F. I. GETTY.

METHOD OF ASSEMBLING WELL STRUCTURES.

APPLICATION FILED AUG. 21, 1913.

1,098,107.

Patented May 26, 1914

2 SHEETS—SHEET 1.

Fig. 1.

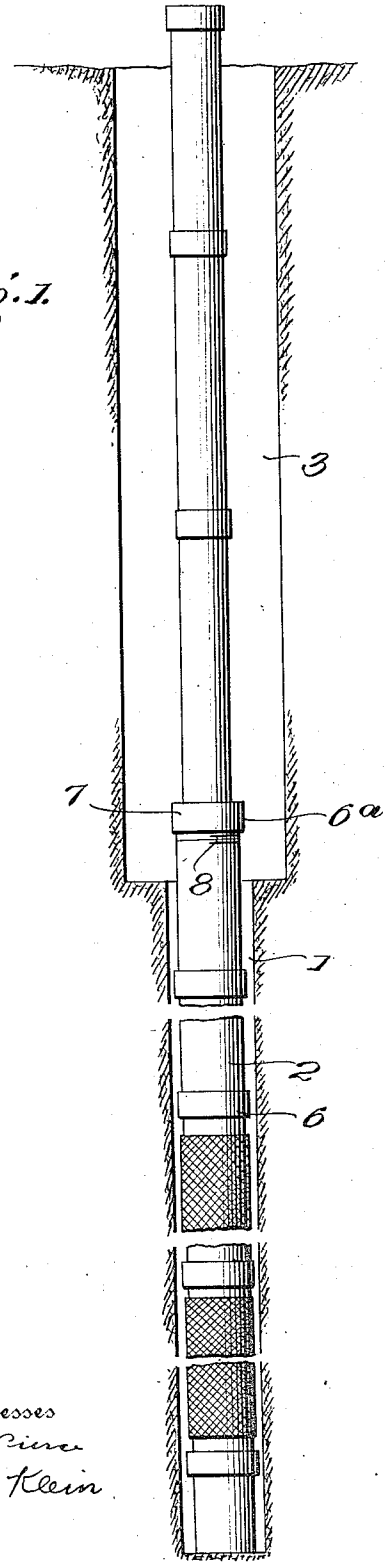
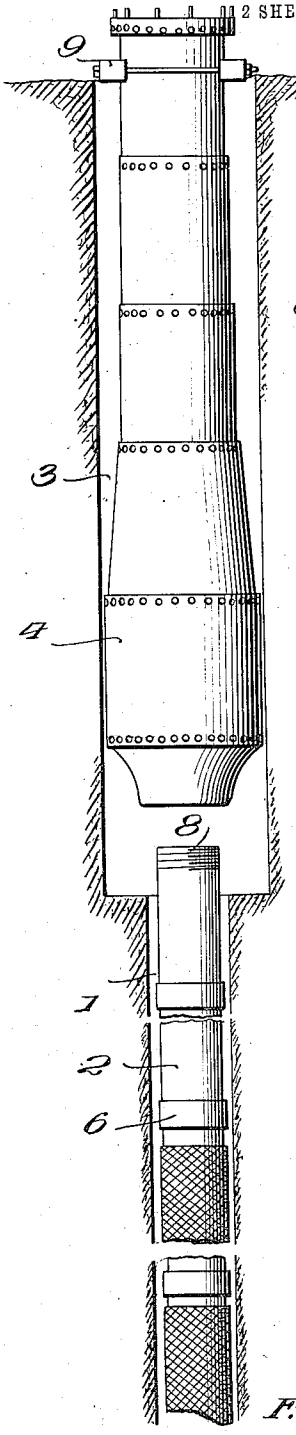


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

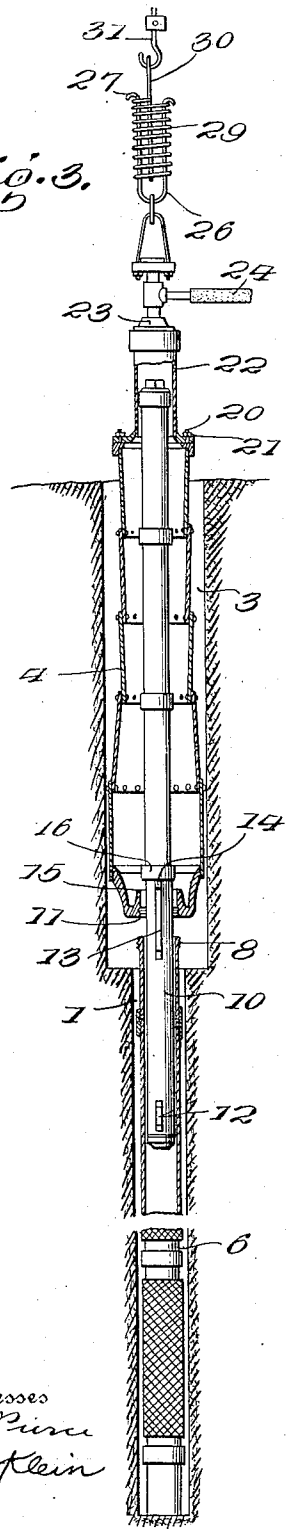


Fig. 5.

