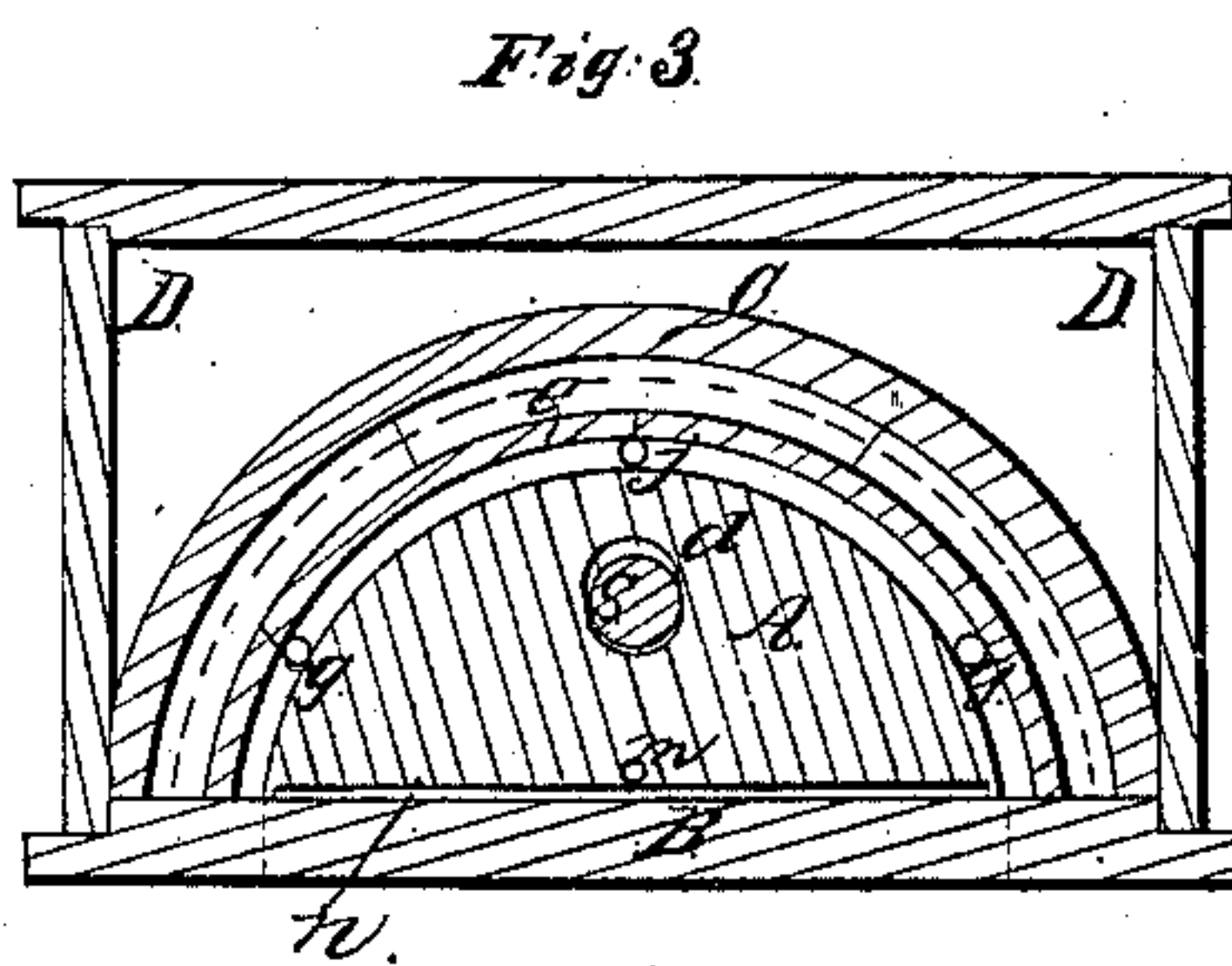
