

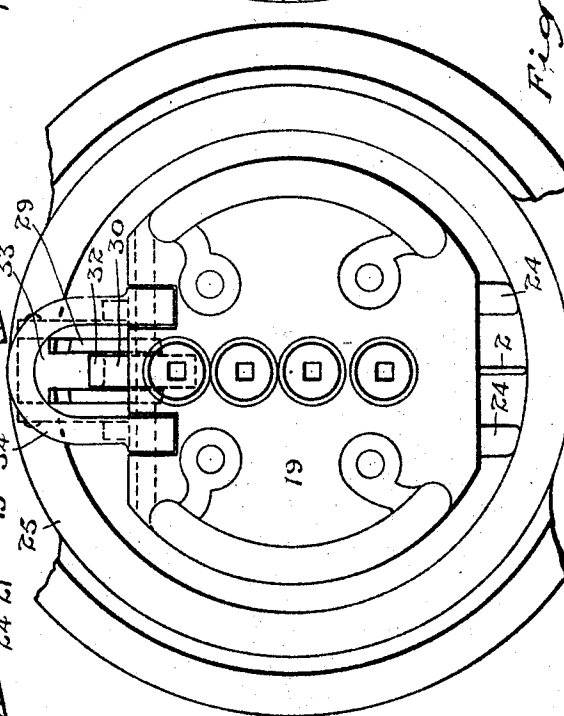
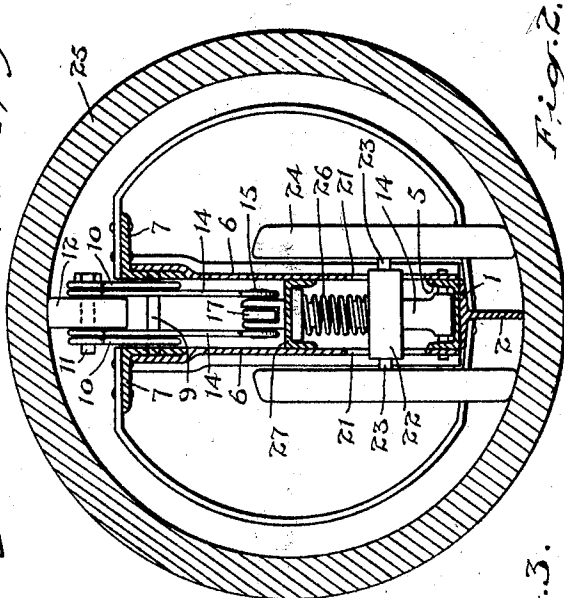
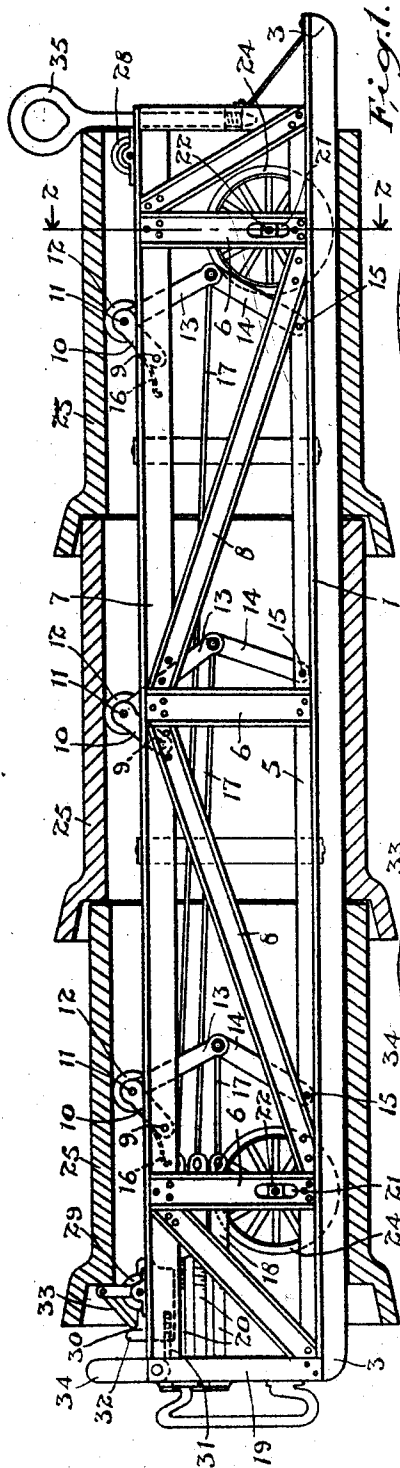
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A. G. DALZELL

PIPE LAYING DEVICE

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UNITED STATES PATENT OFFICE.

