

No. 725,421.

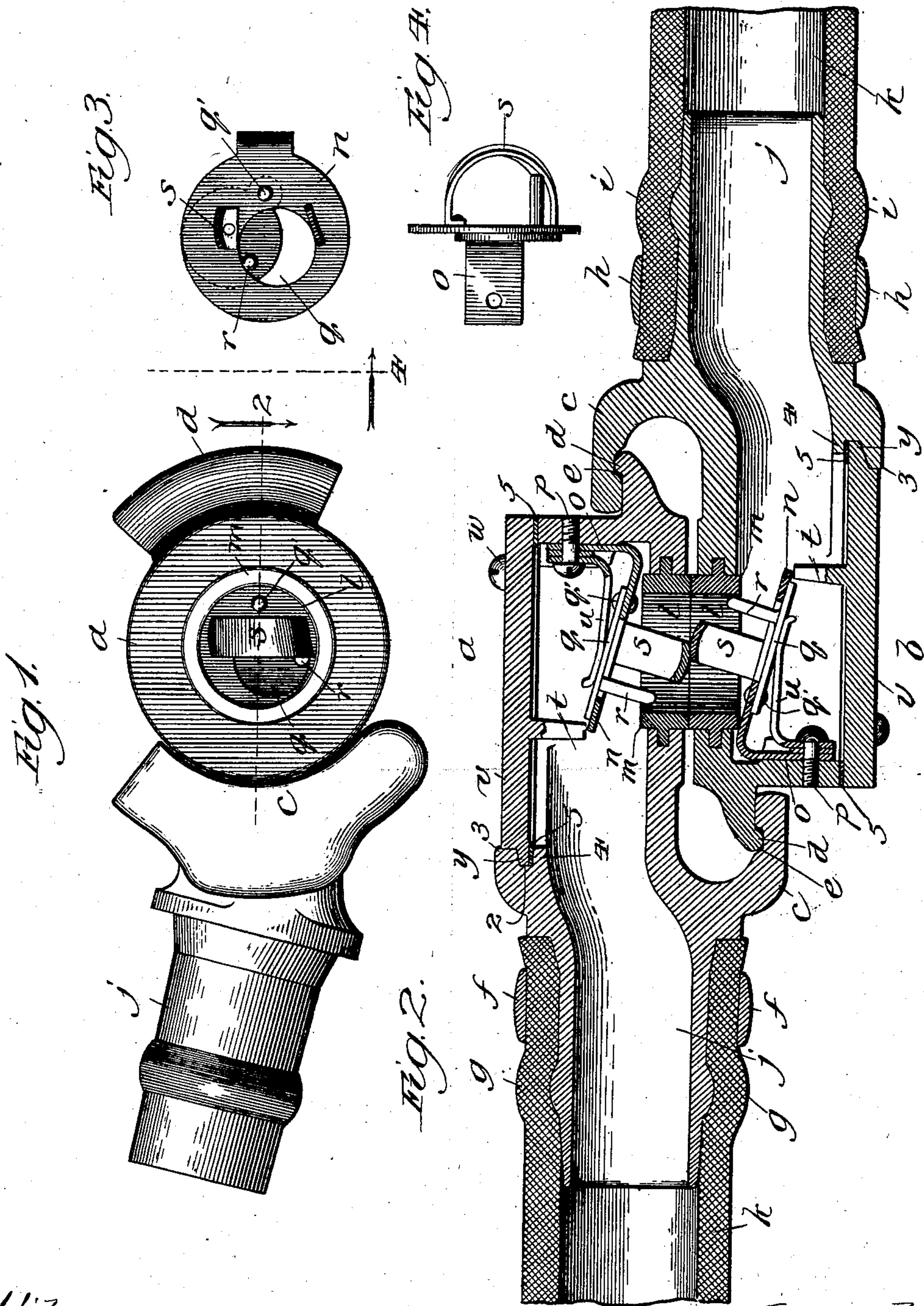
PATENTED APR. 14, 1903.

G. B. DINKINS.

AIR BRAKE HOSE COUPLING AND VALVE MECHANISM.

APPLICATION FILED SEPT. 29, 1902.

NO MODEL.



Witnesses:
Ed. Chylard,
Geo. C. Lavin.

Inventor:
George B. Dinkins
By Thomas F. Sheridan,
Attorney

UNITED STATES PATENT OFFICE.

GEORGE B. DINKINS, OF MATTOON, ILLINOIS, ASSIGNOR OF ONE-HALF TO
JAMES W. CRAIG AND EDWARD C. CRAIG, OF MATTOON, ILLINOIS.

