P. J. NAWN.

ROD PACKING.

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1,320,567.

Patented Nov. 4, 1919.

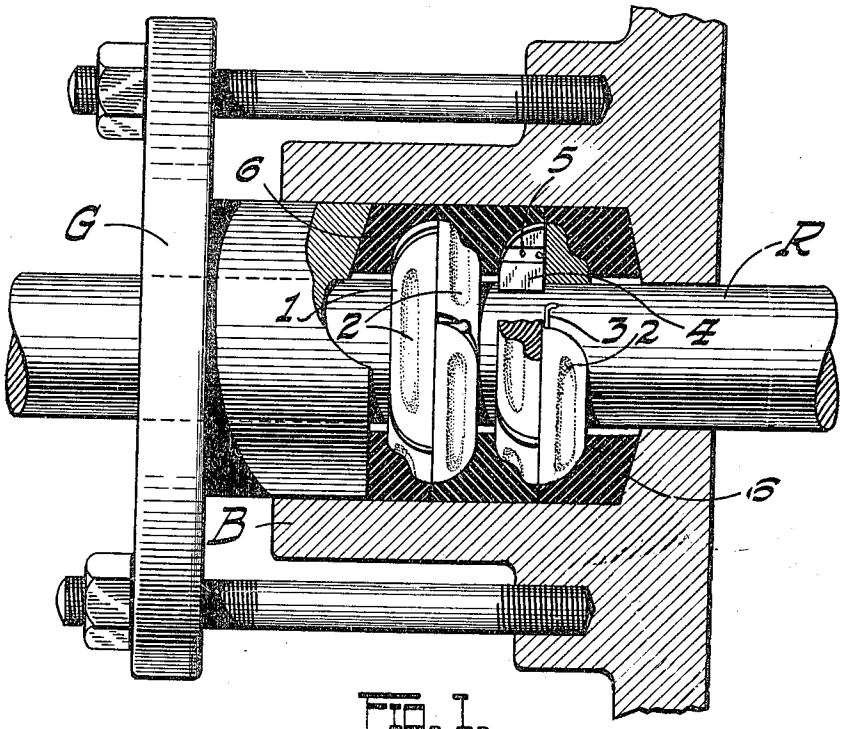


FIG. 1.

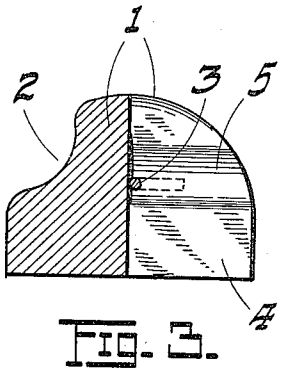


FIG. 3.

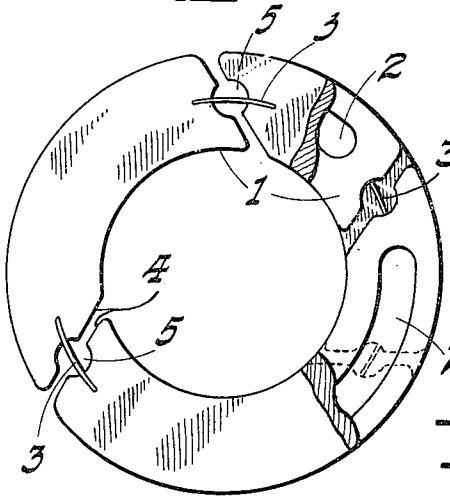


FIG. 2.

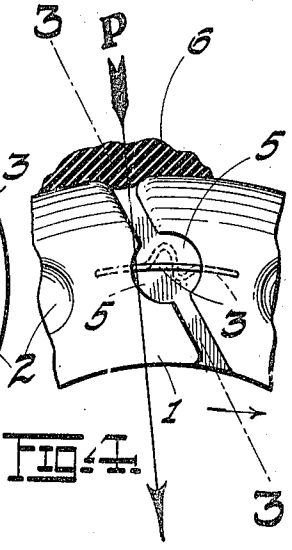


FIG. 4.

WITNESS:

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UNITED STATES PATENT OFFICE.

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ROD-PACKING.

1,320,567. Specification of Letters Patent. Patented Nov. 4, 1919.

Application filed January 20, 1919. Serial No. 272,162.

To all whom it may concern:

Be it known that I, PHIL J. NAWN, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Improvement in Rod-Packing, which is fully disclosed in the accompanying drawing and described in the attached specification.

