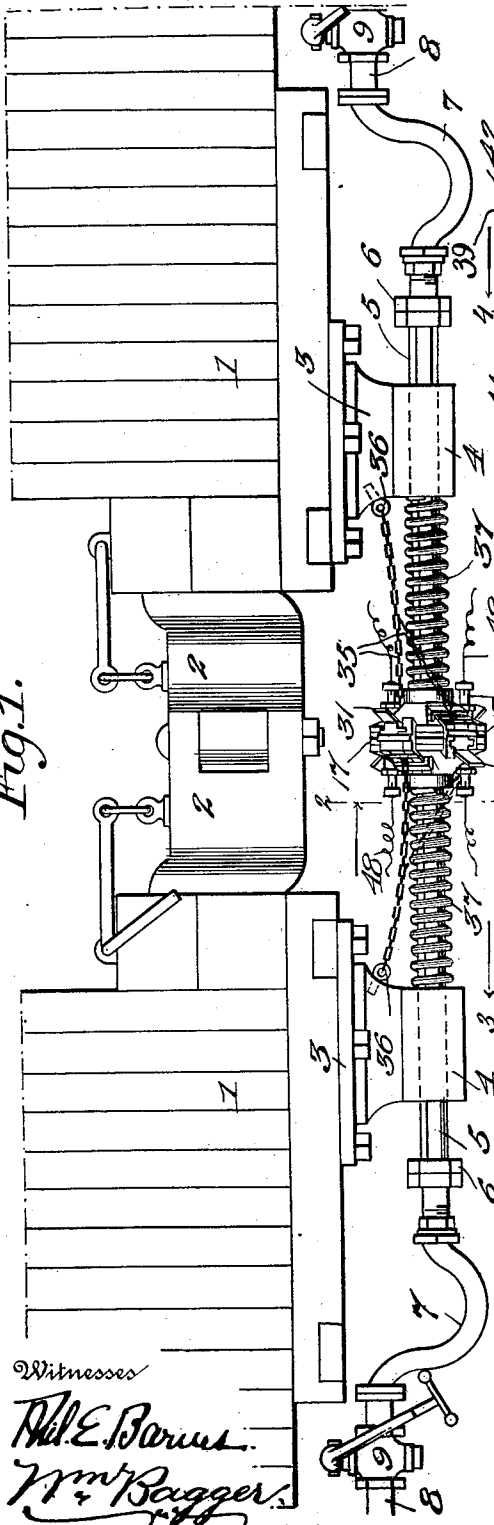


1,011,727.

Patented Dec. 12, 1911.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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*Wm. P. Bagger*

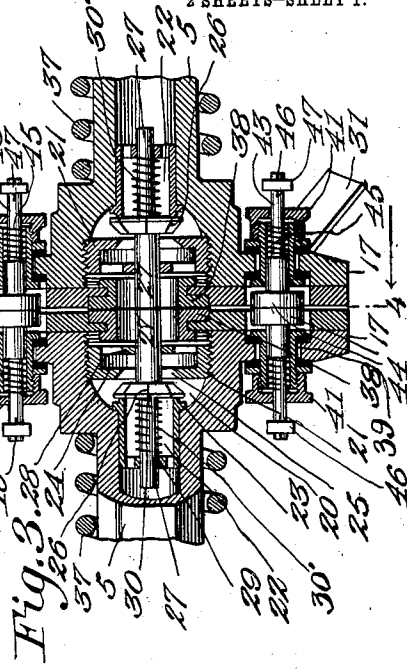


Fig. 3.

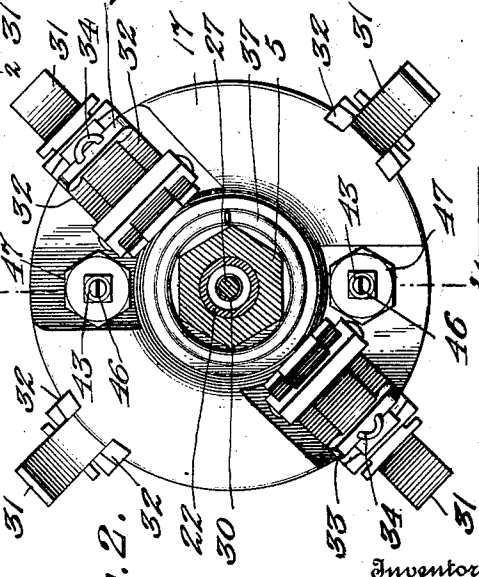


Fig. 2.