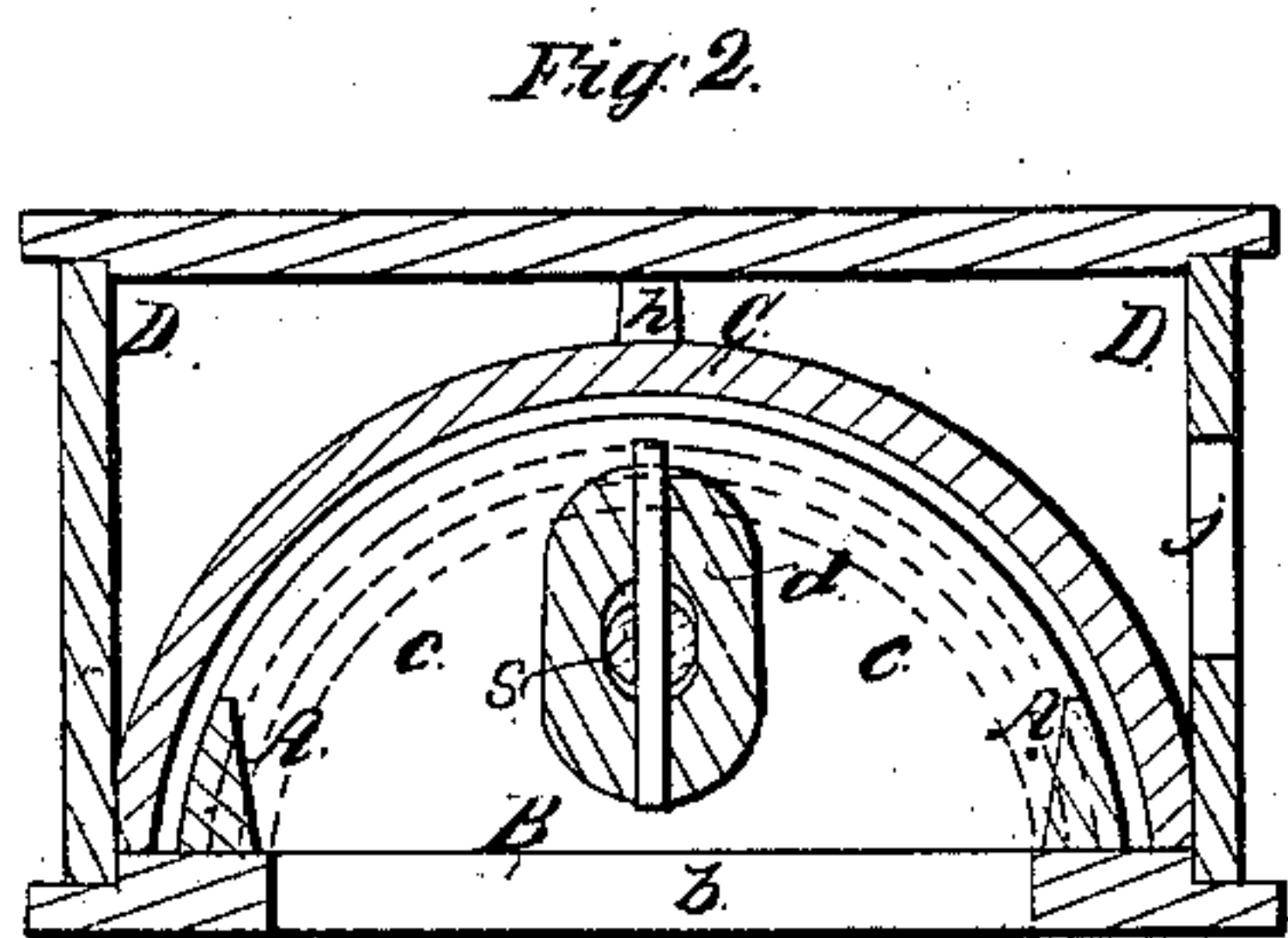
