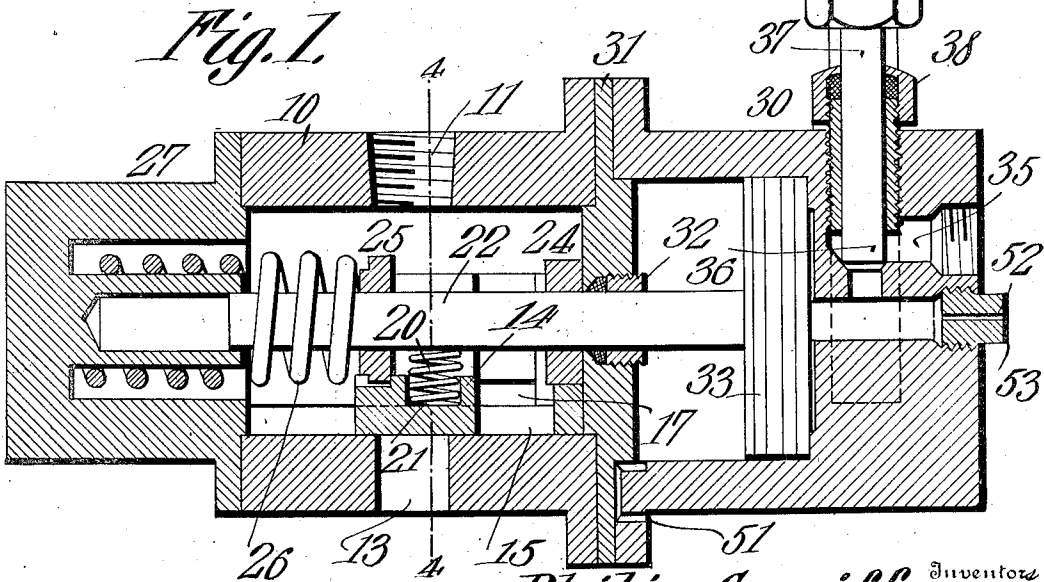
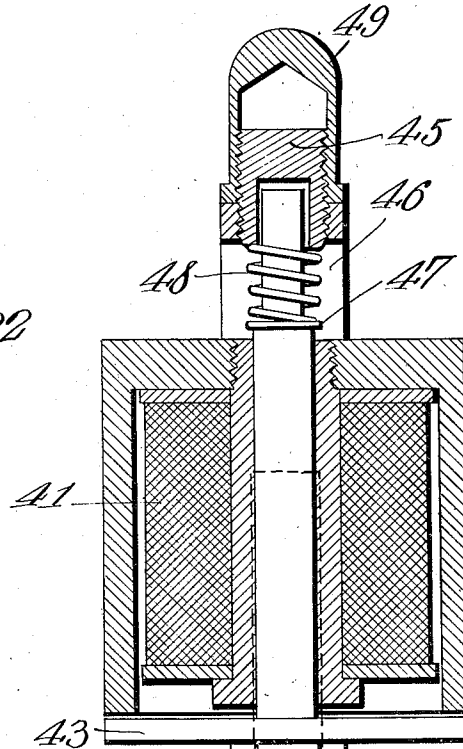
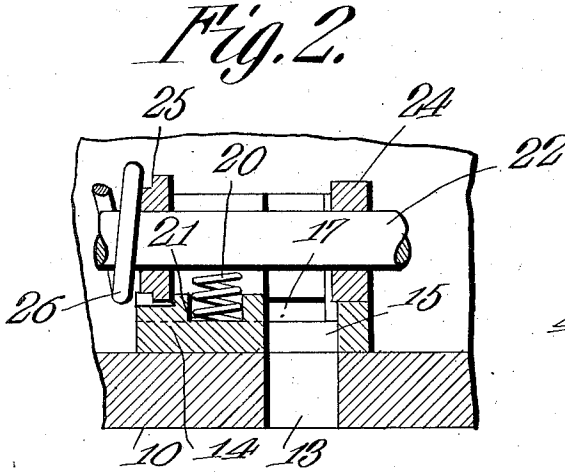


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 BRAKE APPLYING MECHANISM.
 APPLICATION FILED FEB. 11, 1909.

