

Dec. 9, 1941.

H. G. CAMPBELL

2,265,472

REAMER

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Fig. 1.

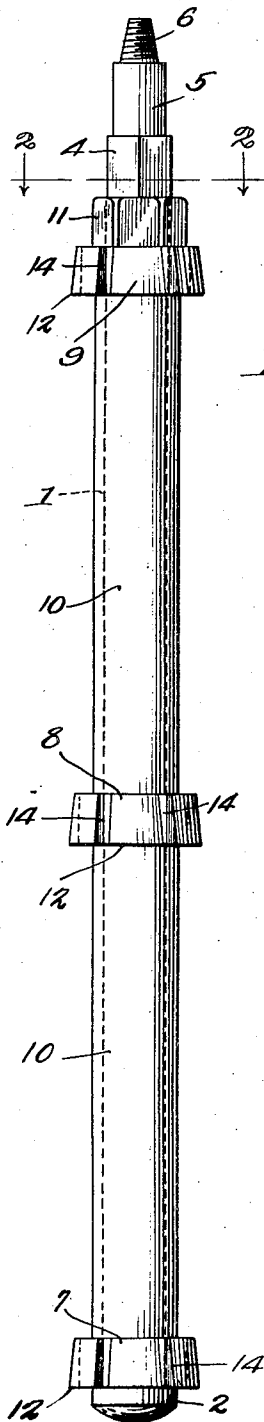


Fig. 2.

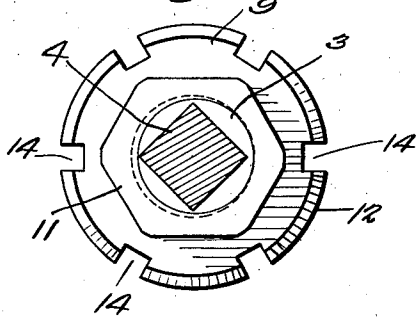


Fig. 3.

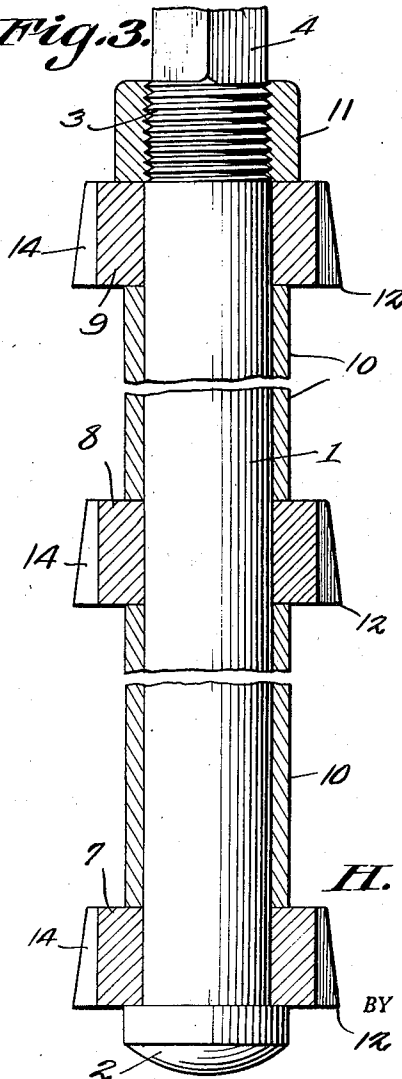
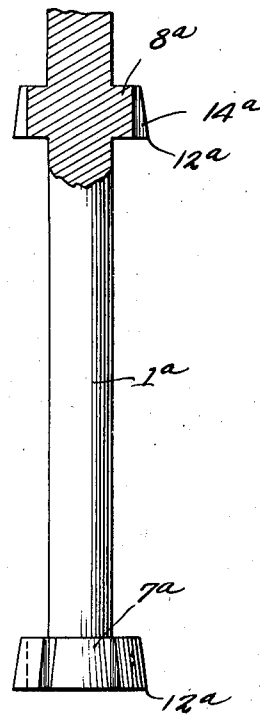


Fig. 4.



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UNITED STATES PATENT OFFICE

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Application September 14, 1940, Serial No. 356,884

1 Claim. (Cl. 255—73)

This invention aims to provide novel means for straightening a substantially vertical hole in the earth, for example a well hole, which has been bored in a crooked or sinuous form. Another object of the invention is to supply a tool of the class described, which may be taken down readily for repair, replacement, or to permit the cutters to be resharpened.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the present 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 accompanying drawing:

Fig. 1 shows in side elevation, a tool constructed in accordance with the invention;

Fig. 2 is a cross section on the line 2—2 of Fig. 1;

Fig. 3 is a longitudinal section on an enlarged scale, wherein parts are broken away;

Fig. 4 is a side elevation showing a modification, parts being broken away.

In carrying out the invention, there is provided an elongated body 1, preferably but not necessarily of circular cross section, the body being supplied at its lower end with an enlarged foot 2. Near its upper end, the body 1 is equipped with a threaded neck 3 carrying a wrench head 4, the wrench head being surmounted by a reduced cylindrical stem 5, carrying a tapered and threaded tip 6, adapted for connection with a line or other instrumentality whereby the tool may be raised and lowered in a hole, for instance a well hole.

Cutters 7, 8 and 9 are mounted removably on the body 1, the cutter 7 being a lower cutter, the cutter 8 being an intermediate cutter, and the cutter 9 being an upper cutter. Tubular sleeves or spacers 10 are mounted removably on the body 1, between the cutters 7—8 and 8—9. It will be understood that the body 1 may be of any desired length, there being as many or as

few of the cutters 7—8—9 and the corresponding spacers 10, as occasion may demand. The uppermost cutter 9 is engaged by a nut 11 threaded on the neck 3, the wrench head 4 constituting means for holding the body 1 against rotation, whilst the nut 11 is being set down against the uppermost cutter 9, to bind the cutters and spacers together tightly, with the lowermost cutter 7 in engagement with the foot 2.

The cutters 7—8—9 are like and are interchangeable. They are of frusto-conical form and taper upwardly, to define a circumferential cutting or reaming edge 12 at the lower end of the cutter. The cutters 7, 8 and 9 are provided in their peripheries with notches 14, disposed longitudinally of the body 1 and extended inwardly beyond the peripheries of the cutters at the upper ends of the cutters. The notches 14 permit the passage of water, gas, oil and the like, as the tool is being lowered into a well or is being reciprocated therein.

In Fig. 4, parts hereinbefore described have been designated by numerals already used, with the suffix "a." The modification consists in forming the tool as a one piece structure, rather than resorting to the take-down construction hereinbefore described.

A cable or the like is made fast to the tip 6, the tool is reciprocated in a hole, and the hole, if crooked, will be straightened out in a way which will be understood readily by those skilled in the art.

Having thus described the invention, what is claimed is:

A tool for straightening an earth-hole, comprising an elongated body, provided in its upper portion with a threaded neck, a nut on the neck, a polygonal wrench head surmounting the neck and located immediately adjacent to the nut, to facilitate the holding of the body whilst the nut is being rotated, means carried by the wrench head for connecting the body to a raising and lowering device, the body being provided at its lower end with an enlarged, blunted, button-like foot, constituting the lowermost portion of the body, and alternating cutters and tubular spacers on the body, located removably between the nut and the foot, the cutters being of frusto-conical form, in the interest of strength, and to form reaming edges at the lower ends of the cutters.

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