

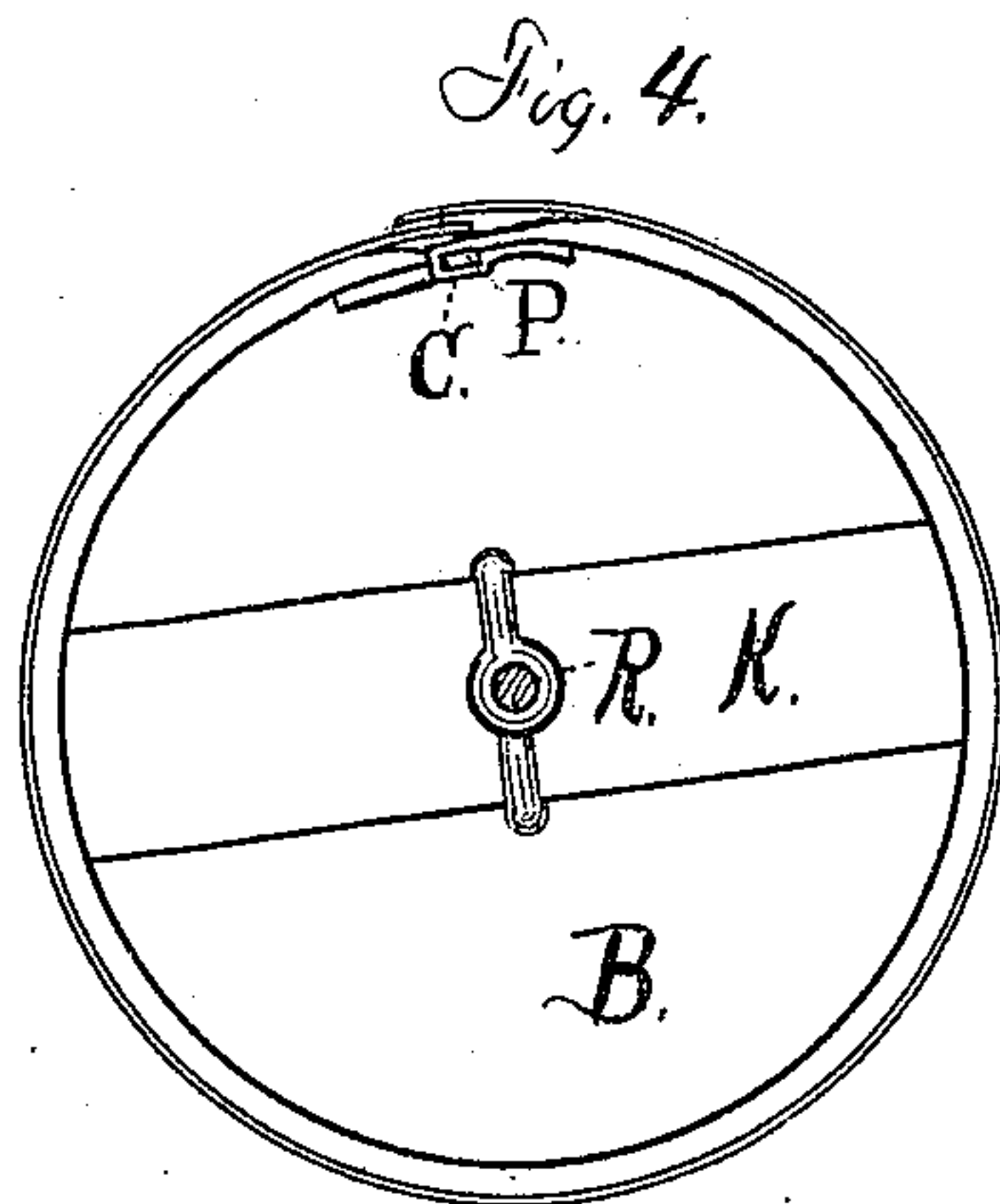
