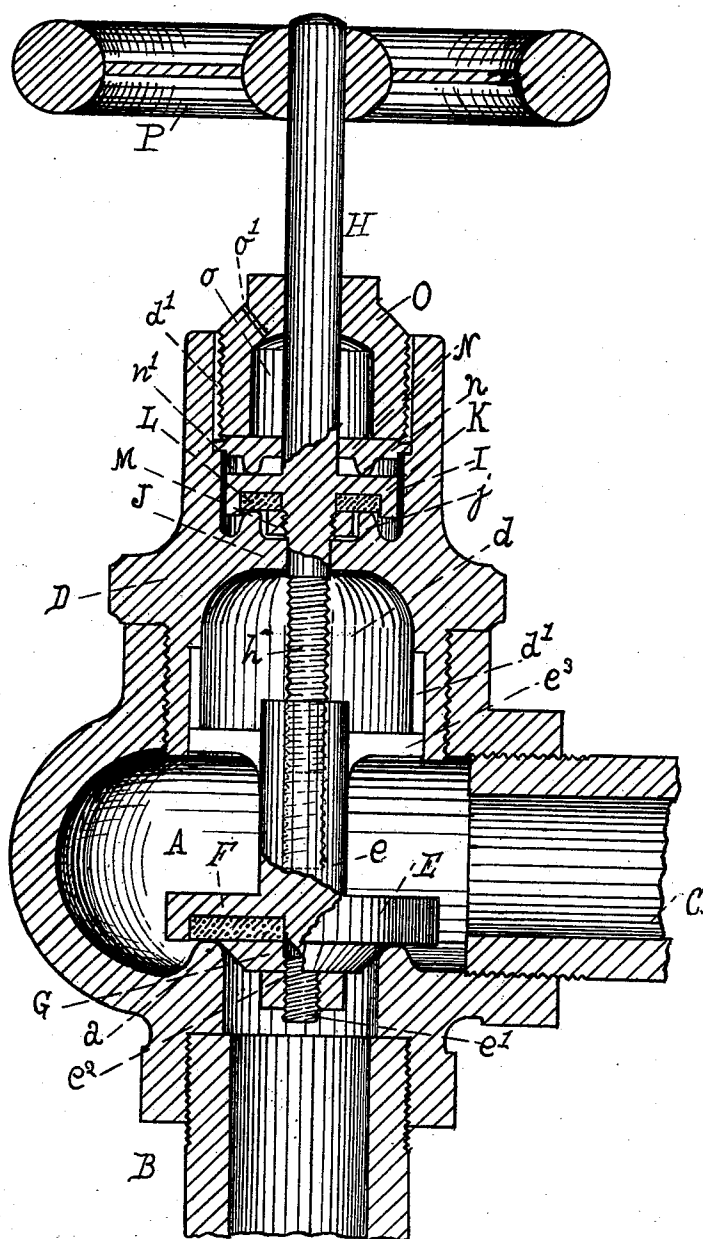


(No Model.)

J. N. MURPHY.
STEAM VALVE.

No. 508,486.

Patented Nov. 14, 1893.



Witnesses
Ladd Bailey,
J. W. Maxwell

John N. Murphy, Inventor
By his Attorney *N. DuBois.*

UNITED STATES PATENT OFFICE

JOHN N. MURPHY, OF SPRINGFIELD, ILLINOIS.

STEAM-VALVE.

SPECIFICATION forming part of Letters Patent No. 508,486, dated November 14, 1893.

Application filed April 3, 1893. Serial No. 468,854. (No model.)

To all whom it may concern:

Be it known that I, JOHN N. MURPHY, a citizen of the United States, residing at Springfield, in the county of Sangamon and State of Illinois, have invented a certain new and useful Improvement in Steam-Valves, of which the following is such a full, clear, and exact description as will enable those skilled in the art to which it pertains to make and use my said invention, reference being had to the accompanying drawing and the letters of reference marked thereon.

My invention is primarily intended to be applied to steam pipes, but may obviously be used on water pipes, or pipes for conveying other liquids or gases, without departing from my invention.

The purpose of my invention is to provide a valve so constructed as to dispense with the packing which is a serious objection to valves as heretofore most commonly constructed. The valve is provided with disks of yielding material resting on raised seats, as hereinafter shown, described and claimed.

In the drawing the figure is a vertical longitudinal section through the valve as preferably constructed.

Similar letters indicate similar parts in the drawing.

