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No. 873,948. PATENTED DEC. 17, 1907.

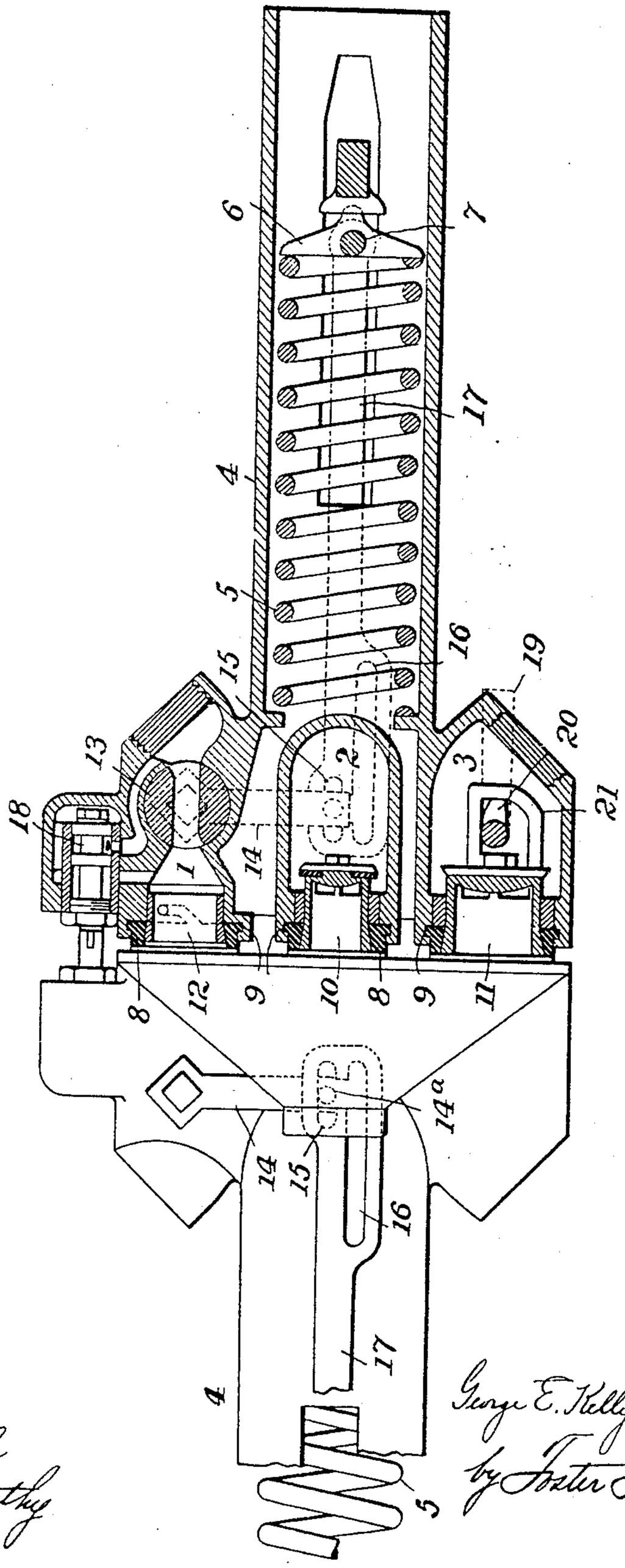
G. E. KELLY & G. F. ROYER.

TRAIN PIPE COUPLING.

APPLICATION FILED JAN. 16, 1907.

2 SHEETS—SHEET 1.

Fig. 1.



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[redacted] PIPE JOINTS OR COUPLINGS

[redacted]

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2 SHEETS—SHEET 2.

Fig. 2.

