

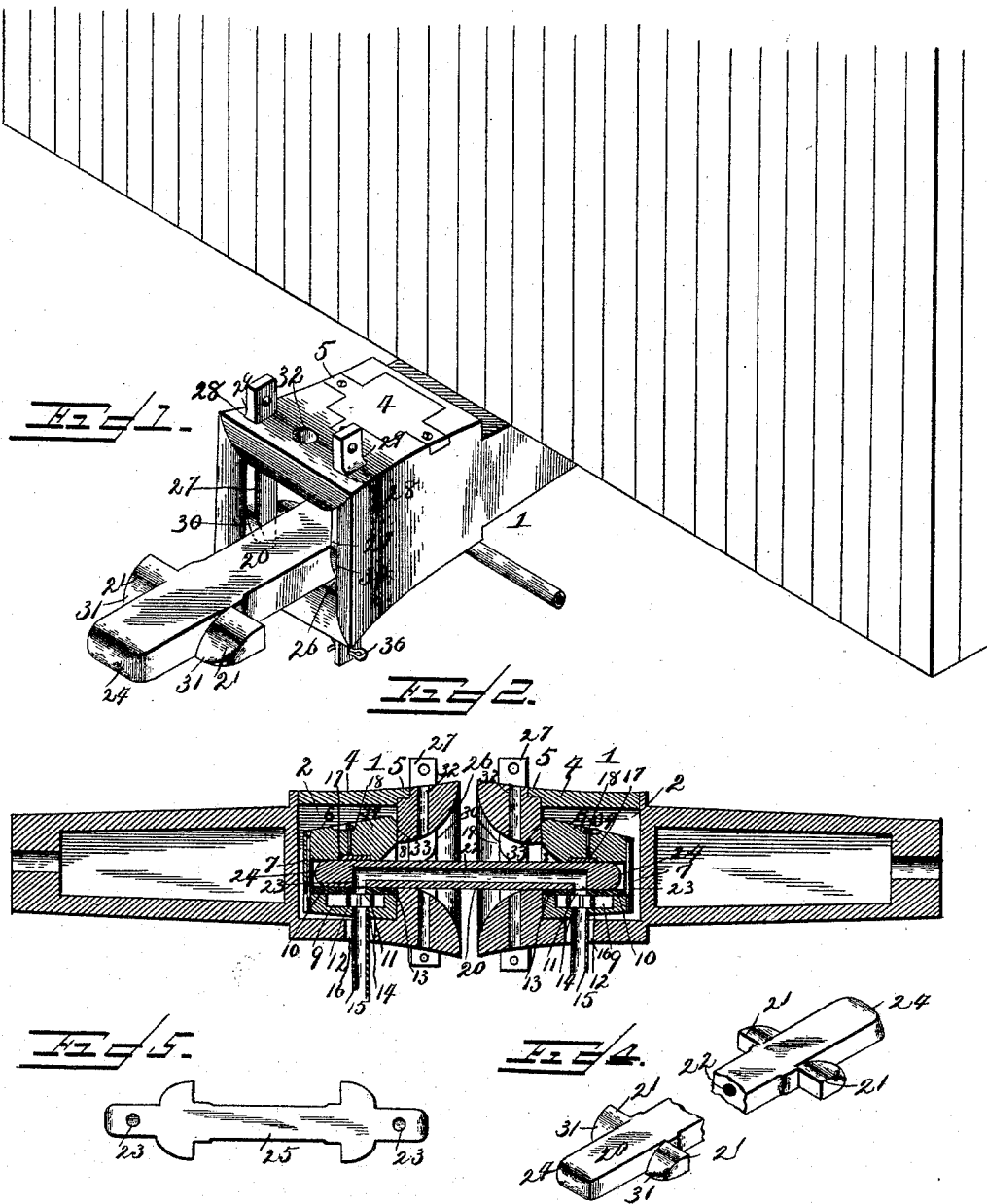
(No Model.)

2 Sheets—Sheet 1.

W. MABLE.
COMBINED CAR AND AIR BRAKE COUPLING.

No. 495,502.

Patented Apr. 18, 1893.



Witnesses

W. Schneider.

Chas. S. Hoyer.

Inventor

Wm. Mable.

