

No. 765,422.

PATENTED JULY 19, 1904.

W. M. FLETCHER.  
PACKING RING FOR PISTONS.  
APPLICATION FILED SEPT. 29, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

FIG. I.

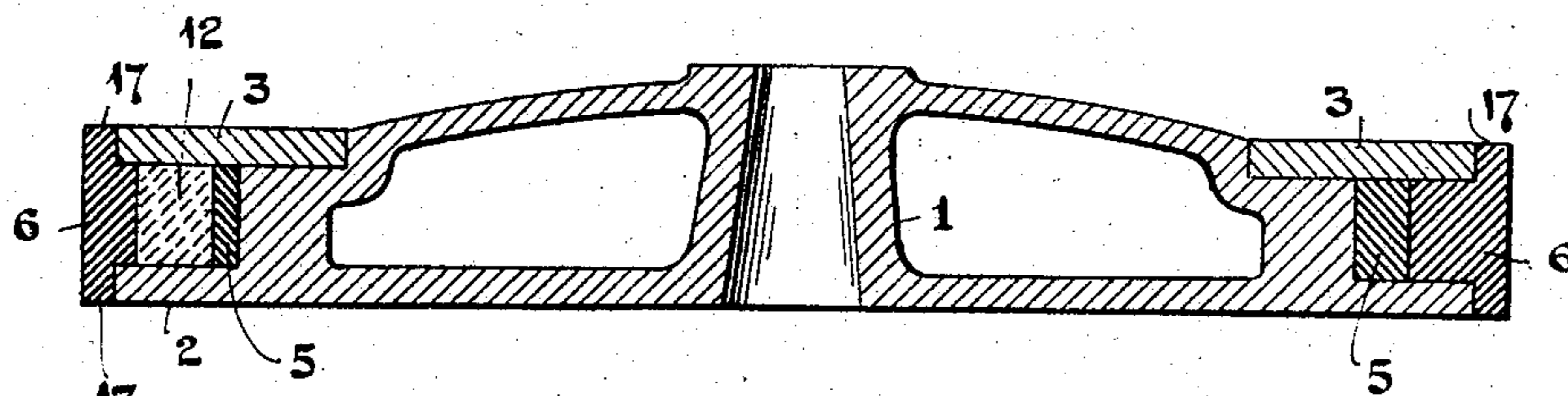
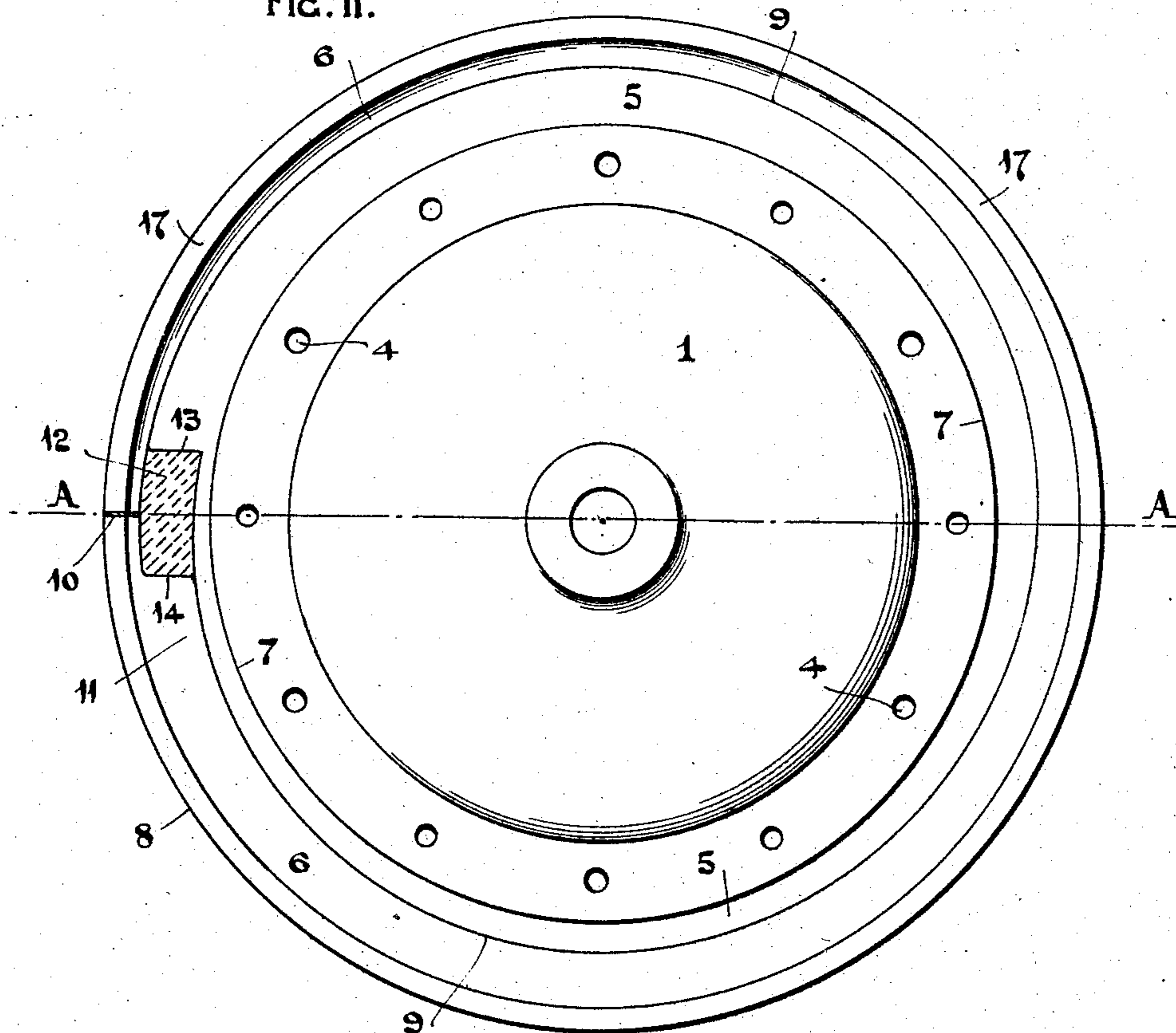


