W. Z. LAUGHTERBACK.

WALL SUPPORTING DEVICE FOR TRENCHES.

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909,808. Patented Jan. 12, 1909.

Fig. 1.

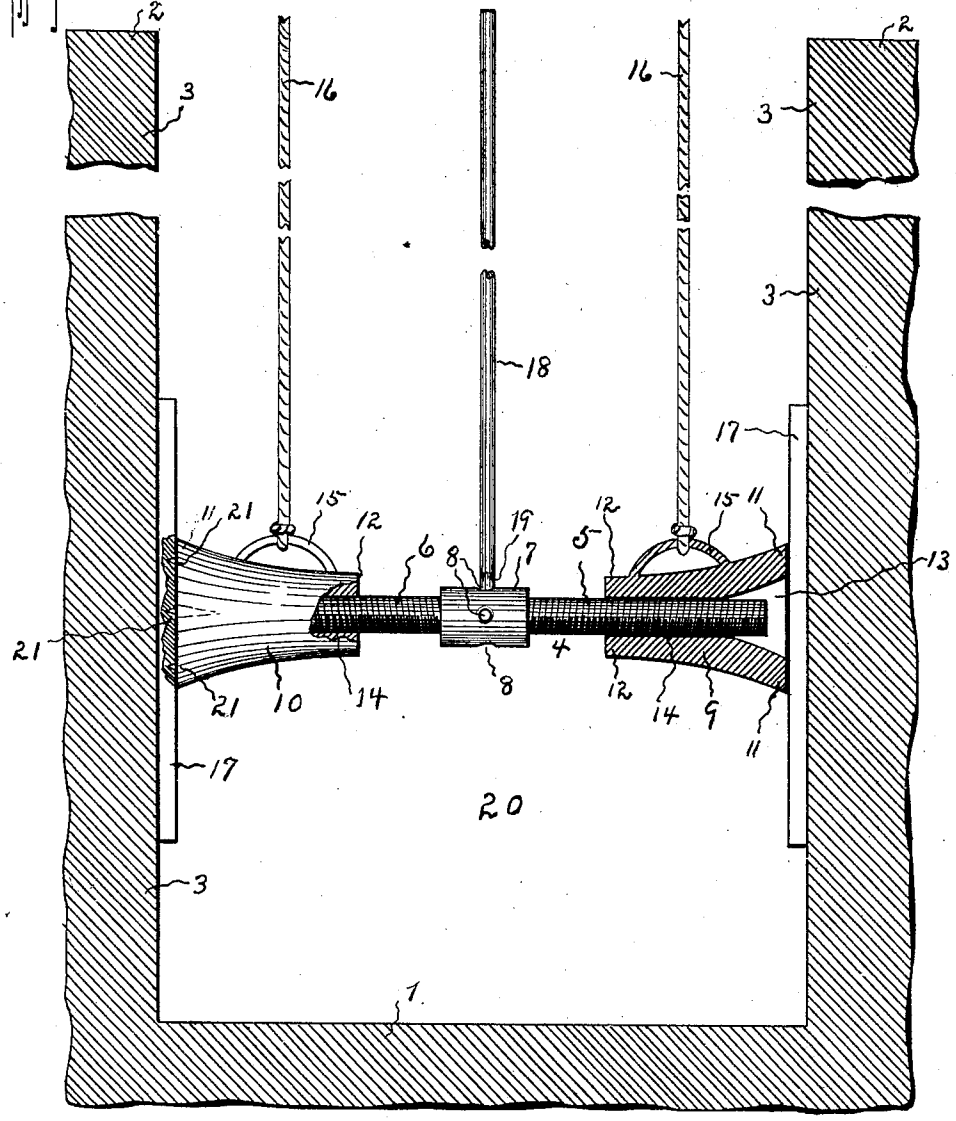


Fig. 2.

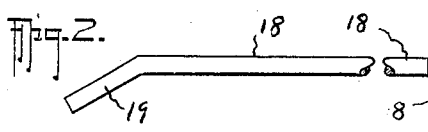
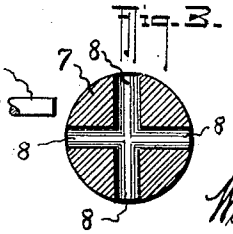


Fig. 3.



Witnesses

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WALL-SUPPORTING DEVICE FOR TRENCHES.

No. 909,808. Specification of Letters Patent. Patented Jan. 12, 1909.

Application filed November 25, 1907. Serial No. 403,673.

To all whom it may concern:

Be it known that I, WILLIAM Z. LAUGHTERBACK, a citizen of the United States, residing at South Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Wall-Supporting Devices for Trenches, of which the following is a specification.

This invention relates to improvements in wall-supporting device for trenches, used for the purpose of preventing the caving or falling inwardly of the walls of a sewer or trench when excavated in a spongy or soft soil.

Trenches of considerable depth are often prepared in soft ground for laying sewer or other pipe, and various means for bracing the walls have been used to prevent accident, and in many instances it is hazardous for workmen to enter the trench to make an adjustment of the braces.

The object of the present invention is to provide convenient and reliable means for bracing or supporting the walls of a trench which may be manually operated, when desired, exteriorly of the excavation, and consists of a series of spreaders which make contact supportingly with the trench walls at any desired altitude.

