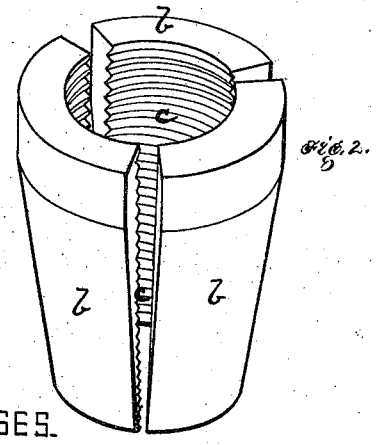
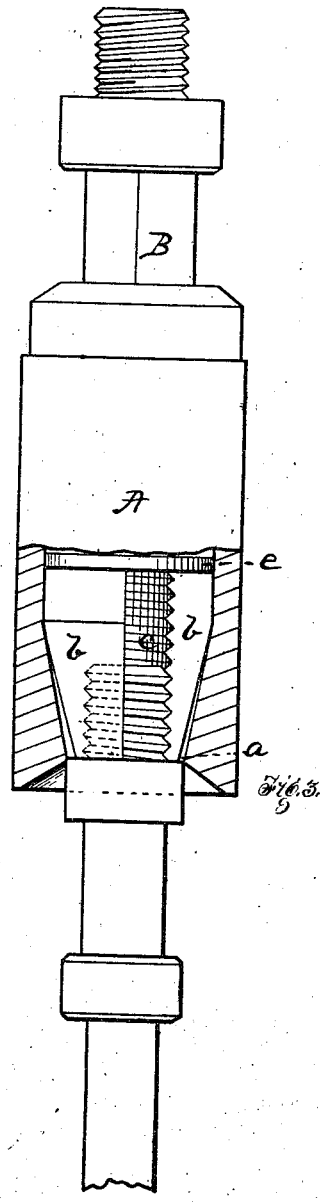
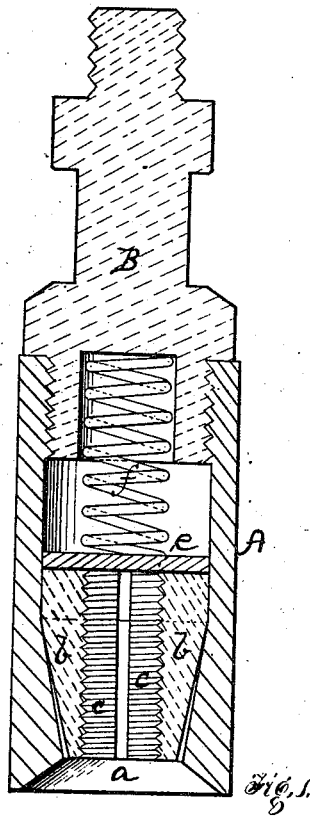


J. H. LUTHER.
 Tools for Extracting Obstructions from Deep Wells.
 No. 209,486. Patented Oct. 29, 1878.



WITNESSES.
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IMPROVEMENT IN TOOLS FOR EXTRACTING OBSTRUCTIONS FROM DEEP WELLS.

Specification forming part of Letters Patent No. 209,486, dated October 29, 1878; application filed October 12, 1878.

To all whom it may concern:

Be it known that I, JAMES H. LUTHER, of Karns City, in the county of Butler and State of Pennsylvania, have invented a new and useful Improvement in Tools for Extracting Obstructions from Deep Wells; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a sectional view of devices embodying my invention. Fig. 2 is a detached view of the serrated wedges or wickers. Fig. 3 is an elevation, partly in section, showing the operation of my devices.

Like letters refer to like parts wherever they occur.

My invention relates to that class of devices employed for extracting drilling-tools, broken drills, and other like obstructions from deep wells, and is an improvement on Letters Patent No. 50,896, granted to William Bowden November 14, 1865.

It consists in the combination of an internally-tapered cylinder with a set of serrated wedges or wickers, the wedges being of such width and length that they can neither turn in the cylinder nor escape through the small opening thereof, while the diameter of the large opening of the cylinder is such as to admit the wedge or wedges, whereby a strong and effective tool is obtained.

The main object of the invention is to obtain such a construction as will admit the use of large and effective wickers, that are not liable to be lost in the well, and to so construct the cylinder without weakening it that the wickers or wedges can be readily inserted and withdrawn.

I will now proceed to describe my invention, so that others skilled in the art to which it appertains may apply the same.

In the drawing, A represents a cylinder of suitable diameter, having an internal tapering cavity, terminating in a contracted opening or mouth, *a*, sufficiently large to admit an end of any piece to be extracted from the well. The opening in the cylinder opposite mouth *a* is threaded for the attachment of a connecting-pin, B, and is of such diameter as will admit readily a wedge or wicker of the desired size.

b b represent wickers or wedges whose taper corresponds to the internal taper of cylinder A, and whose bite, when drawn together, is less than the bore of the cylinder at *a*. The length and width of these wedges are such that they cannot turn in the cylinder, and their greatest width slightly less than the threaded opening, so that while readily inserted in the cylinder they cannot escape at the mouth *a* thereof. Said wedges are serrated, as at *c*, whereby they are enabled to seize either a rough or smooth surface.

In order the better to preserve the relation of the wickers and to insure their hold upon a smooth surface, such as a smooth pin, a plate, *e*, is placed over the wickers and held in contact therewith by a coiled or other suitable spring, *f*.

In constructing cylinder A, I preferably proceed as follows: Take a metal cylinder of the desired diameter and length, and bore it out somewhat less than the size required for the mouth *a*, then bore it from one end half its length, more or less, to a diameter somewhat greater than the greatest width of the wicker or wedge to be used, and thread the opening thus formed. Having secured the cylinder in a lathe, turn down the interior of the cylinder from the mouth to the thread, giving such taper thereto as is desired.

The wedges are preferably formed from a suitable piece of metal by boring the same, cutting a thread therein, turning it to a suitable taper, and dividing it into sections.

The devices are employed as follows: The cylinder A, having been attached to suitable extensible connections, such as rods, pipes, or drilling-tools, is lowered into the well until the obstruction is reached. The flare will direct or guide the tool, so that any projecting part of the broken tool or substance to be removed will enter mouth *a*, forcing up and separating the wedges or wickers, which latter, when traction is made on cylinder A, will seize and hold the projecting portion of the article which is between them. Should the substance held between the wedges *b b* crush up or break off, there will be no liability of the wickers slipping through the mouth *a* of the cylinder and being lost unless the wicker be actually crushed. If simply broken, the spring

will wedge the pieces so that they will remain in the cylinder.

In such cases as require it, a pin or projection will be milled or otherwise formed on the obstruction in manner and by means well known in the trade; and the tool will be used with jars, and in every respect like similar tools now employed in removing obstructions from deep wells.

In describing one method of making the article, I do not wish to be understood as limiting myself thereto, as the skilled workman may select any other way he sees fit, provided he preserves the relative proportions of cylinder and wicker specified.

Having thus described the nature and advantages of my invention, what I claim, and desire to secure by Letters Patent, is—

In a tool for extracting obstructions from deep wells, the combination of a cylinder having a tapered cavity with wickers of such width and length as will prevent their turning in the cylinder or escaping from the mouth thereof, substantially as described.

In testimony whereof I, the said JAMES H. LUTHER, have hereunto set my hand.

JAMES H. LUTHER.

Witnesses:

T. B. KERR,
J. K. SMITH.