

UNITED STATES PATENT OFFICE.

JAMES BRYANT THOMAS, OF ST. LOUIS, MISSOURI.

COMBINED CAR AND AIR-BRAKE COUPLING.

SPECIFICATION forming part of Letters Patent No. 581,890, dated May 4, 1897.

Application filed December 31, 1895. Serial No. 573,922. (No model.)

To all whom it may concern:

Be it known that I, JAMES BRYANT THOMAS, a citizen of the United States, residing at St. Louis, Missouri, 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 it has for its object to effect certain improvements in couplings of this character whereby the same shall be rendered more positive and efficient in operation, to provide for an automatic coupling between the air-brake coupling heads or shoes, as well as between the car-coupling heads.

To this end the invention primarily contemplates an improved self-adjusting hanging device or bracket for the air-brake coupling-heads, whereby such heads will positively interlock and form an air-tight coupling, irrespective of the variance in height between the two cars when coupled together; and the invention also contemplates an improved coupling for connecting the automatic air-brake coupling head or shoe of one car with an unlike coupling on another car, so that the use of the air-brakes will not be interfered with on a train of cars equipped with the automatic air-brake couplings and also with the ordinary brake hose-couplings.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the drawings, Figure 1 is a perspective view of a combined car and air-brake coupling equipped with the improved self-adjusting hanging device or bracket for the air-brake coupling head or shoe. Fig. 2 is a side elevation of the construction illustrated in Fig. 1. Fig. 3 is a vertical sectional view on the line 3 3 of Fig. 2. Fig. 4 is a perspective view similar to Fig. 1, illustrating the improved coupling attachment for connecting the automatic air-brake coupling head or shoe with an unlike brake hose-coupling. Fig. 5 is a longitudinal sectional view of the automatic air-brake coupling head or shoe with the improved coupling attachment connected therewith. Fig. 6 is a detail sectional view on the line 6 6 of Fig. 5. Fig. 7 is a detail in

perspective of the upper coupling member of the interchange coupling attachment.

Referring to the accompanying drawings, 55 the numeral 1 designates an ordinary car-coupling head at the front end of the usual draw-bar 2, and arranged directly below the car-coupling head is the automatic air-brake coupling head or shoe 3, to the outer end of which is connected the usual train-pipe 4. The automatic air-brake coupling-head 3 is employed in the same manner as the air-brake coupling-head set forth in my former patent, No. 481,984, and is preferably of that type 65 illustrated in Patent No. 526,119. The said automatic air-brake coupling head or shoe 3 is adapted to automatically couple with a companion head or shoe, and the train-pipe 4, which is connected to the outer side of the coupling head or shoe 3, is fitted in the outer end of the fluid-passage 5, extending through the head or shoe and having fitted in its inner end the ordinary gasket 6, which projects beyond the plane of the inner coupling-face 75 of the head or shoe in the usual manner. The said air-brake coupling head or shoe 3 is provided with a beveled front end 7, a recessed flanged outer side 8, and at its inner end with a bowed clamping-spring 9, the front end of which spring is provided with an off-standing guide-tongue 10, disposed opposite and projecting outwardly from the inner coupling-face of the head or shoe. The guide-tongue 10 of the spring 9 is adapted to ride 85 in engagement with the recessed flanged outer side 8 of the companion head or shoe, so as to guide the two air coupling heads or shoes together and insure their tight interlocking connection, as fully described in the patents already referred to, but the particular construction of the air-brake coupling head or shoe is herein specified in order that the attachments used in connection therewith may be fully understood. 95

In the present invention a pendent hanger-arm 11 is arranged below the draw-bar 2 of the car-coupling and is provided at its upper end with a saddle portion 12, which rests flat against and registers with the under side of the said draw-bar, and the upper saddle end of said hanger-arm is securely clamped to the draw-bar by means of a clamp-band 13, encircling the draw-bar and having its opposite 100

extremities secured to opposite sides of the hanger-arm by means of a clamping-bolt 14. The pendent hanger-arm 11 is provided in its lower end with a bifurcation 15, in which is arranged the oscillating bracket-arm 16. The oscillating bracket-arm 16 is centrally pivoted on the pivot-pin or rivet 17 within the bifurcated lower end of the hanger-arm and is provided in its front end with a vertically-disposed segmental slot 18, which loosely receives therein the rounded portion of the clamping-spring 9, projected from and attached to the rear end of the air-brake coupling-head 3, and said segmental slot 18 is concentric with the central pivot 17 of the oscillating bracket-arm 16.

Arranged above the oscillating bracket-arm 16 is an oscillating adjusting-lever 19, centrally pivoted, as at 20, to one side of the hanger-arm 11 and provided at its front end with an enlarged opening 21, loosely receiving the upper end of a short connecting-arm 22, the lower end of which is suitably fitted in or connected to the upper side of the coupling head or shoe 3. The rear end of the lever 19, or the end opposite its connection with the arm 22, is pivotally connected, as at 23, to the upper end of a short connecting-link 24, the lower end of which link is pivotally connected, as at 25, to the rear end of the oscillating bracket-arm 16, thereby completing a connection between the said bracket-arm and the lever 19, to insure a simultaneous movement of these two parts and to maintain the same always in substantially or approximately parallel planes.

