April 8, 1924. 1,489,253

E. L. HYOTLAINE ET AL

TOOL FOR INSERTING AND REMOVING PIPES

Filed May 21, 1923 5 Sheets-Sheet 1

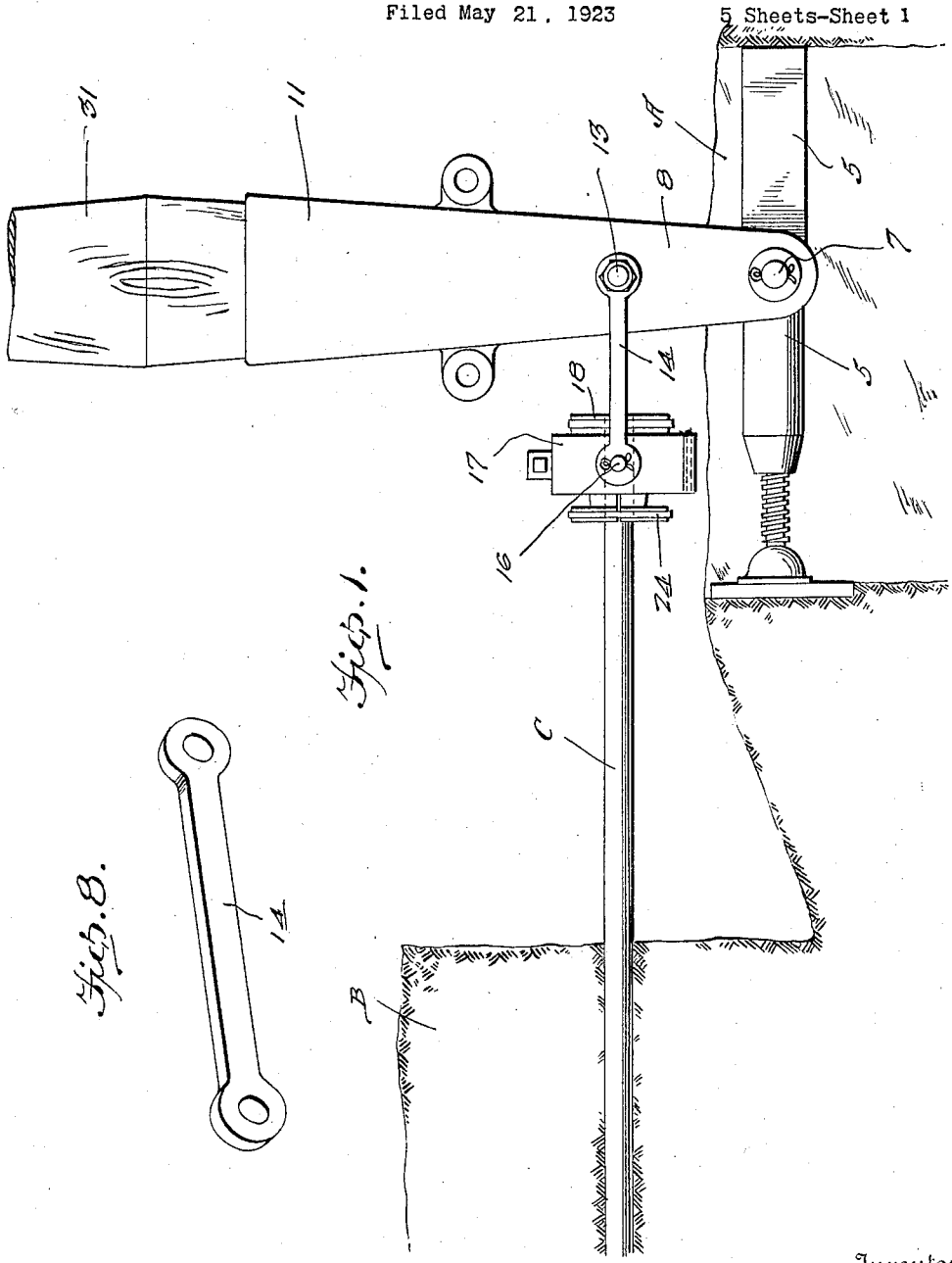


Fig. 1.

Fig. 2.

