

(No Model.)

4 Sheets—Sheet 1.

L. SENNETT.
AIR BRAKE COUPLING.

No. 536,000.

Patented Mar. 19, 1895.

FIG. 1.

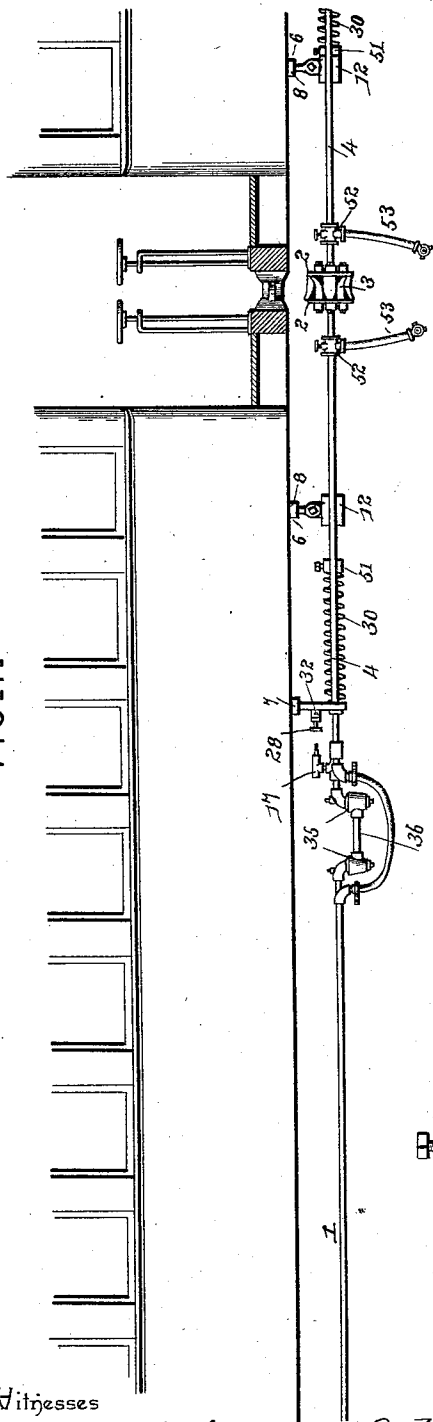


FIG. 2.

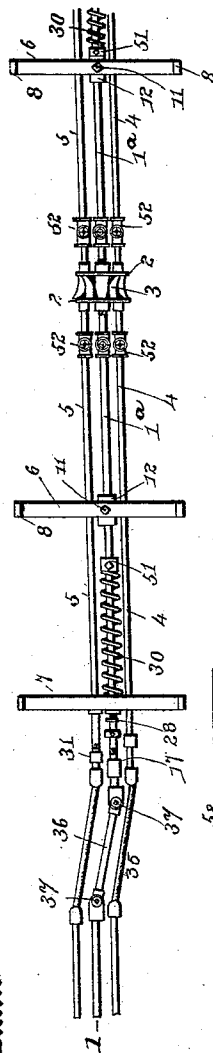


FIG. 10.

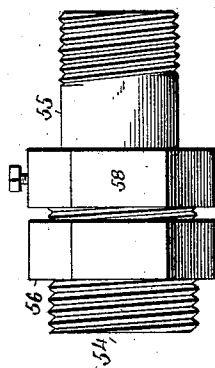
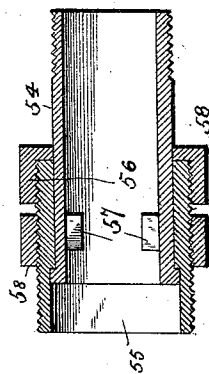


FIG. 11.



Witnesses

Jas. H. McLaughlin
[Signature]

By His Attorneys.

Inventor

Leonidas Sennett

[Signature]

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FIG. 3.

