

C. C. SIMPSON, JR.
MACHINE FOR CALKING PIPE JOINTS.
APPLICATION FILED APR. 2, 1912.

1,065,629.

Patented June 24, 1913.

4 SHEETS—SHEET 1.

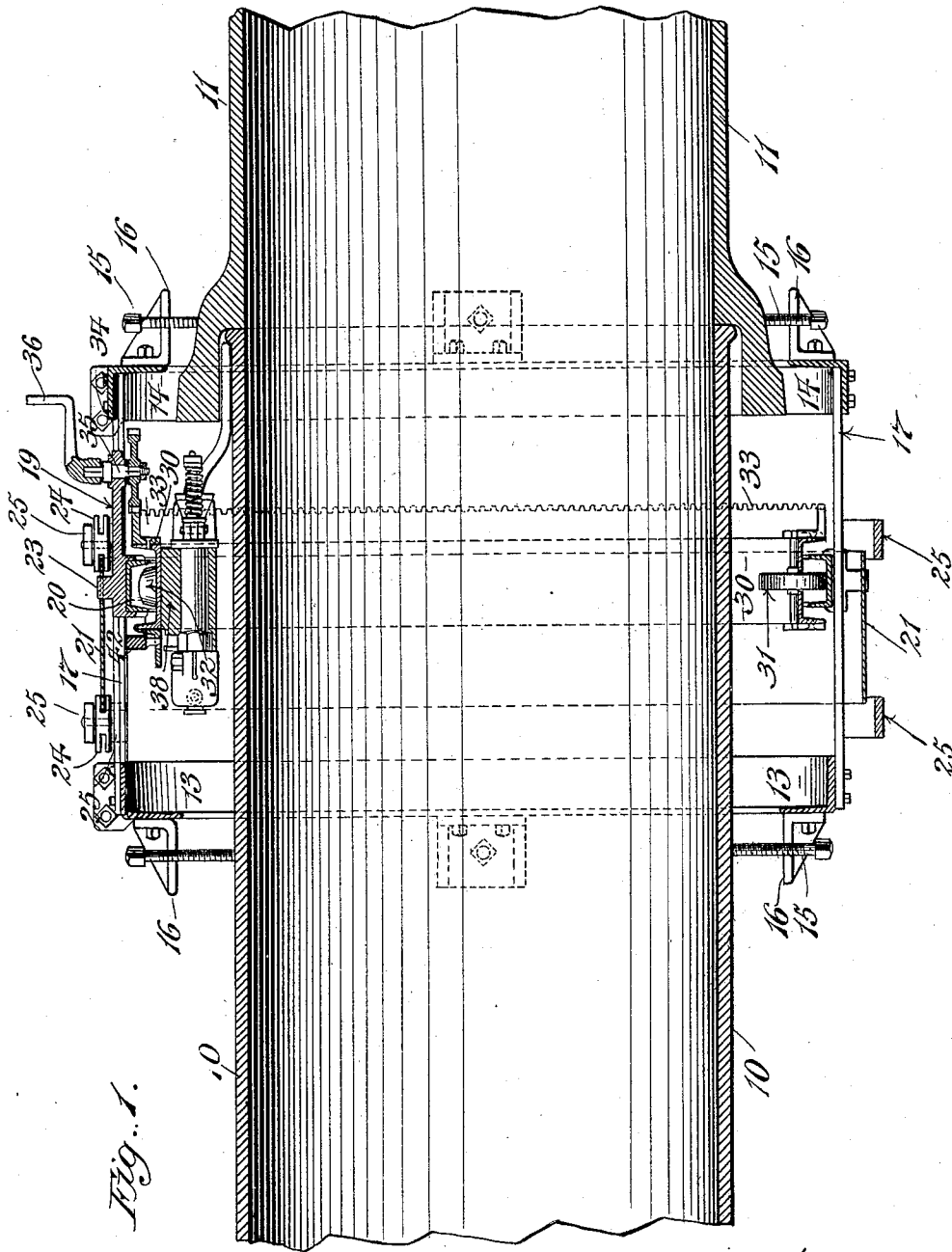


Fig. 1.

