

Nov. 12, 1935.

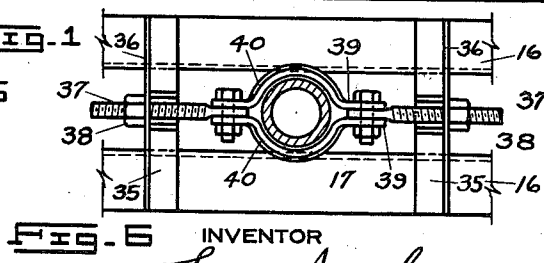
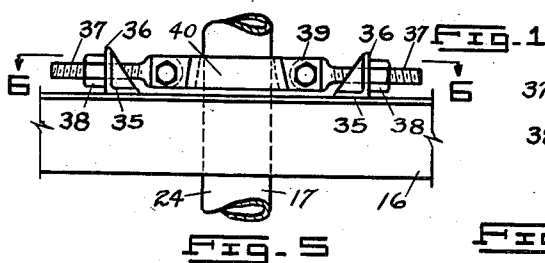
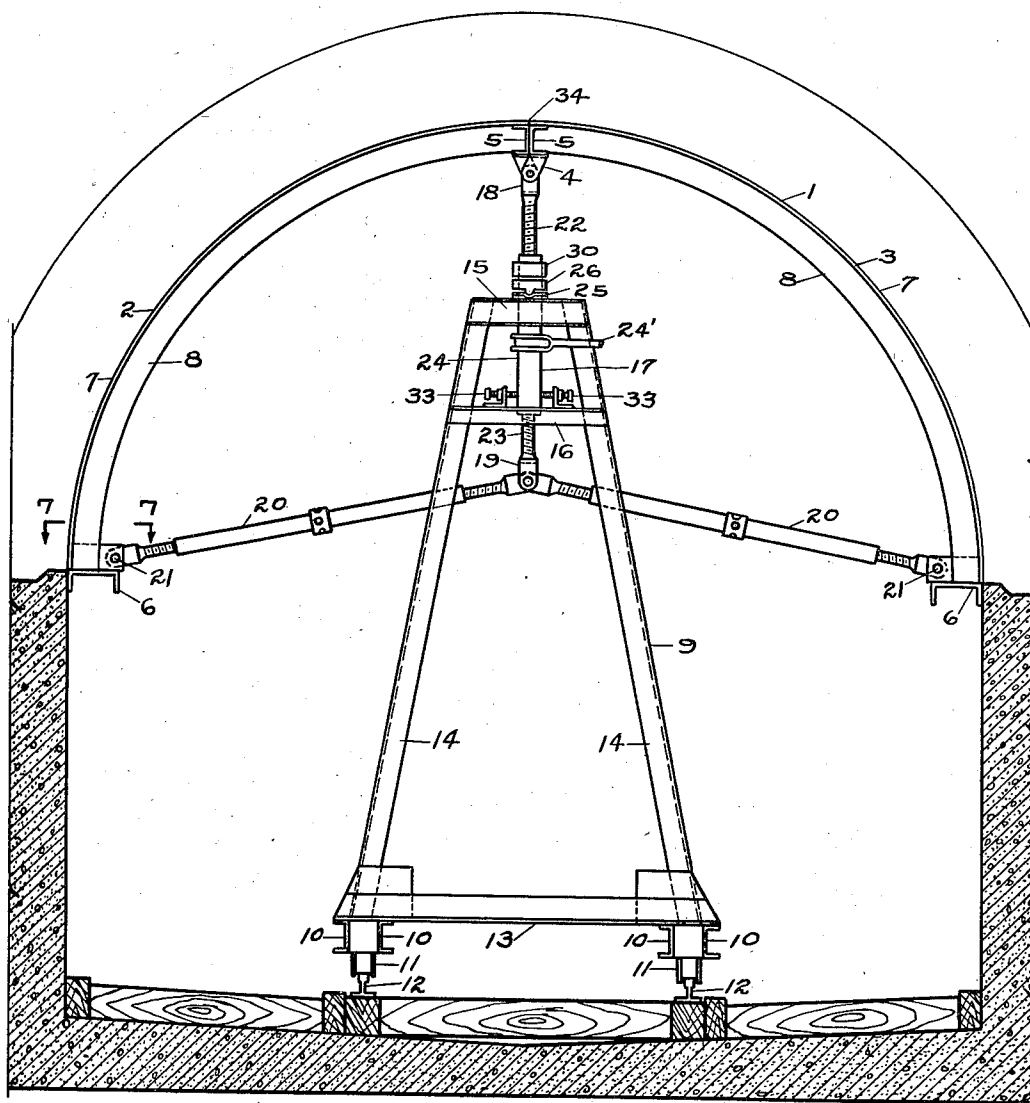
L. J. SAROSDY