Witnesses:

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TOOL FOR INSERTING AND REMOVING PIPES

Filed May 21, 1923 5 Sheets-Sheet 2

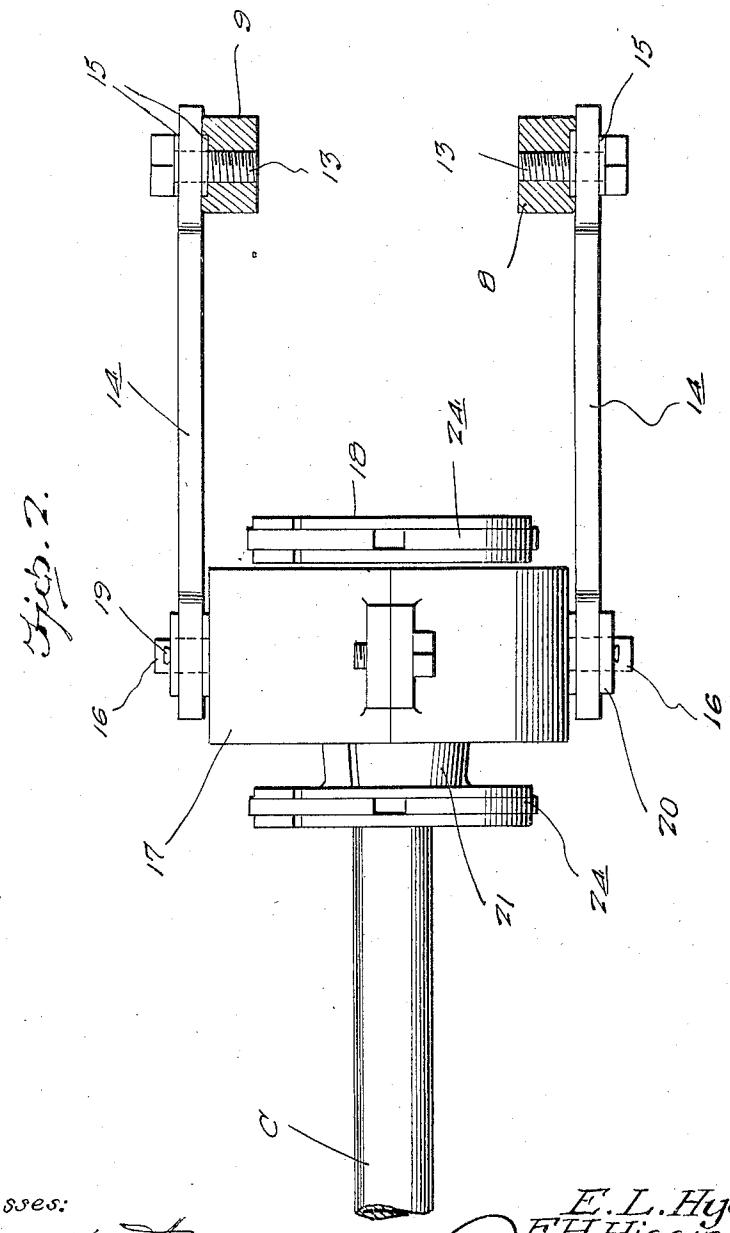


Fig. 2.