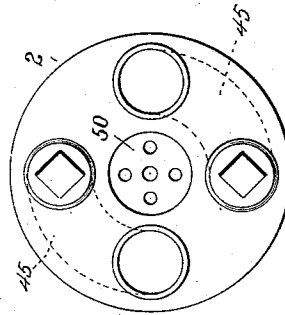
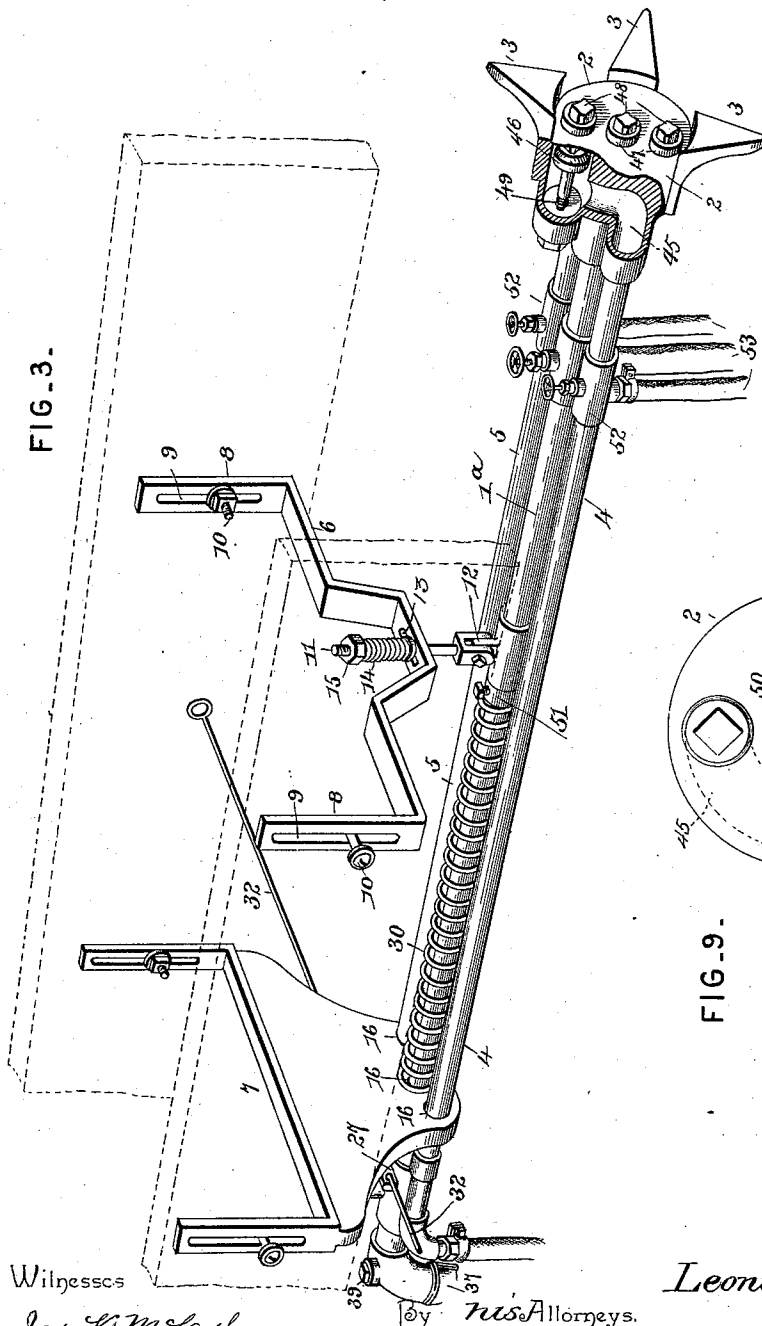


FIG. 9.

Inventor

Leonidas Sennett

His Attorneys.

