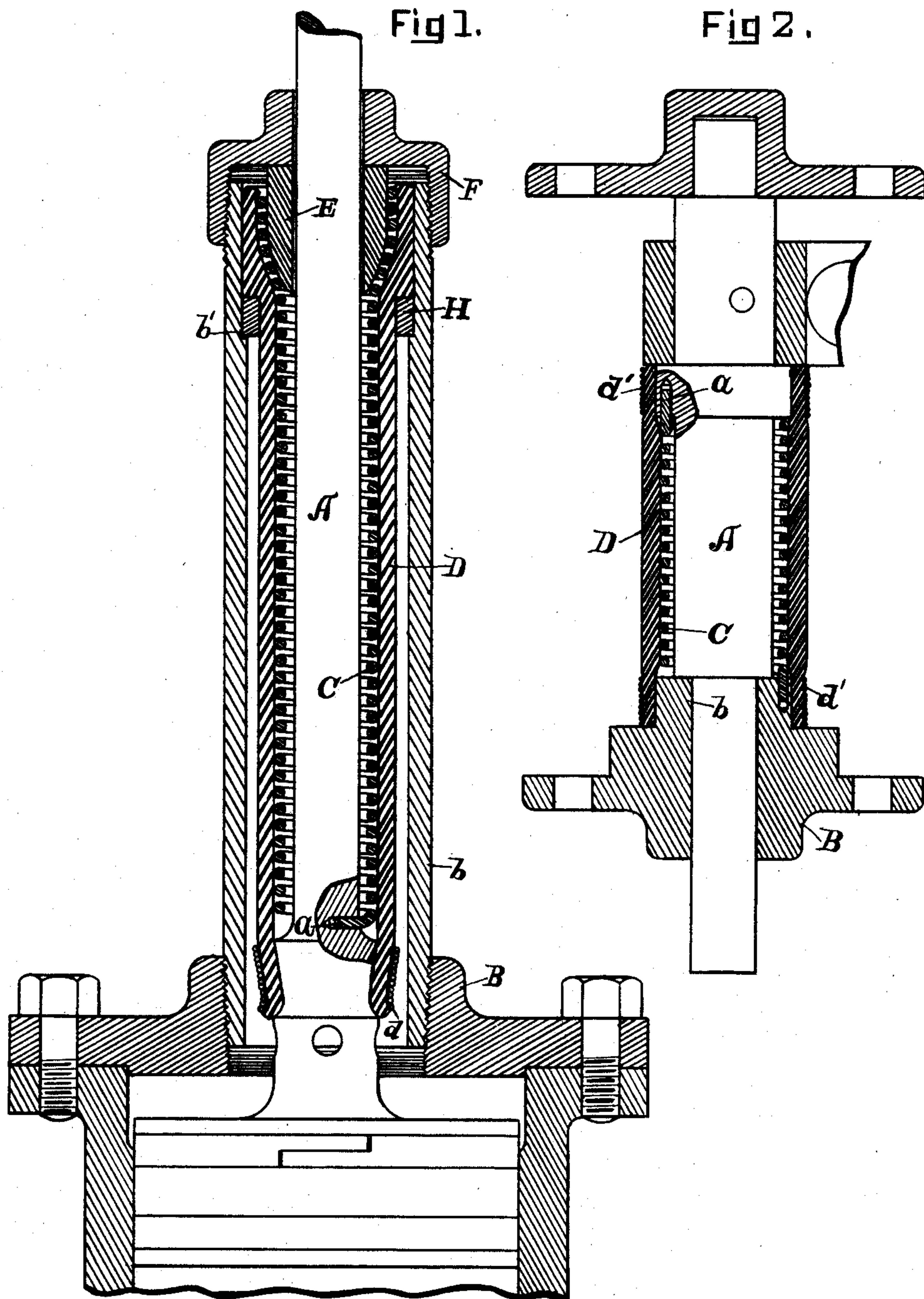


(No Model.)

W. E. FACER.  
ROD PACKING.

No. 429,611.

Patented June 10, 1890.



WITNESSES.

Frank. Miller.  
N. J. Bainbridge

INVENTOR.

Wilson E. Facer  
By his Attorneys  
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# UNITED STATES PATENT OFFICE.

WILSON E. FACER, OF CLEVELAND, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE FACER REFRIGERATING AND ICE MACHINE COMPANY, OF NEW YORK, N. Y.

## ROD-PACKING.

SPECIFICATION forming part of Letters Patent No. 429,611, dated June 10, 1890.

Application filed August 6, 1889. Serial No. 319,935. (No model.)

*To all whom it may concern:*

Be it known that I, WILSON E. FACER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Rod-Packings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

10 The object of my invention is to provide a packing for a rod having a reciprocating or oscillating movement, which will prevent a gas from escaping around the rod from a chamber through the wall of which said rod passes.

15 To this end it consists in the construction and combination of parts herein described, and pointed out definitely in the claims.

