

C. H. POLLARD.
 PISTON PACKING FOR STEAM ENGINES.
 APPLICATION FILED JULY 20, 1912.

1,055,222.

Patented Mar. 4, 1913.

Fig. 1.

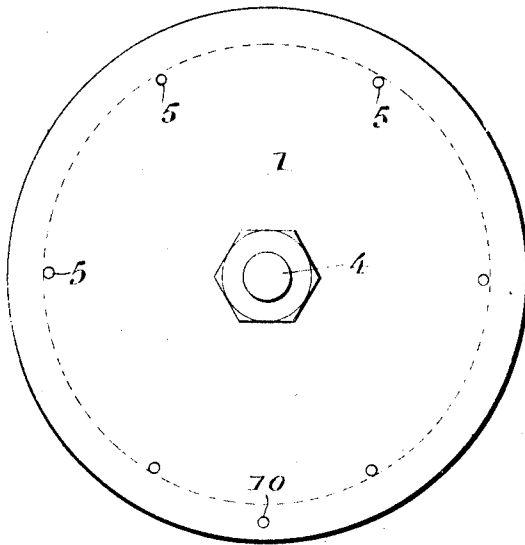


Fig. 2.

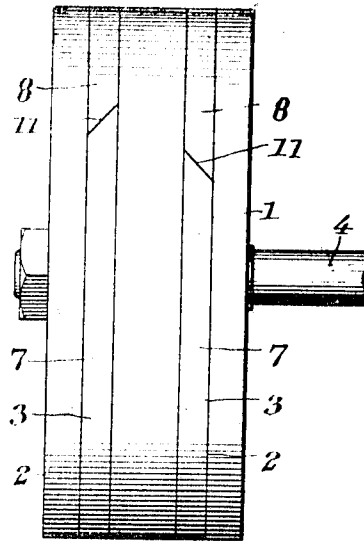


Fig. 3.

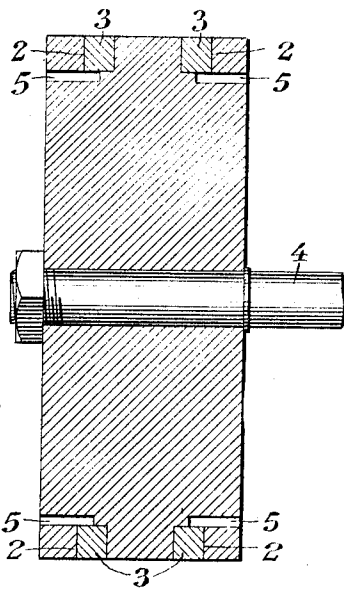
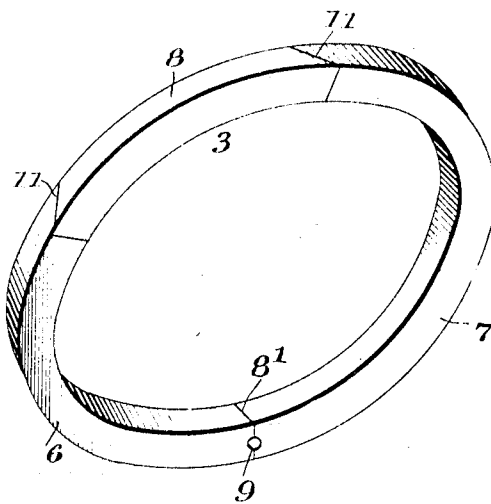


Fig. 4.



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PISTON-PACKING FOR STEAM-ENGINES.

1,055,222.

Specification of Letters Patent.

Patented Mar. 4, 1913.

Application filed July 20, 1912. Serial No. 710,632.

To all whom it may concern:

Be it known that I, CHARLES H. POLLARD, a citizen of the United States, residing at Oakdale, in the county of Morgan and State of Tennessee, have invented new and useful Improvements in Piston-Packing for Steam-Engines, of which the following is a specification.

