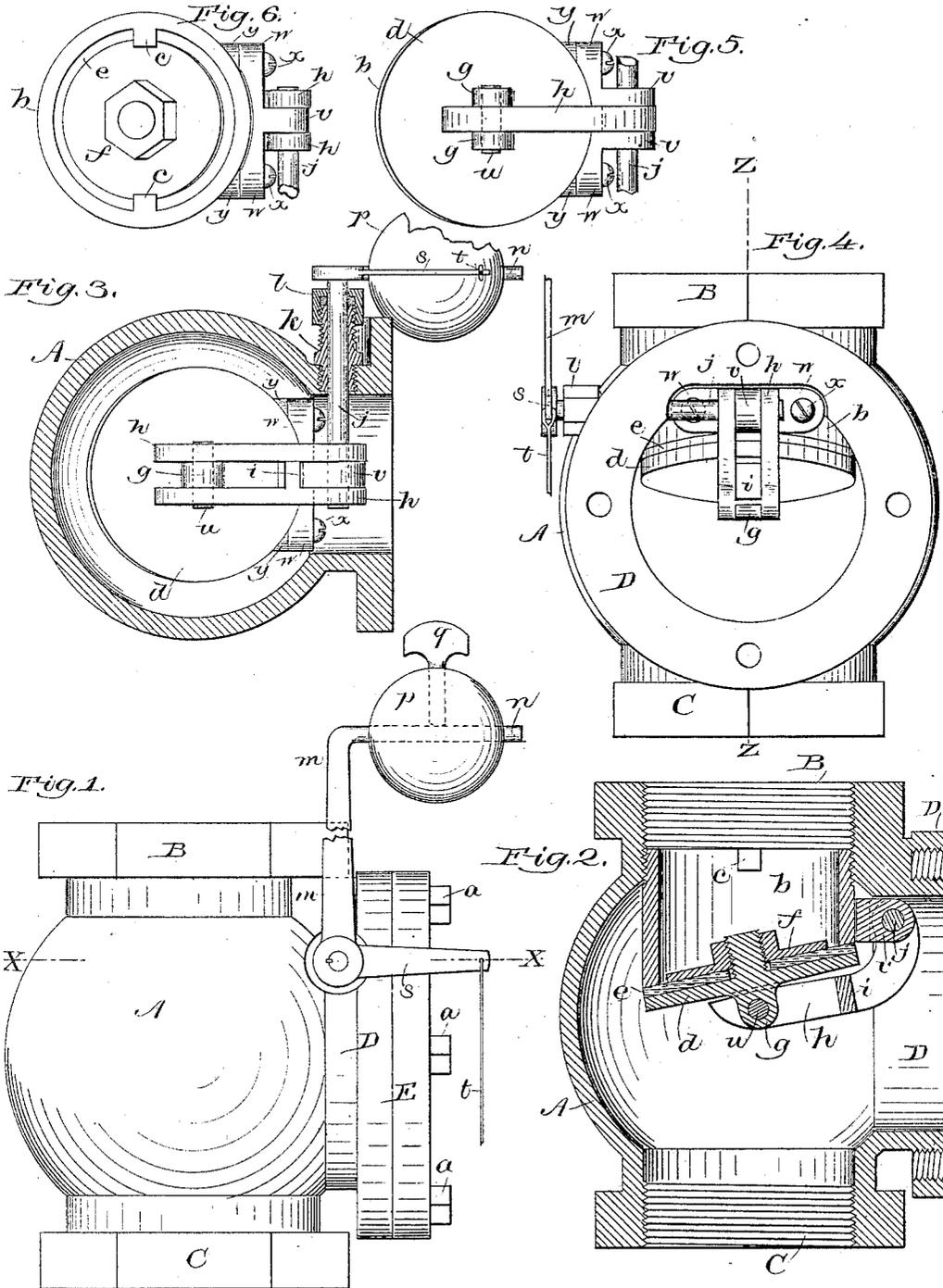


(No Model.)

O. B. HALL.
VALVE.

No. 327,875.

Patented Oct. 6, 1885



Witnesses
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UNITED STATES PATENT OFFICE.

OSBORN B. HALL, OF MALDEN, ASSIGNOR OF ONE-HALF TO CALEB C. WALWORTH, OF BOSTON, MASSACHUSETTS.

VALVE.

SPECIFICATION forming part of Letters Patent No. 327,875, dated October 6, 1885.

Application filed November 15, 1884. Serial No. 148,004. (No model.)

To all whom it may concern:

Be it known that I, OSBORN B. HALL, of Malden, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Valves, which will, in connection with the accompanying drawings, be hereinafter fully described, and specifically defined in the appended claims.

This invention has for its object certain improvements in that class or kind of valves which are usually employed as check or foot valves, and it will, in connection with the accompanying drawings, be hereinafter fully described and claimed.

In said drawings, Figure 1 is a side elevation of a valve embodying my invention, the weight-supporting arm being shown as immediately broken away, for economy of space, upon the sheet. Fig. 2 is a vertical longitudinal section taken through the valve shown in Fig. 1, as on line Z Z, Figs. 3 and 4, the cap being removed. Fig. 3 is an inverted sectional plan view, the section being horizontal and taken through the shell or body of the valve, as on line X X, Fig. 1, and the view being as from below said line. Fig. 4 is an elevation taken as from the right in Fig. 1, but with the cap removed, as in Fig. 2. Fig. 5 is a detached top plan view of the valve or clapper and its support, taken as viewed in Fig. 3. Fig. 6 is a plan showing the same parts as in Fig. 5, but as inverted or upside down as compared with that figure.

