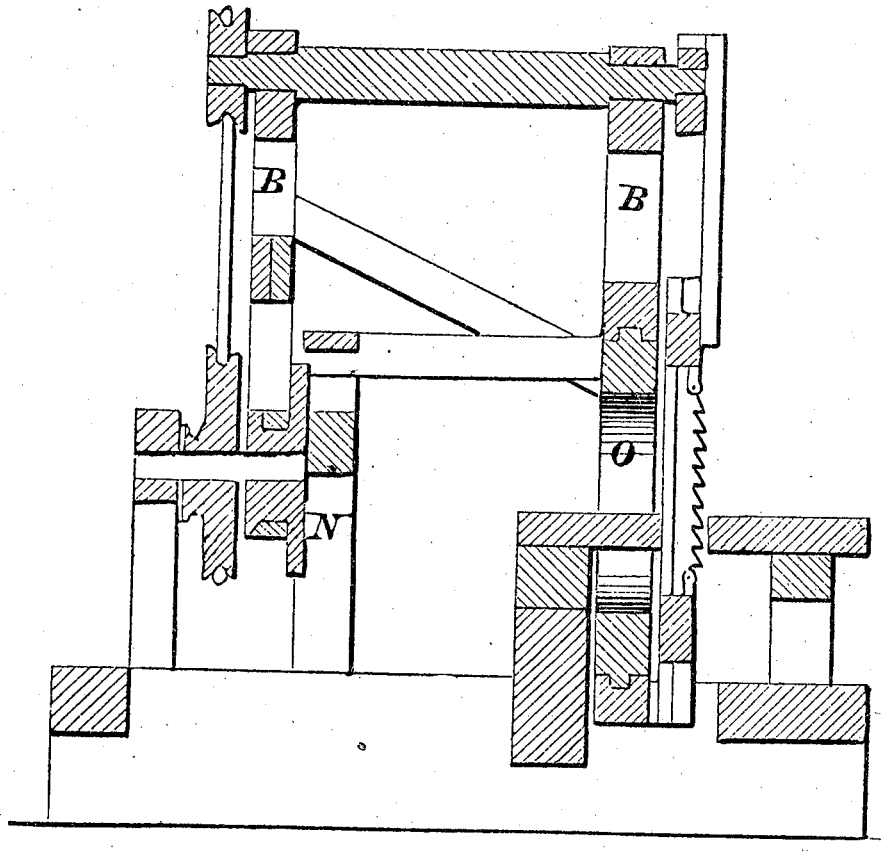
J. McDIARMID.

MACHINE FOR SAWING BEVELED SURFACES.

No. 24,040. PATENTED MAY 17, 1859.



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JOHN McDIARMID, OF BROOKLYN, NEW YORK.

MACHINE FOR SAWING BEVELED SURFACES.

Specification of Letters Patent No. 24,040, dated May 17, 1859.

To all whom it may concern:

Be it known that I, JOHN McDIARMID, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Machine for Sawing and Dressing Bevel Surfaces of Timber; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon.

Figure I, is a front elevation, in which A shows a stationary frame, to which the working parts are attached. B an oscillating frame, to which is connected the saw-frame or gate and the gate slides or guides. C shows the saw-frame or gate. D, D the gate-slides or guides. E a connecting rod or pitman, connecting the saw gate to the crank. F the crank which is keyed to the shaft G Figs. II and III. I a pulley, which belts on to the pulley J Fig. II. O, a center wheel and bolted on to frame A. O′ a rib extending around the center wheel (O Figs. I and II). P, P are clamps provided with grooves or ways into which the rib O′ fits, and which clamps being attached to the front posts of the oscillating frame B, prevent it from end chasing or moving endwise, as the frame B rests and oscillates upon the center wheel (O Figs. I and II) and the bearing (N′ Fig. II) of the center flange (N Fig. II). Q represents the segment of a gear wheel, that meshes into a pinion. R, the pinion into which the segment of a gear wheel (Q) meshes. S and S′ show the directions either way, in which the oscillating frame B is turned on the center wheel (O Figs. I and II) and center flange (N Fig. II) by means of the pinion R, and segment wheel Q. T the saw. T′, T″ show the directions in which the saw T, will be moved either way and between which points it may be placed at any angle. U, shows the table upon which the timber to be cut is placed. V shows the belt connecting the pulleys I and J (Fig. II).

