V. GAUMER.

SAFETY DEVICE FOR INFLAMMABLE MATERIAL CONTAINERS.

APPLICATION FILED APR. 30, 1914.

1,134,838. Patented Apr. 6, 1915.

Fig. 1.

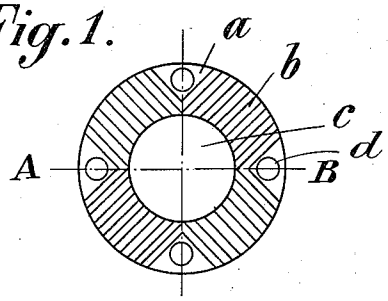


Fig. 2.

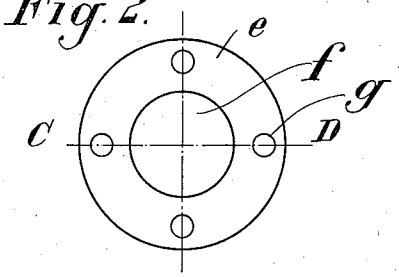


Fig. 3.

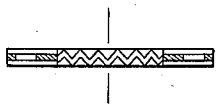


Fig. 4.



Fig. 5.

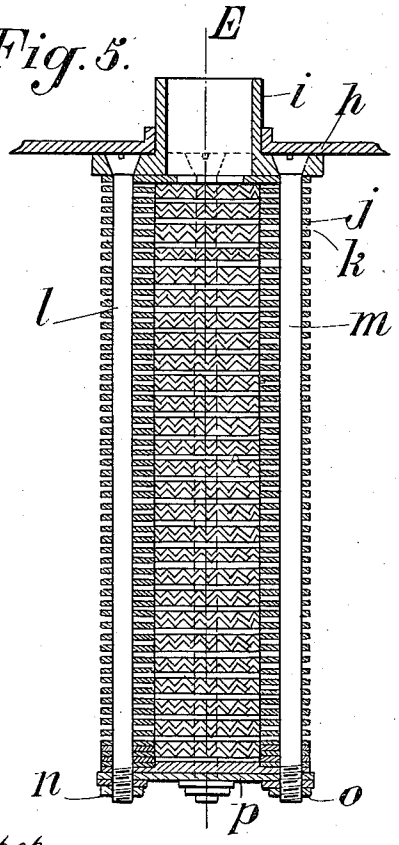
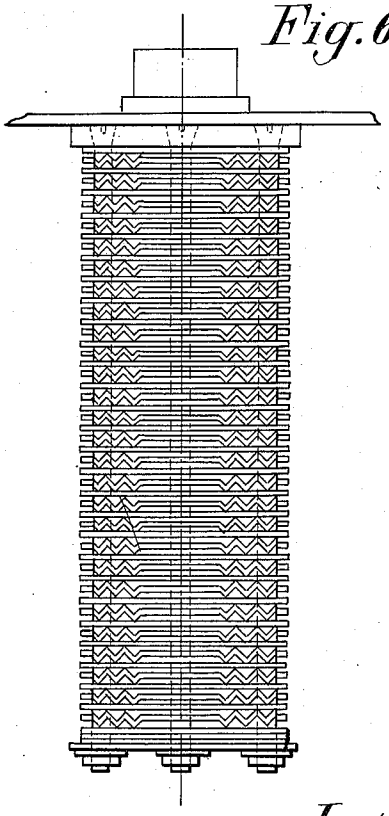


Fig. 6.



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SAFETY DEVICE FOR INFLAMMABLE-MATERIAL CONTAINERS.

1,134,838. Specification of Letters Patent. Patented Apr. 6, 1915.

Application filed April 30, 1914. Serial No. 835,476.

To all whom it may concern:

Be it known that I, VICTOR GAUMER, a citizen of the French Republic, and resident of Paris, France, have invented certain new and useful Improvements in Safety Devices for Inflammable-Material Containers, of which the following is a specification.

The present invention relates to a safety device disposed on the inlet and outlet parts of devices containing inflammable liquids or gases, for instance: cans, lamps, dishes, tanks, carbureters and the like, and has for its object to prevent explosions. Said device stops any flame, preventing same from flowing into or out of said devices. With this object in view a body formed of a plurality of narrow channels is provided, some of said superposed narrow channels being undulated, the others straight, in such a manner that the liquid or gas may freely flow while any flame is prevented from passing. The principle of protecting such devices against explosions consists in separating a space containing an explosive fluid from another space in which is a flame, by means of an interposed arrangement of elements having alined apertures in such a manner that the fluid may freely flow from one space to the other, while a flame is prevented from passing to another, the gas being cooled at the same time.

