

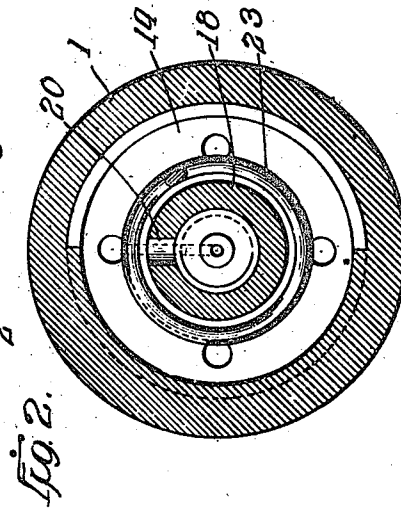
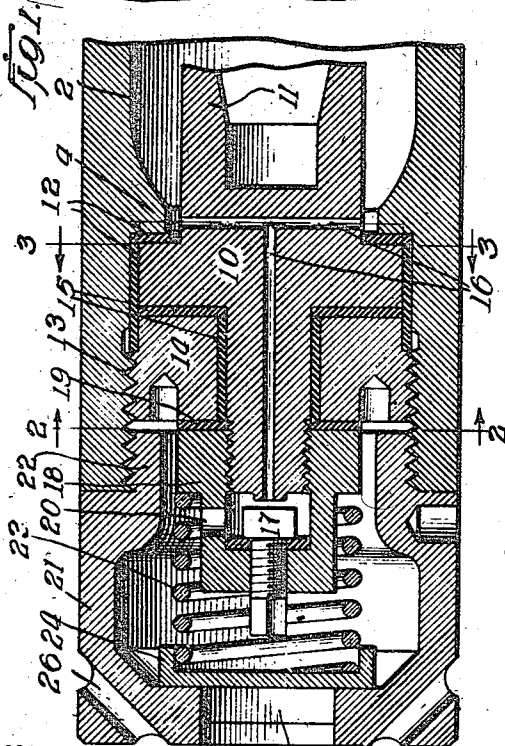
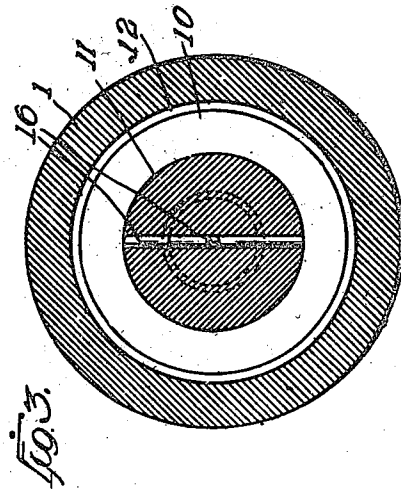
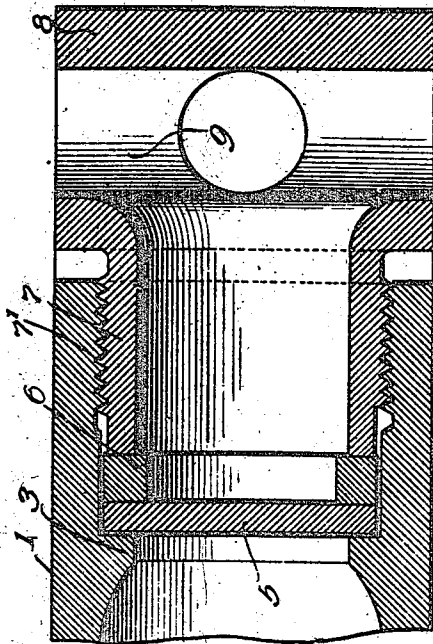
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BLASTING CARTRIDGE

Filed Nov. 22, 1929



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BLASTING CARTRIDGE

Application filed November 22, 1929. Serial No. 409,022.

This invention is concerned with indestructible blasting cartridges of the type where a compressed or liquefied gas is employed as the blasting medium. This type of cartridge usually consists of a metallic body having a gas chamber formed therein, a charge forming and charge energizing means, and a pressure responsive venting means.

It is an object of the invention to improve the construction and design of cartridges of this type with a view to effecting economies in manufacture, assembling and maintenance.

More particularly, it is an object of the invention to standardize dimensions where possible and make the parts to a large extent interchangeable.

Referring to the drawings,

Figure 1 is a view in longitudinal section of a cartridge constructed in accordance with the invention.

Figures 2 and 3 are views in transverse section taken along lines 2—2 and 3—3 respectively of Figure 1.