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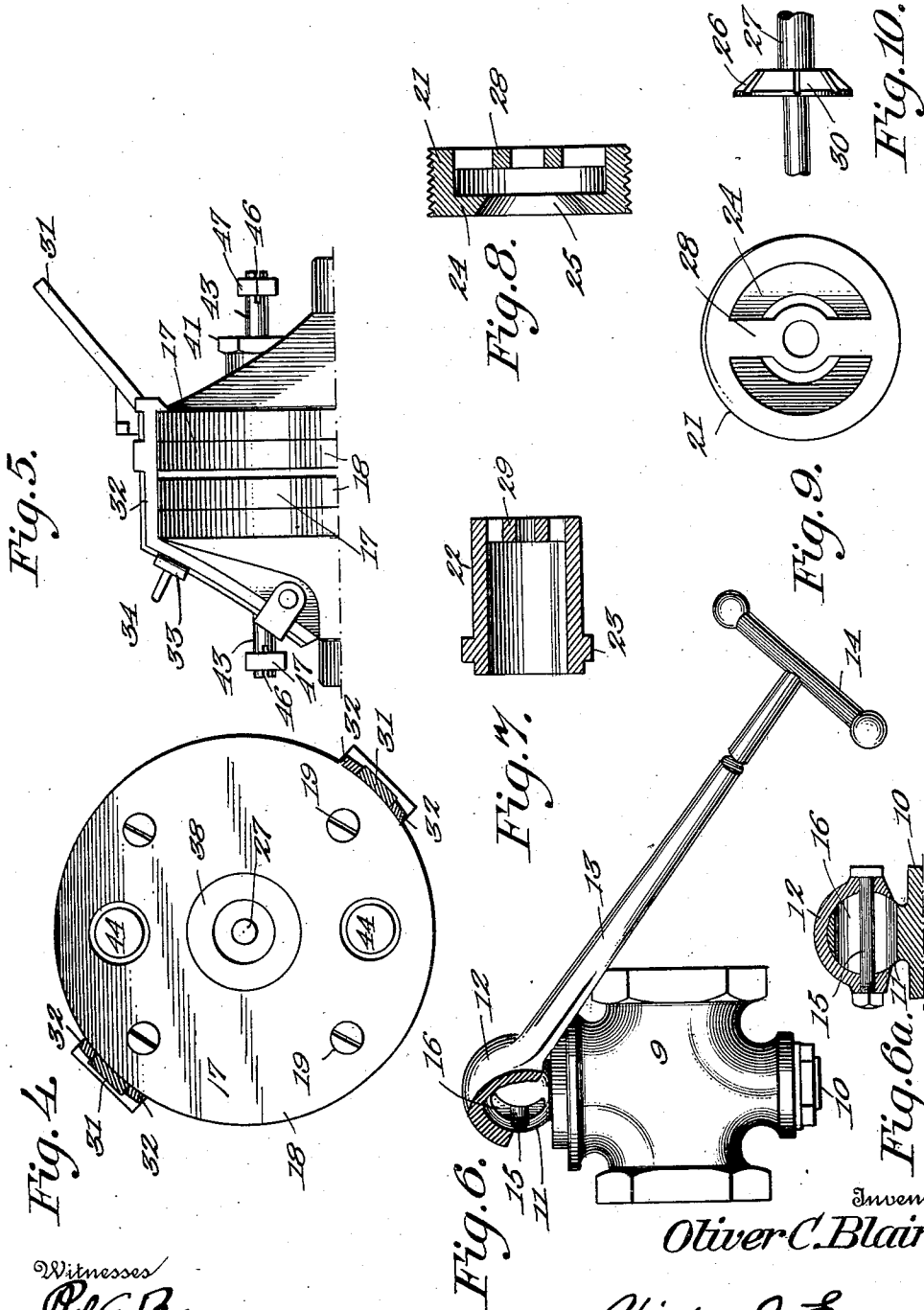
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 TRAIN PIPE COUPLING.  
 APPLICATION FILED FEB. 26, 1910.

1,011,727.

Patented Dec. 12, 1911.

2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

OLIVER C. BLAIR, OF CLEVELAND, OHIO.

## TRAIN-PIPE COUPLING.

1,011,727.

Specification of Letters Patent.

Patented Dec. 12, 1911.

Application filed February 26, 1910. Serial No. 546,140.

*To all whom it may concern:*

Be it known that I, OLIVER C. BLAIR, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Train-Pipe Couplings, of which the following is a specification.

This invention relates to train pipe couplings, and it is an improvement on a device of this class for which application for Letters Patent, Serial No. 478,256, was filed by myself on the 16th day of February, 1909.

The invention has reference to couplings for air pipes which are independent of the couplings whereby the cars are connected, the term "air pipe" being intended generically to include pipes for the passage of air, gas or liquids.

One object of the present invention is to provide an improved construction, whereby in the event of cars becoming disconnected air shall be permitted to escape slowly, thus gradually setting the brakes.