By his Attorneys,

C. Snow & Co.

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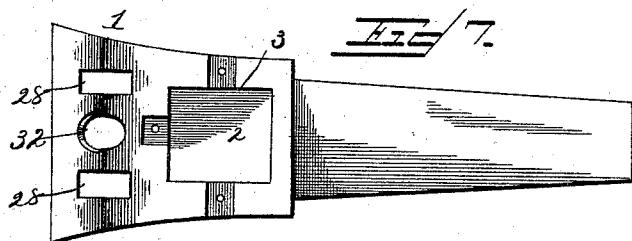
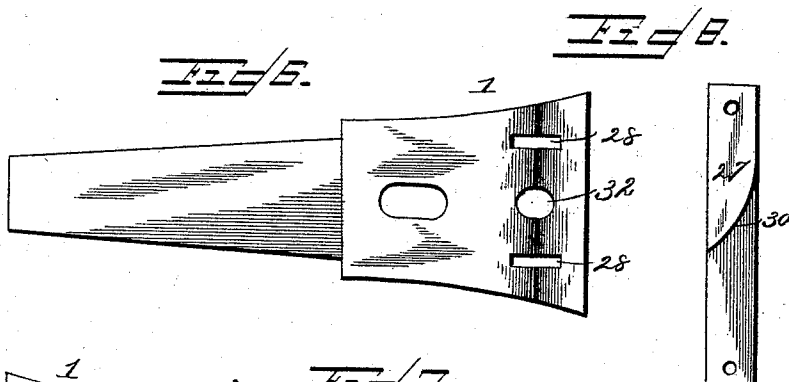
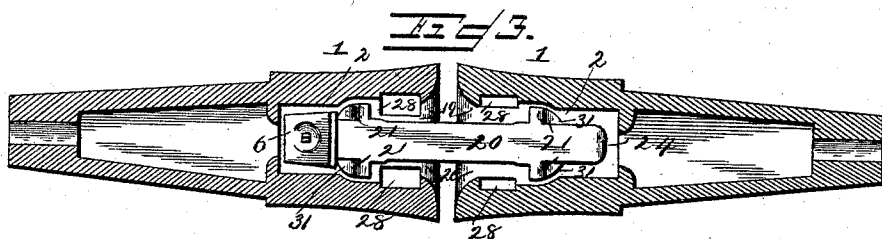


Fig. 6.

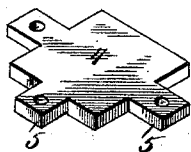


Fig. 7.

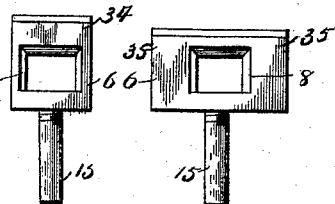
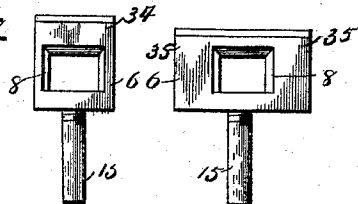


Fig. 8.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM MABLE, OF FORT COLLINS, COLORADO, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF FIVE-EIGHTHS TO JOHN A. C. KISSOCK, MYRON H. AKIN, AND FRANKLIN C. AVERY, OF SAME PLACE.

COMBINED CAR AND AIR-BRAKE COUPLING.

SPECIFICATION forming part of Letters Patent No. 495,502, dated April 18, 1893.

Application filed October 29, 1892. Serial No. 450,365. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MABLE, a citizen of the United States, residing at Fort Collins, in the county of Larimer and State of Colorado, have invented a new and useful Combined Car and Air-Brake Coupling, of which the following is a specification.

This invention relates to combined car and air-brake couplings, and consists in the construction and arrangement of the parts thereof as will be more fully hereinafter described and claimed.

The object of this invention is to provide simple and convenient, as well as effective, means of connecting the air-brake pipes through the medium and employment of a hollow coupling-link that also serves to connect two draw-heads in connection with movable air-boxes or chambers, the whole being strong and durable and comparatively inexpensive in manufacture.

