



**IMPROVED
SELF-LAPPING
DRIVER'S BRAKE VALVE**

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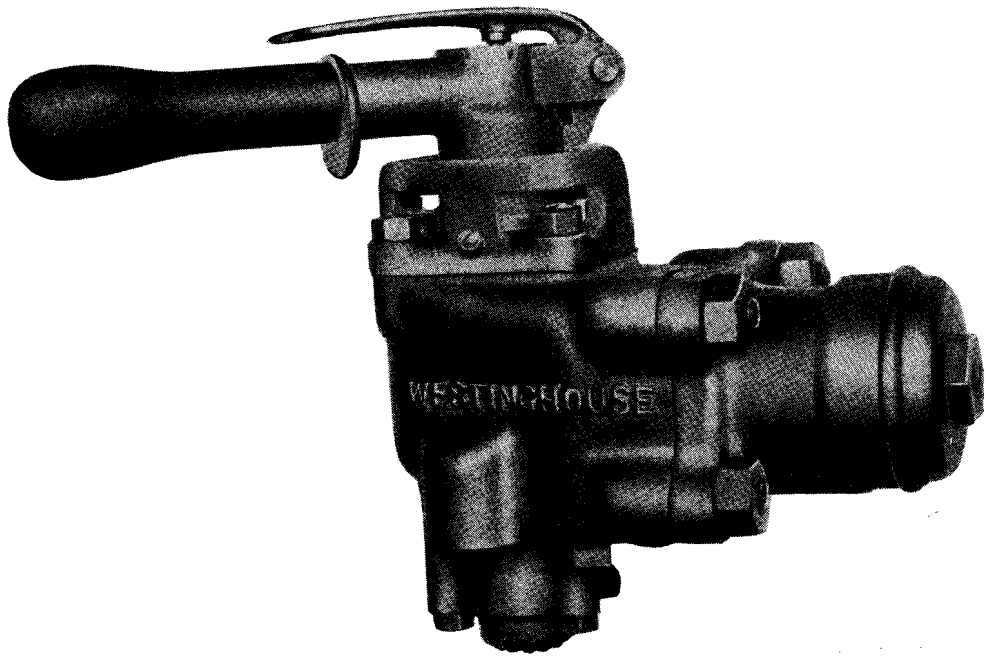


FIG. 1

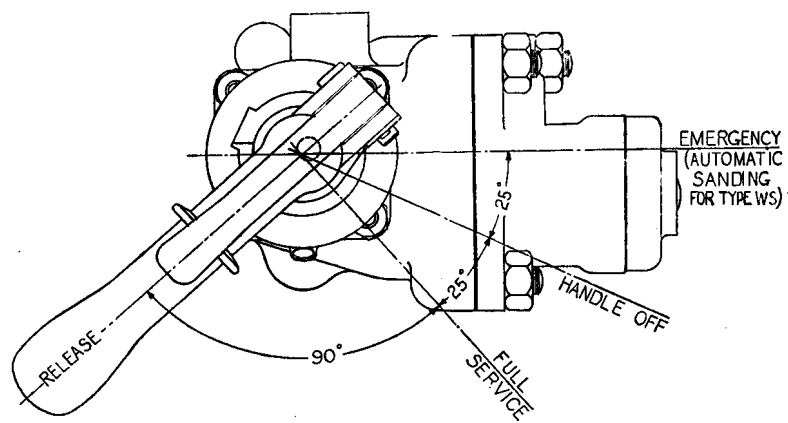


FIG. 2

IMPROVED SELF-LAPPING DRIVER'S BRAKE VALVE

Patent No. 399159.

The advantages of the Self-Lapping Brake Valve, type S.A. 2, which was introduced by us in 1932, have met with such general approval that, in order to meet the requirements of certain users as regards trigger control sanding and also automatic sanding in emergency, an improved and more compact form of valve has now been produced, which can be supplied with either or both of these features, in addition to the novel features of the original type S.A.2 driver's brake valve.

Fig. 1 shows types W.S. and W.S.T. The other types of this improved form of self-lapping brake valve are listed at the foot of the page.

Before the introduction of the self-lapping driver's brake valve, the Westinghouse Companies for more than forty years have supplied railways with regulating brake valves in which the brake cylinder pressure in application corresponds to the degree through which the operating handle is moved.

The principle on which these valves have functioned required the compression of a heavy spring directly by the rotation of a handle provided with a screw thread; the operation of this requires appreciable effort, and although these valves are used by railways, they have not been considered suitable for tramway service where the more frequent application of the brakes demands a valve that can be operated with minimum effort.

The more generally used straight air driver's brake valve, utilising either rotary or poppet valves, is light to operate, but for all graduated applications, the handle must be moved from application position to lap position, *i.e.*, a neutral position in which all ports are closed; or, in the case of graduating the release, it must be moved from release position to lap position; it is therefore not progressive, or as directly sensitive, as the regulating type of brake valve.

The Westinghouse Self-Lapping Driver's Brake Valve represents a considerable advance in valve operation, and is the only valve that includes the outstanding advantages of both of those referred to above. Amongst its principal characteristics is its progressive action combined with light and sensitive control.

To apply the brakes the handle is moved towards the right, and brake cylinder pressure builds up rapidly to a value corresponding to the position of the brake valve handle; a movement of the handle through 90° gives a full service application. (See Fig. 2.)

Movement to the left from any position of the handle gives an immediate and corresponding reduction of brake cylinder pressure, the brake cylinder pressure being completely released when the handle is in the full left position.

To obtain an emergency application the handle is moved to the full right position, in which, if required, automatic sanding can be obtained with the types W.S. and W.S.E. valves.

In emergency position a higher pressure can be obtained than in full service, giving a reserve of brake power under such conditions.

The handle is removed in a position provided between full service and emergency, and whilst changing ends the brakes remain applied until the handle is placed on the valve at the other end of the car and moved to full release position. Brake cylinder pressure is maintained automatically against leakage under these conditions as well as in normal operation.

The new improved Self-Lapping Driver's Brake Valves are extremely compact (Figs. 1 and 2) and are generally provided with removable handles with non-metallic composition grips. In the case of the types with sanding feature, the sanding valve is attached to the underside of the valve and the trigger lies neatly along the upperside of the handle, and does not interfere with the driver's hand during operation of the brake valve.

In both types all pipe connections are made to the underside of the body, and all of the working parts can be removed without disturbing any of these pipe connections. Poppet valves are used and the whole design is robust and made for heavy service.

The Westinghouse Self-Lapping Driver's Brake Valves can be supplied as follows:—

Type W	...	...	Without sanding feature.
„ W.S.	...	...	With trigger sanding and emergency sanding.
„ W.S.T.	...	...	With trigger sanding only.
„ W.S.E.	...	...	With emergency sanding only.

Special types for foot operation or remote control by levers can be provided to suit special requirements of customers.