

No. 841,504.

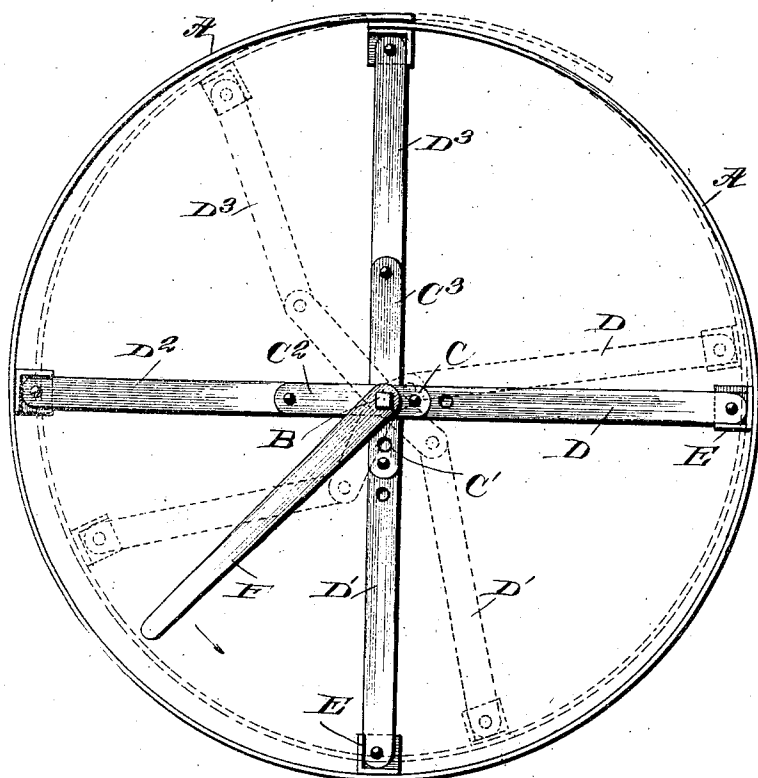
PATENTED JAN. 15, 1907.

G. GEORGENSON & J. E. HENNEN.

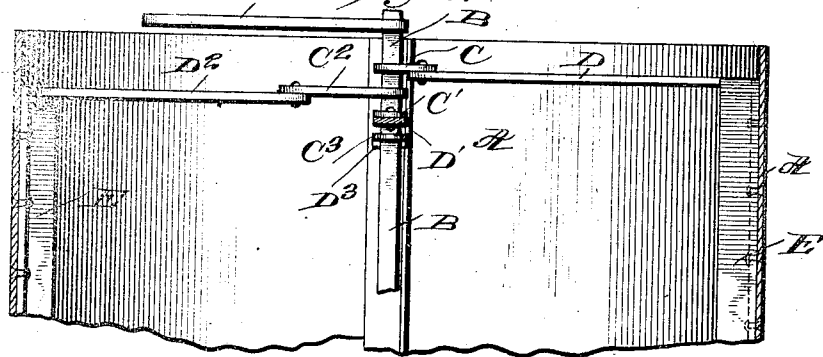
CONTRACTIBLE MOLD.

APPLICATION FILED SEPT. 25, 1906.

*Fig. 1.*



*Fig. 2.*



WITNESSES

*E. M. Callaghan*  
*Amos W. Hart*

INVENTORS

GEORGE GEORGENSON  
JOSEPH E. HENNEN  
BY *Munn & Co.*

ATTORNEYS

# UNITED STATES PATENT OFFICE.

GEORGE GEORGENSON AND JOSEPH E. HENNEN, OF FOND DU LAC,  
WISCONSIN.

## CONTRACTIBLE MOLD.

No. 841,504.

Specification of Letters Patent.

Patented Jan. 15, 1907.

Application filed September 25, 1906. Serial No. 336,115.

*To all whom it may concern:*

Be it known that we, GEORGE GEORGENSON and JOSEPH E. HENNEN, citizens of the United States, and residents of Fond du Lac, in the county of Fond du Lac and State of Wisconsin, have invented an Improved Contractible Mold, of which the following is a description.

Our invention is an improved flexible mold for use in the construction of arches, culverts, sewers, or the like in which a temporary support is required for the cement, brick, or stone employed in the construction.

In carrying out our invention we employ what may be termed a "cylinder," the same being formed of sheet metal and provided interiorly with means for expanding and contracting it.

