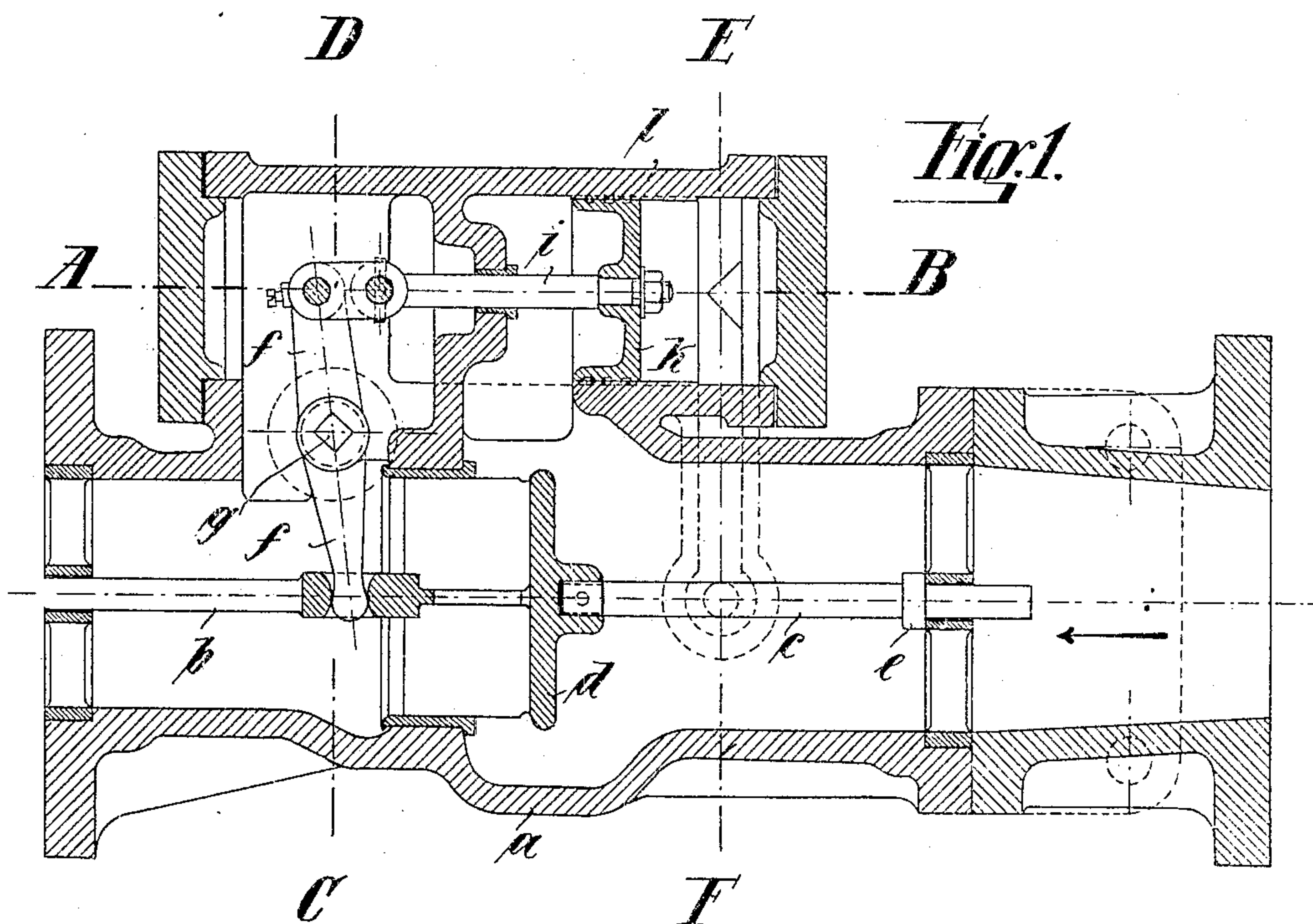
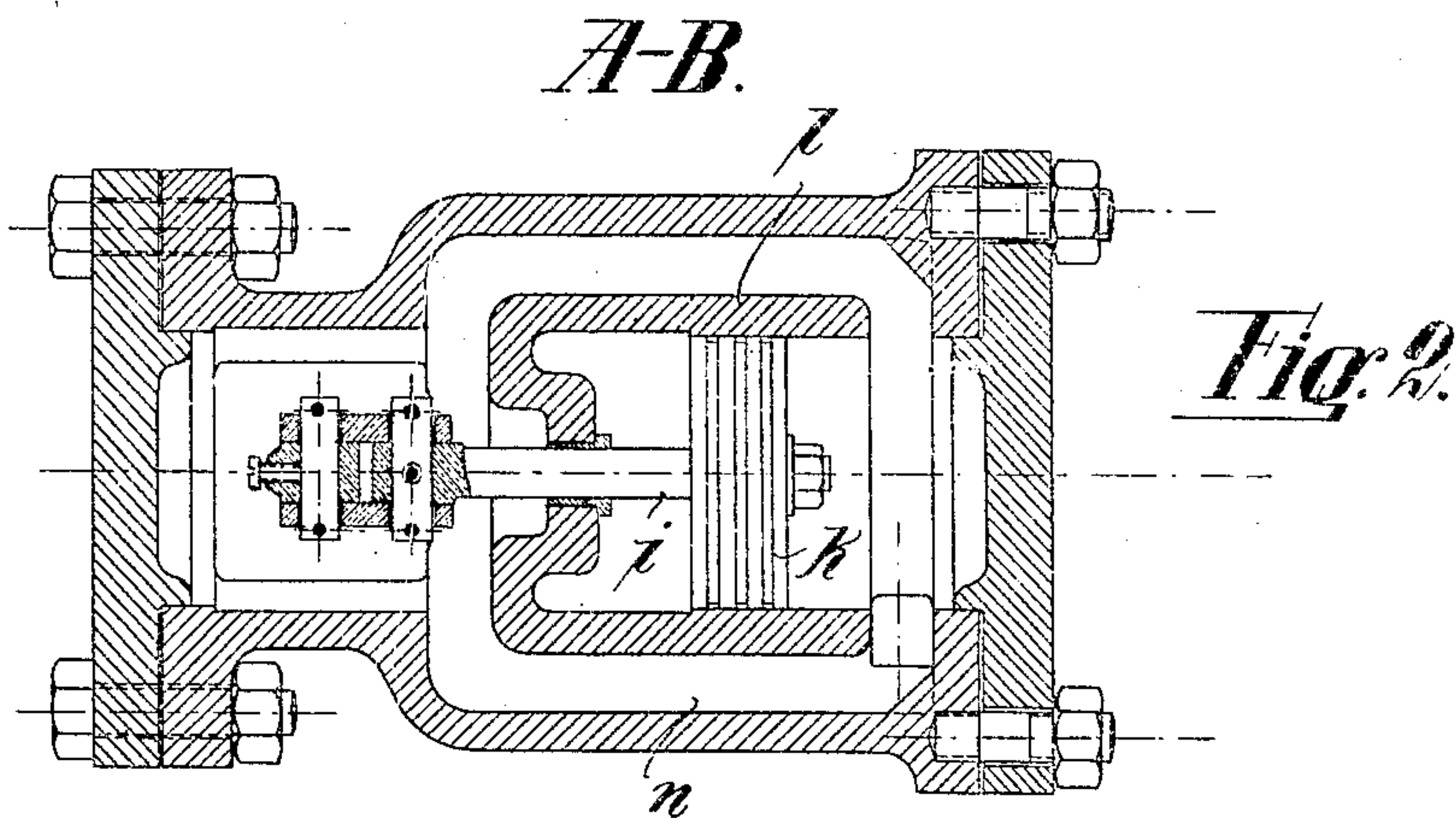


