C. C. HACKETT.

Digging and Curbing Wells.

No. 220,140. Patented Sept. 30, 1879.

Fig. 1

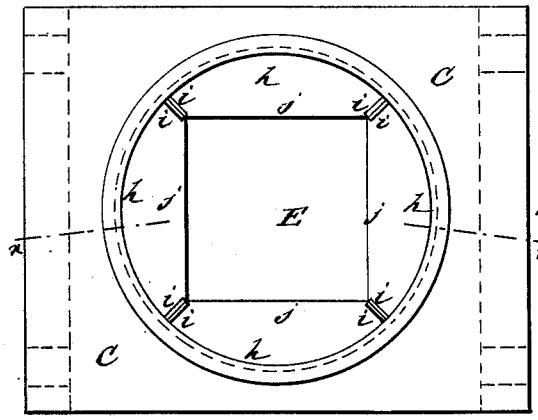


Fig. 3

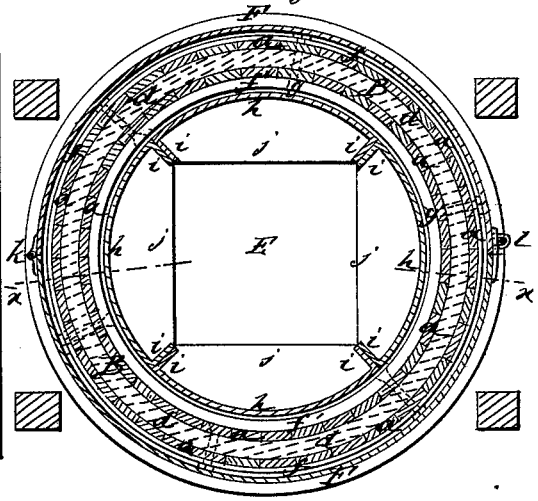


Fig. 2

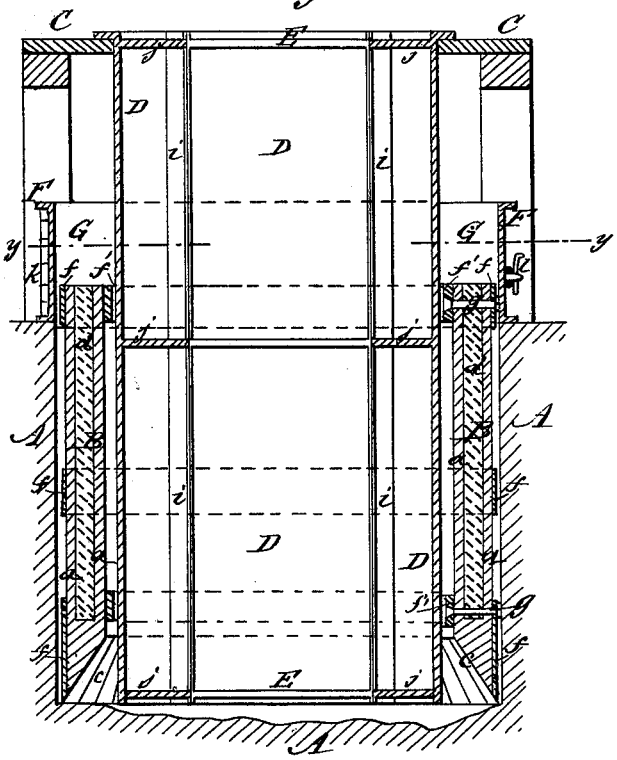


Fig. 4

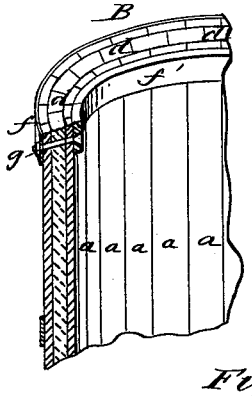
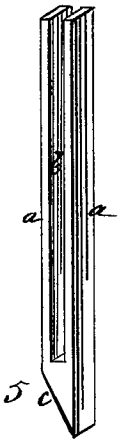
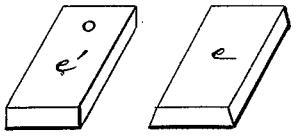


Fig. 5





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UNITED STATES PATENT OFFICE.

CHRISTOPHER C. HACKETT, OF BASTROP, LOUISIANA.

IMPROVEMENT IN DIGGING AND CURBING WELLS.

Specification forming part of Letters Patent No. **220,140**, dated September 30, 1879; application filed February 12, 1879.

To all whom it may concern:

Be it known that I, CHRISTOPHER C. HACKETT, of Bastrop, in the parish of Morehouse and State of Louisiana, have invented a new and useful Improvement in Digging and Curbing Wells, of which the following is a specification.

