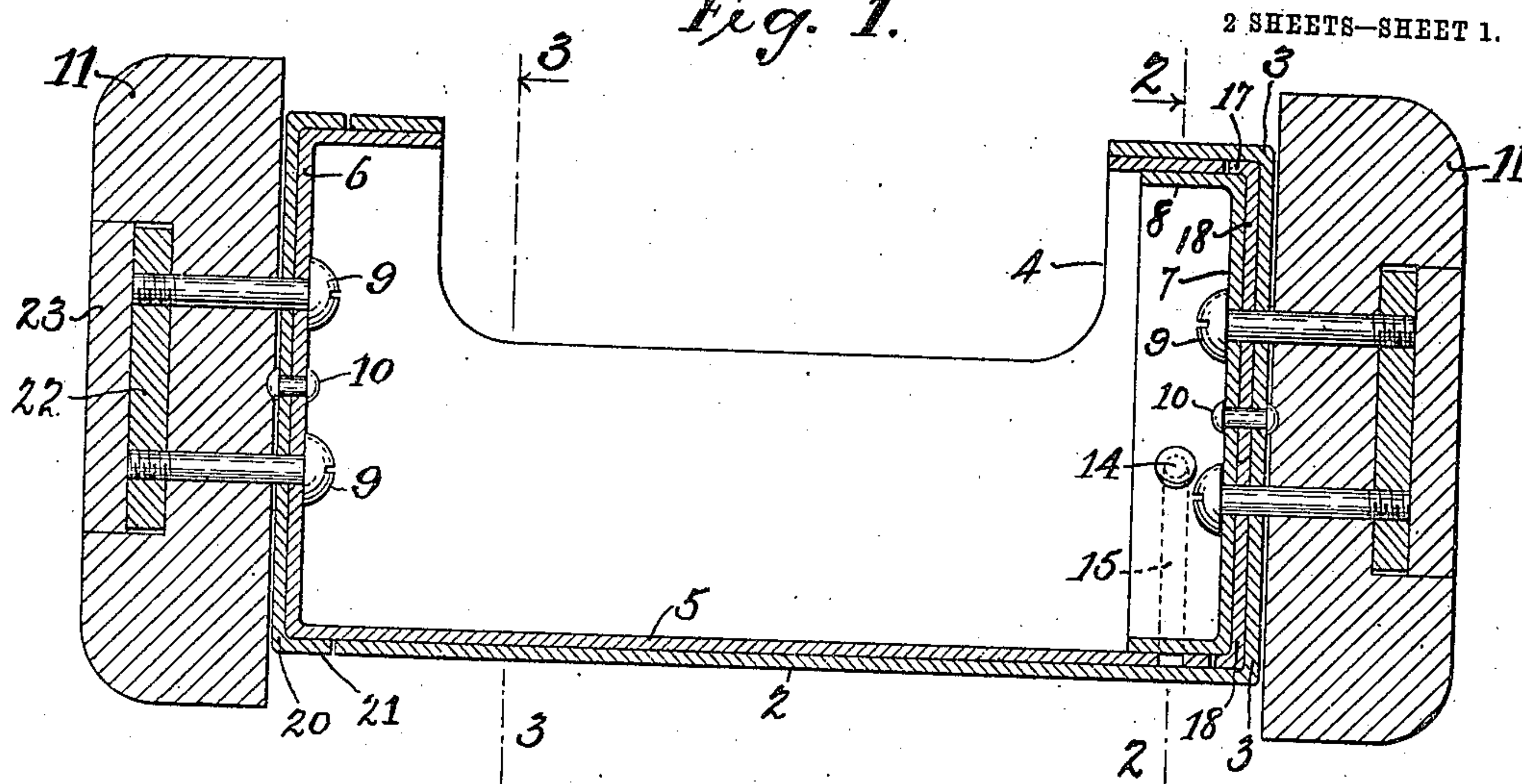


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