FIG. II.



Attest:  
Commissioner  
Edward Sartor

Inventor  
WILLIAM M. FLETCHER.  
by Ellis Spear Company  
Atty

No. 765,422.

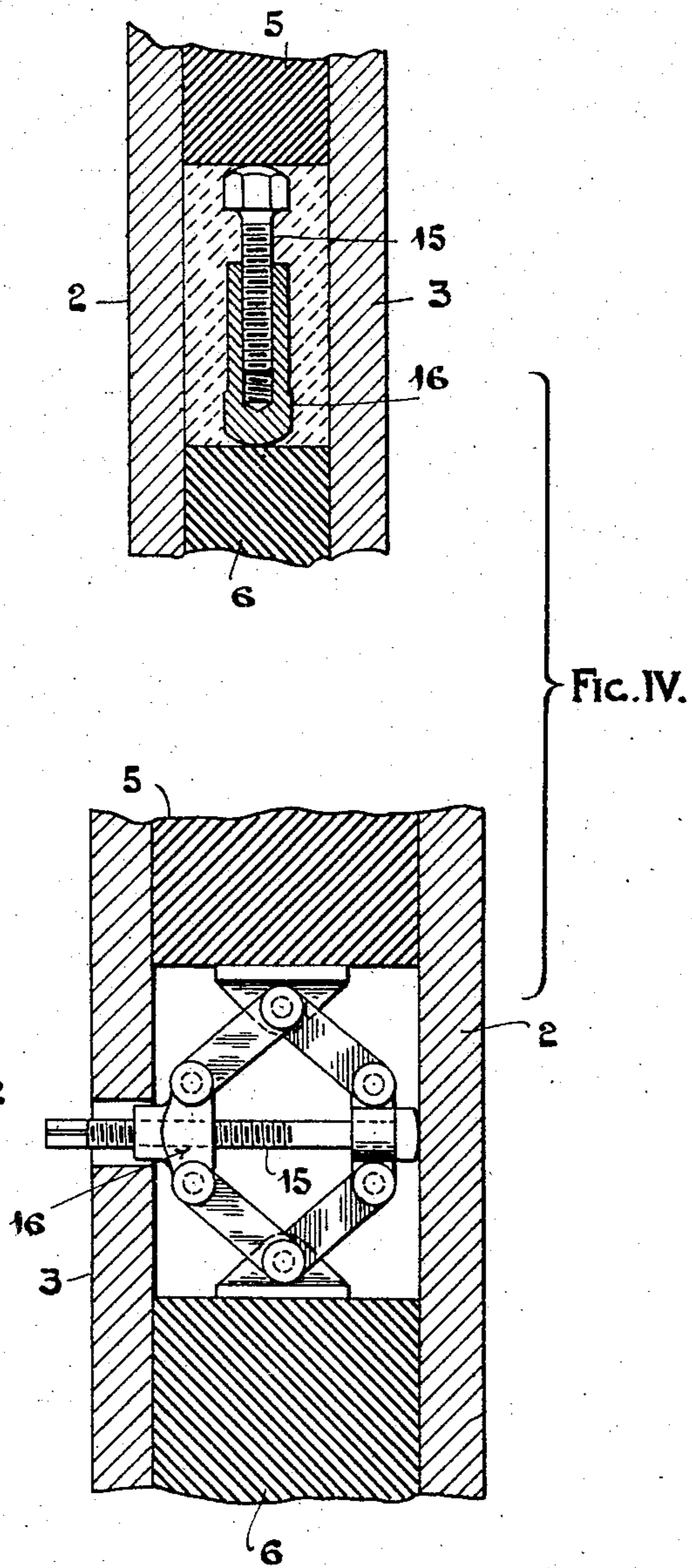
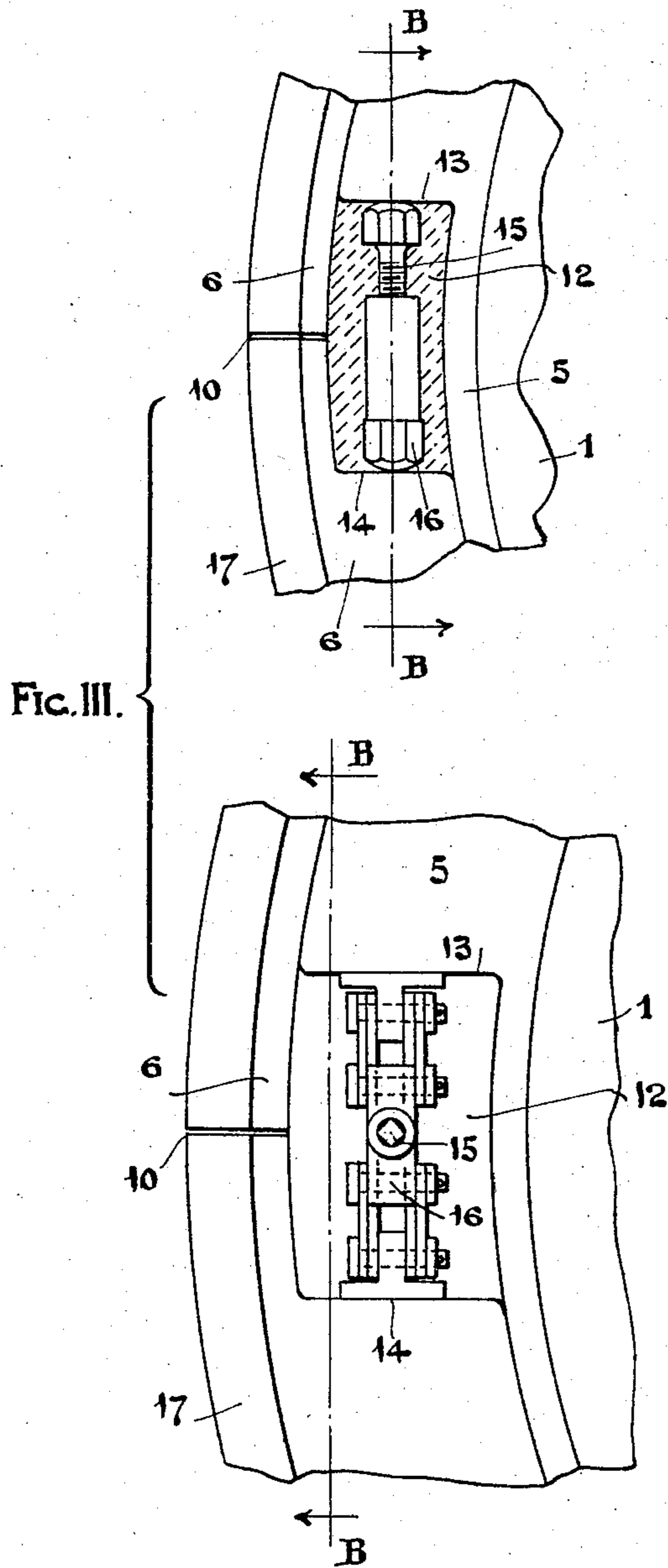
PATENTED JULY 19, 1904.

W. M. FLETCHER.  
PACKING RING FOR PISTONS.

APPLICATION FILED SEPT. 29, 1903.

NO MODEL.

2 SHEETS-SHEET 2.



# UNITED STATES PATENT OFFICE.

WILLIAM MARSDEN FLETCHER, OF WALLASEY, ENGLAND.

## PACKING-RING FOR PISTONS.

SPECIFICATION forming part of Letters Patent No. 765,422, dated July 19, 1904.