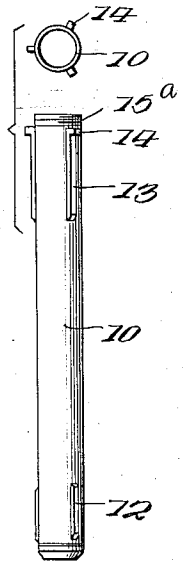
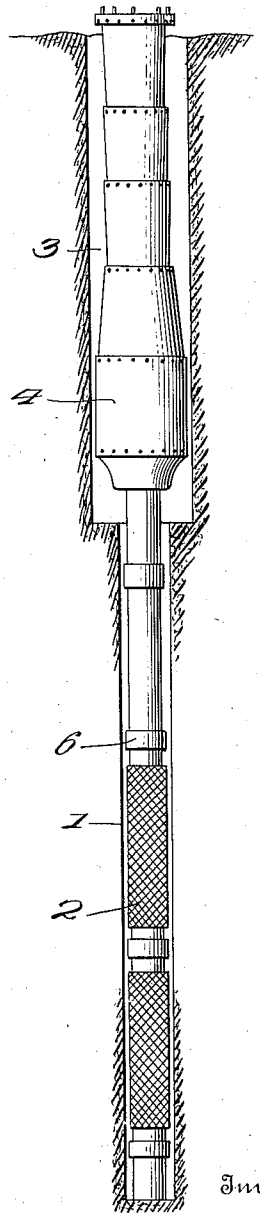


Fig. 4.



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UNITED STATES PATENT OFFICE.

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METHOD OF ASSEMBLING WELL STRUCTURES.

1,098,107. Specification of Letters Patent. Patented May 26, 1914.

Application filed August 21, 1913. Serial No. 785,967.

To all whom it may concern:

Be it known that I, FRED I. GETTY, a citizen of the United States, residing at Jennings, in the parish of Jefferson Davis and State of Louisiana, have invented certain new and useful Improvements in Methods of Assembling Well Structures, of which the following is a specification.

My invention relates to a method of assembling well structures and more particularly such structures which include a cylindrical steel pit.

In the installation of the above class of wells it has usually been the custom to install the well casing with the strainer in the hole, the casing extending up to the surface of the earth. This having been done, the pit hole is bored around the upper portion of the casing to the proper depth, and after the pit hole is completed, and the steel pit let down into the hole, over the well casing, to its proper place, the casing is cut off at a point a short distance above the bottom of the pit bore. This method of installing the steel pit is open to serious objections. The mode of assembling is incomplete, as there is no provision for joining the well casing and the steel pit together. The well casing frequently settles down in the ground and separates entirely from the pit, so as to seriously impair, and sometimes ruin the well.

By my invention, I provide a method of assembling the structure, whereby the hole for the well casing and strainer is first drilled down to the proper depth, then this bore is enlarged from the ground surface down to the proper depth to receive the steel pit, after which the casing, strainer and steel pit are installed and joined together so as to form a continuous tube from the bottom of the well up to the surface of the ground.

In the installation of the above parts, the strainer together with the well casing is put together, section by section and lowered down into the well until the bottom is reached. Then the well casing is separated down at a point where the pit base is to be screwed on, and the casing above the point of separation is brought up out of the well. The next step being to build up the steel pit by joining together the sections and letting the pit down into the pit hole, and finally joining the base of the pit to the well casing.

The various details involved in the above installation are more particularly described and illustrated in the following specification and accompanying drawings. By following out this method, the casing and pit can be assembled in absolute alinement, and a water-tight joint obtained in a quick and economical manner.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a view partially in section and elevation of the casing in the earth, the bore being shown for the pit. Fig. 2 is a similar view, the casing being shown separated, the upper portion having been removed from the hole, and the pit assembled and supported over the remaining portion of the casing. Fig. 3 is a similar view, but showing the casing sections connected and the pit supported by hoisting mechanism preparatory to being lowered and secured to the casing. Fig 4 is a similar view but showing the pit and casing coupled together. Fig. 5 represents views of a joint of pipe, used to secure an alinement of the steel pit with the well casing before screwing them together.

The numeral 1, indicates a bore in the earth to receive the casing and strainer, indicated at 2. The bore is first made of uniform diameter from the upper level of the earth to the bottom of the casing and when drilled to the proper depth, the upper portion is enlarged as at 3 to receive the pit 4. The joints 6 of the casing are all tightly secured and locked, except the one indicated at 6^a. The collar 7 of this joint is loosely fitted on the threads 8 of the adjacent section so as to permit of ready and convenient breaking of the joint, as will now be described.

