Flanders, Drake & Fox,

Band Saw Mill.

No. 18,394. Patented Oct. 13, 1857.

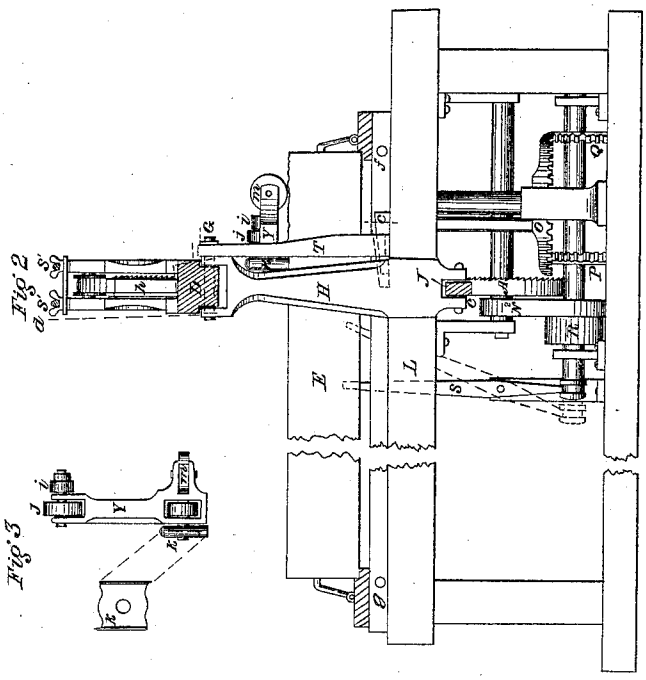


Fig. 2

Fig. 3

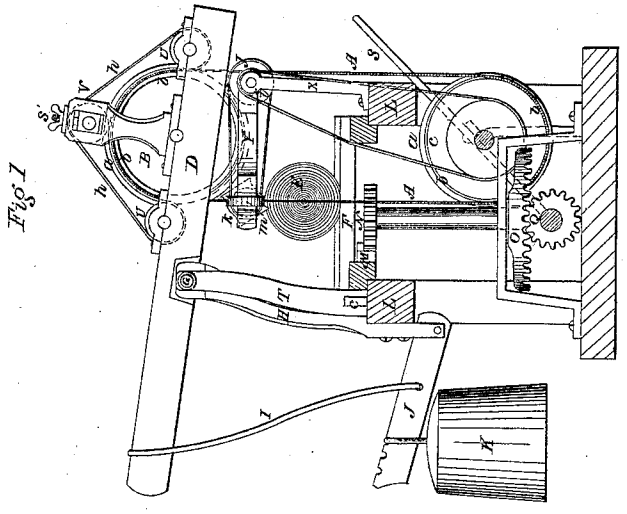


Fig. 1

AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS)

UNITED STATES PATENT OFFICE.

WOOSTER A. FLANDERS, OF TROY, NEW YORK, JAMES B. DRAKE, OF WILLIAMSPORT, PENNSYLVANIA, AND A. W. FOX, OF ELMIRA, NEW YORK.

SAWMILL.

Specification of Letters Patent No. 18,394, dated October 13, 1857.

To all whom it may concern:

Be it known that we, WOOSTER A. FLANDERS, of Troy, in the county of Rensselaer and State of New York, JAMES B. DRAKE, of Williamsport, in the county of Lycoming and State of Pennsylvania, and A. W. FOX, of Elmira, in the county of Chemung and State of New York, have invented a new and Improved Mode of Constructing Sawmills; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making part of this specification, in which Figure 1 is a vertical section and Fig. 2 is a longitudinal elevation, and to the letters of reference marked thereon.

The same letters refer to corresponding parts in each figure. A, A, Fig. 1, is the saw. B and C are the pulleys on which it runs.

D is the adjustable frame for the pulley B.

E is the log, and F the carriage.

