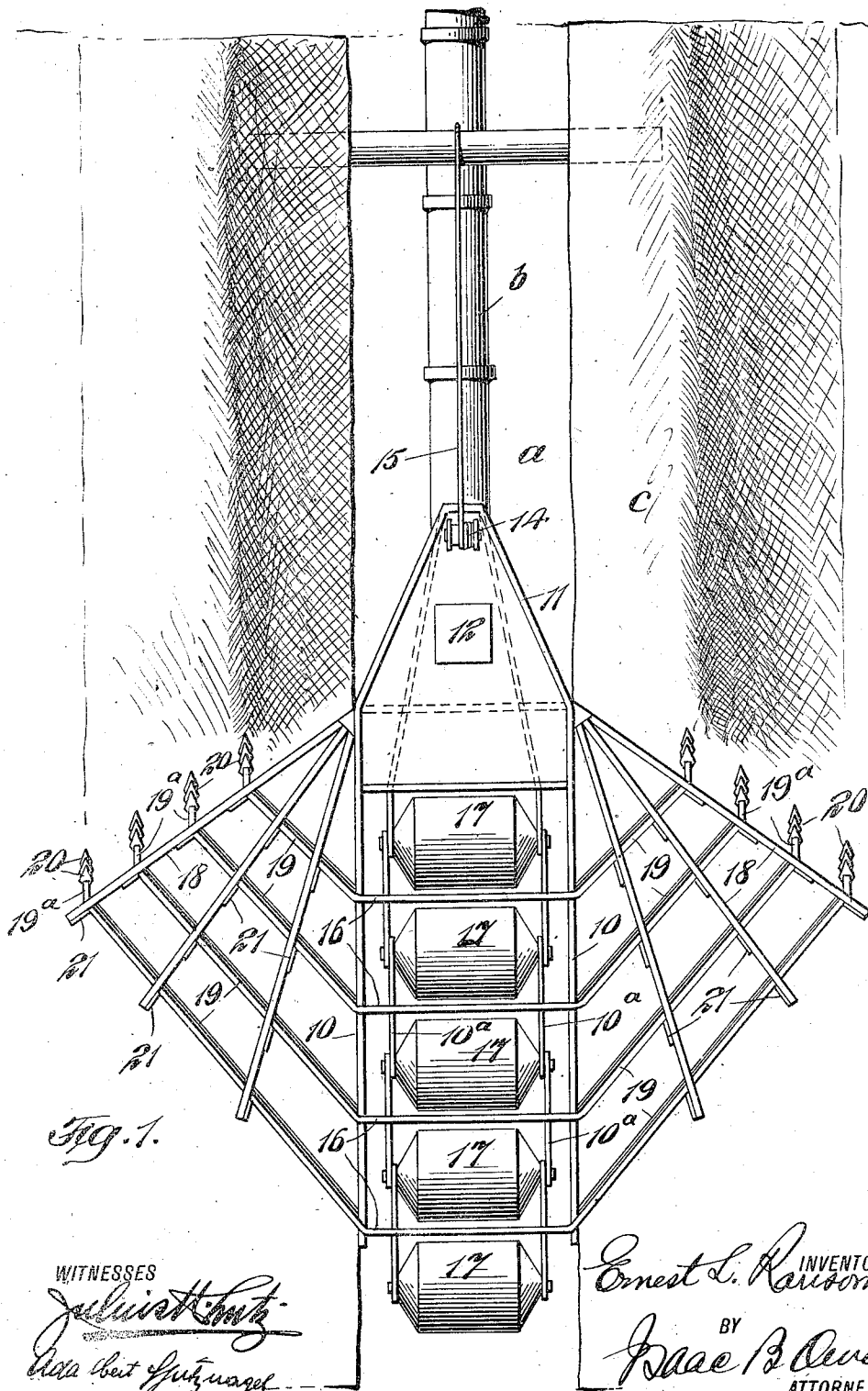


E. L. RANSOME.
 APPARATUS FOR FILLING TRENCHES.
 APPLICATION FILED JAN. 28, 1909.

Patented Nov. 15, 1910.

2 SHEETS—SHEET 1.

975,457.



