

S. McRAE & J. H. BLOM.
HOSE PATCH.
APPLICATION FILED JULY 11, 1911.

1,017,265.

Patented Feb. 13, 1912.

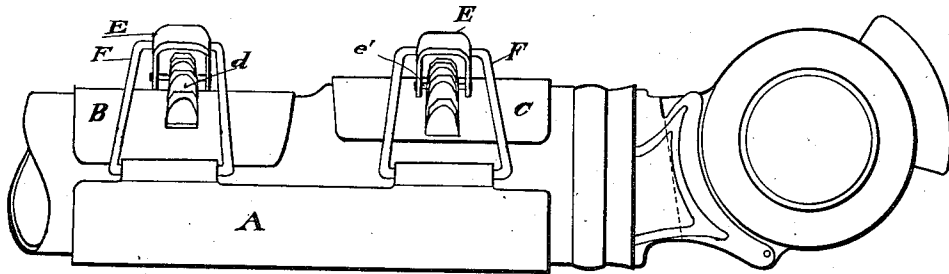


Fig. 1

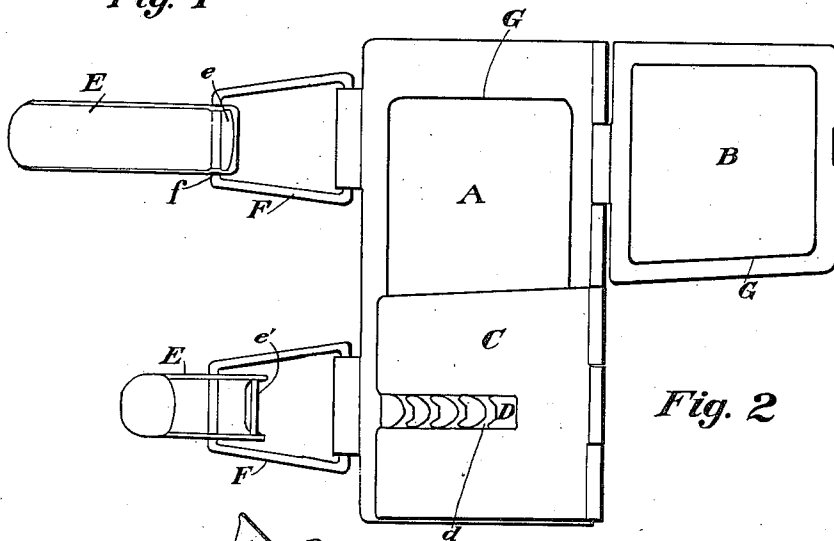


Fig. 2

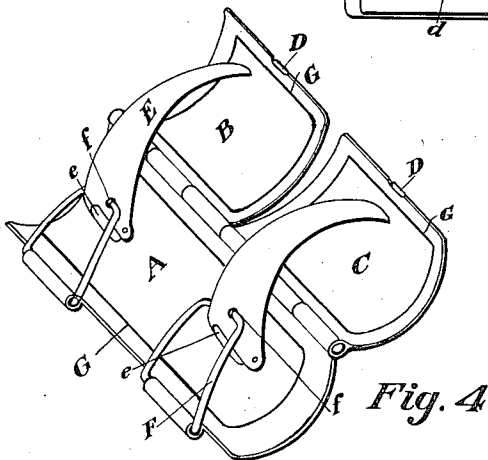


Fig. 4

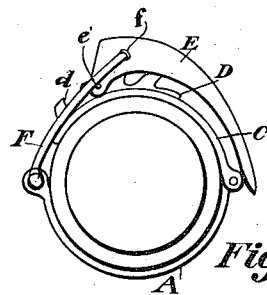


Fig. 3

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HOSE-PATCH.

1,017,265.

Specification of Letters Patent.

Patented Feb. 13, 1912.

Application filed July 11, 1911. Serial No. 637,927.