After the casing and strainer have been set in the hole, the collar 7 and the upper portion of the casing is removed as shown in Fig. 2, thus leaving exposed the threads 8. The sections forming the pit are now assembled and the pit is lowered into the bore and held supported in such position that its bottom will be slightly above the threads 8. The pit is provided near its upper end with clamps 9 which rest on the top of the earth to serve as a means for holding said pit for the next step in the method of assembling. While the pit is so suspended in the bore a

slidable section of pipe 10 is passed through the threaded opening 11, in the bottom of the pit, and into the open threaded end of the lower portion of the casing.

The section of pipe 10 is provided with a series of spacing ribs 12 near the bottom, and another series of spacing ribs 13 near the top. The ribs 13 are formed with outwardly projecting lugs or flanges 14, which rest on the wall 15, surrounding the opening 11 in the bottom of the pit, as clearly shown in Fig. 3. The upper end of the pipe section 10 is threaded at 15^a, and to these threads is secured a coupling 16. The section of pipe 10 passes freely through the opening 11 in the pit while the ribs 12 fit loosely in the casing, but the pipe section serves as a means for alining the steel pit with the well casing below, as will be understood. The water head 20 is now bolted to the upper end of the pit. This head comprises a flange 21 through which bolts pass, and a dome 22, into which the upper end of the casing may fit. To the upper end of the dome is secured a bushing 23, and a swivel, and a supply pipe 24 is employed to flush the pit and wash the threads 8 of the casing just before making the final step in assembling the parts. The swivel is supported by a link 26 having oppositely extended ends 27 which engage over a spring 29, supported at its lower end on a hanger 30, suspended from a hook 31 of a traveling block of a well rig (not shown). It is to be noted at this point that when the pit is suspended by the hoisting apparatus of the well rig, the clamps 9 are removed, care being taken to see to it that the spring is tensioned so as to hold the bottom of the pit away from the threads 8. The operator now operates the hoisting apparatus to gradually lower the pit until the threads on the latter meet the threads 8 and the pit is carefully screwed onto the casing. The spring effectually prevents the threads jamming, as the mere contact of the threads will be indicated by the expansion of the coils and thereby permits the operator to allow a slight contact with little weight on the threads.

Obviously by carrying out the method of assembling the structure, as herein described, the pit and casing may be alined and assembled accurately and quickly and with little or no liability of injury to the parts. In the assembling, a positive and water tight joint is secured between the pit and the casing so that liability of separation of these two elements is obviated.

In practical use, the casing is lowered, in the bore, then the casing is separated, and the upper portion is removed from the hole, and the pit is then lowered and held suspended by clamps. The section of ribbed pipe is inserted and an alinement of pit and casing secured. Next the hoisting apparatus of the drilling rig, picks up the pit and the clamps are removed. The pit is now gradually lowered and screwed to the well casing below, the ribbed pipe insuring perfect alinement so that the threads, however fine, will engage perfectly. When the pit and casing have been firmly secured together, the rig and water head, as well as the pipe 10 used for alinement are removed and the pit is ready to receive the pump, etc.

I have not illustrated a complete pump in detail, for my invention relates primarily to the pit and casing and the method of assembling the same, and it is thought further description and illustration are unnecessary.

In some cases I may form the joint at the bottom of the pit below the latter. In this case I employ a nipple threaded externally at its upper end to engage the threaded opening 11 and internally thread the lower end of the nipple to engage the threads 8 of the casing. Obviously this slight change in no way alters the spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent is:

1. The herein described method of assembling well structures, consisting in setting a well casing and strainer in a bore formed in the earth, then separating the casing and preliminarily supporting a pit over the lower portion of the casing, alining the pit with the casing, and then lowering the pit on the casing, and subsequently fastening the pit to the casing.

2. The herein described method of assembling well structures, consisting in setting a strainer and casing formed in sections, removing the upper sections of the casing and inserting a pit and then alining the pit with the lower casing sections, and yieldingly supporting the pit, and then lowering the pit while yieldingly supported and then joining the pit to the lower section of the casing.

3. The herein described method of assembling well structures, consisting in setting a casing and then separating the casing, preliminarily supporting a pit in an opening in the earth above the lower section of the casing, then yieldingly supporting the pit and removing the preliminary supports and finally lowering the yieldingly supported pit, and joining the pit and lower casing section.

4. The herein described method of assembling well structures consisting in setting a well casing, and then separating the casing, and removing a portion thereof from the well, then lowering a pit and supporting it over the remaining portion of the well casing, then alining the pit and casing, by lowering a pipe which projects into both pit and casing, then lowering the pit and joining same to the casing.

5. The herein described method of assembling well structures consisting in setting a well casing, separating and removing a portion of the casing, lowering a yieldingly supported pit and alining it with the well casing, and then joining the casing and pit, by screwing them together.

In testimony whereof I affix my signature in presence of two witnesses.

FRED I. GETTY.

Witnesses:
J. P. HABER,
C. A. FLEMING.