The saw is made of flexible steel, and runs as a belt over the pulleys B and C, the lower pulley being driven by power. The frame D is movable upon the bolt G, which forms a bearing in the post H, and has attached at its extremity a rod I, by which it is connected with the wighted lever J. By regulating the weight K on this lever the requisite tension is obtained. The carriage F slides on the frame L, the feed motion being applied to the rack M on the side frame of the carriage, by means of the pinion N, on the vertical shaft of the crown wheel O, which is driven by the pinion P and Q, on the horizontal shaft of the drum R which is driven by a band from a pulley N^2 (Fig. 2,) upon the shaft of the lower saw-pulley C. This arrangement for feeding also effects the gigging-back of the carriage, by means of the lever S, sliding the shaft until the pinion P gears with an inner circle of cogs on the crown wheel, by which the reverse motion is obtained at a much faster rate than the feed motion. The saw pulleys B and C are provided with a flange *a a*. At the back of the saw, and also with an elastic covering of india rubber *b b*, or other suitable material to give greater adhesion to the saw to prevent its slipping, and also to prevent the set being taken out of the teeth by pressure upon an unyielding surface. Leather, felt, gutta percha and other elastic substances may be employed for this purpose, but I prefer to use india rubber.

To prevent the saw when operating from bearing so hard against the flange *a* as to produce unnecessary friction or wear, I cant, or incline the upper pulley (on which this effect would be chiefly produced from its being so near the log or timber sawed) slightly toward the log, or in the direction from which it is fed so as to give it a slight tendency to run off, which of course is prevented by the pressure of the log against the teeth and just serves to prevent friction on the flange. In gigging back the carriage, I cant the pulley in the opposite direction making the saw hug the flange, otherwise it would be drawn off by the gripping of the kerf in the log. These movements are effected by means of the slide-post T which rises from the frame L and terminates in a socket, which is fitted to the bolt G. This bolt extends entirely through the post H, having two bearings in it, and supporting the frame D, between the two. The wedge *c*, passes through a slot in the slide-post, and when driven forward raises it so as to incline the frame D and pulley B in the direction indicated by the dotted line *d*. This movement of the wedge is produced by the pin *f* in the carriage which strikes the wedge the moment the log is cut through and drives it forward sufficiently to effect this object. The carriage being gigged back the pin *g* at the other end, strikes the point of the wedge, and loosens it so as to take the post back to its former position, and leave the saw ready for operation again. These movements are automatic, requiring no attention from the sawyer.

On each side of the pulley B is placed a friction pulley U U. A band *h h* is placed over the top of the saw pulley around these friction pulleys, and over a third pulley V at the top of the frame. This band serves to give a better grip to the belt-saw by holding it more firmly to the pulley B and by presenting two surfaces for adhesion. The pulleys U U may be connected with the driving shaft if required, and made to assist in propelling the saw for heavy work. These pulleys also serve an important purpose in preventing the saw from vibrating as it leaves the pulley B and guiding it so

as to overcome any tendency to fly off which it might have, from centrifugal force when driven at a high rate of speed. The standard X, Fig. 1, supports a shaft having upon it a movable arm Y, a small pulley *i* driven by a belt from the main shaft. The arm extends directly over the log where a rotary cutter head *k* is attached being driven by a band from the pulley *j*. This cleaves away the rough and dirty bark from the log, leaving a clear path for the saw. A tracker or small roller *m* is placed in front of the cutter to adapt it to the irregularities of the surface, the arm being movable upon its bearing in the standard X′ and resting by its weight only on the log. This effects an important saving of hand labor and insures a safe and clean path for the saw without fear of gravel or dirt which might by oversight of the sawyer, remain to dull and injure the saw. Fig. 3, represents a plan view of this arrangement, with elevation of the cutter head detached.

We are aware that an endless or belt saw is not new and such simply we do not claim, but

What we do claim as our invention and desire to secure by Letters Patent is—

1. Canting or inclining the saw-pulley B forward and back for the purpose described by means of the slide-post T and wedge *c*, operated as described, or by any analogous means by which the same results are produced.

2. We also claim the arrangement and combination of the track-clearer Y, the adjustable frame D, the weighted lever J, and saw A, in the manner and for the purpose herein fully described.

WOOSTER A. FLANDERS.
JAMES B. DRAKE.
A. W. FOX.

Witnesses to W. A. Flanders:
JAMES S. T. FOX,
DANIEL L. KELLY.
Witnesses to Jas. B. Drake:
LUTHER H. WIER,
EDWARD THOMAS.
Witnesses to A. W. FOX:
EDWD. V. COULION,
JEFFERSON FRASER.