20 In the drawings, Figure 1 is a central sectional view of the invention as applied to a piston-rod and its cylinder, and Fig. 2 is a central sectional view of said invention as applied to an oscillating shaft and its bearings.

25 Referring to the parts by letter, A represents the rod, B the wall through which it passes, and *b* a fixed sleeve integral with or firmly secured to said wall and surrounding said rod.

30 C represents a tightly-coiled spring which surrounds the rod, the interior diameter of the coils being large enough to prevent said spring from binding upon the rod. One end of this spring is fastened to the rod A and the other end to the fixed sleeve *b* in any appropriate manner.

35 The mode of attaching the spring to the rod (shown in the drawings) consists of a socket in the rod, into which the bent end of the spring is inserted, as shown at *a*. The other end of this spring is fastened to the fixed sleeve, as before stated. In Fig. 2 this attachment is made substantially in the manner last described for attaching the spring to the rod. In Fig. 1 the attachment is made by other means, which will be hereinafter described.

45 D represents a rubber sleeve, which is slipped over the coiled spring C, about which it fits tightly. One end of this rubber sleeve is fastened securely against the rod beyond

the end of the spring by means of the tightly-wound wires or cord *d*. The other end of the rubber sleeve is securely fastened against the wall of sleeve *b*. In Fig. 2 the sleeve D is shown extending beyond the end of the spring-coil and is fastened to the fixed sleeve *b* on the outside thereof by the tightly-wound wires or cord *d'*. In Fig. 1 the ends of the spring-coil and the rubber sleeve are both held firmly in engagement with the inner wall of the fixed sleeve *b* by means of conical bushing E. In the best form of this attachment the interior of this sleeve *b* is provided with a shoulder *b'*, and a ring H rests upon said shoulder. The bushing E has a central orifice through which the rod passes, and its smaller end enters within the spring-coil. By forcing said bushing in the coil and the rubber sleeve are forced outward and the rubber sleeve is pressed tightly against the fixed sleeve *b* above the ring H, and both the spring and rubber sleeve are thereby held firmly at their ends in engagement with said sleeve *b*.

F represents a cap, which is screwed on the end of sleeve *b*, and thereby holds the conical bushing firmly in the position above described. The engagement of the rubber with the rod prevents the escaping of gas around the rod, and the engagement of the rubber with sleeve *b* prevents the escaping of gas between said rubber and fixed sleeve *b*.

80 The spring-coil serves a double purpose: first, it prevents the rubber from collapsing and binding on the rod, and thereby interfering with its free movement; second, by its connection at its ends with both the rod and the sleeve the coils twist and untwist or move toward and from each other, as the case may be, as the rod is moved evenly throughout its whole length, and since the rubber fits tightly over said spring-coils the strain upon the rubber sleeve is evenly distributed throughout its whole length, thereby causing it to last longer than it otherwise would.

85 Both forms of packing herein described are adapted to be used with advantage in connection with the pumping mechanism of refrigerating machinery, and have both been so applied by me; but I do not intend to limit



their use to this purpose, or to the precise forms described further than distinctly specified in the claims.

It will be observed that the sleeve *b* is fixed 5 or stationary, being mounted upon and firmly secured to the wall through which the rod *A* passes, and to which one end of the coiled spring *C* and one end of the rubber sleeve *D* incased therein are secured, respectively, 10 their opposite ends being secured to the rod *A*, as represented.

Flexible packing, in combination with coiled springs, has been employed heretofore in "vacuum-brakes" and "fluid-pressure railway-brakes." (See German patent, No. 9,244 and 15 English patent, No. 6,171.)

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

20 1. A rod-packing consisting of the combination of a reciprocating rod and the wall through which said rod passes, with a fixed sleeve secured to said wall and surrounding the rod, and a rubber sleeve surrounding the 25 rod and secured at one end thereto and at the other end to said fixed sleeve, substantially as and for the purpose specified.

2. A rod-packing consisting of the combi-

nation of a reciprocating rod and the wall 30 through which said rod passes, with a fixed sleeve attached to said wall and surrounding the rod, a coiled spring surrounding said rod, a rubber sleeve surrounding said coiled spring, both the spring and rubber sleeve being attached at their ends, respectively, to 35 the rod and first-mentioned fixed sleeve, substantially as and for the purpose specified.

3. A rod-packing consisting of the combination of a reciprocating rod and the wall 40 through which said rod passes, with a sleeve secured to said wall surrounding said rod, a coiled spring surrounding said rod within said sleeve and attached at one end to said rod, a rubber sleeve surrounding said coil 45 and secured tightly to said rod at one end, a conical bushing loosely surrounding the rod and placed between it and the spring-coil, whereby the rubber sleeve and spring-coil are forced into and held in engagement with 50 the inner wall of said sleeve, and a cap on the end of said sleeve, substantially as and for the purpose specified.

WILSON E. FACER.

Witnesses:

E. L. THURSTON,

W. J. BAINBRIDGE.