The body A of the valve is provided on its under side with an opening into which the inlet pipe B screws, and at one end is provided with an opening into which the outlet pipe C screws. Within the chamber of the part A is a raised valve seat *a*. The valve-top D has its lower end threaded and screws into an opening in the top of the body A. Within the chamber of the part A is a circular cap E recessed on its under side. This cap is provided with an integral stem *e* and an integral screw *e'*. A disk F of yielding material, preferably of hard rubber, surrounds the screw *e'* and fits in the recess in the cap E. A conical washer G is held in place and pressed against the disk F by means of a nut *e²* on the screw *e'*. By turning the nut *e²* the washer G may be forced up so as to compress the disk F and cause it to completely fill the recess in the cap E. In like manner the nut *m* serves to expand the disk L. The conical surface of the washer G serves to center and guide the movement of the cap E, so that

when the cap is down the disk F may rest in proper position on the seat *a*. The stem *e* is threaded internally to receive the screw *h* on the stem H. In the lower end of the part D is a dome shaped cavity *d* and in the sides of this cavity are channels *d'* in which the guide bars *e³*, integral with the stem *e* work.

In the part D above the dome shaped cavity *d* is a cylindrical cavity I. A web J separates the cavities *d* and I. This web has an integral annular ledge *j* which serves as a seat for the cap above it. The recessed cap K is integral with the stem H and a disk L fits in the recess in the cap. That part of the stem below the cap K is reduced in size and threaded to accommodate a nut M by which the disk L is held in place and tightened as may be necessary.

Above the cap K is a circular plate N having an integral annular ledge *n* which bears on top of the cap K. On the sides of this plate are projecting lugs *n'* which work in channels *d'* in the sides of the cavity I. This plate is of practical advantage in preventing the binding of the screw cap O on the recessed cap K and in preventing the screw cap from being unscrewed when the stem is turned backward, for no matter how hard the plate N may press against the recessed cap the lugs on the plate prevent the plate from turning and when the stem is turned the recessed cap cannot move the screw cap because the plate is between them. By means of the construction described I am enabled to readily remove the upper cap and insert a new disk or make other necessary repairs therein without disturbing the lower valve; all that is necessary is to unscrew the cap O, and the stem H may be unscrewed from the stem *e* and the stem H and connected parts may then be lifted out through the upper cavity L.

The upper end of cavity I is threaded internally to accommodate the adjustable screw cap O. In the under side of the cap O is an oil reservoir *o* to which oil is supplied through the hole *o'*. To the upper end of the stem H a hand wheel is secured by means of which the valve is operated in an obvious manner.

The opening in the upper end of the part A is large enough to permit the cap E and connected parts to be lifted out through the opening when the part D is detached.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a valve, the combination of the body
5 of the valve, the raised valve seat within said
body, the top removably connected with the
body, the cap and the stem within the body,
the disk in said cap, the screw integral with
said cap and stem, the conical washer retain-
10 ing the disk in place and adapted to guide
the valve into position on the seat, the nut
for adjusting said washer, the upper stem
screwing into the lower stem, the hand wheel
secured to said upper stem, the dome shaped
15 cavity in the lower end of the removable top
part, the channels in the sides of said dome
shaped cavity, the guides on the lower stem
adapted to move in said channels, the cylin-
drical cavity above the dome shaped cavity,
20 the web between said cavities the annular
raised seat on the upper side of said web, the
reduced screw part of the upper stem having
a nut working on said screw, the recessed cap
integral with the upper stem, the disk fitting
25 in the recess in said cap the circular plate
above said cap, having lugs and provided
with an annular ledge bearing on the cap, the
channels in which said lugs move, the screw
cap, above said plate and the oil chamber in
30 said screw cap, as set forth and for the pur-
pose stated.

2. In a valve having caps provided with
disks, the combination of the body of the
valve, the raised valve-seat within said body,

the cap within said body connected with the
35 valve stem and adapted to rest on said seat,
the top part detachably connected with the
body, the cavity in the upper end of said top
part, the stem passing through said top part
and connected with the cap in the body, the
40 means for turning said stem, the raised seat
within said cavity and the recessed cap
adapted to rest on top of said seat, the plate
within said cavity having lugs moving in
channels in said cavity and a screw cap fit-
45 ting in said cavity and provided with an oil
reservoir and oil hole as set forth and for the
purpose stated.

3. In a valve having caps provided with
disks, the means adapting the upper cap to be
50 removed without disturbing the lower valve,
consisting of a top part connected with the
body, said top part being provided with a
cavity having channels in its sides, a stem
extending through said cavity and connect-
55 ing with the stem of the lower valve in the
body, a recessed cap on said stem, a plate
above said cap having lugs moving in the
channels in said cavity and a screw cap
screwing into said cavity above said plate, 60
as set forth.

In witness whereof I have hereunto sub-
scribed, at Springfield, Illinois, this 21st day
of March, A. D. 1893.

JOHN N. MURPHY.

In presence of—

WILL Q. OLDEN,
TAD A. BAILEY.