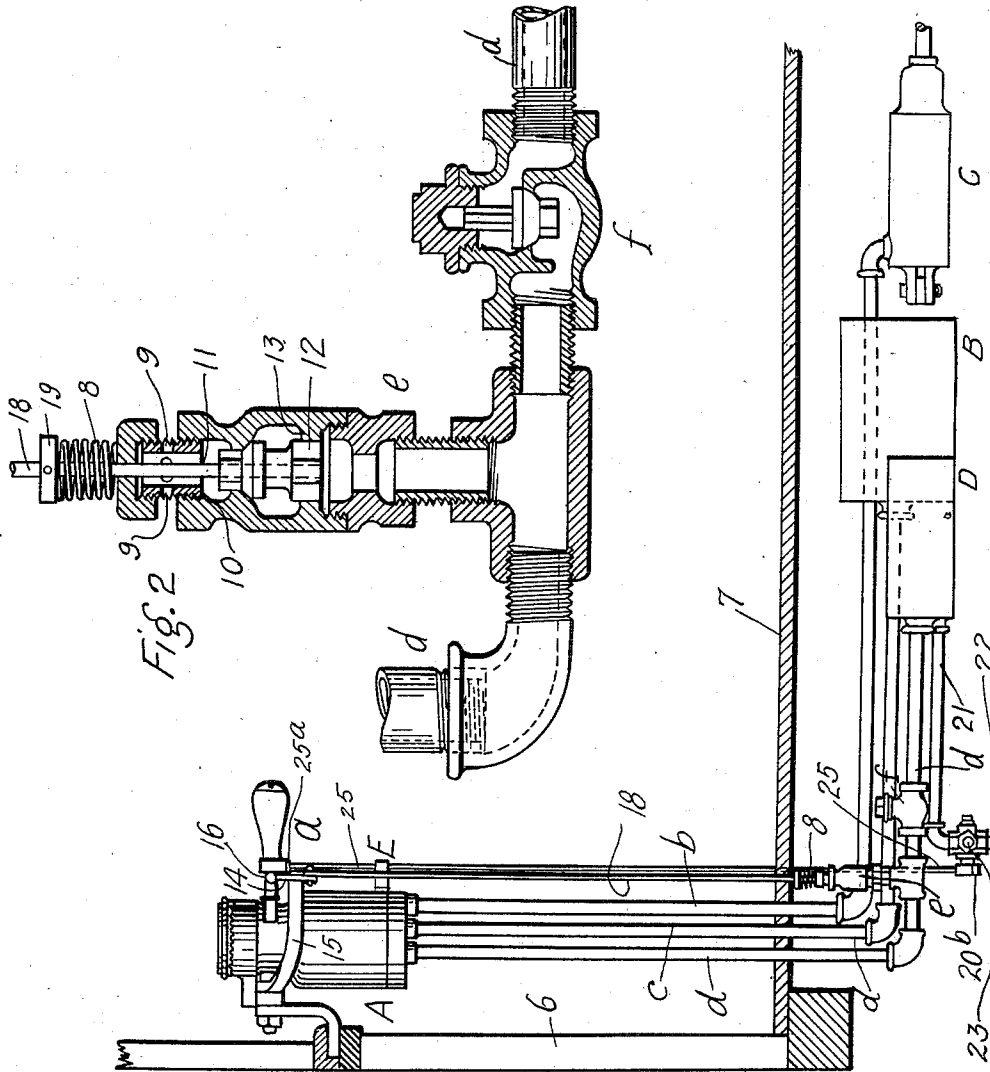


J. R. RICKETTS.
RAILWAY PNEUMATIC APPARATUS.
APPLICATION FILED JUNE 2, 1911.

1,019,363.

Patented Mar. 5, 1912.

2 SHEETS—SHEET 1.



Witnesses
B. W. Pierce
E. C. Mosker.