Witnesses

Jas. H. McLaughlin
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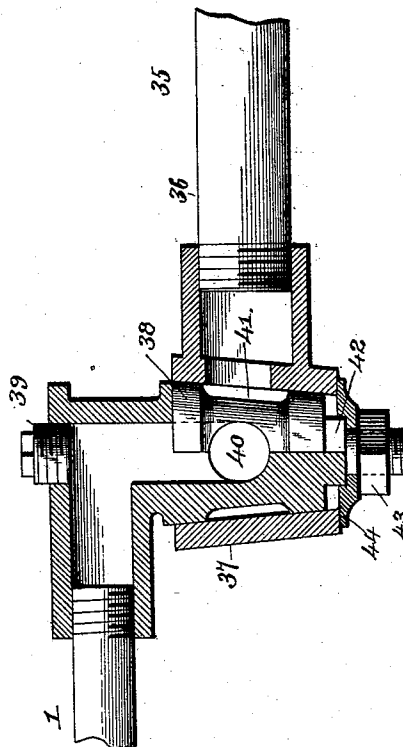
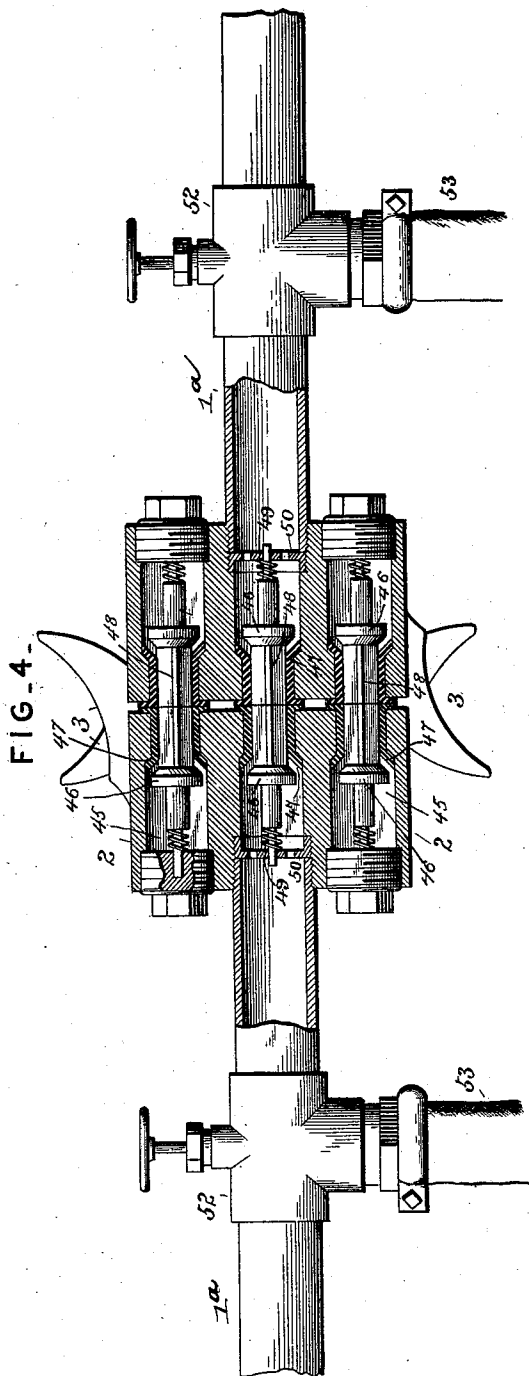
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4 Sheets—Sheet 3.

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AIR BRAKE COUPLING.

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(No Model.)

4 Sheets—Sheet 4.

L. SENNETT.
AIR BRAKE COUPLING.

No. 536,000.

Patented Mar. 19, 1895.

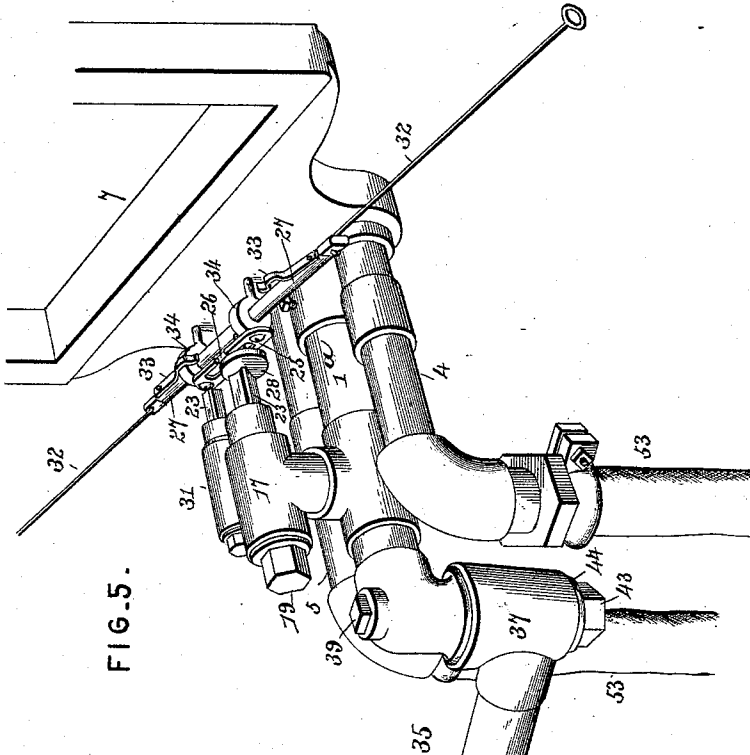


FIG. 5.

