

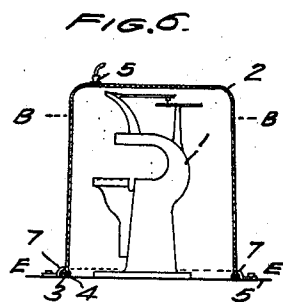
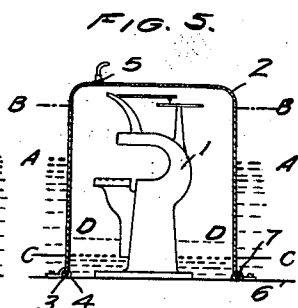
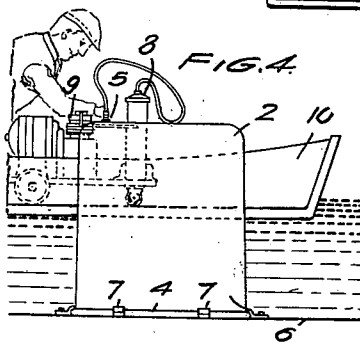
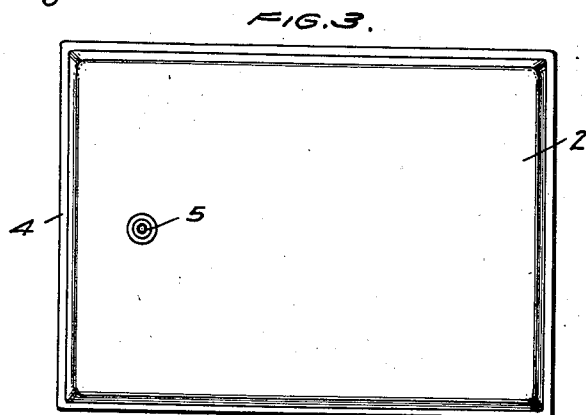
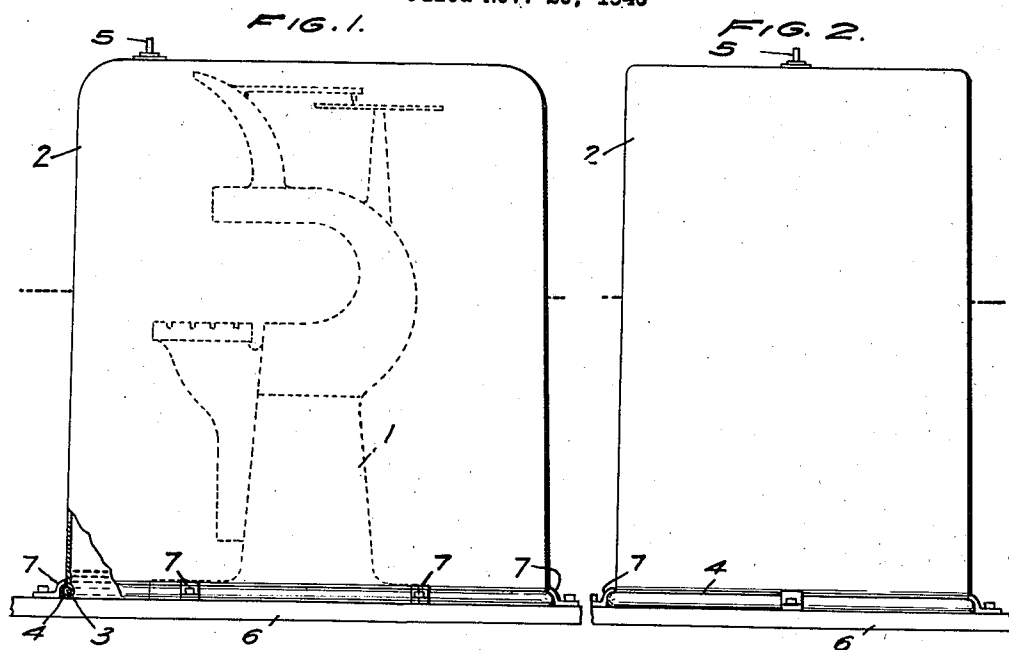
Nov. 3, 1942.

C. H. DEERWESTER

2,300,408

FLOOD COVER

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INVENTOR
CHARLES H. DEERWESTER
BY *Charles H. Spalding* and
Charles R. Kuntz
ATTORNEYS

UNITED STATES PATENT OFFICE

2,300,408

FLOOD COVER

Charles H. Deerwester, Washington, D. C.

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1 Claim. (Cl. 150—52)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention has reference generally to protective devices for safeguarding property against damage and specifically to the protection of machinery established in any building subject to flood waters.

The inundation of machinery in machine shops and similar buildings subject to flood waters results in considerable damage to, if not a total loss of, such machinery; the damage per machine varying in accordance with the particular type and equipment thereof as well as with the period of inundation. Nor is complete inundation necessary since any rise of flood waters to vital parts of a machine may result in irreparable damage. Obviously, in the absence of protective measures directed toward the elimination of flood waters from shop sites, the safeguarding of the numerous items of machinery in shops during flood times is a serious problem.

With these considerations in view, it is an object of the present invention to provide a novel method of and apparatus for, safeguarding property which will make possible a positive protection to any machine during flood, without the necessity of removing motors, machine parts, or in any way impairing its readiness for use immediately following a flood.

