Nov. 29, 1932. C. D. McPHERSON 1,889,287

PACKING AND METHOD FOR FORMING THE SAME

Filed July 17, 1930

Fig. 1.

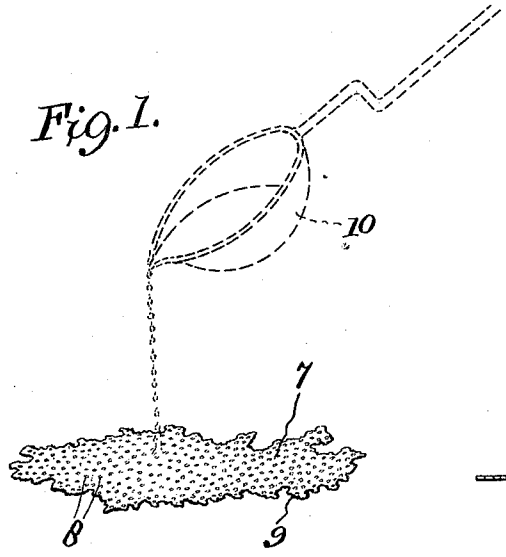


Fig. 2.

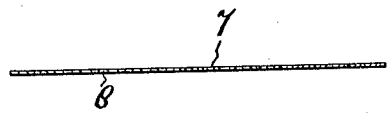


Fig. 4.

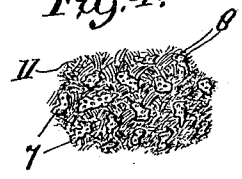


Fig. 3.

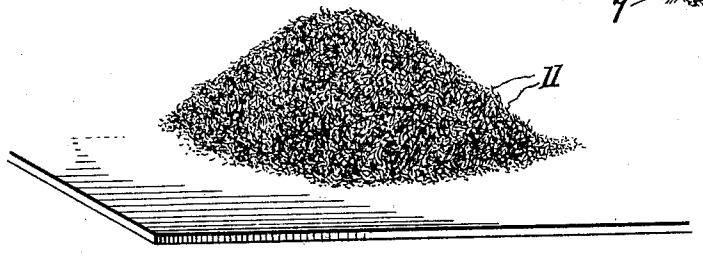


Fig. 5.

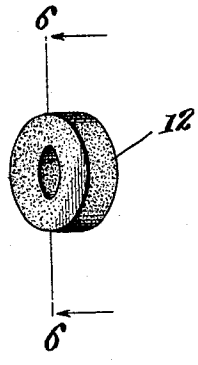
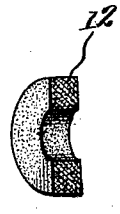


Fig. 6.



Inventor

C. D. Mc Pherson

By Mawhinney & Mawhinney

Attorneys.

Published by AsbestosClaims.Law
asbestosclaims.law/library/23285/1

Patented Nov. 29, 1932

1,889,287

UNITED STATES PATENT OFFICE

CLARENCE D. McPHERSON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO CLARENCE D. McPHERSON AND EUGENE S. HEIBERGER, TRADING AS THE TAR-RID CHEMICAL COMPANY, OF PHILADELPHIA, PENNSYLVANIA

PACKING AND METHOD FOR FORMING THE SAME

Application filed July 17, 1930. Serial No. 468,643.

The present invention relates to improvements in packings and has for an object to provide an improved packing for pistons, rods and other uses in connection with steam, compressed air, hydraulic and other pumps and engines wherein the packing will possess improved resistance to wearing, burning or blowing out.

Another object of the invention resides in providing an improved packing which is so constructed and composed as to admit of shipment and packaging in loose form and its application to the stuffing box in such form whereby the packing will better conform to the piston or rod when the packing nut or gland is compressed thereupon; and in this way an improved packing having superior leak-proof qualities is provided.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

In the drawing, wherein like symbols refer to like or corresponding parts throughout the several views.

Figure 1 is a perspective view of the improved lead or lead alloy ingredient showing in dotted lines the method of forming the same.

Figure 2 is an edge view of such ingredient.

Figure 3 shows the packing in loose form.

Figure 4 is a magnified view of a small portion of the packing.

Figure 5 is a perspective view of the packing compressed in ring form as it exists in the stuffing box, and

Figure 6 is a cross section taken on the line 6—6 in Figure 5.

Referring more particularly to the drawing, in Figure 1 I have shown a piece of the lead or lead alloy indicated at 7 having therein numerous pores 8 and an irregular and ragged edge 9. The lead ingredient 7 is of a thin form as indicated in Figure 2 but having relatively great lateral and longitudinal extension.

The lead in this condition may be produced by heating the same to molten condition whereupon the lead is dipped by the ladle 10 from the container and dropped upon water or a hard surface whereupon the highly heated molten lead will spread out to the attenuated and porous form shown having the irregular and ragged edge which is intended to catch in the fiber ingredient of the packing. The porous form of the lead, when enmeshed with the asbestos, as indicated in Figure 4, will also have the effect to permit the asbestos to readily and freely give up its entrained oil.

The packing consists of the following ingredients:—asbestos, light hemp or other fiber, lubricating oil, graphite, lead or lead alloy, rawhide (this is an additional optional ingredient used for hydraulic packing).

The ingredients may be mixed in any desired proportions, the lead being in the condition already described.