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PIPE-LAYING DEVICE.

Application filed September 19, 1924. Serial No. 728,731.

To all whom it may concern:

Be it known that I, ARTHUR G. DALZELL, a subject of the King of Great Britain, and resident of the city of Toronto, county of York, Province of Ontario, in the Dominion of Canada, have invented certain new and useful Improvements in a Pipe-Laying Device, as described in the following specification and illustrated in the accompanying drawings, that form part of the same.

The principal objects of the invention are to reduce the cost of laying sewer pipe and drain tile and to ensure an accurate alignment on the invert or bottom inner surface so that there will be no shoulders or obstruction to the free flow of the sewage or water passing therethrough.

A further and very important object is to devise a simple structure or device for handling the pipes in assembling, aligning, jointing and laying lines of pipe and which will be easy to operate and of strong and durable construction.

The principal feature of the invention consists in providing a rigid frame superimposed upon an aligning straight edge and mounted in said frame means for adjusting the pipe lengths individually to engage the straight edge and to hold them rigidly while being jointed and bedded into place.

A further feature of the invention consists in providing rolling contacts on the frame to facilitate the placing of the pipe lengths thereon and also to assist in the easy removal of the structure following the bedding in of the pipes.

In the drawings, Figure 1 is a longitudinal elevational view of my device showing a series of pipes in section mounted thereon.

Figure 2 is an enlarged cross sectional view taken on the line 2—2 of Figure 1.

Figure 3 is an enlarged front end elevation of the device shown within a pipe, the pipe being shown partly broken away.

The structure of the device as herein shown consists of a "straight edge" in the form of a T bar 1, the web 2 of which is rounded at the ends 3 and 4 so that the pipes will slip over the ends without catching.

A channel bar 5 is secured to the top side of the head of the T bar and a plurality of channel shaped uprights 6 arranged in pairs are secured to the flanges of the channel 5. A pair of angle bars 7 parallelly arranged and spaced apart are supported by the up-

rights 6 and rigid braces or truss members 8 extend angularly from the bottom channel to the top angles between the uprights, the whole forming a rigid girder structure.

Adjacent to the uprights 6, cross pins 9 extend between the vertical flanges of the bars 7 and on these are pivotally mounted the pairs of arms 10. Cross pins 11 connecting the paired arms 10 carry the rollers 12. A pair of links 13 are connected to each of the cross pins 11 and extend angularly downward and are pivotally connected at their lower ends to struts 14 which are pivotally supported on pins 15 extending between the flanges of the channel bar 5. The struts 14 and links 13 form toggles for swinging the roller carrying arms 10 on their pivots to raise or lower the rollers. Springs 16 are provided to depress the arms 10.

Rods 17 are connected to the pivot joints of the toggles and these extend substantially horizontally to one end of the frame and they are provided with threaded sleeve ends 18. An end plate 19 is secured to the frame end and in this plate are rotatably mounted the threaded rods 20 which engage the sleeves 18. The outer ends of the rods 20 are provided with suitable key sockets for turning same.

Certain of the uprights 6 are formed with vertical slots 21 and squared blocks 22 sliding in these slots and extending across the frame have journal ends 23 upon which are mounted the wheels 24. The wheels 24 are outside of the frame and have beveled peripheries to engage the curved inner wall of the pipes 25. Compression springs 26 are arranged between the blocks 22 and the cross plates 27 secured between the uprights. These springs press the wheels down so that they project below the straight edge 1 and form a rolling support for the frame but will allow the straight edge to be moved downwardly to align the pipes which are placed over the frame.

A wheel 28 is rigidly mounted on the top of the frame at one end and at the other end a wheel 29 is mounted in a block 30 slidably mounted on the top of the frame. The block is adjusted by means of a threaded rod 31 mounted in the plate 19. The block 30 is provided with a spur 32 at the outer end and a bail 33 connected to a pair of pivotal arms supported on the block is adapted to lock behind the spur.

