P. Clark,

Packing Ring.

No. 18,235. Patented Sep 22, 1857.

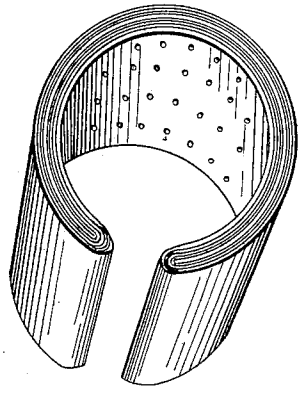


Fig. 1

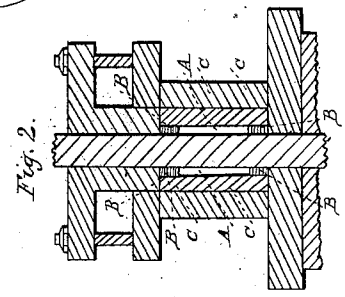


Fig. 2.

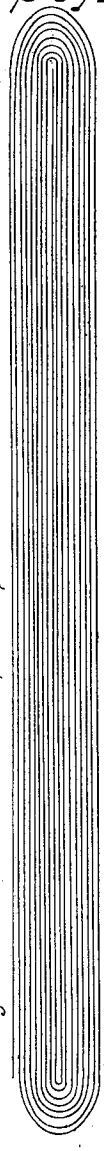


Fig. 3.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

PATRICK CLARK, OF RAHWAY, NEW JERSEY.

METALLIC PACKING-RING FOR STEAM-ENGINES.

Specification of Letters Patent No. 18,235, dated September 22, 1857.

To all whom it may concern:

Be it known that I, the undersigned, PATRICK CLARK, of Rahway, in the county of Union and State of New Jersey, have invented a new and useful Improvement in the Construction of Packing-Rings for the Pistons and Rods of Steam and other Engines, of which the following is a full and exact description.

The nature of my invention consists in constructing metallic packing rings of a number of layers or laminæ of thin sheet metal such as may be conveniently bent into the desired circle by the fingers of the operator by means of which improvement I am enabled to readily construct and apply metallic packing rings to the rods of steam engines having the flexibility necessary to enable me to bend around a rod a ring of metal of sufficient thickness to insure durability and also in other improvements in connection therewith which will be set forth in the following specification and the accompanying drawings making a part of the same and the letters and figures marked thereon.

Figure 2 is a sectional view of a stuffing-box showing the method of applying my improved rings. Fig. 3 is a sectional view of the strip of metal when folded ready to be bent into a ring and Fig. 1 is a perspective view of the ring when bent into form.

To enable others skilled in the art of making and using packing rings to make and use my improved rings I will describe the method of making and using them. To make the rings I first prepare sheet metal in long strips of the requisite width and sufficiently thin to be readily bent into the desired circle or folded up as shown at Fig. 1 by the fingers of the operator. No. "36 roll brass" of that kind denominated by the trade "low brass," *i. e.* about 85 pr. ct. copper and 15 of zinc answers very well—other alloys capable of being rolled to the requisite thinness may be used and even pure copper or tin may answer under certain circumstances. These strips are then tinned on both sides (by drawing them through a bath of melted tin in the usual manner) which serves the important purpose of making the layers adhere to each other when the ring is in use and thereby prevent the thin layers of metal from dragging out when worn through in any part by the friction of the rod or cylinder.

The metal having been prepared as described above it is made into rings as follows: Take a strip of the tinned metal and fold it up as I have shown at Fig. 3 until the desired thickness is attained. Fig. 3 is a sectional view of the folded strip of metal showing the manner of folding it. It will be seen by inspecting this drawing that although there are many folds there is but one loose end. Solder this end fast to the layer next below it and the mass is ready to be bent into a ring which may be readily done by the fingers of the operator.

Fig. 1 shows the ring completed which is to all intents and purposes an ordinary slit packing ring. In applying them they may be tongued and grooved at the ends or 2 rings may be used to break joints.

The dots in the interior periphery of the ring represent small indentations made in the mass of the layers to further guard against the dragging out of the layers.

The method of applying the rings when made is shown in Fig. 2, which is a sectional drawing of a stuffing box and rod. In this drawing D, represents the rod, A, A, the packing ring, B, B, a little hemp or cotton wick above and below the ring to prevent the india rubber, if it be used, from touching the rod and C, C, the india rubber which serves to fill the balance of the stuffing box and compress the ring to the rod. By inspecting the drawing it will appear that the packing ring is not so wide as the surrounding ring of india rubber; this is for the purpose of leaving sufficient space between the bottom of the gland and the edge of the ring to admit of compressing the rubber sufficiently to render the whole steam tight without injury to the ring.

The advantages derived from making packing rings in the above described manner are as follows: 1st. Their great flexibility enables them to be applied to rod as readily as hemp or other fibrous packing while they possess all the qualities or properties of metal rings. Owing to the same quality they will fit rods which have become worn oval or elliptical as perfect as if they were round and also rods varying in their diameters to a much greater extent than any metal packing now known. 2d. Owing to

those same qualities they become a merchantable article, an advantage which no other metallic packing possesses. 3d. They are cheaper than any metal packing now known.

I am aware that packing rings made either in sections or in the form of slit rings are old and well known, and that it is usual in using such rings to place two concentrically to each other for the purpose of breaking joints. I therefore do not claim to have invented such rings nor their use. Nor do I claim to have invented the method herein described of compressing packing rings to the rod and I also disclaim the plastic foil or sheet metal packing for which a patent was issued to me June 2d 1857, and I also disclaim in the application of such rings the use of elastic material to compress them radially to the rod as it is old and well known. But

I claim—

Constructing packing rings of a number or series of layers or laminæ of sheet metal in the manner described, for the purpose of securing that flexibility necessary to enable me to bend around a rod a metallic ring having a sufficient quantity of material in it to insure the requisite durability.

PATRICK CLARK.

Witnesses:
WM. J. GIBBY,
WM. GIBBY.