(No Model.) 2 Sheets—Sheet 1.

A. AMES.

MACHINE FOR TURNING AND PREPARING PILES OR SPARS.

No. 442,471. Patented Dec. 9, 1890.

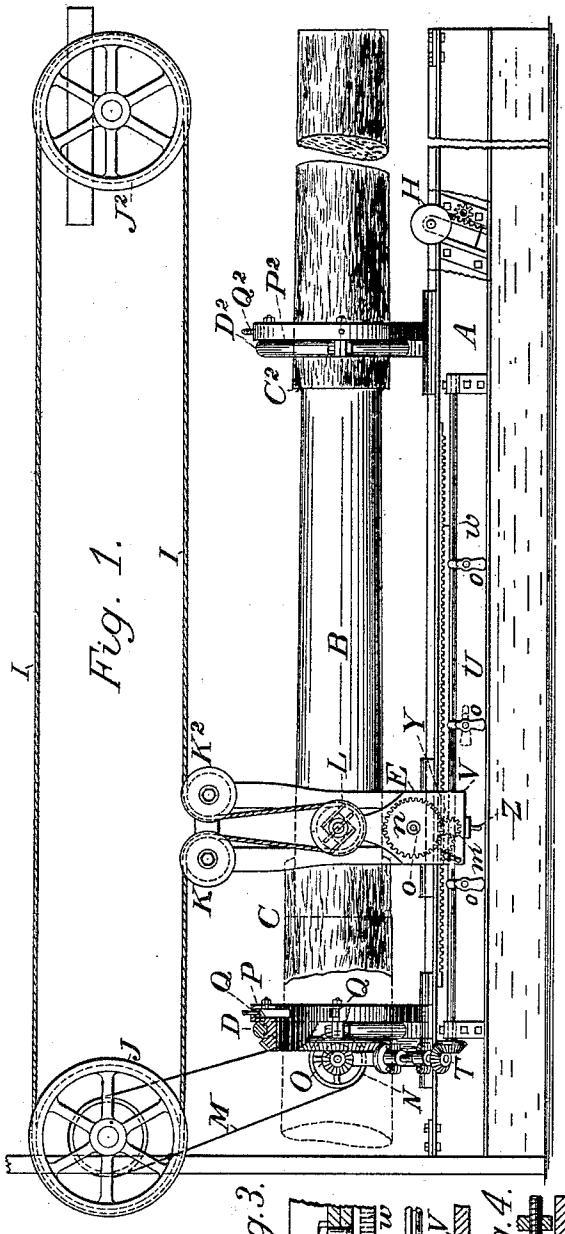


Fig. 1.

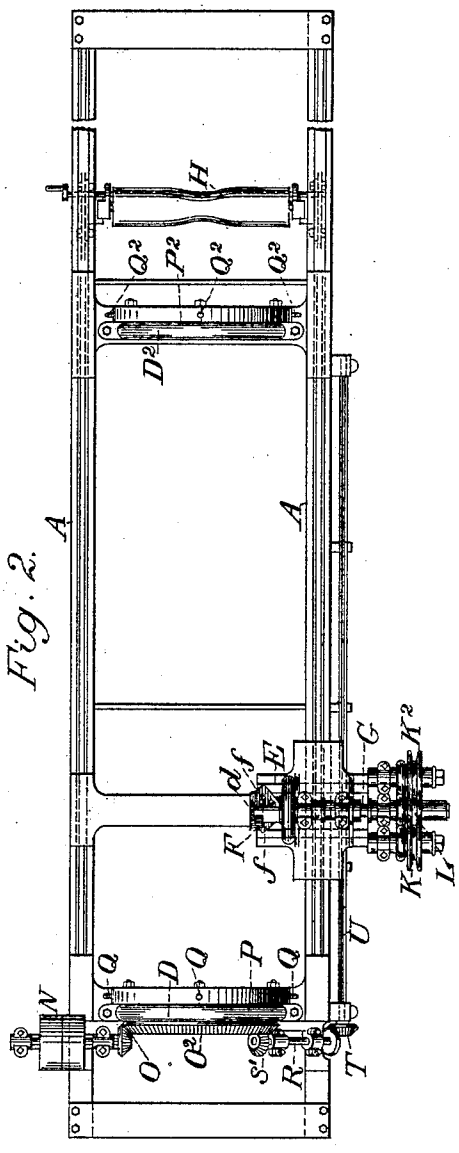


Fig. 2.

