(No Model.) 2 Sheets—Sheet 1.

L. SENNETT & T. F. ARNETT.

AIR BRAKE COUPLING.

No. 489,763. Patented Jan. 10, 1893.

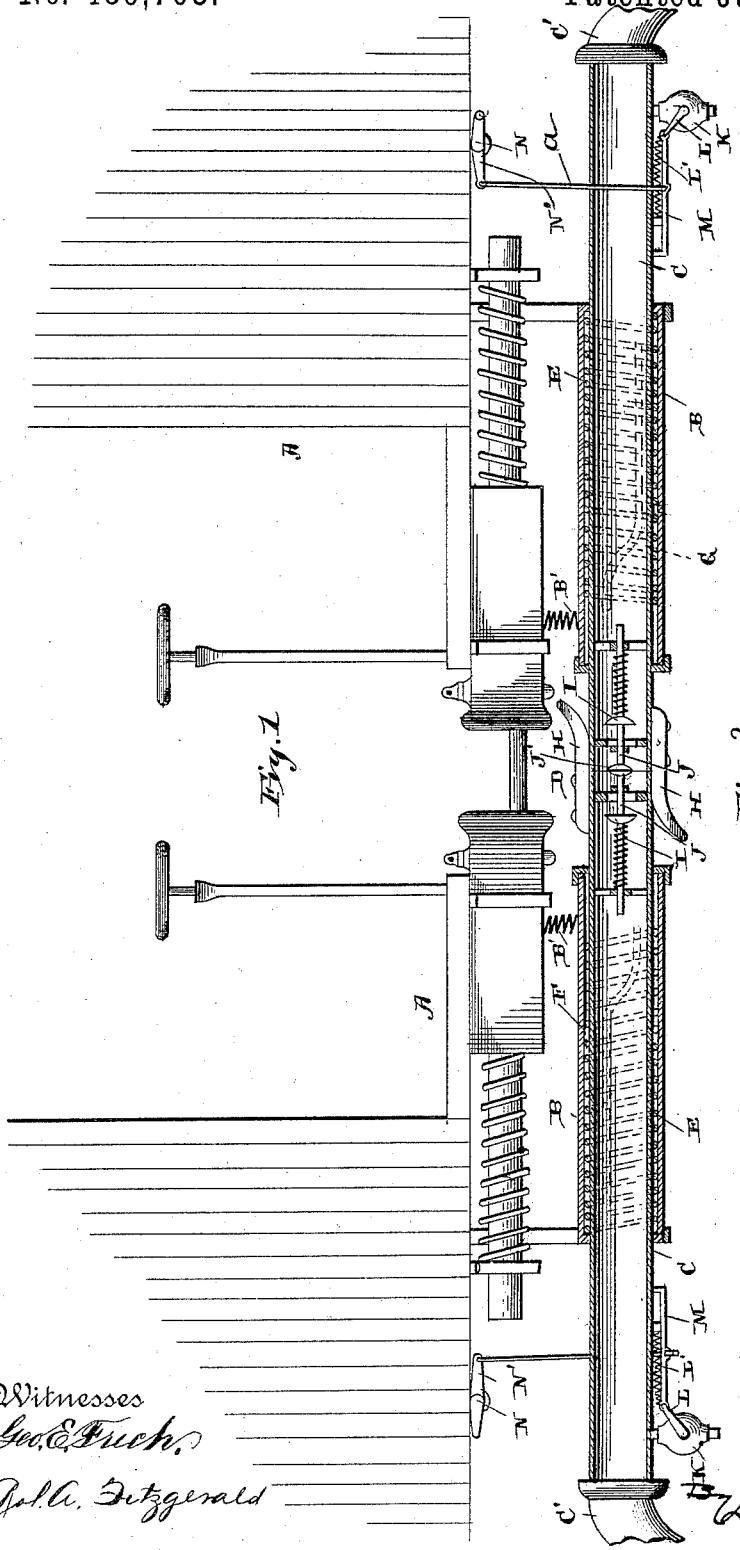

Fig. 1.

