J. W. KEMPF.

COLLAPSIBLE CONCRETE CULVERT FORM.

APPLICATION FILED JULY 7, 1913.

1,097,234.

Patented May 19, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

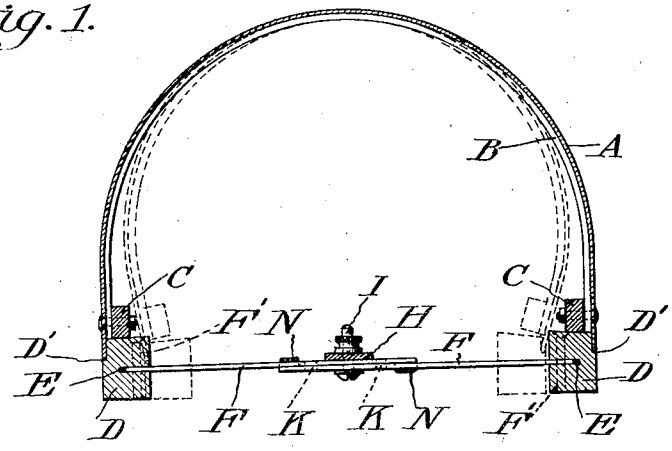
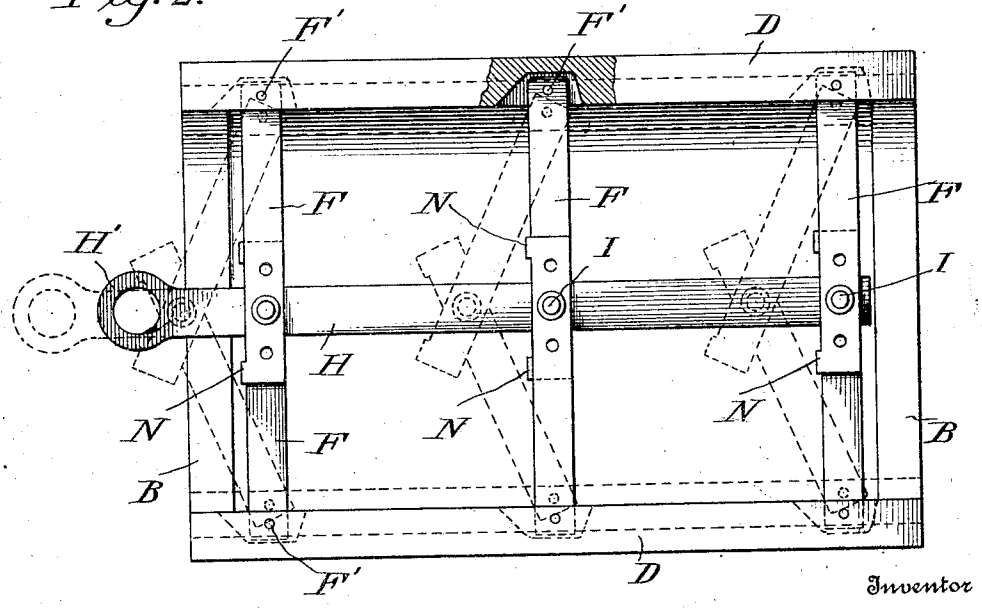


Fig. 2.



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Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

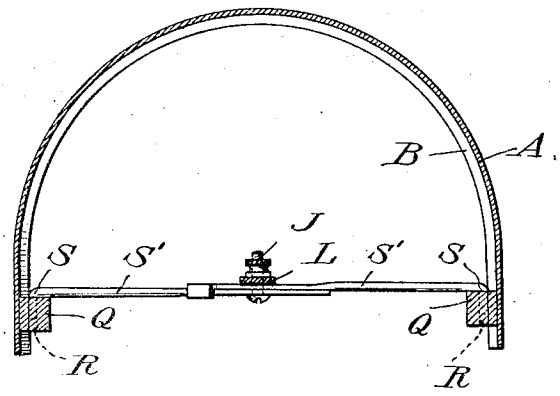
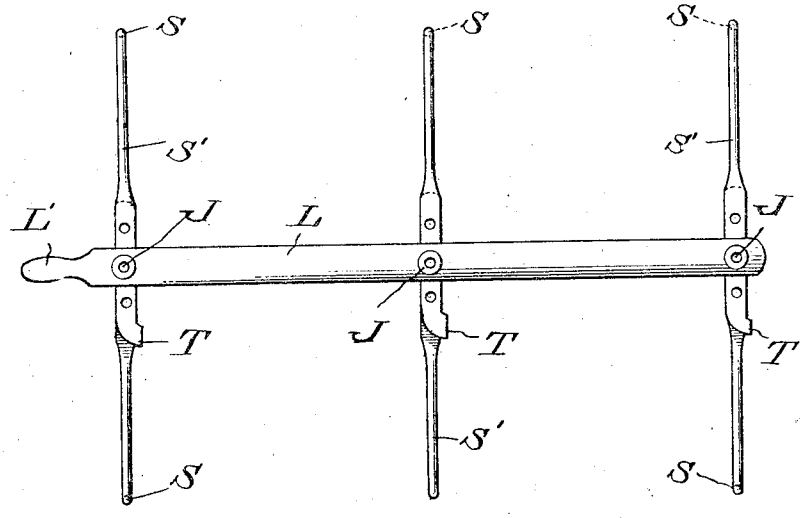


Fig. 4.