In said views, A represents the shell or body of the valve formed with the usual interior-threaded angular-flanged ends, B C, to receive the pipes between which the valve is interposed. Said shell is also formed with the usual circular-flanged extension, D, through the opening in which, when its cap E—secured by screws *a*—is removed, access is had to the interior for the inspection of the parts therein.

The body A, I preferably form of cast-iron, as it is cheap, strong, and durable, and its liability to limited corrosion is not objectionable in connection with my improvement. For the purpose of hinging, supporting, and seating the disk or valve proper (marked *d*) I provide a sleeve, *b*, formed preferably of hard

durable composition, and suitably threaded at one end to be interlocked in the interior threads of end B of the body, as shown in Fig. 2, said sleeve being forced therein by means of a suitable wrench or spanner formed to engage the interior studs, *c*, formed on the sleeve. The interior end of said sleeve I cut oblique to its axis, as shown in said Fig. 2, and so as to furnish a seat for disk *d*, which latter is of course provided with the usual yielding packing-disk, *e*, secured by flanged nut *f*, threaded on a stud of the valve or disk *d* in a well-known manner. Said valve *d* is pivotally connected and supported by means of an arm or arms, *h*, which, when two are employed, as shown in Fig. 3, are united by a short bar, *i*, the valve being pivoted to said arms by its ear or ears *g*, through which and said arms the pin *v* is inserted. The outer ends of arm or arms *h* are pivoted upon arbor *j*, supported in ears *v v* and in sleeve *k*, threaded in body A, and provided with a stuffing-box, *l*, inclosing the packing, as shown in Fig. 3. Said ears *v* are formed on bar *w*, which is secured by screws *x* to said sleeve *b* at the bosses or seats *y*, formed thereon to receive said bar, as shown in Figs. 5 and 6. By thus forming sleeve *b* to be inserted through the opening in projection D, and to be interlocked in one of the threaded ends of the body, and to furnish the valve-seat and the pivotal support of its arm *h*, the sleeve may be finished and fitted with bar *w* and its securing-screws, and all the parts may be adjusted each to the other before the sleeve is inserted in body A, thereby facilitating such fitting, finishing, and adjusting.

Upon the outer end of arbor *j*, I rigidly secure the arm *m*, having at its upper end an angle, *n*, on which is adjustably secured the weight *p*, secured in position by set-screw *q*, and at the lower end is an angle, *s*, to which a wire or rod, *t*, is secured, and which is attached to an alarm of any kind, which, by the action of said rod, would be set in operation, when by the decrease of the pressure of the water upon valve *d* the same should move so as to throw weight *p* past the center, when it would fall quickly, thereby forcibly actuating said rod and setting the alarm in action.

When the alarm-actuating devices are not to be employed, then, instead of arbor *j* extending through body *a*, only a short stud extending through ears *v* and arm *h* will be employed.

I have shown my improvement as embodied in a valve arranged to receive vertical pipes, and as if closing upward; but it may be arranged to close downward with or without the weighted arm; or it may be arranged for use in a horizontal conduit with or without said weighted arm.

I am aware that it is not new to construct valves with an iron body and having a composition or other non-corrosive valve-seat inserted therein; but such seats were formed with the plane of the seat at right angles to the axis of the threaded part of the sleeve; and hence, in order to have the seat oblique to the line of the conducting-pipe, the sleeve must be inserted in a threaded passage in the body, which is oblique to the line of said pipe, while by forming my sleeve with the valve-seat oblique to the axis of the threaded part the sleeve may be interlocked in the same thread that is cut for the pipe, thereby avoiding the work of forming interior threads especially for the reception of the sleeve. Besides this, my sleeve may be made and finished, the valve or disk *d* may be fitted and hinged in place, the bar *w* may also be fitted and secured in position to verify the correctness of details, all before the sleeve is inserted in the body, it being only necessary to first remove screws *x* and detach bar *w*, the arm *h*, and valve, which, when the sleeve is in position, can be readily replaced, and by pivoting disk *d* in the free end of arm *h* the disk readily seats itself upon the oblique face of the sleeve irrespective of the thickness of packing *e*, as the disk has a limited rocking action on its supporting-pin *u*.
When the weighted arm *m* is employed, the

valve-supporting arm *h* is rigidly secured to arbor *j*, the same as is arm *m*.

I claim as my invention—

1. The combination, with the valve and its arbor *j*, of arm *m*, rigidly secured to the arbor, and having an angle, *n*, extending therefrom on the side opposite the valve, and weight *p*, mounted on said angle *n*, whereby the weight tends to hold the valve to its seat when closed, and when it opens and the weight has passed the axis of arbor *j* it accelerates the opening of the valve, substantially as specified. 45
2. The combination, with the valve, its arbor *j*, arm *m*, rigidly secured to the arbor, and having an angle, *n*, extending therefrom on the side opposite the valve, and weight *p*, mounted on said angle, of arm *s*, also secured to and projecting from said arbor, substantially as specified. 50
3. The combination, with the valve supported upon arbor *j*, of arm *m*, secured to said arbor and provided with weight *p*, arranged to hold the valve to its seat when subjected to the intended or normal pressure to which the weight is adjusted, and to accelerate the opening of the valve after the weight has passed the apex of its arc-like path, substantially as specified. 55
4. The combination, with the valve, its supporting-arbor *j*, and a weighted arm secured to said arbor and arranged to hold the valve to its seat when subjected to the intended or adjusted pressure, and to accelerate the opening of the valve after the weight has passed the apex of its arc-like path, of an attachment adapted and arranged to be connected with and to actuate an alarm, substantially as specified. 60

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Witnesses:

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