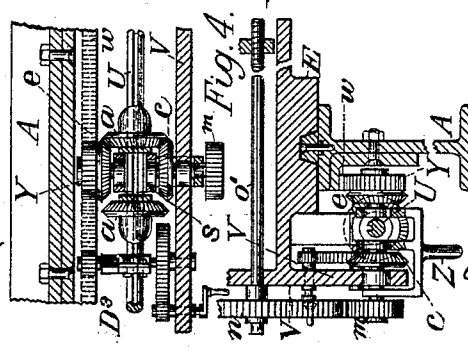


Fig. 3.

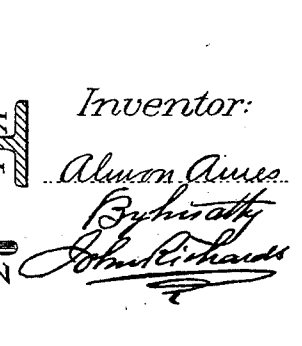


Fig. 4.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 5.

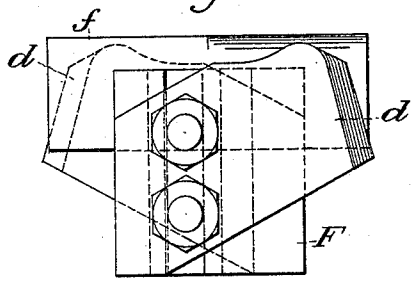


Fig. 6.

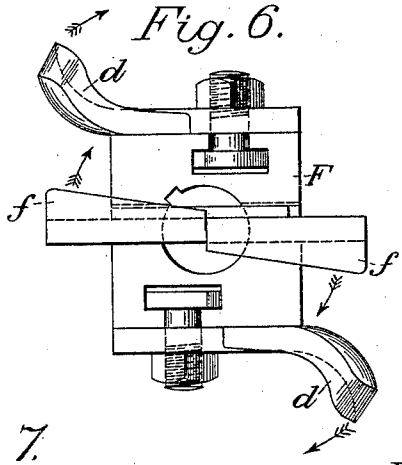


Fig. 7.

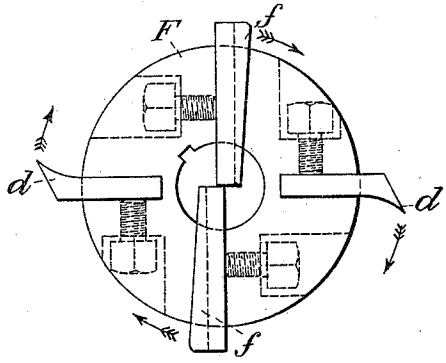
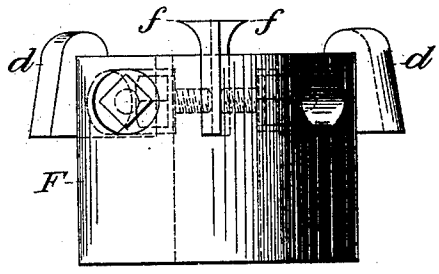


Fig. 8.



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UNITED STATES PATENT OFFICE.

ALMON AMES, OF BERKELEY, ASSIGNOR TO ROBERT J. DAVIS, OF SAN FRANCISCO, CALIFORNIA.

MACHINE FOR TURNING AND PREPARING PILES OR SPARS.

SPECIFICATION forming part of Letters Patent No. 442,471, dated December 9, 1890.

Application filed June 9, 1890. Serial No. 354,763. (No model.)

To all whom it may concern:

Be it known that I, ALMON AMES, a citizen of the United States, residing at Berkeley, county of Alameda, State of California, have invented certain new and useful Improvements in Machinery for Turning Piles, Masts, or Spars; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation of one of my improved machines. Fig. 2 is a partial plan of the same. Fig. 3 is a detail showing the apron-gearing. Fig. 4 is another detail to further explain the apron-gearing. Figs. 5 and 6 are side and end views of a slotted cutter-head employed on my machines; and Figs. 7 and 8 are side and end views of a cylindrical cutter-head employed on my machines.

Similar letters of reference on the different figures indicate corresponding parts.

My invention relates especially to turning and preparing wooden structural piles—such as are driven in water—so they may receive a protective covering against teredo or other destructive agent in that portion of the pile exposed to the water, or may also be applied to masts or spars as a means of finishing the same.

It consists in a machine for revolving the pile in annular supports and applying rotary traversing cutters that remove the surplus wood, leaving a true symmetrical section for such length as requires to be covered with plates of metal or with other material, and consists, also, in various mechanical expedients directed thereto, as hereinafter explained.

Referring to the drawings, A is the main frame, on which the machinery is mounted.

B is a timber pile, and the section from C to C^2 the part to be cut away and made true to receive the covering.

D is the main head for supporting and revolving the pile B, and D^2 another head for support alone.

E is a traversing carriage, on which is mounted a cutting-spindle G and cutter-head F.