2,020,520

CENTERING DEVICE FOR CONCRETE FORMS

Filed July 27, 1934

2 Sheets-Sheet 1



INVENTOR
Louis J. Sarosdy
 BY
E. S. Sullivan
 ATTORNEY

Nov. 12, 1935.

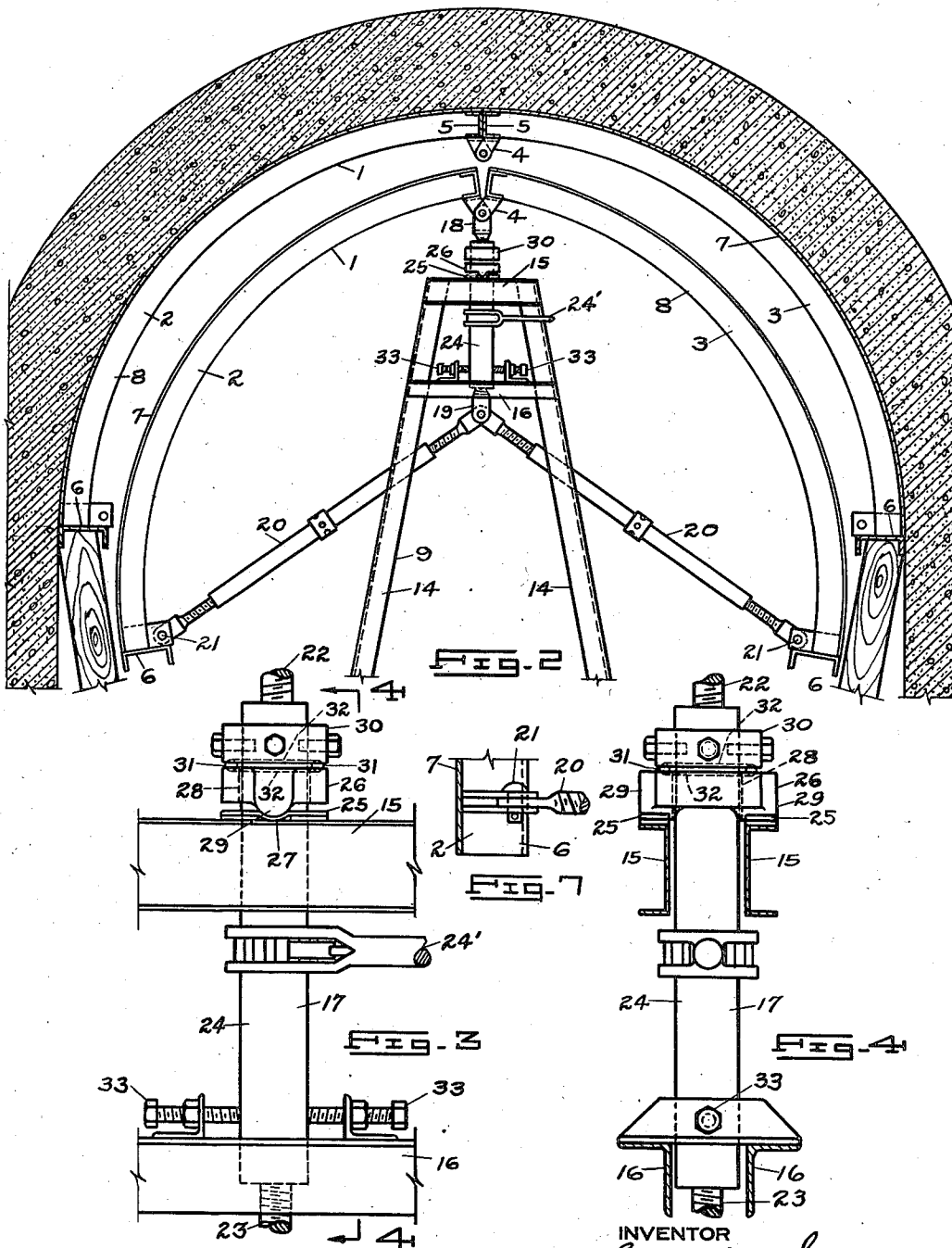
L. J. SAROSDY

2,020,520

CENTERING DEVICE FOR CONCRETE FORMS

Filed July 27, 1934

2 Sheets-Sheet 2



INVENTOR
Louis J. Sarosdy.
BY
E. S. Weller.
ATTORNEY

UNITED STATES PATENT OFFICE

2,020,520

CENTERING DEVICE FOR CONCRETE FORMS

Louis J. Sarosdy, Beaver Falls, Pa., assignor to
Koppel Industrial Car and Equipment Com-
pany, Koppel, Pa., a corporation of Pennsyl-
vania

Application July 27, 1934, Serial No. 737,240

13 Claims. (Cl. 25—131.6)

The invention pertains to forms used in the moulding of concrete sewers, conduits and the like, with particular reference to the mechanism employed in collapsing and expanding the form upon the carrier.

An object of the invention is the provision of a simple and efficient means for collapsing a form away from a concrete structure and transporting it in telescopic relation past expanded forms in place and expanding the form at a new location as the erection of the concrete structure progresses.

An object of the invention is to provide a mechanism for supporting a form upon a carrier and manipulating the form into expanded or collapsed position, said mechanism being controlled by centrally disposed vertically adjustable members and provided with a plurality of adjustments for lining up the expanded form with existing construction.

Another object of the invention is the provision of form supporting mechanism which is pivotally mounted upon a carrier and adapted to move the form in a lateral as well as vertical direction.

Another object of the invention is the provision of a rotatably mounted jack upon the carrier for collapsing and expanding the form.

