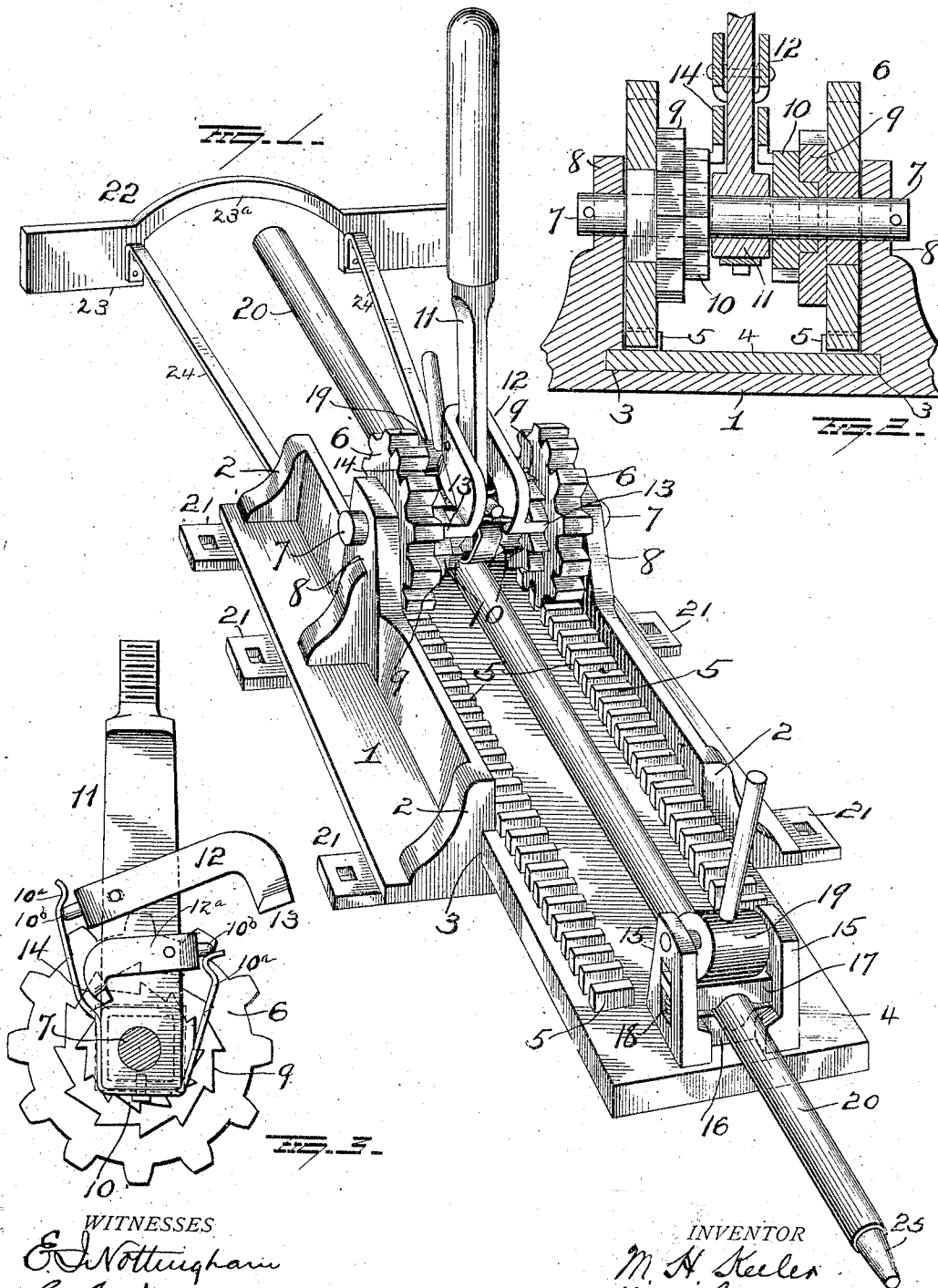


M. H. KEELER.
MACHINE FOR LAYING PIPES.
APPLICATION FILED OCT. 19, 1910.

1,015,893.

Patented Jan. 30, 1912.



WITNESSES
E. Nottingham
C. J. Downing

INVENTOR
M. H. Keeler
By H. A. Seymour
Attorney

UNITED STATES PATENT OFFICE.

MORRIS H. KEELER, OF SABETHA, KANSAS.

MACHINE FOR LAYING PIPES.

1,015,893.

Specification of Letters Patent.

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Application filed October 19, 1910. Serial No. 587,967.

To all whom it may concern:

Be it known that I, MORRIS H. KEELER, of Sabetha, in the county of Nemaha and State of Kansas, have invented certain new and useful Improvements in Machines for Laying Pipes; 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.

This invention relates to machines for laying pipe,—the object of the invention being to provide a machine which can be operated to push a pipe, such as a gas or water pipe, through the ground from one ditch or excavation to another.

With this and other objects in view the invention consists in certain novel features of construction and combinations of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a machine embodying my improvements. Fig. 2 is a transverse sectional view, and Fig. 3 is a detail view.

