No. 703,830. Patented July 1, 1902.

W. S. RENDLE.

SPUR SHORE SCREW.

(Application filed Dec. 26, 1901.)

(No Model.)

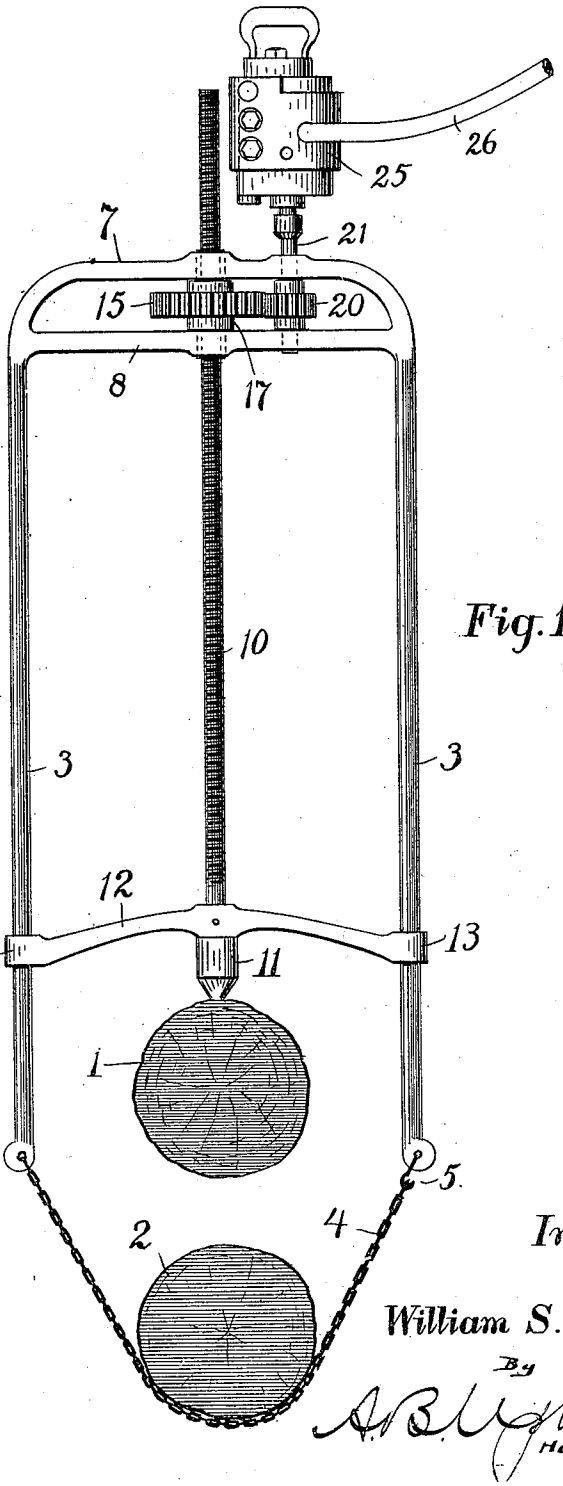


Fig. 1

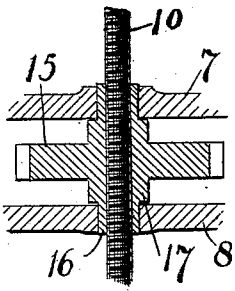


Fig. 2

Witnesses;

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UNITED STATES PATENT OFFICE.

WILLIAM S. RENDLE, OF EAST BOSTON, MASSACHUSETTS.

SPUR-SHORE SCREW.

SPECIFICATION forming part of Letters Patent No. 703,830, dated July 1, 1902.

Application filed December 26, 1901. Serial No. 87,167. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. RENDLE, a citizen of the United States, residing at East Boston, in the county of Suffolk, State of Massachusetts, have invented certain new and useful Improvements in Spur-Shore Screws, of which the following is a full, clear, and exact description.

