(No Model.)

C. O. HEGGEM.

BALANCED SLIDE VALVE.

No. 491,940. Patented Feb. 14, 1893.

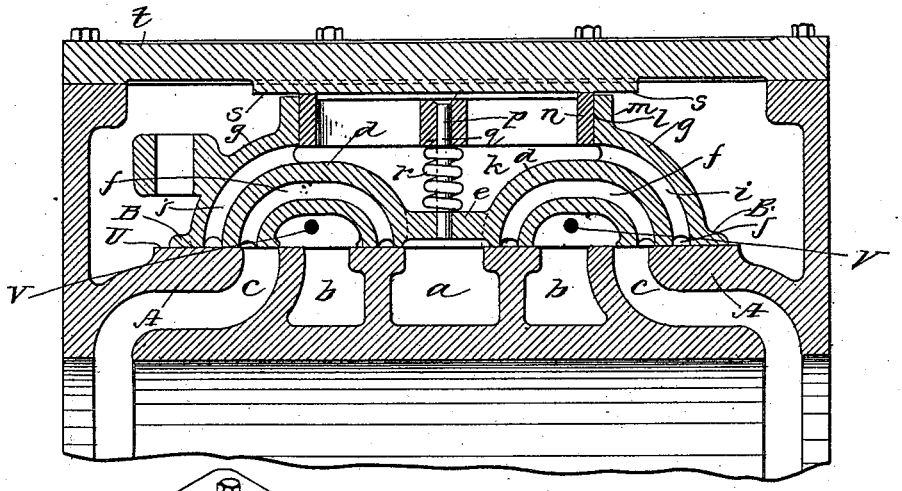

Fig. 2.

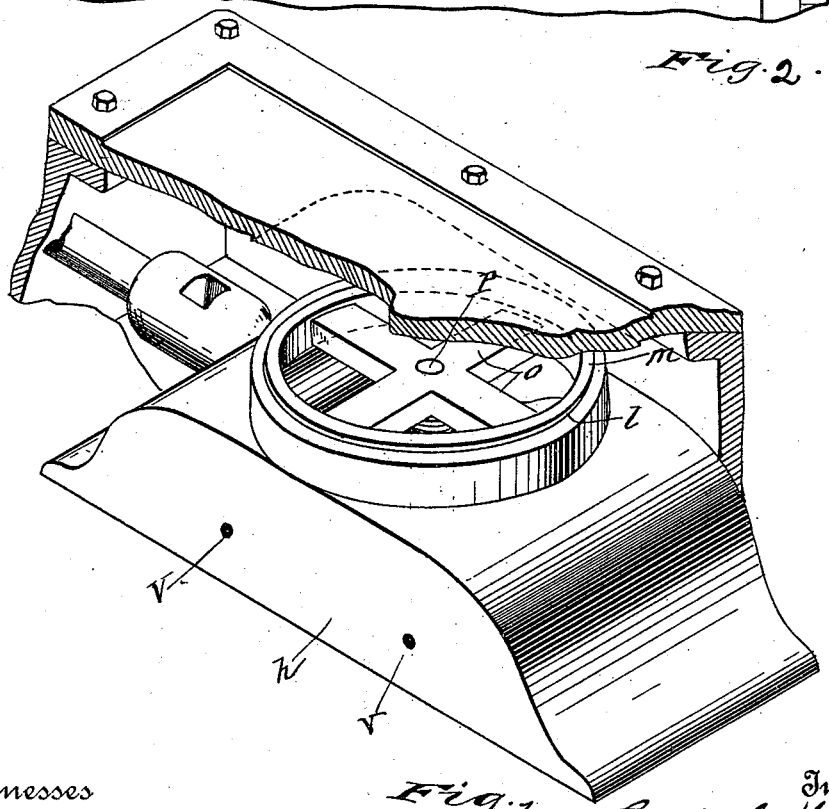

Fig. 1.

Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES O. HEGGEM, OF MASSILLON, OHIO, ASSIGNOR TO THE RUSSELL & COMPANY, OF SAME PLACE.

BALANCED SLIDE-VALVE.

SPECIFICATION forming part of Letters Patent No. 491,940, dated February 14, 1893.

Application filed October 3, 1892. Serial No. 447,614. (No model.)

