

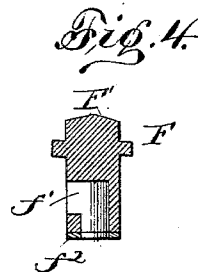
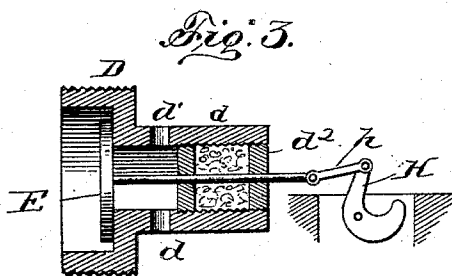
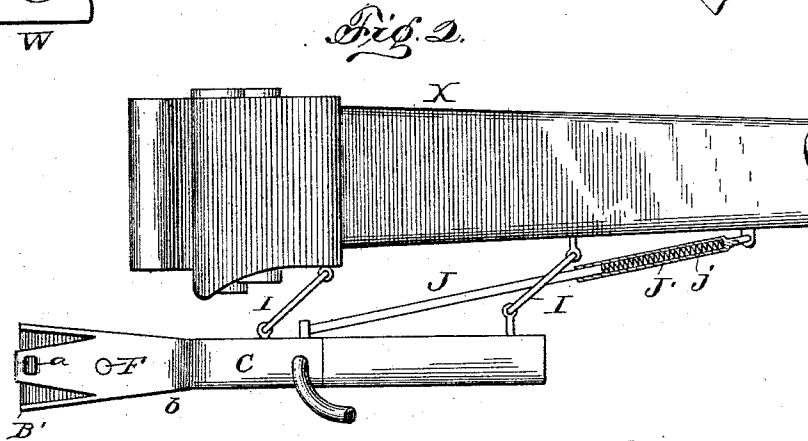
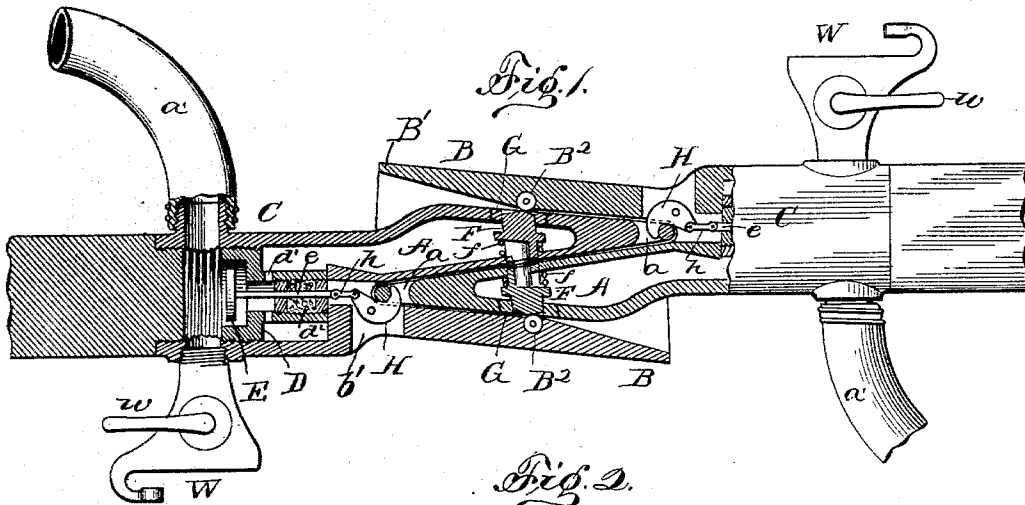
(No Model.)

W. J. PUGH.

AUTOMATIC STEAM AND AIR BRAKE COUPLING.

No. 593,119.

Patented Nov. 2, 1897.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM JESSEE PUGH, OF MUSCATINE, IOWA, ASSIGNOR OF TWO-THIRDS
TO WILLIAM N. WALLACE, J. H. VAIL, C. B. VAIL, AND WALTER L. JOHN-
SON, OF SAME PLACE.

AUTOMATIC STEAM AND AIR BRAKE COUPLING.

SPECIFICATION forming part of Letters Patent No. 593,119, dated November 2, 1897.

Application filed January 4, 1897. Serial No. 617,943. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM JESSEE PUGH, of Muscatine, in the county of Muscatine and State of Iowa, have invented certain new and useful Improvements in Automatic Steam and Air Brake Couplings; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

This invention is an improved automatic coupling for fluid-pressure brakes of railway-cars; and its object is to provide a coupling which will be certain to couple when the cars come together, will form a perfectly air-tight joint, will have a sufficiently elastic or yielding connection with the car-bodies or draw-bars to compensate for the oscillations and lateral play of cars moving in a train, and will also uncouple automatically when the cars disconnect without waste of the fluid which operates the brakes.

The invention therefore consists in the combinations of parts summarized in the appended claims and the novel constructions thereof, as hereinafter described, and the accompanying drawings illustrate the best form of apparatus now known to me.

In said drawings, Figure 1 is a horizontal longitudinal section through the complete coupling. Fig. 2 is a side elevation of one of the coupling-heads in position beneath the draw-bar of a railway-car. Fig. 3 is a detail sectional view of the main valve detached, and Fig. 4 is an enlarged sectional view of one of the jointing-plugs.

The coupling consists of two similar parts of novel construction, and a description of one applies equally to the other, and hence both are lettered alike in the drawings.

Each coupling-head has a male portion A and a female portion B, the part A of one coupling being adapted to fit into the part B of the other portion when the coupling is effected. Both parts are connected at their bases to a hollow shank C, which is connected by a pipe α' with the ordinary pipes of a fluid-pressure brake system.