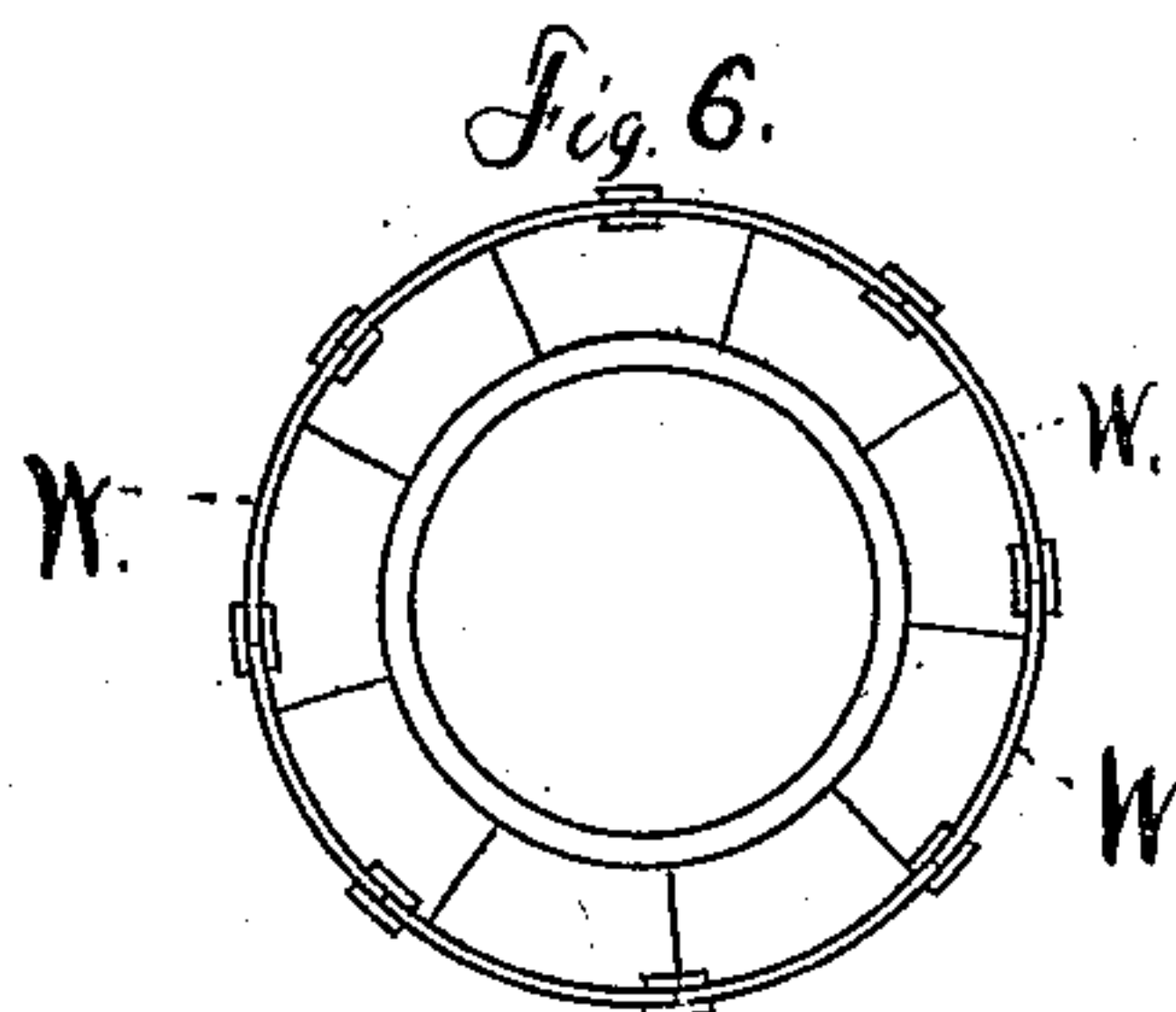
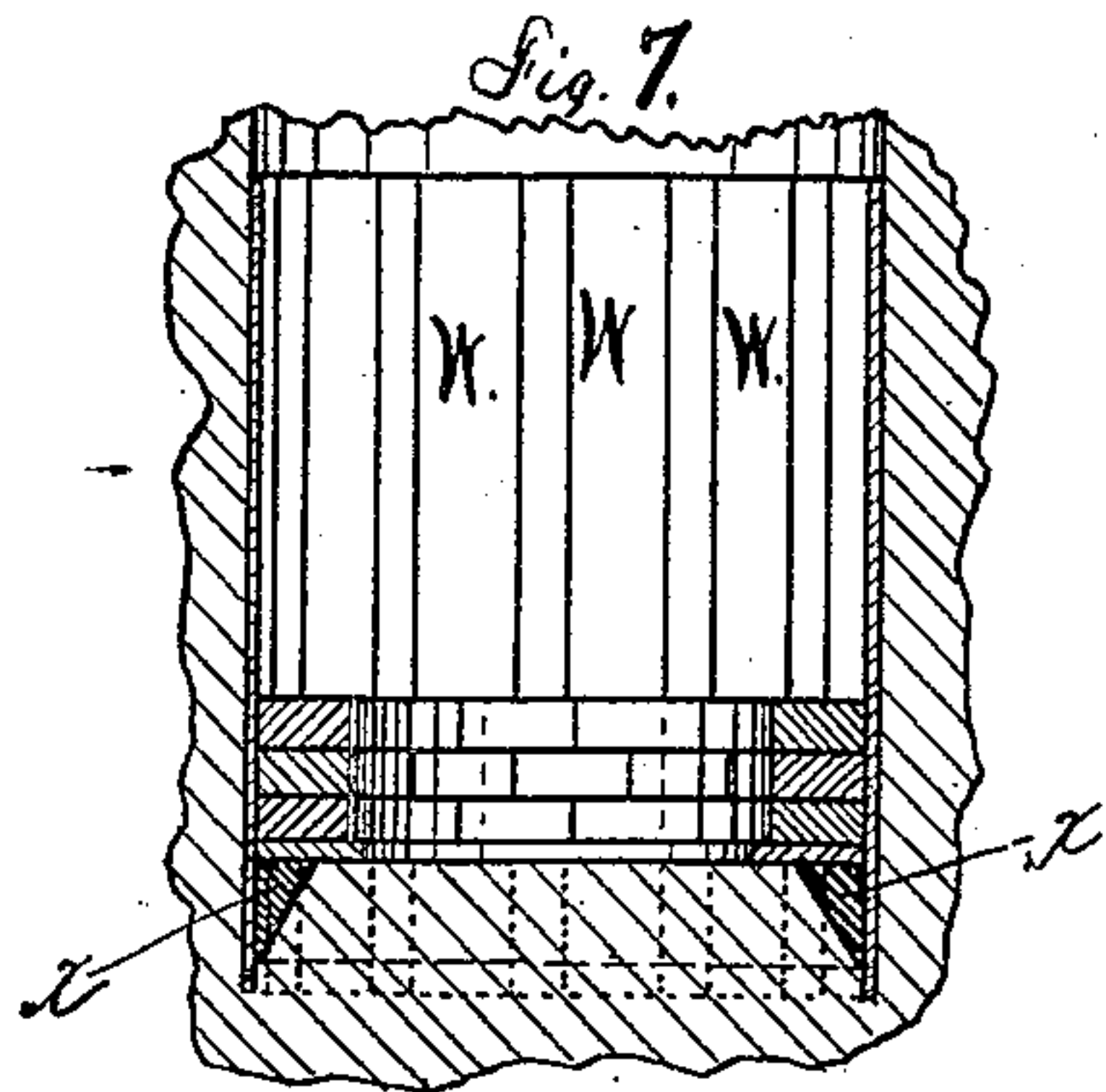
