(No Model.)

W. SCOTT.

STRAIGHT WAY VALVE.

No. 342,542. Patented May 25, 1886.

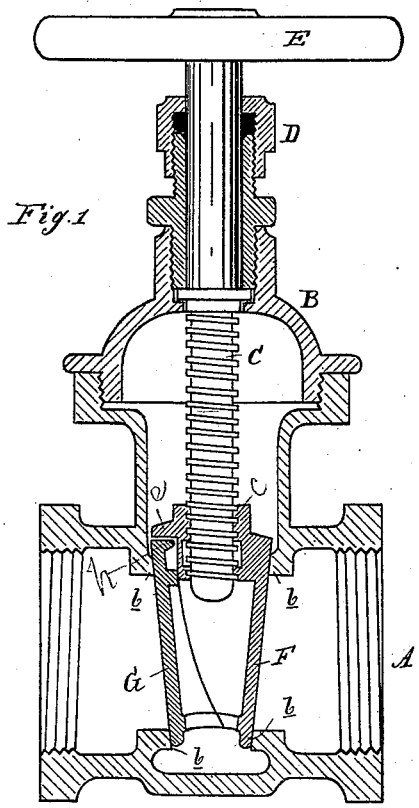

Fig. 1

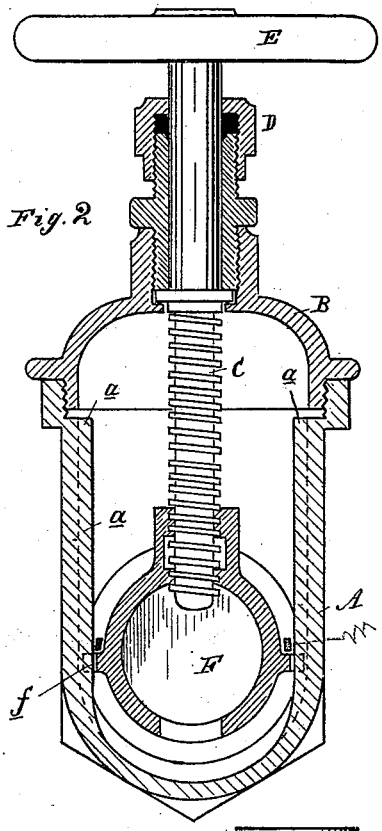

Fig. 2

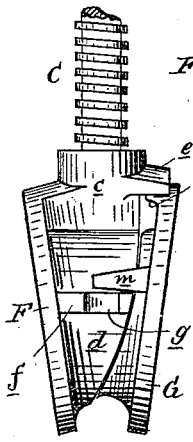

Fig. 3

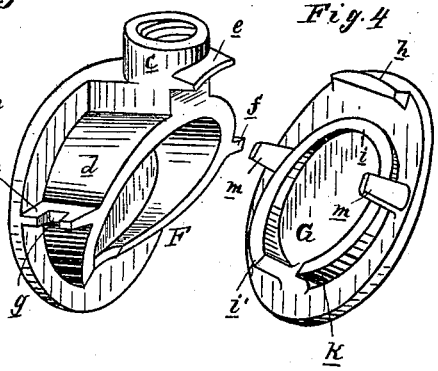

Fig. 4

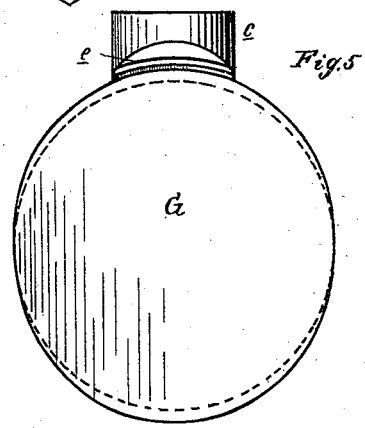

Fig. 5

Attest:
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by his Atty
Wm. J. Sprague

UNITED STATES PATENT OFFICE.

WILLIAM SCOTT, OF DETROIT, MICHIGAN, ASSIGNOR TO ROE STEPHENS, OF SAME PLACE.

STRAIGHT-WAY VALVE.

SPECIFICATION forming part of Letters Patent No. 342,542, dated May 25, 1886.

Application filed October 8, 1885. Serial No. 179,289. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SCOTT, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Straight-Way Valves; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in straight-way valves; and it consists in the peculiar construction, combination, and operation of the various parts, as more fully hereinafter described and claimed.

