

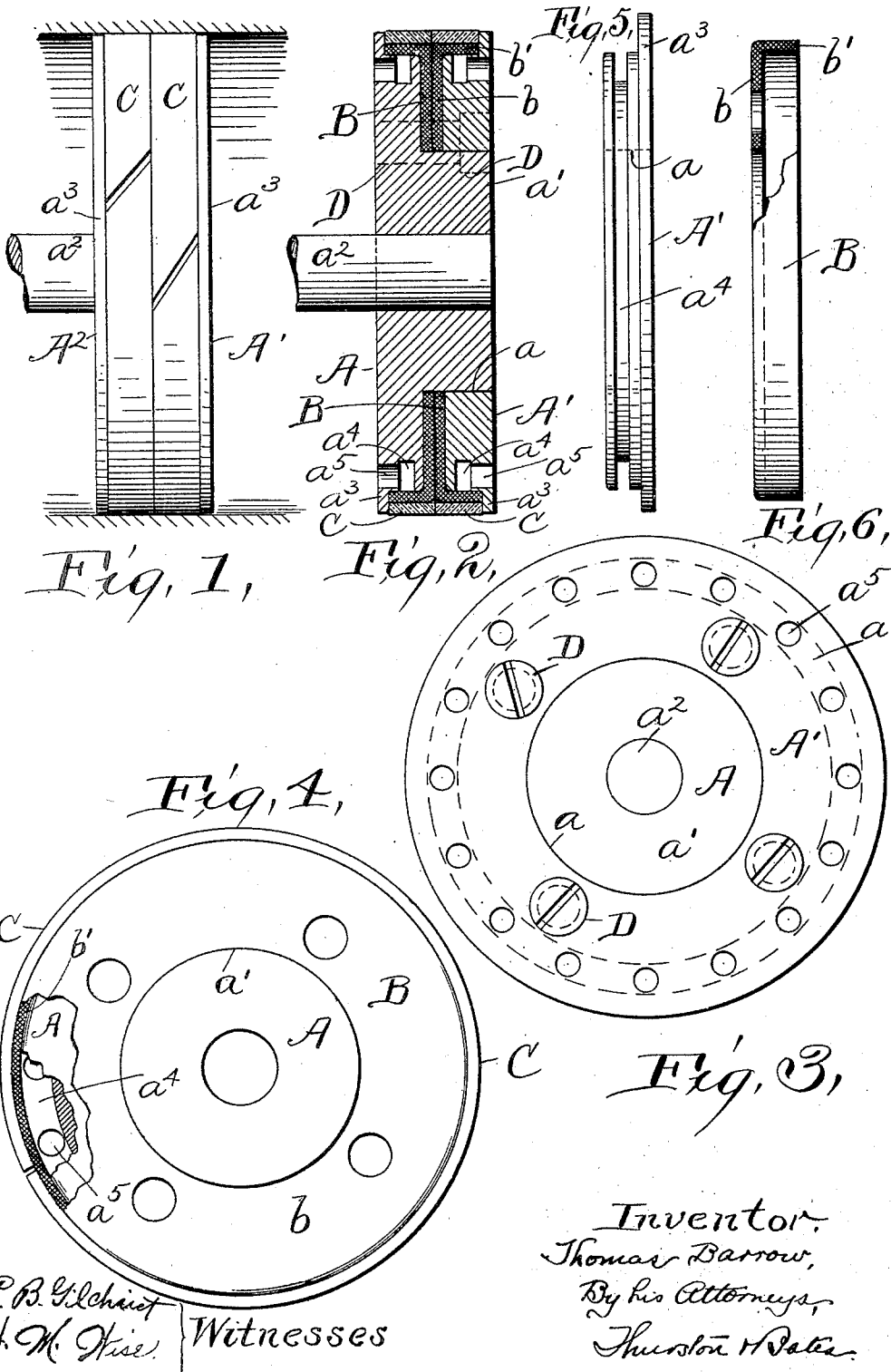
No. 690,091.

Patented Dec. 31, 1901.

T. BARROW.
PISTON.

(Application filed Apr. 22, 1901.)

(No Model.)



UNITED STATES PATENT OFFICE.

THOMAS BARROW, OF CLEVELAND, OHIO, ASSIGNOR TO THE CHISHOLM AND MOORE MANUFACTURING COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

PISTON.

