April 28, 1925. 1,535,312

R. T. HOSKING

WATERPROOF COVERING FOR CAMERAS

Filed Sept. 15, 1923

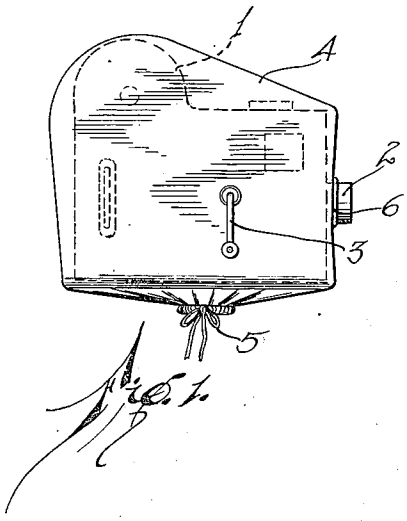

Fig. 1.

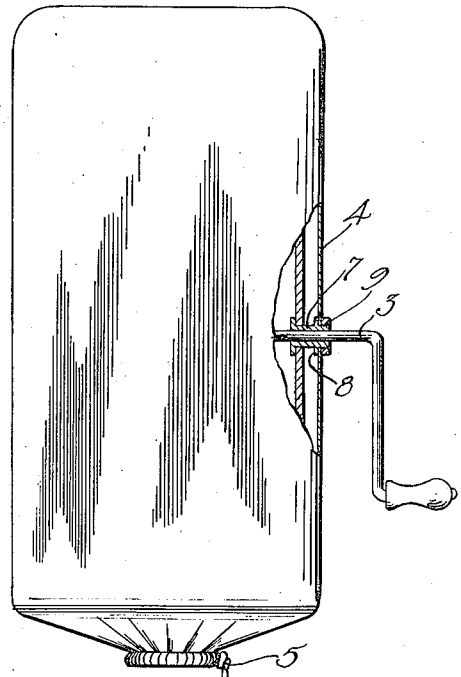

Fig. 2.

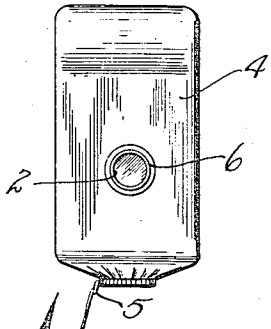

Fig. 3.

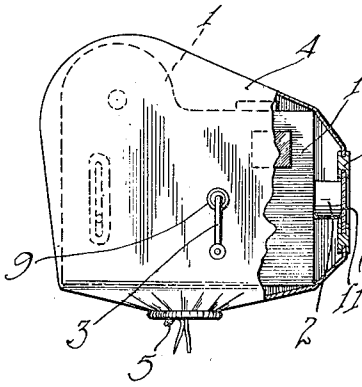

Fig. 4.

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Patented Apr. 28, 1925. 1,535,312

UNITED STATES PATENT OFFICE.

RICHARD THOMAS HOSKING, OF WILMETTE, ILLINOIS.

WATERPROOF COVERING FOR CAMERAS.

Application filed September 15, 1923. Serial No. 663,005.

To all whom it may concern:

Be it known that I, RICHARD THOMAS HOSKING, a citizen of the United States, and a resident of Wilmette, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Waterproof Coverings for Cameras, of which the following is a full, clear, and exact description.

My invention relates to improvements in waterproof coverings for cameras, particularly for use in under-sea photography, and it consists in the combinations, constructions, and arrangements herein described and claimed.

An object of my invention is to provide a waterproof covering of the character described by means of which under-sea photographs may be taken at a distance below water level which is limited only by the ability of a diver to descend. It is well known that the ordinary type of water telescope, by means of which under-sea photographs have heretofore been taken, is capable of operating only in relatively shallow water. This is due to the fact of the intense pressure upon the glass windows of the telescope, tends to collapse the telescope tubes and window.

A further object of my invention is to provide a covering of the character described which may be quickly removed from the camera so that the operator may have access to the film chambers and mechanism of the camera for adjustment and inspection.

A further object of my invention is to provide a waterproof covering for cameras which is flexible so that certain portions of the operating mechanism of the camera may be manipulated through the flexible walls of the covering without necessitating the use of numerous packing glands and manipulating levers extending through the covering.

A further object of my invention is to provide a waterproof covering for cameras which is simple in construction, durable, and thoroughly practical for the purpose intended.

Other objects and advantages will appear in the following specification, and the novel features of the invention will be particularly pointed out in the appended claim.

