(No Model.)

L. GRAY.

PACKING FOR PISTONS.

No. 306,482. Patented Oct. 14, 1884.

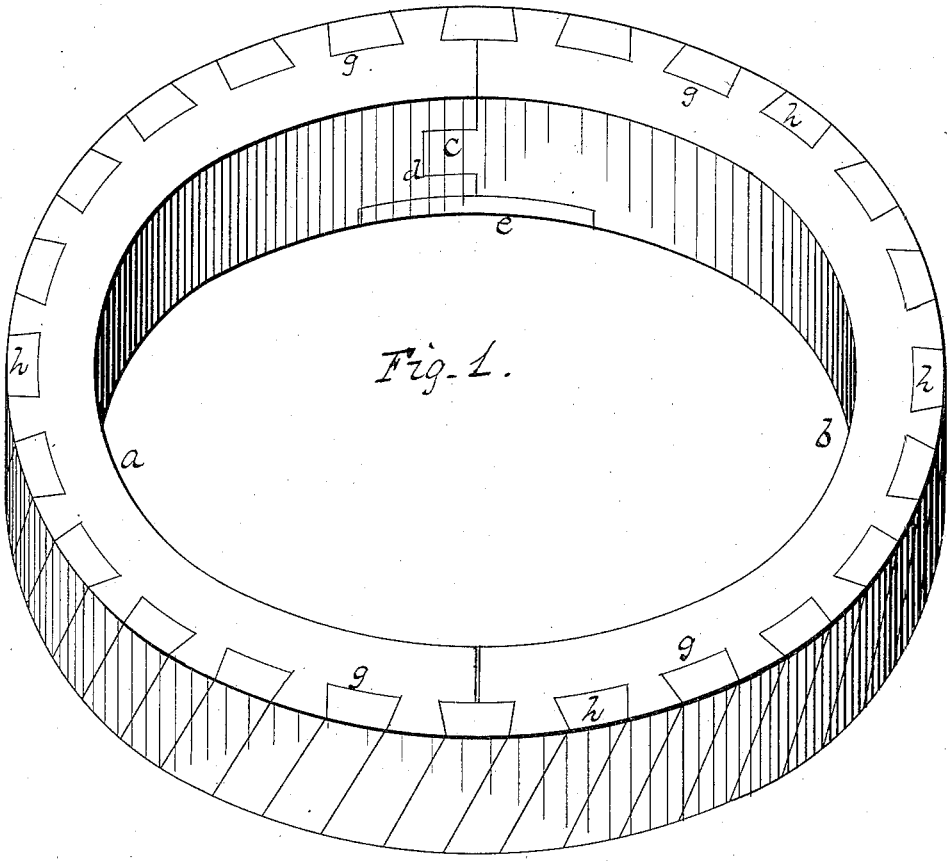


Fig. 1.

Fig. 2.

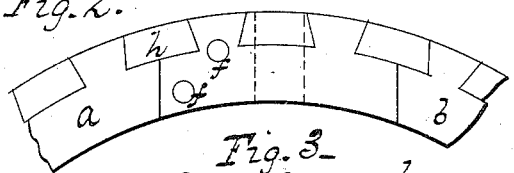
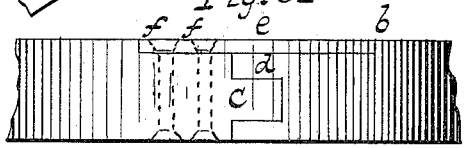


Fig. 3.



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UNITED STATES PATENT OFFICE.

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PACKING FOR PISTONS.

SPECIFICATION forming part of Letters Patent No. 306,482, dated October 14, 1884.

Application filed April 10, 1884. (No model.)

To all whom it may concern:

Be it known that I, LYMAN GRAY, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have made a new and useful Improvement in Packing for Pistons, which improvement will be readily understood from the following description, taken in connection with the accompanying drawings, wherein—

Figure 1 represents a perspective view of a metallic ring provided with my improvement; Fig. 2, a portion of the same, showing an edge view of one of the joints; Fig. 3, an inside view of the same joint.

The ring to which I have applied my improvement may be of any suitable metal and constructed in two or more segments or sections, *a b*, one end of each segment being provided with a short tenon, *c*, that fits into a correspondingly-shaped mortise, *d*, in the adjacent end of the other segment, and in such a manner as to allow each tenon to slide in or out of its respective mortise, whereby the ring may be expanded or increased in diameter without disengaging the several sections or segments the one from the other. The aforesaid tenons *c* and mortises *d* are even with the inner surface of the ring, but do not extend outwardly therefrom more than half its thickness, and over each juncture of the segments is placed a short metallic plate, *e*, so let into the edge of the ring as to be on a level therewith, one end of each plate *e* being secured to the tenon end of its respective segment by means of suitable rivets, *f f*, whereby the free end of the plate will be caused to slide upon its bearing in or on the mortise end of the opposing segment in such a manner as to keep the joints practically steam-tight. The whole periphery of this metallic and expansible ring is formed into a series of dovetailed recesses, *g*, that extend entirely across its face, and so arranged obliquely to the plane of the ring as that a straight line thereon parallel to its axis will touch or intersect two of them.

Into each of the several dovetailed recesses *g* is driven a correspondingly-shaped and tightly-fitting panel, *h*, of non-metallic substance, that is afterward turned off so as to present an even and regular surface conformable to the ring, and make a smooth finish therewith. These panels may be of any hard wood, such as lignum-vitæ, which, being almost imperishable, and of an oily character, will in some cases answer the purpose; but I prefer to make the panels *h* of solid talcose slate or steatite, commonly called "soapstone"—a material that will remain unaffected by the heat of steam, and by reason of its greasy nature will slide smoothly in the cylinder, requiring less lubrication than most other substances, and in that respect is admirably adapted as a packing for pistons of steam-engines.

The several panels *h*, on being dovetailed their entire length into the ring, give them a strong hold therein, so much so that they cannot be displaced except by considerable force applied thereto endwise, which, when the ring is properly arranged on a piston, is prevented by the piston-head on one side and the follower on the other. This ring as constructed may be expanded or "set out" against the cylinder by the direct action of steam after the manner usual in such cases; or the same may be effected by the application of springs, set-screws, or any other suitable means.

Having described my improved packing-ring, I claim—

1. A new and improved packing consisting of a metallic ring composed of two or more segments or sections jointed endwise together, and provided with segregated non-metallic panels arranged diagonally across the entire width of the periphery of the ring.

2. An improved packing consisting of a metallic ring composed of two or more segments or sections jointed endwise together, and provided with segregated non-metallic panels dovetailed obliquely into and entirely across the entire width of the periphery of the ring.

3. An improved packing consisting of an expansible metallic ring provided with segregated panels of anti-friction substance dovetailed obliquely into and entirely across the periphery of the ring.

4. An improved packing consisting of a

metallic ring in two or more segments or sections united endwise together by a sliding tenon-and-mortise joint even with the inner surface of the ring and in depth half its radial thickness, and provided with a series of non-metallic panels arranged diagonally across the entire width of the periphery.

5. An improved packing consisting of a metallic ring in two or more segments or sections, the adjacent sections being united endwise by a sliding tenon-and-mortise joint, combined with an overlapping plate at each joint let into one face of the ring flush therewith, and secured to one of the sections, substantially as set forth.

LYMAN GRAY.

JOSIAH W. ELLS,
JOHN S. KENNEDY.