A further object of the invention is to provide simple and effective means whereby the meeting heads of the pipe coupling shall be held securely in contact with or seated upon one another without danger of partial separation while the train is in motion.

A further object of the invention is to provide simple means whereby the connecting means shall be automatically disengaged when the cars are disconnected.

A further object of the invention is to provide simple and effective means whereby the heads of the pipe coupling shall be utilized for the purpose of making electrical contact between electrical conductors carried by each car, thus avoiding the necessity of making separate electrical connection between the cars.

A further object of the invention is to provide simple and effective means for operating the stop valve upon the train pipe for the purpose of completely obstructing the latter when desired.

Still further objects of the invention are to simplify and improve the general construction and operation of a device of the character outlined above.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which

will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations, and modifications within the scope of the invention may be resorted to when desired.

In the drawings—Figure 1 is a side elevation showing end portions of two cars equipped with the invention, the same being connected together by an ordinary form of car coupling. Fig. 2 is a vertical transverse sectional view, enlarged, taken on the plane indicated by the line 2—2 in Fig. 1. Fig. 3 is a longitudinal vertical sectional view taken on the line 3—3 in Fig. 2, showing the contacting heads of the improved train pipe coupling. Fig. 4 is a sectional view taken on the line 4—4 in Fig. 3. Fig. 5 is a detail view in elevation, showing portions of the contacting heads of the coupling. Fig. 6 is a detail view in elevation, partly in section of the stop cock and the handle for manipulating the same. Fig. 6<sup>a</sup> is a sectional view taken through the head of the valve stem of the stop cock. Fig. 7 is a sectional detail view of the inner guiding sleeve of the valve stem of the coupling. Fig. 8 is a sectional detail view of the outer guiding sleeve of a valve stem of the coupling which also constitutes the valve seat. Fig. 9 is a front or face view of the outer guiding sleeve. Fig. 10 is a detail view in side elevation of the valve.

Corresponding parts in the several figures are denoted by like characters of reference.

Referring to the drawings, 1, 1 designate portions of two railroad cars which are connected by couplings 2, 2 of ordinary construction. Secured upon the underside of each car adjacent to the end thereof is a supporting member consisting of a bracket 3 serving to support a sleeve or bearing member 4, the latter being pivotally and resiliently connected with the supporting bracket by means shown and claimed in my previous application above referred to; it being understood that each bearing sleeve is provided with a longitudinal passage of non-circular form wherein a pipe 5, the exterior of which is of corresponding non-circular form, is supported for longitudinal movement, said pipe being provided near its rear

or inner end with a stop member 6 to limit its movement in a forward direction. The rear end of the pipe 5 is connected by a flexible hose 7 with the train pipe 8, which latter is provided with a stop cock or valve including a casing 9 and a valve stem 10, (see Figs. 6 and 6<sup>a</sup>) the said stem having a spherical or ball-shaped head 11 engaging a correspondingly shaped socket 12 at one end of an operating lever 13 having a handle 14, the said socket being connected with the head 11 by means of a pin 15 extending transversely through a slot 16 in the head, thereby forming means whereby the valve stem may be turned and the valve opened or closed, as may be required, while the lever 13 occupies an inclined position, thereby enabling the handle 14 of the lever to be moved in a horizontal plane other than that in which the head of the valve stem is located, and thus greatly facilitating the operation and making the handle whereby the stop cock is operated conveniently accessible to the operator.

The pipe 5 is provided at its forward end with an enlarged head 17 upon which a contact plate 18 is secured by means of screws 19; said contact plate will, for convenience, in the following description be regarded as constituting a part of the head. The head 17 has a cup-shaped recess 20 wherein a sleeve 21 is secured, said sleeve being preferably exteriorly screw-threaded to engage corresponding screw threads formed in the recess. Another sleeve 22 is supported within the tube 5 adjacent to the head 17, said tube having a flange 23 which abuts upon the bottom of the recess 20 to limit the inward movement of the sleeve. The sleeve 21 has a wall or diaphragm 24 which is apertured to form a seat 25 for a valve 26 which is mounted upon a stem 27 extending through cross bars 28, 29 of the sleeves 21 and 22, respectively, the forwardly extending portion of the valve stem being guided in the cross bar 28 and the rearwardly extending portion of the valve stem being guided in the cross bar 29. A spring 30' coiled upon the rearwardly extending portion of the valve stem between the cross bar 29 and the valve serves to force the latter in the direction of the seat. The valve 26 does not tightly engage the seat, it being provided with grooves, recesses or corrugations 30 which will permit air to escape slowly when the valve is seated. By this construction if cars equipped with the improved air pipe coupling become suddenly or accidentally disengaged, the valve will be seated, but it will permit air to escape slowly so as to cause the brakes of the car to become gradually set.