956,293.

Patented Apr. 26, 1910.

2 SHEETS—SHEET 1.



Inventors
Philip Conniff and
Yorke Burgess
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 Attorneys

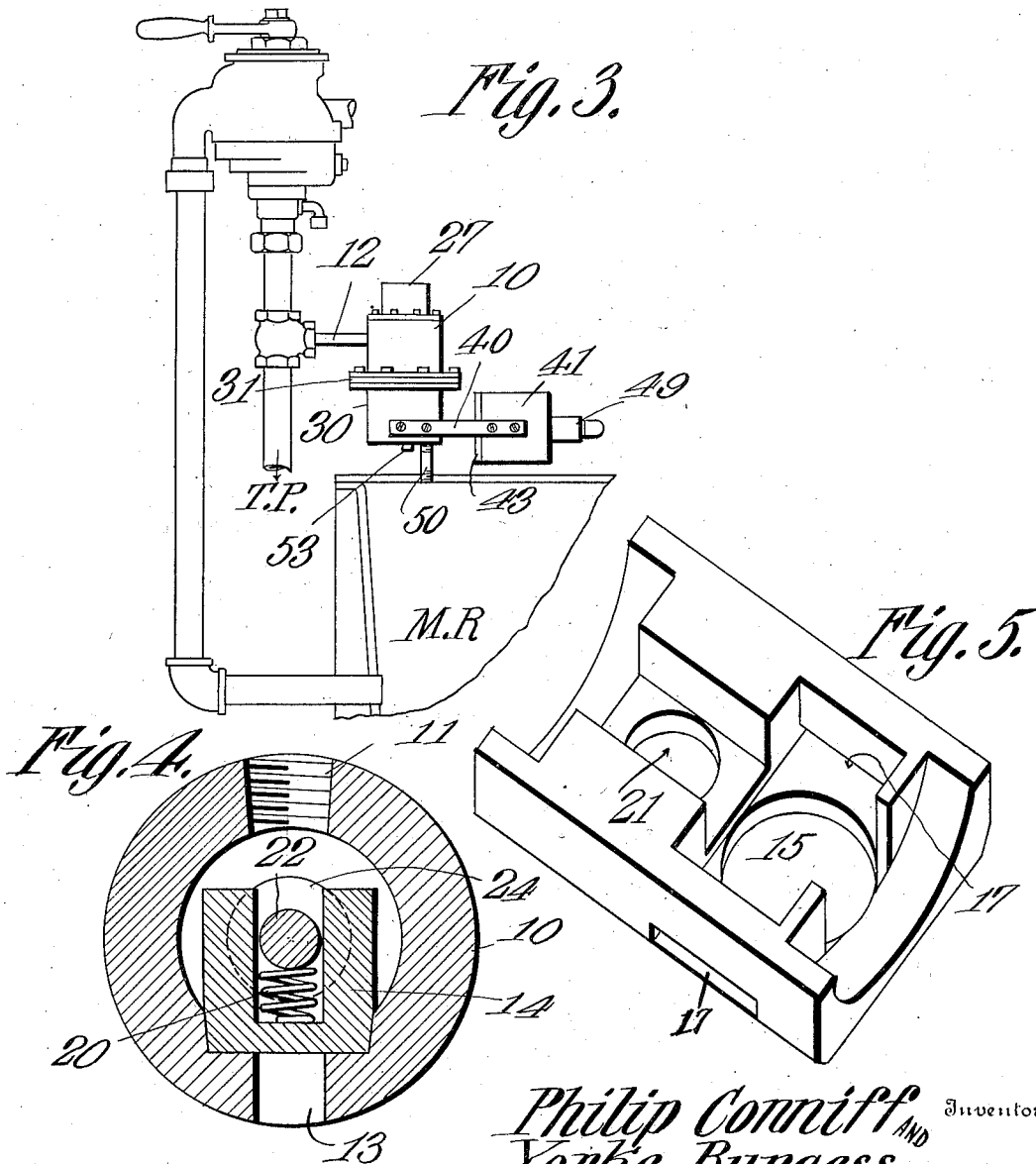
Witnesses
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UNITED STATES PATENT OFFICE.

