H. NELSON.

DEVICE FOR RECOVERING WELL SECTIONS.

APPLICATION FILED JUNE 18, 1917.

1,290,642.

Patented Jan. 7, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

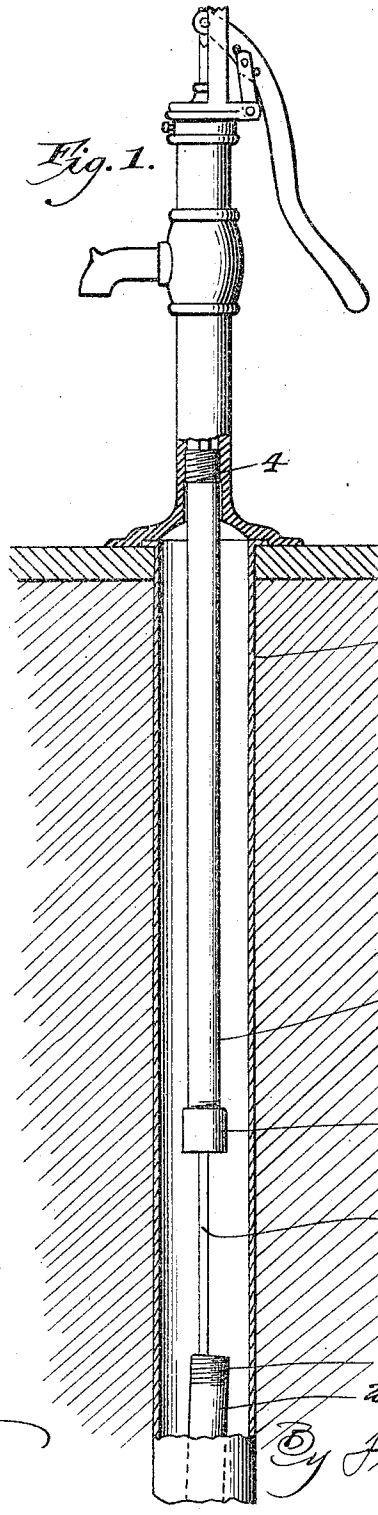


Fig. 2.

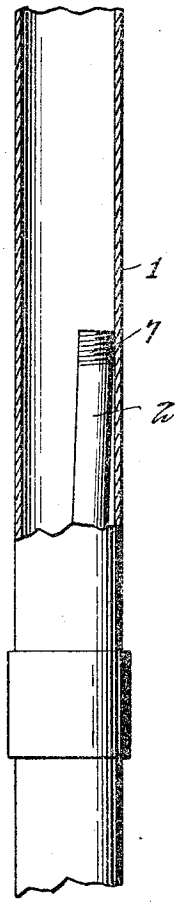
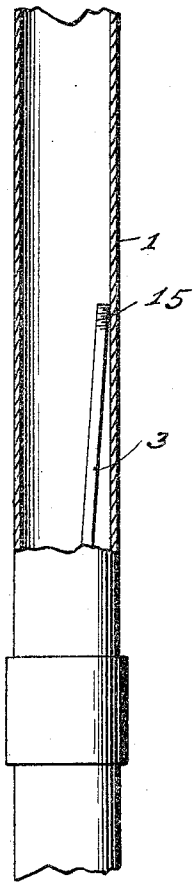


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

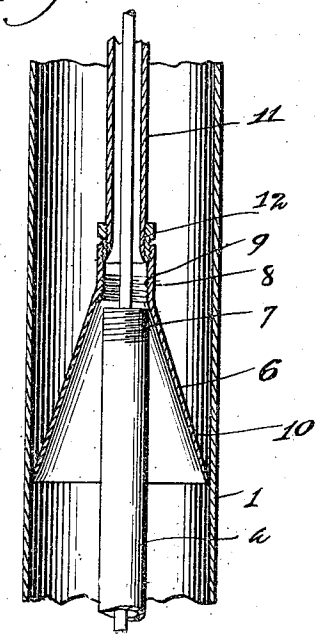


Fig. 6.

