January, 1904

Instruction Pamphlet No. T 5006

Brake Cylinder.

26 Cortlandt Street,
New York, U. S. A.

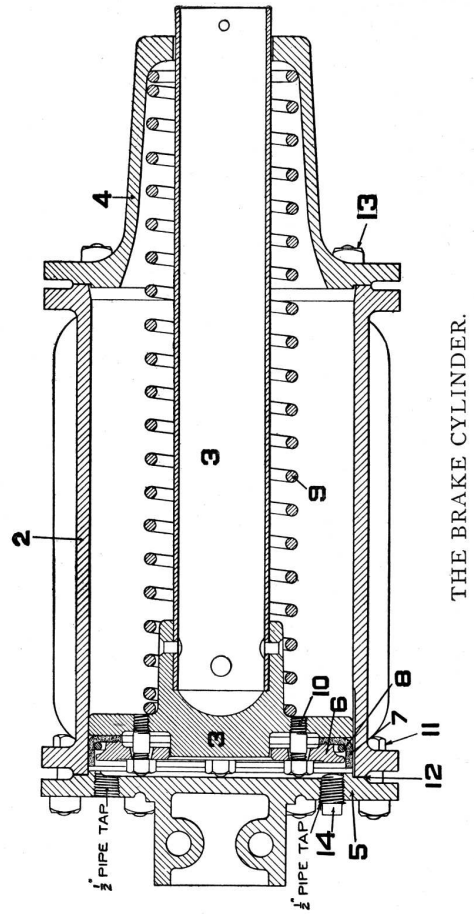


FIGURE 1. THE BRAKE CYLINDER.

The Brake Cylinder.

The Brake Cylinder illustrated in Figure 1, is of the hollow-rod pattern by which the piston is so connected to the foundation rigging that it moves only when the power brake is in use. 2 is the brake cylinder; 3 is the piston and sleeve in which the push rod, connected with the system of brake levers, is inserted; 4 is the non-pressure cylinder head; 9 is a release spring which forces piston 3 to the release position when the air pressure is released from the pressure end of the cylinder; 7 is a packing leather which is pressed against the cylinder wall to prevent air from escaping past the piston; 8 is a round spring packing expander which serves to hold the flange of the packing leather against the walls of the cylinder; 6 is the follower plate, which, by means of studs and nuts 10, clamps the packing leather to the piston. The pressure-head 5 has two $\frac{1}{2}$" pipe tapped holes, to one of which the air piping is connected, the other being closed by plug 14. The pressure-head is bolted to the cylinder by bolts 11 and the joint made air tight by rubber gasket 12.

The pressure-head 5, as shown, is arranged for attachment of the American Automatic Slack Adjuster, and is also generally provided with a detachable lever bracket, Fig. 5, so that the slack adjuster may be used or not, as desired. Or it may be added afterwards without necessitating a new cylinder head or any change other than removing the detachable bracket and putting the slack adjuster in its place. When desired we supply a plain pressure head as shown in Fig 2, on the next page.

FOR STRAIGHT-AIR EQUIPMENT.

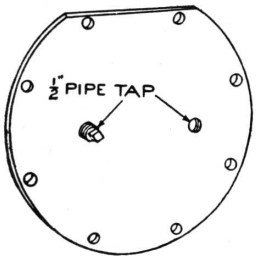


Fig. 2.

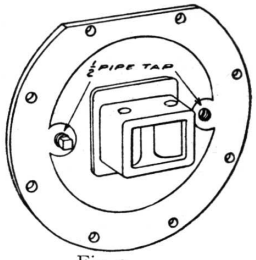


Fig. 3.

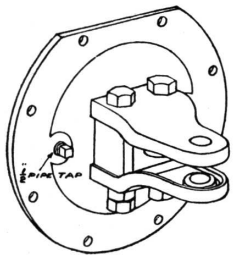


Fig. 4.

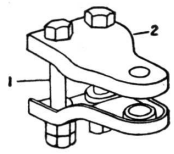


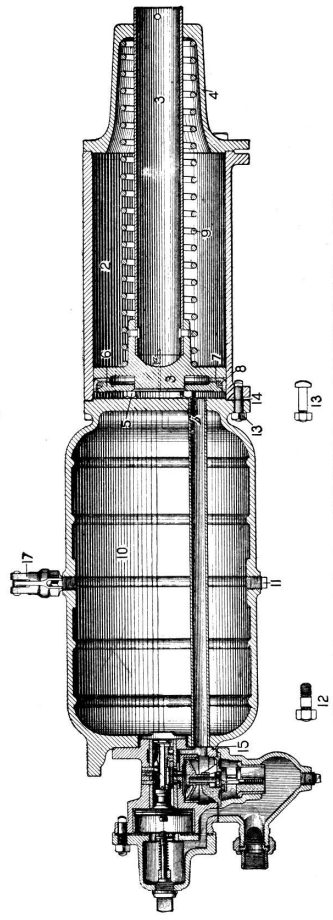
Fig. 5.