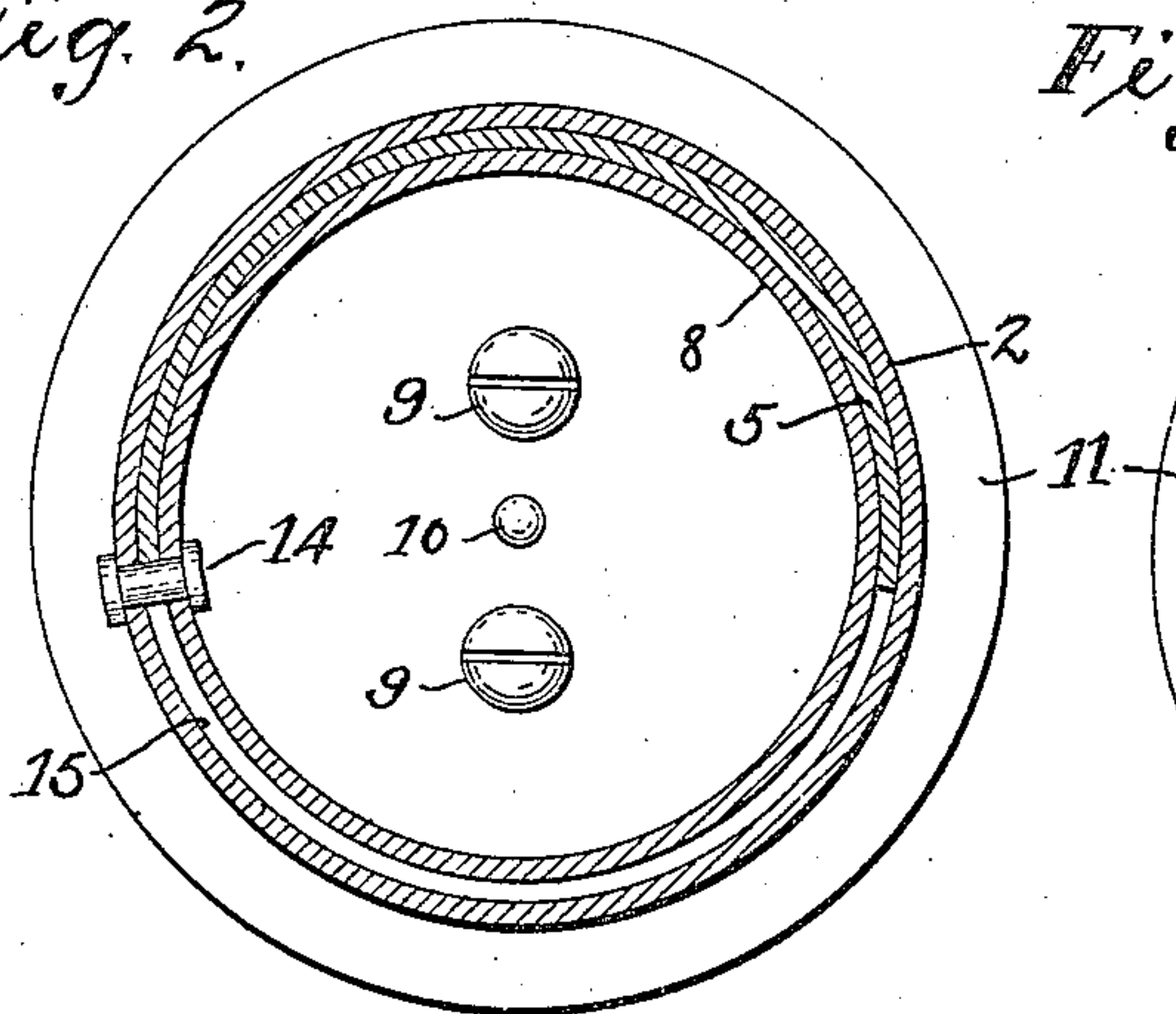
PATENTED FEB. 12, 1907.