Within the hollow of shank C is screwed an annular plug D, having a reduced hollow portion d , which is perforated at d' , and its front end is closed by stuffing-box d^2 , through

which passes the stem e of a valve E, which is the main air-valve, and will be seated by the pressure of the air when the coupling is disconnected.

The forward end of valve-rod e is connected by a link h to a C-shaped lever H, pivoted about its center in a recess b' in the side of part B and at the inner end of the recess or opening therein.

When valve E is unseated, air flows past it and through perforations d' into the hollow part A, as will be evident from the drawings.

The plug D is screwed into the shank until the front end of portion d abuts against the base of the female portion B, and this joint is made air-tight to prevent leakage of fluid from part A.

Within a suitable transverse opening in part A is a jointing-plug F, which is held in place by an annulus G, screwed into an opening in the outer wall of the part A, (see Fig. 1,) and the jointing-plug is pushed toward the annulus by a spring f , as shown. Through the inner end of the plug F is a passage f' , which communicates with the interior of part A, as shown, and on the inner end of the plug F is a gasket f^2 , of rubber or other suitable material. The outer end of plug F is beveled, as at F' , for a purpose hereinafter shown, and when the inner end of the jointing-plug or surface of gasket f^2 is flush with the inner face of part A the bevel portion F' projects slightly beyond the outer face thereof, as shown in Fig. 1.

The part A is conical or pyramidal in contour, being smallest at its outer end and preferably four-sided, and in its end is an eye α for a purpose hereinafter shown.

The part B has an outer flaring portion B' and an inner or rear portion b , which is adapted to exactly fit on the part A of the opposite coupling-head, so that when two such heads come together the parts A fit into the parts B.

Inside of part B and directly opposite the jointing-plug F is a small protuberance B^2 , preferably a friction-roller, whose function is hereinafter explained.

The coupler-heads are suspended beneath the car-body in any suitable manner, so that the coupler-heads on opposite cars will coincide just as the ordinary car-couplings. For convenience they can be suspended from the

draw-bars, and, as shown in Fig. 2, the shanks C are suspended from the draw-bar X by means of links I I, so that they can swing up and down and back and forth under the draw-bar. To the shank is also pivoted the front end of a rod J, which telescopes into a tube J', pivoted to the rear end of draw-bar, and a stout spring *j* is placed in the tube, so as to force the rod J forward. This throws the coupler-head up and forward, so that it stands below, but in front of the draw-bar X.

Operation: When two cars equipped with couplings such as described, arranged as in Fig. 2, come together, the opposite heads of the fluid-pressure brake-coupling come together prior to the car coupling, the parts A B of the opposite heads interlock, and the ends of parts A strike the levers H and unseat valves E, while simultaneously the jointing-plugs F F of the opposite heads come directly opposite each other and close together, as the heads are so formed that the inner faces of parts A will be forced tightly together when the coupling is effected. At the same time just as the jointing-plugs come into line the rollers or protuberances *b'* strike the beveled ends F' of the jointing-plugs and force the latter to move inward toward each other. Thus the plugs are pressed together more tightly than the parts A A even, and their gaskets *f*² produce an air-tight joint, so that when the parts A A get into position and the valves E are unseated communication is established through the jointing-plugs and a free passage for air or fluid is provided from one car to the other without any place for leakage, the whole action of coupling and forming this air-passage being automatic.

The air-coupling is effected naturally prior to the coupling of the cars. The links I and yielding of springs J' permit the air-couplings to adjust themselves beneath the draw-bars while maintaining a tight joint.

In uncoupling the initial separating movement of the heads draws rollers *b'* off the beveled ends F' of the jointing-plugs and the springs *f* force the plugs outward immediately, so that their gaskets will not be injured by rubbing. As the heads separate also, the curved ends of levers H are caught by eyes *a* of heads A and the valves E are positively closed, although the natural pressure of air would close said valves when the uncoupling was effected.

In order to enable a coupling to be made with a car having only the ordinary hand-coupling for the brakes, a coupling-head W,

provided with a valve *w*, may be attached to the side of the shank C, as indicated in the drawings.

Obviously various modifications may be made in the construction of the device without departing from the essential features of the invention, and I therefore do not limit myself to the precise construction of parts herein shown and described.

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

1. In a fluid-pressure brake, a coupling-head having a hollow conical male portion A, a laterally-movable plug F therein, and a valve E at the base of the male portion having a stem projecting into the female portion adapted to be unseated by the entering male portion of an opposed coupling, for the purpose and substantially as described.

2. In an automatic coupling for fluid-pressure brakes the combination of a pair of opposite hollow heads provided with spring-controlled jointing-plugs as F, adapted to be pressed tightly together by and during the interlocking of the heads; and a main valve at rear of the heads having a stem projecting forwardly into the female portion adapted to be unseated by the entering end of an opposite head, for the purpose and substantially as described.

3. The combination of a pair of opposite coupling-heads each having a hollow male portion A having an eye *a* on its end, and a female portion as B; a valve E in each head having a stem *e* projecting into portion B and a pivoted lever H connected to rod *e* by link *h*; and a jointing-plug as F in each part A, all substantially as and for the purpose described.

4. The herein-described coupler-head for automatic couplings for fluid-pressure brakes, comprising a hollow shank C, a male portion A, and female portion B; with a plug D screwed into the shank having a hollow portion *d*; a valve E seated on said plug having a stem *e* extending through part *d* into portion B; the jointing-plug F in part A, its spring *f*, and the coacting device *b'* in part B, all substantially as and for the purpose described.

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

WILLIAM JESSEE PUGH.

In presence of—

JAMES R. MANSFIELD,
ARTHUR E. DOWELL.