These and other objects will become apparent to those skilled in the art from the accompanying drawings which show a preferred form of the invention and form a part of the present description in which Fig. 1 is a transverse sectional view taken through a concrete structure showing the form in expanded position upon a carrier. It will, of course, be understood by those skilled in the art that the forms are made up in sections of appreciable lengths extending longitudinally of the concrete structure to be formed. Fig. 2 shows a sectional view similar to that shown in Fig. 1 with the form in collapsed position supported upon a carrier and telescoping past an expanded form. Fig. 3 shows an enlarged view of a portion of the collapsing mechanism. Fig. 4 shows a view taken along the lines 4—4 of the mechanism shown in Fig. 3. Fig. 5 shows a modification of the means to move the form laterally with respect to the carrier. Fig. 6 shows a view taken along the lines 6—6 of Fig. 5. Fig. 7 shows the pivotal connection between the form and collapsing mechanism taken along the lines 7—7 of Fig. 1.

Referring now in detail to the drawings wherein like reference characters indicate like parts the form 1 comprises sections 2 and 3 pivotally

connected together by the hinges 4 spaced longitudinally of the form along the vertical center line thereof. Each section 2 and 3 is formed of spaced longitudinally extending members 5 and 6, preferably channel shaped, connected by the arcuated skin plates 7. Spaced at intervals longitudinally of each section and secured to the skin plates 7 are arcuated reinforcing members 8 extending between and secured to the members 5 and 6.

The carrier 9 comprises a truck formed of a pair of spaced longitudinally extending channels 10 having wheels 11 journaled thereon and adapted to move upon rails 12, cross braces 13 extend transversely of the carrier, rest upon and are secured to the channel 10. At opposite ends of the truck are converging supports 14 rising from the cross braces 13 and connected adjacent the upper extremities by spaced channel members 15 and connected intermediate the height thereof by angular members 16. At each end of the carrier and mounted upon the supports 14 are the form expanding and collapsing mechanisms which comprise the sole support for the form upon the carrier.