In the drawings: Figure 1 is a perspective view of a draw-head and a portion of a car embodying the invention. Fig. 2 is a longitudinal vertical section of two of the draw-heads shown connected. Fig. 3 is a horizontal section of the draw-heads as shown arranged in Fig. 2. Fig. 4 is a perspective view in detail of the coupling-link shown broken away. Fig. 5 is a bottom plan view of the coupling-link. Fig. 6 is a bottom plan view of one of the draw-heads. Fig. 7 is a top plan view of one of the draw-heads. Fig. 8 is a side elevation of one of the coupling-pins. Fig. 9 is a front elevation of one of the air boxes or chambers constructed as shown in the remaining figures. Fig. 10 is a slightly modified form of one of the air boxes or chambers, shown in front elevation. Fig. 11 is a detail perspective view of a cap or cover plate used in connection with the draw-head.

Similar numerals of reference are employed to designate corresponding parts in the several figures.

Referring to the drawings, the numeral 1 designates the draw-head that is of ordinary form of construction insofar as the general contour is concerned, and each pair of said draw-heads, necessarily employed for the purpose of coupling, is similar in construction,

and therefore only one of the same will be specifically referred to. In the rear portion of the draw-head a chamber 2 is formed which has a top opening 3, constructed to receive a cap or cover 4, with centrally-projecting arms 5 which are screwed or otherwise secured in place and fitting in recesses in the upper surface or side of the draw-head. Within the chamber 2 is loosely mounted an air box or chamber 6, that is made in sections and held together by connecting-screws 7 that are passed vertically therethrough. The front upper portion and sides of the said box or chamber are flared to form an entrance-mouth, as at 8, while the lower portion is straight. In the lower portion of the box or chamber a supplemental air-chamber 9 is formed, and thereover is mounted a rubber or elastic diaphragm 10, having an opening 11 in the center thereof, and legs 12 which depend from the under side of the same around said opening and rest at their lower ends against the bottom portion of the said supplemental chamber. This diaphragm extends between the sections and is held in place by the screws 7 closely over the chamber 9, and at the front edge thereof is a transversely-arranged metallic strip 13, which avoids wear directly on the front projecting edge of the said diaphragm. The under portion of the box is formed with an opening 14, which communicates with the chamber 9 and receives the upper screw-threaded end of an air-pipe 15, which passes through an elongated opening 16 in the adjacent portion of the under side of the draw-head.

The upper part of the box or chamber 6 is fitted with an adjustable cam 17, having a screw 18 in connection therewith that extends to the upper or top portion of the said box or chamber 6 for the purpose of convenient adjustment, it being observed that the said screw 18 engages the said cam 17 eccentrically and toward the rear of the latter, in order to tilt the rear end downward and compensate for wear in a manner which will be more fully hereinafter set forth.

An entrance-opening 19 extends through the box or chamber 6, for the purpose of receiving a tubular link 20, that is provided with shoulders 21, arranged in pairs on op-

posite edges adjacent to the ends of the same, and through which extends an opening 22 in a horizontal manner, having vertically-de-
 5 depending branches or entrances 23, extending through the bottom adjacent to each end of the said link. The vertical extensions or en-
 10 trances 23 to the opening 22 are in rear of the shoulders 21, so that the coupling of the link may be attained in advance of the said
 15 entrances. The end of the link 20 is rounded, as at 24, and the bottom side is flat and smooth, as at 25, thereby permitting the link to readily enter through the opening 26, usu-
 20 ally formed in the draw-head, into the entrance-opening 19 of the box or chamber 6. When a proper coupling is made, the entrance 23 of the opening 22 in the link aligns with the opening 11 in the diaphragm 10 over the
 25 supplemental air-chamber 9; and as the air is caused to be forced through the air-pipe 16, it passes into the said chamber 9 and forces the diaphragm 10 closely against the under
 30 side of the engaging end of the link to form an airtight joint and avoid leakage at this point. While the link 20 is in this position, a pair of coupling-pins 27 are passed through
 35 openings 28 vertically extending through the draw-head, and said links bear against the shoulders 21 in such manner as to couple the link in connection with the draw-head and
 40 sustain the latter in proper position relatively to the diaphragm 10 or in proper position to the air-box or chamber 6. The upper portions of the coupling-pins 27 are formed with
 45 shoulders or enlargements 29, which have front cam-faces 30 adapted to be engaged by the shoulders 21 of the link 20 and automatically raised in coupling two cars. When the shoulders have passed the said enlargements
 50 of the pins, the latter drop back in front of said shoulders and lock the link in connection with the draw-head.

