

(No Model.)

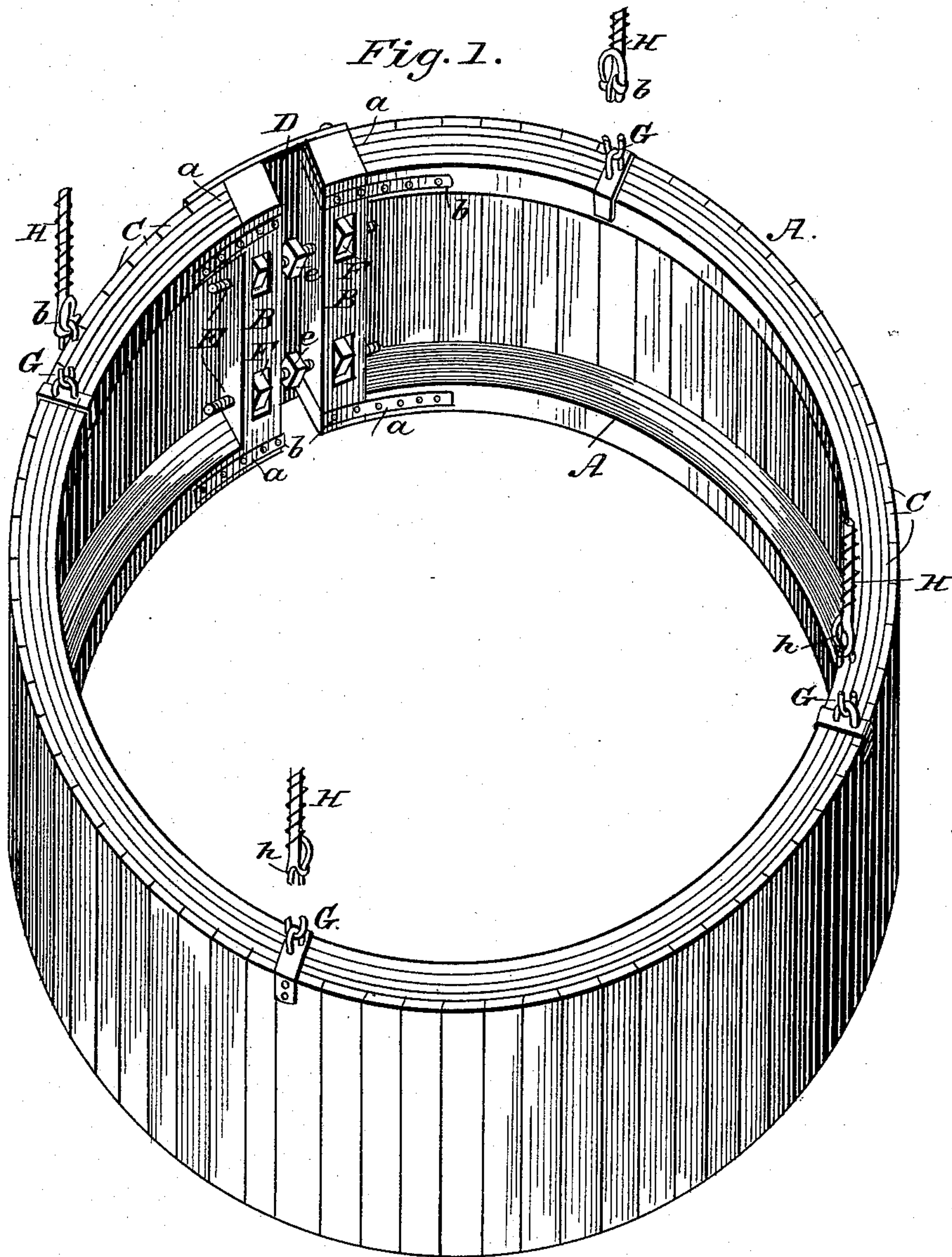
2 Sheets—Sheet 1.

E. L. RANSOME.

CONCRETE MOLD FOR WALLING WELLS, &c.

No. 349,058.

Patented Sept. 14, 1886.



Witnesses

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(No Model.)