Accordingly, the invention consists in individually covering each machine, or other shop fixture to be protected, with a hollow, air-tight hood or cylinder open at its bottom and provided at its top with means for admitting air under pressure to exclude the water from the interior of the hood.

Another object of the invention is to provide a hood or flood cover which is collapsible, portable and capable of being used over and over.

Further objects and advantages of the invention may become apparent from the following detailed description and from the accompanying drawing, in which—

Figure 1 is a view in side elevation of the flood cover applied to a machine, the latter being indicated on dotted line structure;

Figure 2 is an end elevation of the flood cover;

Figure 3 is a top view of the flood cover;

Figure 4 is a pictorial view illustrating the manner of practicing the invention under flood conditions;

Figure 5 is a view of a hooded machine under

flood conditions showing a rise of water under the hood due to the head of water outside the hood, the latter being shown in section; and

Figure 6 is a view somewhat similar to Figure 5 but showing the hood substantially cleared of water by the admission into the hood of additional air under pressure.

In the drawing, 1 indicates a machine to be protected against damage by flood waters and 2 indicates the flood cover or hood in protective position over the machine. In construction, the cover or hood consists simply of a bag or hollow cylinder open at the bottom end and provided at the open end with a square frame or ring 3 of steel attached by seaming to the bottom edge or skirt 4 of the bag. An air valve 5, of a type similar to that in use on automobile inner tubes, is provided in the top of the bag. The bag should be of a size sufficient to amply cover the machine and all projecting parts and is made of any water tight and air tight fabric or other material and is to be flexible enough for folding into smaller compact form when not in use. The material should be of a strength satisfactory to hold the internal pressure which will be built up for the expected or anticipated water level in which it will be used. A suitable material is "balloon cloth"; this particular cloth being of a nature that water tight and air tight seams can be constructed by means of cold patches of a type in common use in the repair of automobile inner tubes. It is to be understood seams can also be provided by vulcanizing, and that the bag can be constructed with no seams at all. In extremely tall bags, where the tensile strength of the material is approached, a double thickness of the material can be used for a reasonable distance above the skirt.

In practice, the flood cover is used as follows: Place the metallic ring or frame 3 of the bag over the machine and lower to the floor. In electrically powered machinery should drop conduits be used from overhead in electrically connecting the machine to the power source, this conduit and the connecting wires would of necessity, have to be removed prior to installing the cover. However, this removal by an experienced electrician would involve approximately but five minutes time. When the cover is in place over the machine, the frame 3 thereof is attached rigidly to lugs in the base of the machine or, as shown in Figure 1 of the drawing, to the floor 6 by proper retaining devices or hooks 7 embedded in the floor. It is to be noted that the frame does not

make an air tight seal with the floor nor is it intended that it should make such a seal. After attaching, no further work is necessary until the flood water reaches a level just above the skirt of the bag. When this has occurred, air is injected into the bag through the valve 5 in the top of the bag. Bubbles appearing outside of and along the bottom edge or skirt of the bag will indicate that a sufficient pressure has been applied and that the interior of the bag is free of water.

As the flood water rises, frequent injections of air should be made; the frequency depending upon the rapidity of rise of the outside water level. The principle involved is one simply of equalizing pressures. For example, in accordance with a well known law of physics, it is obvious that when the flood water rises from level A in Figure 5 to level B, the water level inside the bag will rise from C to D, compressing the air within the bag until the pressure exerted by the air is equal to that exerted by the water. With each foot rise of water outside the bag, there is a proportionate increase in water height inside the bag. This fact necessitates the frequent blowing with compressed air to clear the bag of water. At each injection, air should be applied to the bag until bubbles appear along the edge or skirt. The internal air pressure of the bag is then equal to or greater than the pressure exerted by the water and the inside water level is pushed down to E as shown in Figure 6. The injections of air into the bag may be made conveniently with a portable compressor 8 of a type that during flood conditions could be run by a small gasoline engine 9 and transported by a

small boat 10, as shown in Figure 4. After the crest of flood water has been reached, provided the bag is absolutely air tight, no further injections need be made nor need they be made as the water recedes.

Having thus described the invention, I claim—

A flood cover for protecting a shop machine against damage by flood waters comprising a portable collapsible bag of a size and capacity to be placed hood-like over the machine to be protected and to extend substantially to the shop floor or other support on which the machine is mounted, said bag being of airtight and watertight fabric material sufficiently flexible to be collapsed and folded into compact form when removed from the machine, an air-inlet valve secured to and extending externally of the closed upper portion of the said bag, a closed metallic bag-stiffening and bag-anchoring ring fixedly attached to and extending around the flexible material of the bag at the opened end or mouth of the latter to rest upon and be wholly supported by the said floor or other support for the machine when the said bag is in place thereover, and a plurality of releasable hold-down clips associated with the said ring and attachable to the said floor for other support for holding the ring down against the latter without making an airtight seal therewith whereby when the bag is placed over the machine the said bag and ring form an air chamber about the machine which is open to the atmosphere only through the unsealed passage between the said ring and the said floor or support.

CHARLES H. DEERWESTER.