Normally the air-brake coupling head or shoe depresses the front ends of the arm 16 and the lever 19 and lies in a substantially horizontal plane, and it will be readily apparent that when the guide-tongue 10 of the clamping-spring attached to the coupling head or shoe of an opposite car (and which opposite coupling head or shoe lies in a higher plane than the head or shoe first referred to) engages the recessed flanged outer side 8 of said lowermost coupling head or shoe 3 said latter shoe will be elevated to the same plane of the higher head or shoe, and in being thus elevated it will be noted that the front end of the lever 19 in rising will, through the medium of the link connection 24, depress the rear end of the bracket-arm 16, so that the front end of said bracket-arm will be positively elevated simultaneously with the front end of the lever 19, and will thereby elevate the spring or rear portion of the lowermost coupling head or shoe 3 at the same time the front portion of said head or shoe is being elevated by the spring 9 of the higher head or shoe. By reason of this arrangement it will be obvious that the coupling head or shoe, as it adjusts itself up and down to accommodate the height of a companion head or shoe, will always remain in a substantially horizontal plane, so as to insure a perfect air-tight register or coupling between the two heads or

shoes, and thereby overcoming the many objections to the constructions set forth in the patents herein referred to.

At times the automatic air-brake coupling head or shoe 3 will be opposed to an unlike brake hose-coupling 26, fitted to one end of the ordinary brake hose-pipe 27, and in such emergency the two unlike couplings are connected together by the interchange coupling attachment 28. The interchange coupling attachment 28 is provided with a lower coupling member 29, provided with means to couple, in an air-tight joint, with the brake hose-coupling 26 and with an upper coupling member 30, adapted to be clamped to the inner coupling-face of the automatic air-brake coupling head or shoe 3. The interchange coupling attachment 28 essentially comprises a tubular body and the upper and lower coupling members thereof are in direct communication and have communicating orifices, and the orifice in the upper coupling member 30 is designed to have an air-tight register with the orifice in the inner side of the coupling head or shoe 3.

The upper coupling member 30 of the coupling attachment is provided with a flattened coupling-face 31, from one side of which coupling-face is projected an angularly-disposed hook-plate 32, which registers flat against the beveled front end 7 of the coupling head or shoe and is provided at its front extremity with the hook 33, which engages over the extreme front edge of the said coupling head or shoe, and projected from the upper side of the said flattened coupling-face 31 is a U-shaped hook 34, adapted to engage with the flanged upper side of the air-brake coupling head or shoe 3.

From the side opposite the hook-plate 32 the upper coupling member 30 has projected therefrom a clamping-arm 35, having a flattened outer side 36, against which bears the clamping-spring 9 of the coupling head or shoe 3, so it will therefore be understood that when the coupling attachment is in place with the hooks engaged, as described, the arm 35 will lie between the clamping-spring 9 and the adjacent side of the coupling head or shoe, and will therefore provide means for tightly clamping the interchange coupling attachment onto the automatic air-brake coupling head or shoe.

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.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a combined car and air-brake coupling, the combination with the car-coupling, and the air-brake coupling head or shoe arranged therebelow and having a clamping-spring attached to its rear end; of a self-adjusting hanging device or bracket suspended

from the car-coupling and having separate connections respectively with the air-brake coupling head or shoe and its spring, substantially as set forth.

5 2. In a combined car and air-brake coupling, the combination with the car-coupling head, and the air-brake coupling-head arranged therebelow, of a self-adjusting bracket-arm pivotally supported intermediate
10 of its ends below the car-coupling head and loosely connected at one end with a rear portion of the air-brake coupling-head, and a lever connection between the other end of the bracket-arm and a front portion of the
15 air-brake coupling-head, substantially as set forth.

3. In a combined car and air-brake coupling, the combination with the car-coupling head, and the automatic air-brake coupling-head arranged therebelow; of an oscillating bracket-arm suspended below the draw-bar
20 of the car-coupling head and having a loose connection with a rear portion of the air-brake coupling-head, and a lever connection between said bracket-arm and the air-brake
25 coupling-head at a point in advance of the connection of the bracket-arm therewith; substantially as set forth.

4. In a combined car and air-brake coupling, the combination with the car-coupling head, and the air-brake coupling-head arranged therebelow and having a clamping-spring attached to its rear end; of a pendent
30 hanger-arm clamped at its upper end to the draw-bar of the car-coupling head and provided at its lower end with a pivot-pin or rivet, an oscillating bracket-arm pivotally supported on said pin or rivet and provided
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at its front end with a vertically-disposed segmental slot loosely receiving said clamping-spring, an oscillating adjusting-lever centrally pivoted on the hanger-arm above the bracket-arm and having a loose connection
40 at its front end with the air-brake coupling-head at a point in advance of said slotted end of the bracket-arm, and a link connection between the rear ends of the bracket-arm and said lever, substantially as set forth.
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5. In a coupling of the class described, the combination with an automatic air-brake
50 coupling-head having a beveled front end and a clamping-spring at its rear end; of a coupling attachment provided with a lower coupling member adapted to couple with a brake hose or similar coupling, and with an upper
55 coupling member having a flattened coupling-face provided at one side with an offstanding hook-plate adapted to register flat against the beveled front end of the coupling-head and having at its front extremity a hook engag-
60 ing over the extreme front edge of the coupling-head, and at its upper side with a U-shaped hook adapted to engage with the upper side of said coupling-head, said upper coupling member being provided at the side
65 opposite said hook-plate with an offstanding clamping-arm having a flattened outer side to receive thereagainst the pressure of said clamping-spring, substantially as set forth.

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

JAMES BRYANT THOMAS.

Witnesses:

M. ROSENTHAL,
R. FULTON GREEN.