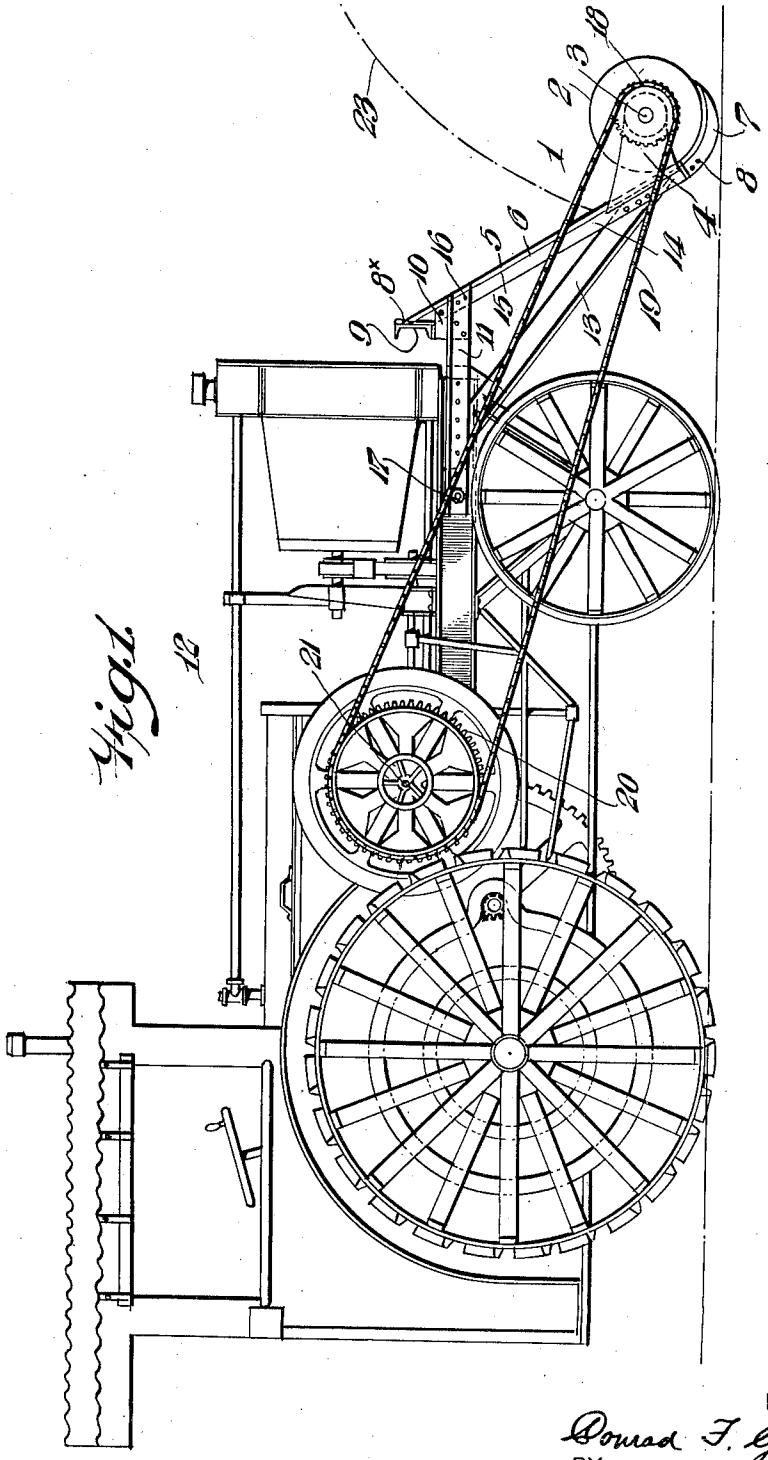
Dec. 1, 1925. 1,563,975

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DEVICE FOR BACK FILLING TRENCHES

