N. B. BRALY.

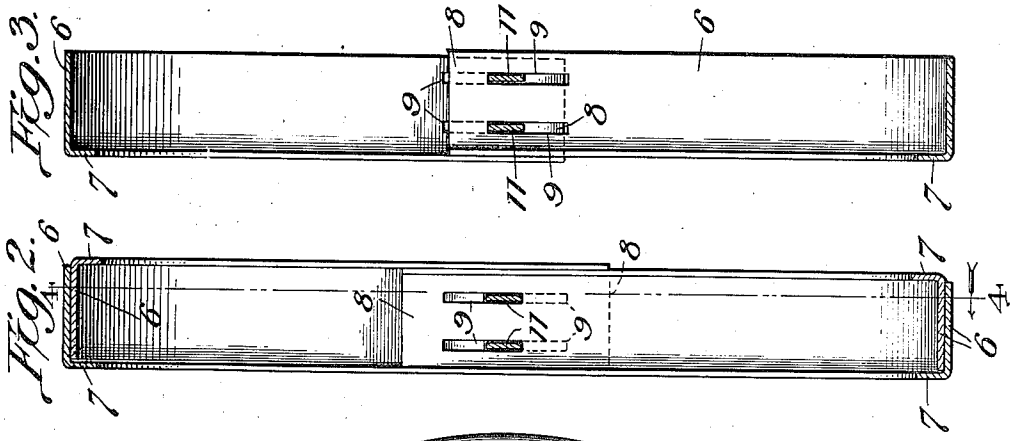
HOSE COUPLING.

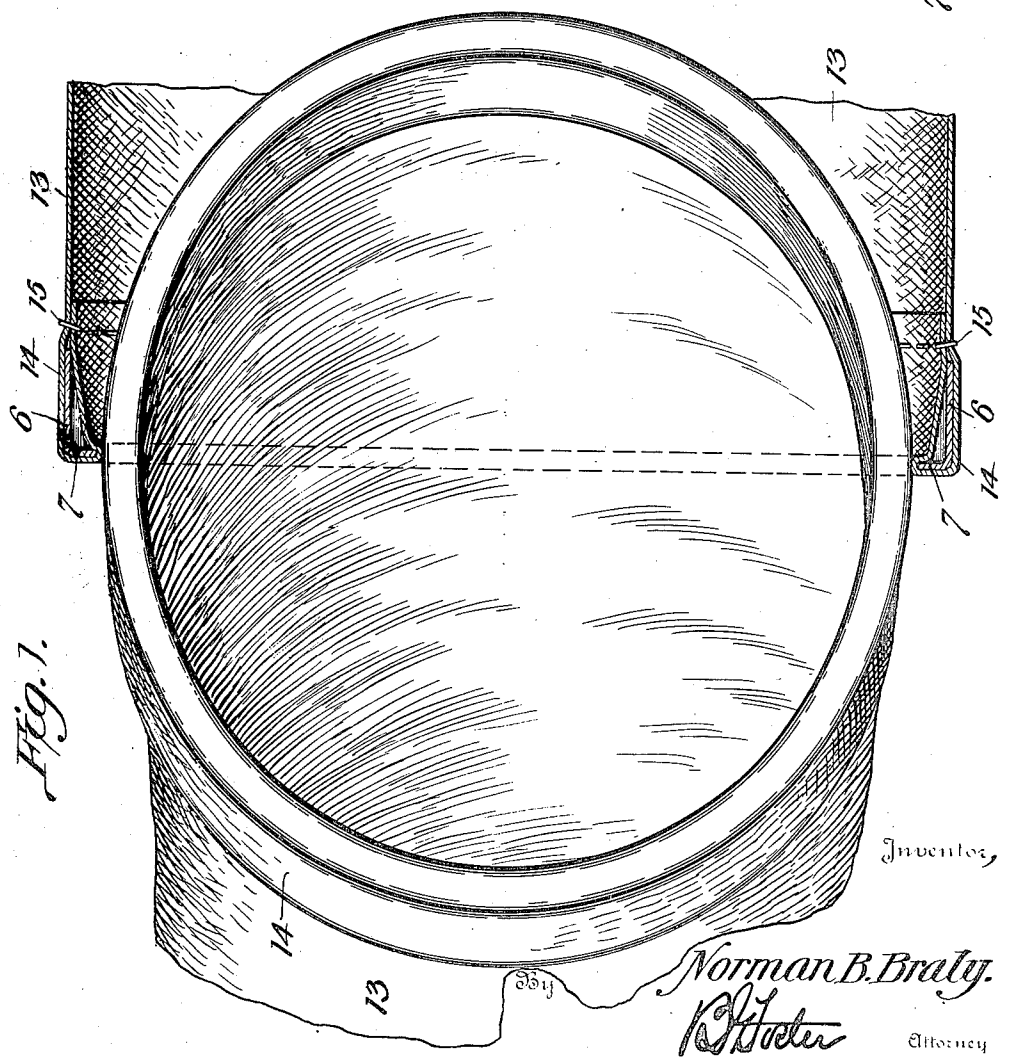
APPLICATION FILED JULY 5, 1918. RENEWED JUNE 9, 1919.