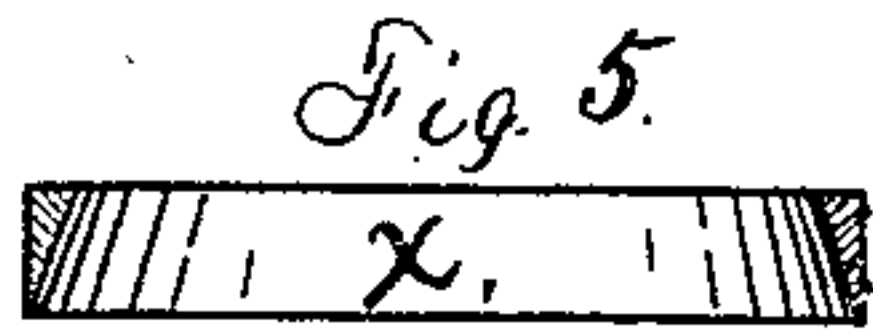
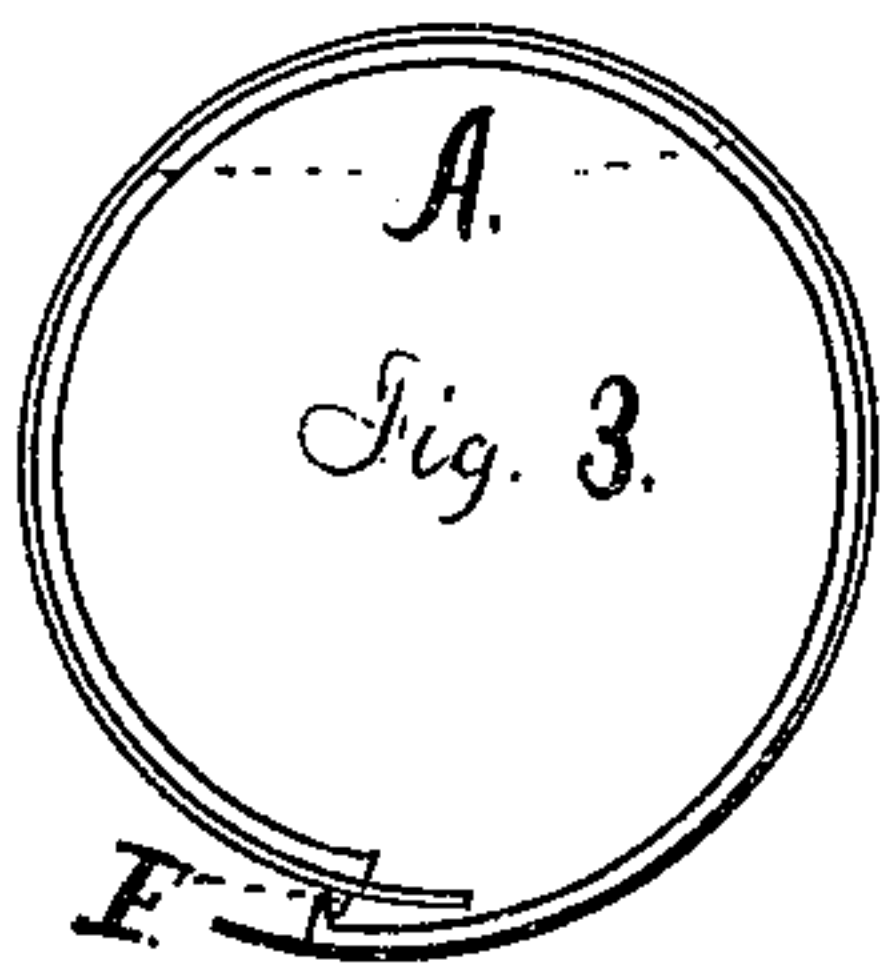
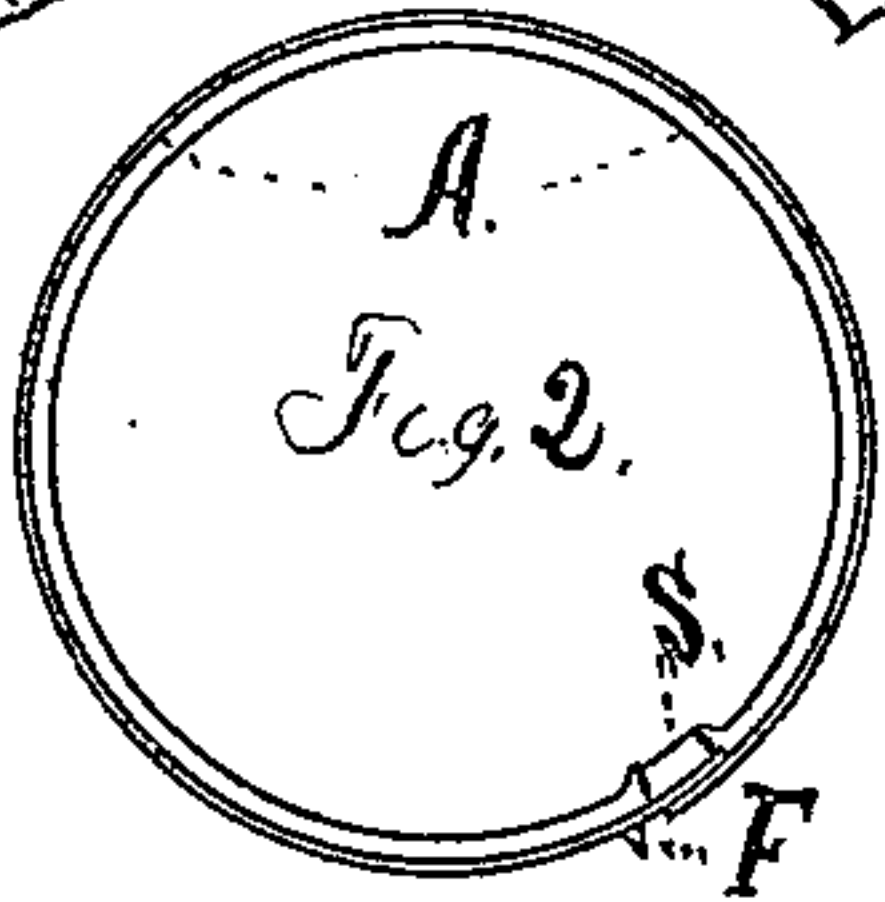