To all whom it may concern:

Be it known that we, SAMUEL McRAE and JOHN H. BLOM, citizens of the United States, residing at Everett, in the county of Snohomish, State of Washington, have invented new and useful Improvements in Hose-Patches, of which the following is a specification.

This invention relates to certain new and useful improvements in hose-patches, aiming primarily to provide a simple and compact structure which may be readily fitted and adjusted to cover a break in a high-pressure hose or pipe.

The present invention is especially designed to afford a better, a quicker, and more convenient way of temporarily repairing breaks in the pneumatic hose used for operating and controlling air-brakes on railway trains. The hose used for this purpose is usually under great pressure and breaks therein are of frequent occurrence, and are the cause of much delay, and consequent loss to railway companies. There is no forewarning of a break and the first knowledge thereof is the sudden stopping of the train; when this occurs it necessitates shutting off the air from the section of hose wherein the break or rupture is; removing said section and replacing it by a sound one. If the couplings are so rusted or united from any cause as not to be readily disconnected much time is consumed in trying to repair the break. And it not infrequently happens that the entire length of train behind the break has to be "bled" so that the train may proceed.

When it becomes necessary to "bleed" the full length of the train there is further delay after the substitution of a new section until the entire length of train line is refilled with compressed air. In order to be prepared for accidents of the character described each railway train is required to carry a number of extra sections of hose.

In making repairs in the manner stated, which is the present practice, much time is lost which is a serious matter in very many instances, particularly by delaying trains carrying the United States mail.

With the use of our device a break can be repaired in a few seconds of time without removing the section of hose containing the break or rupture and, therefore, without "bleeding" the train.

Having thus indicated the requirements of the service for which our hose-patch or clamp is particularly designed to perform, we will now explain the construction and operation of our device.

The nature of our invention, and the manner in which the same is or may be carried into effect, will be readily understood by reference to the accompanying drawings in which—

Figure 1 is a perspective view of a fragment of pneumatic hose with coupling and having our improved hose-patch applied thereto. Fig. 2 is a perspective view of said hose-patch. Fig. 3 is an end view of the link and lever employed in drawing the edges of the sections together. Fig. 4 is a perspective view of the hose-patch in folded position to be carried in the pocket.

Our improved hose-patch, as illustrated in the accompanying drawings, consists of three semi-cylindrical metallic members A, B, C, the length of member A corresponding practically to the combined length of members B and C. The latter are permanently hinged longitudinally to member A as shown.

The inner curved surface of each member A, B, C, is provided with a rib or projection G near to and parallel with the edges thereof. One purpose of these ribs or projections is to so place the patch upon the hose that they will surround the break or rupture thereby affording additional security against the possible leakage or escape of air on account of weather cracks or abrasions on the surface of the hose. Further, they serve to prevent the displacement of the patch through possible contortion of the hose or through sudden reduction of pressure within the hose while the brakes are being applied.

A break or rupture in a pneumatic hose for air-brakes frequently occurs near the coupling which necessitates the patch overlapping the portion of the hose covering the nipple of the coupling as shown in Fig. 1; consequently, a hose-patch composed of only two semi-cylindrical members or sections would not compress the hose at such point of rupture sufficiently to make it air-tight, because of the inequality in the compressibility of the surface of the hose to be embraced by the patch. This we say from practical experience, for in the first in-

stance we made and used a hose-patch composed of only two semi-cylindrical members, and while a hose-patch so made does good service on a hose where the surface is uniform as to compressibility and other features, it is not as efficient where the surface of the hose is uneven or where its compressibility varies. In order to overcome this difficulty we have devised the patch herein shown and described, having two relatively short sections on one side of the hinged connection and one relatively long section on the opposite side of said connection. This construction allows independent circumferential movement of the short sections thereby permitting different degrees of compression. This is shown in Fig. 1.