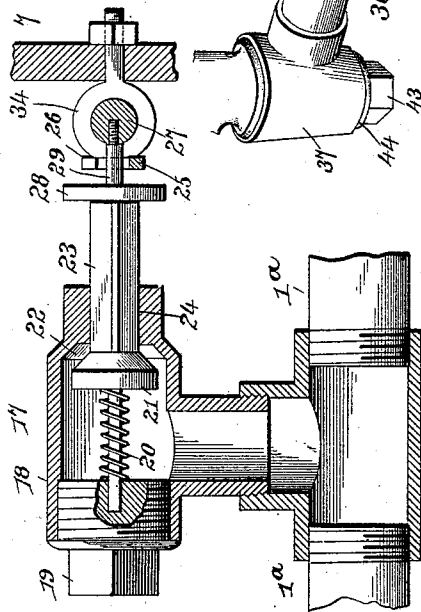


FIG. 6.

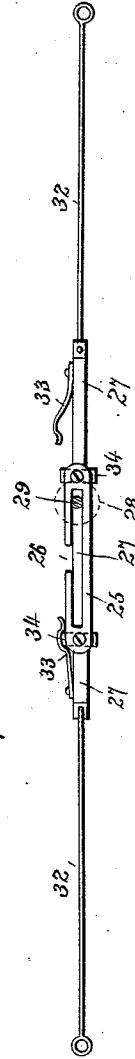


FIG. 7.

Inventor

Witnesses

Jas. H. McLaughlin
J. D. [Signature]

By his Attorneys.

Leonidas Sennett

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

LEONIDAS SENNETT, OF RUSSELL, KENTUCKY, ASSIGNOR OF THREE-
FOURTHS TO JOS. P. SHAW, CHAPMAN COBB, W. J. MILLER, AND
O. G. TEMPLE, OF SAME PLACE.

AIR-BRAKE COUPLING.

SPECIFICATION forming part of Letters Patent No. 536,000, dated March 19, 1895.

Application filed July 14, 1894. Serial No. 517,566. (No model.)

To all whom it may concern:

Be it known that I, LEONIDAS SENNETT, a citizen of the United States, residing at Russell, in the county of Greenup and State of Kentucky, have invented a new and useful Air-Brake Coupling, of which the following is a specification.

My invention relates to air-brake couplings, and it has for its object to provide improved means for applying the brakes automatically and sounding the engineer's alarm whistle when a car or cars become detached from a train, and incidentally to provide improved means for connecting sections of the pipes to allow independent movement of the sections without interfering with the free circulation of air or other fluid.

Further objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings: Figure 1 is a side view of the device embodying my invention, applied in the operative position to a car. Fig. 2 is a plan view of the same to show the relative disposition of the pipes. Fig. 3 is a perspective view of one member of the device, with the means for supporting the same. Fig. 4 is a longitudinal central section of two connected coupling-heads. Fig. 5 is a perspective viewing the means for flexibly connecting the inner ends of the sections of pipes. Fig. 6 is a detail sectional view of one of the exhaust or outlet valves. Fig. 7 is a detail view of the slidable rod for carrying the button or stop, and connected parts. Fig. 8 is a detail sectional view of one of the swivel joints, forming a part of the flexible connection between the inner ends of the sections of pipe. Fig. 9 is a rear view of a coupling head. Fig. 10 is a detail perspective view of a modified form of joint. Fig. 11 is a longitudinal section of the same.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates the brake-pipe, the short sections 1^a of which are provided at their outer ends with coupling-heads 2 having interlock-

ing prongs or fingers 3; and 4 and 5 represent, respectively, the signal and steam pipes, which are arranged parallel with and upon opposite sides of the brake-pipe. These pipes are supported under the car by means of the front and rear brackets 6 and 7, the former of which is arranged near the said coupling head, and is provided with parallel vertical arms 8 which are provided with slots 9 for the reception of bolts 10, whereby the coupling head may be arranged at a uniform height from the treads of the rails irrespective of the heights of the cars, to insure accurate coupling. The brake-pipe is connected to the said front bracket or hanger by means of a bolt 11, pivotally connected at its lower end to a collar 12 encircling the pipe and extending loosely through a guide opening 13 in the bracket or hanger; and a spring 14, coiled upon the bolt above the plane of the guide opening in the bracket or hanger, bears at its lower end upon a washer resting upon the upper surface of the hanger and at its upper end against an adjustable nut 15 by which the tension of the spring may be varied. The said guide opening is enlarged to allow lateral as well as longitudinal or vertical movement of the bolt, to allow for similar movement of the coupling head.