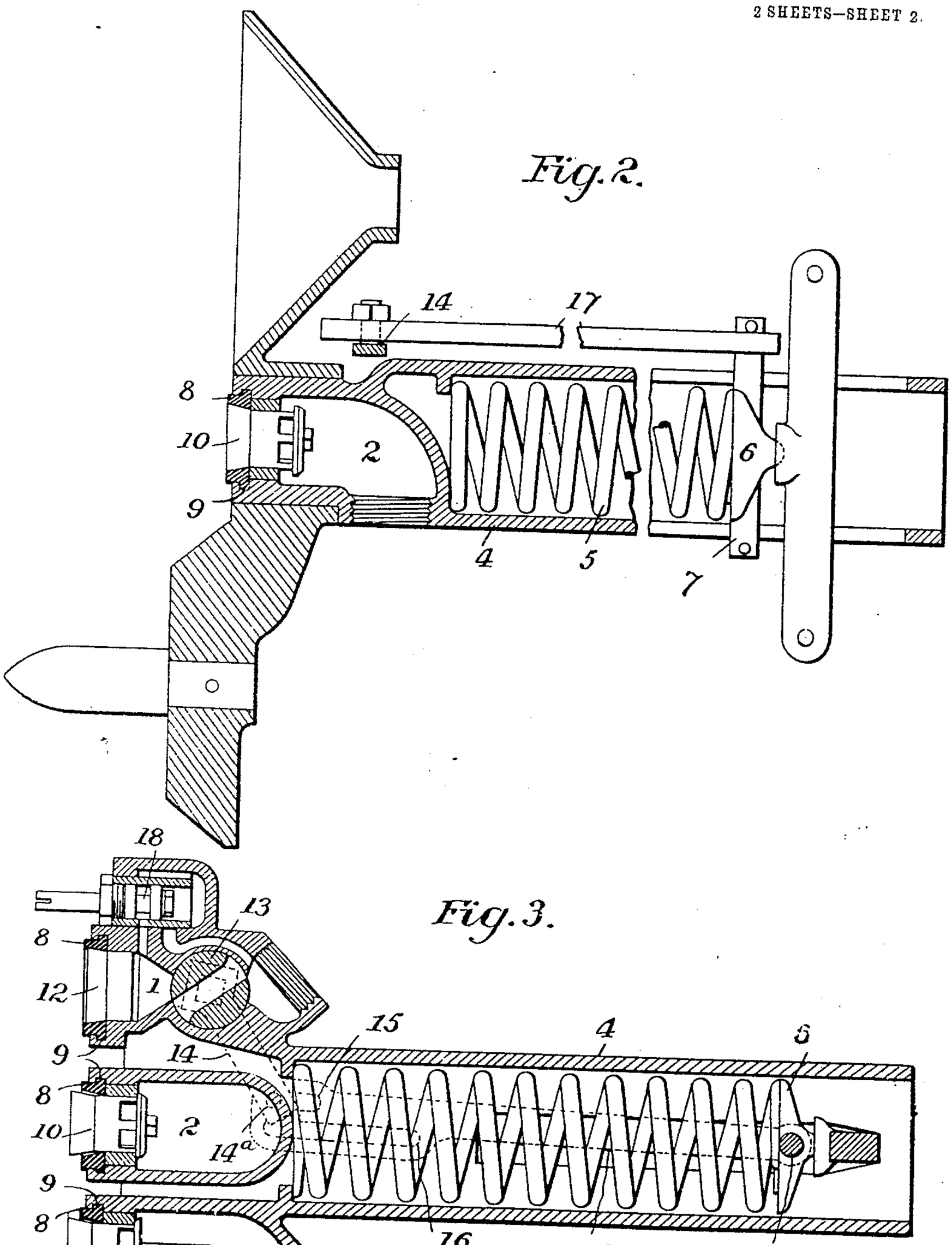

Fig. 3.

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UNITED STATES PATENT OFFICE.

GEORGE E. KELLY AND GEORGE F. ROYER, OF WILKES-BARRE, PENNSYLVANIA, ASSIGNORS TO THE KELLY-ARNOLD MANUFACTURING COMPANY, OF WILKES-BARRE, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

TRAIN-PIPE COUPLING.

No. 873,948. Specification of Letters Patent. Patented Dec. 17, 1907.

Application filed January 16, 1907. Serial No. 352,644.

To all whom it may concern:

Be it known that we, GEORGE E. KELLY and GEORGE F. ROYER, citizens of the United States, and residents of Wilkes-Barre, county of Luzerne, State of Pennsylvania, have invented certain new and useful Improvements in Train-Pipe Couplings, of which the following is a specification.

