

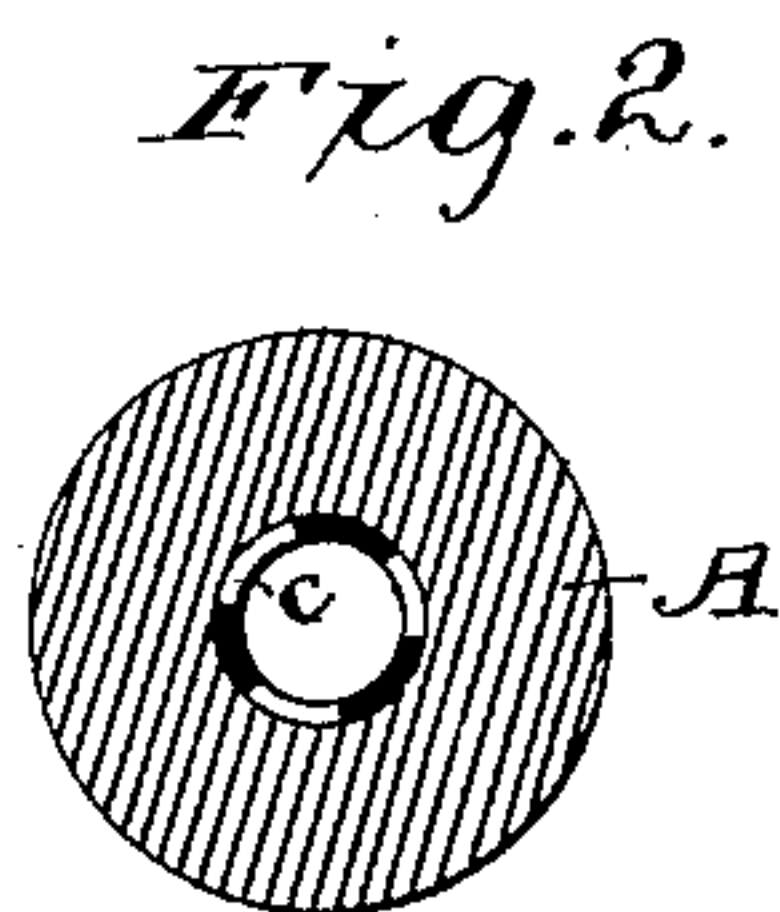
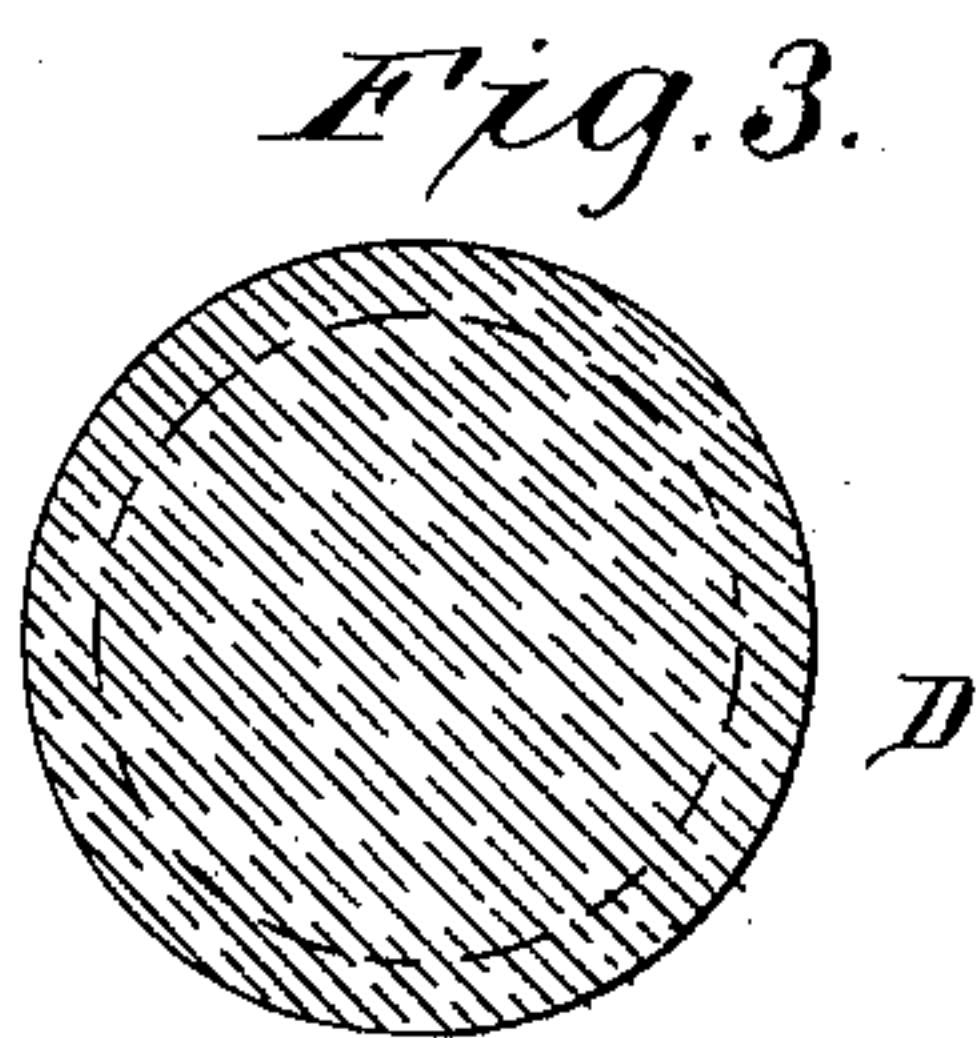
