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PATENTED FEB. 5, 1907.

F. McCARTHY.
METALLIC PACKING.
APPLICATION FILED NOV. 15, 1906.

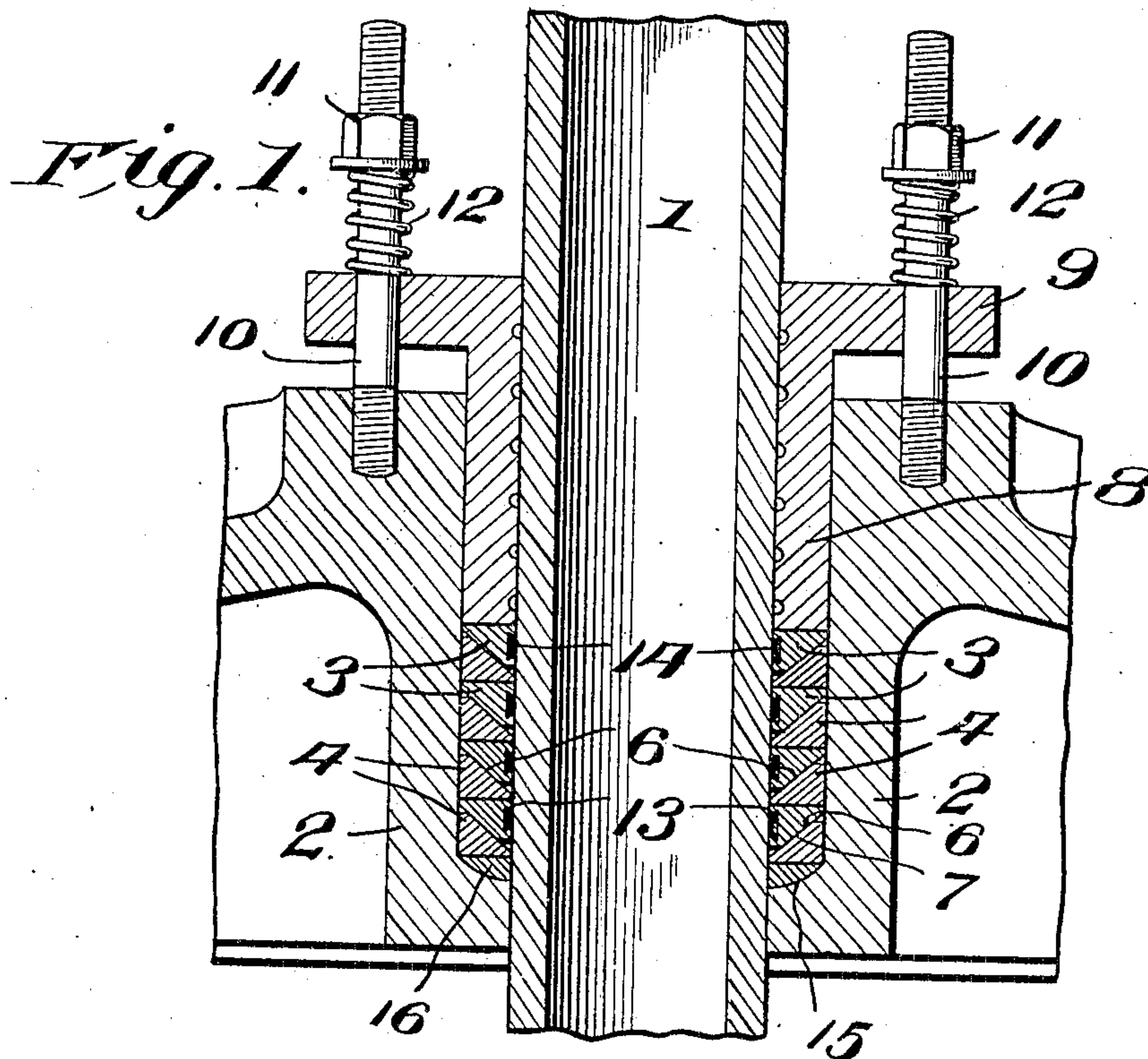


Fig. 2.

