Sept. 29, 1931. S. M. GREENIDGE 1,825,185

PACKING FOR PISTONS AND THE LIKE

Filed Dec. 11, 1926

Fig. 1.

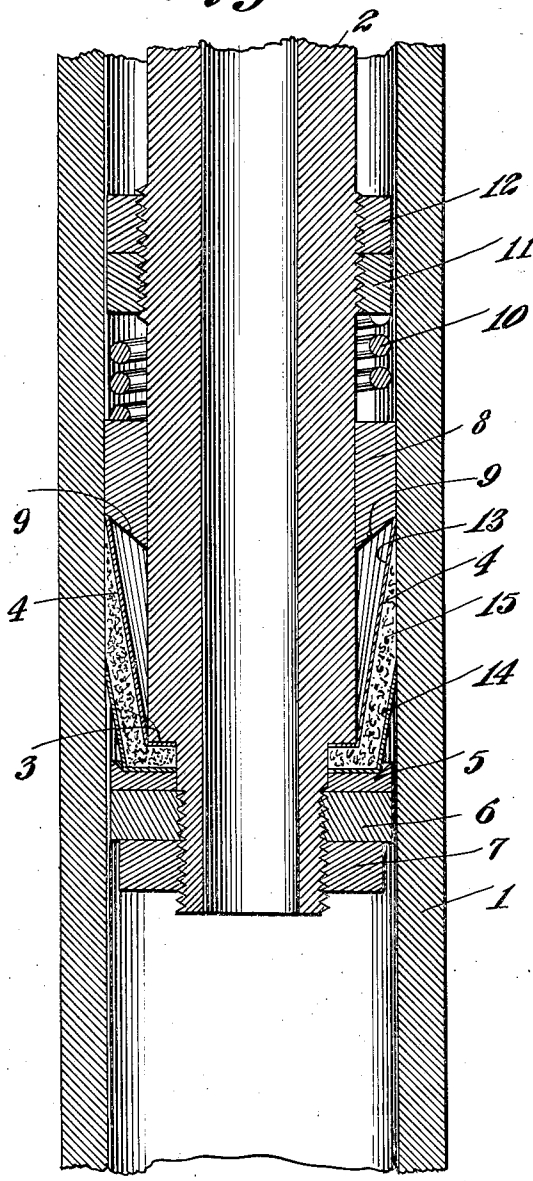


Fig. 2.

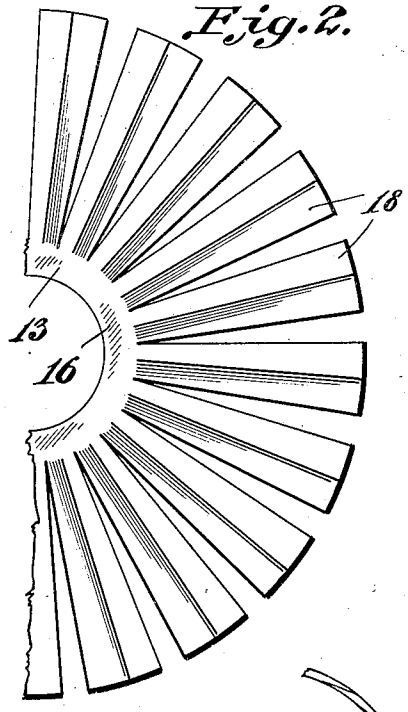
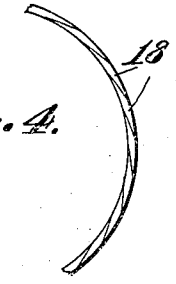


Fig. 4.



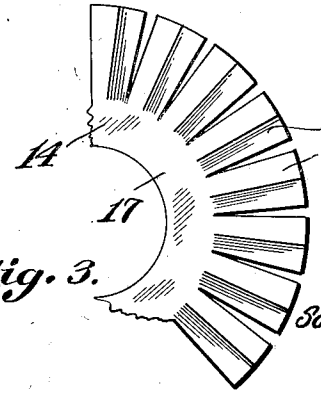


Fig. 3.

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UNITED STATES PATENT OFFICE

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PACKING FOR PISTONS AND THE LIKE

Application filed December 11, 1926. Serial No. 154,286.

This invention relates to packings for pump pistons as well as for engine pistons and stuffing boxes, and has for its object to provide an improved and more durable type of packing.

Another object of the invention consists of a novel means by which a constant and regular contact may be maintained between the packing and the surface with which it cooperates.

Other objects and advantages of the invention will be apparent to those skilled in the art to which the present invention relates as the description proceeds.

In the drawings:

Figure 1 is a vertical section through an apparatus in which the present invention is incorporated.

Figure 2 is a fragmentary plan view of one portion of the packing before being bent into shape.