The only protecting means known until now consists in wire gauze and is based on the principle of the miner's lamp. However the results obtained have not been satisfactory; they are irregular and not positive. The simple wire gauze does not fully meet the requirements of a safety device because it is always possible to make a flame pass through a wire gauze whatever may be the fineness of its mesh. In effect such wire gauze is very thin so that it does not positively stop a flame nor sufficiently cool the burning gas. Moreover owing to the weakness of the wire gauze, the meshes are becoming wider when exposed to shocks or to oxidation and the protective value of same is markedly decreased.

In order to provide a satisfactory device having a positive protecting power, the principle of the wire gauze may be maintained but the latter should be transformed as follows: Increasing the thickness of same so as to provide a positive impediment for the passage of the flame between both spaces. Increasing the rigidity of same for securing the resistance against shocks in order to prevent the widening of the passages, so that any passage of the flame is prevented. Increasing the thickness of the metal for preventing the action of the oxygen and acids and more especially for positively and quickly cooling the burning gases, owing to the mass of metal. Increasing the freedom of flow by providing clear and unobstructed passages for the liquid or gas and thereby decreasing the amount of fluid or gas liable to waste by being left in the container and assuring the speed of flow of the latter part of the liquid. Providing parts of small dimension decreasing the danger of displacement and dislodgment due to vibrations because of the small weight and area of the vibrating parts, the period of vibratory oscillations being materially decreased over the larger and heavier objects, this makes the device of great value to automobiles. In order to obtain such conditions, the thickness of the wire gauze is increased, the material forming the wire gauze being extended in a direction perpendicular to the plane of same, so that instead of meshes adjacent channels are formed, and instead of a weak wire gauze a thick and resistant block formed with rigid tubes is formed, the section of said tubes being constant and well defined.

The present invention consists in providing a thick strainer formed by a plurality of adjacent tubes or ducts for separating the two spaces, by superposing undulated elements and straight elements, plates or washers.

The accompanying drawing shows an example of the device and applied to a vessel containing inflammable fluid.

Figure 1 is an undulated metal washer. Fig. 2 is a smooth metal washer. Figs. 3 and 4 are sections taken on lines AB and CD, respectively, of Figs. 1 and 2. Fig. 5 is an axial section through the safety device. Fig. 6 is a lateral view of same.

The safety device is formed by a plurality of undulated and smooth elements in shape of washers, superposed and connected together by means of lateral fastenings or transverse rods or the like.

The washer *a* Fig. 1 is provided with undulations *b* extending from the edge of the central filling or emptying duct *c* to the outer edge, so that when a smooth washer such as *e* (Fig. 2) is placed on top of same,

ducts or passages are left between both washers. *d* are apertures through which extend the connecting rods. The openings *f* and *g* in Fig. 2 correspond to the openings *c* and *d* of the washer shown in Figs. 1 and 3.

The device shown in Figs. 5 and 6 is secured by any known means on the mouth *i* of a vessel *h*. A plurality of undulated washers shown in Figs. 1 and 3 and of smooth washers shown in Figs. 2 and 4 are alternately disposed on top of each other so that between every two washers ducts are provided for the flowing liquid. Said washers are secured together by means of transverse rods *l* and *m* the threaded ends of which being engaged by tightening nuts *n* and *o* for securing the rigidity of the whole system. With this object in view a bottom plate *p* is provided at the lower part of the device.

The undulated and smooth elements, the combination of which forms the present invention, may be of any desired shape, round, oval, square, rectangular and the like.

Having now fully described my said invention what I claim and desire to secure by Letters Patent, is:

1. A device for the purpose substantially as set forth comprising, a series of superposed disks alternately smooth and undulated having their centers open, said superposed open centered disks forming a duct for the flow of the material through the center of said series of disks, a closure for one end of said duct, fastening means for said disks to hold same in superposition.

2. A device for the purpose substantially as set forth comprising, a cylindrical plug having radial passages through its walls, said plug composed of a series of flat disks, alternately smoothed faced and corrugated faced, arranged in superposition, means for fastening said disks in superposition and a closure for one end of said cylindrical plug.

3. A safety device of the class described, consisting of a series of flat disks, said disks having apertures in their centers and bolt receiving holes between their edges and center apertures, said series of disks alternately smooth and corrugated faced forming radial passages and a central duct when in superposition, a closure for one end of said duct, bolts in said bolt receiving holes for holding said disks and said duct closure in position.

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

VICTOR GAUMER.

Witnesses:
GASTON SETIAN,
CHAS. P. PRESSLY.