Fig. II, a vertical section in the direction of the line *x x* Fig. III. B, B, show the oscillating frame. F the crank which is keyed to the shaft. G, the shaft having its bearings on the top of the oscillating frame at the points H, H. I a pulley, belting on to the pulley J. J a pulley driven by a belt from the motive power on the pulley K. L, a shaft having its bearings in the box M and center flange N. M, the center flange, secured to the stationary frame A. N′ the bearing of the center flange N. O, the center wheel. O′ the rib extending around the same. A the stationary frame. C the saw-frame or gate. U the table upon which the timber to be cut is placed. V a belt connecting the pulleys I and J.

Fig. III, a plan view. A shows the stationary frame. B, B show the oscillating frame. C, the saw-frame or gate. D D the gate slides or guides. F the crank keyed to the shaft G. G the shaft, having its bearings at the points H H, (Fig. II). J a pulley driven by a belt from the motive power on the pulley K. Q, the segment of a gear wheel that meshes into the pinion. R, the pinion into which the segment of the gear wheel (Q) meshes.

Fig. IV, a view of the center flange N Fig. II, which forms a circular bearing for the lower back end of the oscillating frame B, N showing the center flange.

Fig. V, a view of the means employed for dressing the timber, *a* showing a bevel gear, meshing into the gear *b*, on the upper end of the shaft. *c*, the cutter shaft. *d*, a point or step on the lower end of the shaft (C). B shows the oscillating frame. *e*, a box, by which the step *d*, and the upper end of the shaft is attached to the oscillating fraine B. *f* shows the cutters. *i* the position occupied by the cutters *f*. *c′ c″* the direction in which the oscillating frame B should be turned, to bring the edge of the cutters *f* into the plane of the lines *c′ c″*.

Nature of invention.—The nature of my invention consists in constructing a machine for sawing and dressing bevel surfaces of timber.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

Construction and operation.—O is a stationary wheel, provided with a projecting rim of iron turned true (face and edges) in a lathe. This wheel is bolted on to frame A, which is stationary and forms the foundation for the whole machine. On the opposite side of this frame A, is bolted center flange (N Fig. II) which is placed on the same center as wheel O (in Fig. II).

B, B is an oscillating frame, so made that its front end will encompass center wheel O (Fig. I) while its back end sets on center flange (N Fig. II): to this oscillating frame

(B B) the clamps P, P, (Fig. I) are fastened, which clamp (P, P, Fig. I) steady frame B, B, and hold it in its proper position, square to the face of wheel O, whether the said frame (B B) be vertical or oblique, or moving from the one position to the other. These clamps (P, P) are grooved and fitted to the projecting part of wheel O. This frame B B oscillates on wheel O and center flange (N Fig. II).

Q, is the segment of a geared wheel bolted on to the side of the oscillating frame B B.

R, shows a crank shaft and pinion, acting upon segment Q, and by which the oscillating frame (B, B) is oscillated or moved from one point to another.

D, D, are grooved slides, fastened to the front of frame B, B, in which the saw-sash or gate C runs, in which sash (C) is secured a narrow saw T. On top of frame B B, the shaft (G Fig. II) is placed and held in position by means of the journals H, H (Fig. II).

To the front end of shaft G (Fig. II) is attached crank F (Fig. I) which is connected with saw-sash C (Fig. I) by means of pitman P (Fig. I). On the opposite end of shaft G (Fig. II) is secured pulley I (Fig. II) which receives belt V (Figs. I and II) which passes around pulleys I and J (Figs. I and II). Pulleys J and K are secured to shaft L (Fig. II) one end of which runs in journal M (Fig. II) and the other end runs through the center flange N (Fig. II) which is hollowed out to receive it.

The motion is to be communicated from the motor by means of a belt running on pulley K, which drum being fastened to shaft L (Fig. II) and that to pulley J (Fig. II); then belt V (Figs. I and II) from pulley J (Fig. II) gives motion to pulley I (Fig. I) shaft G (Fig. II) crank F (Fig. I) pitman E (Fig. I) sash C (Fig. I) and saw T (Fig. I).

It will be seen that as shaft L (Fig. II) is placed in the center of the flange N (Fig. II) which is the common center of oscillation for frame B, B, (Figs. I and II) belt V (Figs. I and II) will not be tightened or loosened by means of the oscillation of frame B, B (Figs. I and II) or by the change of position of pulley I (Fig. II) and therefore the motion of the shaft G (Fig. II), crank F (Fig. I) pitman E (Fig. I) sash C (Fig. I) and saw T (Fig. I) will proceed as well, whether frame B B (Fig. I) be stationary or in motion or whether its position be vertical or oblique. The stuff to be cut is placed on table U (Fig. I) which table may be either of smooth surface, or provided with rollers.