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Witnesses:
Edward Dowland
Katharine C. Mead

By his Attorneys,
Williamson, Fisher, Hutchinson and MacKey

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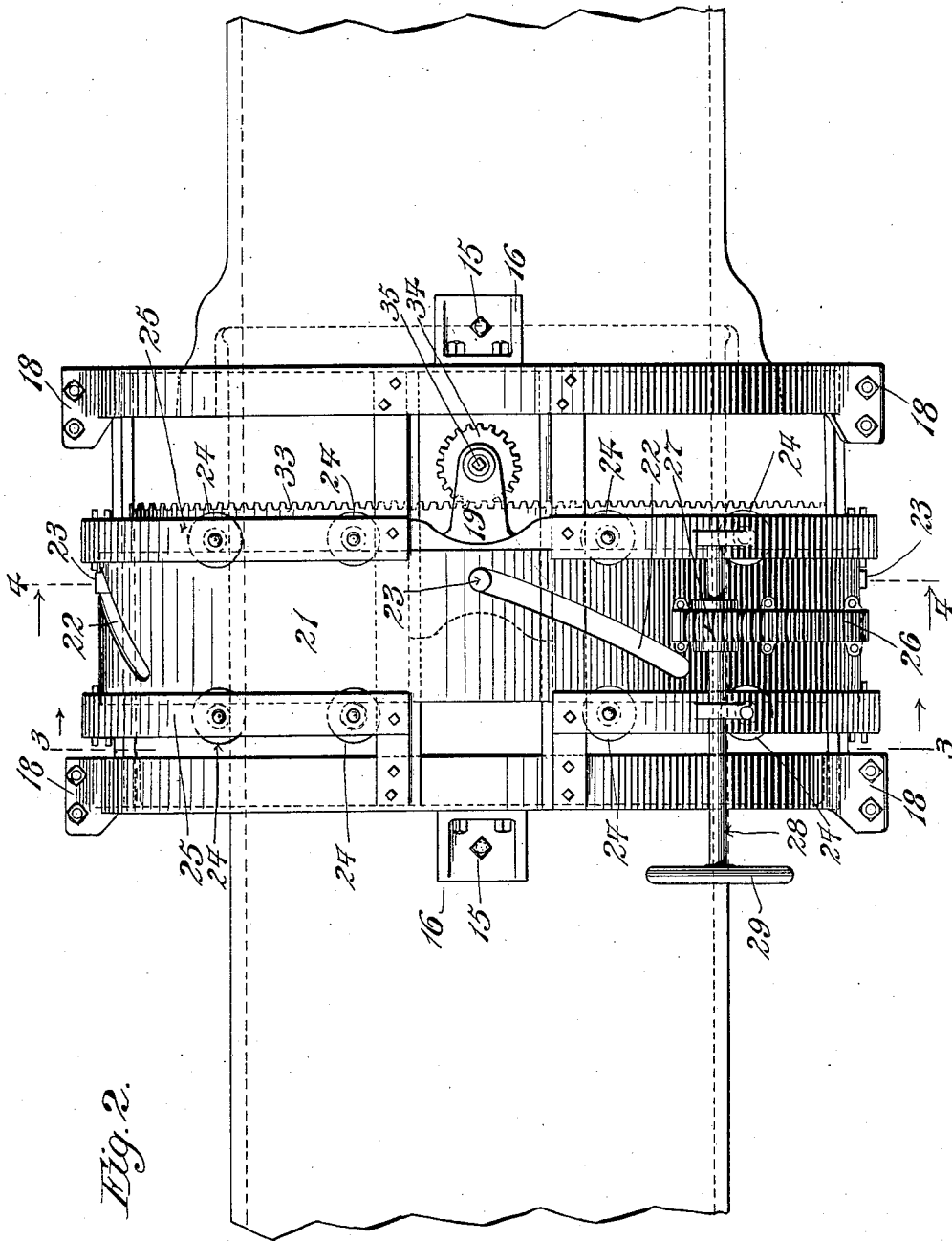


Fig. 2.