WITNESSES
Julius H. Smith
Alfred H. Smith

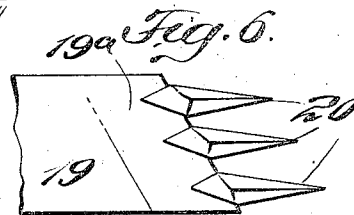
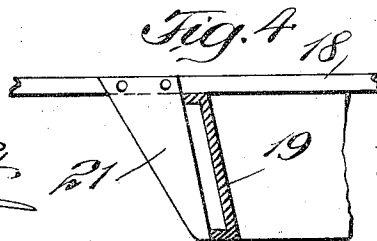
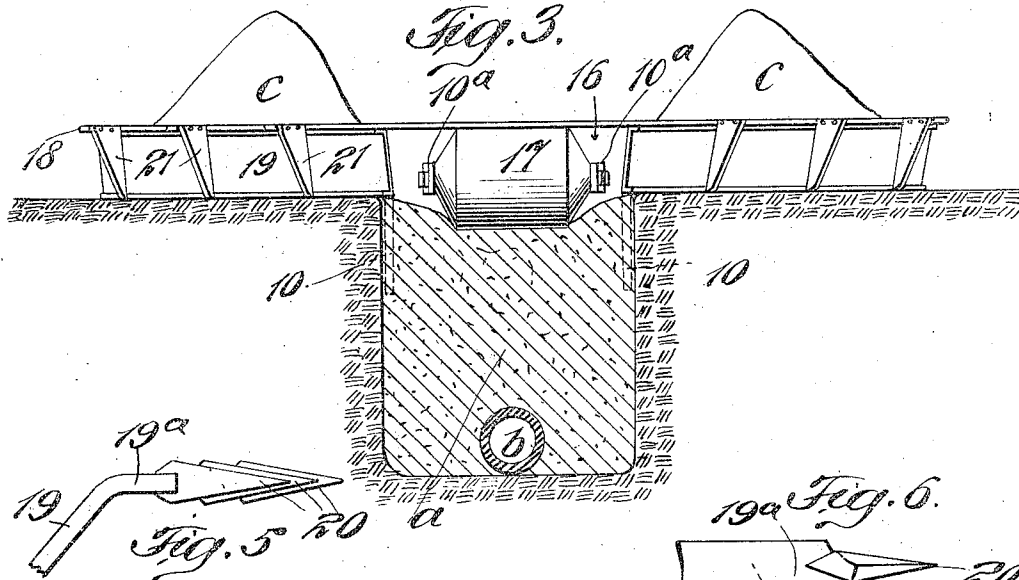
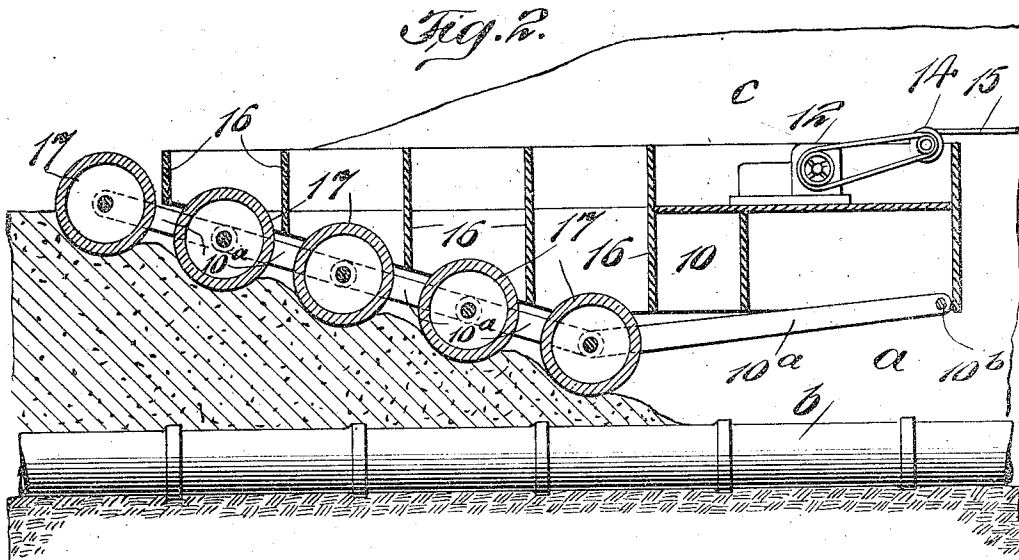
Ernest L. Ransome INVENTOR
 BY *Wm. B. Stevens* ATTORNEY

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WITNESSES
Julius H. [Signature]
Adrian J. [Signature]

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 Ernest L. Ransome
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UNITED STATES PATENT OFFICE.

ERNEST LESLIE RANSOME, OF NEW YORK, N. Y.

APPARATUS FOR FILLING TRENCHES.

975,457.

Specification of Letters Patent.

Patented Nov. 15, 1910.

Application filed January 28, 1909. Serial No. 474,853.