To all whom it may concern:

Be it known that I, CHARLES O. HEGGEM, a citizen of the United States, and a resident of Massillon, county of Stark, State of Ohio, have invented a new and useful Improvement in Balanced Slide-Valves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to an improvement in balanced slide valves, and consists of certain features of construction and combination of parts as will be hereinafter described and pointed out in the claims.

Figure 1, of the accompanying drawings is a perspective of a balanced slide valve illustrating my invention, and; Fig. 2, a vertical longitudinal section.

Similar letters of reference indicate corresponding parts in both the figures of the drawings.

A, represents a steam cylinder having a central steam port *a* by which steam enters the valve from the bottom, and the exhaust ports *b* steam ports *c*.

Referring to Fig. 2, B, represents the valve which is composed of two D valves *d*, secured together by a cross bar *e;* in the D valves are shown the usual ports *f* over and inclosing the valves is a back or covering *g*, secured to the valves D, by the side portions *h* and a rib *i*, in such manner as to form a port *j* between the back of the D valves and the back *g;* the rib *i* is placed about central to the valve and serves to support the back *g*, the port *j* extending from the end face of the valve to the central hollow portion *k* of the valve B.

In the back *g* of the valve B, is provided a circular aperture *l* having about its periphery an upwardly projected flange *m*, integral with the back forming a cylinder portion in which is placed and fitted a ring *n* having arms *o* and a central perforation *p* in which is placed a pin *q* the lower end portion of which is secured in the cross bar *e*, about this pin is placed a coil spring *r* the energy of which is exerted upwardly against the arms O of the ring *n*, to hold the ring against the face *s* of the cap *t* of the valve chamber. The strength of the spring should be regulated to the weight of the ring and with just enough in excess to hold the ring against the face *s* of the cap *t*.

In practice it has been found that the aperture *l* should be about twenty five per cent less than the combined apertures in the valve seat *u*, so as to assure a slight holding down of the valve by the pressure of steam on the back of the D valves, there being no steam in the valve chamber, as apertures *v* are provided in the sides *h* of the valve for the escape from the chamber of steam that may accumulate therein.

In operation the valve is moved in the usual way, steam is admitted through the central port *a* into the central or hollow portion *k* of the valve, the pressure resting on the back *d* of the D valves and against face *s* of the cap *t* inside the ring *n*, and pass into the cylinder A through the ports *f* and *j*.

Having thus fully described the nature and the object of my invention, what I claim and desire to secure by Letters Patent is:

1. The combination with a steam cylinder A, having ports *a*, *b*, *c*, of a slide valve B, having therein ports *f*, *j*, a central chamber *k*, a back *g*, having therein a circular aperture *l*, having about its peripheral edge and integral with the back, an upwardly projected rim or flange *m*, forming a cylinder portion, a ring *n* adapted to move vertically therein, the upper face of said ring adapted to slide on the under face *s* of the cap *t*, substantially as described and for the purpose set forth.

2. The combination with a steam cylinder A, having ports *a*, *b*, *c*, of a slide valve B, having therein ports *f*, *j*, a back *g*, having a circular aperture *l*, the area of which is less than the area of the ports *a*, *b*, *c*, whereby the pressure on the valve may be previously determined, said aperture having about its peripheral edge integral with the back, an upwardly projected rim or flange *m*, forming a cylinder portion, a ring *n*, adapted to the inner face of said rim, to move vertically therein, the upper face of said ring to slide on the lower face *s*, of the cap *t*, and the spring *r* to hold the ring *n*, against the face *s*, substantially as described and for the purpose set forth.

3. The combination with a steam cylinder of a slide valve B, having D portions *d* and

connecting bar *e* integral therewith, and having therein ports *f*, a back *g*, to embrace and form about said portions ports *j*, said back having a circular aperture *l*, the area of which is less than the area of the ports *a*, *b*, *c*, said aperture having about its peripheral edge, an upwardly projected rim or flange *m*, integral with the back, forming a cylinder portion, a ring adapted for vertical adjustment in said rim, or cylinder portion, the upper face of said ring to slide on the under face *s*, of the cap *t*, and the spring *r*, supported by the bar *e*, and pin *q*, substantially as described and for the purpose set forth.

In testimony whereof I have hereunto set my hand this 2d day of August, A. D. 1892.

CHARLES O. HEGGEM.

Witnesses:
W. K. MILLER,
CHAS. R. MILLER.