The preferred form of the collapsing and expanding mechanism employed to support the form upon the carrier, consists of a substantially vertically disposed jack 17 having an upper jaw 18 pivotally connected to the hinge 4 of the form 1 and a lower jaw 19 pivotally connected to diverging braces 20—20. The diverging braces 20 extending from the lower jaw 19 to a point adjacent the lower portion of the sections 2 and 3 of the form 1 are pivotally connected to the form by pins 21. The braces 20 are preferably made adjustable so as to facilitate in the proper alignment of the form with respect to the carrier or work already in place. The jack 17, extending between the spaced channel members 15 and angular members 16, is preferably a ratchet jack having threaded extensions 22 and 23 upon which the jaws 18 and 19 are mounted and which move inwardly and outwardly in a vertical direction, with respect to a barrel portion 24, when actuated by an operating handle 24' adapted to rotate the barrel portion. The barrel portion 24 is pivotally mounted, intermediate its ends, upon the carrier adjacent the vertical center line thereof in order to centralize the force resulting from the load of the form upon the carrier and to facilitate a lateral adjustment to the form with respect to the carrier. This lateral adjustment is essential to concrete forms of this type in order to over-

come any variations in the track upon which the carrier moves.

The pivotal connection between the barrel portion 24 and the carrier 9 consists of plates 25 and a bearing block 26. The plates 25 secured to the spaced channel members 15 have, intermediate their ends, an arcuated depressed portion 27. The bearing block 26, bridging the space between the channel members 15 of the carrier 9, has an opening 28 centrally located to receive the barrel portion 24 of the jack 17 and convex end portions 29 resting in the depressed portion 27 of the plates 25. A collar 30 secured to the barrel portion 24 adjacent the upper portion thereof, is spaced above and supported upon the bearing block by ball bearings 31. These bearings, adapted to rest in runways 32 in the bearing block 26 and collar 30, absorb the lateral and longitudinal thrusts transmitted to the carrier 9 from the form 1, as well as permitting the collar and barrel to rotate freely. Oppositely disposed screw members 33 mounted upon the angular members 16 spaced below the pivotal connection of the collapsing and expanding mechanism engage the barrel portion 24 of the jack 17 adjacent the lower portion thereof to maintain the jack 17 in a predetermined position and to swing the lower portion of the jack about the pivotal connection, formed by the plates 25 and bearing block 26, thereby moving the form laterally with respect to the carrier.

The expanding operation of the form is as follows: assuming the form in collapsed position as shown in Fig. 2 and the form has been advanced through the structure to an advanced location. The operating handle 24' of the jack 17 is manipulated so that the threaded extensions 22 and 23 move outwardly in a vertical direction of the barrel portion 24. The upward movement of the jaws 18 will raise the crown point 34 of the form while the downward vertical movement of the jaw 19 will force the bottom portion of the sections 2 and 3 outwardly by reason of the diverging braces 20—20 approaching a position substantially horizontal. If, after the form has been fully expanded it is not in alignment with the line of work, by a manipulation of the oppositely disposed screws 33, the jack 17 and diverging braces 20—20 will pivot upon the bearing plates 25 and thereby move the form laterally with respect to the carrier after which, if necessary, minor adjustments may be made by changing the length of the members 20. After the concrete has set sufficiently to warrant the removal of the form the ratchet jack is then operated so as to cause the extensions 22 and 23 to recede to a degree within the barrel portion 24. This operation will lower the crown point 34 of the form away from the concrete and move the jaw 19 upwardly, causing the lower portion of the sections 2 and 3 to move inwardly of the concrete structure through the braces 20—20, thereby collapsing the form inwardly and downwardly away from the concrete structure.

A modified form of the lateral adjusting means is shown by Figs. 5 and 6 of the drawings in which angular members 35 having a vertical disposed portion 36 are secured to the angular members 16 in spaced relation to the jack 17. Threaded rods 37, having nuts 38 abutting the portion 36 of the angular members 35, extend through the portions 36 and inwardly thereof toward the jack 17. Bars 39 are connected to the rods 37 and have, intermediate their ends, a portion 40 forming a frustum of a cone encasing the lower portion of the barrel 24. By a manipulation of the nuts 38

it will be readily apparent that the jack 17 will pivot on the plates 25 and thereby impart the lateral motion to the form.