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E. L. HYOTLAINE ET AL

TOOL FOR INSERTING AND REMOVING PIPES

Filed May 21, 1923 5 Sheets-Sheet 3

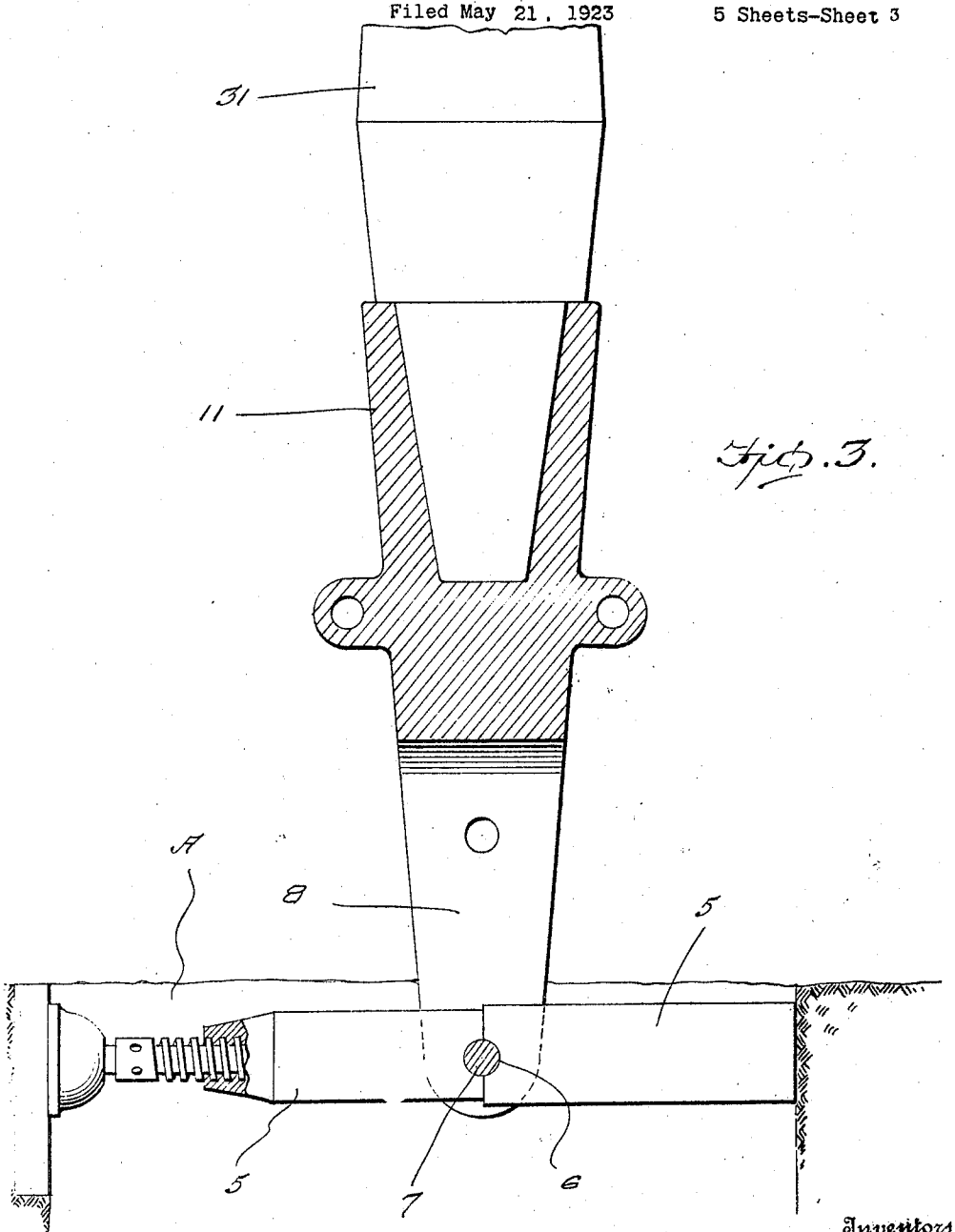


Fig. 3.

Witnesses:
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April 8, 1924. 1,489,253