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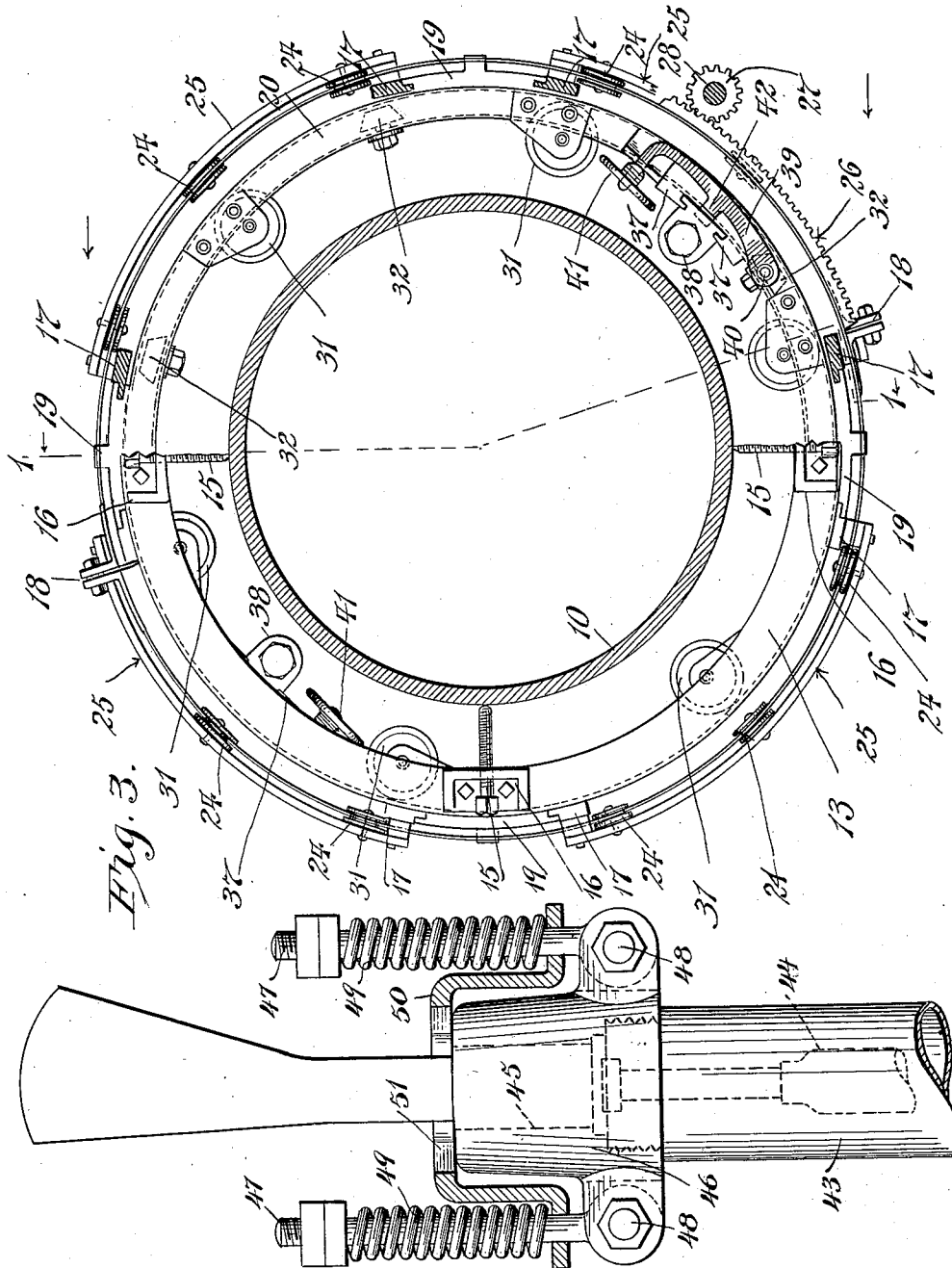
By his Attorney
Wilkinson, Fisher, Witherspoon and Mack Kaye

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Fig. 6.