The present invention relates to improvements in train pipe couplings or such couplings as are employed for connecting the sections of the conduits forming part of the fluid pressure brake system or the train heating apparatus.

In the accompanying drawings the invention is illustrated as embodied in a form of coupling generally similar to that illustrated and described in a prior application for patent filed October 3, 1906, Serial Number 337,258, although it may of course be employed with couplings differing, as regards details of construction, from that referred to.

Referring to the drawings, Figure 1 is a longitudinal vertical sectional view through a train pipe coupling constructed in accordance with the present invention, the valves being shown open; Fig. 2 is a horizontal sectional view through one member of the coupling; Fig. 3 is a sectional view similar to Fig. 1, through one of the coupling members showing the valves closed.

The coupling shown in the drawing includes two heads each having three independent passages 1, 2, 3, formed therein, and adapted to be connected by suitable means with the conduits of the brake, heating and signal systems, respectively. Said coupling head is provided with a tubular extension or section 4 adapted to be suitably supported from a car so as to move longitudinally under the influence of a spring 5 arranged within said section 4 and between one end of the chamber therein and an abutment 6 stationarily supported therein. The abutment 6 is preferably supported by a transverse bar or beam 7 which is rigidly secured to the body or frame of the car and extends through slots formed in opposite sides of the extension 4 of the coupling head.

The outer ends of the passages 1, 2, 3 of the coupling head, or the ends thereof that open through the face of said head are provided with flexible gaskets or washers 8. These gaskets are seated in recesses formed in the body of the coupling having annular flanges 9 at their inner ends and being gradually reduced in thickness toward their outer ends, whereby the passages formed thereby gradually increase in diameter from their inner to their outer ends. With said gaskets at the outer ends of the passages 2, 3, cooperate reciprocating tubular valves 10 and 11 having enlarged heads at their inner ends and provided with lateral apertures which are brought within the passage in the coupling head as the valve is moved therein but which will be closed when the valve is pushed outward by pressure exerted on its head or inner end. It will be seen that the outer ends of said valve are tapered reversely to the gaskets so that when forced inward they act to compress said gaskets and form fluid tight joints about the valves. The form of said gaskets also acts to limit the inward movement of the valves and prevents either of two contacting valves from being forced too far into the passage in the head or member of the coupling by which it is supported.

The outer end of the air passage 1 in each coupling head is provided with a lining 12 secured therein by a bayonet joint connection and having a close contact with the gasket 8 in the mouth of said passage.

Within the air passage 1 is arranged a rotary valve 13 which is connected with an arm 14 by means of which it may be turned to open or close said passage. It will be understood that when the members of the coupling are separated, it is desirable that the passage 1 be closed and therefore means are provided for automatically turning said valve 13 as the coupling heads or members are connected or disengaged. At its free end the valve arm 13 is provided with a pin or stud 14^a which is adapted to enter either of two communicating slots 15, 16, formed in a latch bar 17 pivotally mounted on a support independent of the coupling, as for instance the bar 7 that supports the spring abutment 6. When the coupling heads or members are engaged, as shown in Fig. 1, both of said members are moved longitudinally relative to the bars 7 and abutments 6 and the springs 5 are compressed. At this time the valves 10, 11, are open having been forced within the ducts 2, 3, by contact with the corresponding valves in the other head or member, and the valve 13 is turned to open the passage 1. The slot

15 in the latch bar 17 is of such length that the movements of the coupling due to vibration of the cars, etc., will permit of a relative movement between said arm and the latch bar without imparting any movement to the valve 13. If the coupling heads or members are disengaged and separated the spring 5 of each acts to force the head longitudinally away from the abutment 6 and beam 7 and as the latch bar 17 is prevented from thus moving with the coupling head the valve 13 will be turned and the passage 1 automatically closed.

By providing the slot 16 in the latch bar it is possible to manually close the passage 1 at any time. That is, with the parts in the positions shown in Fig. 1, the latch bar 17 may be lifted, or rocked about its pivotal connection with the beam 7 or other part of the car, to bring the stud or pin 14^a into the slot 16 and when in this position the arm 14 can be turned to move the valve 13 as desired.

An auxiliary valve 18 may be employed in connection with the brake conduit 1 to automatically set the brakes in case of the accidental or unintentional separation of a train, as explained in the earlier application hereinbefore referred to.