In the erection of certain forms of bridges and wharves it is customary to drive long piles into the mud and clay beneath the water and to strengthen the same against the ebb and flow of the tides and the shocks of ice and vessels by bolting the upper ends of selected piles together. To do this, it is necessary to force the upper ends of a selected pair of piles strongly together and to hold them together until properly united by bolts. One of these piles is usually made shorter than its companion, and being designed to brace the latter is termed the "shore" or "spur-shore." Prior to my invention it has been customary to thus force the upper end of the brace or spur-shore over against the pile by means of a pressure-screw laboriously turned by hand and requiring the expenditure of much exertion and considerable time.

The object of my invention is the construction of means whereby compressed air can be utilized for the purpose of forcing the piles together, and thereby enable a single man in a very few minutes to accomplish what previously required two men working for a considerable length of time.

Referring to the drawings forming part of this specification, Figure 1 is a plan view of my apparatus, showing the same in the operation of bringing two piles together. Fig. 2 is a sectional detail view of the revoluble nut forming a part of the apparatus.

The reference-numerals 1 and 2 indicate the two piles whose upper ends it is desired to force together and hold until bolted. My improved mechanism for thus operating upon the piles comprises a framework 3 7 8, a chain 4, and a power-screw 10, actuated by means of the compressed-air motor 25. Said chain is attached at one end to one of the side bars 3 and is designed to be passed about one of the piles and secured to the other side bar by a suitable hook 5. The power-screw 10 passes through the rotatable nut 16, turning in suitable bearings in the parallel bars or frame-sections 7 8 and is supported at its opposite end by means of the cross-bar 12, having eyes 13, slidable on the side bars. This cross-bar both supports the operative extremity of the power-screw and prevents it from turning with the internally-threaded sleeve or nut 16. Said nut is prevented from end play by means of its shoulders 17, as shown in Fig. 2, and is revolved by the spur-gear 15, formed or fixed thereon, and the pinion 20, meshing therewith. To turn said pinion, it is provided with the projecting shaft 21, upon the outer end of which the shaft of the compressed-air motor 25 is designed to be secured. The chain 4 having been passed about one of the piles, as 2, and the pointed head 11 of the power-screw engaged in the opposite side of the other pile 1, the valve of the motor is adjusted and compressed air admitted to the latter through the pipe 26. A rapid rotation is immediately given to the pinion 20 and a reduced speed, but increased power, imparted to the gear 15. This motion of the said gear and nut rigid therewith by turning said nut upon the power-screw forces the latter strongly against the pile 1, and thereby brings the two, the main pile and the spur-shore pile, quickly toward each other until they meet and are bolted together.

Although I have described the motor 25 as being actuated by compressed air, an electric motor may be substituted therefor or other motive power which can be connected with its source of power by a flexible coupling.

What I claim as my invention, and for which I desire Letters Patent, is as follows, to wit:

1. In a spur-shore screw, the combination of the framework comprising the side bars and two closely parallel bars uniting the same, the internally-threaded sleeve or nut rotatable in said parallel bars, the spur-gear rigid with said nut, the pinion meshing with said gear, a motor for turning said pinion, a power-screw fitted in said nut, the cross-bar rigid with said screw and sliding on said side bars, and a flexible means attached to the ends of said side bars for securing said frame to one of two piles while the power-screw engages the other pile, substantially as described.

2. In a spur-shore screw, the combination of the framework comprising the side bars and the two closely-located parallel bars uniting the same, the internally-threaded sleeve or nut rotatable in bearings in said parallel bars and having the shoulders keeping it from end play, the spur-gear rigid with said nut, the pinion meshing with said gear and having the outwardly-extended shaft, a motor secured to said shaft, a power-screw fitted in said nut and having a pointed head to engage a pile, a cross-bar having eyes slidable along said side bars and rigid with said screw, and a chain attached to the ends of said side bars to pass about the second of two piles designed to be pressed together, substantially as described.

In testimony that I claim the foregoing invention I have hereunto set my hand this 23d day of December, 1901.

WILLIAM S. RENDLE.

Witnesses:
A. B. UPHAM,
M. U. UPHAM.