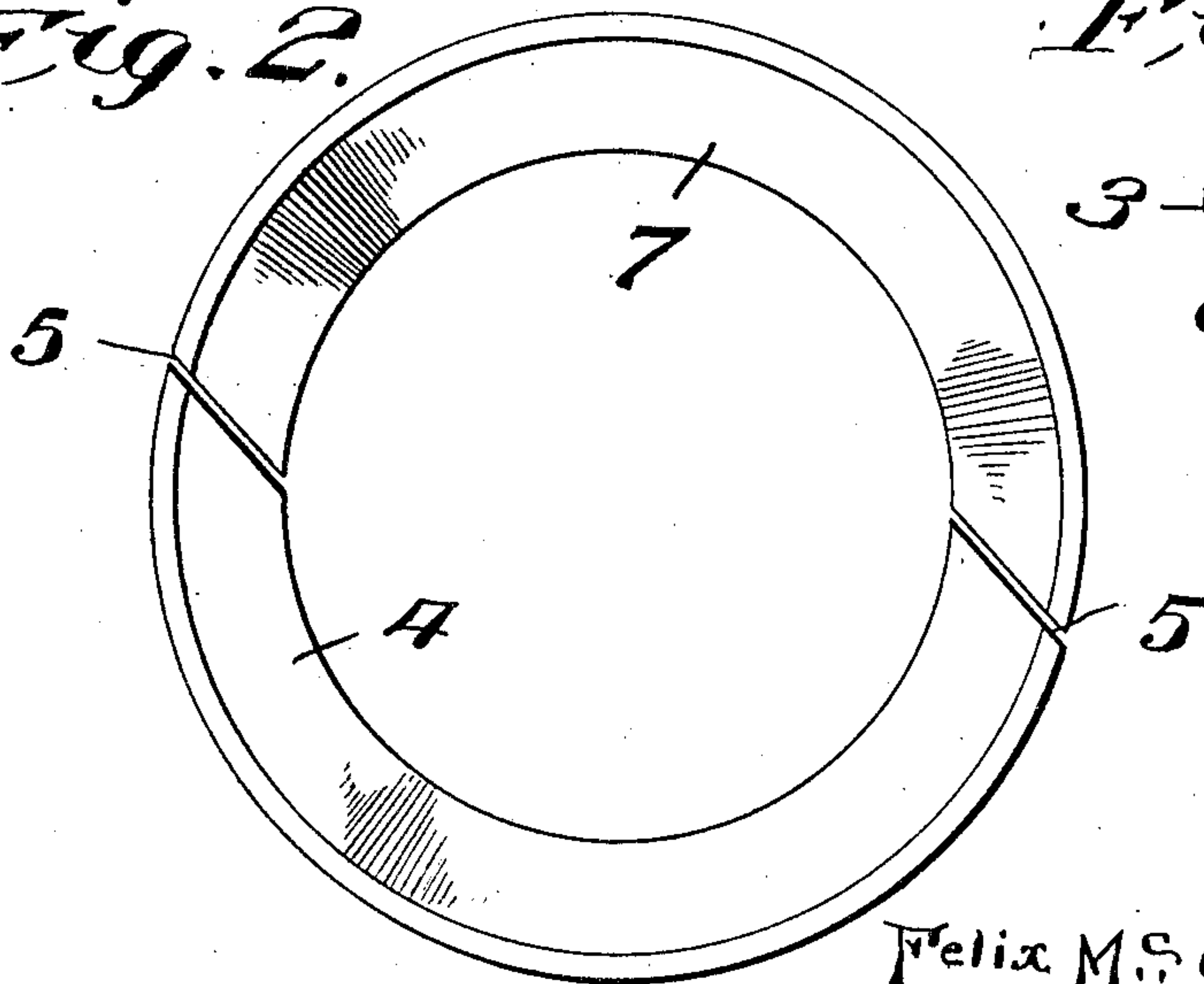
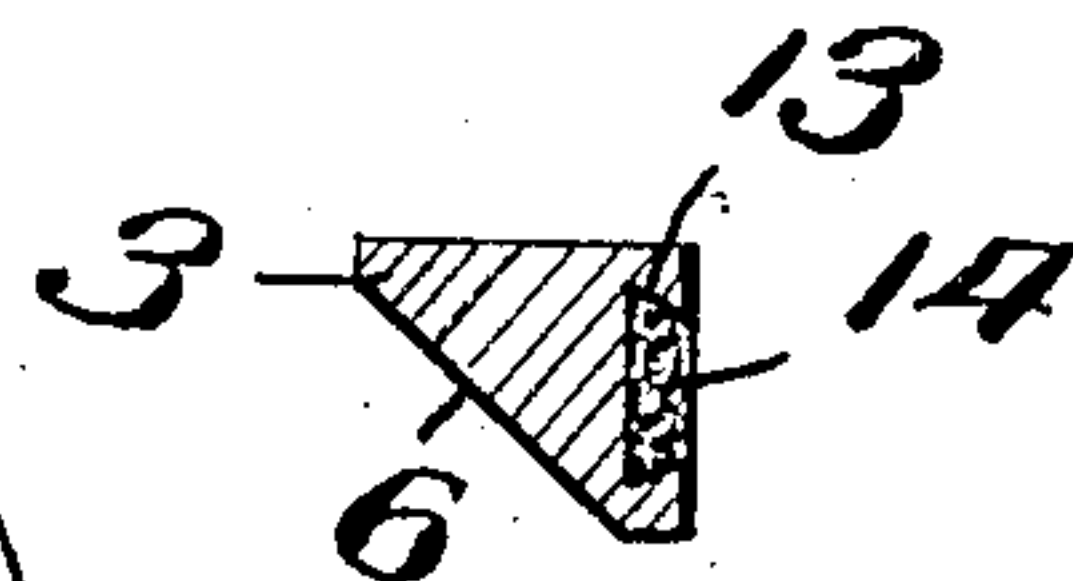