The brake, signal and steam pipes also extend through openings 16 in the rear bracket 7, and are longitudinally slidable therein, the brake-pipe being provided in rear of the bracket with an exhaust or escape valve 17 whereby the pressure of fluid within the pipe may be relieved. Threaded in one end of the casing 18 of this valve is a removable nut 19, and bearing against the same is a coiled spring 20 which holds the valve-head 21 to its seat 22 and thus preserves the pressure in the pipe, said valve head being provided with a fluted stem 23 which projects forward beyond the valve casing and through the escape opening 24 in the end thereof. Arranged contiguous to the front end of this valve casing is a slotted guide 25, provided in its upper side with an opening 26, and slidably mounted upon the bracket. Adjacent to the guide is a bar 27 carrying a button or stop 28. This button or stop is connected to the bar by

means of a neck 29 which when aligned with the opening 26 in the upper side of the guide 25 may be turned down and into the guide. When the neck of the button is in the guide the bar may be moved transversely of the length of the brake-pipe to bring the button opposite and in the path of the stem of the valve head 21, the brake-pipe being normally extended or pressed forward by means of an extension spring 30 which is arranged in front of the rear bracket. The coupling of the brake-pipe sections of two cars causes the repression of the said pipes against the tension of the springs 30, but when this backward pressure is removed from the front ends of the brake-pipes as by the parting of a train, said pipes are moved forward by their springs and the valve stems are brought into contact with the buttons or stops, if the latter are in the operative position above described, thus allowing the escape of the fluid within the pipes.

The signal pipe is provided with an exhaust valve 31, which is identical in construction with that above described and by moving the button or stop 28 in the opposite direction after engaging it with the slotted guide 25, it may be brought into position to engage the stem of the signal pipe valve.

The means for operating the slidable bar 27 consists of rods 32, and attached to the said bar, at each end, is a leaf spring 33 to engage a rounded boss or projection 34 to limit the movement of the bar when it reaches the proper position in alignment with either the brake-pipes or signal-pipe valve-stem.

Inasmuch as the short sections of brake-pipe carried by each car are capable of independent longitudinal movement, it is obvious that an intermediate coupling between such short sections and the main sections must be provided to allow such movement without interfering with the free circulation of the fluid, and I accomplish this by means of a swivel connection shown at 35, comprising the intermediate connecting pipe or link 36 which is jointed at opposite ends respectively to the adjacent ends of the sections of brake-pipe. The joint consists of a conical casing 37 carried by and in communication with the connecting pipe or link, a hollow or bored plug 38 in communication with a section of the brake-pipe, and means for securing the plug rotatably in the casing. The upper end of the bore in the plug is fitted with a stopper 39 and the plug is provided, within the casing, with a transverse opening or port 40 which communicates with the bore, and with an annular channel 41, formed by cutting away the outer surface of the plug, whereby the fluid within the pipes has free circulation in any relative positions of the members of the joint. The lower end of the plug is reduced to form a stem 42, upon which is screwed a nut 43 bearing upon a washer 44, which closes the lower end of the casing. Hose couplings may also be used in connection with my

improved brake coupling, as shown in connection with the signal and steam pipes, but the above is preferable on account of its greater durability.

The several pipes above described are connected to the coupling head by means of screw joints, the brake-pipe being at the center and the signal and steam pipes upon opposite sides thereof, and the head is cored, as shown at 45, to arrange the openings at the front of the head in a substantially vertical plane, the coupling between heads carried by connected cars being more effectively accomplished when the openings are thus disposed. A valve 46 is arranged in each of the openings in the front of the coupling head, to fit the seats 47 which are arranged around said openings, and the valve-stems 48 project forward beyond the front surface of the head to engage the head carried by an opposing car. The valves are held to their seats to close the openings, when the heads are disconnected, by means of springs 49 which bear at their rear ends against the perforated plates or diaphragms 50 arranged in rear of the valve-seats.