To all whom it may concern:

Be it known that I, ERNEST LESLIE RANSOME, of the borough of Richmond, in the city and State of New York, have invented certain new and useful Improvements in Apparatus for Filling Trenches, of which the following is a full, clear, and exact description.

My invention relates to a means for filling back into a trench the earth removed to form the same or for filling the trench with any other material which may be alongside of the same. Ordinarily in laying piping, for example, the earth is thrown up at each side of the trench and after the pipe is laid the earth is shoveled back. This requires much time and labor; but by my invention by simply advancing the machine along the trench the earth is not only thrown into the trench but tamped down, compactly filling the same.

The invention involves other features and advantages all of which will be fully set forth hereinafter and particularly pointed out in the claims.

Reference is had to the accompanying drawings which represent, as an example, the preferred form of the invention and in which drawings, Figure 1 is a plan view of the invention in use. Fig. 2 is a longitudinal section of the same. Fig. 3 is a rear elevation. Fig. 4 is a detail section of one of the wings and the brace therefor. Fig. 5 is an enlarged plan view of the preferred form of the shoveling blades and Fig. 6 is a side elevation of the same.

In these drawings *a* indicates the trench in which, for example, the pipe *b* may have been laid, while *c* indicates the earth thrown up on one or both sides of the trench.

The main frame-parts of the apparatus consist of side walls 10 which by preference extend into the trench along the sides thereof as shown in Fig. 2. The walls 10 terminate in a contracted front end 11 on which may be mounted an engine 12 for advancing the machine. This may be effected in numerous manners, but preferably by a drum 14 and cable 15, the former geared with the engine and the latter anchored ahead of the machine by any suitable means. Between the walls 10 rigid transverse division plates 16 are placed. The walls 10 are adapted to enter the trench so that their upper edges lie at about the normal level of the earth or what is known as

the grade line, so that the earth to be thrown into the trench may be moved over the upper edges of the said walls. The division plates 16, however, extend upward above the grade line to receive the filling earth between them and are gradually reduced in width from the front toward the rear.

Below the frame are two series of longitudinally disposed articulated links 10^a which mount the tamping rollers 17 under the frame of the machine so that the rollers may range upward toward the rear. This upwardly inclined disposition of said parts is due to and in accordance with the slant which is taken by the earth as it is thrown into the trench, all of which appears from Fig. 2 of the drawings. The forwardmost links 10^a are articulated to the front end of the frame 10 as at 10^b and by these means the tamping rollers 17 are drawn ahead with the machine. The rollers bear by gravity on the loose earth and serve to pack the same. By means of the links 10^a the rollers are allowed to give and pass over any obstruction in their path.

As shown best in Fig. 1, brace rods 18 extend outward and rearward from the front of the frame in fan-like disposition and are attached to and retain in position the shoveling wings or blades 19. These braces are attached to and may be considered as extensions of the upper side edges of the division plates 16 and extend forward from the same approximately at angles of 45° or at any other suitable inclination. The shoveling wings or blades 19 are of varying length increasing progressively from the front toward the rear and are arranged to lie on or over the grade line, so that as the machine advances the blades each of them take their proportion of the earth and, owing to the inclination of the blades and the advance of the machine, the blades throw the earth inward over the upper edges of the walls 10^a and into the trench. Preferably the blades 19 are channel shaped as shown in Fig. 4 and arranged with their smooth faces forward, while the braces 18 are fastened to the blades and the latter stayed both at top and bottom by knees 21 engaging their flanged rear faces.

Figs. 5 and 6 show the details of the preferred construction at the forward or leading edges of the shoveling blades. These blades as shown in the drawings, particularly Figs. 1 and 4, slant forward and down-

ward slightly so that their lower edges precede the upper edges with the result that the tendency of the blades is to bear downward rather than to rise out of the piles of earth. At their front or leading edges the blades are preferably turned as at 19^a to lie parallel to the line of motion of the machine and are fitted with teeth 20 which serve to break the earth and thus reduce the resistance to the motion of the machine.

In the operation of the apparatus, it is placed over the trench as shown in the drawings and the cable 15 is anchored a suitable distance ahead. The motor 12 is then operated to draw the machine over the grade line. At this time the various blades 19 become operative and the earth is thrown in between the division plates 16 falling around the tamping rollers 17. These rollers pack or tamp the earth, respectively over the strata falling intermediate the walls 16. It will thus be seen that by the mere advance of the machine the earth is automatically thrown into the trench and simultaneously packed or tamped therein. When the anchor of the cable 15 is reached, the cable may be unwound from the drum 14 and the anchor again taken ahead.