Fig. 3.



Witnesses

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FELIX McCARTHY, OF POTTSTOWN, PENNSYLVANIA.

METALLIC PACKING.

No. 843,230.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FELIX McCARTHY, a citizen of the United States, residing at Pottstown, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Metallic Packing; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to new and useful improvements in packing, and more particularly to that class adapted to be used for packing pistons, pipes, and the like; and my object is to provide a packing of this class whereby as the parts of the packing become worn the same will be automatically depressed and held into engagement with the surrounding parts.

A further object is to provide a packing whereby the parts thereof will expand and contract to accommodate inequalities or variations in the diameter of piston-rods.

A further object is to provide means for retaining non-heat-conducting material on the faces of the packing-rings when the same are used in connection with hot-blast pipes.

A still further object is to provide yielding means for holding and compressing the packing-rings within the stuffing-box.

Other objects and advantages will be hereinafter referred to and more particularly pointed out in the claims.

In the accompanying drawings, which are made a part of this application, Figure 1 is a central sectional view through a stuffing-box, showing my improved packing disposed around a hot-blast pipe. Fig. 2 is a plan view of one of the packing-rings on an enlarged scale, and Fig. 3 is a sectional view through one of the packing-rings.

The form of packing herein shown is adapted more particularly for use upon hot-blast pipes, although the same may be used on piston-rods for steam-engines and also for valve-stems, or, in fact, any rod or shaft requiring a packing. In using the packing in connection with hot-blast pipes the pipe 1 is disposed through a stuffing-box 2, and disposed within the stuffing-box and surrounding the pipe 1 is a plurality of packing-rings 3 and 4.

The packing-rings 3 are designed to engage the surface of the pipe 1, while the rings 4 are adapted to engage the inner face of the

stuffing-box, and all of said rings are preferably constructed in two or more sections and when assembled together are of less circumference than the circumference of the pipe 1, so that the meeting ends of the several sections will be spaced apart, as best shown at 5 in Fig. 2 of the drawings, the object in so spacing the sections being that when the faces of the rings become worn they may be directed into closer relation with their bearing-surfaces by directing pressure against the rings.

One outer edge of the packing-rings 3 is cut away to form a beveled face 6, while one of the inner edges of the packing-rings 4 is cut away to form a similar beveled face 7, and when the rings are properly disposed within the stuffing-box the beveled face of one ring is disposed into coöperation with the beveled face of the next succeeding ring, and by disposing several sets of the rings within the stuffing-box and staggering the spaces 5 it will be seen that a thorough packing will be provided.

The packing-rings are held within the stuffing-box by means of a gland 8, the outer end of which is provided with a flange 9, through which are disposed bolts 10, one end of each of which is threaded into the body of the stuffing-box, while the outer ends thereof are threaded to receive nuts 11.