This invention relates to improvements in the manner of digging and curbing wells; and it has for its objects to insure accuracy in the shape of the well and the direction of the digging; also to enable the two operations of digging and curbing to be proceeded with simultaneously; also to protect the workman from falling bricks and the caving in of the well, and other purposes, that will appear in the description and be apparent to the practical well-digger.

The invention will be first described in connection with the drawings, and then particularly ascertained in the claims.

In the accompanying drawings, Figure 1 is a bird's-eye view of the well, with parts of the improvements exposed. Fig. 2 is a vertical section of the same on line *x x* of Fig. 1. Fig. 3 is a horizontal section on line *y y* of Fig. 2. Fig. 4 is a segment of the sand-box and staves; and Fig. 5 represents the bricks used.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the well-shaft, sunk into the earth. B is the sand-box, which is placed in the shaft, (it being of the same diameter,) and forms the foundation of the wall, following the shaft as it is dug by the workman. This box is made of wooden staves *a*, hollow from the top nearly to the bottom. Below this hollow portion *b* the ends of the staves are chamfered off from their inside, as at *c*, so as to give a narrow bearing-edge. The staves are put together edge to edge, (the edges being beveled,) and formed into a cylindrical box, of which a segment is shown in Fig. 4. The form of the staves when put together gives an annular chamber around the box, and this is filled with masonry *d*, bricks with beveled sides being used, as shown at *e* in Fig. 5. The staves are held together by metal hoops *f* on the outside, and wooden hoops *f'* on the inside, secured together and to the staves by lateral bolts *g*.

C is a platform erected over the well-shaft at the proper height to enable a workman to lay the well curb or wall underneath. D is the cylindrical inside guide for laying the curb. It consists of segments *h h h h* forming a cylinder of a diameter just sufficient to allow it to fit inside the sand-box B, as shown in Fig. 2. The sides of these sections are provided with inwardly-turned flanges *i*, connected by horizontal flanges *j*, and when they are placed together to form the guide the flanged sides of each section join each other, forming thus an even bearing and arch-like support for each other, while the edges of the horizontal flanges being cut off straight, when the sections are placed together a rectangular opening, E, is formed for the entrance of the workman, the delivery of the detritus, and other purposes. This guide is passed down through a circular opening in the platform C into the sand-box, and as the well-shaft deepens sectional lengths are added.

F is the outside guide, of a diameter a little in excess of that of the sand-box, so as to fit over it, as shown in Figs. 2 and 3. This outside guide is divided into two parts diametrically, and then connected on one side by a hinge, *k*, while it is provided with a latch or other fastener, *l*, on the opposite side for connecting the two ends. This arrangement is to permit it to be put over the well or taken from it when the inside guide is in position. The lower edge of the outside guide is flanged, so as to afford a bearing for it on the earth.

The invention is applied as follows: The sand-box B is sunk into the shaft its full depth first; then the platform C is erected over it, and the sectional inside guide, D, is passed down within the sand-box. The workman then proceeds with the digging, and as he deepens the shaft the sank-box sinks, and the wall or curb is built on top of the sand-box between the walls of the inside guide, D, and those of the outside guide, F, (which is placed in position when the curbing is commenced,) in the space marked G in Fig. 2.

The thickness of the curbing or wall equals

the thickness of the walls of the sand-box B, and the two walls of the inside and outside guides supply a sure guide for building it. As the shaft deepens, the sand-box and with it the finished curb built upon it sinks.

The brick designated as *e'* in Fig. 5 is used for the wall, though other kinds of masonry may be employed, if desirable.

In this way, as may be readily seen, the digging and curbing are prosecuted at the same time. Perfect accuracy in the size and direction of the well is secured, as the sand-box furnishes the workman with a sure guide in digging; and further, the inside guide prevents the stones or bricks from falling into the well on the workman, while the whole apparatus prevents the well from caving.

The chamfered lower part of the sand-box permits the workman to reach with his tools to the edge of the box, so that he can dig evenly all around underneath it, and thus let it descend evenly.

Above the platform an ordinary derrick may be erected, with a windlass, pulleys, &c., for lowering the sections of the inside guide, D, and hauling up the detritus.

In addition to the advantages obtained by the employment of the sand-box enumerated above, is this very important one, viz., that if after the well is dug the water should fall below the top of the sand-box, and thereby expose it to decay, the brick-filling or masonry *d* will remain as the foundation of the well wall or curbing, and thus prevent it from caving in.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The sand-box B, composed of staves *a*, with hollow portions *b*, filled with masonry *d*, having chamfered inside edges, *c*, and secured together by exterior hoops, *f*, interior hoop, *f'*, and lateral bolts *g*, substantially as described.

2. The sand-box B, in combination with the inside guide, D, and outside guide, F, whereby guides are furnished for building the curb on top of the sand-box, substantially as described.

3. The combination and arrangement of sand-box B, shaft A, inside guide, D, outside guide, F, and platform C, all constructed, arranged, and operating in the manner substantially as described.

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Witnesses:

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