In connection with this machine, it is pointed out that the two sets of blades being oppositely disposed work against each other. Each set, therefore, constitutes a means for preventing sidewise deflection of the other. My invention, however, is not limited to this double-gang blade arrangement and may readily be adapted to fill in earth from one side only of the trench.

Having thus described the invention what I claim as new and desire to secure by Letters Patent of the United States is—

1. An apparatus for filling trenches comprising a gang of obliquely disposed shoveling members of varying length and means for guiding the same on one side of the trench longitudinally thereof and for preventing sidewise displacement of said members.

2. A means for filling trenches comprising two obliquely disposed gangs of shoveling members of varying length said gangs adapted to move respectively at opposite sides of the trench and longitudinally thereof.

3. An apparatus for filling trenches adapted to move longitudinally of the trench and having a shoveling member to throw the earth into the trench and a tamping or compression member acting on the earth when thrown into the trench.

4. An apparatus for filling trenches adapted to move along the trench longitudinally thereof and having means for throwing the earth into the trench and a tamping roller running on the earth in the trench to compress the same.

5. An apparatus for filling trenches comprising means for throwing the earth into the trench and a gang of tamping devices following each other in the trench to compress the earth thrown thereinto.

6. An apparatus for filling trenches comprising means for throwing the earth into the trench in strata and a gang of tamping or compression rollers respectively acting on said strata.

7. An apparatus for filling trenches comprising means for throwing the earth into the trench in strata and a gang of rollers inclined upward toward the rear of the apparatus and respectively adapted to act on said strata.

8. An apparatus for filling trenches comprising a gang of shoveling blades of varying length, each designed to deliver into the trench a strata of earth and a gang of tamping devices the members of which are respectively adapted to act on said strata.

9. An apparatus for filling trenches comprising a gang of obliquely disposed shoveling blades increasing in length rearward and each adapted to deliver a strata of earth into the trench and a gang of tamping members inclined upward toward the rear and respectively adapted to act on such strata.

10. An apparatus for filling trenches comprising a frame adapted to run over the trench, gangs of oblique shoveling blades carried at each side of said frame and adapted to run over the grade line at the sides of the trench said blades increasing in length toward the rear and a gang of tamping rollers located in the trench and carried by the frame, such gang of rollers inclining upward toward the rear and its members respectively designed to act on the said strata.

11. An apparatus for filling trenches comprising an oblique shoveling blade adapted to move over the grade line at the side of the trench and furnished at its leading edge with teeth to break the earth and reduce resistance to the motion of the blade.

12. An apparatus for filling trenches comprising means movable along the trench for guiding the apparatus, a plurality of rearwardly and outwardly extending braces at each side thereof and a plurality of rearwardly and inwardly extending shoveling members at each side of said guiding means and connected thereto and having their outer ends terminating at varying distances from the trench.

13. An apparatus for filling trenches comprising means movable along the trench for guiding the apparatus, a plurality of rearwardly and outwardly extending braces and a plurality of rearwardly and outwardly extending shoveling members connected thereto and having their outer end portions extending forwardly substantially parallel to the trench.

14. An apparatus for filling trenches comprising means for throwing the earth into the trench and a gang of tamping devices following each other in the trench to compress the earth thrown thereinto.

prising means movable along the trench for guiding the apparatus, a plurality of braces and a plurality of rearwardly and inwardly extending shoveling members connected thereto and having their outer end portions extending forwardly substantially parallel to the trench.

15. An apparatus for filling trenches comprising a plurality of members extending transversely of the trench and each having its outer end portions extended outwardly and forwardly to constitute shoveling members.

16. An apparatus for filling trenches including a plurality of articulated links and a plurality of tamping rollers journaled therein and extending transversely of the trench and disposed therein.

17. An apparatus for filling trenches comprising means movable along the trench for guiding the apparatus, a plurality of rearwardly and outwardly extending braces secured thereto adjacent the front end thereof and diverging at their rear ends and a plu-

rality of rearwardly and inwardly extending shoveling members connected to said braces.

18. An apparatus for filling trenches comprising means movable along the trench for guiding the apparatus and a plurality of rearwardly and inwardly extending shoveling members secured thereto at successive points along the length thereof and serving for the transfer of separate portions of material to the trench.

19. An apparatus for filling trenches comprising a plurality of rearwardly and inwardly extending shoveling members at each side thereof and arranged one in front of the other and serving for the transfer of separate portions of material to the trench.

In testimony whereof I have signed my name to this application in the presence of two subscribing witnesses.

ERNEST LESLIE RANSOME.

Witnesses:

L. ORPHAL,

FLORENCE J. WALSH.