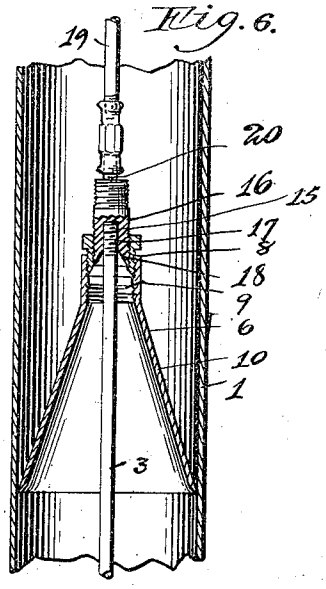


Fig. 5.

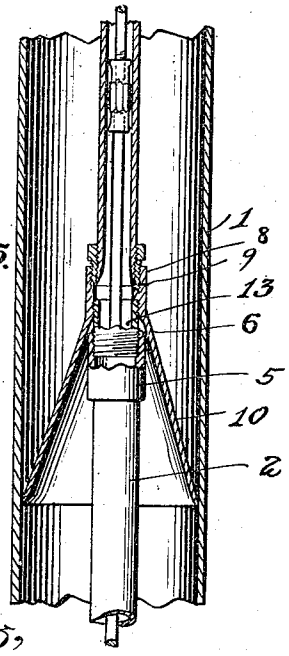
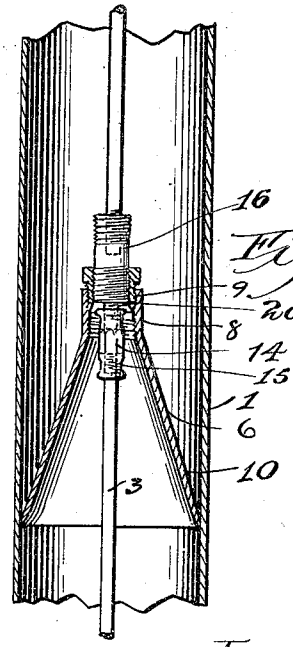


Fig. 7.



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UNITED STATES PATENT OFFICE.

HENRY NELSON, OF NORTHWOOD, IOWA, ASSIGNOR OF ONE-HALF TO T. SOPHUS HANSON, OF NORTHWOOD, IOWA.

DEVICE FOR RECOVERING WELL-SECTIONS.

1,290,642. Specification of Letters Patent. Patented Jan. 7, 1919.

Application filed June 18, 1917. Serial No. 175,528.

To all whom it may concern:

Be it known that I, HENRY NELSON, a citizen of the United States, residing in the city of Northwood, county of Worth, and State of Iowa, have invented certain new and useful Improvements in Devices for Recovering Well-Sections, of which the following is a specification.

This invention relates to improvements in well devices and refers more particularly to a tool for recovering various portions of wells of the cased type, although the invention, in its broader aspects, is not necessarily limited to the particular type of well mentioned.

In various well constructions the lifting rods, casings and other parts are formed of metal sections and are coupled together by screw-threaded coupling member. However, it frequently happens that one or more of the sections become uncoupled, thus, not only rendering the well inoperative but making difficult the recovery of the sections so disengaged.

Among the objects of the present invention are to provide a recovering tool which can be easily engaged with the threaded end of the section or sections remaining in the well, irrespective of whether the coupling member is detached from the upper or lower section; to provide a tool which can be used interchangeably for recovering either rod or casing, and in general to provide a new and improved recovering tool of the character referred to.

In the drawings:

Figure 1 is a vertical, sectional view, partly in elevation through a well of the type to which my invention is particularly adapted.

Fig. 2 is a fragmentary, sectional view of the casing disengaged.

Fig. 3 is a view similar to Fig. 2 showing a portion of the lifting rod uncoupled.

Figs. 4 and 5 are views showing the manner of engaging the recovering tool with the casing sections.

Figs. 6 and 7 are views showing the manner of engaging the recovering tool with the lifting rod sections.

In detail, and referring first to the general construction shown in Fig. 1, 1 designates the casing, within which there is positioned the pipe sections 2. The usual sucker or lifting rod 3 is extended through the pipe 2 to the valve mechanism (not shown). At its top end, the upper pipe section is screw-threaded into the pump housing 4, the various pipe sections 2 being secured by threaded couplings 5. In case the coupling member becomes disengaged either from the pipe section above or below it, it generally moves down out of engagement with the upper part, so as to render the well inoperative. Heretofore, great difficulty has been encountered in pulling up sections thus disengaged and the present invention relates to an improved tool by means of which said section or sections or pipes as may have become disengaged may be lifted upward.