In order to apply the hose-patch to hose of varying and uneven circumference or compressibility provision is made for adjustment of the practical length of the locking mechanism by a series of teeth or projections *d* of the rack-bar D. On the opposite sides from the hinge the members are provided with fastening devices for drawing together the meeting edges of the opposite members and holding them securely in fixed relation. These fastening devices consist of curved rack-bars D and locking-levers E. The rack-bars are arranged in alinement with the locking levers and are fixedly secured to the exterior surfaces of members B and C at or near the free edges thereof. They are provided with teeth or projections *d* having an inclination in a direction toward the hinge. The locking-levers are forked or recessed at their inner ends forming an opening or slot *e* through which pass pivots *e'* to serve as fulcrums, the ends thereof being securely fastened to the forked ends of the levers. Swiveled links F are secured by suitable means to the free edge of member A and are also fastened to the locking-levers E through the hole *f*.

In applying the patch to cover a break or rupture in the hose it is first opened and fitted around the hose so as to bring the break or rupture within the confines of the ribs or projections G in one of the members A, B, or C; when thus positioned the pivot pin *e'* is fulcrumed against one of the teeth *d* of the rack-bar D and pressure is applied to the free end of lever E which draws the meeting edges of members B and C to the edge of member A, and by continuing the pressure upon the lever it is forced downwardly upon the periphery of the patch thereby drawing the patch tightly around the hose, completely and effectively closing the break or rupture therein.

It will be observed that the outer end of link F is engaged with the lever beyond its fulcrum, so that when the free end of the lever is depressed beyond the line of strain

it will shut down upon the patch with a snap and the sections will be firmly locked together, and no interior pressure will be sufficient to release the lever from its position.

By means of this invention a hose-patch is secured that is simple in construction, easily applied, and efficient in service.

Various changes in form and in minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention; and while the construction above set forth is the one now preferred by us, we do not wish to be restricted to the precise details shown and described herein, only so far as included in the claims appended hereto.

We claim as our invention:—

1. A hose-patch composed of a relatively long semi-cylindrical section and two relatively short semi-cylindrical sections hingedly attached, and adapted to embrace the hose, interlocking mechanism carried at the meeting edges of said sections and having independent circumferential movement so as to cause a relative approach of the edges and to hold them in locked engagement.

2. A hose-patch composed of a relatively long semi-cylindrical section and two relatively short semi-cylindrical sections, said short sections being hingedly attached to a longitudinal edge of the long section, and adapted to embrace the hose, and co-acting means for adjustably connecting said sections and holding them in locked engagement.

3. A hose-patch composed of a relatively long semi-cylindrical section and two relatively short semi-cylindrical sections, the short sections being hingedly attached to a longitudinal edge of the long section, and adapted to embrace the hose, and locking-levers and curved rack-bars carried at the meeting edges of said sections and constructed and arranged for coöperation whereby the meeting edges may be drawn together relatively, according to the variations in the circumference or compressibility of the hose, and held in locked engagement.

4. A hose-patch composed of two semi-cylindrical short sections hingedly connected longitudinally to one semi-cylindrical long section, and co-acting means at the meeting edges of said sections to adjustably connect the same relatively to the variations in the circumference and compressibility of the hose within the embrace of the patch and to hold them in locked engagement around the hose.

5. A hose-patch composed of two semi-cylindrical short sections hingedly connected longitudinally to one semi-cylindrical long section and adapted to embrace the hose, the

inner curved surface of each section having a marginal projection, and co-acting means carried at the meeting edges of said sections to adjustably connect them relatively to the
5 variations in the circumference and compressibility of the hose and to hold them in locked engagement.

6. A hose-patch composed of two semi-cylindrical short sections hingedly connected
10 longitudinally to one semi-cylindrical long section, the two short sections having inde-

pendent circumferential movement and means to adjustably connect said sections in locked engagement with the long section relatively to the variations in the circum- 15
ference or compressibility of the hose.

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