In uncoupling the link from the draw-head the pins 27 are raised until the front portions
 45 of the shoulders 21 pass under the enlargements 29 of the pins 27, and the link may then be readily detached. This latter operation is accomplished through the construction
 50 of the pins 27, that are so arranged in the draw-head that a portion thereof of less thickness than at the point where the enlargements 29 are formed will lie flush with the opposite
 55 sides of the draw-head in the entrance-opening 26 thereof and allow the shoulders 21 of the link to pass outward without obstruction. The outward movement of the shoulders from the draw-head is made easy and convenient
 60 by forming the front portions of the shoulders 21 of the link in inclined curved form, as at 31. Should the end of the link 21 become loose in the entrance-opening 19 of the box or chamber 6, from wear or other causes, the cam 17 is depressed at the rear portion of
 65 the same by the screw 18 and contacts with the upper side of the adjacent end of the link 20 to force the lower side of said link closely in contact with the diaphragm 10 to at all

times sustain an airtight connection. The draw-head is also provided with an opening 32, for the employment of an ordinary coup-
 70 ling-pin, if so desired and found necessary when connecting up a car carrying the ordinary form of link and car-coupling with the form of coupling herein set forth.

The box or chamber 6 is loosely mounted in
 75 the chamber 2, both vertically and longitudinally, in order to compensate for coupling with cars having draw-heads at varying elevations, and this movement of the said box or chamber 6 is permitted by the pipe 15, as the
 80 latter is loosely connected and passes through the elongated opening 16 in the under side of the draw-head. It will also be understood that the box or chamber 6 can be readily re-
 85 moved through the top of the draw-head to re-adjust the same or otherwise manipulate the different parts thereof when found necessary.

The front portion of the box or chamber 6 is adapted to bear against a shoulder 33, at
 90 the front portion of the chamber 2 of the draw-head, and, as shown in Figs. 2 and 9 of the drawings, the upper portion of the said box or chamber 6 is weighted, as at 34, to sustain
 95 the link 20 in true horizontal position relatively with the center of the entrance-opening 26 of the draw-head, so that said link will always be in proper coupling position to have
 its opposite end freely enter an oppositely-situated draw-head.

As shown in Fig. 10, the box or chamber 6
 100 is weighted on the side, as at 35, for a similar purpose, and thereby demonstrating that the weight may be applied at any point desired in order to attain the function set forth. When the link is arranged as shown in Fig.
 105 2, in connection with two draw-heads, the air will pass therethrough from one air-pipe to another, and it will be seen that in coupling or uncoupling the link the air-brake pipes will be simultaneously coupled or uncoupled.
 110 The pins 27 are provided with suitable stops 36 to prevent said pins from becoming accidentally detached from the draw-head, and if found desirable, suitable well-known operating levers may be employed in connection
 115 with said pins for raising the same when uncoupling the link; and when the latter operation ensues, said coupling-links will be forced outward from the air boxes or chambers 6
 120 when the cars are drawn asunder, the air having first been so manipulated as to permit this operation.

The coupling herein set forth is especially adapted for use on freight cars where air-
 125 brakes are employed, and the arrangement which provides a connection for the air-brake pipes simplifies the construction and arrangement of parts and avoids the use of complex mechanism, and an equal efficiency of operation
 130 is sustained by the construction of the air boxes or chambers and the tubular link, which provides a connecting conduit for the air-brake pipes in the manner stated.

It is to be understood that changes in the

form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

5 Having described the invention, what is claimed as new is—

1. In a coupling of the character described, the combination of automatically-adjustable air boxes or chambers loosely mounted within
10 the draw-heads and having movement in any direction so as to adjust themselves to the various positions assumed by the coupling-link, and having the air-pipes of the air-brakes connected thereto, and a tubular link
15 adapted to connect said air boxes or chambers and form a conduit for the air-pipes, substantially as described.

