

(No Model.)

J. CATZ.
ALARM,

No. 419,924.

Patented Jan. 21, 1890.

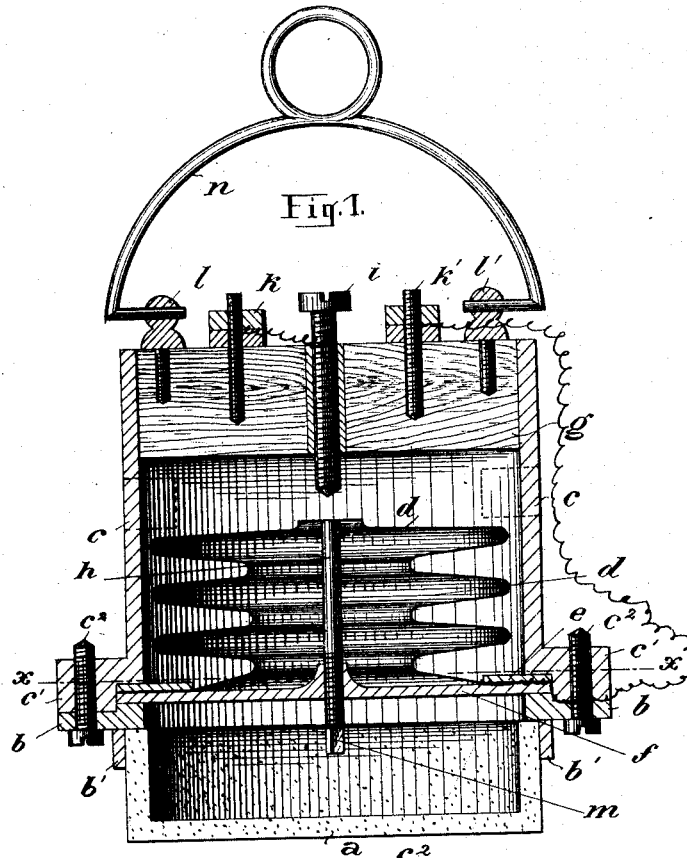
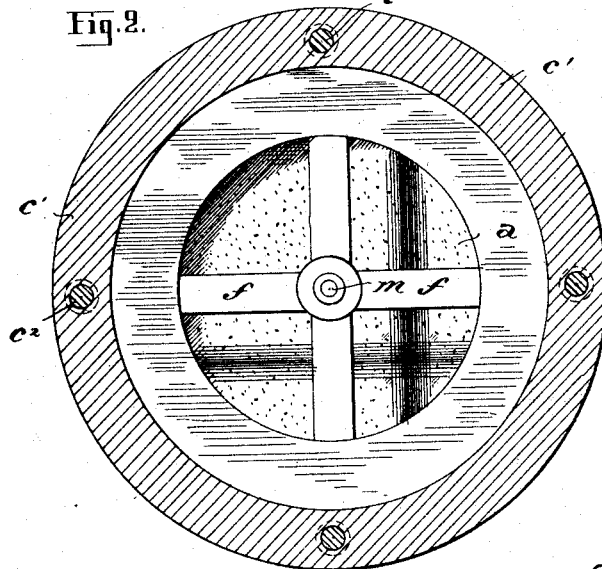


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

JACOB CATZ, OF COLOGNE, PRUSSIA, GERMANY.

ALARM.

SPECIFICATION forming part of Letters Patent No. 419,924, dated January 21, 1890.

Application filed September 23, 1889. Serial No. 324,780. (No model.)

To all whom it may concern:

Be it known that I, JACOB CATZ, of Cologne, in the Kingdom of Prussia and German Empire, have invented new and useful Improvements in Signal Apparatuses for Indicating the Presence of Explosive Gases in the Atmospheric Air, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to a very simple and reliable apparatus, which will indicate by an electric-bell signal when a certain excess of explosive gases, particularly hydrocarbons, are present in closed localities, especially in coal-carrying ships.

15 This invention is illustrated in the accompanying drawings, in which—

Figure 1 is a sectional elevation of the apparatus; Fig. 2, horizontal section on line *x x*,
20 Fig. 1.

The apparatus consists in a brass cylinder composed of two parts *b* and *c*, into which is fitted a metal bottom *f* by a clamping-ring *e* and screws *c*². The said metal bottom is not entirely closed, but has four segmental apertures *f*². The lower projecting part of the brass cylinder is adapted for the reception of a porous-clay receptacle *a*. Between the outer edge of the bottom *f* and the ring *e* is clamped a metal diaphragm *d*, consisting of very thin corrugated sheet metal, somewhat like the bellows of a concertina. The diaphragm or membrane *d* is closed at the top and open at the bottom, and is, by reason of its shape and the thinness of the metal of which it consists, extremely sensitive and susceptible to the slightest variations in atmospheric pressure. The upper end of the brass cylinder is closed by a wooden disk *g*, secured by four screws, and carrying on its upper surface the terminal screws *k k'* and at its center a contact-screw *i*, the screws *l l'* at the edge serving for the attachment of the loop or ring *n* for carrying the

apparatus. The terminal *k'* is electrically connected with the cylinder *c* and through it with the diaphragm *d*, the terminal *k* being electrically connected with the contact-screw *i*. The terminals *k k'* are, moreover, connected with an electric signaling-bell.

The operation of the apparatus is as follows: When light gases—for instance, hydrocarbon gases—accumulate, say, in the hold of a coal-steamer, they will penetrate into the apparatus set up in such locality, passing through the porous-clay cell *a* and reach the diaphragm *d*. As the pressure increases, the diaphragm is expanded upward until the top of the diaphragm touches the contact-screw *i*, closing the line and sounding the bell. To permit observation of the contact-screw for the purposes of adjustment, it is advisable to provide two holes, facing one another, in the walls of the cylinder, which holes can be hermetically closed by screws, as indicated in dotted lines in Fig. 1. Upon the bottom *f*, fitted into the brass cylinder, a central boss *m* is provided, into which a screw-pin *h* is inserted, so as to allow the height of the diaphragm to be adjusted.

What I claim, and desire to secure by Letters Patent of the United States, is—

The combination, with the cylinder, the porous vessel, and the diaphragm within said cylinder, of a screw-threaded adjusting-rod extending within said diaphragm and engaging the under surface of the same, a contacting device located above the diaphragm, said contacting device and diaphragm being electrically connected with a source of electricity and an alarm apparatus, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

JACOB CATZ.

Witnesses:

EDWARD HOEN,

GUSTAVE ALBERT OELRICHS.