E. L. HYOTLAINE ET AL

TOOL FOR INSERTING AND REMOVING PIPES

Filed May 21, 1923 5 Sheets-Sheet 4

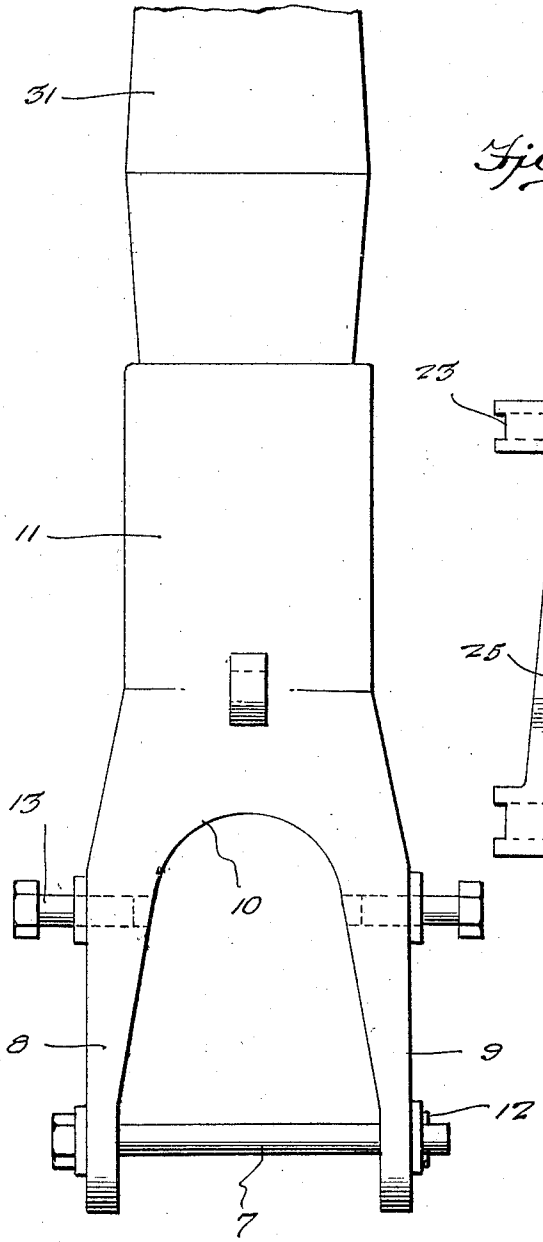


Fig. 4.

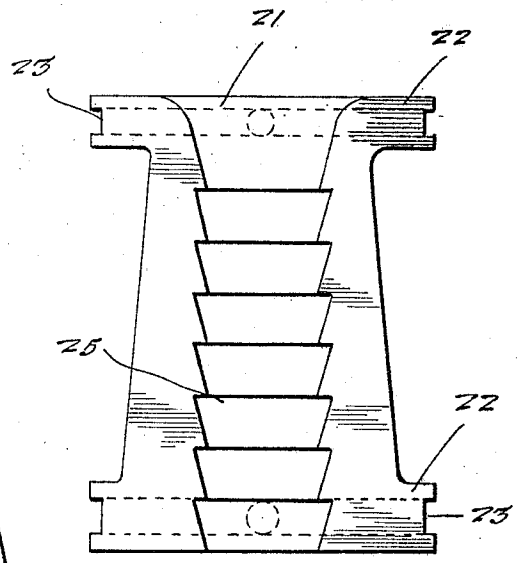


Fig. 7.

Witnesses:
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H. Berman

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E. L. HYOTLAINE ET AL

TOOL FOR INSERTING AND REMOVING PIPES

Filed May 21, 1923 5 Sheets-Sheet 5

Fig. 5.

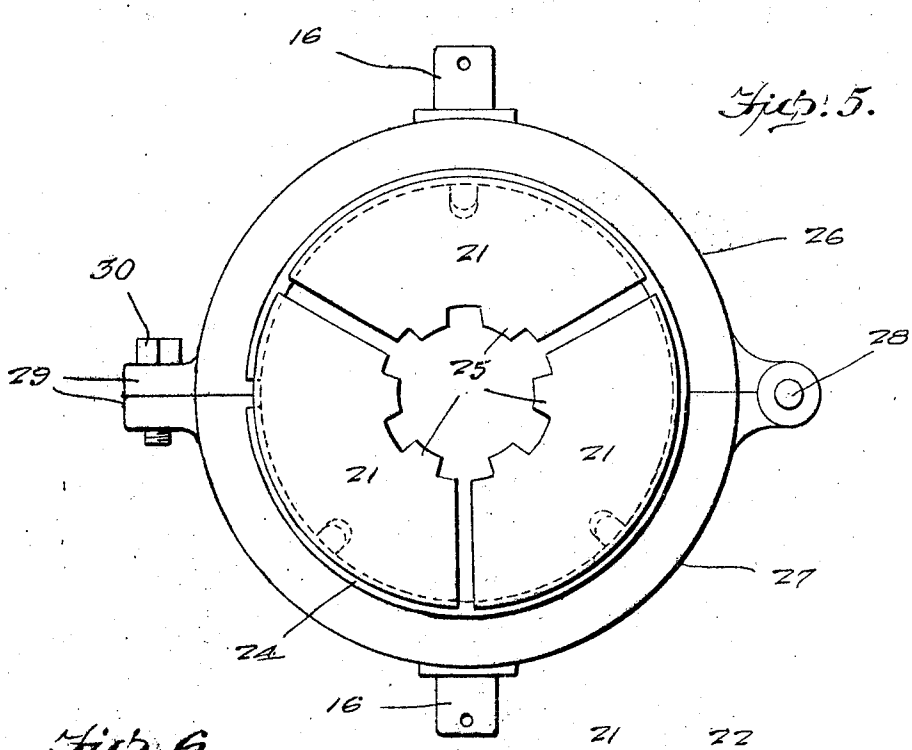
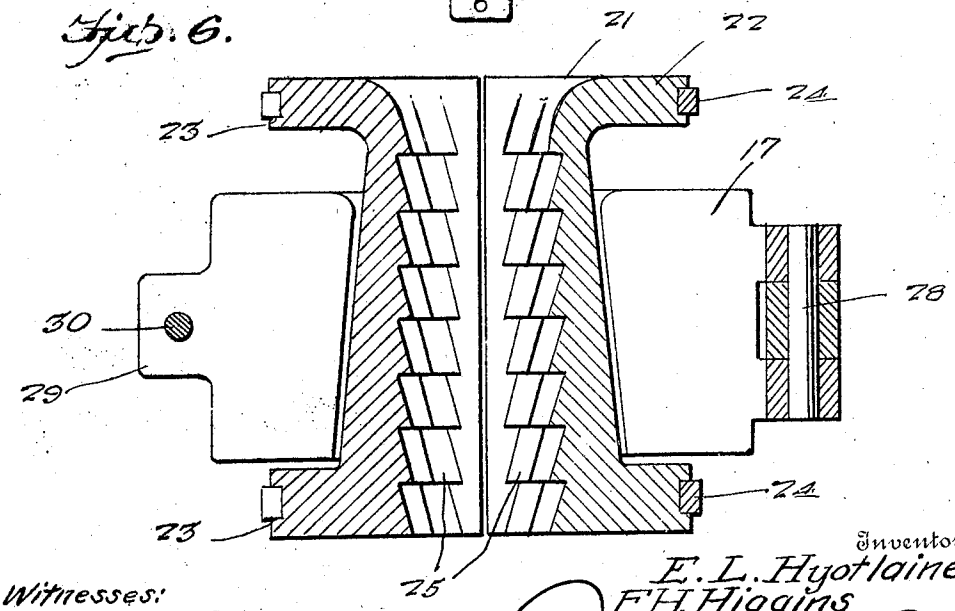