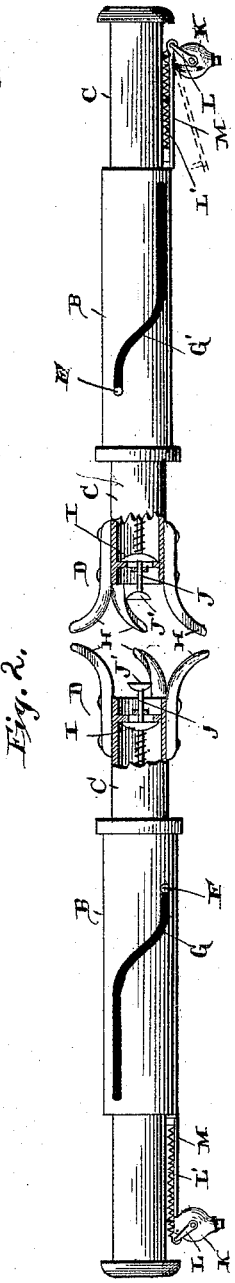

Fig. 2.

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Fig. 3.

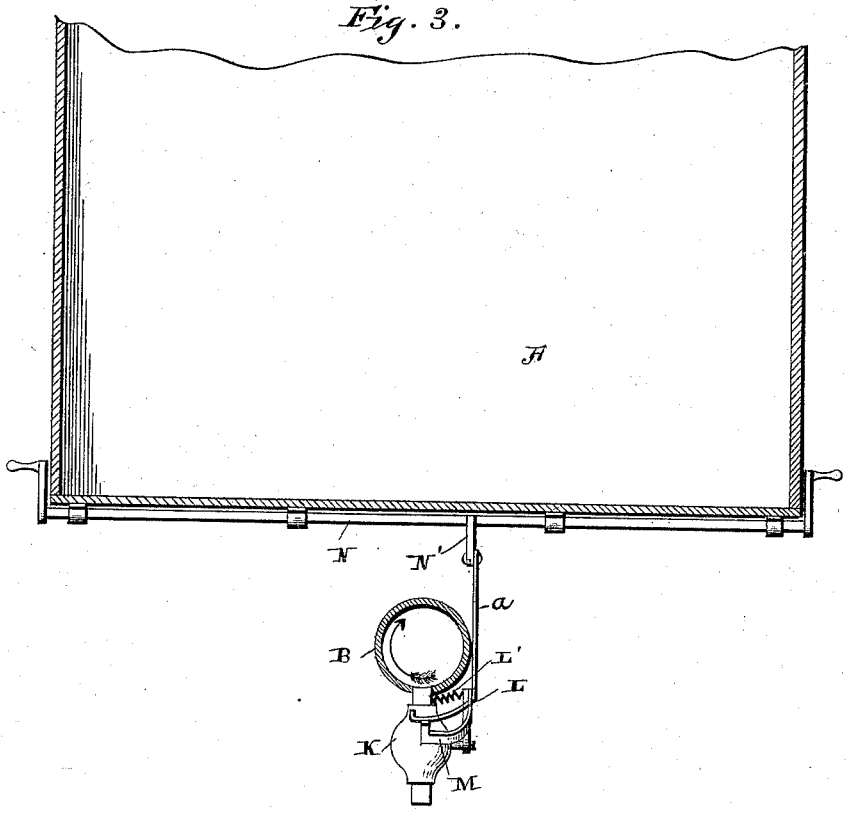
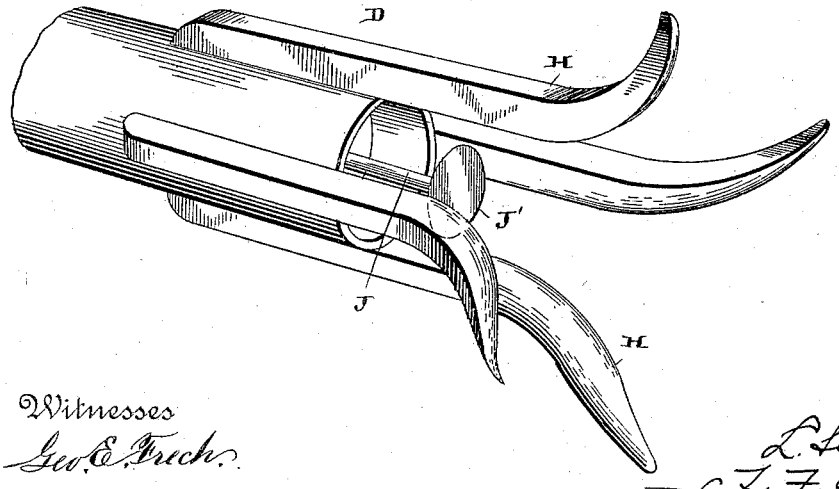