The asbestos resists burning out, absorbs the oil and renders the packing self-lubricating. The asbestos or fiber gives body to the packing. The asbestos or fiber is preferably in shredded form in order that it may cooperate better with the lead closing upon the fiber strands to bind the lead and the asbestos together. When the composition is thus tied together it will not so readily work out of the stuffing box or blow out of the stuffing box.

Any desired lubricating oil may be used but preferably a heavy grade of cylinder oil is employed, as a heavy oil will not so readily flow out of the pores of the asbestos or fiber at normal temperatures. The heavy oil is preferably first heated to render it more fluid and penetrating whereby it will more readily be absorbed within the pores of the asbestos or fiber. The asbestos has high absorptive qualities and will take up a large portion of

Published by AsbestosClaims.Law
asbestosclaims.law/library/23285/2

the oil. The packing may be handled without the oil exuding therefrom, but under the high temperature encountered in the bearings, the asbestos will readily give up its oil.

The graphite acts in its usual capacity for lubricating and smoothing. It is preferably a heavy graphite in granular form as the light pulverized graphite is apt to work out of the stuffing box. The graphite is preferably in flake form which will additionally avoid its working out.

The lead or lead alloy, lead and tin, lead and brass, etc., acts as a filling and a body to the compound and it binds and locks the other ingredients together.

The lead is soft and will not injure the piston or cylinder walls and it locks the entire packing into an integral whole, preventing the packing from blowing out.

The rawhide, used particularly in the hydraulic packing, will absorb the water and moisture and swell therewith making the packing more secure, preventing its working and blowing out and forming a tighter joint. The extreme toughness of the rawhide makes it adaptable for the purpose and insures that the packing will hold and will not cut out.

In the mixing of the packing, the same may be done in a rumble, that is a drum rotated constantly at slow speed into which the ingredients are introduced. The rumble is preferably heated to a low degree preventing the mixture from sticking thereto. The ingredients may be introduced in any order, it being preferred that the asbestos and rawhide be added first. The oil in a highly heated condition may be then poured in to be absorbed by the asbestos, and the graphite and lead are then added.

In Figures 3 and 4, the asbestos is indicated at 11 as having the oil and a percentage of the graphite absorbed thereby; and the lead is indicated at 7; there being also a percentage of loose graphite in the mixture. Where rawhide is used this rawhide will be in shreds or small pieces.

The packing will be packaged and shipped in the loose form indicated in Figure 3, there being no necessity for pre-molding it in ring form as is ordinarily done with packings at present. In the loose form it may be pushed into the stuffing box in any desired quantity and the packing nut or gland is then tightened, compressing the loose packing into a compact ring 12 as indicated in Figures 4 and 5. This ring is substantially homogeneous throughout.

Owing to the nature of the composition, its ingredients and their method of compounding, a light pressure will compact the material and the packing nut may be tightened up from time to time so as to effectually avoid leakage.

In the first instance, after the loose packing has been loaded into the stuffing box, the packing box or nut is tightened with a wrench to form the hardly-compacted ring 12. The nut is then backed off and finger tightened, which is sufficient to hold the packing against leakage. In this way there is not the hard friction of the packing on the rod usually had and there is no resistance to the movement of the rod.

The improved packing is of general application. For instance, at the present time on ship-board several different kinds of packing are necessary and the ship's stores must contain a variety of packings. With the improved packing according to the present invention, such improved packing will serve all purposes and make it necessary only to carry the one kind of packing.

The improved packing, unlike the premolded ring variety, may be used over and over again.

When rawhide is used, the amount of the asbestos or other fiber may or may not be cut down. Also, a less amount of oil may be incorporated as the rawhide has a greasy nature.

It has also been found that by dropping the melted lead in the oil, such for instance, as a crude petroleum, very excellent results are obtained.

Furthermore, we reserve the right to use, instead of the graphite alone, a mixture of graphite and mica. In such case a mixture of preferably equal parts of graphite and ground mica is used.

Wherever the term "lead" is used in the claims it will be understood to mean not only the pure metal but also the alloys thereof.

What is claimed is:—

1. The herein described method for forming a loose packing material, which comprises heating lead to a molten condition, dropping the molten lead upon the surface of a body of liquid to cause the highly heated molten lead to spread out to an attenuated and porous form having irregular and ragged edges, highly heating heavy lubricating oil, pouring such highly heated oil upon shredded asbestos undergoing agitation under mild heat conditions whereby the asbestos will rapidly take up great quantities of the heavy oil, and adding graphite and the attenuated porous lead pieces to the oil saturated asbestos during agitation under mild heat.

2. The herein described method for forming a loose hydraulic packing, which consists in heating lead to a molten condition, dropping the molten lead from a height upon an object surface whereby to cause the lead to spread out in an attenuated and porous form having ragged and irregular edges, introducing shredded asbestos and rawhide into a rumble subjected to mild heat, separately highly heating heavy lubricating oil and pouring same into the rumble to be taken up in great quantities by the asbestos, and add-

ing graphite and pieces of such attenuated and porous lead with ragged edges into the rumble.

3. An improved composition for hydraulic packing comprising asbestos in shredded form, bearing lubricating oil absorbed by the asbestos, graphite rawhide to permit moisture absorption whereby to swell the packing, and lead in thin and porous form adapted to bind the ingredients together when compressed.

In testimony whereof I affix my signature.

CLARENCE D. McPHERSON.