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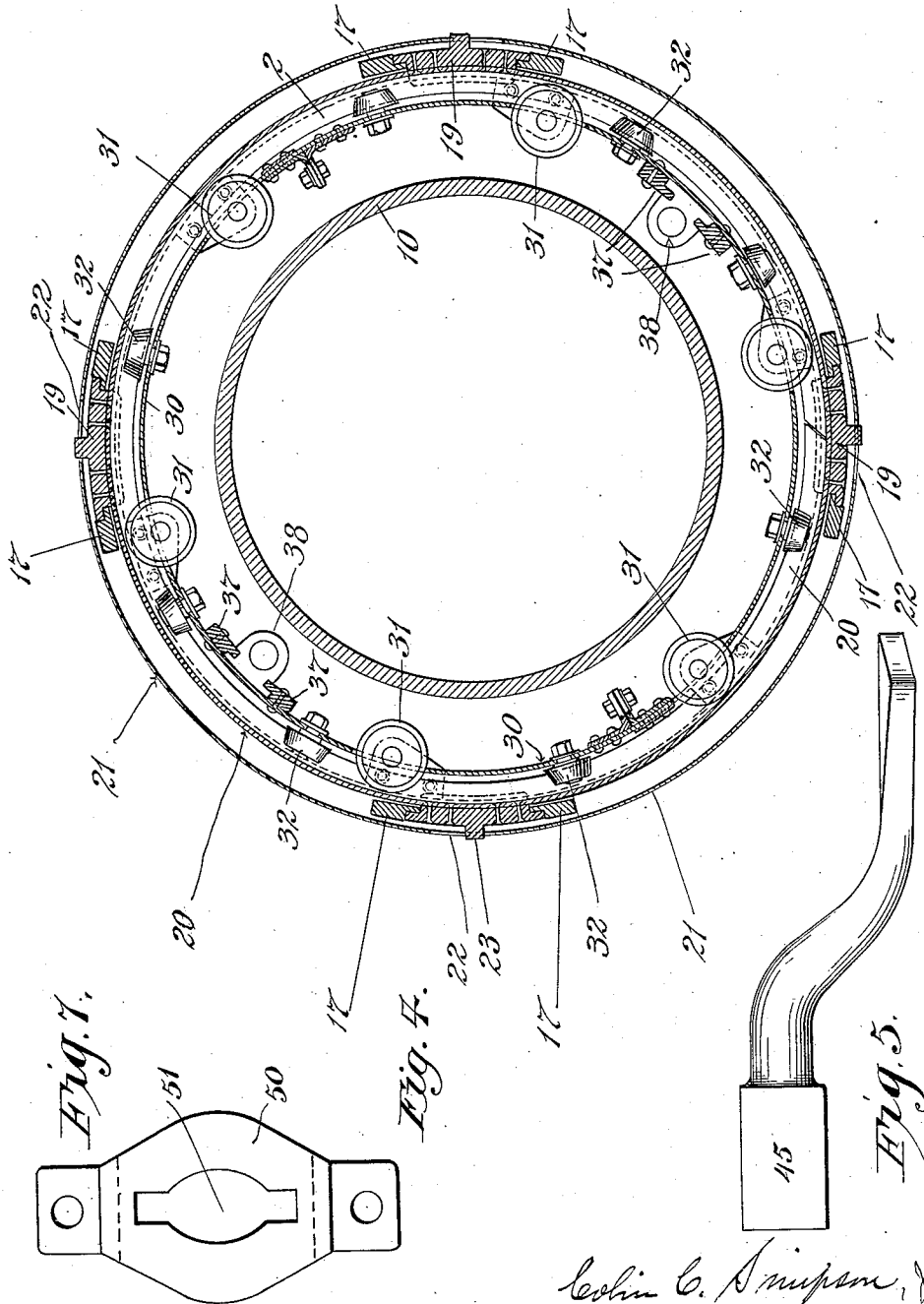
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

COLIN C. SIMPSON, JR., OF FLUSHING, NEW YORK.

MACHINE FOR CALKING PIPE-JOINTS.

1,065,629.

Specification of Letters Patent.

Patented June 24, 1913.

Application filed April 2, 1912. Serial No. 688,095.

To all whom it may concern:

Be it known that I, COLIN C. SIMPSON, JR., a citizen of the United States, residing at Flushing, in the borough of Queens and State of New York, have invented certain new and useful Improvements in Machines for Calking Pipe-Joints; 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.

Where pipes for conveying water and for similar purposes are laid in the ground, considerable difficulty is experienced in properly tamping the joints so as to render them thoroughly tight. This difficulty is largely due to the inaccessibility of certain parts of the joints between pipe sections laid in a narrow trench. Various machines have been proposed with a view to successful solution of this problem, all of which present disadvantages which it is the object of the present invention to overcome.

My improved apparatus is capable of being conveniently mounted upon pipe sections for applying automatic power devices conveniently, rapidly and uniformly to the operation of tamping of the joints between such sections, after which the apparatus may be conveniently removed for the purpose of applying it to another section for repetition of the operation.

My machine is so constructed as to facilitate the use of various types of power devices which can be easily assembled therewith and removed therefrom, as well as being particularly designed to permit the insertion of tamping tools of different sizes and shapes easily and quickly.