Fig. 6.



Witnesses:
P. M. Hunt
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Patented Apr. 8, 1924. 1,489,253

UNITED STATES PATENT OFFICE.

ELMER L. HYOTLAINE AND FRANK H. HIGGINS, OF COFFEYVILLE, KANSAS.

TOOL FOR INSERTING AND REMOVING PIPES.

Application filed May 21, 1923. Serial No. 640,407.

To all whom it may concern:

Be it known that we, ELMER L. HYOTLAINE and FRANK H. HIGGINS, citizens of the United States, residing at Coffeyville, in the county of Montgomery and State of Kansas, have invented certain new and useful Improvements in Tools for Inserting and Removing Pipes, of which the following is a specification.

In carrying out the present invention it is our purpose to provide a highly novel and simplified form of device for inserting or removing water pipes, electric conduits and the like beneath roadways and lawn without the usual necessity of digging up the roads or lawns which not only mars the same, but requires a great amount of labor and an unusual expenditure of time.

The primary object of the present invention is the provision of such device for applying or removing pipes to or from the ground which is comparatively simple of construction and one that embraces at the same time the desired features of efficiency and durability, that may be manufactured and marketed at relatively small cost.

The nature and advantages of the invention will be better understood when the following detailed description is read in connection with the accompanying drawings, the invention residing in the construction, combination and arrangement of parts as claimed.

In the drawings forming part of this application, like numerals of reference indicate similar parts in the several views, and wherein:—

Figure 1 is a side elevation of our improved device in operation.

Figure 2 is an enlarged top plan view partly in cross-section of the main elements constituting our invention.

Figure 3 is a side elevation of the supporting jack of the operating handle of the device, this supporting jack being shown as positioned within a ditch.

Figure 4 is an elevation of the handle socket member per se.

Figure 5 is an end elevation of what is hereinafter termed pipe clamp, the forms of the principal parts of this invention.

Figure 6 is a longitudinal cross-section thereof.

Figure 7 is a top plan of one of the elements comprised in this clamp, and

Figure 8 is a perspective of one of the connecting rods between the handle socket member and the said pipe clamp.

Referring to the drawings in detail our novel device includes among other elements the provision of a desirable form of expansion jack 5, that is adapted to be positioned transversely within the upper end of a ditch A at a point spaced a desirable distance from the land bank B to or from which the pipe C is to be inserted or removed. As shown more clearly in Figures 1 and 3, this jack 5 is preferably of the screw type whereby quick adjustments may be procured.