2 Sheets—Sheet 2.

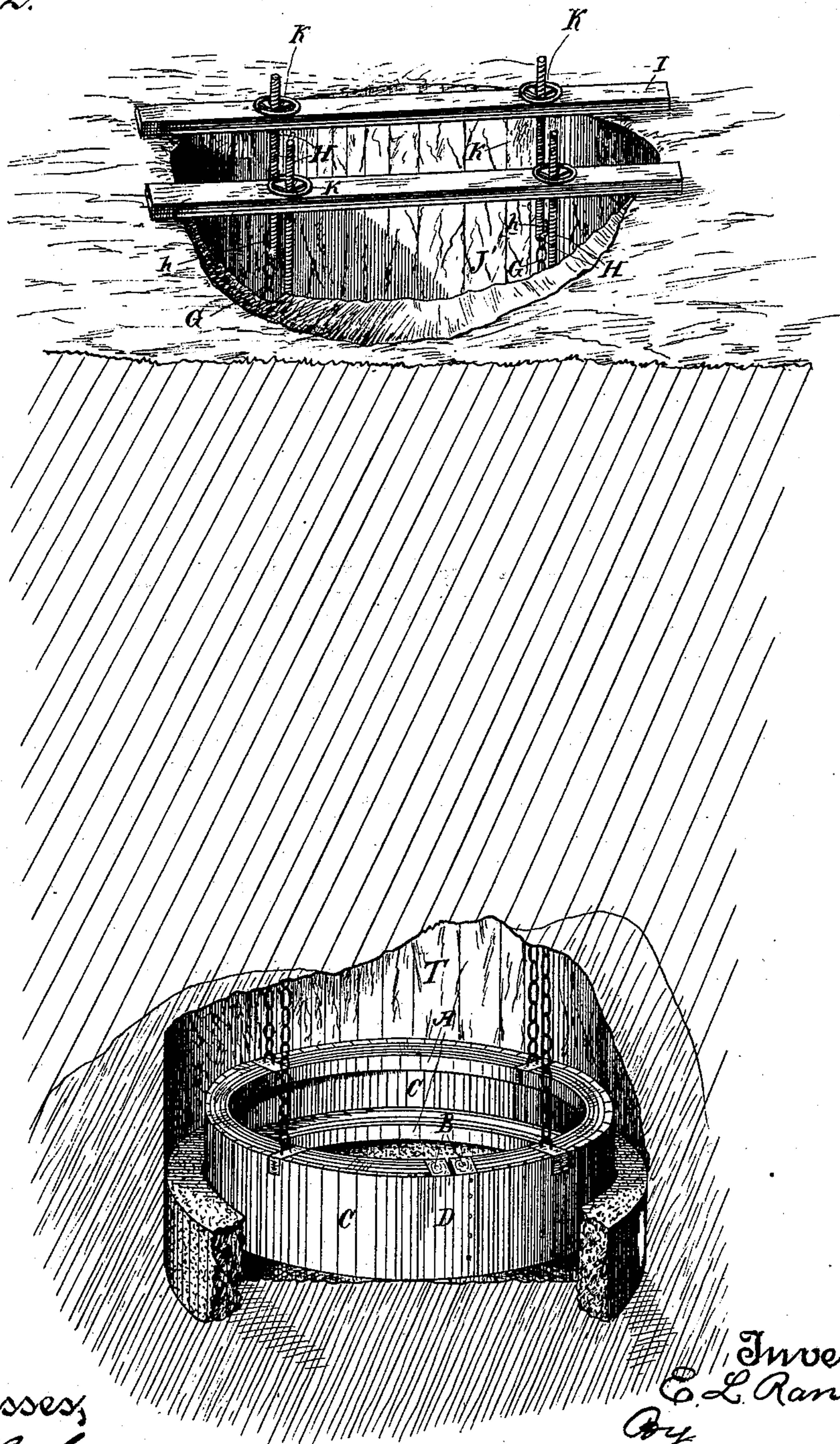
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*Fig. 2.*



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# UNITED STATES PATENT OFFICE.

ERNEST L. RANSOME, OF SAN FRANCISCO, CALIFORNIA.

## CONCRETE-MOLD FOR WALLING WELLS, &c.

SPECIFICATION forming part of Letters Patent No. 349,058, dated September 14, 1886.

Application filed February 10, 1886. Serial No. 191,511. (No model.)

*To all whom it may concern:*

Be it known that I, ERNEST L. RANSOME, of the city and county of San Francisco, and State of California, have invented an Improvement in Concrete-Molds for Walling Wells, &c.; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to certain new and useful improvements in that class of molds for concrete work, which are adapted to expand and contract, in order to be fitted to place, and relieved again after the concrete is filled in.

These improvements consist of the construction of the elastic or springy bands which form the ribs of the mold, of two or more strips of wood bent to the necessary curvature or direction of outline and secured together, of the end standards for the bands, of the particular mechanism for effecting the expansion and contraction of the mold, of the particular mechanism for vertically adjusting the mold, and of details of construction, all of which I shall hereinafter fully describe.

The object of my invention is to provide a mold of this class whose construction is simple, cheap, and effective, not only for excavations—such as cisterns and wells of small diameter, but also for those of large diameter.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a perspective view of my concrete mold. Fig. 2 is a side view showing its use.

A A are bands, which possess some spring or elasticity. They are made of several pieces or strips of wood, each bent to the proper curvatures, and secured together by nails or bolts, or in any suitable manner. By thus having each band of two or more strips the curvature is better fixed and the band is not liable to get out of shape. These bands are not complete circles, but are each severed, forming two ends, *a a*, which normally remain a little separated. To these ends are secured the standards B B in some suitable manner, as by the straps *b b*.