2. In a coupling of the character described, the combination of air boxes or chambers
20 loosely arranged and automatically movable in the draw-heads, and having a flexible diaphragm in the bottom portions thereof, air-brake pipes connected thereto, and a coupling-link of tubular form having openings
25 therein adjacent to the ends thereof adapted to engage said diaphragm, said diaphragm having an opening therein in direct communication with the brake-pipe and link, substantially as described.

3. In a coupling of the character described, the combination of the draw-heads having openings extending through opposite sides thereof, the coupling-link with shoulders arranged in pairs on opposite sides adjacent to
35 the ends of the same, said shoulders having their upper front faces beveled and coupling-pins vertically movable in said draw-heads and having enlargements at the upper portions thereof provided with cam-faces 30, and
40 adapted to engage the shoulders of said link, substantially as described.

4. In a coupling of the character described, the combination of draw-heads, air chambers or boxes mounted therein having air-pipes attached thereto, a tubular link adapted to communicate with the said air chambers or boxes, and adjustable cams mounted in the upper
45 portions of said air boxes or chambers and adapted to engage the upper portions of the ends of the link to sustain an airtight connection, substantially as described.

5. In a coupling of the character described, the combination of draw-heads having chambers therein, air boxes or chambers loosely
55 mounted in said chambers of the draw-heads and having weighted portions, and a tubular link adapted to engage said air boxes or chambers and be sustained in proper position by weighting the said air boxes or chambers, substantially as described.

6. In a coupling of the character described, the combination of draw-heads, air boxes or chambers mounted in said draw-heads and having air-pipes connected to the bottom portions of the same and having a flexible diaphragm above the air-pipes, and a tubular link having bottom entrance-openings adja-

cent to the ends thereof adapted to communicate with the said air-brake pipes through an opening of the diaphragm, substantially as
70 described.

7. In a coupling of the character described, the combination of draw-heads having chambers therein, air-boxes adjustably mounted in said chambers of the draw-heads having
75 chambers in the bottom portions of the same with bottom openings, an elastic diaphragm mounted over said chambers in the air boxes or chambers and having legs depending therefrom and openings therein, air-brake pipes
80 passing through elongated openings in the bottom portions of the draw-heads and attached to the lower chambers of the said air boxes or chambers, a metallic strip across the front edge of each of said diaphragms, an adjustable cam in the upper portions of said air
85 boxes or chambers, and a tubular link having bottom openings adjacent to the ends thereof communicating with the openings in the said diaphragm, substantially as described.

8. In a coupling of the character described, the combination of draw-heads having chambers therein, air-boxes adjustably mounted in said chambers of the draw-heads having chambers in the bottom portions of the same with
95 bottom openings, an elastic diaphragm mounted over said chambers in the air boxes or chambers and having legs depending therefrom and openings therein, air-brake pipes passing through elongated openings in the
100 bottom portions of the draw-heads and attached to the lower chambers of the said air boxes or chambers, and a tubular link having bottom openings adjacent to the ends thereof communicating with the openings in
105 the said diaphragm, substantially as described.

9. In a coupling of the character described, the combination of draw-heads having chambers therein, air-boxes adjustably mounted in said chambers of the draw-heads having chambers in the bottom portions of the same with
110 bottom openings, an elastic diaphragm mounted over said chambers in the air boxes and having legs depending therefrom and openings therein, air-brake pipes passing through elongated openings in the bottom portions of the draw-heads and attached to the lower chambers of the said air boxes, a metallic strip across the front edge of each of said diaphragms, and a tubular link having bottom
120 openings adjacent to the ends thereof communicating with the openings in the said diaphragm, substantially as described.

10. In a coupling of the character described, the combination of draw-heads having chambers therein, air-boxes adjustably mounted in said chambers of the draw-heads having chambers in the bottom portions of the same with
125 bottom openings, an elastic diaphragm mounted over said chambers in the air boxes and having legs depending therefrom and openings therein, air-brake pipes passing through elongated openings in the bottom portions of the draw-heads and attached to the lower
130

chambers of the said air boxes and a pressure device such as a cam to bear against the link and hold it in close contact with the diaphragm, and a tubular link having bottom
5 openings adjacent to the ends thereof communicating with the openings in the said diaphragm, substantially as described.

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

WILLIAM MABLE.

Witnesses:

J. A. C. KISSOCK,
MYRON H. AKIN.