Jan. 31, 1928. 1,657,751

R. I. HENDERSON

OIL WELL PLUG

Filed Sept. 25, 1925

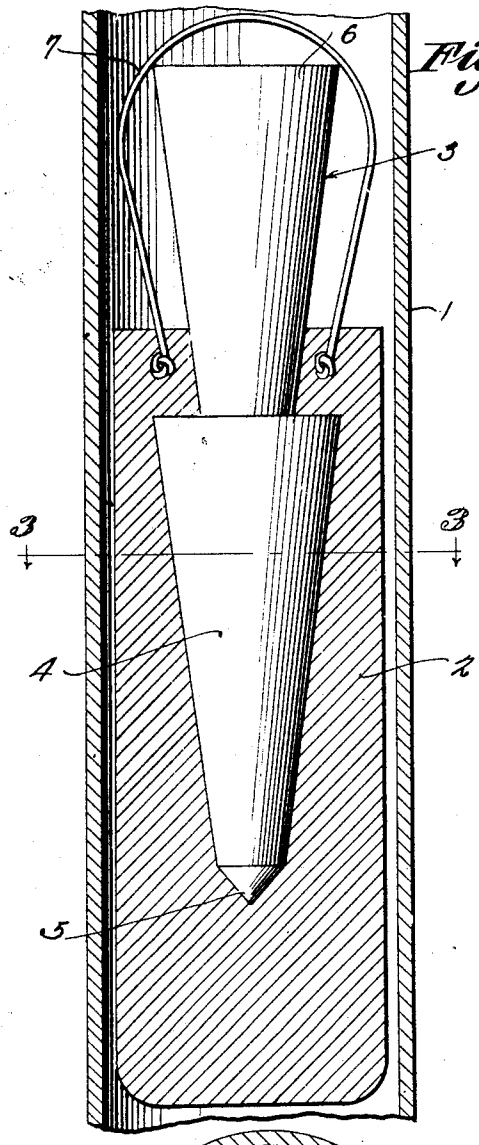

Fig. 1.

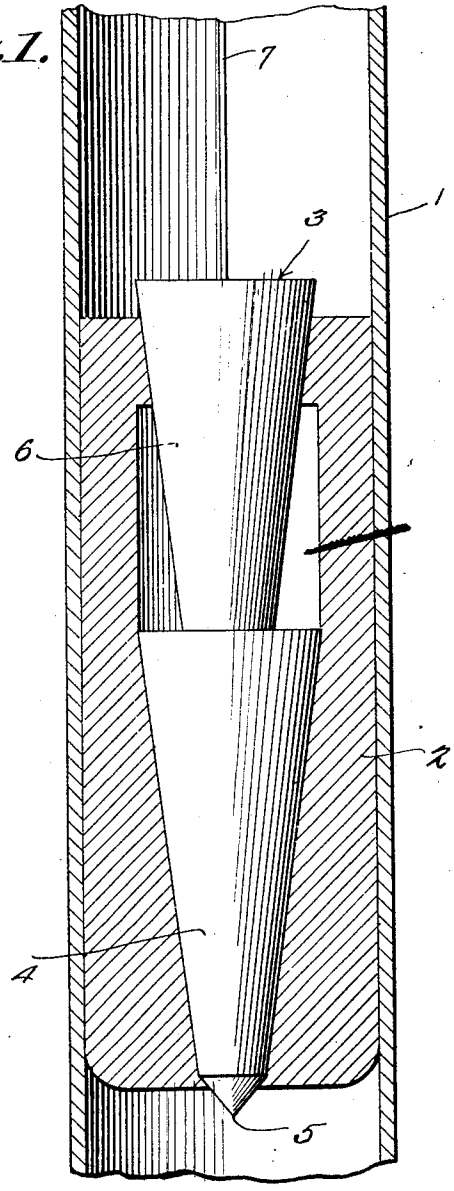

Fig. 2.

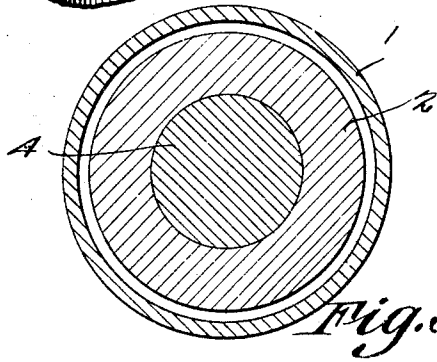

Fig. 3.

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UNITED STATES PATENT OFFICE.

RALPH IRWIN HENDERSON, OF CHARLESTON, WEST VIRGINIA.

OIL-WELL PLUG.

Application filed September 25, 1925. Serial No. 58,575.

The device forming the subject matter of this application is adapted to be used for plugging oil or gas wells, after the production has fallen below paying quantities, or for plugging a new well which does not produce enough to pay for operating it.

Devices of the kind under consideration have relied, heretofore, on the action of a single cone in expanding a body of lead or like material. Such articles fall short of accomplishing the desired result, because they expand the body at the top only, leaving the bottom portion of the body practically unexpanded. The foregoing being understood, this invention aims to provide a novel means whereby the body will be expanded throughout its entire length, thereby affording a closure of unusual efficiency.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the invention appertains.

With the above and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

In the drawings:—

Figure 1 shows in longitudinal section, a device constructed in accordance with the invention, the parts being in the positions which they will assume before the mandrel has been driven and the body expanded; Figure 2 is a longitudinal sectional view showing the mandrel advanced and the body fully expanded; Figure 3 is a cross section on the line 3—3 of Figure 1.

The numeral 1 indicates a casing of a well. The numeral 2 marks a body of lead or other suitable material. The numeral 3 indicates a mandrel of metal, comprising a lower cone 4, having an entering point 5 at its lower end, an upper cone 6 being provided, the narrower end of the upper cone 6 being secured to the wider end of the lower cone 4, the cones 4 and 6 generally being cast or formed otherwise integrally. The bail whereby the gasket 2 is manipulated, is marked by the numeral 7. A glance at Figure 2 will show that when the mandrel 3 is properly mounted in the body 2, the body will be expanded throughout its entire length by the cones 4 and 6, the point 5 of the cone 4 facilitating the passage of the mandrel through the body 2.

The device, although simple in application, will be found thoroughly efficient to expand the body 2 throughout its entire length, owing to the provision of the two cones 4 and 6, and because the length of the mandrel 3 is slightly greater than the length of the body 2. Owing to the fact that two cones are provided, rather than one long tapered cone, the body 2 will be more thoroughly expanded, and the driving of the mandrel 3 will be facilitated.

It is to be observed that the slope of the point 5 is more abrupt than the slope of the lower cone 4. The result is that, although the point facilitates the entrance of the lower cone into the body 2, and facilitates, also, the passage of the mandrel through the body 2, the point 5 will not be broken off under the severe use to which it is subjected.

What is claimed is: —

1. A device for plugging wells, comprising a mandrel including lower and upper cones, the lower cone having an entering point, the narrower end of the upper cone being connected to the wider end of the lower cone, and a body of expansible material, the lower cone, including the entering point, being embedded in the body, and the upper cone being partly embedded in the body.

2. A device for plugging wells, comprising a mandrel including lower and upper cones, the lower cone having an entering point, the slope of which is more abrupt than the slope of the lower cone, the narrower end of the upper cone being connected to the wider end of the lower cone, and a body of expansible material, the lower cone, including the entering point, being embedded in the body, and the upper cone being partly embedded in the body.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

RALPH IRWIN HENDERSON.