The invention includes the use of a spreading-bar or shaft having reversely threaded end-portions and apertured transversely at its longitudinal center, used in connection with contact-blocks formed as sleeves having threaded parts to register with the threaded ends of the spreading-shaft, and provided with handle members so that the device may be lowered by means of ropes to any desired altitude, and the use of an angularly bent hand-bar or turning-bar for conveniently rotating the shaft.

The invention consists of the combination and arrangement of parts as described herein, pointed out by the appended claims, and illustrated in the drawing, wherein,—

Figure 1, is a broken away, sectional view of the walls and bottom of a trench, with my invention placed in operative position, one of the contact-blocks being in section. Fig. 2 is a broken away view of the hand-bar, and Fig. 3 is an enlarged view of the apertured spreading-bar or shaft sectioned at its middle.

Referring now to the drawing, numeral 1 indicates the bottom, 2 the top and numerals 3 indicate the sides or earth-walls of the trench 20, the height of the walls named being immaterial. For purposes of the invention I construct a spreading-bar 4 provided with reversely threaded end-portions 5 and 6, and having a blank center 7 preferably of greater diameter than the end-portions, the center portion having apertures 8 formed transversely therein. Contact-blocks 9 and 10 are formed as sleeves, and their walls are tapered from their outer or contact-ends 11 to their inner ends 12 but have, substantially, a uniform thickness, and on account of this construction, openings or recesses 13 are formed at their outer ends; blocks 9 and 10 are provided with the threaded inner walls 14 throughout a part of their lengths to register with the reversely-formed threaded ends 5 and 6, respectively, of spreading-bar 4.

For the purpose of adjusting the device exteriorly of the trench, handle members 15 are formed upon each contact-block, and any flexible members, as ropes 16 may be employed, secured upon the handles for the purpose of lowering the spreader within, and for its control to position it crosswise of, the trench.

In operation, timbers or plank 17, for use as bearing-plates, are first lowered by any convenient means to that part or parts of the walls to be braced, and the device is then lowered and adjusted by means of ropes 16; and by use of the hand-bar 18, which is inserted in apertures 8 of the spreading-bar, the latter may be rotated to cause the contact-blocks to move outwardly with great force in a manner to press and hold the plank against walls 3, projections 21, formed upon the ends of the contact-blocks, making engagement with timbers 17, to prevent sliding. The turning-bar or hand-bar 18 is provided with an angular end-part 19 for insertion within apertures 8, and by means of which the spreading-bar may be rotated with facility exteriorly of the trench, since the angular end of the bar, by giving the latter a "half-turn", can be placed in the uppermost aperture.

It will be noted that the formation of recesses 13 of the contact-blocks afford a bell-shaped or broad surface for the outer ends of said blocks, and this is a desired construction, as it prevents breaking or splitting of the plank, and is a saving of material com-

posing the contact-blocks. The blank 7 has a greater diameter than the end-portions of the spreading-bar and is formed as a hub, to counteract the weakening effect caused by apertures 8 formed therein, and to afford an extended seating or bearing for the angular end of the hand-bar.

As thus described, the device is very useful, and can be operated exteriorly of a trench for reliably bracing the sides thereof, where the soil is soft, for avoiding personal injuries; it may be employed, however, and operated by workmen within the trench on many occasions, as is obvious, when the walls of the trench are firm, as when undermining or enlarging the bottom of a trench, and the ropes may then be dispensed with, and any ordinary, straight turning-bar may then be employed for rotating the spreading-bar.

What I claim as my invention is,—

1. In a wall supporting device for trenches, the combination with hollow contact blocks, the rear ends of which are reversely threaded and the front ends of which flare outwardly to cause the front face of the contact blocks to present a ring-like surface, of a spreading bar formed with an enlargement having transverse apertures therein midway between its ends, the ends of said spreading bar being reversely threaded and entering the rear ends of the contact blocks, and flexible members connected to each of the contact blocks for lowering the entire device into a trench and supporting it in a horizontal plane.

2. In a wall supporting device for trenches, the combination with hollow contact blocks, the rear ends of which are reversely threaded and the front ends of which flare outwardly to cause the front face of the contact blocks to present a ring-like surface, of a spreading bar formed with an enlargement having transverse apertures therein midway between its ends, the ends of said spreading bar being reversely threaded and entering the rear ends of the contact blocks, and flexible members connected to the wall supporting device for lowering it into a trench.

3. In a wall supporting device for trenches, the combination with hollow contact blocks, the rear ends of which are reversely threaded and the front ends of which flare outwardly to cause the front face of the contact blocks to present a ring-like surface, of a spreading bar formed with an enlargement having transverse apertures therein midway between its ends, the ends of said spreading bar being reversely threaded and entering the rear ends of the contact blocks, a plurality of barbs formed upon the ring-like face of the contact blocks, and bowed longitudinally extending members integral with said contact blocks and adapted to have flexible lowering devices secured thereto.

In testimony whereof I have affixed my signature in presence of two witnesses.

his
WILLIAM Z. × LAUGHTERBACK.
mark

Witnesses:
HIRAM A. STURGES,
S. I. GORDON.