W. R. Thomas,

Piston Packing.

No. 46,733. Patented Mar. 7, 1865.

Fig. 1.

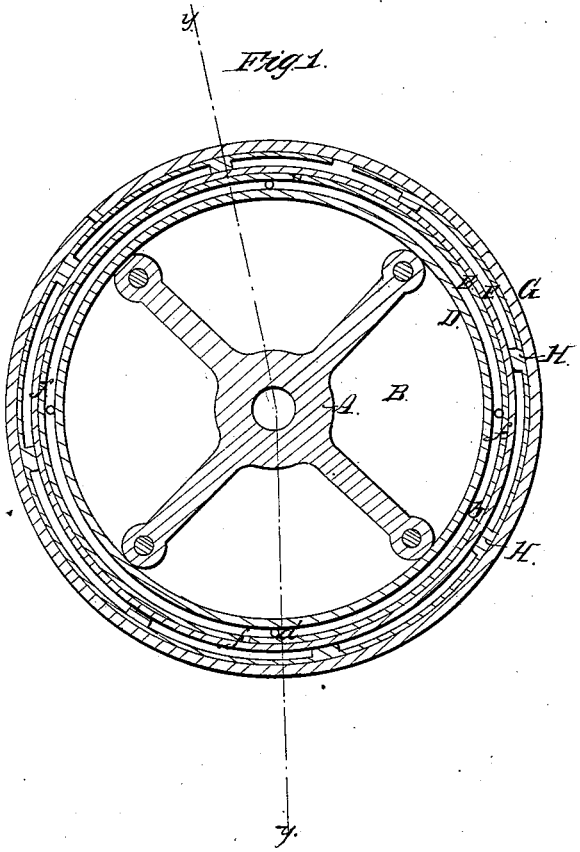
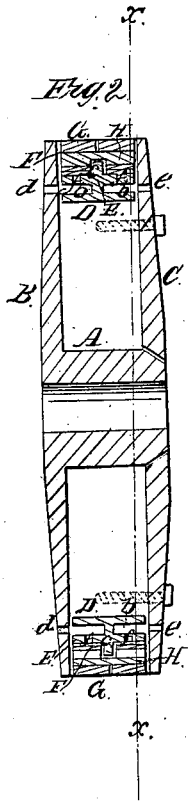


Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM R. THOMAS, OF CATASAUQUA, PENNSYLVANIA.

IMPROVEMENT IN PISTON-PACKINGS.

Specification forming part of Letters Patent No. **46,733**, dated March 7, 1865.

To all whom it may concern:

Be it known that I, W. R. THOMAS, of Catasauqua, in the county of Lehigh and State of Pennsylvania, have invented a new and Improved Piston-Packing; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a section transversely through the piston-rod, the plane of section being indicated by the line *x x*, Fig. 2. Fig. 2 is a section in a direction parallel with the piston-rod, the line *y y*, Fig. 1, indicating the plane of section.

Similar letters of reference indicate like parts.

This invention relates to an improvement in that class of pistons in which steam is used to keep the packing-rings in contact with the inside surface of the cylinder.

The invention consists in the employment or use of a double shell fitting between the head and follower of the piston, and provided with a transverse partition connecting the two cylindrical shells and extending beyond the outside shell toward the packing-rings, in combination with two sets of secondary packing-rings which are separated from each other by said partition, and with holes in the piston-head and follower, and in the outside shell in such a manner that when steam is admitted either through the holes in the head or in the follower of the piston said steam will act upon the inner surface of the secondary packing-rings, and by its action the main packing-rings are forced steam-tight against the inner surface of the cylinder, and by the transverse partition of the double shell the passage of the steam from one side of the piston to the other is prevented.

A represents the cylinder of an ordinary steam-piston, which is cast solid with the head B, and to which the follower C is secured by means of screws or in any other suitable manner. A double cylindrical shell, D E, is fitted round the spider, its edges being ground steam-tight to the inner surfaces of the head and the follower, and the two shells D E are connected to each other by a transverse partition, *a*, which is situated at about the middle of their height, dividing the annular space *b* between said two shells in two equal parts, which are not in communication with each other.

The partition *a* extends beyond the outer shell, E, forming a flange, *c*, as clearly shown in Fig. 2 of the drawings, and this flange separates the two sets of secondary packing-rings F one from the other. These packing-rings act upon the main packing-rings G either direct or by intervening blocks, H, (in very large cylinders these blocks may be omitted,) and they are forced out by the action of the steam which is admitted through holes *d e* in the follower and head, and through holes *f* in the outer shell, E.

The steam admitted through the holes *d* or *e* passes into the annular space *b* between the two shells, being prevented by the partition *a* from passing to the opposite or exhaust side of the piston, and it (the steam) acts on the secondary packing-rings F through the holes *f* in the outside shell, being prevented by the flange *e* from passing round to the opposite side of the piston.

By the action of the steam on the secondary rings F the main packing-rings G are held in close contact with the inside surface of the cylinder, all unnecessary friction is avoided, and the piston works tight without cutting.

The double shell D E, being made independent of the spider, can be removed with all its appendages and the entire piston can be made cheap and kept in order without trouble or loss of time.

It remains to remark that the number of secondary packing-rings on each side of the partition may be one or more, according to the size of the piston.

I claim as new and desire to secure by Letters Patent—

The double shell D E, provided with holes *f* in the outside shell, and with a partition, *a*, and flange *c*, in combination with holes *d e* in the head and follower of the piston, and with secondary packing-rings F and main packing-rings G, all constructed and operating in the manner and for the purpose substantially as herein set forth.

WILLIAM R. THOMAS.

Witnesses:

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