Fig. 4.



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UNITED STATES PATENT OFFICE.

LEONIDAS SENNETT AND THOMAS F. ARNETT, OF RUSSELL, KENTUCKY, ASSIGNORS OF ONE-HALF TO CLARENCE C. TALLEY AND CHAPMAN COBBS, OF SAME PLACE.

AIR-BRAKE COUPLING.

SPECIFICATION forming part of Letters Patent No. 489,763, dated January 10, 1893.

Application filed May 12, 1892. Serial No. 432,782. (No model.)

To all whom it may concern:

Be it known that we, LEONIDAS SENNETT and THOMAS F. ARNETT, of Russell, in the county of Greenup and State of Kentucky, have invented certain new and useful Improvements in Air-Brake Couplings; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

Our invention relates to an improvement in air-brake couplings; and it consists in the novel features of construction and in the combination and arrangement of parts which will be fully described hereinafter, and more particularly referred to in the claims.

The object of our invention is to provide an improved coupling for fluid pipes which will automatically couple the same when the cars are brought together but which will as easily disengage when the cars are separated. In case the sections of the train become detached while in motion the brakes on the rear section are set automatically by the separation of the fluid pipes so that that section will be brought to a stand still, thus avoiding all danger of its running up on the forward section when the latter is stopped upon discovery of the accident.

Referring to the accompanying drawings,—Figure 1, is a side elevation of adjacent cars provided with our improved coupling which is shown in section. Fig. 2, is a similar view of the pipes and their coupling showing their relative positions when detached. Fig. 3, is a cross sectional view of one of the car ends and its air pipe. Fig. 4, is a detached perspective view of the pipe coupling.

A, represents the car body which may be provided with any suitable coupling for securing it to the next adjacent car. Beneath the car bottom is supported the pipe section B, and adapted to move longitudinally therethrough is the pipe C, having the coupling D, at its forward end which will be presently described. Confined in the rear end of the pipe B, and surrounding the pipe C, is the spiral spring E, which bears against the end of the said pipe B, at its rear end and at its forward end against the laterally projecting stop F, which is secured to the pipe C, and which moves in the deflecting grooves G, formed in the walls of the pipe B. Thus it will be understood that when the pipes are uncoupled the pipe C, will be projected forward or outward by this spring.

The improved coupling which we employ consists of the projecting arms H, which are secured to the pipe end and which are turned outward and twisted at their outer ends as shown in Fig. 4. By means of these projecting curved arms the pipes of the adjacent cars will be brought together by the arms of the adjacent pipes interlocking even though standing normally at different heights, the forward ends of the pipes B, being capable of slight vertical movement by means of the springs B′, which support them. The pipes C, of the adjacent cars being projected by their respective springs it will be seen that the pipe coupling takes place before the cars are actually connected so that any further movement toward each other simply serves to force the said pipes rearward against the said springs holding their adjacent ends very tightly together and the latter being faced with gum washers the escape of air is rendered impossible. When the rearward movement of the pipes C, takes place the stops F, moving in the grooves G, are partially turned and with them the pipes by the swerve in the grooves and by this means the said pipes are twisted slightly in opposite directions, turning the arms of the coupling against each other and interlocking the latter in a most secure manner. The ends of the pipes are provided with the valves I, which move laterally with the stems J, which are spring actuated as shown and which normally project outward being provided at their extended ends with the heads J′. The heads engage when the coupling takes place and the valves being thus pushed backward the pipe sections of the adjacent cars are placed in communication. But when from any cause the cars become detached, uncoupling the pipes their ends are immediately closed by these valves thus preventing the escape of the air which if

released would set the brakes. Connected to the rear end of the pipe C, is the hose section C′, which enables the pipe C, to move laterally without affecting the stationary air pipe beneath the car.