Assuming first that the coupling member has remained on the upper section, as shown in Fig. 1, the remaining section or sections are recovered in the following manner: The pump housing 4 is removed and the upper section or sections of the pipe lifted out. The recovering tool 6 is then inserted into the well and engaged with the threads 7 of the pipe section 2. This recovering tool comprises a body section 8 having a screw-threaded part 9, adapted to fit over and engage the threaded portion 7 of the pipe. Depending from below its body portion, the recovering tool has a flaring or bell mouth guiding section 10, which, as it passes downward over the upper end of the pipe will guide the threaded portion of the latter where it will be engaged by the internal threads 9 on the recovering tool. The latter is operated by a suitable length of tubing, non-rotatatively secured to the recovering tool at 12. Thus by rotating the tubular member 11, the recovering tool will be threaded on the upper end of the pipe section and the recovering tool and pipe section can then be lifted out of the well. If, however, the coupling 5 becomes disengaged from the lower end of one of the pipe sections, it will be left upon the upper end of the section remaining in the well. I have provided means whereby in such case, the same tool can also be employed for recovering the pipe sections. This arrangement comprises inserting a threaded nipple 13 in the threaded portion 9 of the recovering tool; this nipple at its lower end being externally threaded to fit into the threads of the coupling member 5. Thus, when the recovering tool is moved downward over the upper end of the pipe section, the threads on

the nipple 13 will become engaged with the coupling member so as to lock the latter and the pipe sections to the recovering tool after which they can be lifted to the upper end of the well, and the necessary reëngagement of the pipe sections made.

In the particular construction of wells shown in the drawings, the lifting rod 3 is also formed of sections which are secured together by the usual coupling member 14, which engages over the threaded ends 15 of the lifting rod sections. Assuming that one of the coupling members of the lifting rod sections becomes uncoupled in such a manner that the coupling member is left on the lower end of one of the lifting sections, the remaining part of the lifting rod will have a threaded portion 15 at its upper end. In such cases, I employ the same recovering tool but provide it with a nipple 16, threaded into the upper end of the coupling member and provided with an internally threaded seat 17. This nipple member also has beveled edges 18, which coöperate with the flaring mouth of the recovering tool for guiding the upper end of the lifting rod section into engagement with the threaded seat 17. Rotation of the operating rod 19 will then couple the latter to the upper end of the section or sections left in the well so that these sections can be lifted to the upper end of the well, the rod can couple up in the usual manner. In case, however, the coupling member 14 has been left on the upper end of the portion remaining in the well, the nipple 16 is reversed, so that in place of presenting a threaded seat at its lower end, it has a downwardly projecting stud 20, which will fit into the upper end of the coupling member 14 and lock the parts together. It is to be noted that the nipple 16 is so formed that it is capable of use in recovering rods, both where the coupling member was left on the section remaining in the well or was disengaged from such section.

In the above description, it will be obvious that I have provided a simple and efficient tool by means of which either the pipe or the lifting rod sections can be recovered, although the invention is not necessarily limited to a tool adapted to perform both functions and various changes can be made in the details of construction and arrangements and combinations of parts without departing from the scope of my invention.

I claim as my invention:

1. A tool for recovering well sections having threaded ends and coupling connections comprising a body portion having an internally threaded portion adapted to engage the external threads of the section to be removed, a detachable nipple member adapted to receive the threads of the coupling member in case the coupling is left upon the well section to be recovered, a beveled mouth guide member secured to the body portion, and an operating rod having rigid connection with the body portion.

2. A tool for recovering well sections having threaded ends and coupling connections comprising a body portion having an internally threaded portion adapted to engage the external threads of the section to be removed, a detachable nipple member adapted to receive the threads of the coupling member in case the coupling is left upon the well section to be recovered, a beveled mouth guide member secured to the body portion, a second nipple member for recovering a lifting rod having detachable screw threaded engagement with said body portion and being reversible to interlock with either the lifting rod or its coupling, and an operating member rigidly connected to the body portion.

HENRY NELSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."