 6 which may be of approximately circular contour. Side links 7 connect the auxiliary frame 6 with the main frame 2, pivotally, the construction being such that the auxiliary frame 6 can move vertically with respect to the main frame 2. Disposed in front of the auxiliary frame 6 and preferably lying in a common vertical plane with the main frame 2 is a supplemental frame 8 which may be of rectangular contour as shown best in Fig. 4. Top and bottom links 9 pivotally connect the supplemental frame 8 with the auxiliary frame 6, the construction being such that the supplemental frame 8 may move horizontally with respect to the auxiliary frame 6. Since the auxiliary frame 6 can move horizontally with respect to the main frame 2, and since the supplemental frame 8 can move horizontally with respect to the auxiliary frame 6, it will be obvious that the frame 8 will have, approximately, a universal movement, transversely of the line of advance of the car, with respect to the frame 2.

At one side, the supplemental frame 8 carries a rearwardly projecting socket 10, and upon its other side, the supplemental frame is provided with a forwardly opening funnel 11. The socket 10 and the funnel 11 are rigidly connected together by a cross bar 12 which may be formed in one piece with a back plate 17, a support thus being provided for the member 8.

Mounted to reciprocate parallel to the line of advance of the vehicle in casings 15 assembled with the supplemental frame 8 are pipe coupling heads 14 pressed forwardly into prominently presented positions by compression springs 16 interposed between the rear ends of the casings and the forward ends of the pipe heads. To the rear of the frame 8, the pipe heads 14 reciprocate in the back plate 17.

Laterally extended, helical springs 18 connect the supplemental frame 8 with the main frame 2 and thus maintain the supplemental frame centralized with respect to the main frame.

Disposed upon opposite sides of the auxiliary frame 6 are vertical coiled springs 19, each coiled spring 19 embodying an upright arm 20 attached to the main frame 2 and a horizontal arm 21 attached to the auxiliary frame 6, these springs serving to uphold the auxiliary frame 6 and to centralize the same with respect to the main frame 2.

Fixed to and depending from the frame work of the car is a bracket 22 supporting a socket 23 in which is mounted to rock both vertically and horizontally a ball 24 attached to the rear end of a tube 25 in which is slidably received a plunger 26 carrying a ball 27 mounted for movement in the socket 10 which is carried by the supplemental frame 8.

Assembled with the rear ends of the pipe heads 14 by couplings 50 are pipe sections

28 united by couplings 29 with train pipe sections 30. The couplings 50 limit the forward movement of the pipe heads 14 under the action of the springs 16. The couplings 29 may be dispensed with if desired, but their use adapts the device forming the subject matter of this application to standard train pipe constructions, wherein the couplings 29 are present. Interposed in the main pipes 30 are valves 31, controlled by suitable operating mechanisms 32. The construction of the valves 31 and the operating mechanisms 32 need not be described in detail, since they may be of any desired form.

In practical operation, when a pair of cars equipped with the structure forming the subject matter of this application are brought into close relation, the forward end of the plunger 26 on one car is received within the funnel 11 on the other car, thus aligning the heads 14 on one car with the corresponding heads on the other car, to the end that a plurality of continuous, train pipe connections may be afforded, when the cars are brought together. It is to be observed that the plunger 26 is mounted to slide longitudinally in the tube 25, and thus the tube 25, being provided with the ball 24 which is received in the socket 23, will have the necessary movements, laterally. The springs 16 serve to advance the heads 14, thereby to effect secure couplings between these elements in one car and the corresponding elements on another car. Owing to the fact that the auxiliary frame 6 can move vertically with respect to the main frame 2 and to the fact that the supplemental frame 8 can move horizontally with respect to the auxiliary frame 6, and, further, owing to the particular manner in which certain of the parts above specified are sustained by the springs 19 and 18, the necessary movements will be permitted, when the plunger 26 on one car is received by the funnel 11 on another car, and guided into the central opening in the funnel.

Having thus described the invention, what is claimed is:—

1. In a device of the class described, a car carried main frame; an auxiliary frame located to the rear of the main frame; a supplemental frame located in front of the auxiliary frame; links connecting the main frame with the auxiliary frame; links connecting the auxiliary frame with the supplemental frame; the respective links being mounted to move in rectangularly disposed directions, thereby to give a vertical and horizontal movement to the supplemental frame; means for centralizing the supplemental frame with respect to the main frame; and a pipe coupling mechanism carried by the auxiliary frame.

2. In a device of the class described, a frame; means for supporting the frame movably; a funnel carried by the frame; a longitudinally extensible, funnel received plunger comprising relatively movable parts, one of which is swiveled in the frame; and car carried means affording a swiveled mounting for the other part of the plunger.

3. In a device of the class described, a main frame; an auxiliary frame located to the rear of the main frame; a supplemental frame located in advance of the auxiliary frame; coupling means carried by the supplemental frame; links connecting the auxiliary frame with the main frame; links connecting the auxiliary frame with the supplemental frame, the respective links being mounted to move in rectangularly disposed planes, thereby to permit a vertical and a horizontal movement in the auxiliary frame; spring means for connecting the auxiliary frame to the main frame, thereby to centralize the auxiliary frame with the main frame; and spring means for connecting the supplemental frame to the auxiliary frame, thereby to centralize the auxiliary frame with respect to the supplemental frame.

4. In a device of the class described, a car carried, loop-shaped main frame; an annular auxiliary frame located to the rear of the main frame; a supplemental frame located in advance of the auxiliary frame; a pair of horizontally movable links connecting the auxiliary frame with the supplemental frame; a pair of vertically moving links connecting the auxiliary frame with the main frame; springs connecting the main and supplemental frames, to centralize the supplemental frame; springs connecting the main and auxiliary frames, to centralize the auxiliary frame; coupler heads slidable in the supplemental frame; spring means for advancing the coupler heads; a funnel carried by the supplemental frame; a funnel received plunger passing through the supplemental frame; a ball on the plunger; a socket on the supplemental frame, in which the ball is movably mounted; a tube receiving the rear end of the plunger; a ball on the tube; a socket in which the last specified ball is received; and car carried means supporting the said socket.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

BENJAMIN W. DAVIS.

Witnesses:
JESSE HATTEN,
G. R. VUEA.