Adapted for engagement through the transverse openings 6 in the body of the jack 5 and at a point substantially intermediate the ends thereof is a headed bolt 7 that is also extended through openings in the legs 8 and 9 in the yoked end 10 of a handle socket member 11. This member 11 has free rocking movement upon said headed bolt 7, it being noted from a consideration of Figures 1 and 4 that this bolt is maintained in proper position through the medium of a cotter pin 12 that extends through an opening adjacent the end of the bolt opposite from the head thereof.

Within a screw threaded opening of each leg 8 and 9 of said yoked end 10 of the end socket member 11 is a headed and screw threaded pin 13, the same projecting laterally from its respective leg, each of the same having loosely disposed thereon one eyed end of a connecting rod 14. These ends of the connecting rods being preferably spaced from the legs 8 and 9 and heads of the pins by washers 15. The opposite eyed ends of these connecting rods 14 loosely engage over pintles 16 from open diametrically opposite sides of a sliding collar element 17 that is an essential element of a pipe clamp designated generally 18. These ends of said connecting rods 14 are maintained in position upon said pintles 16 through the medium of cotter pins 19, the sides of these rods being spaced from the collar and said cotter pins 19 in which are suitable washers 20.

Referring particularly to the said pipe clamp element 18, the same embodies a sec-

tional chuck 21 preferably in three sections so shaped as to interfere with each other in the manner of a well known pipe chuck. The opposite ends of the said sections are flanged as at 22, the periphery of these flanges being grooved at 23 for the reception of split rings 24 similar to ordinary engine piston rings and adapted for maintaining said sections in proper relation with each other. The inner surface of each of these sections are provided with inclined teeth 25 that are adapted to bite to the pipe C when the clamp is moved in a rearward direction, it being of course, understood that the nature of this clamp is such as to permit of a free sliding movement with the same of the pipe and moved in a forward direction. As more clearly shown in Figures 4 and 6 the outer sides of the said chuck sections slope downwardly in a forward direction for purposes to be presently set forth.

The collar 17 that constitutes an essential part of the clamp element 18 comprises a pair of half sections 26 and 27 respectively, hingedly secured together in a suitable manner as at 28. The free ends of these collar sections are provided with laterally extending ears 29 that closely contact with each other when the collar is properly positioned upon the chuck 21, these ears being provided with screw threaded openings for receiving a headed and screw threaded bolt 30. The inner surface of the collar 17 is inclined in a direction opposite to the inclination of the outer side of said chuck 21 whereby a forward movement of the collar upon the chuck will permit the chuck sections to open and consequently slide over the pipe C due to a continued forward movement of said collar, but upon rearward movement of the same the chuck sections will be closed and firmly wedged upon the pipe for thereby accomplishing a withdrawal of said pipe and the clamp element is removed in a rearward direction.

It is preferable that this tool be equipped with various sized clamp elements for permitting the same to be used with pipes of varying diameters and it will be of course, understood that when it is desired to employ the tool for inserting piping beneath the ground surface said clamp element 18 is turned in an opposite direction upon the ends of the connecting rods 14.

The handle socket member 11 is adapted to have detachably associated therewith a handle 31, preferably of wood of a desired length and in view of the above description it will at once be apparent that we have provided a highly novel form of tool for applying or removing pipe from beneath the ground surface and it is our belief that the operation and advantages of the device of this character will be readily appreciated by those skilled in the art.

We have herein set forth the most practical embodiment of the present invention with which we are now familiar but it is nevertheless to be understood that we do not wish to be limited to the specific form of the invention as shown, as in the future practice of the invention, minor changes may be made therein without departing from the spirit and scope of the appended claim.

Having described our invention what we claim and desire to secure by Letters-Patent, is:—

In a tool for removing and positioning piping from and beneath the ground surface, a jack transversely positioned within a ditch adjacent the ground point where the said pipe is to be positioned or removed, a handle-receiving member rockingly secured to said jack, a handle associated with said jack, a ratchet clamp adapted for engagement over said piping and connecting rods between said clamp and said handle-receiving member, said ratchet clamp being reversible.

In testimony whereof we affix our signatures.

ELMER L. HYOTLAINE.
FRANK H. HIGGINS.