PHILIP CONNIFF AND YORKE BURGESS, OF WASHINGTON, DISTRICT OF COLUMBIA;
SAID BURGESS ASSIGNOR TO C. HIRAM CARSON, OF KANSAS CITY, MISSOURI.

BRAKE-APPLYING MECHANISM.

956,293.

Specification of Letters Patent.

Patented Apr. 26, 1910.

Application filed February 11, 1909. Serial No. 477,332.

To all whom it may concern:

Be it known that we, PHILIP CONNIFF and YORKE BURGESS, citizens of the United States, residing at Washington, District of Columbia, have invented a new and useful Brake-Appling Mechanism, of which the following is a specification.

This invention relates to automatic air brake systems and has for its principal object to provide means for automatically opening the train pipe for the purpose of reducing train pipe pressure and making an emergency application of the brake.

A further object of the invention is to provide an apparatus of this type which may be mounted on the engine so as to be under the direct control of the engineer, or may be placed at any point in the length of the train to be operated by the engineer or train crew or by any automatic means operating from the road bed or other point so that if the train is in danger of collision the brakes may be applied in emergency and the train brought to a stand-still.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:—Figure 1 is a sectional elevation of an automatic brake applying device constructed in accordance with the invention, the controlling valve being shown in closed position. Fig. 2 is a similar view of a portion of the device showing the valve in open position. Fig. 3 is a side elevation partly in the nature of a diagram, illustrating the manner in which the connections may be made in the engine cab. Fig. 4 is a transverse section on the line 4—4 of Fig. 1. Fig. 5 is a detail perspective view of the controlling valve detached.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

Arranged at any suitable point on the

train, preferably in the cab of the engine, is a cylinder or valve casing 10 having an inlet port 11 which may be connected by a pipe 12 to the train pipe TP. The lower portion of the casing is cut away to form a flat valve seat through which extends an exhaust port 13 opening to the atmosphere. Slidably mounted on the valve seat is a valve 14 having a large port 15 extending directly therethrough and arranged to be placed in communication with the exhaust port 13 so that the train pipe pressure may flow directly through the valve casing and the exhaust port for the purpose of suddenly reducing the train pipe pressure and effecting an emergency application of the brakes.

The valve is of approximately U-shape in cross section for the passage of a piston rod 22, and its side walls are provided with lateral ports 17 through which the air may freely pass on the way to the port 15. The valve is held to its seat by train pipe pressure and in addition to this a spring 20 is employed in order to prevent accidental dislodgment of the valve, while the train is running. The lower end of the spring fits in a small recess 21 formed in the valve proper and the upper end of the spring bears against the piston rod 22 through which movement is imparted to the valve. The opposite ends of the valve are provided with circular recesses for the reception of a pair of collars 24 and 25, the collar 24 being pinned or otherwise secured to the piston rod, while the collar 25 is held against the outer end of the valve by a heavy spring 26. The outer end of the spring 26 is guided in a recess formed in a cap 27 that closes the end of the valve chamber and this cap is also provided with an opening which receives and guides the free end of the piston rod 22.

Connected to the valve chamber 10 is a cylinder 30 that is separated from the chamber by a division plate 31, the latter being provided with a centrally located stuffing box 32 that surrounds the piston rod and prevents leakage of air. On the piston rod 22 is secured a piston 33 which is operated upon by air pressure entering through the port 35 and when this pressure is allowed to act on the piston the valve will be shifted from the closed position shown in Fig. 1 to the open position shown in Fig. 2. In the port 35 is formed a seat for a valve 36 ar-