K, represents a relief valve which depends from the pipe C, near its rear end and secured to the stem of this valve is the crank which is held normally closed by the spring L′, which is secured at its outer end to the bottom of the pipe.

M, represents a rod which is pivoted at one end to the upturned end of the crank and at its opposite end it is adapted to engage the rear end of the pipe or casing B.

Journaled across the bottom of the car is the crank shaft N, carrying the arm N′, at its center which is connected to the rod M, by means of a bar *a*, which has it lower end passing loosely through the bar M and curved to allow the pipe to turn. When the latter is turned down and out of engagement with the end of the pipe B, the valve is not affected by the movement of the pipe C, to which it is secured, owing to the valves I, which close automatically when the pipes are uncoupled and the brakes will not be set as the air remains confined within the pipes, but if it is desired to so arrange the brakes that in case the train becomes severed those on the rear portion will be set while the brakes of the forward portion remain inactive it is accomplished in the following manner. The rod M, is raised and held in this position by the operating shaft N. So that when in this position if the pipes become detached the pipe C, will be forced ahead within the pipe B, by the spring E, drawing the outer end of the rod M, in contact with the rear end of the pipe B, and the movement continuing the valve stem will be turned by the backward movement of the crank opening the valve and releasing the air. The brakes on this section of the train are immediately set and it is brought to a stand still while the forward section of the train is stopped by the engineer. Thus it will be seen that the brakes on the rear section are automatically set and all danger of collision between the parts of the train is avoided. Accidents of this kind are very dangerous and productive of much loss as without some automatic means of stopping the train section it is almost sure to do great damage, and especially so if the brake occurs on a grade.

In case it is desired to set the brakes on both sections when detached the tripping devices on both pipes C, are set as above described thus applying the brakes instantly when separation occurs.

An automatic brake coupling is thus provided which will place the pipes in communication when together but which will instantly close them when separated, and which will also automatically set the brakes on either or both sections of the train when the same is parted as may be desired.

Having thus described our invention, we claim,—

1. The combination with the adjacent cars, pipe sections depending therefrom, and air pipes adapted to move longitudinally in said pipe sections, of relief valves on said air pipes, and a means for automatically opening the said valves when the air pipes are moved longitudinally, substantially as shown and described.

2. The combination with the adjacent cars, pipe sections depending therefrom, and air pipes adapted to move longitudinally in said pipe sections, of relief valves on the rear ends of said air pipes, and a suitable connection between the said valves and the rear end of the depending pipe sections, whereby when the air pipes are moved forward the valves will be opened, substantially as shown and described.

3. The combination with the adjacent cars, pipe sections depending therefrom and forwardly moving air pipes in said pipe sections, of relief valves on the rear ends of said air pipes, cranks projecting from the stems of the said valves, forwardly extending rods secured to the said cranks and which when raised are adapted to engage the said pipe sections, and a means for raising the said rods, substantially as shown and described.

4. The combination with the adjacent cars and forwardly moving spring actuated air pipes in said pipe sections, of relief valves on the rear ends of said air pipes, cranks projecting from the stems of said valves, rods pivotally secured to the said cranks and which project forward to engage the said depending pipe sections when raised, and a rock shaft for raising the said rods, substantially as shown and described.

5. The combination of the adjacent cars, pipe sections depending therefrom, spring actuated air pipes adapted to move in said pipe sections, a means for partially turning the said pipes in their forward movement, a suitable coupling for said pipes, valves in the ends of the air pipes, valves depending from the rear ends of the air pipes, and a means for automatically opening the said valves when the air pipes are moved forward in the depending pipe sections, substantially as shown and described.

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

LEONIDAS SENNETT.
THOMAS F. ARNETT.

Witnesses:
ANDREW WILLIAMS,
DAVIS T. HUDSON.