PRESSURE HEADS.

Fig. 2, Type O, Plain Head,
Lug,
" 3, " P, Plain Head with Slack Adjuster
" 4, " Q, Plain Head with Detachable Bracket,
" 5, Detachable Bracket, complete,
No. 1, Detachable Bracket Bolt and Nut,
No. 2, Detachable Bracket

NOTE—Unless otherwise specified, the "Plain Head with Slack-Adjuster Lug," shown in Fig. 3, with a detachable lever bracket, the whole appearing as in Fig. 4, is furnished on all orders for or including this part. If orders including Brake or Cylinder Heads also cover Slack Adjusters, detachable brackets are not supplied.

FIGURE 9.



THE COMBINED CYLINDER, RESERVOIR AND TRIPLE VALVE.

The Combined Cylinder, Reservoir and Triple Valve.

The Combined Cylinder and Reservoir (Fig. 9) is the usual form of equipment applied with the Automatic Brake. In case of necessity, the cylinder and auxiliary reservoir may be of the separated type and connected by piping; in such cases the auxiliary reservoir and brake cylinder are of the same type as just described for the Straight-Air Equipment, the cylinder having a pressure head, as shown in Figs. 6, 7 or 8, to which is bolted the triple valve. Ordinarily, however, the combined apparatus is the more convenient for traction purposes.

Auxiliary reservoir 10 is simply a hollow shell replacing the wrought iron reservoir used with the Straight Air equipment. Pipe *b* provides communication between the triple valve and the brake cylinder. The operation of the brake is the same, and the functions of the relative parts are identical with those described on page 3; it is simply a different arrangement of the same parts.

In the wall of the cylinder (indicated by dotted lines), is a small groove *a* called the leakage groove. If the exhaust port of the slide valve of the triple valve should, in any manner, become obstructed when it is not desired to have the brakes applied, a slight flow of air into the cylinder from any cause will, instead of forcing the piston out, escape through leakage groove *a* to the atmosphere at the non-pressure end of the cylinder. Valve 17, usually placed above the auxiliary reservoir, is known as the release valve. A rod extends from the arms on each side of this valve to the side of the car, and pulling either rod unseats the valve and discharges air from the reservoir for the purpose of releasing the brake.

Installation.

THE BRAKE CYLINDER when 10", or less, in diameter should be bolted by six $\frac{5}{8}$" bolts with double nuts to a hard wood plank not less than 2" thick, 11" wide, and as long as necessary to secure it to the framing of the car body. Use $\frac{3}{4}$" bolts for the 12", and $\frac{7}{8}$" for the 14" cylinders, with supporting pieces of proportionately increased strength. The location should be so chosen in relation to the foundation brake rigging of the car, that when the brakes are released the push rod will be at the bottom of the hollow piston sleeve. A union should be placed in the pipe connecting the train pipe to the cylinder at a point to one side of the latter to facilitate removal of the head for cleaning the cylinder.

The combined Cylinder and Reservoir should be secured to the car framing in the same manner as brake cylinders of the separated type. The wood plank should be used for the cylinder end and a suitable piece put in for the end of the reservoir. These equipments are only built in 8-inch and 10-inch sizes, consequently $\frac{5}{8}$" bolts (eight) with double nuts will be sufficient for fastening them to the supporting pieces. In locating the apparatus, note that there should be sufficient room between the top of the auxiliary reservoir and the car flooring to remove the release valve.

INSPECTION AND MAINTENANCE.

In cleaning the cylinder and piston, special attention should be given to removing lint, freeing the leakage groove of any deposit, and thorough cleansing of the expander ring, packing leather, and piston. In oiling or greasing the cylinder, special attention should be given to the thorough lubrication of the top of the cylinder and

the inside of the packing leather where the expander ring rests. A light grease in the cylinders has been found to give the best results. If too much oil be used, it will work back into the triple valve and ruin the rubber-seated valve and the gasket. It should be particularly observed that the follower nuts are tight, since they are frequently found to be loose.

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St. Louis, Mo.	American Brake Co., 1932 N. Broadway
Los Angeles, Cal.	621 Trust Building
Pittsburg, Pa.	At Wilmerding Works

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