Filed April 3, 1923 2 Sheets-Sheet 1



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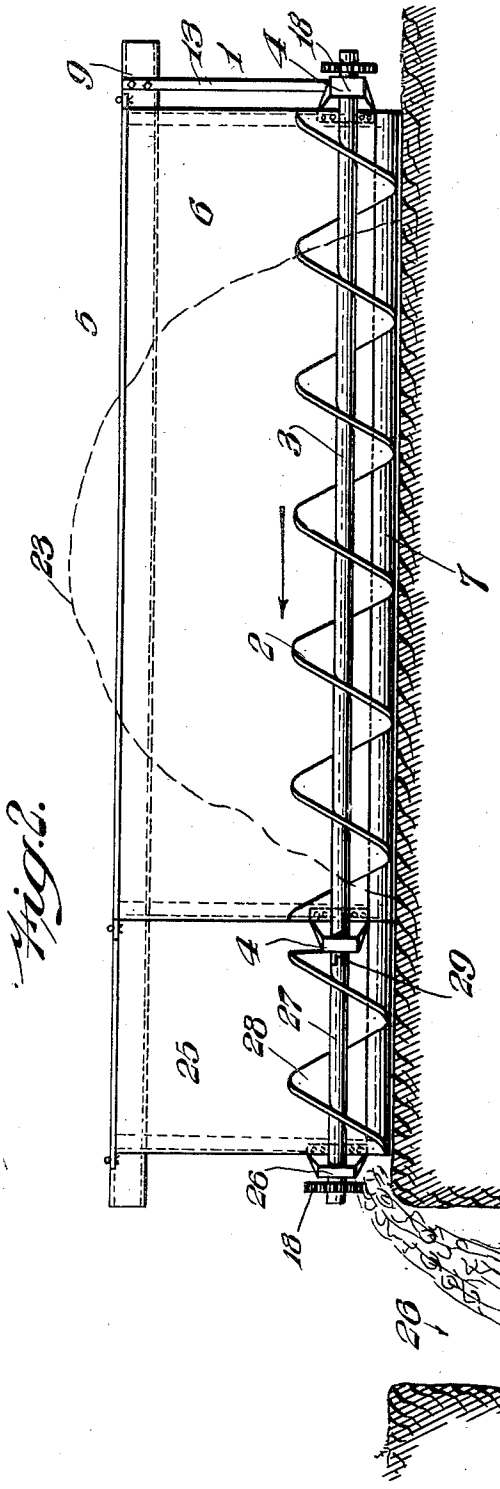


Fig. 2.

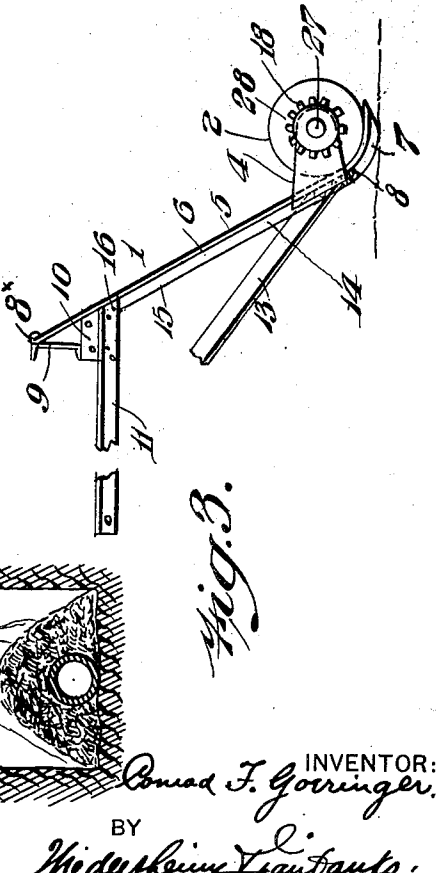


Fig. 3.

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UNITED STATES PATENT OFFICE.

CONRAD F. GOERINGER, OF WILKES-BARRE, PENNSYLVANIA.

DEVICE FOR BACK FILLING TRENCHES.

Application filed April 3, 1923. Serial No. 629,545.

To all whom it may concern:

Be it known that I, CONRAD F. GOERINGER, a citizen of the United States, residing at Wilkes-Barre, county of Luzerne, State of Pennsylvania, have invented a new and useful Device for Back Filling Trenches, of which the following is a specification.