A hoisting bail 34 is pivotally secured to

the plate 19 and an eye bar 35 is removably secured in the opposite end of the frame.

In the use of this device several lengths of pipes are assembled—on a fairly level surface with the spigot ends entered in the bells. The frame is then inserted into the assembled pipes, it being easily rolled on the wheels 24. The hoisting eye bar 35 is then secured in place bearing against the end of the pipe. The block 30 at the opposite end is then operated to draw the pipes snugly together. The toggle members are then operated by means of the rods 17 and threaded sleeves and rods 20 and the rollers 12 first engage the top inner surface of the pipes 1 and then force the straight edge into contact with the inner bottom side, compressing the springs 26, the wheels 24 lifting upwardly freely.

The lifting pressure is applied on the rods 20 until each pipe is forced against the bottom of the straight edge and as a toggle lift is arranged for each pipe length it is lifted individually no matter how much its diameter varies from the other adjoining pipes. The principal element is to have the invert true.

When the pipes are thus aligned they may be jointed with suitable material and as the frame forms a rigid core support the series of pipes held thereby may be rolled around to facilitate the work of jointing.

When the jointing has been completed the pipes may be hoisted and placed in position in the pipe line. The projecting end of the straight edge is inserted into the previously coupled work and ensures proper alignment of the added section. The eye bar 35 is then removed and the section properly jointed. When the joint is completed the section may be bedded in and tamped and firmly set before the frame is removed and all danger of breaking the joints is avoided.

In laying pipe in soft or shifty ground the frame may be left in the laid pipe and withdrawn a short distance at a time so that single lengths of pipe may be placed one at a time while the frame remains in the completed section.

It will be readily understood that with a device such as described the laying of pipe will not only be greatly facilitated but that a much more permanent installation will be effected.

What I claim as my invention is:—

1. A pipe laying device comprising, a rigid frame having an aligning base, and individual means for lifting pipe lengths placed over said frame to hold the bottom inner surfaces in contact with the base.

2. A pipe laying device comprising, a rigid frame having an aligning base, and a plurality of individually operable upwardly movable members mounted on said frame adapted to lift pipe lengths placed over

said frame to hold the bottom inner surfaces in contact with the base.

3. A pipe laying device comprising, a rigid frame having an aligning base, a plurality of toggle members extending above the frame, and means for individually operating said toggles to lift the pipe lengths into engagement with the aligning base.

4. A pipe laying device comprising, a rigid frame having an aligning base, a plurality of toggle members extending above the frame, rollers mounted on said toggles to engage the inner wall of the pipe lengths, and means for individually operating said toggles for the purpose described.

5. A pipe laying device comprising, a rigid frame having an aligning base, a plurality of individually operable upwardly movable members mounted on said frame, and means extending to one end of the frame for operating said members.

6. A pipe laying device comprising, a rigid frame having an aligning base, a plurality of toggle members extending above the frame, rods connected to said toggles and extending to one end of the frame, and means for operating said rods.

7. A pipe laying device comprising, a rigid frame having an aligning base, a plurality of toggle members extending above the frame, rods connected to said toggles and extending to one end of the frame, threaded sleeves secured to said rods, and threaded members mounted on the frame and engaging said sleeves.

8. A pipe laying device comprising, a rigid frame having a central longitudinal straight edge at the bottom, upright guides, blocks slidably mounted in said guides, wheels journaled on said blocks, springs holding the wheels below the straight edge, and individually operable pressure members extending above the frame.

9. A pipe laying device comprising, a rigid frame having a central longitudinal straight edge at the bottom, spaced uprights, spaced longitudinal members secured to said uprights, arms pivoted between said longitudinal members, rollers carried by said arms, links pivotally connected to said arms, struts pivoted to said links and to the frame, and means for operating said struts, links and arms for the purpose specified.

10. A pipe laying device, comprising, a rigid frame having an aligning base adapted to extend beyond the pipe lengths assembled thereon and to form a support in the laid pipes, means carried by said frame adapted to individually support and hold the pipe lengths assembled thereon in a proper relative position, and means extending to the end of the frame for operating said individually operable members.

ARTHUR G. DALZELL.