B. Potter, Jr. & A. F. Potter,

Gage Lathe.

No. 3,408. Patented Jan. 20, 1844.

Fig. 3.

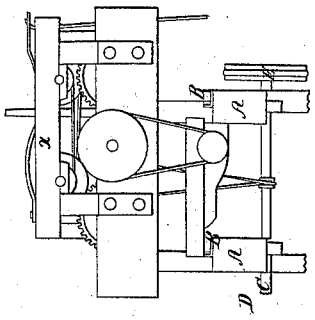


Fig. 4.

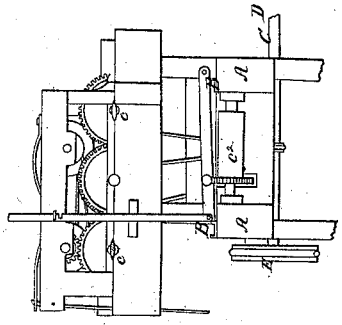


Fig. 7.

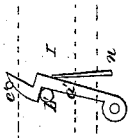


Fig. 1.

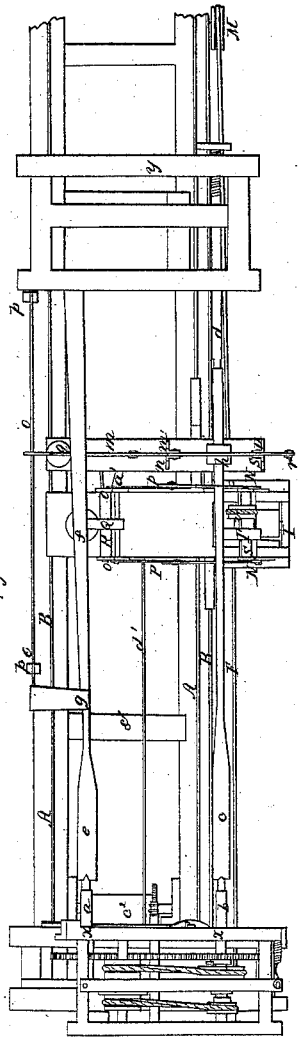


Fig. 6.

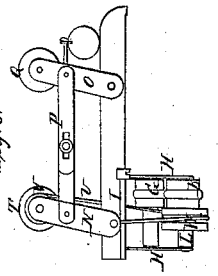


Fig. 5.

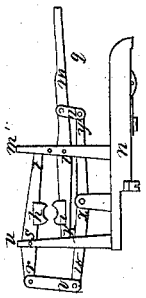
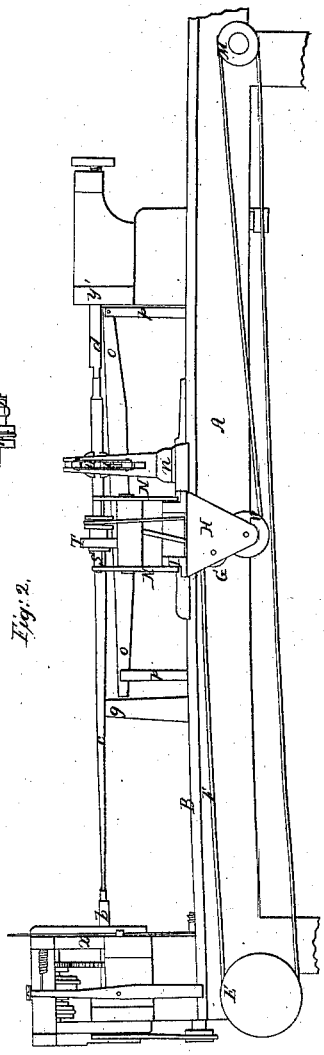


Fig. 2.



UNITED STATES PATENT OFFICE.

BENNETT POTTER, JR., AND A. F. POTTER, OF HUBBARDSTON, MASSACHUSETTS.

MACHINE FOR TURNING BOAT-OARS.

Specification of Letters Patent No. 3,408, dated January 30, 1844.

To all whom it may concern:

Be it known that we, BENNETT POTTER, JR., and ABIATHER F. POTTER, of Hubbardston, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Machinery for Manufacturing or Finishing Oars for Boats and Various other Articles, and that the following description and accompanying drawings taken together constitute a full and exact specification of the construction and operation of our invention.

Figure 1 of the drawings above mentioned represents a top view of our improved machinery. Fig. 2 is a side elevation thereof. Fig. 3 is an elevation of the left end. Fig. 4 is a transverse vertical section taken through that part of the pattern which forms the blade of the oar, the eye of the observer being directed toward the left hand part of the machine. Fig. 5 is a side view of the combination of levers and bearings by which the oar is supported near the cutting wheel. Fig. 6 is a side elevation of the guide and cutting wheel's frame; and Fig. 7 is a representation of the catch or part of the mechanism (to be hereinafter described) by which the lever bearing frame and cutter frame are connected together.

The main frame work (A, Figs. 1, 2, 3, 4,) consists of two horizontal and parallel timbers suitably connected together by transverse timbers and supported upon posts as seen in the drawings. Upon the top surfaces of the horizontal timbers, iron rails B, B, are suitably secured and arranged like the rails of a turning lathe. The driving shaft C, from which the various operative parts derive their motions, is situated at the left hand end of the main frame, as seen in Figs. 1, 2 and 3; power being applied to the said shaft by a crank D or in any other convenient and proper manner. A grooved pulley E is placed on the front end of the driving shaft, a long endless belt or band F extending around the said pulley and from thence over a small guide pulley G whose shaft is horizontal and is supported in bearings formed in projections (H, H, Figs. 2, 6) from the lower side of the carriage I which sustains the cutting wheel to be hereinafter described. The band F on leaving the guide pulley G passes under the lower side of a pulley (K, Fig. 6) situated upon a short horizontal and transverse shaft L, the bearings of whose journals are formed in the projecting parts H, H. From the latter pulley the band passes to and around a pulley M at the right hand end of the machine and thence back to the pulley of the driving shaft.