Stop collars 51 are arranged upon the brake-pipes to limit their forward movement, due to the action of the springs, by which said pipes are advanced when released, and valves 52 and hose couplings 53 are arranged in rear of the coupling-heads, for connection with the pipes of cars not provided with the improved construction above described.

From the foregoing it will be seen that if it is desired to set the brakes upon the rear section of a train in case of parting the button or stop at the forward end (or end toward the engine), of each car is arranged in the path of the adjacent valve stem of the brake-pipe, and the button or stop at the rear end of each car is arranged in the path of the adjacent stem of the signal-pipe, with the exception that the button or stop on the rear end of the last car in the train is allowed to remain raised, or out of operative position.

In Figs. 10 and 11 I have shown a modified form of joint for connecting the inner ends of the short sections of the brake, signal, and steam pipes to the main sections or body-portions thereof, such joint consisting of telescoping members 54 and 55, the outer or major member 55 of which is fitted with a stuffing-box 56 in which the other or minor member fits slidably. In the inner or smaller member are arranged integral lugs 57 to facilitate the fastening of this member to the end of a pipe, by inserting a tool to prevent the turning thereof, and the outer or larger member is provided with a wrench-seat 58 whereby it may be turned to form connection with the other section of the pipe.

Changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described my invention, I claim—

1. The combination of a longitudinally movable brake-pipe, an escape or exhaust valve communicating therewith, a button or stop, means for adjusting the button or stop to occupy a position in the path of the stem of said valve, and means for advancing the pipe, automatically, to bring the stem of the valve in engagement with said button or stop when the brake-pipes carried by adjoining cars are uncoupled, substantially as specified.

2. The combination of longitudinally movable brake pipe, means for advancing the same when released, an escape or exhaust valve communicating with the brake-pipe, a button or stop, a slidable bar carrying said button or stop and capable of movement transverse to the length of the brake-pipe, and a slotted guide adapted to receive the stem of the button or stop and hold the same in the path of the stem of the valve, substantially as specified.

3. The combination of longitudinally movable brake and signal pipes, means for advancing the same when released, escape or exhaust valves communicating, respectively, with said pipes, a button or stop, a slidable rod carrying said button or stop and capable of movement transverse to the length of the said pipes, and a slotted guide to receive the stem of the button or stop and having an opening for the insertion of the same, the button or stop being capable of movement sufficient to occupy a position in the path of either of the stems of the valves which communicate with the pipes, substantially as specified.

4. The combination of longitudinally movable brake and signal pipes, means for advancing the same when released, escape or exhaust valves communicating, respectively, with the said pipes, a button or stop, a slidable rod carrying said button or stop and capable of movement transverse to the length of said pipes, a stationary slotted guide to receive the stem of the button or stop and having an opening through which said stem may be inserted and withdrawn by turning said rod, and springs carried by the rod to engage projections on

the guide to lock the parts with the button or stop in the path of the stem of one of said valves, substantially as specified.

5. The combination of a longitudinally movable brake-pipe, means for advancing the same, said brake-pipe being provided with a terminal coupling-head, an adjustable bracket for supporting the brake-pipe adjacent to its coupling-head, a rod connected at its lower end with the brake-pipe, and fitted at its upper end in an elongated opening in the bracket, a spring connected with the upper end of said rod, and means for adjusting the tension of the spring to vary the upward strain exerted by the rod upon the brake-pipe, substantially as specified.

6. The combination of a longitudinally movable brake-pipe, means for advancing the same, said brake-pipe being provided with a terminal coupling-head, an adjustable bracket for supporting the brake-pipe adjacent to its coupling-head, and a spring-supported rod connected to said bracket and capable of vertical and lateral movement, and provided at its extremity with a collar through which the brake-pipe extends and in which it is slidably fitted, substantially as specified.

7. The combination of longitudinally movable brake, signal and steam pipes, a cored coupling-head attached to the front ends of said pipes, spring-actuated valves arranged in the coupling head and adapted to normally close said pipes, said valves having projecting stems adapted to be repressed to unseat the valves by an opposing coupling-head, escape-valves communicating respectively with the brake and signal pipes, means for advancing the said pipes when released, and stops arranged contiguous to said escape-valves, and adapted for adjustment to occupy a position in the path of the stem of either of said valves, substantially as specified.

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

LEONIDAS SENNETT.

Witnesses:

WM. E. PRICER,
O. G. TEMPLE.