M. B. RIFFO.  
PNEUMATIC CARRIER.  
APPLICATION FILED DEC. 18, 1905.

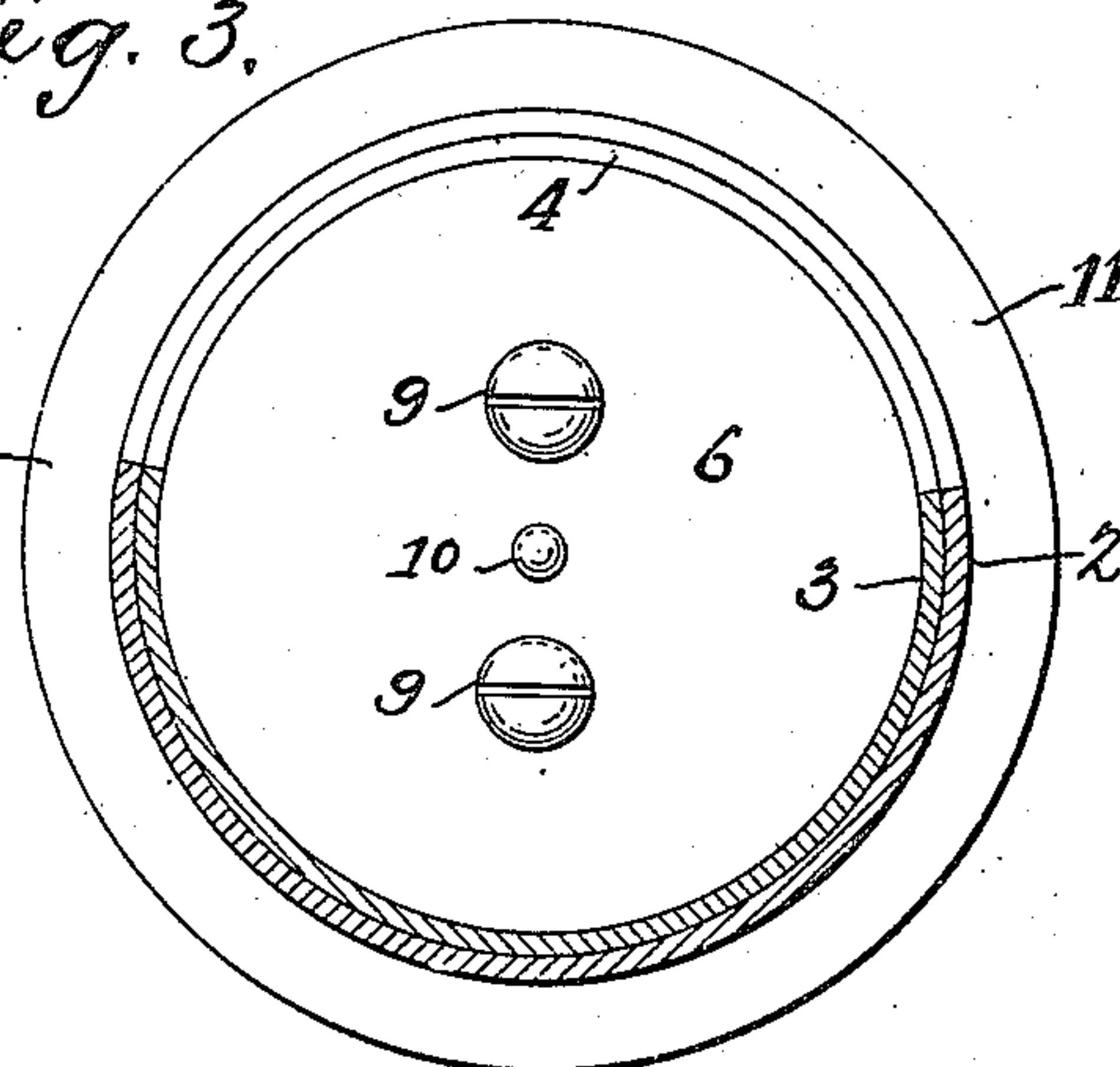
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



WITNESSES:

*H. H. Leamy.*  
*C. Q. Dunlap.*

INVENTOR

*Marion B. Riff*

BY

*H. H. Leamy*

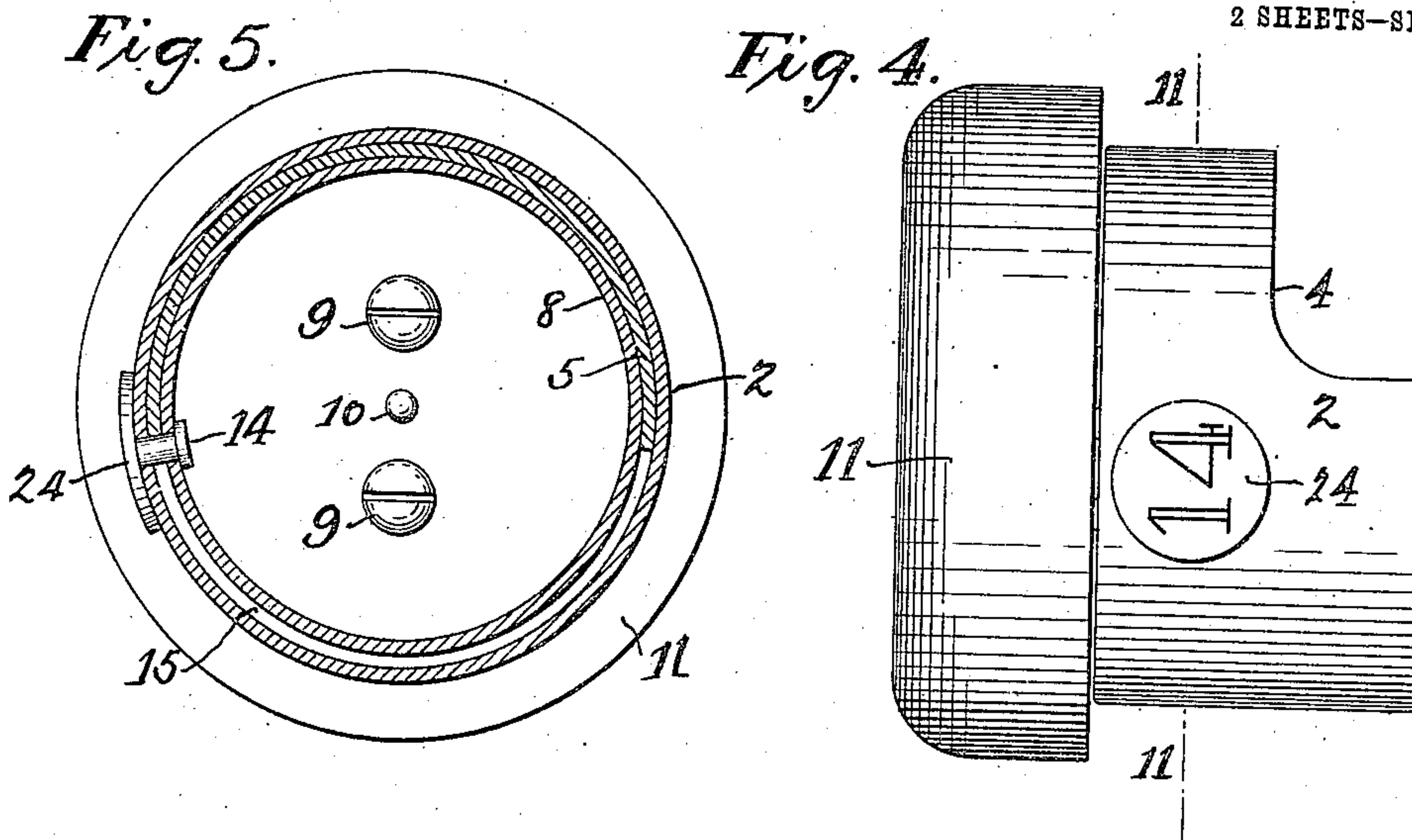
ATTORNEY.

No. 843,769.