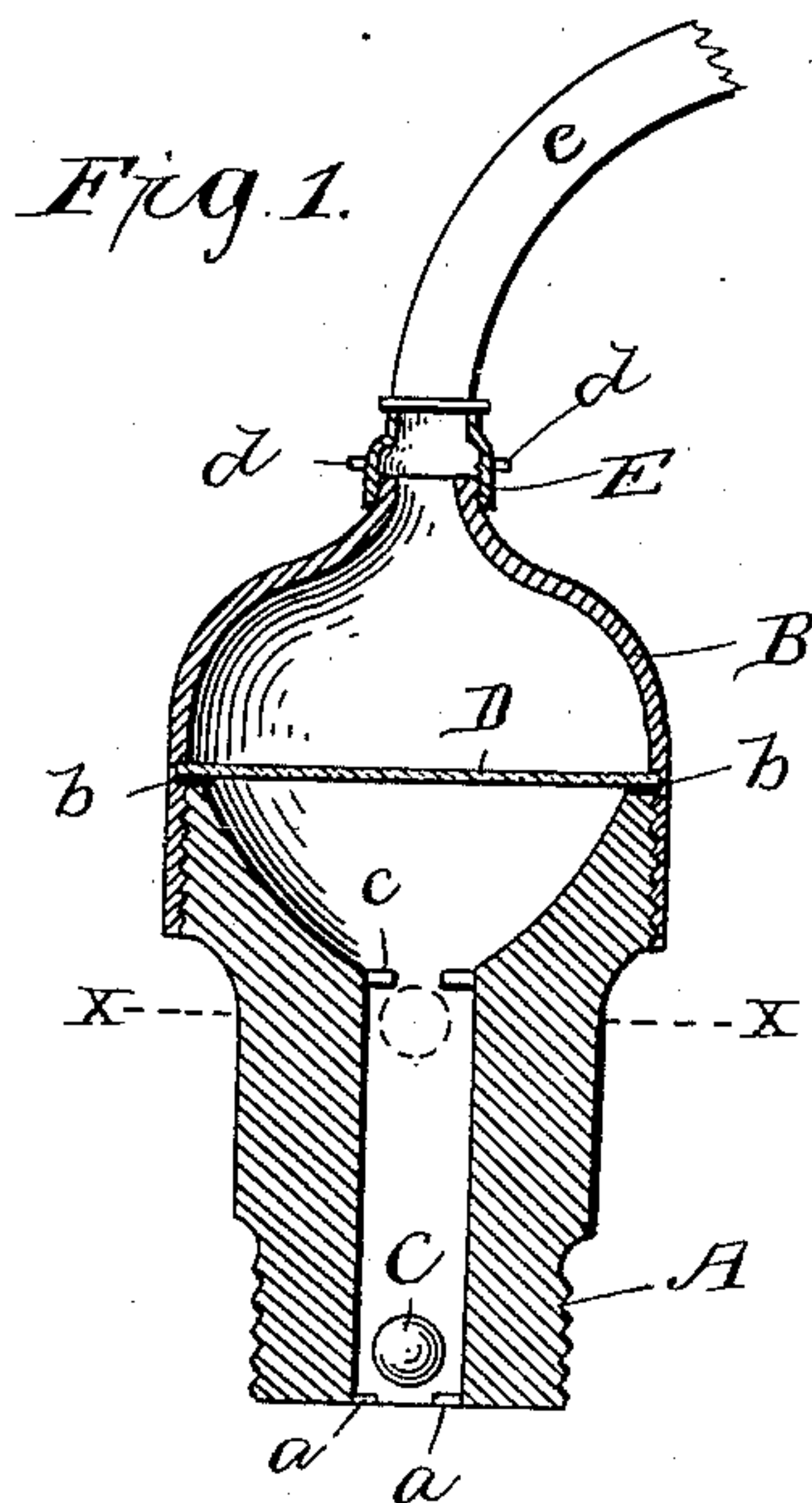
(No Model.)