1,310,559.

Patented July 22, 1919.

3 SHEETS—SHEET 1.





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3 SHEETS—SHEET 2.

Fig. 5.

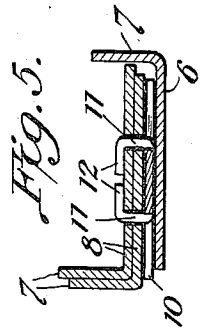
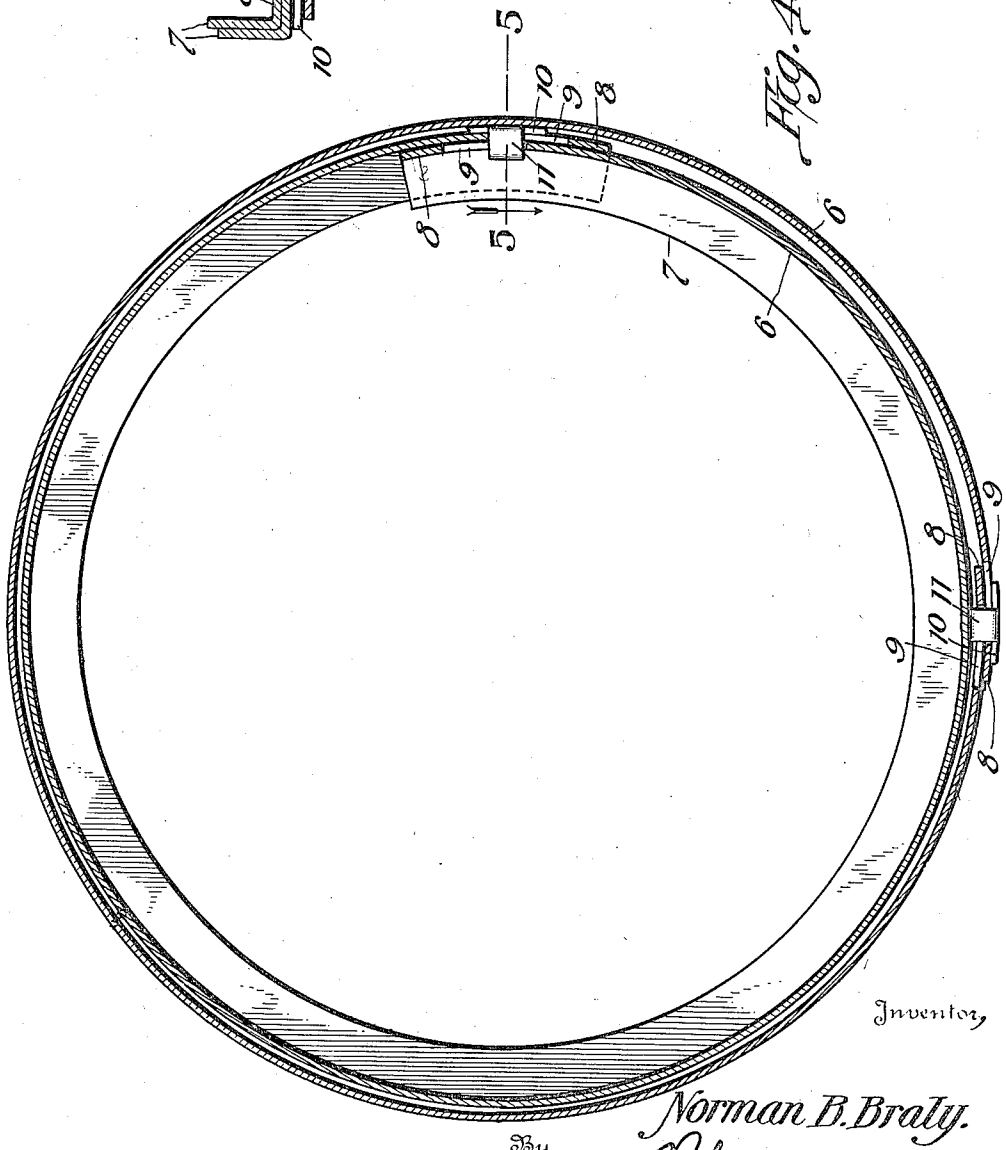


