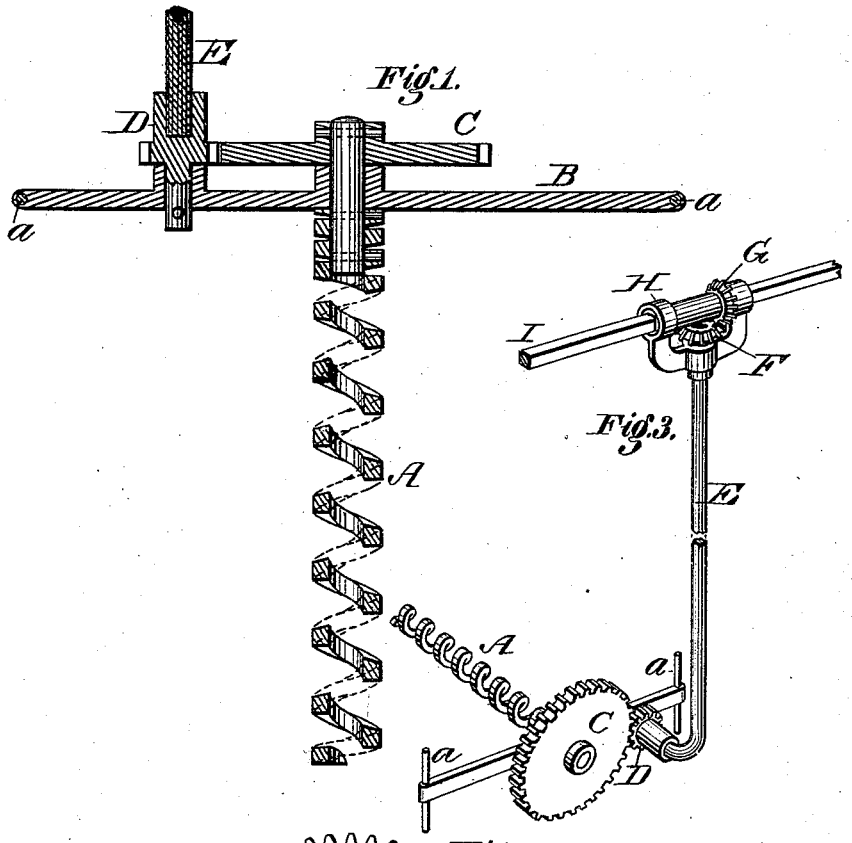
E. S. WINCHESTER.
Boring-Machine.

No. 208,450. Patented Sept. 24, 1878.



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UNITED STATES PATENT OFFICE.

EDWARD S. WINCHESTER, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN BORING-MACHINES.

Specification forming part of Letters Patent No. **208,450**, dated September 24, 1878; application filed July 12, 1878.

To all whom it may concern:

Be it known that I, EDWARD S. WINCHESTER, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Apparatus for Removing Bolts from Wooden Hulls, of which the following is a specification:

The object of my invention is to provide a means whereby the fastening-bolts of wooden vessels may be rapidly and economically removed in breaking said vessels up; and to this end it consists in a boring-instrument of peculiar construction, and in the combination of the same, by a movable and flexible connection, with a power-driven shaft, as hereinafter more fully described.

Referring to the accompanying drawings, Figure 1 represents a central section of my boring-tool on the line *x x* of Fig. 2. Fig. 2 represents an end view of my tool; Fig. 3, a perspective view, showing the tool and connections for guiding the same in their operative position.

The boring-instrument consists, primarily, of a hollow spiral-twisted auger, A, having a cutting-edge at its end, and adapted to bore into the side of the vessel around the bolt or spike, which will meanwhile pass lengthwise within the center of the auger.

The auger constructed and arranged to operate in this manner will remove the wood from around the bolt, first releasing the planking held by the bolt, and finally releasing the bolt from the timber or other portion of the vessel in which it may be seated.

The auger is provided at its outer end with a journal or shaft, seated in the cross-bar or stock B, the ends of which are provided with cross-handles *a*, whereby it is adapted to be held and manipulated by two attendants standing at opposite ends.

On the outer end of the auger I secure a gear-wheel, C, and for the purpose of driving said gear-wheel I provide a pinion, D, supported by a shaft or journal mounted in the stock B. To the pinion D, I attach one end of the flexible driving-shaft E, which may be of any ordinary construction.

The outer end of the shaft E, I connect by a pinion, F, and sliding yoke H to a pinion, G, which, together with the yoke, is mounted and arranged to slide lengthwise upon the driving-shaft I, which will receive motion from a steam engine or motor.

In lieu of the flexible shaft E, a jointed or extensible shaft and gearing may be employed.

In using the apparatus the shaft I is mounted temporarily upon the deck or along the side of the vessel lengthwise thereof, in such a position that the attendants, standing upon a temporary platform or staging on the outside of the hull, may apply the boring-tool to the bolts or rivets.

The shaft, being set in motion by the engine or other motor, imparts, through the intermediate devices, a rotary motion to the auger. The two attendants, standing at the ends of the yoke and grasping the handles *a*, place the end of the auger over and around the ends of the bolts, one at a time, and, bearing inward, cause the auger to penetrate the wood and release the bolt.

The flexible connection with the driving-pinions and the arrangement of the latter to slide freely upon the driving-shaft I admit of the attendants moving the auger both vertically and longitudinally with reference to the hull, whereby the removal of all the bolts is permitted.

By the use of an apparatus such as described, I am enabled to remove the bolts with great rapidity and economy, and this without injuring the bolts or shattering the timbers.

It is obvious that the arrangement of the driving mechanism may be modified, and also that the form of the yoke or frame B may be changed; but care should be taken to construct the same in such manner as will admit of its being readily controlled and handled by the two attendants.

Having thus described my invention, what I claim is—

1. The cross head or bar having its ends adapted to be held by two or more men, in combination with the hollow auger, the gear-wheel attached to the auger, and the pinion mounted on the frame and connected with a power-driven shaft.

2. In an apparatus for removing bolts from wooden vessels, the combination of a tubular auger, a hand-frame or stock having the auger journaled therein, and a flexible or jointed shaft connecting the auger or its driving-pinion with a power-driven shaft.

3. In combination with a power-driven shaft, I, and a hollow auger, an intermediate flexible or jointed shaft having a sliding connection with shaft I.

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