

No. 768,564.

PATENTED AUG. 23, 1904.

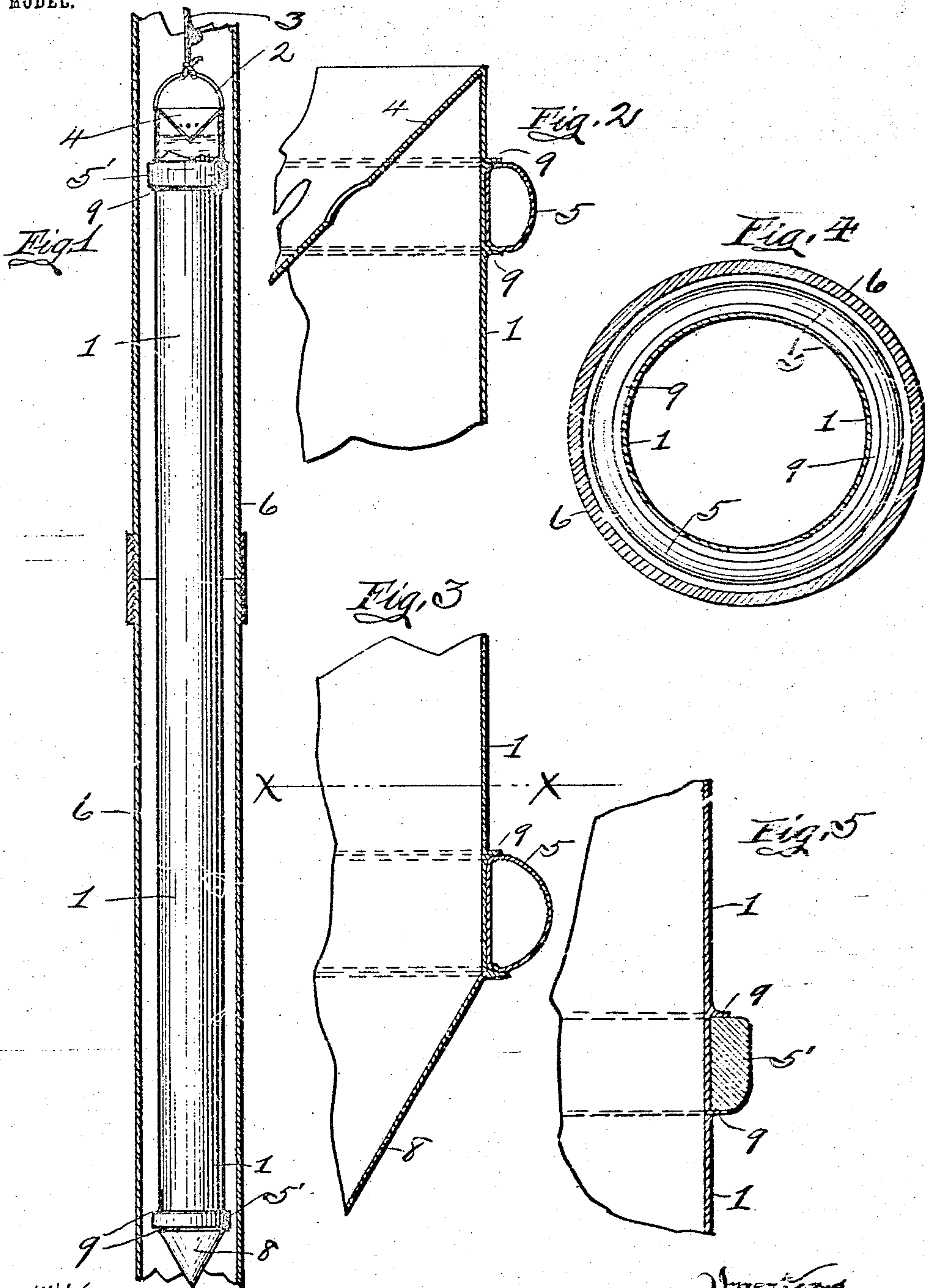
W. H. ERNST & A. CUPLER, JR.

C. E. MOSHER, ADMINISTRATOR OF A. CUPLER, JR., DEC'D.

SAFETY DEVICE FOR OIL WELL TORPEDO SHELLS.

APPLICATION FILED NOV. 13, 1902.

NO MODEL.