No. 786,667.

PATENTED APR. 4, 1905.

L. NEUMANN.
EMERGENCY THROTTLE VALVE.
APPLICATION FILED APR. 23, 1904.

2 SHEETS—SHEET 1.



WITNESSES :

W. M. Avery

C. R. Ferguson

INVENTOR

Ludwig Neumann

BY

Mumma

ATTORNEYS.

No. 786,667.

PATENTED APR. 4, 1905.

L. NEUMANN.
EMERGENCY THROTTLE VALVE.

APPLICATION FILED APR. 23, 1904.

2 SHEETS—SHEET 2.

Fig. 3.

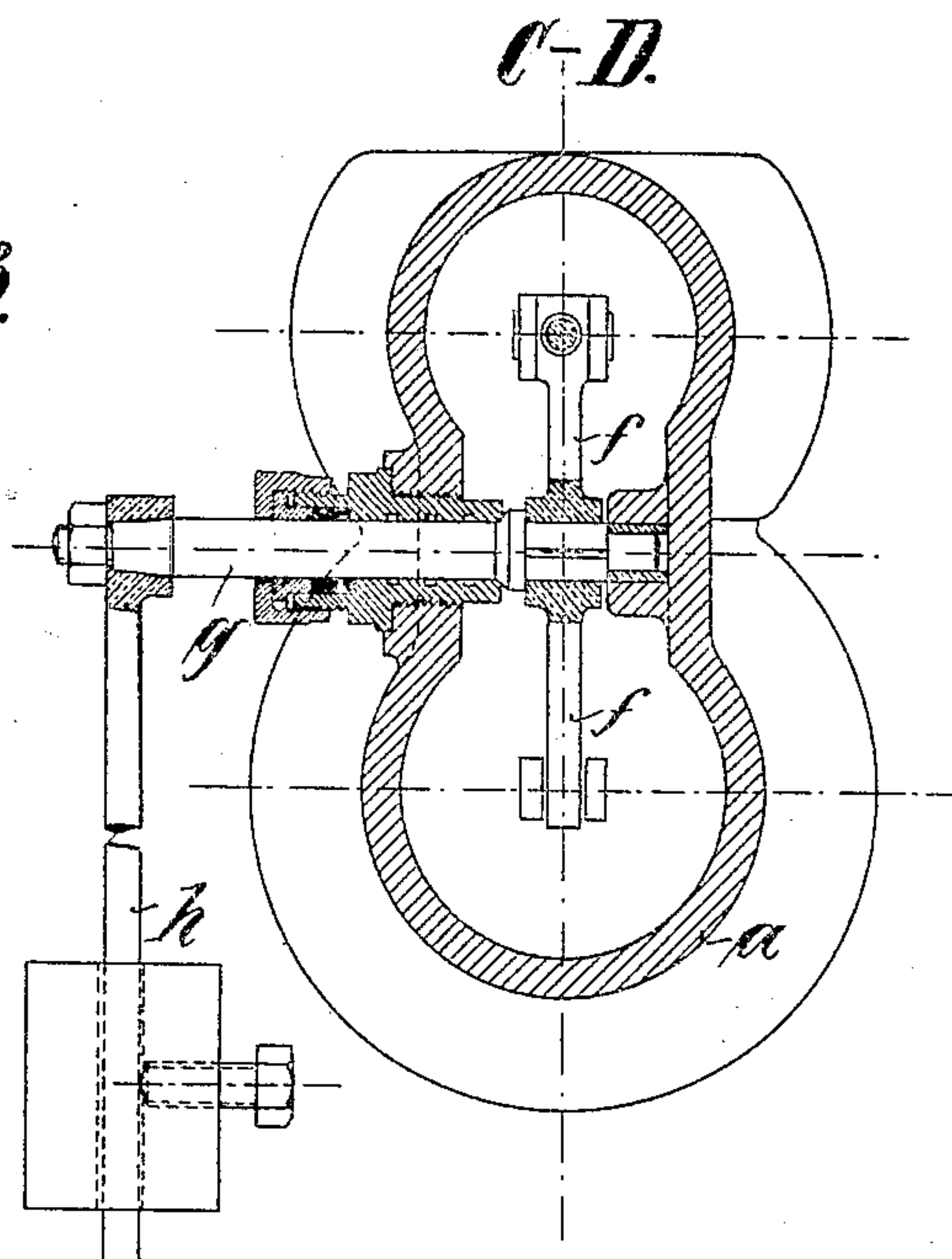
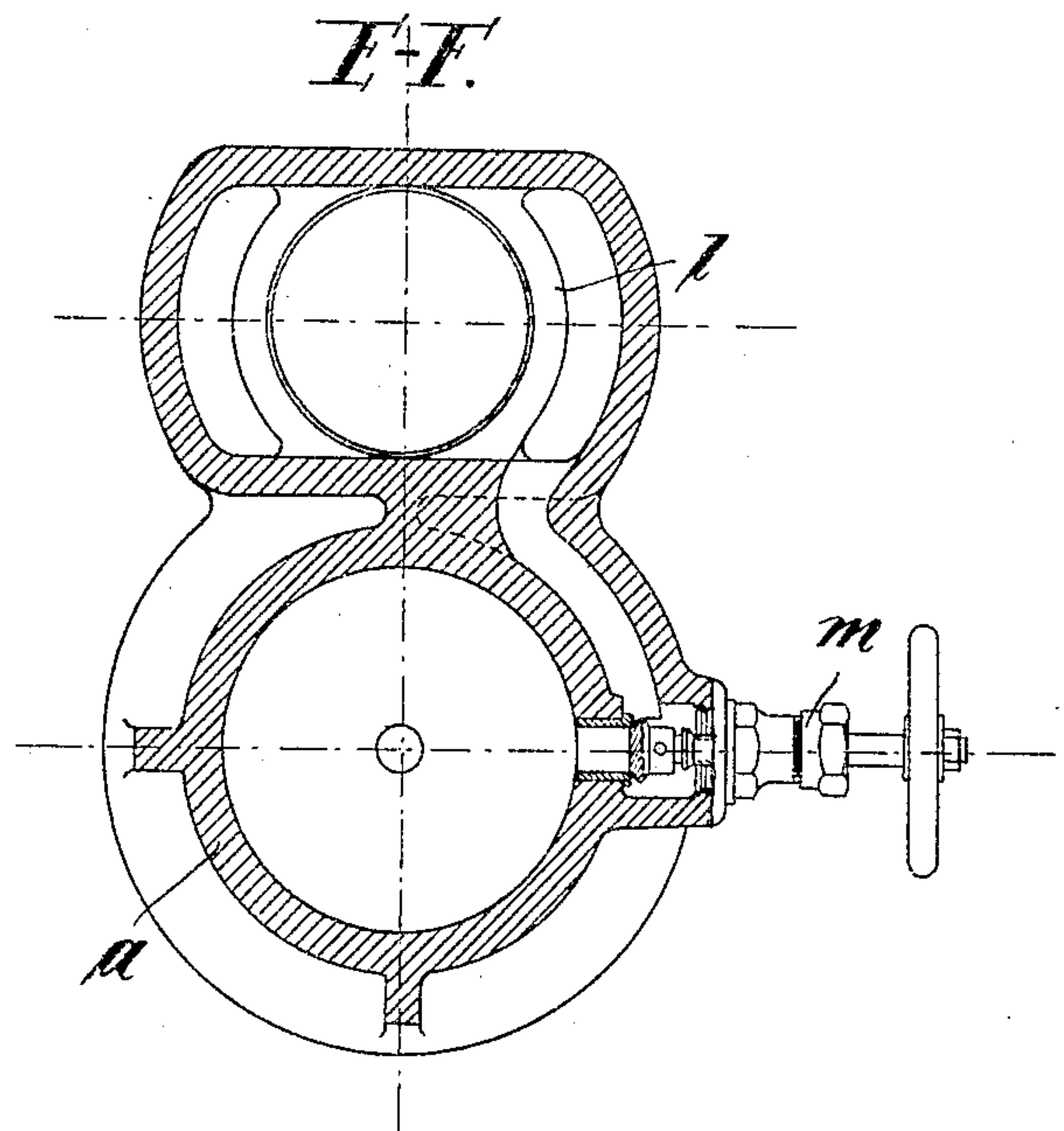


