

UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN GASKET-PACKINGS.

Specification forming part of Letters Patent No. 119,027, dated September 19, 1871.

To all whom it may concern:

Be it known that I, WILLIAM WALLACE GIRDWOOD, of 9 Lec Cottages, Barking Road, Bromley, in the county of Middlesex and Kingdom of Great Britain, engineer, have invented a Self-Lubricating Metallic Elastic Packing especially adapted for high temperatures, of which the following is a description. The accompanying drawing, forming a part of this specification, illustrates the metallic packing with a section thereof removed in order more fully to show its construction.

The object of this invention is to produce a self-lubricating packing that will remain perfectly steam-tight under any required degree of heat and at the same time reduce friction on it to a minimum, and this I accomplish in the following manner: I construct gland-packing by coiling, rolling up, or twisting woven wire, such as wire-gauze, upon a core, or otherwise, until the coil or roll becomes of such a diameter that when bent in the form of a ring and passed round a rod into the gland it will fill up the space between the two. The sheet of woven wire may be coiled, rolled, or twisted either by hand or machinery, and either in the direction in which the wires run in the sheet or in an angular direction; or the wire may be at once woven into a coil, roll, or rope either in the form of rings of the required size, or in lengths to be afterward bent into the required form and size. The fibers of the wire-gauze acting against the rod intercept a certain portion of the steam, which, condensing, remains there and in that condition serves to lubricate the rod in its reciprocatory or rotary motion.

The coil, roll, or rope formed by any of the above-mentioned or other well-known methods may, when desirable, be pressed or molded so as to cause it to assume a section or any other shape besides the circular form already described.

In order to more fully explain and set forth the nature of my said invention, I will now proceed to describe the methods of manufacture.

A piece of woven wire, such as wire-gauze as commonly manufactured, or as manufactured for the purpose, (the wire may be of brass, copper, or other suitable metal or alloy, and the section of the wire may be a circle or any other figure, as preferred, preferably a circle of 28 or 29 Birmingham wire-gauze,) is folded, rolled, or twisted into a coil; or rolled, either by folding, rolling, or twisting it around a core, (the core preferred is

a piece of wire-rope of a convenient size;) or by turning up one edge of the sheet and folding, rolling, or twisting the sheet upon itself until a coil or roll is formed to the required size. The core may or may not be withdrawn after the coil or roll is formed. The sheet is folded or rolled in such a manner that the axis of the coil, roll, or rope, and, consequently, the direction of rolling, makes an angle (preferably about forty-five degrees) with the warp or weft of the sheet. This method of rolling renders the coil or roll elastic and renders it possible to bend to a circle (as when bent round a spindle so as to go into the stuffing-box) without creasing, puckering, or rendering it necessary to cut any part of the coil, roll, or rope.

The coil or roll may be composed of one or of several sheets, or of one or of several descriptions of materials: First, the packing may be used in this state—that is to say, when its section is circular or nearly so; but it is preferred to cut it to the required lengths and press it to the required shape and size. Secondly, the material may be woven into a tube the required size in a similar manner to that by which blind cord or tubular lamp-wick is woven, and the interior may be filled with cuttings and scraps of wire-gauze or similar materials. In some cases I prefer before rolling to coat or dress the fabric or saturate the packing at any stage of the manufacture with a solution of caoutchouc or any other suitable material. In some cases also I prefer to roll with the metallic fabric tin or copper-foil or other suitable material, with or without the solution above described.

The material may be woven with two wires in the warp and two in the weft, and I prefer this arrangement, but other arrangements may be used.

I am aware that packing has been heretofore used and patented in which a small proportion of metal is interwoven or mixed with vegetable fiber.

I therefore claim and desire to secure by Letters Patent—

A gasket-packing constructed wholly of metallic fabric by rolling or twisting a sheet of metallic gauze, as herein described.

Witnesses: W. W. GIRDWOOD.

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