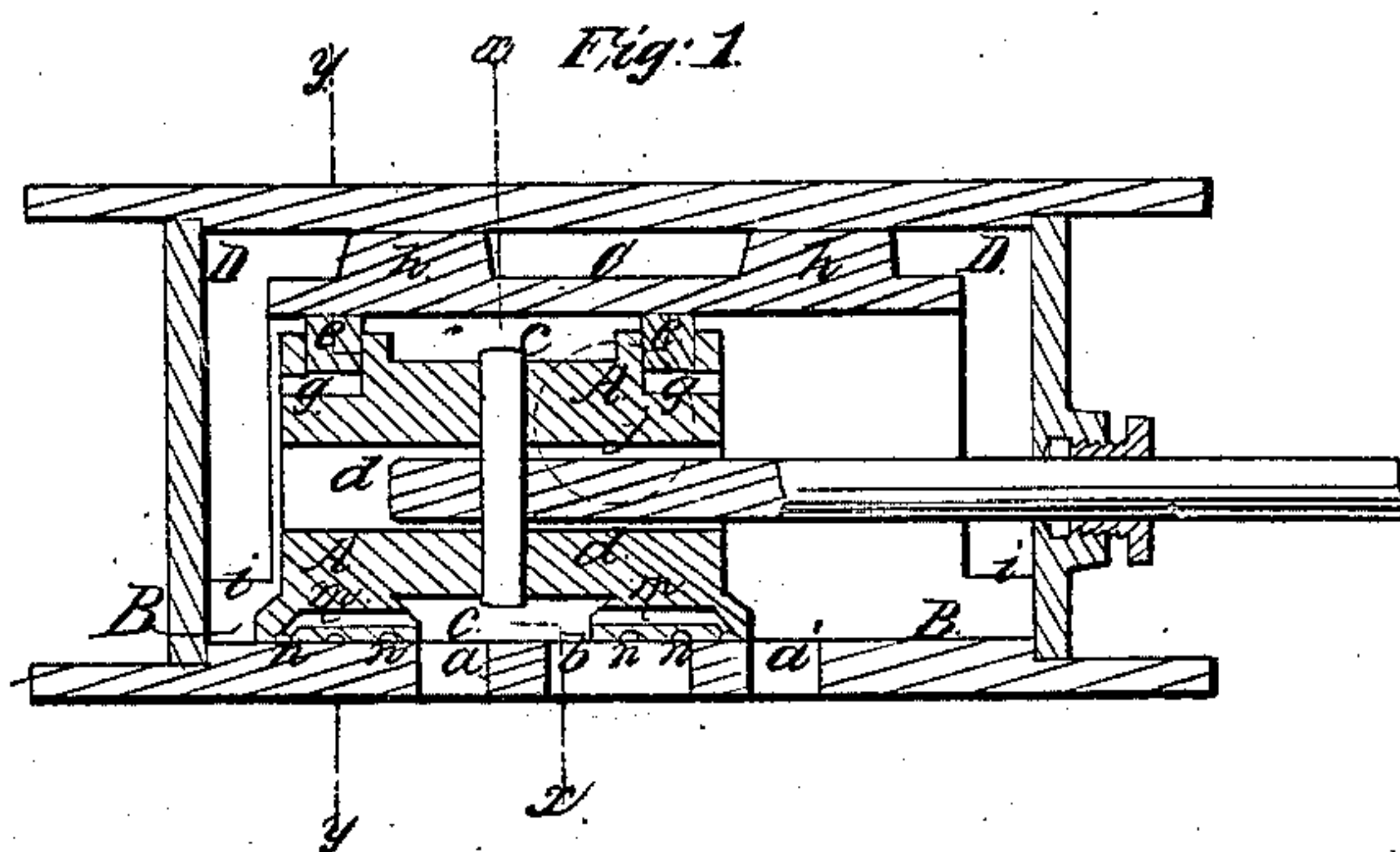