AIR-BRAKE HOSE-COUPLING AND VALVE MECHANISM.

SPECIFICATION forming part of Letters Patent No. 725,421, dated April 14, 1903.

Application filed September 29, 1902. Serial No. 125,315. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. DINKINS, a citizen of the United States, residing at Mattoon, in the county of Coles and State of Illinois, have invented certain new and useful Improvements in Air-Brake Hose-Coupling and Valve Mechanism, of which the following is a specification.

My invention relates to that class of air-brake hose-coupling and valve mechanisms comprising a pair of coupling-heads adapted to be interlocked and provided with air-passages adapted to communicate with each other when the coupling-heads are in interlocking position, the openings for such passages being provided with valve mechanism adapted to open and close them.

It relates further and particularly to the valve mechanism for opening the passages when the coupling-heads are in interlocking position and for opening or closing such passages and openings thereto when the coupling-heads are disconnected.

The principal object of my invention is to provide a simple, economical, and efficient air-brake coupling and valve mechanism.

A further object is to provide an air-brake coupling comprising a pair of coupling-heads having air-passages therethrough adapted to communicate with each other when the coupling-heads are in interlocked position and having coupling-valve mechanism adapted to close either or both of such passages when the coupling-heads are disconnected and to open such passages, permitting communication therebetween when the coupling-heads are in interlocked position, whereby when the train is broken and the coupling-heads of one or more cars thereby disengaged the passage of the rear portion may be left open and that of the front closed, causing the brakes of the rear car or cars to be set and stop the cars and the brakes of the forward portion to remain open, and thus prevent the colliding of the separated portions of the train.

A further object is to provide means for closing the passages in the coupling-heads when they are disengaged, and thereby prevent dirt and gravel from entering the passages, so as to interfere with the action of the air-brake mechanism.

Other and further objects of the invention will appear from an inspection of the drawings and the following description and claims.

The invention consists in the features, combinations, and details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a plan view of a coupling-head constructed in accordance with my improvements, showing the inner face and valve; Fig. 2, a sectional elevation of a pair of coupling-heads in interlocked operative engagement, showing the valves in their open position; Fig. 3, a plan view of a valve, showing the valve-door in open position; and Fig. 4, a detail view of the valve mechanism.

In the art to which this invention relates it is well known that with the ordinary couplings the accidental separation of the train into sections, which usually occurs on a downgrade, causes the brakes of the front car of the rear section and the rear car of the front section to become simultaneously set and in advance of all of the other cars of the train. The rear cars being thus temporarily left with the brakes open are not at once stopped, and collision between the sections of the trains becomes unavoidable. My invention therefore is intended to obviate this difficulty and to provide means in connection with the couplings for causing the brakes of the rear section to be at once set and those of the front section to be left open.

In constructing an air-brake hose-coupling device in accordance with my improvements I provide a pair of coupling-heads *a* and *b*, each having jaws *c* and inner lips *d* adapted to interlock with such jaws and engage grooves *e* therein. In Fig. 2 these coupling-heads are shown in interlocked position, the first being firmly secured by means of a strap *f* to an air-brake hose *g*, which is connected with air-brake mechanism of a car, (not shown,) and the second of which is secured by means of a strap *h* to a hose-section *i*, which is also connected with air-brake mechanism (not shown) of the next adjoining car, each end of both cars being provided with a coupling-head and valve mechanism, such as here shown and described.

It will be understood by those skilled in the

art that the coupling-heads shown are identical in construction and may be attached at either end of a car interchangeably and that either may at different times be nearest the engine. The hose-section *a* is attached to the front end of one of the cars of a train, and the section *b* is attached to the rear end of a car between it and the engine. Each of these coupling-heads is therefore provided with an inner passage *j*, which communicates with the passage *k* of the hose, such passage being in turn connected, as above suggested, with the air-brake cylinder mechanism of the car to which it is attached and with a suitable source of fluid-supply of an engine, (not shown,) thus forming a passage connecting all the air-brake cylinders with source of fluid-supply of the engine. To provide means whereby these passages may be placed in communication when the coupling-heads are in interlocked position, each of the coupling-heads is provided with openings *l* in the inner face thereof, which communicate with and serve to connect such passages, and elastic gaskets *m* are provided for such openings, adapted to form a sealed joint when the coupling-heads are in engagement. These gaskets, being elastic, also assist in holding the coupling-heads in engagement by pressing their jaws into yielding contact with each other. A coupling-valve *n* is provided for each of the openings or ports *l* and mounted in the coupling-head and held in yielding operative engagement with the gasket or walls of the opening of the fluid-passage by means of a spring-supporting arm *o*, which is firmly attached to the wall of the coupling-head by means of a screw *p*. In order to provide means for opening a passage through the valves *n* when they are in closed position, they are each provided with a door *q*, pivotally and slidably mounted thereon by means of pivots *q'*, so as to swing with the valve, and an operating-pin *r* is mounted upon each valve-door, by means of which it may be moved into its open or closed position as necessity may require.

