March 25, 1924. 1,488,321

W. M. DE WITT

MOLDED FABRIC GASKET AND METHOD OF MAKING SAME

Filed Nov. 16, 1922

Fig:1.

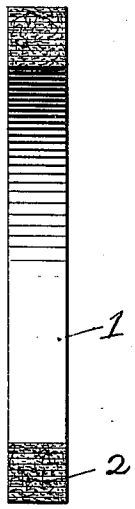



Fig:2.

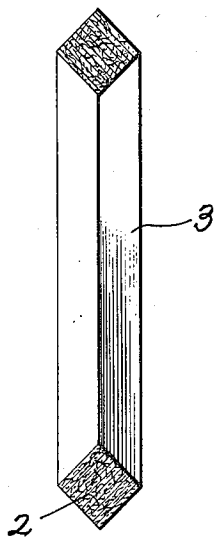



Fig:3.

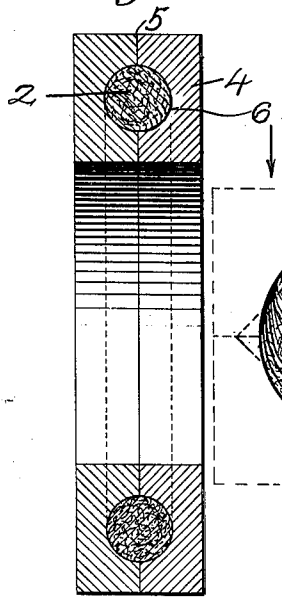
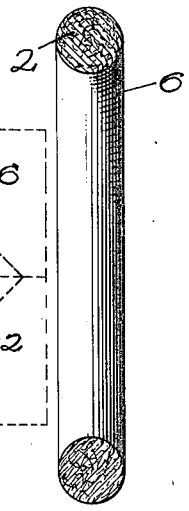



Fig:4.



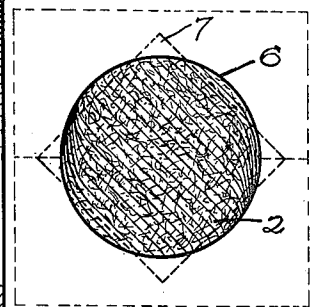




Fig:5.

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Patented Mar. 25, 1924. 1,488,321

# UNITED STATES PATENT OFFICE.

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## MOLDED FABRIC GASKET AND METHOD OF MAKING SAME.

Application filed November 16, 1922. Serial No. 601,255.

*To all whom it may concern:*

Be it known that I, WALTER M. DE WITT, a citizen of the United States of America, residing at 374 East Main Street, Somerville, Somerset County, State of New Jersey, have invented certain new and useful Improvements in Molded Fabric Gaskets and Methods of Making Same, of which the following is a specification.

My invention relates generally to gaskets formed by winding sheets or strips of fabric, such as cloth or paper cemented together, into coils around a suitable mandril, and, more particularly, consists in such a gasket having a generally circular cross-section, and in the method of producing such a gasket.

For some purposes it is desirable to produce gaskets of circular cross-section, and such have heretofore been produced from plastic materials by the usual process of molding such material, but so far as I am aware it has not been heretofore possible to form satisfactory gaskets of such circular cross-section out of fabrics such as cloth or paper, and certainly not in the form of endless rings. My invention produces an endless gasket free from butt joints or other joints and principally composed of a partially incompressible fabric, such as cloth or paper.

The preferred method of carrying out my invention, and the product of such method, are illustrated in the accompanying sheet of drawings in which—

Fig. 1 is a cross-section of a coil or ring of fabric used as the starting material on which my method is operated, said cross-section being taken along one diameter of the ring.

Fig. 2 shows a similar view of the said coil or ring when prepared for the molding step of the process.

Fig. 3 shows in cross-section the gasket in the mold.

Fig. 4 shows the completed gasket in section on a plane along one diameter thereof.