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UNITED STATES PATENT OFFICE.

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COLLAPSIBLE CONCRETE-CULVERT FORM.

1,097,234. Specification of Letters Patent. Patented May 19, 1914.

Application filed July 7, 1913. Serial No. 777,700.

To all whom it may concern:

Be it known that I, JOHN W. KEMPF, a citizen of the United States, residing at Shickley, in the county of Fillmore and State of Nebraska, have invented certain new and useful Improvements in Collapsible Concrete-Culvert Forms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in collapsible concrete culvert forms adapted especially for use in building culverts, sewers, irrigation pipes, etc., and consists essentially in the provision of an expansion frame and a cover, means being provided for holding the cover in proper shape while the culvert is being formed and so arranged that, when the material of which the culvert is molded is set, the frame may be easily and conveniently removed.

The invention comprises various details of construction and combinations and arrangements of parts which will be hereinafter fully described, shown in the accompanying drawings and then specifically defined in the appended claim.

I illustrate my invention in the accompanying drawings, in which:—

Figure 1 is a cross sectional view through the collapsible form adjusted for use, showing in dotted lines the shape that the sheet or covering assumes when the expanding member is removed. Fig. 2 is a bottom plan view showing the expansion member in dotted lines when released to allow the sheet to contract. Fig. 3 is a cross sectional view through a modified form of the expansion means, and Fig. 4 is a detail view of the modified form of expansion mechanism.

Reference now being had to the details of the drawings by letter, A designates a sheet covering constructed preferably of galvanized steel reinforced with resilient arches B, and strips of suitable material C are fastened adjacent to the longitudinal edges of the sheet and spaced apart preferably a slight distance above said edges. The means for expanding the covering consists of the strips D which are shouldered as at D', which shouldered portion rests upon the strips C, forming a support for the expanding device. Said strips D have slots E formed transversely in the inner faces thereof and which slot is adapted to receive the inner end of a toggle link F which is apertured for the reception of a pivotal pin F' passing through registering apertures in the strips D. A bar, designated by letter H, having a handle end H', has pivotal connection through the medium of the pivots I with the inner ends of the links F, through one or another of the apertures K, a plurality of apertures being provided in order to allow for adjustment of the expansion device to operate with different sizes of forms. Each of said links F has a lug N projecting from one edge thereof near its end, the lug of one link being adapted to serve as a stop to the edge of the other link and pivoted thereto in order to limit the movements of said links in one direction, or in other words to prevent the links from moving farther in one direction than in alinement with each other and which determines the expanding limit of the device. In the drawings I have shown three pairs of said links similarly constructed and pivotally connecting the two strips D.

In Figs. 3 and 4 of the drawings, I have shown a slight modification of my invention in which the strips Q have holes R formed therein and adapted to receive the angled ends S of the rods S', which latter are pivotally connected by means of the pivots J passing through apertures in the bar L which has one end L' bent to form a handle. One of said rods has an angled end T which is adapted to form a stop to the other rod of the pair which are pivoted together.

The operation of my invention will be readily understood and is as follows:—The form is set up by placing the covering upon the strips D of the expanding frame, the covering being in contracted form. By imparting a longitudinal movement to the bar H, the strips D will be moved, through the medium of the links F, from each other and expand the covering, the limit of expansion being determined by the adjustment of the links F. When the links are parallel with each other, the form will have been expanded to its greatest limit. After the concrete has been placed over the form and set, the bar H may be moved longitudinally in the opposite direction to its movement in

expanding the form and which will cause the strips D to move toward each other and the natural resiliency of the form with its metallic bands will cause the sheet covering to assume the position shown in dotted lines in Fig. 1 of the drawings, thus allowing the latter to be readily removed from the culvert.

The operation of the modified form as to the expansion of the covering is similar to that before described of the construction shown in Fig. 1 with the exception of the strips D being dispensed with.

What I claim to be new is:

A collapsible form comprising longitudinal, laterally movable beams with recesses upon the outer faces thereof, a longitudinal bar, pivotal link connections intermediate said bar and said beams, an arched covering, resilient reinforcing strips fastened to the inner faces thereof adjacent to the ends of the covering, said strips designed to rest upon the beams and the ends of the covering resting within said recesses whereby, as the beams are moved inwardly or outwardly, the covering moves therewith, as set forth.

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

JOHN W. KEMPF.

Witnesses:
W. G. Matzke,
W. A. Shay.