My invention relates to a novel device for backfilling trenches, which can be mounted on a suitable portable engine, tractor or truck. In the construction of sanitary or storm water sewers, gas or water mains, the modern method of excavation is by use of a steam shovel or trench excavator, which lays the excavated materials to the side of the open trench. In refilling the trenches the present method is by hand, that is, shoveling the dirt back into the trenches by hand labor, or by the use of a so called backfilling machine which comprises a scraper device thrown over the bank and pulled to the trench by means of a cable.

The objections to machines of this type are very numerous, for instance, if the materials are of a wet or heavy nature, the scraper rides over the excavated material without penetrating the bank. This, of course, necessitates placing two men on the scraper, so as to force it into the materials, as a matter of fact, this method is necessary in 75% of the cases.

With my novel machine, regardless of the nature of the soil, it will penetrate in and convey it to the open trench because, the spiral conveyor employed continually revolving, is cutting into the bottom of the pile and the top dirt is of course falling on to said spiral conveyor, which carries it to the trench.

To the above ends my invention consists of a novel construction of a shield provided with a shaft and a conveyor rotatably mounted at its lower portion, said shield and conveyor being capable of having extensions applied thereto and being mounted on a suitable tractor or truck.

It further consists of other novel features of construction and advantage, as will be hereafter pointed out.

For the purpose of illustrating my invention, I have shown in the accompanying drawings one form thereof which is at present preferred by me, since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described.

Figure 1 represents a side elevation of a back filler embodying my invention.

Figure 2 represents a front elevation of Fig. 1, showing my invention detached from the tractor.

Figure 3 represents a side elevation of the back filler detached.

Similar numerals of reference indicate corresponding parts.

Referring to the drawings:—

In carrying out my invention, in connection with a back filler 1 of the class described, I mount the conveyor 2, on the shaft 3, whose ends are journalled in the arms or bearings 4, which are located at the ends of the sheet iron shield 5, which is comprised of the rearwardly inclined member 6, and the transverse bottom shoe or point 7, which is preferably made of steel tempered to the proper degree of hardness to withstand wear.

The point 7 is made detachable from the shield so that it can be renewed in case of wear, the position of the fastening means being indicated at 8. The shield 5 is secured at its upper end at 8^x to the transverse channel bar or the like 9, which is supported upon the cross bar 10, mounted on the forward ends of the arms 11, which are pivoted as at 17 to the forward portion of the tractor 12. The shield 5 is braced and supported at its lower portion by the inclined bars 13, which are preferably angle bars having their lower end secured to the flanges 14 of the angle iron braces 15, at the ends of the shield 5, and their upper ends also pivoted as at 17 to the front of the tractor 12, said angle iron braces 15 being secured to the ends of the shield, and fastened at their upper ends to the front of the pivotal arms 11, as at 16. The pivotal arms 11 are pivotally mounted on the tractor frame at 17, and are detachable therefrom. The shaft 3 has the gear or sprocket wheel 18 mounted on an end thereof, preferably on the right hand (although I have shown two such gears, so that the conveyor shaft can be driven from either end), which is driven by the chain 19 or the like, which is driven from the gear 20.

The gear 20 is driven by any suitable

means from the engine shaft 21 of the engine carried by the tractor which I have deemed it unnecessary to show or describe in detail, since the driving mechanism per se, and the gear 20 forms no part of my present invention, which relates particularly to the shields, the conveyor 2 and their adjuncts.

It will be understood that the gear 18, shaft 3, and conveyor 2 rotate as a unit, and that as the rotating conveyor and its adjuncts are presented to or advanced into the bottom of the spoil bank which is indicated in dotted lines at 23, the conveyor regardless of the nature of the soil will penetrate in and convey it to the open trench 24, as seen at the left of Fig. 2. Since the spiral conveyor is continually revolving, it is continually cutting into the bottom of the pile, and the top dirt is of course continually falling upon the conveyor, which continually carries it to the trench 24. While the spoil bank 23 would ordinarily be about the width of the shield, as seen dotted in Fig. 2, I have made provision for attacking a longer spoil bank, by employing an extension of the shield, as indicated at 25 at the left of Fig. 2.

This extension can be secured or supported in any suitable manner to form a continuation of the shield 6, as seen in Fig. 2, and is provided with a bearing 26, to receive the end of the extension shaft 27, carrying the screw or propeller 28. The abutting ends of the shafts 27 and 3 are interlocked or coupled together as indicated at 29, so that the shafts 3 and 27 and the propellers 2 and 28 rotate as a unit.