Figure 3 is a fragmentary plan view of another portion of the packing before being bent into shape, and;

Figure 4 is a fragmentary end view of a portion of the packing in condition to be assembled.

Referring to the drawings in more detail, the numeral 1 indicates a pump cylinder or other part of a mechanism requiring packing. In the particular embodiment of the invention illustrated a hollow piston rod 2 is employed in conjunction with the cylinder 1 and is formed at its lower end with a reduced portion providing a shoulder 3 against which the packing 4 is seated. This packing which will be described in detail hereinafter, is of cup-shaped formation and is held against the shoulder 3 by means of a washer 5 and the lock nuts 6 and 7 threaded onto the lower end of the rod 2.

Slidably mounted on the piston rod 2 above the packing 4 is an annular member 8 provided with a wedge-shaped lower edge 9 adapted for cooperation with the flared upper end of the packing 4. A coil spring 10 engages the upper edge of the member 8 and is held under compression by means of the lock nuts 11 and 12 threaded to the piston rod 2. By this construction it will be apparent that the beveled or wedge-shaped edge of the member 8 will always be forced against the flared upper edge of the packing 4 and force it with a regular and constant pressure against the inner wall of the cylinder 1.

I will now describe the several elements comprising the packing 4.

This packing preferably comprises three elements; namely, the inner and outer cup formations which are formed of metal and the intermediate portion formed of flexible material such as fiber, rubber, leather, asbestos or the like; although metal may be used for this intermediate layer if desired.

The inner and outer cup shaped elements are designated by the numerals 13 and 14 respectively and are each formed from centrally apertured discs provided with a plain inner portion 16—17 and with radially extending fingers 18—19. Each of these fingers is provided with a ridge on its opposite surfaces so as to provide a substantially diamond shape in cross-section as clearly shown in Figure 4. Obviously as these fingers are bent up into final position they will overlap and provide continuous side walls as shown in Fig. 4.

In assembling the packing 4 the longer cup-shaped element is nested within the shorter one but is spaced therefrom so as to provide for the introduction of the flexible packing material 15. Should this intermediate packing be formed of metal however, it is contemplated that the same be formed in the identical manner as the elements 13 and 14.

From an inspection of Figure 1 it will be seen that the side walls of the cup-shaped elements 13 and 14 are flared outwardly and that the intermediate packing section 15 has its upper edge beveled off so as to merge into the upper edges of the inner and outer elements 13 and 14. The plain annular portions 16 and 17 of the cup-shaped elements as well as the inturned portion of the packing 15 are clamped between the shoulder 3 on the piston rod and the washer 5 as hereinbefore described.

While the present embodiment of the in-

vention has been described as constructed of metallic cup-shaped elements and an intermediate cup-shaped portion of resilient material such as fiber, rubber, asbestos or leather, it is to be understood that the invention is not to be limited to these materials or combination of materials, since the packing may be constructed of any one or more of these materials depending upon the service which the piston or the like is designed to render. In this connection it may be stated that the arrangement of the packing might readily be changed so as to be employed in a stuffing box or the like if desired.

From the foregoing description taken in connection with the accompanying drawings it will be apparent that I have devised a packing construction which provides for a constant and regular contact between the packing and related parts; that such contact is maintained irrespective of wear on the packing or other parts due to the chemical action of acids or the abrasive action of sand or the like which may be present in water or other fluid passing through the apparatus; and that accordingly the life of the pump or other apparatus in which the packing is installed is materially lengthened.

In accordance with the patent statutes I have described what I now believe to be the best embodiment of the invention, but I do not wish to be understood thereby as limiting myself or the scope of the invention, as many changes and modifications may be made without departing from the spirit of the invention; all such I aim to include in the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent is:

1. A packing including a plurality of substantially cup-shaped elements arranged in nested relationship, certain of said elements being formed from slitted discs, the portions of the discs between the slits being bent up and providing overlapping fingers on each disc.

2. A packing including a pair of substantially cup-shaped elements of different heights arranged in nested relationship but spaced apart, said element of greater height being within the other element, flexible packing material filling the space between said elements and having its upper end beveled so as to merge into the upper edges of the two cup-shaped elements.

3. A packing including a pair of substantially cup-shaped elements arranged in nested relationship but spaced apart, the side walls of said elements being slitted to provide a plurality of overlapping fingers on each element, and flexible packing material filling the space between said nested elements.

4. A packing element comprising an annular portion, and a plurality of fingers radiating therefrom, said fingers being substantially diamond-shaped in cross-section and adapted to be bent up into overlapping relationship.

5. A packing including a pair of substantially cup-shaped elements arranged in nested relationship but spaced apart, the side walls of said elements being slitted to provide a plurality of overlapping fingers of diamond-shaped cross-section, and flexible packing material filling the space between said nested elements.

SAMUEL M. GREENIDGE.