G. SCHMIDT.

SAFETY VENT.

No. 336,442.

Patented Feb. 16, 1886.



Witnesses:

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# UNITED STATES PATENT OFFICE.

GUSTAV SCHMIDT, OF NEW YORK, N. Y.

## SAFETY-VENT.

SPECIFICATION forming part of Letters Patent No. 336,442, dated February 16, 1886.

Application filed November 24, 1885. Serial No. 183,907. (No model.)

### *To all whom it may concern:*

Be it known that I, GUSTAV SCHMIDT, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Safety-Vents, of which the following is a specification.

My invention relates to safety-vents or attachments for steam generators and boilers, gas-generators, and similar apparatus for containing liquids or gases under pressure, and in which the pressure is apt to vary. The use of such devices is to prevent the receptacle or apparatus to which the safety device may be applied from bursting by reason of too great or undue pressure within.

That part of the safety-vent adapted to burst to relieve the vessel of undue pressure has been generally heretofore made of metals, but metals do not resist the corrosive action of acids, and are otherwise detrimentally affected by substances held in suspension in the liquids contained in the receptacles to which such safety devices are applied. The resisting quality of metal disks—even if made as near as possible uniform—differs materially.

In safety devices of the character described it is of course necessary that the bursting disk should be of such a character that it will resist less pressure than the boiler, generator, or receptacle containing the steam or gas under pressure, but will rupture when the pressure passes beyond the point of safety, such devices being in effect weak features of the structures of which they form parts.

I employ for the bursting disks of my safety attachment the mineral mica. This mineral is not affected detrimentally by the corrosive influence of acids, chemicals, or steam, and it is not liable to be accidentally ruptured by the binding of the parts which secure it in place, as sometimes happens with metal disks and with plates of glass. Mica is tough as well as flexible, and the requisite thickness for a specific bursting-pressure is readily ascertained.

The features of novelty for which I desire protection are pointed out in the claims at the end of this description.

In the accompanying drawings, which form a part of this description, and in which like parts are indicated by like letters, Figure 1 is

a central vertical section of a device embodying my invention. Fig. 2 is a cross-section through the line *xx*, Fig. 1; and Fig. 3 is a detached view of the bursting disk.

Referring to the drawings, A indicates the body of the safety-vent, and B a coupling secured to the upper part of the body A. The body A has screw-threads on the external portions of its top and bottom, the former to receive the coupling B, and the latter to enable the device to be secured to the boiler, generator, or other receptacle containing liquids or gases under pressure. The internal portion of the lower part of the body A is provided with a ball, C, of any suitable material, which is prevented from falling into the receptacle to which the safety device may be attached by one or more pins or spurs, *a*, secured to the interior of the tube at its lower end, as shown.

D is the bursting disk, of mica, which is secured in position between the upper shoulders of the body A and lower shoulders of the coupling B, as shown. This disk is of such thickness as to insure its bursting under a high degree of pressure, which is calculated to be less than the pressure under which the receptacle to which the safety device is applied will rupture.

The bursting-point of a mica-disk of defined thickness, when subjected to steam or gas pressure, is easily determined by simple experiments. The disk D is intended to rest upon a suitable washer, *b*, so that between the shoulders of the parts A and B a steam and gas tight joint will be insured.

Another advantage in the use of a disk of mica for the purpose herein stated is the fact that compression to secure it steam and gas tight in position will not rupture it, as sometimes happens with disks of glass.

Another advantage in the use of mica is that it is not sensitive, as are metal and glass, to positive variations in temperature, and hence is more reliable in its action, and therefore better adapted for the purpose in view. It is of course understood that the lower screw-threaded end of the body A is to be screwed into the boiler or other receptacle to be protected against explosions. The ball C, which is prevented from falling into the receptacle by the pins or spurs *a*, as before stated, is adapted, when the mica-disk D breaks under



undue pressure, to be thrown up against the seat *c*, and in that position acts as a valve to partly close the opening through which the steam or gas is intended to escape. The seat *c* will usually be constructed as shown in Fig. 2, with slight openings around and outside of the surface upon which the ball *C* is adapted to rest when the disk *D* is broken.

*E* is a cap or coupling, which is secured by screw-threads to the upper screw-threaded portion of the coupling *B*, and which may be provided with devices, such as *d*, to enable it to be readily screwed in position, and with a screw-threaded upper end for the reception of a tube, *e*.

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

1. A safety device or attachment for receptacles containing liquids or gases under pressure, whose bursting disk or plate consists of the mineral mica, substantially as set forth.

2. The body *A*, provided with the perforated seat *c*, and with ball *C*, in combination with the bursting disk *D*, secured to said body, substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 12th day of November, A. D. 1885.

GUSTAV SCHMIDT.

Witnesses:

R. D'HEUREUSE,  
J. E. M. BOWEN.