My invention is an improvement on the arrangement disclosed in Patent No. 419,069 granted to one W. S. Rhodes and is intended to obviate the defects which use, age and time have proven are detrimental to a more efficient method of rod packing and the sealing of bores through which pass cylindrically shaped reciprocating elements that require packing to guard against the escape of gases or fluids and the like, employed in generating power, or in transporting products as in pumping; also in providing a design of metal elements calculated to offer a minimum of wear resulting from the friction encountered and to provide a sealing means that is designed to adjust itself readily to the changing conditions, caused by said wear, by virtue of an arrangement by which the several parts employed may contract as a ring-formed body about the said reciprocating elements; also furnishing a means whereby these advantages can be attained by a construction of metal parts requiring a lesser amount of said metal for their manufacture in arriving at a design which will embody the functions aforesaid.

I obtain these objects by a construction herein shown on the aforesaid drawing, in which:

Figure 1 is a sectional view through a stuffing-box showing application of my arrangement;

Fig. 2, a detached broken assembly of the segment-formed metal rings;

Fig. 3, a section on line 3—3 of Fig. 4, and Fig. 4 is an enlarged fragmentary view of the rod packing.

Similar characters and figures of reference apply to like parts throughout the several views.

A piston rod R adapted to reciprocate in a stuffing-box B is enveloped in a packing contained within the said stuffing box by a gland member G, which assembly forms the usual method of packing, applicable to various kinds of mechanical combinations requiring the particular manner of sealing herein referred to.

The aforesaid packing, consisting of metal rings formed by the segments 1, whose cross-section approximates a quarter circle, having their flat vertical faces opposed to like surfaces of a similar assembly with the joints between the segments 1, of said opposed assemblies, staggered as shown. Each segment 1 has formed in its convex surface the valley or depression 2 and each segment is connected to another by means of a soft wire clip 3 which serves to maintain the ring form of the united segments; said rings being capable of adaption to cylinder rods, etc., by cutting one clip, the remaining two clips being sufficient to retain the assembly in proper relation when combined on said rods. The segments are divided by a parting space tangentially disposed to the rod's periphery and leaves the faces 4—4 inclined as regards the radial lines of a circle having the periphery aforesaid. Formed as grooves, or recesses, 5 in the faces 4 are the means whereby I provide the allowance required for the buckling of the aforesaid wire 3, whose distorted form is shown dotted in Fig. 4, when the segment-formed rings aforesaid are forced to contract through wear and the pressure exerted by the resilient elements 6, whose tendency is to compel the aforesaid rings to hug the cylindrical surface of the rod R and assist in forcing the segments 1 to coincide with the shape of the said rod R through the inward radial pressure exerted, as before stated, by the said resilient elements 6.

The pressure, keeping the segments 1 in contact with the reciprocating member R, will, if the spaces between the segments 1 be radial, as indicated by the radial pressure arrow P, Fig. 4, allow sufficient resilient body to enter the spaces and form a key against a further approach toward each other of the segments 1, thus keeping apart the metal members and destroying the "seal" intended by being thus held against contraction. This effect is aggravated by the wire tie connecting the segments 1 if there is not provided space enough for said wire to "buckle" whereby the bent wire aids in obstructing the said contraction in the metal rings aforesaid.

My tangental joint avoids this, as is clearly shown in Fig. 4 and the provision

employed, of rounding the outer corners of the tangental faces 4, aids the segments to "wedge" under the resilient rings 6 more readily; also by virtue of the means afforded, whereby the wire clips 3 may fold or buckle themselves in the spaces 5, thereby eliminating the former objection against the aforesaid metal ring's contraction.

The depressions 2 are designed to allow the resilient means 6 to swell therein, furnishing a twofold function; that of holding the segments 1 in a staggered relationship, as regards their tangental joints, and the pressure increase by virtue of greater volume of said resilient member being allowed to press radially inward, and peripherally toward the said joints, aiding, in this manner, the more effective sealing about the rod R, and economically reducing the cost of manufacturing the essential part of the aforesaid invention.

Having described my invention what I claim as new and wish to protect by Letters Patent, is:

1. A packing, a metallic segment having diagonal faces and provided with depressions concentric with said segment's curvature formed in the convex outer surface of the said segment.

2. A packing, composed of metallic rings formed with segments having flexible connections, said rings having recessed diagonal faces adapted to receive the distorted form of said flexible connections.

3. In a packing, a metallic ring formed of segmental units, said units having ends or faces tangent to a circle of noticeably less diameter than the inner curvature of the metallic ring aforesaid and rounded outer corners of said ends or faces.

4. A packing, a metallic ring composed of segmental units in paired sets having depressions, resilient means adapted to engage said depressions to maintain the said units in a determined relationship to each other.

5. A packing, means of the kind described having metallic rings of paired assembly formed of flexibly connected segments with diagonal joints between each of said segments, joints aforesaid being of increased area about the flexible connections.

6. A packing, metallic annular assemblies having resilient means surrounding and spacing said assemblies laterally, said assemblies provided with concave depressions formed in the convex surfaces of the said metallic annular assemblies.

PHIL J. NAWN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."