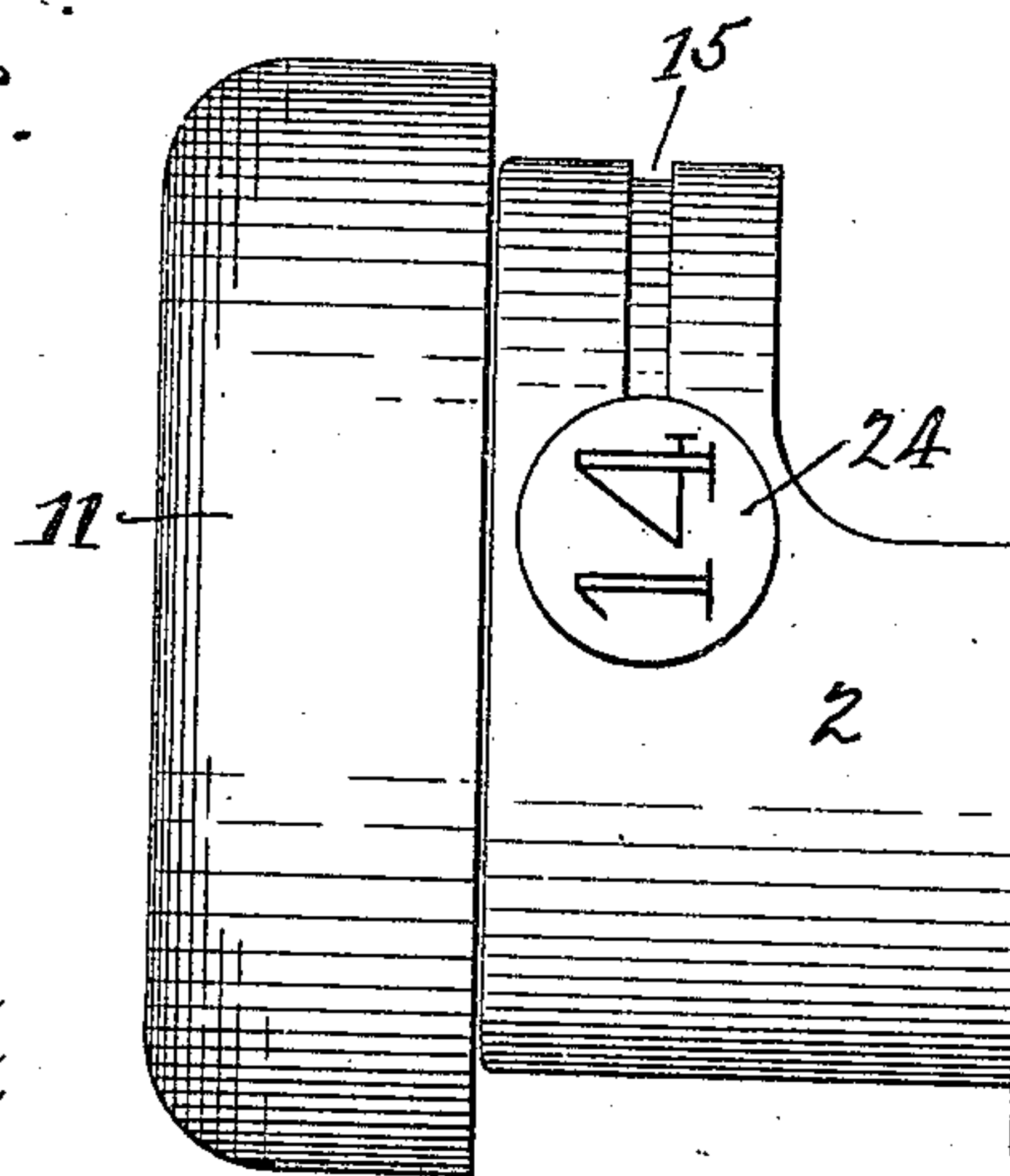
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M. B. RIFFO.  
PNEUMATIC CARRIER.  
APPLICATION FILED DEC. 18, 1905.

2 SHEETS—SHEET 2.



*Fig. 6.*



WITNESSES:

H. W. Leamy.  
W. Q. Dunlap.

INVENTOR

Marion B. Rizzo

BY

H. A. Seaton

ATTORNEY.



# UNITED STATES PATENT OFFICE.

MARION B. RIFFO, OF PHILADELPHIA, PENNSYLVANIA.

## PNEUMATIC CARRIER.

No. 843,769.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed December 18, 1905. Serial No. 292,396.

*To all whom it may concern:*

Be it known that I, MARION B. RIFFO, a citizen of the United States, residing in the city of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Pneumatic Carriers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to carriers for pneumatically-operated service systems, and has for its object to provide means which will not only limit the relative rotation of the tubular members of the carrier, but at same time serve to maintain them in operative relation by preventing their accidental endwise dissociation in driving the carrier through the pneumatic tubes, the means provided and their specific combination and arrangement permitting easy separation of the members for repair or replacement of parts when worn out.

To attain these objects, my invention consists of the combination of elements in a carrier which will perform the functions stated, the several elements composing my carrier and the new combination and arrangement of them, constituting my invention, being as hereinafter fully described, and pointed out in the claims.