Disposed around the bolts 10 and between the nuts and flange are springs 12, the tension of which hold the end of the glands into engagement with the packing-rings under pressure, so that as the bearing-faces of the rings become worn the springs will cause the rings 3 to contract around the pipe and the rings 4 to expand and engage the face of the stuffing-box.

The object in beveling the faces of the packing-rings is to cause each set of the rings to telescope with each other when pressure is directed thereagainst, and by having the outer edge of the rings 3 beveled and the inner edge of the rings 4 similarly beveled it will be seen that the packing-rings 3 will be directed inwardly, while the packing-rings 4 will be directed outwardly, thereby insuring that said rings will be in contact with their respective bearing-surfaces at all times.

In using a metallic packing in connection with a hot-blast pipe, as shown, it is necessary to protect that portion of the packing contacting the pipe as much as possible from the heat, and to this end I have provided on

the bearing-face of each of the packing-rings 3 a dovetailed groove 13, which is adapted to be filled with asbestos or black-lead paste 14, said filling being a non-heat conductor and at the same time serving to absorb oil, so that the pipe-surface will be thoroughly lubricated at all times.

The rings employed in connection with a hot-blast pipe are preferably made of brass, owing to the intense heat within the pipe, as a softer metal would readily melt. When, however, the packing is to be used in connection with piston-rods or steam-valves, the grooves in the packing-rings 3 may be filled with a softer metal, such as Babbitt, or said packing-rings may be entirely constructed of the softer metal, and it will be readily seen that a softer metal will absorb the oil the same as the asbestos, so as to keep the wearing-surface thoroughly lubricated.

It has been found in practice that piston-rods are frequently larger at one portion than at another, and by holding the gland into engagement with the packing by means of the springs it will be seen that as soon as the enlarged portion of the shaft is moved into engagement with the packing-rings that the gland will move outwardly, thereby releasing the tension upon the packing-rings and allowing the same to expand to accommodate the enlarged portion of the shaft. As soon, however, as the enlarged portion of the shaft is removed from engagement with the packing-rings said rings are returned to their normal position by the pressure of the springs, so that the packing-rings will adjust themselves to any inequalities in the surface of the rod.

In drilling the opening in the stuffing-box a curved surface 15 is left at the bottom of the stuffing-box, and in order to give the packing-rings a solid base to rest upon I provide a filling-ring 16, one face of which is curved to fit the curved surface 15, while the opposite face thereof is flat, so that the adjacent packing-ring will rest firmly thereon, thereby preventing the sections of the ring from tilting and binding.

By this construction it will be seen that I have provided a very cheap and economical form of packing and one that will adjust itself to all inequalities in the surface of the rods passing therethrough. It will further be seen that I have provided means for keeping the wearing-faces of the packing-rings into close engagement with the surfaces to

which the rings are applied and automatically operating said rings to compensate for wear thereon. It will also be seen that by disposing the springs in the position shown that they will be under the observation of the attendant at all times and the tension thereon readily increased or decreased by operating the nuts 11 inwardly or outwardly upon the bolts 10.

What I claim is—

1. In a packing of the class described the combination with a stuffing-box, a gland for said stuffing-box and a shaft extending through said stuffing-box and gland; of a plurality of packing-rings disposed in pairs one ring of each pair being adapted to contract while the opposite ring is adapted to expand when pressure is applied thereon, said rings having telescoping beveled faces, grooves within the wearing-faces of said contracting rings, a filling for said grooves and means to exert tension upon the gland.

2. A packing of the class described comprising a plurality of segmental rings disposed in pairs, each ring having a beveled face adapted to cooperate with a beveled face on the opposite ring whereby when pressure is directed against said rings the segments of one ring will contract while the segments of the opposite ring will expand, a groove within the wearing-face of the contracting ring and a filling for said groove.

3. In a packing of the class described the combination with a stuffing-box and a gland therefor; of segmental packing-rings adapted to be disposed in said stuffing-box, said packing-rings being disposed in pairs, one of which rings is adapted to contract and the other to expand, the contracting ring having a beveled outer face and the expanding ring having a beveled inner face adapted to cooperate therewith a groove within the wearing-face of the contracting ring, a filling for said groove, bolts secured to said stuffing-box and extending into engagement with said gland, springs on said bolts whereby the gland will be directed into engagement with said packing-rings and hold the same under pressure.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FELIX McCARTHY.

Witnesses:

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