W. H. ERNST & A. CUPLER, JR.  
J. B. Lewis  
M. H. Hunter

W. H. ERNST & A. CUPLER, JR.  
Adam Cupler  
O. H. Lewis  
C. E. Mosher



# UNITED STATES PATENT OFFICE.

WILLIAM H. ERNST, OF MARIETTA, OHIO, AND ADAM CUPLER, JR., OF  
TITUSVILLE, PENNSYLVANIA; CLARENCE E. MOSHER ADMINISTRATOR  
OF SAID CUPLER, JR., DECEASED.

## SAFETY DEVICE FOR OIL-WELL TORPEDO-SHELLS.

SPECIFICATION forming part of Letters Patent No. 768,564, dated August 23, 1904.

Application filed November 13, 1902. Serial No. 131,201. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM H. ERNST, residing at Marietta, Washington county, State of Ohio, and ADAM CUPLER, JR., residing at Titusville, in the county of Crawford and State of Pennsylvania, citizens of the United States, have invented a new and useful Improvement in Safety Devices for Oil-Well Torpedo-Shells, of which improvement the following is a specification.

This invention relates to an improved safety device for oil-well torpedo-shells; and it consists in providing the casing of the said shells with annular rubber rings, thereby preventing a metallic contact between the casing of the well and the casing of the torpedo, as will be fully described hereinafter.

When it is necessary that an oil-well should be "torpedoed," from twenty to two hundred quarts of nitroglycerin in one or several shells is used, the said shell being simply a cylindrical receptacle several feet in length and varying in diameter from three to six inches, some of said shells when loaded weighing one hundred pounds. Owing to the dangerous nature of the explosive used, accidents often happen when lowering these shells into the well, due to friction, vibration, leakage of the shell, &c., and such accidents often result in the loss of life or the loss of the well by reason of the explosion of the torpedo at an undesired point. These oil-wells range from several hundred feet to three thousand, and in many cases the casing extends downward two thousand feet, and as it is necessary to lower each individual shell by means of a rope it is obvious that if not done with extreme care the friction due to its rapid downward movement, the rotary motion given by the said rope, and the vibration of the shell all combine to cause premature explosions. Should one of the shells leak and leave a few drops of the fluid upon the side walls of the casing, the following shell may by its vibration or friction explode the said drop, and it is obvious that the shell passing will also explode, thereby destroying the well.

By preventing the metallic shell of the tor-

pedo from contact with the metal casing of the well by means of suitably-arranged cushions formed of soft rubber all such accidents above mentioned will be avoided.

In the accompanying drawings, Figure 1 is a sectional elevation of a portion of an oil-well tubing, showing the torpedo passing down, the said torpedo being provided with cushions in accordance with my invention. Fig. 2 is an enlarged section showing the upper portion of the shell and manner of attaching the cushion thereto. Fig. 3 is a similar view of the lower portion of the shell. Fig. 4 is a sectional plan view taken on the line X X of Fig. 3. Fig. 5 is a sectional view of a portion of the shell, showing a modified form of the cushion.

To construct a torpedo-shell in accordance with our invention, we form from sheet metal a cylindrical casing or shell 1 of a suitable diameter and length and provide the same with a conical point 8, a bail 2, and an inverted perforated cap 4 at the top. Arranged at points near the top and bottom of the shell are circumferential rings or flanges 9 for the purpose of confining cushions 5 therein. These cushions are formed from soft rubber, either in the form of an annular pneumatic tube, as indicated by the figure 5, or a solid piece of soft rubber, as shown at 5', Figs. 1 and 5.

A torpedo-shell fitted with the above-described cushions will prevent any metallic contact between the shell of the said torpedo and the walls of the casing 6, thereby preventing premature explosions.

Various slight modifications and changes may be made in the details of construction without departing from the spirit of the invention.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. A torpedo of the type set forth, comprising a shell, spaced-apart flanges upon the opposite ends of the shell, and a cushioning means expansively held between said flanges and having its interior surface engaging the

said shell throughout, said flanges preventing longitudinal movement of said cushioning means.

2. A torpedo of the type set forth comprising a shell, spaced-apart flanges arranged adjacent the opposite ends of the shell, an annular pneumatic tube arranged about the shell and engaged by said flanges, said tube being retained against longitudinal movement by said flanges, and being in frictional engagement with said flanges and that portion of the shell between said flanges.

In testimony whereof we have hereu signed our names in the presence of two scribing witnesses.

W. H. ERNST.  
ADAM CUPLER, JR

Witnesses for W. H. Ernst:

PETER J. SULT,  
C. B. MEAD.

Witnesses for Adam Cupler, Jr.:

R. E. DICKINSON,  
J. J. HARVEY.