The details of construction, arrangement, and combination of parts embodying our invention are as hereinafter described, and illustrated in the accompanying drawings, in which—

Figure 1 is an end elevation of the mold. Fig. 2 is a transverse section of the same.

A indicates the shell of the mold, the same being formed of sheet metal combining a due degree of elasticity and rigidity whereby it is adapted for supporting an arch for the concrete or other material and to be closed or contracted for reducing its diameter as required to enable it to be withdrawn when the arch has been completed. The shell is preferably constructed in one piece for the sake of economy and uniform elasticity, although it is obvious it may be constructed in pieces or sections whose edges shall be firmly united. It is made of any desired or practicable length and is adjusted from time to time lengthwise according to the length of the arch or other work being done. In this instance the ends or edges of the sheet metal overlap; but they might be separated by a narrow space. The size or diameter of the mold will of course be varied according to different kinds of work. The contracting and expanding mechanism arranged within the shell A is composed of the following parts: A polygonal shaft B is arranged centrally or coincident with the axis of the shell A, and it is provided with a series of rigid radial arms C C' C<sup>2</sup> C<sup>3</sup>, which are in turn connected with the shell by links or connecting-bars D, D', D<sup>2</sup>, and D<sup>3</sup>. The outer ends of these links or

bars are not attached directly to the shell, but to a series of lugs E, the same being constructed in such manner that they may be riveted to the shell and allow due movement of the several links or connecting-bars. A handle F is mounted on the protruding end of the shaft B for use in rotating the latter. It will be seen that the several arms C C', &c., differ in length, the arms C being the shortest and the others increasing in length progressively. The links or connecting-bars D D', &c., vary inversely in length, the bar D being the longest and the others being made progressively shorter, corresponding to the increasing length of the arms C C' C<sup>2</sup>. The object of this construction is as follows: When the parts are in the normal position, (shown by full lines,) the shell A closely approximates a true circle. It is absolutely necessary, however, that in contracting the shell it should not be thrown into elliptical form in cross-section, since it might in such case still be or remain in contact with the work at two points in its circumference. We have found that in order to prevent this or, in other words, in order that the shell when contracted should still closely approximate a true circle it is necessary that the several arms C C', &c., should vary progressively in length, as illustrated in the drawings. Thus it is necessary that the pivots which connect the several links or bars D D', &c., with the radial arms C C', &c., should not be located at a uniform distance from the center of the shell, which is the polygonal shaft B, since otherwise the shell could not be contracted in a true or practically true circular form. In practice let it be supposed that the distance from the shaft B to the pivot-hole of the first arm C is one inch. Then the corresponding distance on the second arm C' would be two inches, on the third arm C<sup>2</sup> three inches, and on the fourth arm C<sup>3</sup> four inches.

It is obvious that by adjusting the handle F in the direction of the arrow, Fig. 1, the mechanism connected therewith will be thrown into the positions indicated by dotted lines, and the shell will also assume the contracted form represented by dotted lines, the overlapping portion or edge being in such case projected a considerable distance over the opposite edge.

By providing either the arms C C', &c., or

the bars DD', &c., with holes, as indicated in Fig. 1; the pivots that connect the arms and bars may be shifted, and thus the shell may, if required, be contracted in one diameter more than in another, and thus converted into elliptical form, which form it will of course maintain when contracted by operating the lever F. Such form is requisite or desired in some kinds of work. It will be seen that in any case or whatever be the form of shell it is supported or braced interiorly whenever the radial arms of the shaft and the connecting links or bars are in alinement, as shown by full lines in Fig. 1.

15 What we claim is—

1. A contractible mold comprising a shell formed of sheet metal, a central shaft having a series of radial arms differing progressively in length, and a like series of links or bars  
20 connecting said arms with the shell and vary-

ing in length inversely as to the arms, substantially as described.

2. The improved contractible mold comprising a flexible shell, a central shaft having a lever adapted for rotating it, and a series of rigid arms which are fast on said shaft and differ progressively in length, a series of links or bars pivoted to the arms and at their outer ends to the shell and varying progressively in length but inversely as to the said arms, substantially as described.

GEORGE GEORGENSON.  
JOSEPH E. HENNEN.

Witnesses for George Georgenson:

THOS. H. WRIGHT,

R. H. NORTHROP.

Witnesses for Joseph E. Hennen:

G. A. KNAPP,

S. L. LITTLE.