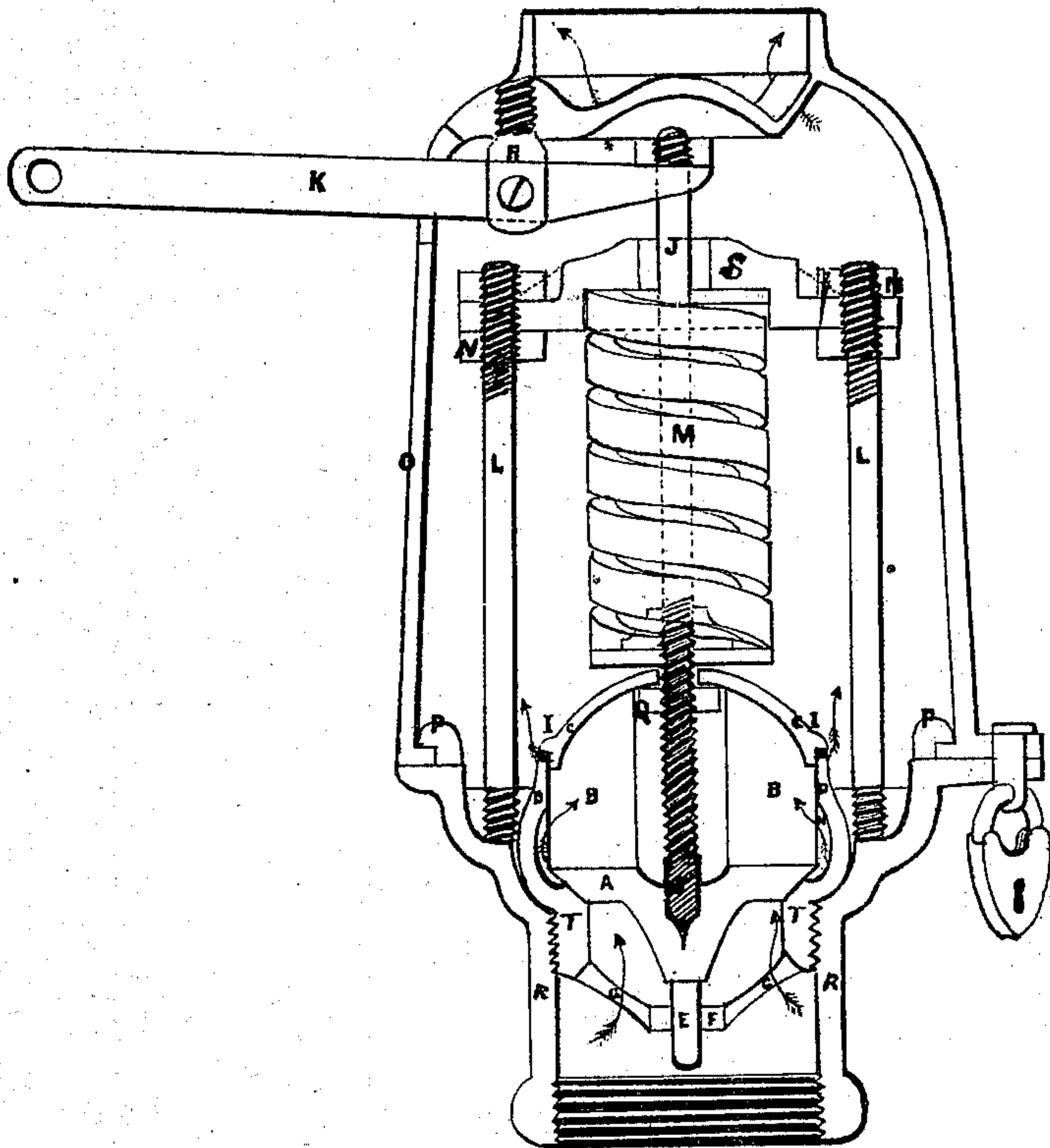


*J. D. Lynde,*

*Safety Valve.*

*No. 103062.*

*Patented May 17. 1870.*



WITNESSES:

*G. A. Lynde*  
*John H. Sebold*

INVENTOR:

*John D. Lynde*



# United States Patent Office.

JOHN D. LYNDE, OF PHILADELPHIA, PENNSYLVANIA.

*Letters Patent No 103,062, dated May 17, 1870; antedated May 2, 1870.*

## IMPROVEMENT IN SAFETY-VALVES.

The Schedule referred to in these Letters Patent and making part of the same.

I, JOHN D. LYNDE, of the city and county of Philadelphia and State of Pennsylvania, have invented certain Improvements in Safety-Valves, of which the following is a specification.

This invention is an improvement on my safety-valve patented May 18, 1869, and consists in providing a safeguard against scales or dirt falling into the chamber around the valve or disk, whereby it might be obstructed in operation, and, also, the combination of a spindle and nut with the disk and valve, so that the valve will be held down with the bearing point below the center of the valve, and also, by means of the lever, be lifted from the seat at will.

The following is a description of the accompanying drawing, which is a vertical section showing all the parts:

A is the valve.

B B, guide wings, four in number, of the valve, and connecting disk C to the valve, A, B, and C being all of same casting.

D, rim against which the guide-wings bear.

E, guide-pin below the valve.

F, guide-nut.

G, guide-nut braces.

H, annular passage for steam around the valve.

I I, projection on disk C, to prevent any matter from falling into the valve-chamber from above.

J, valve-spindle, on which rests the spring M, the lower end being turned nearly to a point, and bearing in the central hole in the valve A; the bottom of said central hole being below the point where the valve bears on its seat.

Q, nut on spindle J, immediately under the disk, by which the valve would always be certain to be lifted when trying it with the lever K.

The spring M is compressed and the pressure regulated by the bolts L L, cross-head S, and nuts N N.

O, the cover held by the catches P P, and securely locked to prevent the valve from being tampered with.

R is the valve-holder and base for cover to stand on.

T is the valve-seat, which is extended upward around the valve to form the annular steam-passage and chamber, as described, with rim D.

The operation is as follows:

When the valve commences to open, the steam passing by it will pass out through the narrow space (one-sixty-fourth to one-thirty-second of an inch) between the disk C and rim D, but, when the pressure increases about two pounds to the square inch, more steam will pass by the valve than can pass by the disk through the small space described above. This will be apparent from the fact that the edge of the disk enters the chamber made by rim D nearly one-sixteenth of an inch, and, the sides of the rim and disk being vertical, the space between them is not increased until the valve has opened nearly one-sixteenth of an inch, before which more steam will pass by it than can pass the disk. Then the whole force and velocity of the rushing steam will be exerted against the disk, which, from its concave form, presents great resistance to the steam, and consequently the pressure against the spring is increased, the power of compression overcome, the disk and valve suddenly rise, permitting the steam to pass over the rim D, and it is blown off rapidly until the pressure falls to about where the valve started to open, when it will suddenly close, the spring being then able to overcome the power of the steam against the disk.

I claim as my invention—

The construction of the concave disk C, with its projection I, and the arrangement and combination of the disk C, rim D, guide-wings B, valve A, valve-spindle J, and nut Q, substantially as described.

JOHN D. LYNDE.

Witnesses:

C. A. LYNDE,

JOHN H. SEBOLD.