Fig. 4.



WITNESSES :

W. H. Avery
C. R. Ferguson

INVENTOR
Ludwig Neumann
BY

Mumukshu
ATTORNEYS.

UNITED STATES PATENT OFFICE.

LUDWIG NEUMANN, OF GLEIWITZ, GERMANY.

EMERGENCY THROTTLE-VALVE.

SPECIFICATION forming part of Letters Patent No. 786,667, dated April 4, 1905.

Application filed April 23, 1904. Serial No. 204,542.

To all whom it may concern:

Be it known that I, LUDWIG NEUMANN, a subject of the King of Prussia, Emperor of Germany, residing at Gleiwitz, in the Kingdom of Prussia, German Empire, have invented new and useful Improvements in Emergency Throttle-Valves, of which the following is a specification.

My invention relates to a valve adapted to close automatically in the event of the pipe in which it is fitted breaking, thus avoiding the danger which would otherwise be incurred, owing to the escape of the steam. Said valve is of the clack type and adapted to close in the direction of the passage of the steam. It is connected by a two-armed lever arranged in the casing with a piston moving in a cylinder cast in one piece with the valve-casing and connected at one end to the feed side and at the other end to the delivery side of the valve. The two-armed lever is carried by a pin passing through the wall of the casing and supporting a weighted lever acting to keep the valve open.