Figure 1 is a vertical central section of my improved straight-way valve. Fig. 2 is a vertical transverse section of the same. Fig. 3 is a side elevation of the disks detached from the cage. Fig. 4 is a perspective view of the rear face of the two disks detached from each other. Fig. 5 is a front elevation detached from the cage.

In the accompanying drawings, A represents the cage, B the cap or dome, C the screw-stem, D the stuffing-box, and E the handle of the stem, all of well-known forms of construction, the inner wall of the two sides of the cage having vertical ribs *a*, cast or formed thereon, and seats *b* at the inner ends of the water-way.

F is a disk having a hub, *c*, cast on the back face thereof and projecting above its upper edge. This hub is interiorly threaded to engage with the threaded stem, and by this engagement and the proper manipulation of the stem the disk is raised or lowered in the cage to disclose or close the water-ways thereof. An annular-shaped wall, *d*, is also cast or formed on the rear face of this disk. The highest point of this wall is in vertical line with the axis of the threaded hub, whence it declines not by a straight incline to a point also vertical to such last-named axis, but in convex curved lines, as shown in Figs. 3 and 4. At the point exactly vertical to the axis of the hub this wall at its lowest point is cut away to allow the end of the stem to pass. A flange, *e*, is cast or formed, which projects from that side of the hub opposite to that where the disk F is attached or cast, and flanges *f* are cast or formed projecting outwardly from the annular-shaped wall to the periphery of the disk. These flanges have vertical recesses or slots *g* formed therein to embrace the ribs *a* of the cage, which now act as guides.

G is the fellow disk, designed to seat itself in the opposite side of the cage from that occupied by the disk F when in place. At its upper edge there is formed or attached to the rear face of this disk G a projecting flange, *h*, designed, when this disk is in place, to impinge against the lower face of the flange *e* on the hub and act as a stop to arrest this disk against a too great upward vertical movement. The lower side of the flange *e* is concave, while the upper face of the flange *h* is convex, the curvature being the same as is that part of the disk of which such flange forms a part. An annular-shaped wall, *k*, is also cast or formed on the rear face of this disk, near its periphery, and in such position as to be coincident with the wall of the other disk when the two disks are in their proper relative positions—back to back. The lowest point of this wall is near the upper edge of the disk G, and thence the wall rises in an inclined plane, such plane not being a straight incline, but a concave or curved inclination from the lowest point, *i*, to the highest point, *i'*, where the wall is cut away, as shown, in the path of the travel of the stem. Studs *m* are cast or formed projecting from the rear face of this disk G, adapted to rest, when such disk is in place, upon the flanges *f* of the other disk.

It will be noticed that the two disks are slightly oval in shape, being vertically longer than they are wide, so that as their lower edges wear away they will continue to seat themselves, gradually losing their oval shape, and when this is gone they will still perform their functions as well as any of the round disks in common use.

In practice the disk G, by means of its lugs, hangs upon the flange *f* of the other disk, and the distance between the top of these flanges and the lower face of the flange *e* is such as to allow a slight vertical play to this disk G. In closing down the valve by means of the stem the vertical and lateral play provided for al-

lows the disks to readily seat themselves to their respective seats, and compensates for any inequality there may happen to be at the valve-seats or in the disks themselves, the limited free movement of the loose disk upon the inclined bearings at its back very materially assisting in this result.

I am aware that it is not new to employ valve-disks provided with a spherical joint, and that oval disks longer in vertical cross-section than in lateral cross-section are not new with me.

I deem it important that the space inclosed by the walls *d k* be hollow instead of solid, as heretofore, for by this construction I am enabled to make at the minimum of expense a much tighter joint between the meeting faces of the two walls than where a ball-and-socket joint is formed, and it also lessens the weight of the gate without lessening the effectiveness of the valve.

What I claim as my invention is—

1. In a straight-way valve, the combination, with the disk F, having flange *d* and flange *e*, with its lower side concave, of the disk G, having flange *k* and flange *h*, provided with convex upper face, substantially as and for the purpose specified.

2. The combination of the disk F, having cast on its back face an interiorly-threaded hub, *c*, an annular-shaped wall, *d*, with inclined faces, and flange *e* on said hub, the disk G, provided with annular-shaped wall *k*, with inclined faces, as described, and flange *h*, and the threaded stem G, working in the hub *c*, substantially as described.

WILLIAM SCOTT.

Witnesses:
H. S. SPRAGUE,
CHARLES J. HUNT.