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 9.

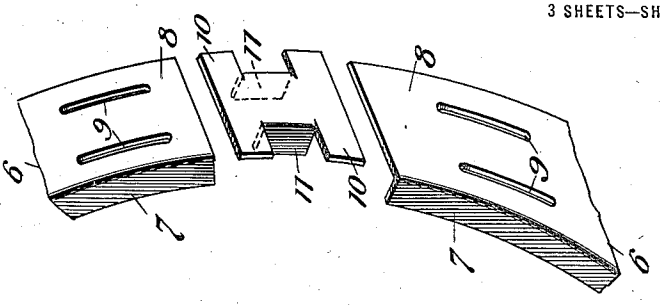


Fig. 8.

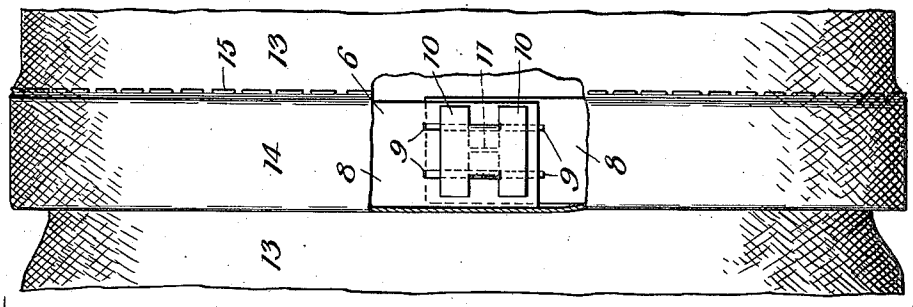


Fig. 7.

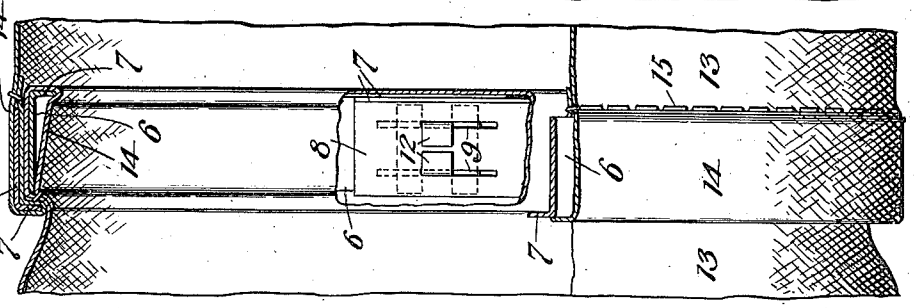
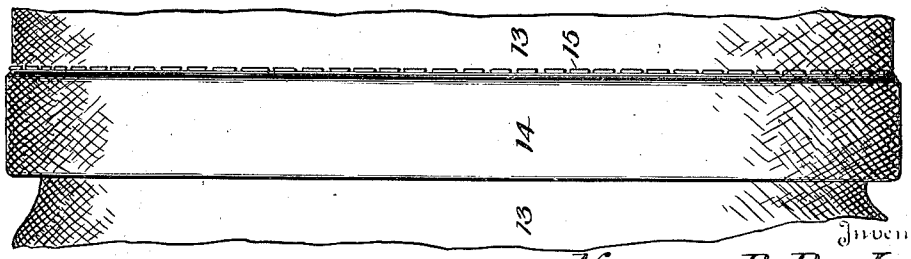


