

March 11, 1930.

J. J. HILL

1,750,405

WELL SHOOTING DEVICE

Filed Oct. 13, 1927

Fig. 1.

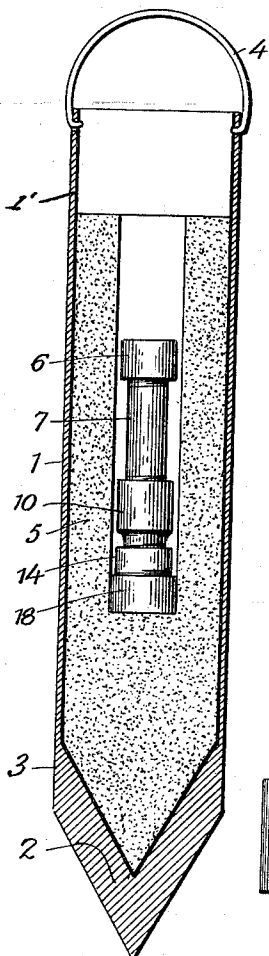


Fig. 2.

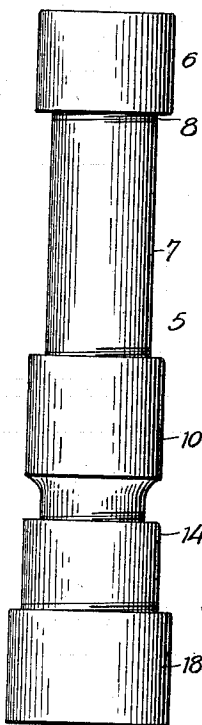


Fig. 3.

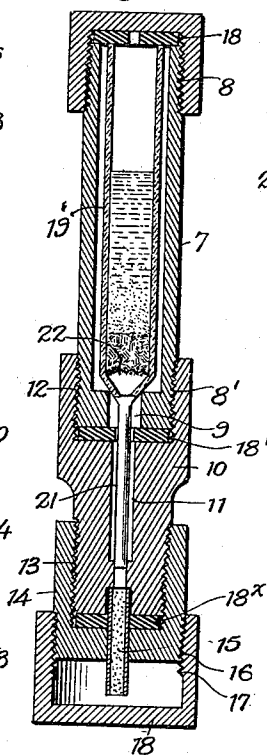


Fig. 4.

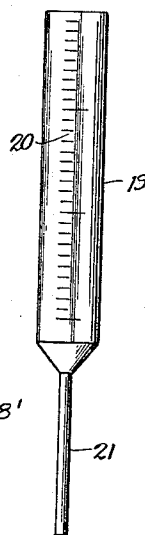
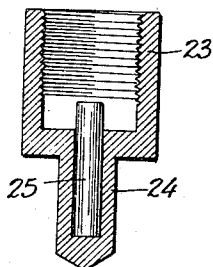


Fig. 5.



INVENTOR.

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UNITED STATES PATENT OFFICE

JESSE J. HILL, OF INDEPENDENCE, KANSAS

WELL-SHOOTING DEVICE

Application filed October 13, 1927. Serial No. 225,973.

My invention relates to improvements in devices for shooting wells and refers particularly to a device for shooting oil or gas wells, the main object being the provision of a simple and inexpensive device which will insure entire safety in its use, which can be easily placed in position for use and lowered into the well, and which will be thoroughly efficient and practical in every particular.

To attain the desired object my invention consists of a device for shooting wells embodying novel features of construction and combination of parts substantially as described and claimed, and as shown in the accompanying drawing, in which:

Figure 1 represents a sectional view of a bomb or torpedo with its charge and my device shown in elevation and in its relative position to such bomb.

Fig. 2 represents a side elevation of a well shooting device constructed in accordance with and embodying my invention, shown on an enlarged scale.

Fig. 3 represents a vertical central sectional view of the complete device.