The carriage I rests and moves, in a longitudinal direction, upon the rails B, B, the said carriage having four upright bars N, N, O, O, jointed to it at their lower ends and situated upon it and with respect to each other as seen in the drawings. Each bar (N) is connected to its opposite bar (O) at about the middle of each by a horizontal bar P jointed to both, so that any movement, in a transverse direction, of the bars O, O will cause a corresponding motion of the bars N, N. A guide wheel Q is supported upon a shaft R extending between and having bearings in the tops of the uprights O, O. Another and similar shaft S extends between the heads of the uprights N, N, the said shaft having the cutting wheel T upon it and being driven by a band U which extends around a grooved pulley V on the shaft S, and another, W, on the shaft L, before mentioned.

Two other frames X, Y, of wood or iron, are arranged upon the horizontal timbers of the main frame A and in the positions as seen in the drawings. The first frame X supports two longitudinal and horizontal mandrels *a*, *b*, each of which is to have the same number of revolutions imparted to it by any proper arrangement of pulleys, gear wheels and other mechanism connected with the driving shaft.

The oar C to be finished or turned into shape extends between the mandrel *b* and a center point or pivot of a screw shaft *d* which is supported by the puppet head on frameY; the oar being fixed in any convenient manner to the mandrel *b*, so as to turn around with it. The pattern by which the oar is formed is composed of two parts *e*, and *f* the former of which is in the exact shape of the blade of the oar, as the same is intended to be finished, and revolves, upon its axis, while the latter is stationary and consists of a long and stiff bar of wood or metal having its inner edge or that against which the guide roller or wheel Q rests, shaped to the form requisite for the shank or handle part of the oar. The ends (in juxtaposition) of the parts *e*, *f* of the pattern are supported by a standard *g* one end of the stationary part *f* being firmly fixed

in the side standard and the other in the side of the puppet frame. One end of the blade portion *e* of the pattern is sustained by and fixed to the mandrel *a*, the other end being movable or revolves in the top of the standard *g*, so that the mandrel and blade part of the pattern revolve together. The shape of the inner side of the top of the standard *g* should be a continuation of that of the handle part of the pattern so that the guide wheel shall travel in a regular and proper manner from one part to the other. The vibration of the oar during the operation of the cutting wheel thereupon, is prevented by means of bearings *h*, *i*, the lower of which viz. *i*, is attached to the upper side of the end *k* of a lever *k l m* whose fulcrum is at *l* in a standard *m'* (projecting vertically from a rest or carriage *n*) and whose opposite end rests and moves upon the top edge or surface of a long bar *o* extending in a longitudinal direction above the main framework and supported thereon by posts or standards *p*, *p*. The top surface or edge of the bar *o* has such a curve given to it as will insure the vertical depression and elevation of the bearing to correspond with the change of form of the handle of the oar as the bearings move from one end of the handle to the other. A weight *q*, hung upon that end of the lever *k l m* which rests upon the bar *o* presses the said end thereof down upon the bar and thereby causes the bearing *i* to sustain the handle of the oar. The upper bearing *h* is attached to the lower side of the lever *r s t* at or near the end thereof the fulcrum of the said lever being at *s* in the top of a standard *u*, (see Fig. 5) and its opposite end *r* being connected by one or more bars *v*, to the end *w* of a lever *w*, *x*, *y*, having its fulcrum at *x* and its end *y* similarly connected by a bar or bars *z* to the lever *k l m*, at a suitable point between its fulcrum and end *m*, the whole being as represented in Fig. 5. Consequently when the lower bearing *i* is depressed the end *y* of the lever *w x y* is elevated thereby elevating the bearing *h*.

The carriage *n* is arranged upon the rails B, B and in close proximity with the carriage of the cutting wheel. A spring catch *a'* (see Fig. 7) is attached to the lower side of the carriage *n* and extends beneath the other carriage and hooks over or catches upon a pin *b'* projecting from the lower side of the cutter carriage. The two carriages are thus connected to each other and move together while the handle part of the oar is being shaped, but as soon as the guide wheel Q comes in contact with the blade portion of the pattern the catch, which connects the two carriages, is unlocked or thrown off the pin *b'* so that the cutter carriage moves on by itself while the other carriage remains stationary. The separation of the two carriages is effected by the curved end of the catch meeting a pin or projection *c'* of the main framework, which presses the catch aside or off the pin *b'*. The motion of the cutter carriage is effected by a chain or rope *d'*, which is attached to the carriage and winds over a barrel or drum c^2, the said drum being turned by suitable mechanism intervening between it and the driving shaft.

Having thus described our improvements we shall claim—

1. Making the pattern from which the oar is formed or against which the guide wheel Q acts, of two parts *e*, and *f*, in such manner that one of the same, or that from which the handle is shaped, shall be stationary, while the other or part which shapes the blade, shall revolve, the whole being as herein above set forth.

2. We also claim arranging the cutter wheel T and bearings *h*, *i* upon separate carriages, for the purpose of arresting the action of the bearings during the operation of the cutters upon the blade part of the oar; the said carriages being connected together and disconnected from each other by means of the latch *a'* and pins *b'*, *c'*.

In testimony that the above is a correct specification of our invention, we have hereto set our signatures this twenty-fifth day of December, A. D. 1843.

BENNETT POTTER, Jr.
ABIATHER F. POTTER.

Witnesses:
Samuel Swan,
Clara Swan.