Fig. 1

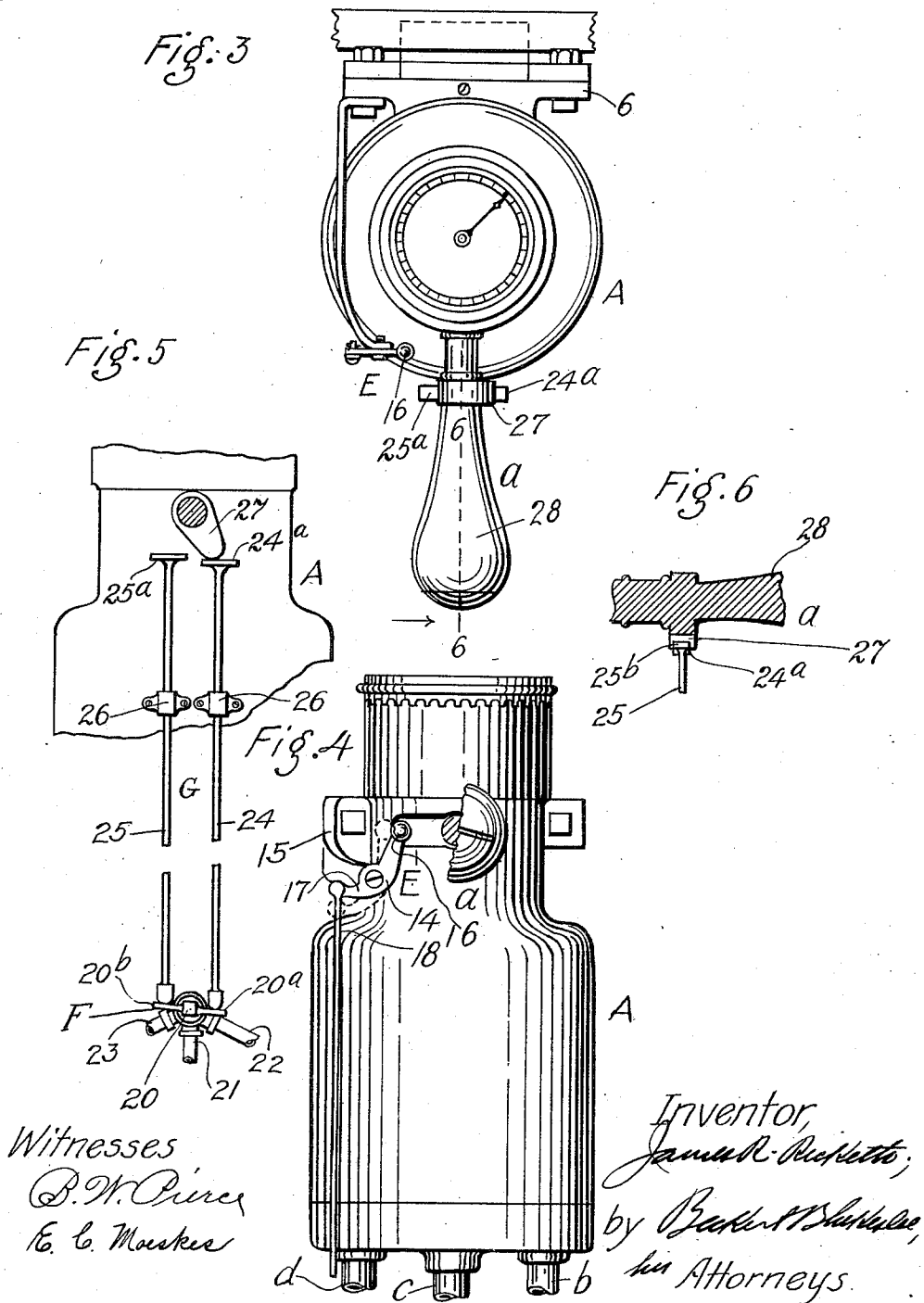
Inventor,
James R. Ricketts,
by *Robert S. H. H. H.*
his Attorneys.

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B. W. Pierce
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UNITED STATES PATENT OFFICE.

JAMES R. RICKETTS, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO AIR DEVICE COMPANY, OF LOS ANGELES, CALIFORNIA, A CORPORATION OF CALIFORNIA.

RAILWAY PNEUMATIC APPARATUS.

1,019,363.

Specification of Letters Patent.

Patented Mar. 5, 1912.

Application filed June 2, 1911. Serial No. 630,851.

To all whom it may concern:

Be it known that I, JAMES R. RICKETTS, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Railway Pneumatic Apparatus, of which the following is a specification.

This invention relates to railway pneumatic apparatus, and it has for its object to provide means or mechanism or apparatus, or all of the same, for the utilization of partially spent compressed air constituting the exhaust from the pneumatically operated brakes of rolling stock. According to present practice the exhaust and partially spent compressed air from rolling stock brakes is passed directly to the outer air, and the expansive energy still contained thereby is wasted.

According to the present invention I utilize the energy still resident in this partially spent compressed air, for other purposes incident to railway service, such as for operating gates, blowing whistles or for other purposes according to the conditions and possibilities of service met with in a given instance.

With the above objects in view, the invention consists in the novel and useful provision, construction, formation, combination, association and relative arrangement of parts, members and features, all as hereinafter described, shown in the drawings and finally pointed out in claims.

