H. B. LOXTERMAN.

TUNNEL AND SEWER MOLD FORM.

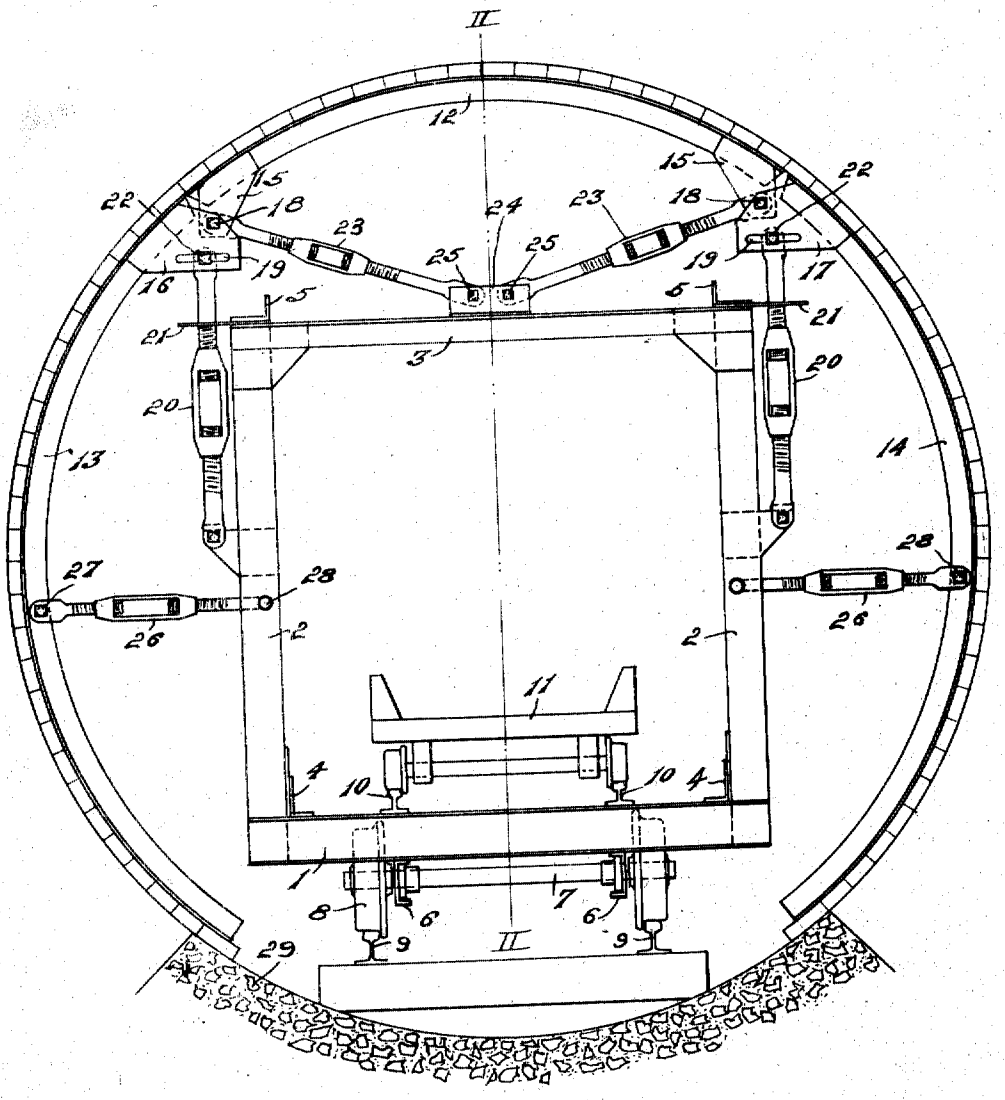
APPLICATION FILED MAY 9, 1916.

1,279,561.

Patented Sept. 24, 1918.