The present blasting cartridge is of the same general type as those heretofore produced in that it includes a body having an internal gas chamber, an electrode positioned in one end of the body and insulated therefrom, a discharge assembly associated with the opposite end of the body and including a pressure responsive rupturable disc and a heater unit disposed between and having electrical contact at its opposite ends with the electrode and rupturable disc respectively whereby to provide a circuit from the electrode through the heater and to the cartridge body for energizing the heater by electricity and thereby generating heat to bring about the blasting pressure within the cartridge.

The particular construction of the present cartridge includes a body 1 which is formed internally with a symmetrical gas chamber 2 the opposite ends of which are bounded by inwardly extending ribs 3 and 4 respectively. The outer face of the rib 3 provides a

seat and sealing surface for the pressure responsive rupturable disc 5 which is secured in place by means of the shear ring 6 and the sleeve-like extension 7 of the discharge cap 8 which has threaded engagement with the interior of the cartridge body as indicated at 7'. The discharge cap is of conventional design and includes a plurality of radial discharge openings 9.

The electrode 10 which occupies a position in the opposite end of the cartridge is so designed as to cooperate with the outer plane face of the rib 4 and with the aid of an insulating and sealing disc 12 effects a sealed engagement therewith. The electrode 10 is reduced in diameter as indicated at 11 and extends into the gas chamber where it provides a support for one end of the heater unit. An annular insulating ring 12 surrounds the electrode and serves to effectively insulate the same from the body of the cartridge. The extreme end of the cartridge body is provided with internal threads 13 of substantially the same form and dimensions as thread 7 at the opposite end and these threads cooperate with correspondingly formed threads on the electrode nut 14. This nut surrounds the outer end of the electrode and is separated therefrom by means of insulating members 15. The purpose of the nut is to exert pressure on the electrode in order to effect a gas tight seal between the inner surface thereof and the adjacent face of the rib 4.

The charging of the cartridge is accomplished by virtue of passages 16 extending through the electrode and communicating with the gas chamber. A valve 17 is adjustably mounted in a valve cap 18 which is secured to the extreme outer end of the electrode and serves to control the admission of gas to the charging passages 16. A charging orifice 20 is provided in the cap 18 for the reception of a nozzle or other form of charging device. It is of course necessary that the

valve cap 18 be insulated from the body of the cartridge and this is accomplished by the insulating disc 19 which is interposed between the valve cap and the electrode nut 14. The disc 19 likewise serves as a sealing gasket to prevent the escape of gas around the threads which connect the valve cap and the electrode. In order to protect the electrode and the valve mechanism associated therewith there is provided a protective cap 21 which is reduced in diameter as indicated at 23, which reduced portion is provided with external threads designed to cooperate with the threads 13 formed internally of the cartridge body. The end wall of the cap 21 is provided with a central opening 25 designed to receive a suitably constructed terminal plug. A metallic cap 24 is positioned to have contact with such a terminal plug and the circuit from the plug and cap 24 is continued to the electrode through the medium of the metallic spring 23. It will be noted that in the absence of a terminal plug, the member 24 is urged into engagement with the cap 21 by means of the spring 23, thus providing a short circuit between the electrode and the metallic cartridge body. The cap is provided with one or more openings 26 in which may be inserted the second lead from a source of electricity.

Attention is directed to the fact that the opposite ends of the cartridge body are of identical construction, both as to form and dimensions. This in itself greatly simplifies the operations involved in the manufacture of the cartridge body. This feature also has the advantage of rendering the charging and discharging units of the cartridge interchangeable as regards the opposite ends of the cartridge body. It will also be noted that the threads on the discharge cap, the electrode nut, and the protector cap are the same and that the remaining parts are of substantially identical dimensions. By virtue of these several features there is provided a blasting cartridge of inexpensive construction and one wherein the parts are so standardized as to dimensions that all parts are readily interchangeable.

I claim:

1. A blasting cartridge comprising an elongated open ended cylinder, a pressure responsive discharge assembly associated with one end of said cylinder, a charging and charge energizing assembly associated with the other end of said cylinder, said assemblies sealing the respective ends of said cylinder and forming therebetween a chamber for reception of a blasting charge, said assemblies being interchangeable with reference to the respective ends of the cylinder.

2. A blasting cartridge comprising an open ended cylinder internally threaded adjacent opposite ends and having interior sealing surfaces inwardly of said threads, and means

adapted to be interchangeably associated with said ends and the respective sealing surfaces thereof.

3. A blasting cartridge comprising a hollow cylinder of substantially uniform wall thickness throughout its length except at two points, one adjacent each end, at which points the wall thickness is increased to form inwardly extending shoulders, the ends of said cylinder being internally threaded outwardly of said shoulders, and means for closing the opposite ends of said cylinder.

Signed at Chicago, Illinois, this 19th day of November, 1929.

FRANK H. KNEELAND.