One advantage of this valve is that it can be arranged in every horizontal or vertical position and that by means of the lever provided outside the valve-casing it can be easily ascertained whether the valve is in order or not, while the combination of the piston with the valve adapted to close in the direction of the passage of the steam prevents the latter from being operated by small variations in the consumption of the steam or from being closed with a shock likely to injure the plant in the event of the pipe breaking.

In the accompanying drawings, illustrating my invention, Figure 1 is a longitudinal section of the valve; and Figs. 2, 3, and 4, cross-sections on the line A B, C D, and E F, respectively, of Fig. 1.

In the casing *a*, which is interposed in the steam-pipe, preferably close to the boiler, is provided a valve *d*, which is guided by a rod *b c* and limited in stroke by a stop *e*. With the rod *b* is connected one arm of the two-armed lever *f*, which is situated inside the casing and turns on a spindle *g*, one end of which projects through a stuffing-box in the side of the casing and carries a counter-

weighted lever *h*. The other arm of the lever *f* is jointed to a piston-rod *i*, connected with the piston *k*. Said piston moves in the cylinder *l* and is always exposed on one side through the opening *o* to the pressure of the steam on the feed side of the valve (see Fig. 1) and on the other side through the passages *n* (see Fig. 2) to the pressure of the steam on the delivery side of said valve. As above mentioned, as long as the pipe is in order the valve *d* is kept open by the forces acting thereon. The components of these forces are, first, the pressure of the steam on both sides of said valve *d*, which produces equilibrium; second, the pressure of the steam on both sides of said piston *k*, which likewise produces equilibrium, and, third, the weight on the lever *h*. When the pipe in which the valve is contained breaks, the pressure on the delivery side of the valve and in the passages *n*, Fig. 2, connecting the back part of the cylinder *l* with the pipe on the delivery side of the valve *d*, is reduced, so that the piston is moved by the steam acting on the other side thereof toward the right hand, Fig. 1, and the valve *d* is moved by the lever *f* toward its seat. As a consequence the steam passing through the valve is throttled to such an extent that the valve is advanced with great force and closed. At the same time, however, the piston *k* is also moved, owing to its connection with the valve *d* through the lever *f*. When the source of danger has been removed, the cock *m*, Fig. 4, is opened, and the steam thus allowed to pass through the channel *n* and act on the back of said piston *k* and valve *d*. The valve can therefore now be easily opened by correspondingly moving the lever *h*.

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

1. The combination with a clack-valve adapted to close in the direction of the steam passing therethrough, of a cylinder-casing cast in one piece with the casing of said valve, a steam connection between one end of said cylinder and the feed side of said clack-valve, a steam connection between the opposite end of said cylinder, and the delivery side of said valve, a piston in said cylinder, a two-armed lever

inside said valve-casing and connecting said valve and piston, a pin passing through said valve-casing and carrying said two-armed lever, a one-armed lever carried by said pin
5 outside said casing, and a weight on said one-armed lever acting to keep said valve open, substantially as set forth.

2. The combination with a clack-valve adapted to close in the direction of the steam
10 passing therethrough, of a cylinder-casing cast in one piece with the casing of said valve, a steam connection between one end of said cylinder and the feed side of said clack-valve, a steam connection between the opposite end
15 of said cylinder, and the delivery side of said valve, a piston in said cylinder, a two-armed lever inside said valve-casing and connecting said valve and piston, a pin passing through said valve-casing and carrying said two-armed
20 lever, a one-armed lever carried by said pin outside said casing and a weight on said one-armed lever acting to keep said valve open, a channel connecting the feed side of said valve with the end of said cylinder in connection

with the delivery side of said valve, and a cock adapted to open and close said channel, substantially as set forth.

3. The combination with a clack-valve adapted to close in the direction of the steam passing therethrough, of a cylinder-casing communicating with the casing of said valve a piston in said cylinder, a steam connection between one end of said cylinder and the feed side of said clack-valve, a steam connection between the opposite end of said cylinder, and the delivery side of said valve, means within the casing for connecting said valve and piston together and adapting them to move simultaneously in opposite directions, and means for operating said valve and piston from the outside of the casing.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

LUDWIG NEUMANN.

Witnesses:

HERMANN TEIDEL,
W. PETSCH.