This invention relates to piston packing for steam engines, the object in view being to provide means whereby a piston ring is adapted to be expanded in size and maintained in contact with the inner wall of the cylinder, during the working strokes of the piston, without allowing the steam to pass by the piston ring, at the same time enabling the piston and ring to travel freely back and forth, when the steam pressure is cut off, so as to avoid scoring or otherwise injuring the wall of the cylinder, and at the same time avoiding the formation of vacuums in the opposite ends of the cylinders, which serve to retard the free back and forth movement of the piston, when not performing its work under steam pressure.

With the above and other objects in view, the invention consists in the construction, combination and arrangement of parts, as will be hereinafter more fully described, illustrated in the accompanying drawings, and pointed out in the claim hereunto appended.

In the drawings: Figure 1 is an end view of a piston embodying the present invention. Fig. 2 is a plan or face view, looking toward the periphery thereof. Fig. 3 is a diametrical section through the piston. Fig. 4 is a detail perspective view of one of the piston rings.

Referring to the drawings, 1 designates a piston of any desired size and general dimensions, the same being shown as provided with a plurality of grooves 2 to receive the piston rings 3, each of which is of the usual form in cross section, being shown as substantially square.

4 designates the piston rod.

In carrying out the present invention, a number of steam inlet passages 5 are formed in the opposite ends of the piston, said passages leading into the bottoms of the grooves 2, and opening up therein about centrally of the transverse dimensions of said grooves, so that the steam pressure passing inward through the passages 5 will be directed against the inner faces and centers of the

piston rings 3. Any desired number of said passages 5 may be employed in accordance with the size of the piston and other conditions.

Each piston ring is formed as shown in Fig. 4, and in the preferred embodiment of the invention, each piston ring comprises three sections 6, 7 and 8. The sections 6 and 7 are divided transversely, as shown at 8', and the meeting faces of said sections are counter-bored, as shown at 9, adapting them to fit together on opposite sides of a pin 10 which extends across the groove in which the ring is received, and such pin is fastened to the piston, so that when the sections 6 and 7 are in engagement with said pin, the piston ring as a whole is prevented from turning around within its groove. By providing the packing ring sections with the split abutting ends, as shown at the bottom of Fig. 4, and forming said abutting ends with half-round grooves which register with each other and form together a round opening, and by inserting a pin in the opening which fills the same, the sections are held in proper alinement with each other at all times, and the pin inserted in said hole serves as a brake joint or stop, preventing the leakage of steam or other expansive fluid at such point. This makes the packing ring at such point practically pressure-proof. The section 8 of the piston ring is connected with the sections 6 and 7 by miter or oblique joints, as indicated at 11, thereby forming what may be termed a lap joint which will not have any tendency to score the wall of the cylinder in the back and forth movements of the piston rings. Furthermore, this allows the ring to expand and contract, without permitting the steam to pass by the same.

By means of the construction hereinabove described, the packing rings of a steam engine will last several times as long as the ordinary packing rings now in common use, for the reason that the wear thereon is materially reduced, in view of the fact that when the steam is cut off in a locomotive engine, for example, when the locomotive is drifting down a grade, the piston rings will ride loosely against the walls of the cylinders, and relieve the friction thereof, and also prevent the formation of a partial vacuum in the opposite ends of the cylinders, this resulting in allowing a much freer drifting or coasting of the engine down grade. This

also results in a material reduction of expense in the up-keep of the engine, and enables the same to be run for a much greater period of time, without repair. Furthermore, the construction described will prevent the bursting of cylinder heads and other damage caused by the accumulation of water in the cylinder, and will admit of easy lubrication.

10 What is claimed is:

A piston formed in its periphery with a plurality of grooves for piston rings, and steam inlet passages leading from the opposite faces of the piston to the bottoms of said grooves, of piston rings arranged in said grooves and each embodying a number

of sections having a lap joint at one place and a joint at another place formed by providing the sections with square abutting ends having registering half-round grooves therein midway between the outer and inner faces of the ring and extending parallel to the axis of the piston, and a pin passing through said grooves and acting as a stop or closure for said joint, said pin being carried by the piston. 20 25

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES H. POLLARD.

Witnesses:

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