It will be evident that another shield extension 25, can be added to the shield 6, if desired, and said extension can be supported or secured in place by any suitable means which it is not necessary to describe in detail.

It will now be apparent that I have devised a novel and useful device for back filling trenches, which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description, and while I have, in the present instance, shown and described a preferred embodiment thereof which will give in practice satisfactory and reliable results, it is to be understood that such embodiment is susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

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

1. In a device of the character stated, an inclined shield pivotally and removably attached to a motor, tractor or the like, which shield extends from the ground to the motor frame in one direction and entirely across the motor front in the other direction, bearings carried by the lower portion of said shield, a shaft rotatably mounted on said bearings, a conveyor fixed to said shaft and located at the lower portion of said shield, a gear mounted on the end of said shaft and means for rotating said shaft, gear and conveyor in unison to move excavated material laterally for deposit in a trench which trench is in parallelism with the longitudinal axis of said motor.

2. In a device of the character stated, an inclined shield pivotally and removably attached to a motor, tractor or the like, which shield extends from the ground to the motor frame in one direction and entirely across the motor front in the other direction, arms carried by the lower portion of said shield, a shaft rotatably mounted in said arms, a conveyor fixed to said shaft, a gear mounted on an end of said shaft, means for rotating said gear, shaft and conveyor in unison, a shoe attached to the lower portion of said shield, an extension shield, and extension shaft carrying a conveyor and interlocked with said first mentioned shaft to move excavated material laterally for deposit in a trench which trench is in parallelism with the longitudinal axis of said motor.

3. In a device of the character stated, an inclined shield pivotally and removably attached to a motor, tractor or the like, which shield extends from the ground to the motor frame in one direction and entirely across the motor front in the other direction, arms carried by the lower portion of said shield, a shaft rotatably mounted in bearings in said arms, a conveyor fixed to said shaft, a gear mounted on an end of said shaft, means for rotating said gear, shaft and conveyor in unison, a shoe attached to the lower portion of said shaft, an extension shaft being interlocked with said first mentioned shaft to move excavated material laterally for deposit in a trench which trench is in parallelism with the longitudinal axis of said motor.

4. In a device of the character stated, the combination of a tractor, arms pivotally mounted on the forward portion thereof, a cross bar mounted on said arms, a channel bar mounted on said cross bar, a forwardly inclined shield having its upper end secured to said channel bar, supporting devices fixed at their lower ends to said shield and pivoted at their tops to the front of said tractor, a shaft mounted in said arms, a conveyor on said shaft, a gear on said shaft, and means carried by the tractor for rotating said gear, shaft and conveyor in unison to move excavated material laterally for deposit in a trench which trench is in parallelism with the longitudinal axis of said motor.

5. In a device of the character stated, the

combination of a tractor, arms pivotally mounted on the forward portion thereof, a cross bar mounted on said arms, a channel bar mounted on said cross bar, a forwardly inclined shield having its upper end secured to said channel bar, supporting devices fixed at their lower ends to said shield and pivoted at their tops to the front of said tractor, a shaft mounted in bearings carried by said shield, a conveyor on said shaft, a gear on said shaft, means carried by the tractor for rotating said gear, shaft and conveyor in unison, a transversely extending shoe detachably secured to the lower portion of said shield and extending under said conveyor whereby said conveyor is adapted to move excavated material laterally for deposit in a trench which trench is in parallelism with the longitudinal axis of said motor.

6. In a device of the character stated, the combination of a tractor, forwardly extending arms, pivotally mounted on the forward portion of the tractor, a cross bar mounted on said arms, a channel bar mounted on said cross bar, a forwardly inclined shield, having its upper end secured to said channel bar, supporting devices fixed at their lower ends to said shield, and pivoted at their tops to the front of said tractor, a transversely extending shoe detachably secured to the lower end of said shield, a transverse shaft mounted in bearings carried by said shield, a transversely extending spiral conveyor attached to said shaft, a gear carried by said tractor, and a chain common to said gears for driving said shaft and conveyor to move excavated material laterally for deposit in a trench which trench is in parallelism with the longitudinal axis of said motor.

CONRAD F. GOERINGER.