My invention is illustrated in the accompanying drawings, forming part of this application, in which

Figure 1 is a side elevation of an embodiment of my invention,

Figure 2 is an enlarged rear elevation partially in section of the mechanism illustrated in Figure 1,

Figure 3 is a front elevation of the mechanism illustrated in Figure 1, and

Figure 4 is a side elevation partly in section of a modified form of my invention.

In carrying out my invention, I make use of the ordinary type of camera. In the present embodiment I have shown a motion picture camera 1 in dotted lines in Figure 1. The camera 1 is provided with a lens 2, and a hand crank 3 for operating the shutter mechanism.

My improved covering consists in a flexible waterproof bag-like covering 4 having draw strings 5 at the bottom thereof by means of which the bag may be closed. This covering 4 is sufficiently large to receive the entire camera 1.

An aperture 6 through the front wall of the covering 4 is provided and has a reenforced resilient ring on the edges thereof. This resilient ring is sufficiently small to contact with the side walls of the tube containing the lens compound 2 tightly so as to shut out water from entering the bag or covering 4. It should be noted of course that the lens 2 must be fitted with a watertight packing.

The camera 1 is further provided with a packing gland 7 through which the crank 3 thereof extends. This gland 7 extends for a short distance beyond the outer wall of the camera and has a flange 8 adjacent the end thereof. A clamping ring 9 is threaded upon the extreme outer end of the packing gland 7 so that the side wall of the covering 4 may be clamped tightly between the flange 8 and the packing gland 9 to exclude water from entrance to the bag or covering 4 through the aperture necessary for the introduction of the crank 3 therethrough.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. Let us assume that it is desired to make a motion picture record of a submerged vessel that

is in relatively deep water. To this end the photographer would make the camera in readiness for operation in the ordinary manner, such as the introduction of the film and the adjustment of the shutter diaphragms, and the like. The draw strings 5 of the covering may be opened and the camera 1 placed within the covering 4 so that the lens 2 is projected through the reenforced opening 6 in the front wall of the covering. The crank 3 would be projected through the opening in the side wall of the covering and the clamping ring 9 tightly turned upon the threaded portion of the packing gland 7 to exclude water from the covering by way of the crank opening. The draw strings are then tightened and made fast, as shown in Figure 1. The camera is now ready for use.

It should be understood that in use it is absolutely essential that the camera be held in an upright position so that the draw strings 5 or opening of the covering shall be at all times beneath the camera. This manner of holding the camera will prevent the entrance of water through the diminutive aperture at the draw strings 5. Further operation of the camera is exactly the same as though the camera were being used upon land. The photographer of course must be dressed in a suitable diving suit and may have a great deal more freedom than the photographer who heretofore has been restricted in his work by the chamber of a water telescope.

In Figure 4 I have shown a modified form of my invention. In this embodiment of my invention, the covering 4 is constructed with a water-tight sash 10 in the front wall thereof and a transparent window 11 disposed in the sash. The lens 2 of the camera is then placed as shown in Figure 4 so that the tube is directly in alinement with the window 11. This form of my invention is intended for use where the pressure due to depth is relatively high so that no strain may be placed upon the delicate lens mounting of the camera. In use the modified form of my invention is operated in precisely the same manner as the preferred form.

It should be noted that while I have here shown my waterproof covering adapted for motion picture cameras, that the ordinary type of camera for taking still pictures, with either a bulb or trigger release, may be entirely encased in the waterproof covering and the bulb or trigger release operated through the flexible side walls of the covering. In this instance, the operator must feel for the various portions of the mechanism of the camera and operate them in the same manner as though the camera was being used upon land, excepting for the introduction of the flexible covering between the operating elements and the hand.

It will be apparent from an inspection of the covering 4 that the camera 1 may be employed with the ordinary type of camera tripod, such as used in motion picture or still photography, by merely inserting the screw attachment of the tripod through the aperture formed at the draw string 5 of the covering. Since there is no necessity of waterproofing the mechanism used upon the tripod, it is not essential that this portion of the device be provided with a covering.

I claim:

The combination with a motion picture camera having a lens and an operating crank, of a flexible waterproof covering for said camera having a yielding opening to permit the projection of said lens therethrough, said camera having an elongated water-tight gland through which said operating crank is projected, and a packing nut at the outer end of said gland by means of which said gland may be projected through a suitable opening formed in said water-tight covering, whereby the union between said covering and said gland is rendered water-tight by tightening said packing nut.

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