It is a further advantage of my construction that it lends itself to guidance of the tool either by hand or power, making it possible to vary the degree of tamping in different parts of the joint at will.

My present invention also includes means whereby the entire tamping engine may be brought up to its work or withdrawn therefrom with great ease in any position, and also covers means whereby a tamping engine of definite stroke is accommodated to use with materials which are not uniform in resistance, and for preventing all danger of the end of the tool sticking to the tamping material.

The invention is illustrated in a preferred

embodiment in the accompanying drawing wherein—

Figure 1 is a longitudinal section on the line 1—1 of Fig. 3, Fig. 2 is a plan thereof, Fig. 3 is a cross section on the line 3—3 of Fig. 2, Fig. 4 is a cross section on the line 4—4 of Fig. 2, Fig. 5 is a side view of one form of tamping tool, Fig. 6 is a plan view of the tool holder with the yoke in section, and Fig. 7 is an elevation of the yoke.

Two abutting sections of pipe are shown at 10 and 11, the end of the pipe 10 fitting in the usual manner into the enlarged end 12 of the pipe 11.

The foundation of the apparatus comprises a fixed frame, made in two or more parts supported upon the pipes by an adjustable mounting. In the preferred form shown this consists of the two fixed rings 13 and 14, mounted upon the powerful set screws 15 in the supporting brackets 16. These rings are united at suitable intervals by bridging bars 17 riveted to the rings. The rings are made in separable halves provided with out-turned lips 18 adapted to come together flat to be suitably clamped together, so as to unite the rings around the sections of pipe, one after the other.

Preferably at two or more points in the circumference the bridging bars 17 are made to serve as guides for slides 19 which support a circular track 20, preferably U shaped in cross section and opening inward. In the form shown four of these slides are shown. The inner ends of the slides 19 and the track 20 are surrounded by a ring shaped cam band 21 provided with as many inclined cam slots 22 as there are slides, and each slide has a projection 23 riding in one of these slots. The edges of the band 21 ride in slotted pulleys 24, carried by supplemental rings 25, and the band carries a rack 26 engaging with a pinion 27 on the shaft 28 mounted upon the supplemental rings and adapted to be rotated by the hand wheel 29. By turning the wheel 29, the cam band is made to turn about the axis of the pipe 10, and the edges of the slots 22 cause the slides 19 to move toward or away from the pipe 11, carrying the track 20 with them.

An engine-carrying ring 30 is supported within the track 20 by means of the wheels 31, and is steadied against the sides of said track by the rollers 32. The outer edge of the ring 30 is provided with a circular rack

33 which meshes with a pinion 34 having a shaft 35 rotatably supported by one of the slides 19. By turning this shaft either by power or hand, the ring 30 may be revolved around the pipe 10. In the drawing I have shown a removable crank 36 for the purpose of turning these parts by hand. At such intervals as may be desired, and preferably at points diametrically opposed, as shown in Fig. 4, guiding brackets 37 are provided on the rotatable ring 30, forming supports onto which the bodies 38 of the tamping engines are slid into place, being there secured in any desired manner, but preferably as shown in Fig. 3. For this purpose a fastening lever 39 is pivoted at 40 near each pair of brackets 37, the end of said lever projecting inward through the ring 30, and terminating in a screw which is engaged by a nut 41. The lever 39 has a projection 42 which may be drawn inward by means of the nut 41, through an opening in the ring 30, so as to enter a suitable cavity in the top of the tamping engine body 38 as shown in Fig. 3. The particular nature of the tamping engine employed is not an essential of this invention, so long as a percussive engine is used whereby repeated blows may be dealt in a well known manner upon the tamping material. An electric engine or a pneumatic engine is suitable in this connection. In Figs. 1 and 6 I have indicated in a general manner a pneumatic hammer having a cylinder 43 and an interior reciprocating member 44 which strikes upon the inner end of a suitable removable tamping tool 45, passing into a socket in the tool holder 46. This makes it possible to use tools of different shapes and dimensions in accordance with the particular circumstances in any case.

The holder 46 is furnished with two forwardly projecting spring rods 47 which are preferably pivoted to the holder, as at 48. Upon these rods are carried the springs 49, one end of each of which bears upon one end of the yoke 50, while the outer end of each spring is confined by a nut threaded onto the end of each rod 47, whereby the pressure of each spring may be regulated at will.