ranged at one end of a stem 37, said stem
 passing through a suitable stuffing box 38.
 To the opposite sides of the cylinder 30 are
 secured straps 40 carrying an iron-clad elec-
 5 tromagnet 41 in the form of a solenoid, of
 which the stem 37 forms the core and said
 stem carries a suitable armature 43. The
 upper end of the stem is reduced in diam-
 eter and fits within a recess formed in a plug
 10 45 that screws into a threaded opening
 formed in a bracket or yoke 46 carried by
 the electromagnet. Around the stem, be-
 tween the plug 45 and a washer 47 sup-
 15 ported by an annular shoulder on the stem,
 is coiled a spring 48, as clearly shown in
 Fig. 1. By turning the plug 45 so that it
 will extend more or less through the bracket
 or yoke 46, the tension of the spring may be
 20 varied so that it will exert more or less
 stress upon the stem and consequently hold
 the valve 36 more or less forcibly against its
 seat, as will be readily understood upon ref-
 erence to Fig. 1. A lock nut 49 is threaded
 25 upon the plug 45 which is turned home
 against the yoke or bracket to hold the plug
 in the position to which it may be adjusted.

The port 35 is connected by a pipe 50 to
 a source of air under pressure which may
 be the main reservoir MR. shown in Fig. 3,
 30 or the train pipe at any point somewhat
 distant from the pipe 12.

When the electromagnet is energized by
 the closing of its circuit either by the engi-
 neer or other member of the train crew or
 35 by any automatic circuit closing mechanism,
 the armature 43 will be attracted and the
 stem 37 with the valve 36 thereon will be
 moved to open position allowing air under
 pressure to enter the cylinder 30 to the rear
 40 of the piston 33, and move the same to the
 left. This movement is transmitted through
 the rod 22 to the valve 14 so that the latter
 will be shifted from the closed to the open
 position and the train pipe will be placed
 45 in communication with the exhaust port 13,
 whereupon the train pipe pressure will be
 at once reduced and an emergency applica-
 tion of the brake will result.

In order to permit free movement of the
 50 piston under the pressure of air entering at
 port 35 a small leakage port 51 is formed in
 the forward end of the cylinder 30, and to
 allow return of the piston by the spring 26
 after the closing of the valve 36 another
 55 leakage port 52 is formed in a plug 53 that
 closes the horizontal portion of the port 35.

What is claimed is:—

1. In brake applying mechanism, a ported
 valve casing connected to the train pipe, a
 slidable valve in said casing, a cylinder, a
 60 separating plate between the cylinder and
 casing; a piston arranged within the cylin-
 der, a rod extending from the piston through
 the plate, a pair of disks carried by the rod
 and engaging against the opposite ends of
 65 the valve, a spring encircling the rod and
 bearing against one of the disks to maintain
 the valve in closed position, a spring dis-
 posed between the valve and rod and tend-
 ing to hold the valve down against its seat,
 70 a connection between the cylinder and a
 source of fluid pressure supply, and a valve
 in said connection.

2. In brake applying mechanism, a valve
 casing connected to the train pipe, a valve
 75 arranged within said casing, a cylinder, a
 piston disposed within the cylinder and con-
 nected to the valve, a supply port leading to
 the cylinder and provided with a valve seat,
 a spindle arranged to bear against the seat,
 80 and forming a valve, an electromagnet of
 which said spindle forms a movable core, an
 armature carried by the spindle, a spring
 acting against said spindle and tending to
 force the valve against its seat, an adjust-
 85 able plug bearing against a spring, and a
 cap-nut for locking said plug is adjusted
 position.

3. In automatic emergency brake-apply-
 ing mechanism, a valve casing connected to
 90 the train pipe and having an exhaust open
 to the atmosphere, a valve slidably mounted
 on one side of the casing and having a large
 opening adapted to register with said ex-
 95 haust, a spring within the casing acting on
 the valve to hold the body of the same nor-
 mally over the said exhaust, a cylinder,
 a piston in the cylinder having its rod secured
 to the valve, a division plate between the
 100 cylinder and the valve casing preventing
 communication between the cylinder and the
 casing, and automatic means for admitting
 fluid pressure to the piston to move the same
 and the valve in opposition to the spring
 105 bearing on the valve.

In testimony that we claim the foregoing
 as our own, we have hereto affixed our sig-
 natures in the presence of two witnesses.

PHILIP CONNIFF.
 YORKE BURGESS.

Witnesses:

E. HUMÉ TALBERT,
 E. DANIELS.