In the drawings:—Figure 1 is a diagrammatic, partly sectional view of railway pneumatic apparatus organized and constructed in accordance with the invention; Fig. 2 is an enlarged detail sectional elevation of a portion of the construction shown in Fig. 1, parts being shown in elevation; Fig. 3 is an enlarged top plan view of a portion of the construction shown in Fig. 1; Fig. 4 is an enlarged elevation of part of the construction shown in Figs. 1 and 3, parts being broken away for fullness of illustration; Fig. 5 is an enlarged elevation similar to that shown in Fig. 4, showing further features of the invention; and, Fig. 6 is a detail sectional view taken upon the line 6—6, Fig. 3.

Corresponding parts in all the figures are denoted by the same reference characters.

Referring with particularity to the drawings, A designates an air brake controller of the standard Westinghouse type, certain adjuncts being added thereto, as hereinafter recited, but not varying the normal operation thereof in any essential respects, with relation to its ordinary purposes. *a* designates the operating handle of the controller A. The controller is shown as suspended upon a frame member 6 of a railway car, which rises from the forward end of the floor 7 of the car. Beneath the floor are shown a compressed air supply container B, a brake or jam cylinder C, and an exhaust air container D, the same being connected respectively with the controller A by supply pipes *b*, *c* and *d*. These pipes are customarily present in standard air brake mechanism, the exhaust air container D being applied to the pipe *d* which ordinarily leads from the controller A to the outer air. The pipe *d* is jointed to receive a release valve *e* and a check valve *f*, arranged in the order recited between the controller A and the exhaust air container D. The check valve *f* opens to permit the passage of exhaust air from the controller A to the container D, and closes when the pressure in the container D equals the pressure of exhaust air traversing the pipe *d*. The release valve *e* is normally seated by a coil spring 8 to prevent communication between the pipe *d* and a plurality of exhaust ports 9 in a thimble 10 surrounding the stem 11 of the valve proper 12, which is normally held to the seat 13 by the spring 8. Means E are provided for unseating the valve proper 12 and permitting and causing the valve to release the exhaust air in the pipe *d*, so as to release the brake, the same being utilized when the pressure in the container D has come up to that of the exhaust air in the pipe *d*. Said means E are actuated through the agency of the handle *a* of the controller A, and, as shown, comprise a centrally fulcrumed dog 14 mounted upon the frame member 6 by a bracket 15, and having an upwardly directed end portion 16 disposed in the path of travel of the controller handle *a*, at a point adjacent to the termination of leftward phase of movement of said handle, the other end 17 of said dog 14 being loosely connected with a plunger 18 guided in an opening through the floor 7 and connected

at its lower end with the stem 11 of the release valve *e*, by a head 19 above and confining the coil spring 8. When the handle *a* engages the upper end 16 of the dog 14, as the handle moves to the end of its travel wherein the exhaust from the brake or jam cylinder is caused, the handle striking the upper end of the dog 14 causes the depression of the plunger 18, and the unseating of the valve proper 12, which permits final exhaust through the ports 9, to free the brake. When the handle *a* is moved in the reverse direction, the plunger 18 automatically rises, under influence of the spring 8, and the valve proper 12 is again seated.

To utilize the energy stored in the partially spent air received by the exhaust air container D in the manner and by the means above recited and described, for the operation of a car gate or other apparatus or mechanism, I provide a controlling valve F, which may be of the ordinary three-way rotary type, the barrel thereof being provided with a trip 20 having oppositely directed end portions or arms 20^a and 20^b respectively, said three-way valve admitting partially spent compressed air from the container D, through a pipe 21, to a pipe 22 leading to gate actuating mechanism or the like, or stopping the pipe 21 and permitting the pipe 22 to communicate with an exhaust pipe 23 leading to the open air, after the actuation of the gate or the like. The controlling or rotary valve F may be actuated to produce the operative results last recited through the agency of controlling means G comprising two plungers 24 and 25 respectively mounted in keepers or guides 26 upon the controller A, as shown in Fig. 5, said plungers being provided at their upper ends with heads 24^a and 25^a disposed in adjacent positions wherein they may receive downward actuation, alternately, by a nose or cam 27 fixed to the rotary grip 28 of the handle member *a* of the controller A. As one plunger is depressed the other plunger is raised by the walking-beam trip 20, depression of one plunger admitting air to the gate actuating mechanism or the like through the pipe 22, and depression of the other plunger closing the pipe 21 from the exhaust air container D, and opening the pipe 23 to permit exhaust to the outer air from the gate actuating mechanism or the like, after the operation thereof.

The operation, method of use and advantages of the means, mechanism or apparatus above set forth will be readily understood from the foregoing description, taken in connection with the accompanying drawings, without further detail statement. The controller A, the brake or jam cylinder C and the compressed air supply container B, are not illustrated in detail, as they may be constructed in accordance with standard

principles and organization. The exhaust air container D, having no special features of construction, is likewise not shown in detail.

