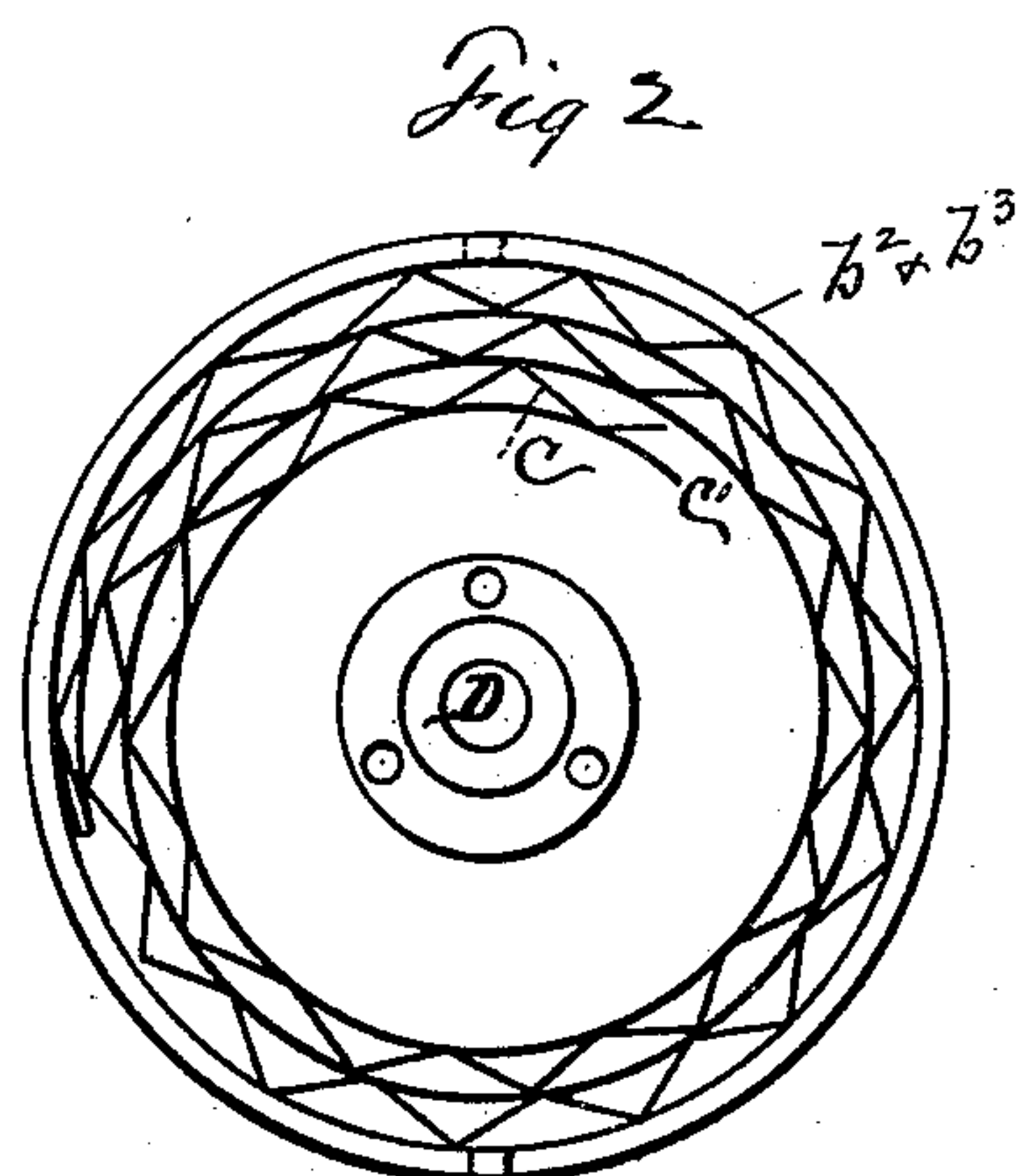
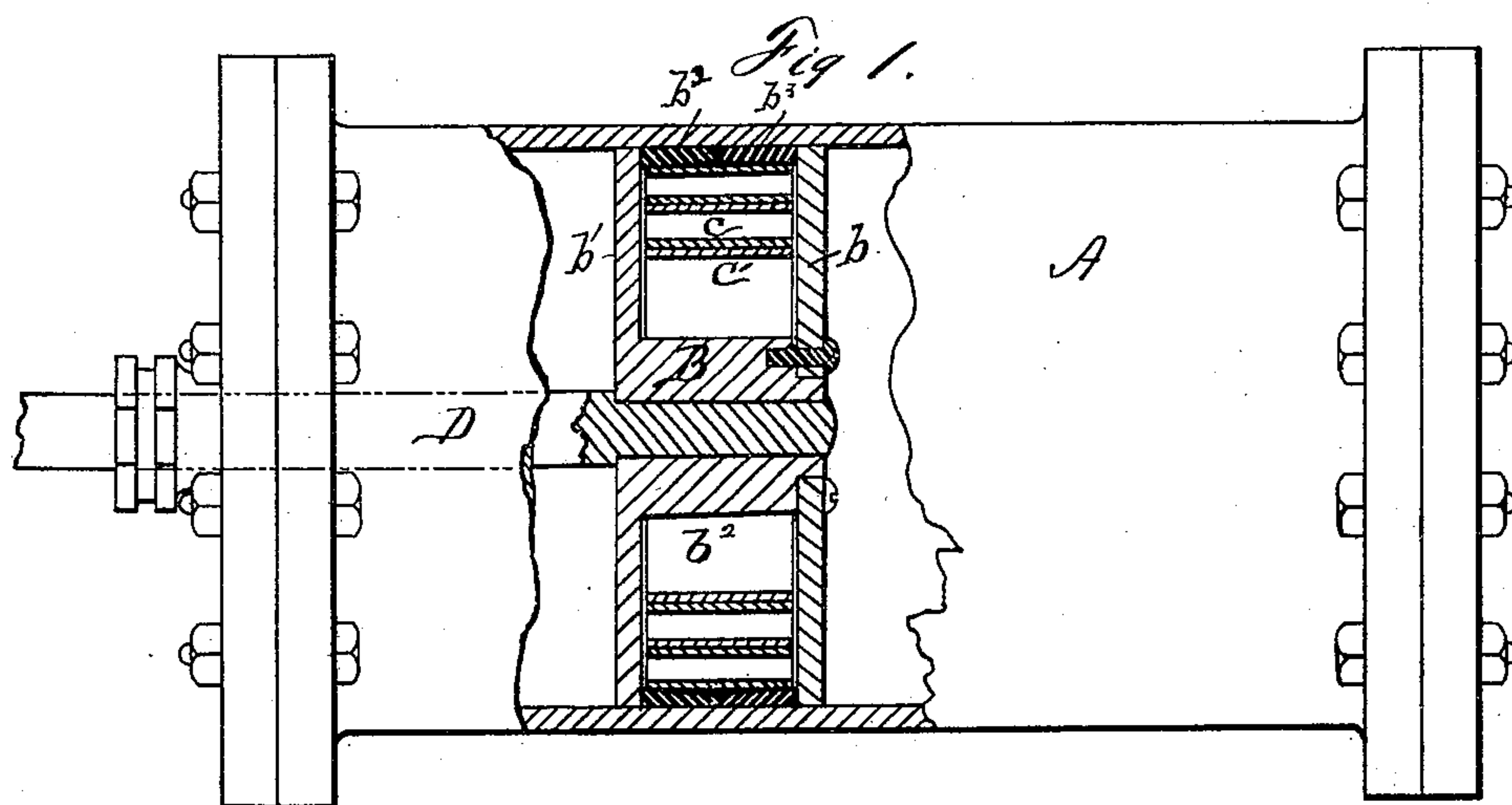


