

(No Model.)

W. F. McCAULEY & L. E. JOHNSON.
AIR BRAKE HOSE.

No. 592,017.

Patented Oct. 19, 1897.

FIG. 1.

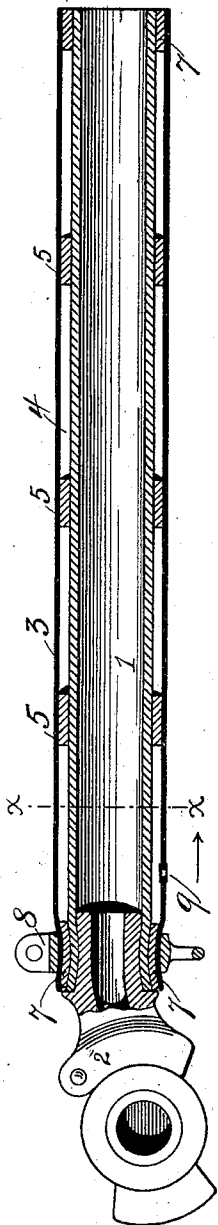
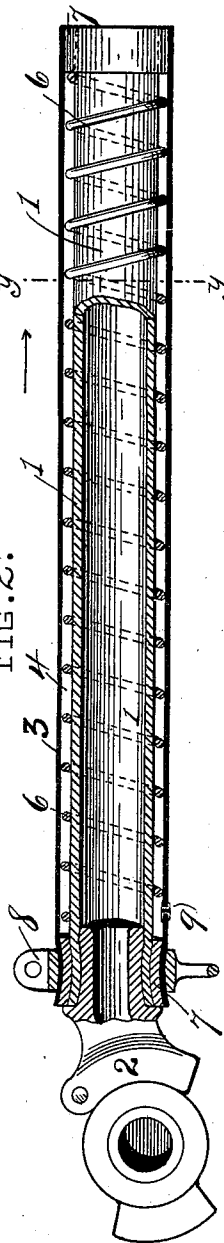


FIG. 2.



WITNESSES:

David C. Walter
L. E. Brown.

INVENTORS:

Wm. F. McCauley,
Lucius E. Johnson,
By Thomas Hall, their Atty.

UNITED STATES PATENT OFFICE.

WILLIAM F. MCCAULEY AND LUCIUS E. JOHNSON, OF TOLEDO, OHIO.

AIR-BRAKE HOSE.

SPECIFICATION forming part of Letters Patent No. 592,017, dated October 19, 1897.

Application filed April 26, 1897. Serial No. 633,898. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM F. MCCAULEY and LUCIUS E. JOHNSON, citizens of the United States, residing at Toledo, Lucas county, Ohio, have jointly invented certain new and useful Improvements in Air-Brake Hose, of which the following is a specification.

In that class of air-brakes in which the brakes of a train are set automatically by the escape of compressed air from the reservoir the bursting of the flexible hose used between cars to connect the air-pipes causes the sudden application of brakes with maximum force to the wheels, thus arresting the speed of the train with a violent shock. Accidents not infrequently result in this way, especially in freight-trains, where usually the forward cars in the train are provided with air-brakes, the cars without air-brakes being placed together at the rear of the train. It is obvious that if the forward cars be suddenly stopped or checked the rear cars, not being under control, will, with immense weight and momentum, rush upon the forward part of the train, thereby endangering the personal safety and lives of persons upon the train and causing great damage to the cars and contents by throwing them violently over and against one another.

Our invention relates to and its object is to provide means for overcoming the difficulty here pointed out, and, more particularly, to provide a jacket for the flexible connecting-hose having through its wall an aperture or apertures of limited area constantly open and connected with the outer air, whereby the sudden escape of air in volume is prevented in the event of the bursting of the inner hose, and whereby the air from the burst hose is permitted to escape so slowly, through the apertures referred to, that the brakes are applied gradually and the train brought to a stop or reduced speed without injury.

A further object of our invention is to so protect the inner hose as to prevent its wear, abrasion, and deterioration.

We attain these objects by means of the device and arrangement of parts hereinafter described and shown, and illustrated in the

accompanying drawings, made part hereof, in which—

Figure 1 is a central longitudinal sectional elevation of our device; Fig. 2, the same, partly in section, showing a modified form thereof; Fig. 3, a transverse sectional elevation on line *x x*, and Fig. 4 the same on line *y y*.

Like numerals of reference indicate like parts throughout the drawings.

In the drawings, 1 is a section of ordinary air-brake hose, adapted at one end to be clamped upon the air-pipe of an air-brake apparatus, and having secured to its other end a portion of the coupling 2, by means of which the meeting ends of two sections of hose are coupled together. Surrounding and inclosing the hose 1, and concentric therewith, is an outer flexible tube or hose 3, of such diameter as to leave between the two an annular space 4.

Interposed between the inner and outer hose at suitable distances apart are bands or rings 5, of suitable material—such, for instance, as india-rubber—designed to keep the inner and outer hose in proper relation to each other. Instead of the rubber bands or rings 5, and as the equivalent thereof, a spirally-wound wire 6 may be interposed between the inner and outer hose, as shown in Fig. 2. Between the inner and outer hose, at each end, is a band or rubber ring 7, either separate or integral, at the point where the clamp is applied to connect the hose with either its coupling or its air pipe. The outer hose is provided with one or more small apertures 9, the area of which will depend somewhat upon the capacity of the air-pump connected with the apparatus and the service possibly to be performed. These apertures may be merely punctures or slits, or they may be eyelet holes or orifices suitably reinforced, as with the material of which the hose is composed, as may be desired.

Assuming that the sections of hose above described are in place and connected in the usual manner, and assuming that the train is in motion with the inner hose under internal pressure, now if the inner hose burst, the air will rush into the annular space 4, and will now slowly escape through the rent in the inner hose, thence through the aperture 9 into

the outer air, bringing the train to a slow stop, or checking its speed, thus avoiding shocks and accidents due to a sudden stop.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In an air-brake hose, two concentric, flexible tubes, the wall of the outer of said tubes having therethrough one or more orifices or air-ducts, of limited area, substantially as and for the purpose specified.

2. In an air-brake hose, two concentric, flexible tubes having an intervening annular chamber, means within said annular chamber for holding said tubes apart, and one or more air-ducts of limited area leading from said annular chamber through the wall of the

outer of said tubes, substantially as and for the purpose specified.

3. An air-brake hose comprising two flexible tubes, one within the other, separating rings or bands between said two tubes, one or more air-ducts of limited area leading from said annular chamber to the outer air, and means at either end of said hose for clamping said two tubes in fixed relation with each other, substantially as and for the purpose specified.

WILLIAM F. McCAULEY.
LUCIUS E. JOHNSON.

In presence of—

A. J. WHITE,
L. E. BROWN.