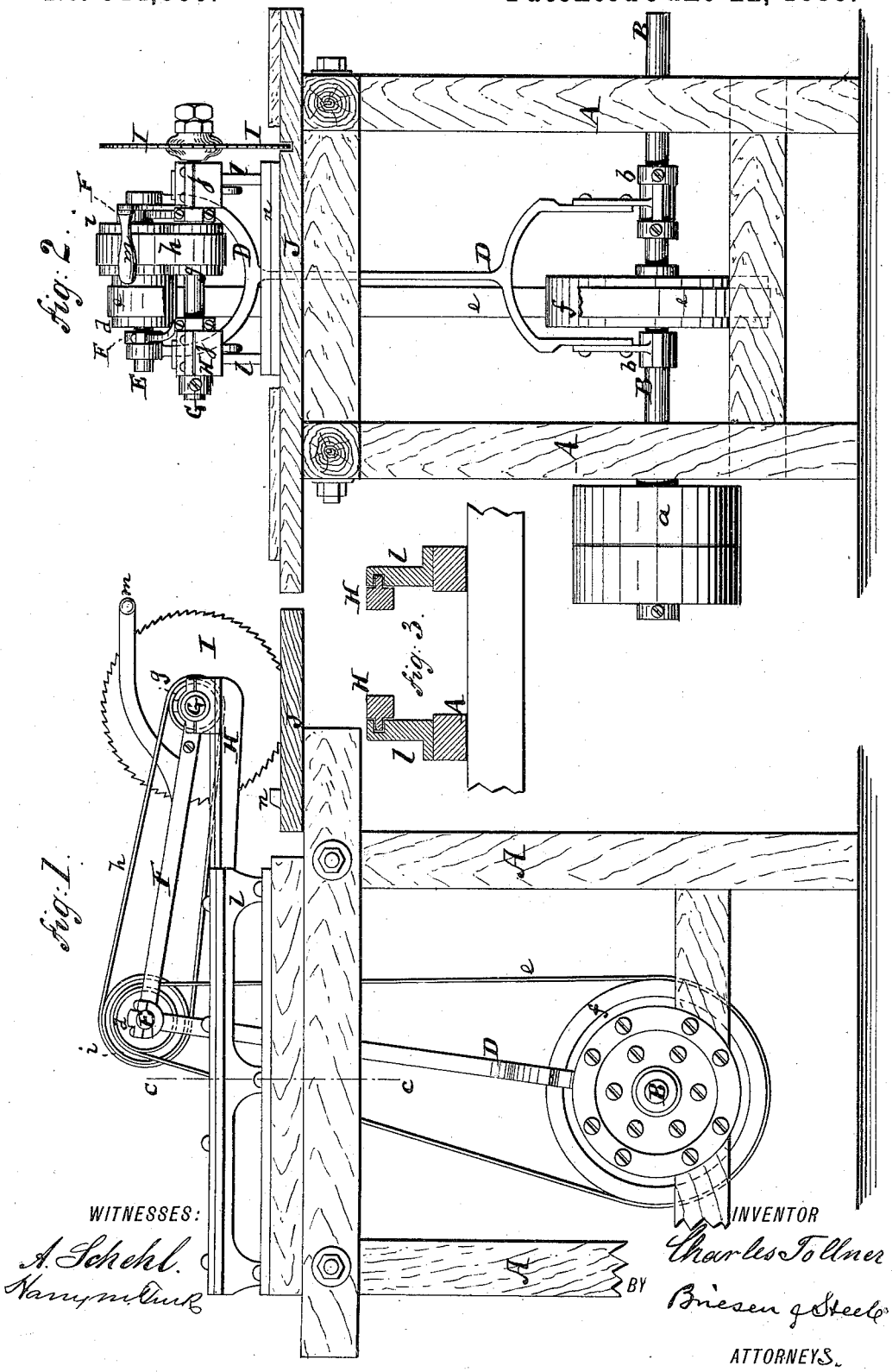
(No Model.) 2 Sheets—Sheet 1.

C. TOLLNER.

CIRCULAR SAWING MACHINE.

No. 344,066. Patented June 22, 1886.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