(No Model.)

J. BOOTH.  
PISTON PACKING.

No. 246,712.

Patented Sept. 6, 1881.



WITNESSES

*Samuel C. Thomas.*

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ATTORNEY

# UNITED STATES PATENT OFFICE.

JOHN BOOTH, OF DETROIT, MICHIGAN.

## PISTON-PACKING.

SPECIFICATION forming part of Letters Patent No. 246,712, dated September 6, 1881.

Application filed July 12, 1881. (No model.) Patented in England January 31, 1879.

*To all whom it may concern:*

Be it known that I, JOHN BOOTH, of Detroit, county of Wayne, State of Michigan, have invented a new and useful Improvement in Corrugated-Spring Piston-Packing; and I hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to the combinations of devices and appliances set forth in the specification and more fully pointed out in the claim. In the drawings, Figure 1 is a view of a steam-cylinder with the central portion broken away, and showing the piston-head in section. Fig. 2 is a plan view of the piston-head embodying my invention, with the top plate removed, showing the springs coiled up in position. Fig. 3 represents views of the springs employed in the interior of the piston-head.

The object of my invention is to provide a suitable packing for piston-heads, plungers of pumps, &c., where metallic packing is necessary, and also which shall have a tendency outward toward the inner surface of the cylinder, so that no matter how much the outer rings of the piston-head or the inner surface of the cylinder shall wear away there will always be a tight metallic joint formed.

To this end, A is a cylinder. B is the piston-head, of which *b* is the upper plate, and *b'* is the lower one. *b<sup>3</sup>* are the rings. On the top of the lower plate, *b'*, are coiled springs *c c'*, making, as it were, a double spring. These springs are encircled by the rings *b<sup>3</sup>*, which are made in the usual form of piston-rings, and are arranged so that the splits in them open at different sides of the piston-head. The spring *c*, I propose to make corrugated, and *c'* is a plain spiral spring. The corrugated spring *c* presses against the rings, and the plain one, *c'*, is coiled up at the same time as the corrugated one and intersects between each lap of the corrugated

one, so that the spring *c* cannot catch in itself, for were the plain spring *c'* not in its position the corrugated spring would get entangled in its own corrugations and nullify the object of the invention.

D is the piston-rod, which runs up in the usual way through both of the plates *b b'*. On the top of the plate *b'* is cast or otherwise fastened a collar, *b<sup>2</sup>*, which acts as a steadier for the piston-rod and to receive the screws which hold the top plate, *b*, in position.

I am aware that corrugated-spring packing has been used; but it has been found that in the use of it when the springs overlapped the end of each other the tension was lessened, owing to the tendency of the spring binding itself in the corrugations of the first round of the spring, and when one single round was used the tension was not sufficient to expand the rings.

It will be seen that by the arrangement of springs in the interior of a piston-head it not only makes a tight-fitting piston-head, but one which will give to any imperfection of the inside of the cylinder.

In fitting the springs into the interior of the piston-head, I propose to turn up a small piece of the plain spiral spring, so that the end of the corrugated spring will fit into it and be held secure. This will prevent them slipping, and will make them both act together.

What I claim is—

A spring-packing for piston-heads, consisting of one or more split rings backed by a spring composed of a strip of fluted or corrugated metal and an adjacent strip of plain metal coiled together, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

JOHN BOOTH.

Witnesses:

HENRY F. QUELCH,  
H. M. PERRINE.