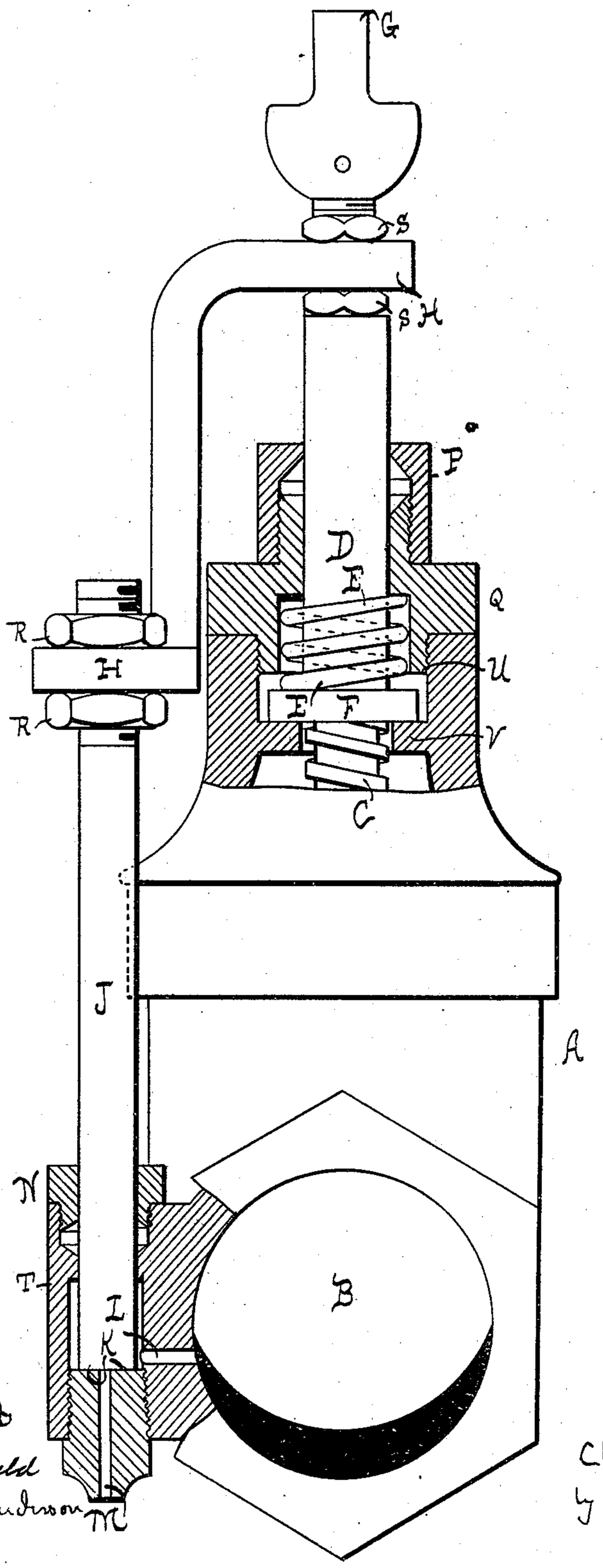
(No Model.)

C. D. LYNCH.

VALVE.

No. 491,899. Patented Feb. 14, 1893.



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CHARLES D. LYNCH, OF DETROIT, MICHIGAN.

VALVE.

SPECIFICATION forming part of Letters Patent No. 491,899, dated February 14, 1893.

Application filed May 6, 1892. Serial No. 432,061. (No model.)

To all whom it may concern:

Be it known that I, CHARLES D. LYNCH, of Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Improvement in Valves, of which the following is a specification.

My invention consists in an improvement in gate valves, hereinafter fully described and claimed.

The drawing is an elevation, partly in section, looking at the discharge side of the valve.

A represents the shell and B the disk of a gate valve, such for instance as the well known Galvin valve, manufactured by the Galvin Brass and Iron Works.

D represents the valve stem, screw threaded as shown at C to engage with the yoke of a gate, and raise and lower the gate within the shell A.

F represents a collar on valve stem D, which in valves of this class is usually confined closely between a ring, V, formed in the shell A, and a ring U in the stuffing box, so that stem D cannot move longitudinally when rotated. In my invention I leave a space between rings U and V greater than the thickness of collar F, and form a chamber in the lower half, Q, of stuffing box Q, in which I place a spiral spring E, one end of which bears against collar F, and the other against box Q, said spring tending to force stem D downward.

T represents a chamber formed on the side of shell A, and connected therewith on the discharge side of the valve seat by a passage L.

K represents a valve seat in the lower end of chamber T, provided with a discharge opening M.

J represents a valve stem playing in chamber T, whose lower end forms a valve (a suitable washer being usually secured thereon) to close valve seat K.

N represents a stuffing box at the top of chamber T, through which stem J passes.

H represents a curved link, one end of which embraces valve stem D and is adjustably secured in position between nuts S S, which are threaded on said valve stem D, and whose other end embraces valve stem J, and is adjustably secured thereto by nuts R R.

G represents a key on the end of valve stem D, by which it may be turned.

The operation of my invention is as follows: As shown in the drawing, the disk B is slightly raised so that the main valve is partly open. In this position, and in all open positions of the disk B, the spring E will hold the collar F down against ring V, and will therefore hold valve stem J firmly against its seat K, thus cutting off the discharge opening M, so that no water can issue therefrom. The parts will remain in this position when valve stem D is turned, until disk B becomes firmly seated and can no longer advance, when said disk will operate as a fixed nut, in which valve stem D plays, and continued rotation of said valve stem D will cause it to rise, compressing spring E, and thereby to lift valve stem J and open the discharge opening M, when the water in the valve and pipe on the discharge side of valve A will drain out through openings L and M and chamber T. When valve stem D is rotated in the opposite direction to raise the disk B, the pressure of spring E on collar F will cause said valve stem to descend until collar F comes in contact with ring V, which motion will carry downward valve stem J, and cause it to seat upon valve K, thus cutting off discharge opening M before the disk B begins to lift. In some cases the weight of valve stem D, link H and valve stem J, may be sufficient to actuate said valve stem J without the use of spring E, but for ordinary use, and especially in the smaller class of valves, I prefer to use said spring.

It is evident that this invention is applicable to all valves, no matter of what manufacture, in which the valve stem has no necessary longitudinal movement in opening and closing the valve.

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

1. In a gate valve the combination with a valve stem capable of longitudinal motion, of a spring tending to hold said valve stem against longitudinal motion, a small valve having its shell connected with the shell of the main valve on the discharge side thereof, and a connection from the stem of the valve to the stem of the main valve, whereby the small valve is closed by the act of opening the main valve and vice versa, substantially as and for the purposes set forth.

2. In combination with the valve stem of a

gate valve so arranged as to be capable to some extent of longitudinal motion, a drainage valve connected with the discharge side of the gate valve and having its valve stem connected with the valve stem of the gate valve, whereby the valve stem of the gate valve and the valve stem of the drainage valve move in opposite directions, substantially as shown and described.

CHARLES D. LYNCH.

Witnesses:
C. W. COOLEY,
W. F. WHITTEMORE.