1 represents a base on which rails or flanges 2 are located parallel with each other and spaced apart,—each of said rails or flanges being provided in its inner face with a groove 3. A longitudinally movable member 4 is mounted on the base 1 between the flanges 2 and is guided in the grooves 3 in said flanges,—such construction insuring the accurate longitudinal movement of the member 4 and preventing the same from having either lateral or vertical play. The member 4 is provided with two rows of teeth which form rack-bars 5 to be engaged by gears or pinions 6. These pinions or gears are mounted on a shaft 7 having its bearings in standards 8 on the flanges 2 preferably some distance removed from respective ends of said flanges. The gears or pinions 6 are provided in their inner faces with angular recesses for the reception of similarly shaped hubs on ratchet wheels 9 and the latter are provided in their inner faces with annular recesses to receive similarly shaped hubs on other ratchet wheels 10. The ratchet wheels are secured together and to the gears or pinions 6. One end of a lever 11 is mounted loosely on the shaft 7 between the inner ratchet wheels 10 and this lever has loosely mounted thereon so as to embrace the same, a bail 12, the respective

arms of which constitute dogs 13 to engage the respective ratchet wheels 9. Another bail 12^a forming dogs 14 is carried by the lever for engaging the inner ratchet wheels 10. Springs 10^a are employed for the dogs, said springs being fixed at one end and adapted near their free ends to engage pins 10^b on the bails 12, 12^a, so that one pair of dogs or the other can be held out of operative relation with their ratchet wheels while the other dogs are disposed in operative relation to their ratchet wheels. It is apparent that as one pair of dogs is in operative relation to one pair of ratchet wheels and the lever is operated, motion will be transmitted through the gears or pinions 6 and rack-bars 5 to the member 4 for moving the latter in one direction. The teeth of the ratchet wheel 10 are disposed in the opposite direction from those of the ratchet wheel 9, so that when the dogs 14 are in engagement with the ratchet wheels 10 and the dogs 13 are out of engagement with the ratchet wheels 9 and the lever is oscillated, the member 4 will be moved longitudinally in the reverse direction.

Located at each end of the member 4 are two standards 15 15, between which clamping jaws 16 and 17 are disposed. The clamping jaw 16 is fixed and the clamping jaw 17 is vertically movable,—springs 18 tending to move the upper jaw 17 upwardly. A cam 19 is mounted between the standards 15 over the movable clamping jaw 17 and is provided with a suitable lever for turning it to clamp a pipe 20 between the jaws. The machine is placed in a ditch or excavation and may be anchored therein by means of suitable spikes passed through perforated lugs 21 on the base 1 and driven into the ground. If desired a back-brace 22 may be employed,—said brace comprising members 23 to be driven into the side walls of the excavation, an arched member 23^a connecting the members 23 and extending from side to side of the excavation so as to permit the passage of the pipe under it, and rods 24 extending from these members to one end of the base 1 of the machine.

After the machine has been anchored in the ditch or excavation, a section of pipe is passed through the clamps at respective ends of the member 4 and caused to project a suitable distance beyond the forward end of the latter. The forward end of the pipe is provided with a pointed plug 25. The

lever 11 will now be oscillated and the member 4 moved forwardly step by step to cause the pipe secured to said member 4 to be pushed into the ground forwardly of the ditch or excavation. When the member 4 shall have reached the forward end of its throw, the clamps at respective ends of said member will be operated to release the pipe and, after shifting the dogs, the lever 11 will be again oscillated and the member 4 moved back under the pipe. The clamps will then be operated to again secure the pipe to the member 4 and, after the dogs shall have been again shifted, the oscillation of the lever 11 will cause the member 4 to again move forwardly and the pipe to further penetrate the ground.

When it is desired to lay a lead pipe, the machine will be operated to force an iron pipe through the ground from one excavation to another, in the manner above explained. The pointed plug will then be removed from the forward end of the rigid iron pipe and one end of a lead pipe will be coupled thereto. The machine will then be operated backwardly so as to pull the iron pipe back and thus thread the lead pipe through the hole made by the iron pipe.

Having fully described my invention what I claim as new and desire to secure by Letters-Patent, is,—

1. In a machine for laying pipes, the combination with a base, a longitudinally movable carriage thereon provided with two rack bars, and with clamping jaws for rigidly clamping a pipe between them and restraining it against endwise movement in either direction with relation to the clamp,

of a shaft mounted on the base, gear wheels on the shaft which mesh with the rack bars, two ratchet wheels having their teeth arranged in opposite directions connected with each gear, and pawls connected with the operating lever and adapted to engage the ratchet wheels, and positively move the carriage and pipe in either direction, substantially as set forth.

2. The combination with a base provided with standards, a carriage movable on said base, said carriage provided with two rows of rack teeth, and means for clamping a pipe to said carriage, of a transverse shaft mounted in the standards of the base, pinions on said shaft and meshing with the rack teeth on the carriage, two pairs of ratchet wheels on said shaft and rotatable with said pinions, a lever mounted on the shaft between the pairs of ratchet wheels, and two sets of dogs coöperating with the ratchet wheels of the respective pairs, and all of said dogs disposed to be operable by said lever to turn the pinions in one direction or the other.

3. The combination with a base, a carriage movable thereon, means for securing a pipe to said carriage, and means for moving the carriage, of an arched back brace, and means connecting said arched back brace with the base.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

MORRIS H. KEELER.

Witnesses:

J. C. LICHTY,
ROBT. BRESSECE.