Application filed September 29, 1903. Serial No. 175,077. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM MARSDEN FLETCHER, a subject of the King of Great Britain, residing in Wallasey, in the county of Chester, England, have invented certain new and useful Improvements in Packing-Rings for Pistons, of which the following is a specification.

This invention relates to packing-rings for pistons; and the object is to obtain the necessary radial adjustment without the use of the ordinary form of springs and in such manner as to obviate the excessive pressure between the piston-ring and cylinder which results from the pressure of the steam on the back of the ring.

I have illustrated my invention in the accompanying drawings, in which—

Figure I is a sectional elevation on the line A A, Fig. II, of a piston fitted with the improved packing-rings; and Fig. II is a plan of Fig. I with the junk-ring removed. Fig. III is a fragmentary view, to an enlarged scale, of one method of adjusting the packing-rings; and Fig. IV is a sectional view on the line B B, Fig. III, looking in the direction of the arrows.

The piston 1 is formed with a flange 2 and is fitted with a junk-ring 3, attached to the piston by studs 4 in the usual manner. Into the packing-space between the junk-ring 3 and the piston-flange 2 are fitted the packing-rings 5 and 6, of cast-iron or other suitable material. The inner bore 7 of the inner ring 5 is cylindrical and fits the body of the piston, and the outer periphery 8 of the outer ring 6 is also cylindrical and fits the cylinder.

The parting and abutting surfaces 9 of the rings—viz., the outer surface of the inner ring 5 and the inner surface of the outer ring 6—are of spiral or scroll configuration. The inner ring 5 may be made solid, as shown in Fig. II, but the outer ring is obliquely parted at 10 and made steam-tight in the ordinary manner by a midway tongue-piece, (not shown,) so that it may be expanded against the cylinder-walls. The thicker part of the outer and inner rings near the parting is cut away, so as to leave a rectangular space 12 between the two rings.

The adjustment of the outer ring 6 is made by forcing the two shoulders 13 and 14 apart by suitable means and then locking them in this position. This may be done by any suitable form of distance-piece, which may have springs, screws, wedges, liners, or the like fitted to provide for this adjustment. In Fig. II the outer ring is held distended by a solid block of white metal, which is run in and locks the outer ring after it has been adjusted. Figs. III and IV show one form of distance-piece made up of a screwed bolt 15 and nut 16. It will be seen that on the rotation of the bolt 15 it will be caused to unscrew and the total axial length of the distance-piece increased, thereby forcing apart the shoulders 13 and 14 and expanding the outer ring 6 by means of the wedge action of the inner ring 5. White metal may now be run into the rectangular space surrounding the distance-piece, and so lock it in its extended position.

The outer ring 6 may be provided with flanges 17, which extend radially beyond and inclose the junk-ring 3 and the piston-flange 2, so that the outer ring has a depth equal to that of the piston and the junk-ring, and so may run over the cylinder-liner at each end of the stroke.

When the proper adjustment is once made, the junk-ring may bind the whole arrangement solid with the piston, the external periphery of the outer ring being a true cylinder and no space left on the inside of the ring for the entrance of steam to exert an outward pressure.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The improvement in pistons, which consists in providing two rings, an inner solid ring having a cylindrical bore adapted to fit the piston-body, and an outer split ring having a cylindrical periphery adapted to fit the cylinder, the abutting surfaces of the two rings being of scroll or spiral configuration said rings being provided with means for holding them in the desired relative angular position, substantially as described.

2. In a piston, in combination, the piston-body, the junk-ring, the inner ring fitting the

piston-body, the outer ring fitting the cylinder, said rings having scroll or spiral abutting surfaces, and means for adjusting the relative angular position of the rings; substantially as described.

5 3. In a piston, the combination, the piston-body, the inner ring fitting the piston-body, the outer ring fitting the cylinder, said rings having scroll or spiral abutting surfaces, said  
10 rings having also abutments formed at their thickest parts, and a screw and nut interposed between said abutments for adjusting the relative angular positions of the rings, said screw and nut being held in position by white metal  
15 run into the cavity formed by the said abutments, substantially as described.

4. In a piston, in combination, the piston-body, the inner ring, the outer ring, said rings having scroll or spiral abutting surfaces, the thickest parts of said rings being cut away to  
20 form shoulders with a recess therebetween, and means in said recess for adjusting the relative angular position of the rings, substantially as described.

In testimony whereof I have hereunto set  
25 my hand in the presence of two subscribing witnesses.

WILLIAM MARSDEN FLETCHER.

Witnesses:

JOSEPH GLENMARK RICHARD DASH,  
DANIEL GUSTAU VANDER HEYDEN.