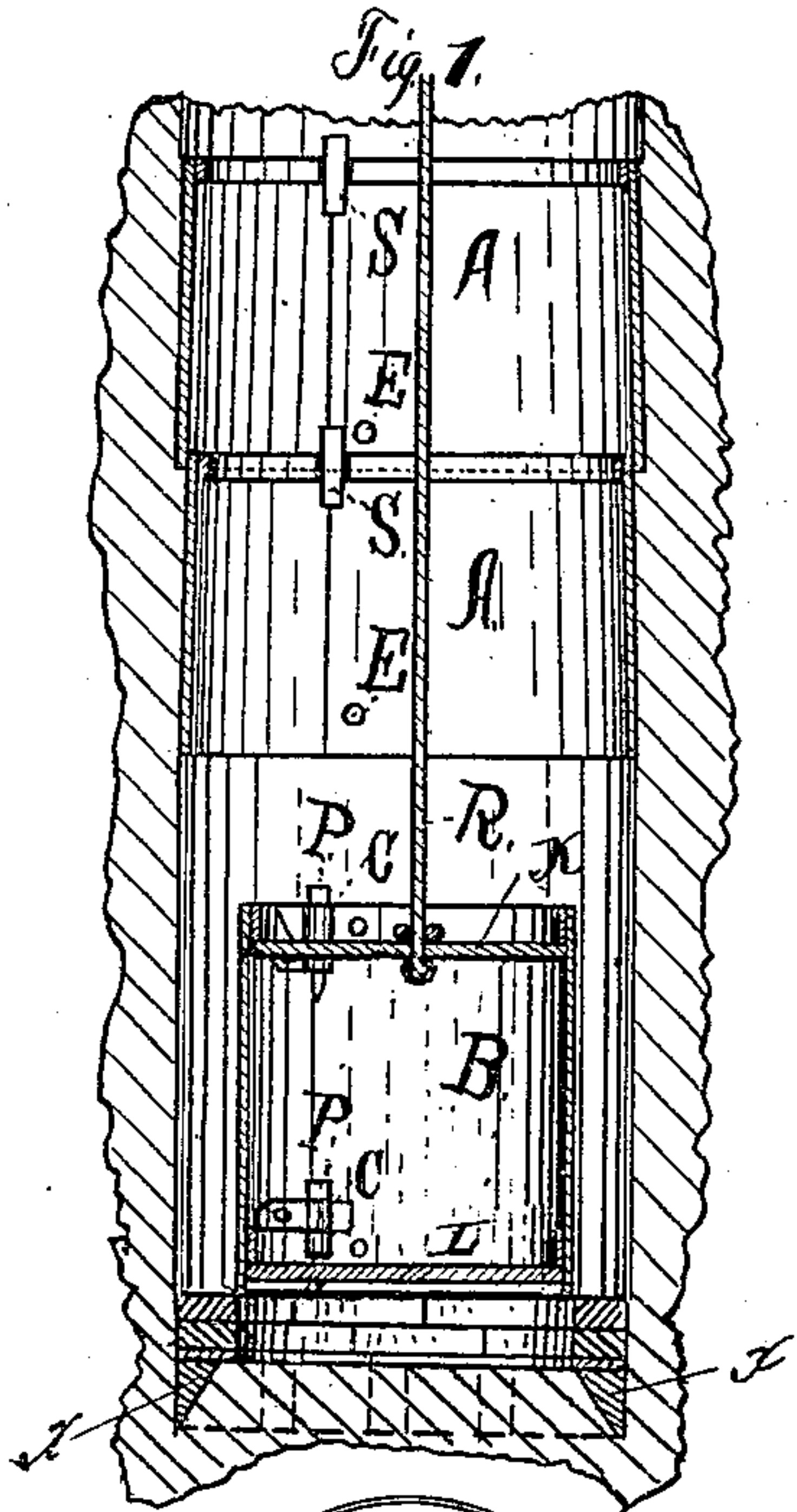
(No Model.)