By means of the herein described mechanism it will become apparent to one skilled in the art that the forms may be easily expanded and set in proper alignment with the proposed concrete structure to be built and readily collapsed and moved forward, in telescopic relation to forms already in place, to an advanced location.

Having thus described the invention what I claim as new and desire to secure by Letters Patent is:

1. In combination, a carrier and a collapsible form, means for collapsing and expanding said form comprising a jack pivotally mounted upon the carrier and pivotally connected to the form and diverging braces pivotally connected to the jack and form.

2. In combination, a carrier, and a collapsible form, means for collapsing and expanding said form comprising a jack mounted upon the carrier and pivotally connected to the form and adjustable diverging braces having a common pivotally connection to the jack and separate connections to the form.

3. In combination, a carrier, and a form hinged adjacent its vertical center for collapsing movement, means for collapsing and expanding said form comprising a jack pivotally mounted upon the carrier and pivotally connected to the hinge of the form and diverging braces connected to the jack and to the form adjacent the lower portion thereof.

4. In combination, a carrier and a form hinged adjacent its vertical center for collapsing movement, means for collapsing and expanding said form comprising a jack mounted intermediate its ends upon the carrier and having one end pivotally connected to the hinge of the form and diverging braces having a common connection to the opposite end of the jack and separate connections to the form.

5. In combination, a carrier and a collapsible form, means for collapsing and expanding said form about the carrier, said means comprising a jack pivotally mounted upon the carrier and pivotally connected to the form, diverging arms pivotally connected to the jack and form and means on the carrier adapted to afford lateral adjustment to the form.

6. In combination, a carrier and a collapsible form, means for collapsing and expanding said form comprising a jack mounted intermediate its ends upon the carrier for lateral movement and pivotally connected to the form and diverging braces pivotally connected to the form and jack and means on the carrier adapted to engage the jack to afford lateral adjustment to the form.

7. In combination, a carrier and a collapsible form, means for collapsing and expanding said form comprising a jack mounted upon the carrier for lateral movement and pivotally connected to the form, diverging arms pivotally connected to the form and jack and oppositely disposed screws on the carrier adapted to engage the jack.

8. In combination, a carrier and a collapsible form, means for collapsing and expanding said form comprising a vertically disposed jack pivotally mounted intermediate the upper and lower ends thereof upon the carrier, said upper and lower ends being pivotally connected to the form.

9. In combination, a carrier and a collapsible form, means for collapsing and expanding said form comprising a vertically disposed jack piv-

otally mounted intermediate the upper and lower ends thereof upon the carrier, said ends being pivotally connected to the form and means on the carrier adapted to afford lateral adjustment to the form.

10. In combination, a carrier and a collapsible form, means for collapsing and expanding said form, comprising a jack having a rotatable barrel portion mounted upon the carrier and pivotally connected to the form, diverging arms pivotally connected to the form and jack, and a yoke encasing the barrel portion of the jack and adjustably connected to the carrier on opposite sides of the jack.

11. In combination, a carrier and a collapsible form, means for collapsing and expanding said form, comprising a jack pivotally mounted upon the carrier and pivotally connected to the form, diverging arms pivotally connected to the form and jack and a yoke having a portion forming a

frustum of a cone encasing the barrel portion of the jack and adjustably connected to the carrier.

12. In combination, a carrier and a collapsible form, means for collapsing and expanding said form comprising a jack having a barrel portion rotatably mounted upon the carrier, an upper extension projecting from the barrel portion and pivotally connected to the form and a lower extension projecting from the barrel portion and pivotally connected to diverging braces, said braces being pivotally connected to the form adjacent the lower edge thereof.

13. The combination with a collapsible hinged form and a rigid carrier of a vertically disposed screw jack mounted on the longitudinal centerline of the carrier and comprising the sole support for the form, said jack being mounted for lateral movement upon the carrier and adjustably connected to the sides of the form.

LOUIS J. SAROSDY. 20