Fig. 5 is an enlarged cross-section of the completed gasket showing the arrangement of the layers of fabric therein, the outline of the original quadrangular cross-section thereof being shown in dotted lines.

Throughout the drawings like reference characters indicate like parts.

1 is a coil of fabric, such as asbestos cloth, which has been formed by winding a ribbon of such cloth on a mandril with rubber cement inserted between the surfaces of the adjacent coils, or by similarly winding up a sheet of such material into a tube and cutting the tube into rings such as shown at 1. In either case the ring 1, which forms the starting material to which my method is applied, should be of substantially quadrangular cross-section, as shown. 2, 2, represent the layers of the fabric which, of course, extend parallel to the axis of the ring 1.

It is extremely difficult to mold a ring of square cross-section thus formed into circular cross-section by pressure in a mold in the ordinary manner because of the partially incompressible character of the fabric, whether cloth or paper. The tendency of the layers when molding pressure is applied to the ring shown in Fig. 1 is to buckle apart and form internal voids which interfere with the solidity and homogeneity of the completed gasket. Moreover, when a gasket so formed and molded is subjected to pressure in use, said pressure being applied by flat surfaces bearing upon the ends of the central layers of fabric, will further buckle the central layers and practically disintegrate the gasket.

These difficulties are overcome by adopting the second step of my method, the result of which is illustrated in Fig. 2 and which consists in distorting the ring shown in Fig. 1 by twisting it throughout through an angle of substantially 45 degrees with the result that the quadrangular cross-section of the ring so produced and shown in Fig. 2 has one diagonal of its cross-section at right angles to the plane of the ring and the other parallel thereto, while the layers of fabric are at an angle substantially 45 degrees to the plane of the ring.

When such a distorted ring 3 is placed in a two-part annular mold 4, the parting surfaces 5 of which mold are in the plane of the ring and parallel to the corresponding diagonal of the distorted ring cross-section, as shown in Fig. 3, and the two parts of the mold are compressed together, the layers of fabric on either side of the central layers are not buckled outwardly from said central layers, but are slightly displaced or slid one upon another and along and around the ends of the central layers, as indicated in Fig. 5. And if the cross-section of the circular mold space is equal

in area or slightly less than the area of the quadrangular cross-section of the original ring shown at 1 and 3, the result will be a compact gasket of solid, practically homogeneous cross-section, such as shown at 6 in Figs. 4 and 5. In Fig. 5 the outline of the original distorted ring of quadrangular cross-section is shown in dotted lines at 7.

The advantages of my invention comprise the ability to form a gasket of circular cross-section out of built-up fabric without detracting from the solidity and compact arrangement of the layers of fabric, all as above described, in the cheapness of the process, the avoidance in production of waste material and the ability of the completed gasket to withstand compression along lines perpendicular to the plane thereof when in use without serious disintegration or substantial further relative displacement of the layers of fabric.

Having described my invention, I claim:

1. The herein described process for making gaskets which consists in the following steps: first, winding a sheet of fabric upon a mandril with cementitious material between the coils; second, cutting the tube so formed into rings of substantially square cross-section; third, distorting said rings so that one diagonal of the cross-section will be perpendicular to the plane of the ring; fourth, molding the ring to a circular cross-section by pressure in a two part mold parted along the central plane of the ring.

2. A process for making gaskets of substantially circular cross-section which comprises the following steps: winding a strip of fabric on a mandril with cementitious material between the adjacent coils and thereby forming a ring of substantially quadrangular cross-section; distorting the ring so formed by a twist of forty-five degrees throughout so that one diagonal of the cross-section will be arranged perpendicular to the plane of the ring, and finally molding such distorted ring to substantially circular cross-section by pressure along the line of said diagonal in a two-part mold, the area of cross-section of which is approximately equal to the area of cross-section of the original ring, said mold being parted along the plane of the other diagonal of the distorted ring.

3. A gasket of circular cross-section, being the product of the herein described process, which gasket is composed of layers of fabric cemented together into annular form, and arranged at an inclination to the plane of the ring.

WALTER M. DE WITT.