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CUP PACKING FOR PISTONS
Filed Oct. 21, 1921

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

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Patented May 1, 1923.

UNITED STATES PATENT OFFICE.

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CUP PACKING FOR PISTONS.

Application filed October 21, 1921. Serial No. 509,352.

To all whom it may concern:

Be it known that I, ROBERT C. KENDALL, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Cup Packings for Pistons, of which the following is a specification.

This invention relates to what is known in the trade as cup packing, which is secured on the face of pistons in cylinders for putting air under pressure, and for holding air under pressure to operate said pistons.

Among the objects sought by this invention are to obtain a cup packing which is sufficiently flexible to secure substantially air tight contact with the inner surface of the cylinder in which the piston is movably mounted, and at the same time sufficient rigidity to require no piston ring to maintain the packing in proper shape on the piston when the pressure in the cylinder is reduced, or entirely released. Additional objects are to obtain a packing of the kind named which is durable and not requiring frequent replacement, which is economically made and not liable to get out of order from contact with water, gasoline, or oil.

I have illustrated a cup packing embodying the invention in the drawing accompanying and forming a part of this specification, in which,—

Fig. 1 is a vertical section of a cylinder, showing a piston head in elevation, and a cup packing, in vertical section attached to said piston head.

Fig. 2 is a vertical section of the cup packing, on an enlarged scale from Fig. 1.

Fig. 3 is a top plan view of the packing;

and

Fig. 4 is a top plan view of a blank from which a member of the packing is obtained.

A reference character applied to designate a given part indicates said part throughout the several figures of the drawing wherever the same appears.

A represents a cylinder, and a, a' cylinder heads. B represents an air supply pipe which is arranged to receive air under pressure at its inlet end and to discharge said air into cylinder A. C represents a piston head and D its piston rod. E represents a cup packing attached to the face of piston head C, in the ordinary way, as by follower E'.

The construction illustrated in Fig. 1 is particularly adapted to form a part of an air brake equipment of a car; the piston rod D being actuated by the air admitted into the cylinder A through supply pipe B, and the piston rod D being attached to the brake mechanism of the car.

e represents the outer cup member of the packing, and is preferably made of chrome leather. f represents the inner cup member of the packing, and is made of canvas, moose skin, or other similar textile fabric. g represents a cement member of the packing, which is used to secure members e and f together, and also to make said members impervious to air passing therethrough.

Members e and f, respectively are obtained from a blank having a central aperture through. Said blanks for members e and f are substantially identical in size and shape, as illustrated in Fig. 4, G representing the aperture and H the blank. h indicates the line on which the blanks are bent to obtain flaring edges, making the packing, when completed, saucer shape.

To assemble the several members of the packing the blank for the member f is conted on both sides and on the outer edge thereof with cement, preferably applied with a brush. Said cement is made of commercial acetone, in liquid form, saturated with celluloid. The saturation is accomplished by the immersion of scrap celluloid in the acetone in sufficient quantities to obtain a semi-fluid consistency to the cement.

The cement is then applied to the face of the blank from which the member e is obtained on the face thereof which is, in the completed article, adjacent to the member f. The cement applied as recited to said blanks is allowed to harden. An additional coating of said cement is then made on said blanks on the faces which are to be adjacent, and allowed to partially harden. The blank from which member f is obtained is then superimposed on the blank from which member e is obtained, and the blanks are then placed on a saucer shaped die, and forced thereinto by a punch, as by a die press; the pressure applied being sufficient to bend said dies substantially on broken line h, (Fig. 4), and obtain flaring edges, as illustrated in Figs. 1 and 2; and also to press said members e and f closely together. Members e and f are allowed to remain under said pressure until the cement hardens sufficiently to retain said members in said
saucer shaped form; after which it is released from said pressure, and is in shape to be secured to the face of a piston head, in the ordinary way.

The cup packing made of the materials specified, joined together by the cement named, and in the manner recited, will not permit air to pass therethrough; is sufficiently rigid to retain its shape when attached to a piston head so that the cup is in close contact with the inner face of the cylinder, regardless of there being air under pressure in the cylinder, and is sufficiently flexible to obtain a substantially air tight joint when air, under pressure, is admitted to the cylinder.

Where the cup packing made as described, is designed to be attached to a piston in a cylinder into which air under pressure is to be admitted for the purpose of forcing the piston to travel, against resistance, along the cylinder, as when applied as illustrated in Fig. 1, before the packing is attached to the piston head it is immersed in a bath of heated wax, so as to cover the inner and the outer faces of the packing, and to permit the outer member thereof to become saturated with the melted wax; and after said immersion it is wiped dry, while the packing is still warm.

I claim:

1. A new article of manufacture forming a cup piston packing, and comprising a saucer shaped member made of leather and provided with a central aperture and an inner saucer shaped member made of textile material and provided with a central aperture, said inner member provided with a cement coating on the inner face thereof, and said members joined by cement applied on adjacent faces thereof.

2. A new article of manufacture forming a cup piston packing, and comprising a saucer shaped member made of leather provided with a central aperture and an inner saucer shaped member made of textile material and provided with a central aperture, said inner member provided with a cement coating on the inner face thereof, said members joined by cement applied on adjacent faces, and both said members provided with an additional coating of wax on the outer faces thereof, said coating being applied by immersing the packing in melted wax, to saturate the outer member thereof in addition to coating its outer surface therewith.

3. A new article of manufacture forming a cup piston packing and comprising a saucer shaped member made of leather and provided with a central aperture, and an inner saucer shaped member made of textile material and provided with a central aperture registering with said first named aperture, said inner member provided with a cement coating on the inner face thereof, and said members joined by similar cement applied on the adjacent faces thereof, said cement made of commercial acetone in liquid form, saturated with celluloid.

ROBERT C. KENDALL.