R. Faries,
Steam Balanced Valve.
N^o 42,359. Patented Apr. 19, 1864



Witnesses:

W. Coombs
Gall Reed

Inventor:

R. Faries
per Munn & Co
Attorneys

UNITED STATES PATENT OFFICE.

ROBERT FARIES, OF INDIANAPOLIS, INDIANA.

IMPROVEMENT IN BALANCED SLIDE-VALVES.

Specification forming part of Letters Patent No. 42,359, dated April 19, 1864.

To all whom it may concern:

Be it known that I, ROBERT FARIES, of Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Improvement in the Slide-Valves of Steam and other Engines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a central longitudinal vertical section of a valve-chest, valve, and seat illustrating my invention. Fig. 2 is a transverse vertical section of the same in the planes indicated by the line *x x* in Fig. 1. Fig. 3 is a transverse vertical section of the same in the plane indicated by the line *y y* in Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

The object of my invention is to relieve the back of the slide-valve of the pressure of the steam or other fluid in the valve chest, and thereby reduce its friction and wear; and to this end it consists principally in making the valve of arched or equivalent form in its transverse section, and fitting it with suitable packing to a stationary protecting arch or cover, which extends right over it from one side of the valve-seat to the other.

To enable others skilled in the art to make and apply my invention, I will proceed to describe it with reference to the drawings.

D is the valve-chest, made of the form commonly used with the three-port slide-valve.

B is the slide-seat flat, and having the steam valve-ports *a a'* and exhaust-port *b* arranged in the usual manner.

A is the valve, having its face flat and of the form common to the three-port slide-valve, but having its back of semicircular form in its transverse section. Its exhaust-opening *c*, instead of being a mere cavity, extends right through the back, and a tube, *d*, extends lengthwise of the valve across this opening to surround the valve-stem *s* and prevent leakage of steam around it into the exhaust-opening *c*. The two ends of the valve are solid and of semi cylindrical form and packed with ring, segment, or other packing, *e e*, to fit steam-tight to the protecting arch

or casing C. The protecting arch or casing C is of semi-cylindrical form in its transverse section to correspond with the valve, and open at both ends. It rests on the valve-seat on each side of the valve, and is held down by being provided with projections *h h* on its back to fit against the cover of the chest and prevented from moving endwise by being furnished at its ends with projections *i i*, to fit between the ends of the valve-chest. The said arch might, however, be made in the same piece with the cover or bolted to the valve-seat. The packing *e e* of the valve may be held out against the interior of the arch C by means of springs, or by the admission of steam within it through holes *g g* in the ends of the valve. The back of the valve and the cover C may be of other than semi-cylindrical or arched form, but I consider that form the best, as it enables the necessary fit to be more easily made, and is more easily packed.

The steam being admitted to the steam-chest through a suitably-arranged opening, *j*, fills the chest at the back of and at both ends of the cover C, and enters both ends of the said cover so as to press equally on both ends of the valve, but is prevented by the cover from pressing on the back of the valve. The whole of the exhaust opening or cavity *c*, surrounding the tube *d*, is always open to the exhaust-port *b*.

To prevent the valve from being lifted from its seat by steam getting between the face and seat from imperfect fitting, there are small grooves *n n* cut transversely in the face of the valve, as shown in Figs. 1 and 3, and these grooves communicate with the exhaust-opening *c* by means of very small longitudinal openings *m m*, which, while permitting the escape of any steam which gets between the valve and seat, do not permit any considerable waste of steam. Instead of these grooves and passages being in the valve-face, they may be in the seat and produce the same effect.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The stationary protecting-cover C, of arched or other equivalent form in its transverse section, in combination with the packed

valve A, having a transverse section of corresponding form, substantially as and for the purpose herein specified.

2. In combination with such valve and cover, the tube *d*, for preventing leakage of steam around the valve-stem, substantially as and for the purpose herein set forth.

3. In combination with such valve and seat, the grooves *n n* and passages *m m*, substantially as and for the purpose herein specified.

ROBERT FARIES.

Witnesses:

S. D. PATTERSON,
W. G. RIGGIN.