2 SHEETS—SHEET 1.

Fig. 1



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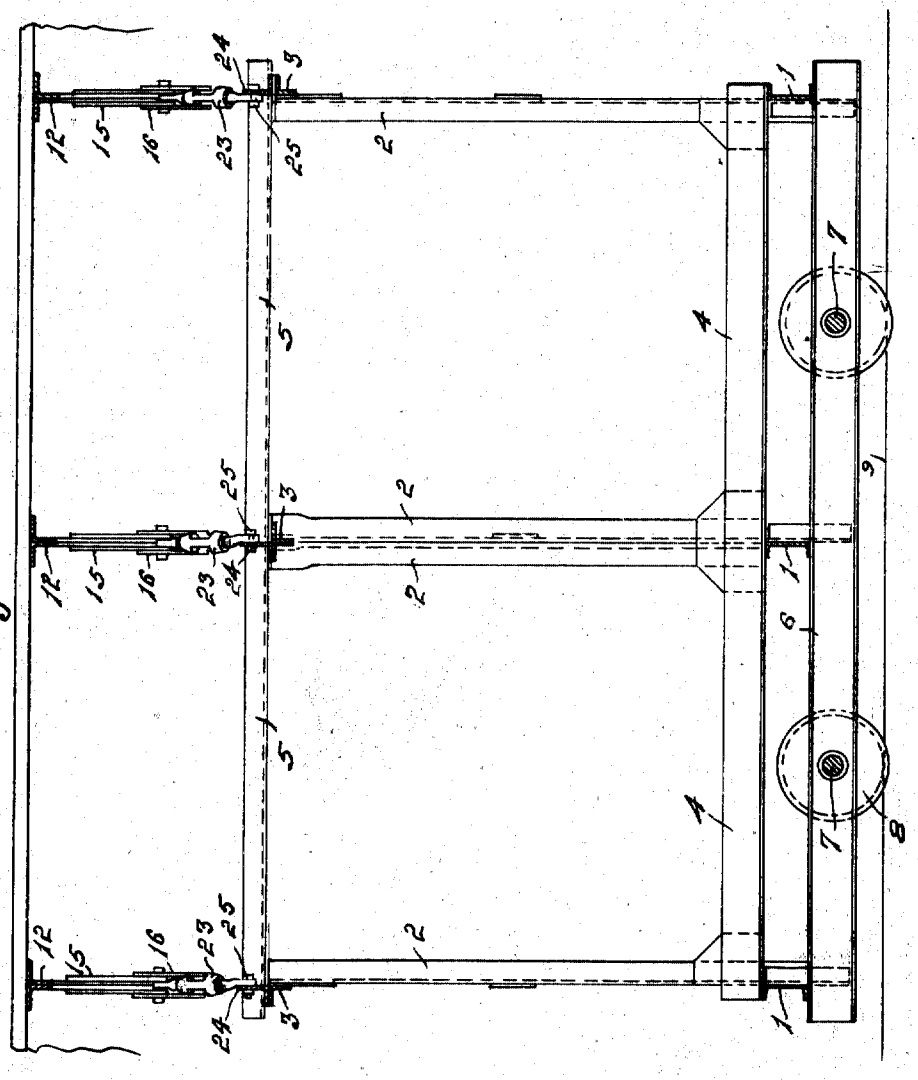


Fig. 2.

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TUNNEL AND SEWER MOLD-FORM.

1,279,561. Specification of Letters Patent. Patented Sept. 24, 1918.

Application filed May 9, 1916. Serial No. 96,384.

To all whom it may concern:

Be it known that I, HOWARD B. LOXTERMAN, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Tunnel and Sewer Mold-Forms, of which the following is a specification.

This invention relates to tunnel mold forms and more particularly to that class of mold forms used in making large tunnels and sewers, and has for its principal objects the provision of a mold form that is simple in construction and easily set up and assembled; the provision of a mold form that can be bodily adjusted laterally and vertically so as to be readily alined with portions of the finished tunnel; the provision of a mold form wherein form lagging may be applied as the concrete is being filled; the provision of a mold form having a traveler therefor adapted to carry a material truck; and such other objects as may hereinafter appear. One embodiment of the invention is illustrated in the accompanying drawings, wherein—

Figure 1 is an end view of the mold form in operative position, and Fig. 2 is a longitudinal section through the traveler and form on the line II—II of Fig. 1, showing the upper portion of the form.

Referring to the drawings, the tunnel form comprises a traveler and mold forms adapted to be carried by the traveler. The traveler consists of a series of rectangular frames each comprising a base channel 1, a pair of vertical angles 2, and a top connecting angle 3. These rectangular frames are connected together in spaced relation by means of longitudinal base angles 4 and longitudinal top angles 5.

Extending the full length of the traveler, and secured to the under side of the channel 1, are a pair of truck channels 6, upon which are mounted a pair of shafts 7. A pair of truck wheels 8 are mounted upon the ends of the shafts 7, and serve to carry the traveler over the rails 9 which extend longitudinally of the tunnel.

A pair of rails are mounted upon the upper side of the channels 1, for the purpose of supporting a material truck 11. This truck is used to convey material to different points on the traveler when the concrete is being filled in behind the mold form.