Fig. 6.



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UNITED STATES PATENT OFFICE.

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HOSE-COUPLING.

1,310,559. Specification of Letters Patent. Patented July 22, 1919.

Application filed July 5, 1918, Serial No. 243,337. Renewed June 9, 1919. Serial No. 303,003.

To all whom it may concern:

Be it known that I, NORMAN B. BRALY, a citizen of the United States, residing at Butte, in the county of Silver Bow and State of Montana, have invented certain new and useful Improvements in Hose-Couplings, of which the following is a specification.

The present invention relates to pipe or hose couplings, and more particularly of that type in which the hose is of flexible material, such as canvas, and is utilized for mine ventilation, and purposes of a generally analogous character.

One of the primary objects of the present invention is to provide a simple and relatively inexpensive coupling, in which the parts can be expeditiously associated and detached, and when in assembled or connected relation, are effectively held against accidental disengagement.

An embodiment of the invention that has proven very satisfactory and practical, is illustrated in the accompanying drawings, wherein:—

Figure 1 is a view partially in elevation and partially in section, illustrating two coupling members when in partly assembled relation,

Fig. 2 is a sectional view showing the two members together, but with the hose material removed in order to avoid confusion,

Fig. 3 is a sectional view through the outer coupling ring,

Fig. 4 is a vertical sectional view through Fig. 2, on the line 4—4 thereof,

Fig. 5 is a detail sectional view on the line 5—5 of Fig. 4,

Fig. 6 is a side elevation of a coupling in assembled condition,

Fig. 7 is a vertical sectional view therethrough with parts broken away to show the coupling of the inside ring,

Fig. 8 is a view similar to Fig. 6, but with the fabric broken away to show in elevation the coupling of the outside ring.

Fig. 9 is a detail perspective view of the ends of a coupling ring and the connecting element in detached relation.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the present embodiment, the coupling consists of two rings that are exact duplicates of each other, and therefore a description of one will suffice for both. The ring consists of a strip of sheet metal 6 bent into circular form, and having an inturned abutment flange 7 at one edge. The ends 8 of the ring are overlapped and said ends are provided with longitudinal slots 9, portions of which register. Through these registering portions is passed a connecting device, preferably in the form of a sheet metal plate 10 having inturned tongues 11 passing through the slots, the inner ends of the tongues being inset, as shown at 12, forming in effect a staple connection between the ends, the said tongues being of less width than the length of the slots, and thus permitting a relative sliding movement between the ends of the ring strip.

Portions of the hose sections are shown at 13, and are preferably of canvas or some suitable flexible material. These hose sections have each end looped inwardly about one of the rings 6, as shown at 14, the loops being closed by lines of stitching 15. The rings are thus completely inclosed in the fabric hose and the flanges are located at the outer edges of said rings, as will be clear by reference to Fig. 1. It will be understood that these hose sections are provided with rings at both ends, and that all are duplicates.