H is a supporting-roller, vertically adjustable, employed in passing piles into and out of the machine without injury to the heads D and D^2. There can be any number of these rollers, as the length and weight of the piles may require, and they may be adjusted up or down by screws, wedges, or racks, as shown.

The cutter-spindle G is driven by an endless band I, passing over pulleys J and J^2, also over idle-pulleys K and K^2 and the pulley L on the cutter-spindle. The pulleys K and K^2, being mounted on the carriage E and moving with it, the band I is maintained at a uniform tension as the carriage is traversed along the pile.

Power is applied to either J or J^2 in the usual manner, and is transmitted to the head D by a band M, pulleys N, and bevel-gearing O and O^2, the large wheel being segmental in form and attached to a revolving chuck-ring P, having spurs Q, which are driven into the pile B, holding and revolving it, as before explained. The head D^2 is constructed in the same manner with a revolving ring P^2, spurs Q^2 to hold the pile at the end, the ring P^2 revolving therewith.

The traversing or feed motions are transmitted to the carriage by a short shaft R and pinion S′, meshing into the segmental wheel O^2 on D, and by bevel-wheels T to the motion-rod U. (Shown also in Figs. 3 and 4.) The movements in the apron V of the carriage are similar to those of the slide-rest of an engine-lathe. The traversing movement is performed by means of the rack *w* and pinion Y. The two bevel-wheels *a a* slide on the motion-rod U and engage the two wheels *e* and *c*, which are mounted on two short shafts in eccentric bearings moved by the handle Z, Fig. 2, so that by moving the handle Z the wheel *e* may engage right and left and move the carriage E either way accordingly. The wheels *a a* have conical bosses so as to pass over the pivoted supports *o o o*, Fig. 1. The wheel *c* runs independent of *e*, their axis being divided at the center in the bearing S. The outer one *e* moves the pinion *m*, meshing into the wheel *n*, and revolves the cross-screw *o′* for sliding the saddle F and spindle G to and from the

pile B as the carriage is traversed along, and consequently tapering the section from C to C^2, as may be desired, the rate of taper being governed by the relative size of the wheels *m* and *n*.

At D^3, Fig. 3, is shown gearing of the common kind for moving the carriage E by hand, consisting of a crank, cross-shaft, and gear-wheels, and rack-pinion, as shown.

Referring to Figs. 5 to 8, these show the form of cutters employed on my machine, consisting of gouge or curved knives *d* and finishing or flat cutters *f*. The former are in some cases held by bolts and slots, as shown in Figs. 5 and 6, and in other cases by set-screws, as in Figs. 7 and 8.

The main head or block F is made rectangular, and the other one, Fig. 8, is cylindrical, the cutting action being the same in both cases, the curved or gouge cutters *d* serving to remove the mass of wood and the other *f* smoothing and leveling the surface.

Having thus described my invention and the method of its application, what I claim, and desire to secure by Letters Patent, is—

1. In a pile or spar turning machine, the combination of the gear-wheel O, the main head D, for supporting and revolving the timber pile B, to which head said gear O is connected, the belt M for transmitting motion to the gear O from the overhead gearing, a second pinion S′, engaging the wheel O^2 on the main head D, the motion-rod U, with bevel-wheels T and apron V, to which motion is conveyed by the said gear S′, and the two bevel-wheels *a a*, which glide on the motion-rod U and engage the two wheels *e* and *c*, mounted on short shafts in eccentric bearings, operated by the handle Z, substantially as described.

2. In a turning-machine for piles or spars, the motion-rod U, connected to the main head D by the shaft R and bevel-wheels T, in combination with the two wheels *a a* for giving right and left motions, constructed and operating substantially in the manner and for the purposes specified.

3. In a pile or spar turning machine, the wheel *c*, the pinion *m*, and wheel *n*, connecting with a motion-rod U, and a screw *o′* for moving the cutting-tools F to or from the center of the pile B, coincident with the traversing movement of the carriage E, in the manner substantially as shown, and for the purposes specified and described.

4. In a pile or spar turning machine, the combination of the main head D for supporting and revolving the timber pile B, and the head D^2, which acts simply as a support for said timber pile, the traversing carriage E, the cutter-spindle G and cutter-head F, mounted on said carriage, the vertically-adjustable supporting-roller H for delivering the piles into and out of the machine, the pulleys J and J^2, the idle-pulleys K and K^2, said pulleys K and K^2 being mounted on a carriage E, the pulley L, and the band I, passing around the aforesaid train of pulleys, substantially as described.

In witness whereof I have hereunto subscribed my name in the presence of two witnesses.

ALMON AMES.

Witnesses:
ROBERT J. DAVIS,
E. H. THARP.