The valve 11 of the conduit 3 may be operated by a hand crank or lever 19 which is connected with a cam finger or arm 20 operating within a slot in an extension 21 on the valve head.

Having described our invention what we claim and desire to secure by Letters Patent is,

1. In a train pipe coupling, the combination of a coupling head provided with a fluid passage, a valve adapted to close said passage, and means adjustably connected with and adapted to automatically actuate said valve as the coupling head is engaged with or disconnected from another head, the adjustable connection between said means and valve permitting the latter to be manually operated at any time.

2. In a train pipe coupling, the combination of a coupling head supported to be bodily adjusted when engaged with or disengaged from another coupling and provided with a fluid passage, a valve adapted to close said passage, an arm connected with the valve for actuating it, and means adapted to automatically move said arm to operate the valve as the coupling head is adjusted in being engaged with or disengaged from another head, said means including an adjustable member whereby said arm and valve may be manually moved when desired.

3. In a train pipe coupling, the combination of a coupling head supported to be bodily adjusted when engaged with or disengaged from another coupling and provided with a fluid passage, a valve adapted to close said passage, an arm connected with the valve for actuating it, a latch supported independently of the coupling head and engaging said arm, whereby when the coupling head is adjusted in being engaged with or disengaged from another head the valve will be actuated to open or close the fluid passage, the connection between said latch and arm permitting manual operation of the arm and valve at any time.

4. In a train pipe coupling, the combination of a coupling head supported to be bodily adjusted when engaged with or disengaged from another coupling and provided with a fluid passage, a rotary valve within said passage, an arm connected with and adapted to turn said valve to open and close the fluid passage, a latch supported independently of the coupling head and engaging said arm, whereby when the coupling head is adjusted in being engaged with or disengaged from another head the valve will be actuated to open or close the fluid passage, the connection between said latch and arm permitting manual operation of the arm and valve at any time.

5. In a train pipe coupling, the combination of a coupling head supported to be bodily adjusted when engaged with or disengaged from another coupling and provided with a fluid passage, a rotary valve within said passage, an arm connected with and adapted to turn said valve to open and close the fluid passage, a latch bar pivotally supported independently of the coupling head and having formed therein two communicating slots, and a projection on said arm normally entering one of said slots, whereby the latch and valve arm are connected to cause the latter to automatically actuate the valve to open or close the fluid passage as the coupling head is engaged with or disengaged from another head, and said arm and valve being adapted to be manually operated when the latch bar is moved to bring the projection on said arm into the other slot in the latch bar.

6. In a train pipe coupling, the combination of a coupling head supported to be bodily adjusted when engaged with or disengaged from another coupling and provided with a fluid passage, a rotary valve within said passage, an arm connected with and adapted to turn said valve to open and close the fluid passage, said arm having a laterally projecting pin or stud, a latch pivotally supported independently of the coupling head and adapted to engage said projection on the valve arm to cause the automatic actuation of the valve as the coupling head moves relative to said latch when engaging or being disengaged from another head.

7. In a train pipe coupling, the combination of a coupling head supported to be bodily adjusted when engaged with or disengaged from another coupling and provided with a fluid passage, a rotary valve within

said passage, an arm connected with and adapted to turn said valve to open and close the fluid passage, said arm having a laterally projecting pin or stud, a latch pivotally supported independently of the coupling head and having therein two slots of different lengths each adapted to receive said projection on the valve arm, said arm being manually movable independently of any change in relative position of the coupling head and latch when the projection thereon is in the longer of said slots and being automatically actuated as the coupling head is engaged with or disengaged from another head when said projection is in the shorter of said slots.

8. The combination with a valve casing, of a flexible gasket secured within and projecting beyond one end of said casing, said gasket forming a passage which decreases in diameter from its outer to its inner end, and a valve adapted to reciprocate in said casing and having the portion of its body in contact with said gasket reversely inclined or tapered.

In testimony whereof we affix our signatures in presence of two witnesses.

GEORGE E. KELLY.
GEORGE F. ROYER.

Witnesses:
JOHN J. O'DONNELL,
EDWARD N. NOLL.