To insure the automatic opening of the valves when the coupling-heads are in interlocked position, the valves are each provided with an operating-lug *s*, which is preferably made in the form of a hollow arch, as shown in Fig. 4, so as to avoid obstructions to the passage of the air or other operating fluid, and pins *t* are provided and mounted in the wall of the coupling-heads so as to engage the valves when they have reached the desired limit of movement in the opening direction, and thus insure the corresponding adjustment of the adjacent valve by the mutual contact of the operating-lugs. A second spring *u* is mounted in yielding engagement with the door of each valve, so as to retain it in either its open or closed position and also to assist in automatically closing the valve proper.

In order to enable the coupling-valves,

and valve-doors to be readily placed in position, the back wall of each coupling-head is provided with a removable panel or door portion *v*, held in place by screws *w* and flanges *y*, which enter recesses in the fixed wall of the coupling-head and engage lugs 3 and 4 on each side of such recesses, and sealing-strips or washers 5, of elastic webbing, gutta-percha, or similar material, are arranged between the removable panel and the rigid portions of the wall of the coupling-head, so as to form the necessary air-tight connection between such parts.

In operation the left-hand or upper coupling-head (shown in Fig. 2) is attached to the front end of a car, and the right-hand or lower coupling-head is attached to the rear end of a car, between it and the engine. The hose-sections to which such heads are attached are connected in any ordinary manner with the air-brake cylinder mechanism of a train of cars and with a source of fluid-pressure of the engine, whereby fluid under pressure may be introduced into the passage and withdrawn therefrom, all of which will be readily understood by those skilled in the art. The coupling-valve door *q* of the head *a* is placed in its open position, as in Fig. 3, so as to provide an opening through such valve, and the coupling-valve door of the head *b* is in its closed position, as in Fig. 1. The heads are then interlocked, as shown in Fig. 2, causing both valves to assume their open position. In this position, as before suggested, the introduction of fluid under pressure causes all of the brakes of the train to assume their open or unlocked position, and the removal of the pressure causes them all to be set or locked. The separation or accidental uncoupling of the cars upon which these heads are mounted therefore causes the heads to separate, and the door of the coupling-valve on the head *a* being open the brakes on the car and all cars connected therewith will be set by reason of the escape of the operating fluid through such valve. The door of the coupling-valve on the head *b* being closed causes all of the brakes on the front section of the train to remain open, thus permitting the front section to move away from the rear section and out of all danger of collision of two sections.

It will be readily apparent that the arrangement of the valves and valve-doors herein described and shown enables the coupling-heads to be kept closed to the exclusion of dust and gravel from the fluid-passages when the cars are side-tracked or when the coupling-head happens to be at the extreme rear end of the train.

I claim—

1. In mechanisms of the class described, the combination of an air-brake hose-coupling head provided with a fluid-passage having an opening in such head, a valve movably mounted in the head at the opening of the passage, and a door mounted on such valve, substantially as described.

2. In mechanisms of the class described, the combination of an air-brake hose-coupling head provided with a fluid-passage having an opening through the wall of such head, a valve
5 provided with an opening therethrough movably mounted in and attached to the head, spring mechanism for automatically closing the valve, and a door slidably mounted upon
10 such valve for closing the opening there- through when desired, and a door mounted in the back of the coupling-head provided with means for holding it in closed position, substantially as described.

3. In mechanisms of the class described,
15 the combination of a pair of air-brake hose-coupling heads provided with fluid-passages having openings in the walls of such heads, a

valve movably mounted in each head at the opening of the passage and provided with an opening therethrough for the admission of air
20 through the valve when desired, a door slidably mounted on each valve, means for holding such door in open or closed position, a spring attached to each coupling-head upon which such valve is mounted, and an operat-
25 ing-lug for each valve adapted to engage a similar lug on the adjacent valve when the coupling-heads are in interlocked position, substantially as described.

GEORGE B. DINKINS.

Witnesses:

JOSEPH WILHELM,
ISAAC B. CRAIG.