In this embodiment of the invention, attention is called to the fact that the length of the slots 9 is definitely determined, so that the expansion and contraction of the rings is limited, and the range of expansion and contraction of two coöperating rings is such that while either ring of two associated ends of adjacent hose sections can be placed within the other, as hereinafter explained, such interlocked relation will cause the expansion of the outer ring and the contraction of the inner ring, but the limits of this relative expansion and contraction are such that when two of the rings are interfitted and the said rings are placed in parallel rela-

tion, as shown in Fig. 2, the outer ring cannot expand and the inner ring cannot contract sufficiently to permit the rings to slip by each other. Thus if Figs. 2, 3 and 4 are compared, it will be noted that when the rings are together, one within the other, the inner ends of the slots 9 of the inner ring are abutted against the edges of the tongues 11, while the outer ends of the slots 9 of the outer ring are abutted against the edges of the tongues 11 passing therethrough. It will thus be evident that with this construction, the coupling cannot pull apart. Furthermore the canvas loops incasing the rings constitute effective packing means that produce practically air-tight joints.

In order, however, that the rings may be interlocked and detached as desired, the said rings are capable of slight deformation. Consequently all that is necessary to effect the coupling of two hose sections is to place the rings at substantially right angles to each other, as indicated in Fig. 1, and deform either one or both from their normal circular shape. They may then obviously be passed one through the other, after which the inner ring can be swung to a position parallel to the outer ring and the hose sections drawn outwardly, whereupon they will assume their interlocked relation, as above set forth.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is:—

1. A coupling of the character set forth, comprising detachably coöperating coupling rings relatively deformable to permit one to be disposed at an angle to and passed through the other and to assume a substantially parallel relation to said other and bear against the same, one of said rings furthermore being variable in diameter, and means for limiting the range of variation in diameter of the said ring to a degree to prevent one of the rings passing through the other when in said substantially parallel relation.

2. A coupling of the character set forth, comprising detachably coöperating coupling rings of substantially corresponding diameter, each being deformable to permit it to be disposed at an angle to the other and be passed therethrough, and also to assume a substantially parallel relation to said other and bear against the same, each of said rings being furthermore variable in diameter, and means for limiting the range of variation in diameter of each ring to a degree to prevent either ring to pass through the other when the two are abutted and in substantially parallel relation.

3. A coupling of the character set forth, comprising detachably coöperating coupling rings relatively deformable to permit one to be disposed at an angle to and passed through the other and to assume a substantially parallel relation one within the other, one of said rings having an abutment against which the other bears when so located one within the other, one of said rings furthermore being variable in diameter, and means for limiting the range of variation in diameter of said ring to a degree to prevent one of the rings passing the abutment of the other when so arranged one within the other.

4. A coupling of the character set forth, comprising detachably coöperating coupling rings of substantially corresponding diameter, each being deformed to permit it to be disposed at an angle to the other and be passed therethrough and to assume a substantially parallel relation one within the other, each of said rings having an abutment against which the other is adapted to bear and each of said rings being furthermore variable in diameter, and means for limiting the range of variation in diameter of each ring to a degree to prevent either ring to pass the abutment of the other when the two rings are interfitted one within the other and are in substantially parallel relation.

5. A coupling of the character set forth, comprising detachably coöperating expansible and contractile coupling rings capable of deformation and each having an inturned abutment flange, either of said rings being adapted to fit within the other in substantially parallel relation and to bear against the flange of one, and means for restricting the extent of expansion and contraction of the rings to prevent the rings slipping by each other when thus fitted one within the other and in parallel relation, the range of deformation being sufficient to permit the rings being placed at an angle to each other and one passed through the other.

6. A coupling of the character set forth, comprising detachably coöperating expansible and contractile coupling rings capable of deformation and each having their ends slidably overlapped and having an inturned stop or abutment along one edge, either of said rings being adapted to fit within the other in substantially parallel relation and with one bearing against the inturned stop of the other, said overlapping ends of each ring being longitudinally slotted, and devices passing through the slots to permit

the relative sliding movements of the ends and the consequent contraction and expansion of the rings, the said devices and slots restricting such expansion and contraction to limits that prevent the rings slipping by each other when thus fitted one within the other and in substantially parallel relation.

In testimony whereof, I affix my signature in the presence of two witnesses.

NORMAN BLYTHE BRALY.

Witnesses:
H. A. HOLP,
M. L. ESSIG.