In the drawings hereto annexed, in which the same letters of reference indicate like parts in the several views, Figure 1 is a longitudinal sectional view of one form of my new carrier; Fig. 2, a transverse section on line 2-2 of Fig. 1; Fig. 3, a like section on line 3-3 of Fig. 1. Figs. 4 and 5 are respectively an elevation and section illustrating the employment of the projecting head of one member of the stop device enlarged and used as a number-plate, and Fig. 6 is another form of the same construction.

In pneumatic service-carriers as commonly constructed the essential elements are a pair of cylindrical tubes each having a closed head end and an open end, the tubes being assembled sleeve-like—that is to say, telescoping—the open end of each tube brought to bear, directly or indirectly, against the head end of the other tube, both tubes being peripherally slotted longitudinally, the slots being adapted to register on the relative rotation of the tubes one within the other, and with means to limit the rotation, consisting of an outwardly-projecting lug on the inner

tube and a recessed extension of the peripheral slot in the outer tube. These devices are necessarily subjected to hard wear, tending to separate the tubes by a springing of the outer tubular body, which wholly destroys their usefulness, and, moreover, the combination referred to prevents easy repair of parts.

In my device, hereinafter described, the tubular members are constructed as heretofore; but the means for operatively uniting them and limiting their relative rotation are different and are new and of my invention, and these I will now describe.

The outer tubular member, Figs. 1 to 3, Sheet 1, is indicated at 2 and is a cylindrical hollow tube having a head end 3 shown integral therewith, the opposite end being open. It is peripherally slotted longitudinally at 4. The inner tube 5 is similarly constructed, indicating its closed head end. These tubes are assembled by bringing the open end of one over the open end of the other in sleeve-like manner, the tubes fitting each other reasonably close and adapted to rotate relatively one within the other, so that the peripheral openings or slots in the tubes may by such relative rotation be brought into register or thrown out of coincidence.

Fitting tightly within the outer tube 2 at its head end is a disk-like strengthening and closing plate 18, with short annular flange 17 projecting inwardly, and against which the open end of the inner tube 5 abuts, said flange being in alinement with the periphery of the inner tube. At the same end of the concrete structure is another disk-like plate 7 of smaller diameter, resting directly against the strengthening-plate 18 and within the annular flange 17 of the latter. The disk-like plate 7 is provided with an annular flange 8 of some depth sufficient to extend some little distance within the open end of the inner tube 5. At the opposite end of the concrete structure is another strengthening and closing plate 20, disk-like in form and having an inwardly-projecting annular flange 21, this plate being arranged outside of the head of the inner tube and its flange alining with and abutting against the open end of the outer tube. As these devices are shot back and forth longitudinally through pneumatic tubes, they are provided with a buffer-head of more or less soft material, one at each end, (indicated at 11 in the several figures.) These and the closing-plates 20 (at left of Fig. 1) and 18,



(at right of Fig. 1,) together with the interior flanged disk 7 within the inner tube and the head end 3 of the outer tube 2, are secured together, as shown in said Fig. 1, by pairs of screws 9 9, the threaded ends of each pair of which pass through a buffer-body and enter screw-holes in a metallic plate 22, let into a recess in the buffer-body, said recess being afterward filled up by a buffer-plug 23. In addition thereto the outer disk 20 and the head of the inner tube are independently fastened together by the rivet 10, (left hand of Fig. 1,) a like riveting being employed at the other end of the device to fasten together the three coinciding plates—viz., the head 3 of the outer tube, the closing and strengthening disk 18, and the interior flanged disk 7. This last-mentioned arrangement is of the first importance in connection with said flanged disk 7, because, as shown in Figs. 1 and 2, the stop mechanism limiting the relative rotation of the tubular members 2 and 5 consists of a pin 14, secured at one end to the flange of the disk 7 and at the other end to the outer tube 2, the body of the pin playing in a slot 15 cut radially in the peripheral wall of the inner tube 5 near its open end, the length of the slot being about equal to the width of the coinciding longitudinal slots in the peripheries of the inner and outer tubes. If preferred, however, the slot and pin may be transferred to the opposite end of the carrier; but in that transposed position the flanged disk 7 is also to be transposed to that end.