W. H. H. DAVIS.

DIGGING AND LINING WELLS WITH CEMENT.

No. 248,922.

Patented Nov. 1, 1881.



Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM H. H. DAVIS, OF OAKFIELD TOWNSHIP, KENT COUNTY, MICHIGAN,
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DIGGING AND LINING WELLS WITH CEMENT.

SPECIFICATION forming part of Letters Patent No. 248,922, dated November 1, 1881.

Application filed April 19, 1880. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. H. DAVIS, a citizen of the United States, residing at the township of Oakfield, in the county of Kent and State of Michigan, have invented an Improved Device for Digging and Lining Wells with Cement, of which the following is a specification.

My invention relates to the construction of wells in which cement is used in the place of brick or stone; and the object of my invention is to facilitate and cheapen the process of cementing a well. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical sectional view of a well, with a sectional view of the curbing-cylinder, and also of the inner supporting-cylinder. Fig. 2 is a top view of a section of the curbing-cylinder. Fig. 3 is also a top view of the curbing-cylinder in position when contracted for removal. Fig. 4 is a top view of the supporting-cylinder, showing the cross-piece K, by which said cylinder is lowered and raised. Fig. 5 shows a circular rim or cylinder designed to cut the sand or earth in digging the well. Fig. 6 shows the top view of a well bricked up a short distance, with staves designed for setting the brick; and Fig. 7 is a vertical sectional view of the part shown by Fig. 6, with the cutting-rim α in position.

Similar letters refer to similar parts throughout the several views.

In Fig. 1, A A A represent the curbing, which is made of metal or any other suitable material, and constructed in section, so as to be more readily inserted into the well.

E E are movable rivets or pins, used for the purpose of holding the bottom of the cylinder in place until the section below is brought to its place and keyed.

S S are keys to hold the curbing-cylinders from being contracted.

B is the inside supporting-cylinder, supported, raised, and lowered by the rope R, attached to cross-bar K, placed under the top rim of the cylinder. The ends of this cross-bar are covered with iron where they come in contact with the rim of cylinder C, to prevent the crushing of the wood when the cylinder is raised.