The employment of the improvements constituting the invention permit of the utilization of the energy still present in the partially spent compressed air which exits from the brake actuating apparatus. This energy is considerable, and ordinarily is completely wasted. According to the invention, this energy, stored in the exhaust air container D, to which the partially spent air passes through the pipe *d* which ordinarily leads to open air, is led through the pipe 21 to the controlling valve F where, still present in such partially spent compressed air, it is directed to the gate actuating mechanism or the like through the pipe 22. An extra service is thus performed by the given volume of compressed air provided by the supply container B, such extra service being performed without extra cost of compression. It will be noted that the entire mechanism or apparatus embodying the invention is actuated through the same handle member *a* of the controller A which is ordinarily employed to admit compressed air to the brake actuating mechanism and to release partially spent air from the latter to the outer atmosphere. Movement of the handle member *a* to the extreme left position permits exhaust air from the brake actuating mechanism to the open air, to release the brake, through the release valve 2, after the partially spent air container D is charged. This is in accordance with the normal use of the handle member *a*, in releasing the brake. Axial rotation of the grip 28 of the handle member *a* causes the controlling valve F to work, so as to lead a quantity of partially spent compressed air from the container D to gate actuating mechanism or the like, and axial rotation of the grip 28 in the opposite direction permits exhaust of air from the gate actuating mechanism or the like, after operation thereof. Thus it will be seen that the hand of the operator is never required to leave the handle member *a* which is grasped constantly in the normal operation of the controller A.

I do not desire to be understood as limiting myself to the particular construction, formation, combination, association and relative arrangement of parts, members and features shown and described; nor to any particular application of the same to any particular mechanism or apparatus, such as the gate actuating mechanism referred to but not shown because not entering into the essential features of the invention; but I reserve the right to vary the same, without departing from the spirit of the invention and the terms of the following claims.

Having thus described my invention, I

claim and desire to secure by Letters Patent:—

1. In railway pneumatic apparatus, a compressed air supply, a container for partially spent compressed air, a controller for directing compressed air from the compressed air supply to brake actuating mechanism and for directing partially spent compressed air from such brake actuating mechanism to said container, and means for passing partially spent air to the open atmosphere at a point between said controller and said container; said last named means being actuated by the handle member of the controller.

2. In railway pneumatic apparatus, a compressed air supply, a container for partially spent compressed air, a controller for directing compressed air from the compressed air supply to brake actuating mechanism and for directing partially spent compressed air from such brake actuating mechanism to said container, and means for passing partially spent air to the open atmosphere at a point between said controller and said container; said last named means being actuated by the handle member of the controller; and means operated by the handle member of the controller for leading partially spent compressed air from said container to mechanism for consuming energy thereof.

3. In railway pneumatic apparatus, a compressed air supply, a container for partially spent compressed air, a controller for directing compressed air from the compressed air supply to brake actuating mechanism and for directing partially spent compressed air from such brake actuating mechanism to said container, and means for passing partially spent air to the open atmosphere at a point between said controller and said container; said last named means being actuated by the handle member of the controller; and means operated by the handle member of the controller for leading partially spent compressed air from said container to mechanism for consuming energy thereof and for opening communication between said last named mechanism and the outer air.

4. In railway pneumatic apparatus, a compressed air supply, a container for partially spent air, a controller for directing compressed air from the compressed air supply to brake mechanism and from brake mechanism to said container, and means for

exhausting partially spent compressed air to the open air between said controller and said container; said last named means comprising a normally seated release valve, and means disposed in the path of travel of the handle member of the controller and operating to unseat said release valve.

5. In railway pneumatic apparatus, a compressed air supply, a container for partially spent compressed air, a controller for directing compressed air to brake mechanism and from such brake mechanism to said container, and means for exhausting partially spent compressed air to the open air between said controller and said container; said last named means comprising a pivoted element disposed in the path of travel of the handle member of the controller, a normally seated exhaust valve, and operative connections between said pivoted element and said exhaust valve.

6. Railway pneumatic apparatus comprising a compressed air supply, a partially spent compressed air container, a controller for admitting compressed air to brake mechanism and for directing partially spent compressed air to said container, a controlling valve for directing partially spent compressed air from said container to mechanism for utilizing energy thereof, and means actuated by the handle member of the controller for operating said controlling valve.

7. Railway pneumatic apparatus comprising a compressed air supply, a partially spent compressed air container, a controller for admitting compressed air to brake mechanism and for directing partially spent compressed air to said container, a controlling valve for directing partially spent compressed air from said container to mechanism for utilizing energy thereof, and means actuated by the handle member of the controller for operating said controlling valve; said controller handle member having a rotatively mounted grip provided with a cam, and said last named means comprising separate operative connections between said controlling valve and said cam.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES R. RICKETTS.

Witnesses:

E. C. MOESKES,
C. P. WARDEN.