It has been found desirable, if not absolutely necessary, in the use of such carriers to have them numbered or lettered on some exterior portion readily visible, the numbers or letters referring to their respective departments or stations in the system. Heretofore it has been usual to supply a small plate bearing such number or letter and to solder it on the exterior of the outer tube, or the number or letter is stamped up in the metal body thereof. Neither plan is wholly satisfactory, for the reasons, among others, that the soldered plates will come off and that it prevents easy change of the numbers or letter on the carrier. A feature of my invention now to be described obviates all such difficulties. In Fig. 5 of the drawings, which represents the device shown in Fig. 2, I utilize the projecting portion of the stop-pin 14, which projects beyond the outer peripheral wall of the outer tube 2, by substituting for the rivet or nut-head a number-plate 24. (See Fig. 4.) The number-plate and stop-pin 14 are therefore fixed and immovable relatively to the inner flange 8 and outer tube 2, the inner tube 5 being the slotted and rotatable member. The same principle is exemplified in Fig. 6, with the further modification that the radial slot 15, which in Figs. 1 and 2 is in the peripheral wall of the inner tube 5, is transferred to the periphery of the

outer tube 2, and this arrangement permits the rotation of either tube relatively to the other.

The operation of the device in its several forms will be sufficiently well understood from the description already given, it being only desirable to call to attention that the elements and their combination and arrangement described will operate to prevent normal separation of the relatively rotatable tubes under ordinary conditions of use, while freely permitting their separation for repair or replacement of parts.

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

1. A carrier for pneumatically-operated service systems, comprising a pair of cylindrical tubular members, peripherally slotted longitudinally and arranged sleeve-like one within the other so as to be relatively rotatable, and means to prevent normal longitudinal separation of the tubes and also limit the relative rotation thereof, said means consisting of an interiorly-arranged flanged disk fixedly secured to the head end of one of said tubular members, and a fixed barrier or stop with coacting engaging means arranged operatively between said relatively rotatable tubular members, one of said last-mentioned coacting elements being mounted on one of said tubular members and the other thereof being fixedly mounted on the other of said tubular members and also on the said interiorly-arranged flanged disk secured thereto.

2. A carrier for pneumatically-operated service systems consisting of a pair of cylindrical tubular members, peripherally slotted longitudinally and arranged sleeve-like one within the other so as to be relatively rotatable, a disk within the outer tubular member and having an annular flange in alignment with the open end of the inner tubular member, a disk having an annular flange adapted to enter the open end of the inner tubular member, means to fixedly secure said flanged disks and the head end of the outer tubular member to each other and to its adjacent buffer-head, and means to limit the rotation of the inner tube relatively to the outer tube consisting of a radial slot in the periphery of the inner tube and a stop-pin secured at its ends to the flange of the interior disk and to the peripheral wall of the outer tubular member.

3. A carrier for pneumatic service systems consisting of a pair of cylindrical tubular members, each provided with a closed head end and an open end, each peripherally slotted longitudinally and arranged sleeve-like one within the other, whereby they may be relatively rotated, a flanged disk at the open end of each tube, the flange being in alignment with said open end, means to fixedly attach said flanged disks to the respective



head ends of the inner and outer tubes, a third flanged disk also secured by the same attaching means, said last-mentioned flanged disk being mounted within the inner tube at one end thereof, and means to limit the relative rotation of the tubes, consisting of a radial slot cut in the periphery of one of the rotatable tubular members and a coacting stop-pin mounted fixedly on the flange of said third disk and on the peripheral wall of the other of said rotatable tubular members.

4. A carrier for pneumatic service systems consisting of a pair of cylindrical tubular members, each provided with a closed head end and an open end, each peripherally slotted longitudinally and arranged sleeve-like one within the other, whereby they may be relatively rotated, a flanged disk at the open end of each tube, the flange being in alignment with said open end, means to fixedly at-

tach said flanged disks to the respective head ends of the inner and outer tubes, a third flanged disk also secured by the same attaching means, said last-mentioned flanged disk being mounted within the inner tube at one end thereof, a radial slot cut in the periphery of one of the tubular members, a coacting stop-pin mounted fixedly on the flange of said third disk and on the peripheral wall of the other of said rotatable tubular members and a name or number plate secured to that end of said pin which passes through the periphery of the outer tubular member.

In testimony whereof I have hereunto affixed my signature this 14th day of December, A. D. 1905.

MARION B. RIFFO.

Witnesses:

WAYNE P. RAMBO,  
WM. S. ALLEN.