Fig. 4 represents an elevation of the graduated container or glass tube which contains preferably fuller's earth and sulphuric acid, and

Fig. 5 represents a modified form of container and explosive cap carried thereby.

Referring by numeral to the drawing in which the same numbers are used to denote the same parts in all the views:

The numeral 1 designates the casing or shell which is formed with the lower pointed or tapered end 2, which is thickened at 3, to give weight to such shell and is provided with a bail or handle 4, to facilitate lowering the shell into the well.

The shell is adapted to contain the shattering charge 5, of dynamite, nitro-glycerine, or other suitable explosive material, and my exploding or shooting device is embedded in said charge, and consists of the top interiorly threaded cap 6, the sleeve 7, threaded exteriorly at its upper and lower ends 8 and 8', and formed with the lower restricted opening 9, the tubular section 10, having an elongated restricted opening 11, and interiorly threaded

at 12 to engage the thread 8', and exteriorly threaded at its lower portion 13, to be engaged by the threaded cap 14, which carries the exploding cap 15, and which cap 14 is provided with exterior threads 16 to be engaged by interior threads 17 on the cap 18, forming the protector for said explosive medium 15, which provides the initial or firing charge.

From this construction it will be noted that the well shooting device consists of an upper threaded cap, an intermediate elongated sleeve, a lower connected sleeve, and a cap secured to said lower sleeve in which is mounted the firing or initial exploding device and the protecting cap or cover for said exploding device and between the upper cap, the elongated tube and the lower sleeve are respectively placed gaskets 18, 18', and 18'', which insure a tight joint between the parts.

The sleeve 7 forms the container for the glass tube 19, provided with graduations 20, this tube having the discharge spout 21, depending therefrom and passing through the restricted opening of the tubular section 10, and having its lower portion arranged contiguous to the initial firing device or tubular member 15, and the glass tube 19 is partly filled with fuller's earth in which is placed a proper amount of sulphuric acid, such fuller's earth being retained in proper place by the screen 22 which permits a drop of the sulphuric acid to filter through in a determined time and to fall upon the initial charge or exploding device to effect the firing of the shattering charge in the shell. The firing device is in the form of a short tube and contains a suitable chemical composition, such as sugar and chlorate of potash, which will act with the sulphuric acid.

In the form of my invention shown in Figure 5 I provide an interiorly threaded cap 23 which fits upon the portion 14, and is provided with a depending cavity 24 in which is placed an exploding device 25, the operation of this form being exactly the same as the first described construction.

I have found from shooting wells several hundred times with my device that the best results are obtained by placing in the glass

graduated tube fuller's earth in powdered form and dropping thereon a small quantity of sulphuric acid, the fuller's earth being maintained in a mass upon the screen in the tube and according to the amount used allowing the acid to filter through the fuller's earth in a determined time to effect the firing of the initial exploding device.

From the foregoing description taken in connection with the drawing the advantages of my invention will be readily understood by all persons skilled in inventions of this character and it will be at once apparent that I have provided a simple and inexpensive device which will overcome the difficulties and objections to devices in general use, and which will substitute an invention which can be easily placed in position, which is absolutely safe and which will fire the charge in an exactly determined time, thus commending the device as useful, efficient and practical.

The outer container 1, is made of metal and to render it water proof the inner face is given a heavy coat of paint 1¹, which may be of any desired thickness to protect the dynamite or other explosive.

I claim:

In combination with an outer shell adapted to contain a suitable shattering charge, a device for exploding said charge embedded in said shattering charge and comprising, an upper casing, an intermediate sleeve section having a restricted opening, and a cap connected with said section and having an opening aligning with the opening of said section, an acid container in the upper casing having a depending spout of reduced diameter disposed in the restricted opening of the sleeve or section, a tubular firing device fitting in said cap with its upper end contiguous to the lower end of the spout of the container, and a cap or cover for protecting the firing device.

In testimony whereof I hereunto affix my signature.

JESSE J. HILL.