C are staves uniting the bands, which thus form the ribs, said staves forming a uniform surface for the mold.

D is a plate spanning the space between the severed ends of the mold, and continuing the

surface and curvature of the staves. This plate may be independent of both ends of the mold, or it may be secured to one end and free of the other, so as not to interfere with the approach of the ends to each other or their retraction. The plate overlaps considerably each end of the mold, so that it will still continue its surface within the limits of adjustment of said mold.

E E are screws provided with central heads, *e*, for receiving a wrench, by which the screws are operated. One end of the screws is right-hand threaded and the other end is left-hand threaded. Within suitable sockets in the standards B are nuts F, and the screws which pass through the standards pass through these nuts.

On the top of the mold are secured at proper intervals the links or chains G, with which engage the hooked lower ends or clutches, *h*, of the hoisting-screws H. These screws pass through beams or supports I, laid "chordwise" over the mouth of the cistern J, Fig. 2, and crank-nuts K are seated on the screws just above the beams.

The operation of my mold will be seen by reference to Fig. 2. It will be observed, in the first place, that the height of the mold is very much less than the depth of the cistern T. The mold is lowered away to the bottom of the cistern, and is then expanded by turning the screws E E, which separate its ends until it has attained the required circumference, leaving the space for the concrete between its surface and the wall of the cistern. The concrete is then filled in, and when sufficiently fixed the next step is to loosen the mold. This is done by again turning the screws E E, but in such a direction as to draw the ends of the mold together, thus lessening its circumference and readily and perfectly relieving it. The crank-nuts K are now operated so as to raise the hoisting-screws, thereby lifting the mold to a fresh position higher up in the cistern, and adjoining its first position. The mold is again tightened by expanding it, the concrete is filled in, the mold once more loosened and raised to a fresh position, and so on until the whole operation is completed.

I am aware that expansible and collapsible



molds are not new, and that they have been made of spring-bands, intervening staves, and mechanism for adjusting and for hoisting them; and I do not, therefore, claim such, broadly, but confine myself to particular construction. The molds of this class are sometimes of sheet metal rolled so as to have an expansion and contraction. Some are, however, made of staves and bands; but these bands are metal bars.

It is not practical to construct such molds for very large cisterns, and especially is this true of metal bands or ribs when made beyond a certain diameter. Besides they are more costly and much heavier. The bands A, such as I have described, made up of several strips of wood, are much more practical, especially on a large scale, and at the same time they form a lighter cheaper mold, which can be knocked to pieces and used again for other work.

I regard the right and left hand screws as the simplest and most effective means for adjusting the circumference of the mold, as their action is positive, and the natural spring of the mold is not relied on to effect the adjustment, as is the case with other molds of the class, and they are simpler than the racks and pinions which have been tried.

The hoisting mechanism I have described is better adapted for the work intended than a derrick, being more easily placed and more available. The use of a derrick as a hoisting mechanism in this connection is more costly in the matter of obtaining and placing it than the work itself.

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

1. A concrete-mold consisting of the curved severed bands having a springy or elastic nature and forming the ribs of the mold, the staves C, uniting the bands and forming the mold-surface, the plate D, spanning the space between the severed ends of the mold and continuing the surface of the staves, and the mechanism for increasing and diminishing the circumference of the mold by separating or drawing together the opposing ends of the bands, consisting of the right and left hand screws E

E and the nuts F, substantially as herein described.

2. In a concrete-mold, the curved severed bands A A, of an elastic or springy nature, each consisting of several pieces or strips of wood secured together, the staves C, uniting said bands, and plate D, as described, in combination with the right and left hand screws E E between the severed ends of the mold, and nuts in said ends seated on the screws, whereby the ends are caused to approach toward or to separate from each other, substantially as herein described.

3. The combination of the curved severed bands A A, consisting of several pieces or strips of wood secured together and having an elastic or springy nature, the standards B B at their ends, the staves C, the overlapping plate D, the right and left handed screws E E, and the nuts F in the standards, substantially as herein described.

4. A concrete-mold consisting of a suitable frame-work for fitting an excavation and forming the inner wall of the concrete lining, in combination with the mechanism for raising said mold, consisting of the hoisting-screws H, having hooked lower ends or clutches, h, a connection between said hooked ends and the mold, supports I, across the mouth of the excavation and through which the screws pass, and crank-nuts K on said screws above the supports, substantially as herein described.

5. The curved severed bands A A, elastic or springy in their nature, the staves C, joining the bands, the plate D, and the expanding-screws E E, and nuts F, all as and for the purpose described, in combination with the hoisting-screws H, passing through supports I above, and having hooked lower ends or clutches, h, the links G, joining said hooked ends with the bands A A, and the crank-nuts K on the screws, all arranged and adapted to operate substantially as herein described.

In witness whereof I have hereunto set my hand.

ERNEST L. RANSOME.

Witnesses:

S. H. NOURSE,  
H. C. LEE.