The yoke 50 has an opening 51, through which the end of the tamping tool may be thrust from left to right in Fig. 6; and the forward end of the base of the tool 45 abuts upon said yoke, so that the yoke moves forward and compresses the springs 49 at each forward stroke of the tools. The result of this arrangement is that the tool 45 is positively returned after each stroke and prepared for the next blow of the interior movable element of the tamping engine, and all danger of the tool sticking in the tamping material is prevented.

The apparatus described can be applied to

pipes already in place, and furnishes easily operated means whereby one or more power tools may be rapidly moved along the working path in either direction, and whereby such tools may be pressed up to or drawn away from their work. Also, the interchange of engines and of tools is easily effected.

Various changes may be made in the construction and arrangement of my apparatus, and I do not confine myself to the details herein shown and described.

What I claim is—

1. A device of the class described comprising a foundation frame adapted to be suitably centered and mounted upon a pipe, a guiding track supported thereon, an engine-carrying ring adapted to run in said track, a tamping engine carried by said ring, and means for causing said ring and engine to travel around said frame, substantially as described.

2. A device of the class described comprising a foundation frame adapted to be suitably centered and mounted upon a pipe, slides on said frame, a guiding track fastened to said slides, means for causing said slides and track to move transversely of the frame, an engine-carrying ring adapted to run in said track, a tamping engine carried by said ring, and means for causing said ring and engine to travel around said frame, substantially as described.

3. A device of the class described comprising a foundation frame adapted to be suitably centered and mounted upon a pipe, slides on said frame, one or more tamping engines supported by said slides, and means for causing said slides and engine or engines to move transversely of said frame, substantially as described.

4. A device of the class described comprising a foundation frame adapted to be suitably centered and mounted upon a pipe, a guiding track supported thereon, an engine-carrying ring adapted to run in said track and having one or more open supports for engines, a tamping engine adapted to be carried by any one of said supports, and means for causing said ring and engine or engines to travel around said frame, substantially as described.

5. A device of the class described comprising a foundation frame adapted to be suitably centered and mounted upon a pipe, a guiding track supported thereby, an engine carrying track adapted to run in said first named track and having a suitable rack on its edge, a pinion engaging said rack, and one or more tamping engines carried by said ring, substantially as described.

6. A device of the class described comprising a foundation frame adapted to be suitably centered and mounted upon a pipe, a U shaped track on said frame, an engine-

carrying ring having wheels and rollers for supporting said ring in said track and bearing against the bottom and sides of said track respectively, and a tamping engine carried by said ring, substantially as described.

7. A device of the class described comprising a foundation frame adapted to be suitably centered and mounted upon a pipe, and comprising fixed rings and bridging bars uniting them, slides carried by said bars, a track carried by said slides, an engine-carrying ring adapted to run on said track, and a tamping engine on said ring, substantially as described.

8. A device of the class described comprising a foundation frame adapted to be suitably centered and mounted upon a pipe, a cam band mounted to travel in said frame and having an inclined slot, a slide on said frame having a projection in said slot, a track on said slide, a traveling ring on said track, a tamping engine on said ring, means for turning said ring and means for turning said cam band, so as to cause said slot to move said slide, substantially as described.

9. A device of the class described comprising a foundation frame adapted to be suitably centered and mounted upon a pipe, a cam band mounted to travel around said frame, a slide engaging with said cam band, a tamping engine supported by said slide, and means for causing said cam band

to travel around said frame to operate said slide, substantially as described.

10. A device of the class described comprising a foundation frame adapted to be suitably centered and mounted upon a pipe, a cam band mounted to travel around said frame, a rack on said band, a fixed pinion engaging said cam band and tamping engine supported by said slide, substantially as described.

11. In a device of the class described an engine-carrying ring having an open support, a removable tamping engine adapted to slide into place on said support, a lever pivoted to said ring and having a locking portion for engaging said engine to hold it in place, and means for fastening said lever to lock said engine, substantially as described.

12. In a device of the class described a foundation frame, slides thereon, a track carried by said slides, an engine-carrying ring in said track having a rack, a revolvable shaft mounted on one of said slides and having a pinion meshing with said rack, and a tamping engine on said ring, substantially as described.

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

COLIN C. SIMPSON, JR.

Witnesses:

FRANK HOLDENECKER,
R. M. WILSON.