The mold form comprises frame members each consisting of three arcuate angles 12, 13, and 14 connected together by means of connecting plates 15 carried by the top angles 12 and by connecting plates 16 and 17 carried by the side angles 13 and 14, respectively. The plates are pivotally joined by means of bolts 18 which pass through the plates. The plates 16 and 17 are provided with horizontal slots 19. The mold frames are supported by vertically disposed jack screws or turn buckles 20, the lower ends of which are secured to the vertical angles 2 adjacent the center thereof, while the upper ends are guided and held against lateral movement by means of guide plates 21 secured to the top angles 3. The upper ends of the jack screws 20 are secured to the plates 16 and 17 by means of bolts 22 which pass through the ends of the screws and the slots 19 in the plates. By reason of this construction the forms may be moved bodily laterally. Vertical adjustment of the forms is secured by turning the turn buckles or jack screws 20 so as to either raise or lower them as the case may require.

The forms are further supported by means of jack screws or turn buckles 23, the upper ends of which are pivoted to the bolts 18 which connect the top forms 12 with the side forms 13 and 14, while the lower ends of the jack screws 23 are pivoted to plates 24 secured to the top angles 3 adjacent the center thereof. The jack screws are secured to the plate 24 by means of bolts 25.

The side forms 13 and 14 are held in operative position by means of jack screws or turn buckles 26 which are secured at one end to the angles 13 and 14 by means of bolts 27 and are secured at the other end to the vertical angles 2 of the traveler by means of the end 28 of the jack screw which is bent at right angles to the main body thereof and which passes through holes in the vertical angles 2. It will be seen that the side forms 13 and 14 may be readily moved out of operative position by turning the turn buckles 26. When tunnels are being constructed it is not always practical to aline the rails 9 with the line of the finished tunnel and it is necessary to adjust the form relative to the traveler so as to properly aline the forms with the finished tunnel. To do this all that is necessary is to lengthen one of the turn buckles or jack screws 23 and shorten the

other one, at the same time lengthening one of the turn buckles 26 and shortening the opposite one. The slot and bolt engagement of the turn buckles or jack screws 20 with the plates 16 and 17 permits of this lateral movement and after the form is in operative position the bolts 22 are tightened to hold the form in its proper position.

The form may readily be collapsed by first drawing in the side forms 13 and 14 and then turning the turn buckles or jack screws 20 to lower the top form, the turn buckles or jack screws 23 at the same time being turned to shorten them so that the form may be lowered. When the form is thus collapsed the traveler is moved into a new operative position and the form may then again be set up for a new operation. In the form illustrated, wood lagging boards are applied to the outer sides of the frame members 12, 13 and 14 as the concrete is being filled in. It is understood, of course, that the bottom section of the tunnel 29 of the tunnel is put down and the rails laid before the traveler is moved into the position forming the upper section of the tunnel. To facilitate the application of the concrete the traveler is constructed so that the truck 11 can be moved longitudinally thereof without any interference, and for this reason all supporting and adjusting mechanism for the form is carried on the outside of the traveler frame.

The traveler frame herein illustrated shows a traveler which supports two sections of the lagging boards and in some cases it may be desired to aline a number of travelers so that a long section of tunnel can be formed at the same time. In such a case all that would be necessary is to connect the travelers by any suitable connecting braces.

It is obvious that many changes may be made in the details of the construction without departing from the spirit of the invention and the invention is, therefore, not limited to the specific construction herein illustrated and described.

What I claim is:

1. A tunnel mold comprising a rigid traveler, a mold form supported upon the traveler for lateral movement with respect therewith and a pair of adjustable braces connected to the form and pivoted adjacent the center of the traveler whereby the form may be bodily moved laterally with respect to the traveler.

2. A tunnel mold comprising a rigid traveler, a mold form, jack screws adapted to support the form secured to the traveler and slidably attached to the mold form to permit lateral movement of the form with respect to the traveler, and means carried by the traveler whereby the form may be moved laterally with respect to the traveler.

3. A tunnel mold comprising a rigid traveler, a mold form, vertically disposed jack screws adapted to support and elevate the form secured to the traveler and slidably attached to the mold form to permit lateral movement of the form with respect to the traveler, and means carried by the traveler whereby the form may be moved laterally with respect to the traveler.

4. A tunnel mold form comprising a traveler comprising a rectangular frame construction having vertical side members and horizontal top and base connecting members, wheels for supporting the traveler, rail members carried by the base members adapted to receive a truck which may pass from one end of the traveler to the other, form members surrounding the frame, and adjustable supporting members connecting the form with the top and vertical members of the traveler adapted to support the form and hold it in operative position.

5. A tunnel mold form comprising a traveler comprising a rectangular frame construction having vertical side members and horizontal top and base connecting members, wheels for supporting the traveler, rail members carried by the base members adapted to receive a truck which may pass from one end of the traveler to the other, form members surrounding the frame, and adjustable supporting members connecting the form with the top and vertical members of the traveler adapted to support the form and hold it in operative position, the said supporting members being adapted to permit the movement of the form in any direction with respect to the traveler.

HOWARD B. LOXTERMAN.