L is a bottom cover, constructed of semicircular boards fitting closely to and supported by the lower rim of cylinder B. It is used to support the operator, and to prevent cement and earth from falling into the water below, so that the water is clean when the cementing is finished, and is provided with strap handles or the like, by which it can be removed.

C C are two eyes, which receive the pins P P.

Fig. 2 shows the position of the curbing-cylinder when placed in the well, its edges brought together and locked by the pin S, forming a perfect cylinder of size to exactly fit the inner surface of the well.

Fig. 3 shows the same cylinder contracted and locked over pin or rivet head F, being the position in which it is removed from the well.

The cylinder B is made so that it may be contracted by the lapping of the edges of the cylinder, and has its edges locked by the eye-pin P, as shown in Fig. 4. At the bottom of the curbing-cylinder is the rim α , Fig. 5, used to cut the sand and earth at the bottom of the well.

In Fig. 6, W W W represent the staves. The bricks are settled in the usual manner by placing them on a wooden circle, except that a circle of staves, W W W, &c., constructed so as to fit closely together, are driven down around the outside of the circle, forming a tight cylinder, which prevents the sand from pressing against the brick and running under the circle into the well while setting the brick; but in practice I sometimes leave a space eight to sixteen inches in width between each section of curbing, which, in digging a well through common sand, will hold the sand sufficiently secure from falling in.

The operation of my invention is as follows: As the well is sunk the circular curbing is inserted in it in sections until the digging is completed down to the line of the top of the brick, and sufficient to support the earth walls of the well. The bricks are then settled into the water in the usual manner, except by the use of staves, as above described. After the bricking is completed, the cylinder B is lowered to the top of the brick, the cylinder B being enough smaller than the inside of the

well to form the thickness of the cement lining. The lower section of the curb-lining next above the top of the brick is now removed, and the space between the inner cylinder and the earth wall of the well is filled with cement. Another section of the curbing is removed, and the inner cylinder is raised so that its upper end is about eight inches above the top of the cement, when the space between the cylinder B and the well is again filled. This operation is continued until the well is completed and a cement lining resting on the brick reaches the top of the well. To be more explicit as to actual practice, the bottom of the well, by the use of larger sections of curbing, is made eight or ten inches larger than the rest of the well above the water. This allows room to drive the staves into the sand and water inside, as well as below the section of curbing at the bottom of the well, and at the same time to make the brick circle large enough to lower the cement cylinder onto or inside the brick, which is built above the water a foot or so. By so doing but one piece of curbing need be removed before commencing to cement. A thicker wall is thus made at the bottom of the well. This lower wall extends several feet or more below the bottom of the lowest curbing, according to the depth of the water. The curbing is not used below the surface of the water, but the staves there are made to answer as a curb.

The principal advantage of this method over a cement lining built between two cylinders consists in this: the cement sets against the earth in its natural condition, and there is much less pressure against the cement, and it is much less likely to cave.

Having thus described my invention, what I claim to have invented, and desire to secure by Letters Patent, is—

1. The method, substantially as set forth, of constructing cement wells by first inserting in the well as it is dug sections of circular collapsible and expansible curbing, then setting brick upon a rim within a cylinder of staves constructed within and below the lower section of said curbing, then lowering into the well and upon the tier of bricks an inner collapsible and expansible core or cylinder, then removing the lower section of curbing from the well, then lining the earth wall with suitable cement in the space between the core and the earth to within a short distance of the top of the core, then removing the next section of collapsible curbing, raising the core, and continuing the cementing in this manner until the well is completed.

2. The combination of an outer collapsible and expansible curbing-cylinder constructed in sections, and an inner collapsible and expansible cylinder or core, substantially as described.

3. The outer collapsible and expansible cylinder, A, constructed in sections, and provided with movable rivets or pins E E and keys S S, substantially as described.

4. The inner collapsible and expansible cylinder or core, B, provided with lapping edges and eye-pins, and adjustable cross-bar K, and bottom cover, L, substantially as described.

WILLIAM H. H. DAVIS.

Witnesses:

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