The head 17 is provided with guide members 31 secured upon the rear side thereof and extending obliquely in a forward di-

rection so as to guide the head of a mating device into contact therewith when the cars come together. The guide members 31 connected with each head are diametrically opposite and are disposed diagonally at an angle of approximately 45° to the horizontal. All heads being similarly equipped, it follows that the guide members of opposing heads will be in staggered or alternate relation, so that each head will be guided properly into contact with its mate. Adjacent to each guide member I secure a pair of resilient beveled hook members 32 which are adapted to engage the rim of the opposing head for the purpose of holding the mating heads securely together after they are brought into contact with each other. The hook members 32 adjacent to each guide member are connected together by a yoke 33 straddling the guide member and having an eye or staple 34. The staples 34 of the yokes connecting the hook members of each head are connected together by a flexible element, such as a chain 35 which in turn is connected with a fixed point such as an eye 36 secured in fixed relation to some part of the car.

A spring 37 is coiled upon the non-circular tube 5 between the guide sleeve 4 and the head 17 to normally force the head in a forward direction with relation to the car. It will be readily understood that when the cars are uncoupled the strain exercised by the spring 37 to force the head 17 forwardly will result in straining the chain or flexible member 35, thereby lifting the resilient hook members 32 to a non-engaging position with relation to the head of a mating air pipe coupling.

A gasket 38 of resilient material, such as rubber or a composition containing rubber, is mounted upon the contact plate 18 of each coupling head, said gasket extending slightly in advance of the face of the contact plate for the purpose of securing an airtight connection between mating heads.

Each coupling head is provided with one or more apertures 39 registering with similar apertures in the opposed or mating head, said apertures being designed for the passage of sleeves 40 which are secured by cap nuts 41 and are separated from the metallic portion of the head by suitable insulation 42. Each sleeve 41 is designed for the passage of a contact member consisting of a stem 43 having a contact head 44 and actuated in a forward direction by a suitably arranged spring 45, said stem being provided at its rear end with a slot 46 and a clamp nut 47 for the purpose of binding securely in position a conducting wire 48, the end of which is adjusted in the slot 46.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of this

invention will be readily understood by those skilled in the art to which it appertains. It is obvious that each car is to be provided at each end with an equipment similar to that herein described, the connections of the train pipe, as well as of the electrical conductors, being well understood. When cars having the improved equipment are separated, the heads 17 of the improved air pipe couplings will be projected forwardly by the springs 37, while the chains 35 being thus placed under tension will hold the resilient hook members 32 likewise under tension in a retracted position. It is very obvious that the resilient hook members may be inherently resilient, as illustrated in the drawings, or that said hook members may be placed under tension by independent actuating springs. It will also be understood that said hook members may be disposed in other positions than those herein indicated, although the arrangement herein shown is preferred, because said hook members will to some extent be properly retained and guided by the guide members 31. When the cars come together, the heads of mating air pipe couplings will be guided into engagement with each other by the members 31, and the springs 37 being thus placed under tension, strain upon the flexible elements 35 will be relaxed, thus causing the resilient hook members of each head to automatically engage the mating head of the opposite car, thereby holding the heads securely in contact with one another as long as the cars are coupled. The forwardly extending portions of the valve stems 27 normally extend a suitable distance in advance of the contact plates so that when the heads come together, the valve stems of opposing or mating couplings will contact with each other, thereby unseating the valves and establishing communication between the

air pipes of the cars. When the cars are separated, either intentionally or accidentally, the tension of the springs 37 will force the coupling heads 17 and pipes 5 forwardly, thereby placing the flexible elements 35 under tension and disengaging the resilient connecting hooks, at the same time permitting the valves 23 to be seated. As hereinbefore stated, the seating of the valves 23 does not altogether obstruct the passage of air, but air will be permitted to escape slowly to cause the gradual seating of the valves. The passage of air may be completely obstructed when desired by manipulating the stop valves 9 in the manner hereinbefore described.

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

1. In an air pipe coupling, mating coupling heads having guide members and pairs of resilient connecting members supported adjacent to the guide members, said connecting members being mutually connected by yokes straddling the guide members.

2. In an air pipe coupling, a slidably supported tubular member having an enlarged head, means for resiliently projecting the head in a forward direction, guiding members secured upon and projecting from the head, resilient connecting members secured in pairs adjacent to the guide members, yokes connecting the resilient connecting members in pairs and straddling the guide members, and flexible means connecting the yokes with relatively fixed points.

In testimony whereof I affix my signature in presence of two witnesses.

OLIVER C. BLAIR.

Witnesses:

JOHN R. GARVER,  
R. T. GRISWOLD.