SPECIFICATION forming part of Letters Patent No. 690,091, dated December 31, 1901.

Application filed April 22, 1901. Serial No. 56,831. (No model.)

To all whom it may concern:

Be it known that I, THOMAS BARROW, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Pistons, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

My invention relates to pistons of that class wherein there is an expansible rubbing-ring within which is a flexible backing-ring and there being an opening through the face of the piston to allow the operating fluid under pressure to act on the backing-ring to expand the rubbing-ring. Its object is to provide such a piston in a very simple, cheap, and efficient form and one in which the worn parts may be very conveniently replaced in practice.

The invention consists of the construction and combinations of parts to this end, as herein shown and described.

The drawings clearly illustrate the invention, Figure 1 being a side elevation of the piston complete, the cylinder being indicated in section. Fig. 2 is a transverse central section of the piston. Fig. 3 is a face view thereof. Fig. 4 is a face view of the piston separated, showing the inner side of the half appearing at the left in Fig. 2. Fig. 5 is an edge view of the other half of the piston. Fig. 6 is an edge view, partly sectional, of the flexible backing-ring.

Referring to the parts by letters, A and A' represent two cooperating members which form the body of the piston. The member A' has a central circular opening a , into which projects a round boss a' , extending from the other member. The piston-rod a^2 is secured centrally to the member A. Each of these members A and A' has on its outer face the projecting annular flange a^3 , which flanges when the two members are in cooperating position leave between them a peripheral recess. Around the edge of each member is formed a groove a^4 , and these grooves communicate with the outer surfaces of the members by numerous openings a^5 . The backing members consist of disks B, of leather or similar flexible material, having their edges bent up cylindrically to make a cup-shaped member,

as shown in Fig. 6, the member thus consisting of the annular portion b and the cylindrical flange b' . These two backing members surround the boss a' and are confined between the members A A' of the piston and have their cylindrical flanges b' occupying the peripheral recess of the piston and closing the annular grooves a^4 . Surrounding the backing-rings are a pair of split friction-rings C, which may be made of brass, for example. They are comprised between the flanges a^3 and are adapted to snugly engage the walls of the cylinder. The whole structure is held together by suitable screws D, screwing through from the member A' of the piston into the member A.

When the piston moves in either direction, the pressure of the fluid which is moving it (or which it is moving, as the case may be) acts through the openings a^5 onto the inner side of the peripheral edge of the flexible backing B, and this forces outward the corresponding friction-ring C, causing a snug engagement of the piston with the cylinder and preventing leakage.

The rubbing-rings and backing-rings may be replaced when desired without removing the piston from its cylinder. It is only necessary to take off the rear head of the cylinder and then remove the screws D, allowing the separation of the piston parts.

Having described my invention, I claim—

1. In a piston, a body composed of a pair of cooperating circular members, each member having an annular flange and having on its periphery on the inner side of the flange a peripheral groove and having a series of openings leading from said groove to the outer face of the member, a pair of flexible backing-rings each composed of an annular flat surface and a cylindrical surface extending from the edge thereof, said rings being clamped back to back between said members and having their edges projecting in opposite directions across said grooves, and expansible rubbing-rings surrounding said backing-rings between said flanges, substantially as described.

2. In a piston, a body composed of a pair of cooperating circular members, each member having an annular flange and having on

its periphery on the inner side of the flange
a peripheral groove and having a series of
openings leading from said groove to the
outer face of the member, one of said mem-
5 bers having a central boss and the other a
concentric recess adapted to receive the same;
a pair of flexible backing-rings each composed
of an annular flat surface and a cylindrical
10 surface extending from the edge thereof, said
rings being placed back to back over said
boss and having their edges projecting in op-
posite directions across said grooves, expan-
sible rubbing-rings surrounding said back-
15 ing-rings between said flanges, and screw-

the circular recess and through the flexible
rings and threaded into the other member,
whereby said flexible backing-rings are
tightly clamped in place but may be easily
replaced from the end of the cylinder oppo- 20
site the piston-rod, combined with a piston-
rod secured to the member which has the
boss and extending forward from the front
face thereof, substantially as described.

In testimony whereof I hereunto affix my 25
signature in the presence of two witnesses.

THOMAS BARROW.

Witnesses:

ALBERT H. BATES,
ERNEST S. BATES.