The stuff may be propelled against the saw by hand or fed by rollers.

As the stuff or plank to be cut proceeds, a man by means of crank shaft and pinion R can move or oscillate frame B. B, and with it the saw T (Fig. I) so as to adjust it (the saw T) to any required bevel and can continue to oscillate the saw (T Fig. I) gradually from one point to another, so as to produce a regular twist or continuous changing angle from one end of the stuff to the other, which is considered of great use in cutting ship timber.

The table U (Fig. I) is so placed that the top of the stuff to be cut (which contains the mold mark) is at the center of wheel O (Fig. I) and consequently at the center of oscillation of frame B. B and of saw T (Fig. I) so that there will be no lateral motion of the saw (T Fig. I) at that point and consequently no leaving of the mark at that point in consequence of the oscillation of the frame (B. B) and saw (T Fig. I). The stuff to be cut passes through wheel O (Fig. I) and comes out on the other side. If the stuff to be cut be long, then the table U (Fig. I) should be declined, so that the stuff will go below flange N (Fig. II) in passing through the mill.

For the purpose of planing of dressing timber or the edges of plank by means of rotary cutters, the crank, connecting rod and saw may be removed together with the saw-gate: the other parts of the oscillating frame (B. B) remaining substantially the same.

In place of the saw, gate and connecting rod, I introduce the cutter shaft *c* Fig. 5. This is driven by a bevel gear (*a* Fig. 5) placed upon the forward end of the crank shaft (G Fig. II), the gear (*a* Fig. 5) meshing into the gear *b* (Fig. 5) on the upper end of the shaft *c* (Fig. 5). The lower end of this shaft (*c* Fig. 5) is provided with a point or step (*d* Fig. 5) or its equivalent. This step (*d* Fig. 5) is attached to the oscillating frame (B. B) and the upper end of the shaft (*c* Fig. 5) is attached to the same by means of the box (*e* Fig. 5).

The shaft (*c* Fig. 5) is furnished with cutters *t* (Fig. 5) constructed in the usual manner. The shaft (*c* Fig. 5) is set half the diameter of the distance from the center of the shaft (*c* Fig. 5) to the cutting blades (*t* Fig. 5) to the right or left of the center or axis of the oscillating frame (B B) so that the edge of the cutting blades (*t* Fig. 5) will sweep the center or axis of the oscillating frame (B B), whatever may be the angle at which the shaft (*c* Fig. 5) stands relative to the stationary frame A and table U (Fig. I) or in other words, the cutting edge of the cutters (*t* Fig. 5) must occupy the same relative position that the saw (T Fig. I) occupied. This position is shown at *i* Fig. 5. The shaft G (Fig. II) must be moved to the right or left, so that the wheels (*a* and *b* Fig. 5) may gear together.

A plank to be cut, dressed or beveled is placed upon the table U (Fig. I) and the

line to which it is to be cut, marked upon its upper side. If the shaft *c* (Fig. 5) with the cutters (*t* Fig. 5) revolve in the vertical plane, the edge of the plank will be cut square or at right angles to its surface, but, as in the case of the saw (T Fig. I) before described, if the oscillating frame (B B) be turned to the right (*c'*) or left (*c''*) the edge of the cutters (*t* Fig. 5) will be brought into the plane of the lines *c'* and *c''* (Fig. 5), or they may be caused to revolve at any angle between these lines (*c'* and *c''* Fig. 5). Now, while the cutter shaft (*c*, Fig. 5) is in motion and the knives or cutters (*t* Fig. 5) acting upon the edge of the plank, by operating the segment (Q Fig. I) by means of the pinion (R Fig. I) a continually changing bevel or twisting edge may be produced.

The peculiar features of this invention, are, not in the use of a saw or cutters, for both or either may be used, but in the construction of an oscillating frame (B. B) with its parts and appendages or their equivalents, whether the bearings or points of support are internal or external to the same, the respective parts being so arranged that any desired angle or bevel can be cut or sawed, either continuously or constantly changing.

Having thus fully described my invention I do not claim to have been the original inventor of an oscillating saw-mill. Nor do I claim sawing bevel surfaces on timber, by tilting the timber, when presented to the saw. But

I do claim as new—

The employment of the oscillating frame B. B, in combination with the center wheel O, central flange N (Fig. II) and saw T or cutters (*t* Fig. 5) when the same shall be constructed in the manner described and for the purpose specified.

JOHN McDIARMID.

Witnesses:

J. W. McGeviran,

A. Sidney Doane.