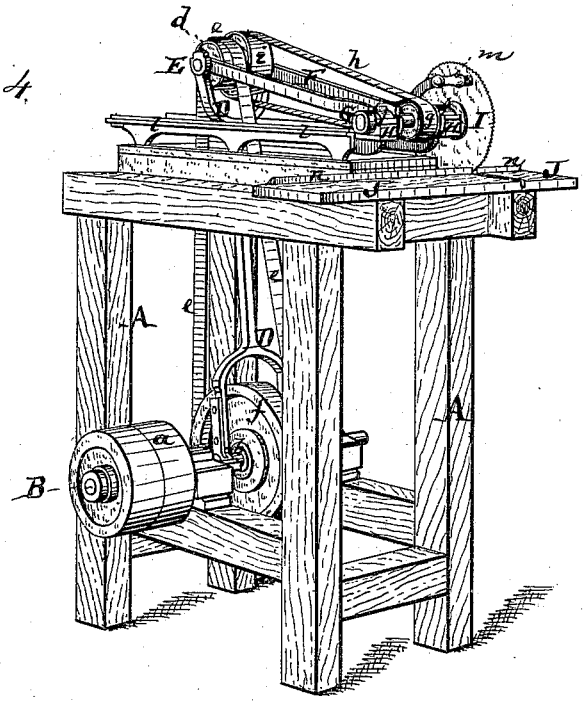
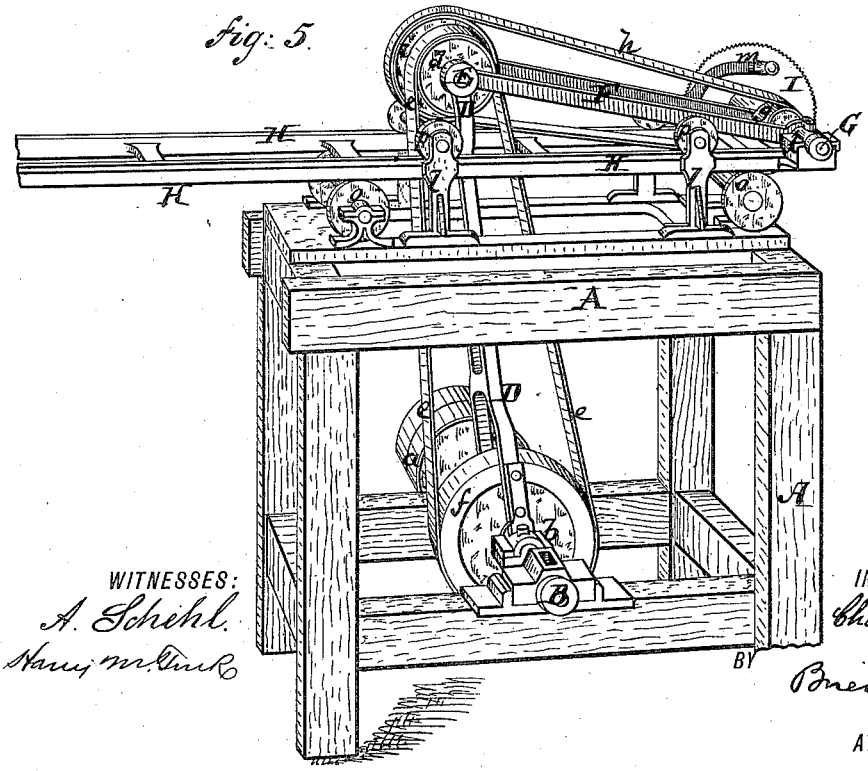


Fig. 5.



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UNITED STATES PATENT OFFICE.

CHARLES TOLLNER, OF PULASKI, NEW YORK.

CIRCULAR SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 344,066, dated June 22, 1886.

Application filed September 3, 1885. Serial No. 176,060. (No model.)

To all whom it may concern:

Be it known that I, CHARLES TOLLNER, a resident of Pulaski, in the county of Oswego and State of New York, have invented an Improved Circular-Saw Machine, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of my improved circular-saw machine. Fig. 2 is a front elevation of the same; Fig. 3, a cross-section on the line *c c* in Fig. 1. Fig. 4 is a perspective view of the saw-machine; and Fig. 5 a perspective view of a modification of the same.

This invention relates to a new machine for sawing boards, cutting straight grooves and the like; and it consists in a combination of parts hereinafter described, by means of which the circular saw, besides being revolved, is also capable of longitudinal motion, all as hereinafter more fully described.

I find that for many purposes it is more practicable to move the saw than the board, and especially so in making boxes, when long boards, some of which are thirteen feet in length, are used and cut into short pieces. It is impracticable to move a thirteen-foot board properly against the circular saw, and therefore these long boards, where they must be fed against the saw, are first cut in two, or into shorter pieces, which can then be fed against the saw with less inconvenience. This, however, causes waste and unnecessary labor. Moreover, in any machine in which the board lies permanently and firmly, it is easy to move the saw, so as to cut off pieces with grooves for boxes or produce grooves in the board, the operator always seeing precisely what work is being performed, while in machines in which the board must be moved against the saw, or over the same, such close inspection cannot be had.

In the accompanying drawings, the letter A represents the frame of the machine, which is made of suitable material, size, and shape.

B is a driving-shaft, which is hung in the lower part of the frame A, and to which rotary motion is imparted by suitable mechanism, preferably by a belt running over a pulley, *a*, which is carried by the said shaft B, as shown in Fig. 2.

D is a bar whose both ends are forked, as shown in Fig. 2. In its forked lower end it carries boxes *b*, that embrace the shaft B. The upper forked end of the bar D has bearings, in which is hung a shaft, E. This shaft E carries a pulley, *d*, which is straddled by the upper fork of the bar D, and which, by a belt, *e*, connects with a pulley, *f*, that is mounted upon the shaft B. The lower fork of the bar D straddles the pulley *f*. Rotary motion can be transmitted from the shaft B to the shaft E, and yet the latter shaft is free to vibrate on its supporting-bar D around the axis of the shaft B.

F is a swiveled frame, which at one end connects with the shaft E and at the other end with a shaft, G, said shafts being both swiveled in the ends of the frame F, respectively, or in suitable boxes, which said frame carries. The shaft G carries a pulley, *g*, which, by a belt, *h*, connects with a pulley, *i*, that is mounted upon the shaft E, so that the motion of the shaft B can be transmitted to the shaft E, and thence to the shaft G, while said three shafts B, E, and G are connected by the jointed bar D and frame F. The shaft G is also supported in boxes *j*, which are rigidly attached to a sliding carriage, H, that is guided in a grooved upper portion, *l*, of the frame A.

Fig. 3 shows the parts H and *l* in cross-section, and from this figure it will be clearly understood that the outwardly-projecting rails or ribs on the sliding carriage H enter grooves in the stationary framing *l*, and are thus supported and guided in a straight line. A suitable circular saw, I, is mounted upon the shaft G. A suitable handle, *m*, is attached to the frame F, to allow the operator to move the saw backward or forward.

J is a guiding-table, upon which the board to be cut is to be placed. This table J may be grooved beneath the saw, as indicated in Fig. 2, thereby allowing the saw to produce a clean cut, so that there will be no fuzz on the edge of the piece cut off. The drawing represents the table J to be below the saw. It is, however, clear that substantially the same invention may be used where the saw extends from beneath, through a table that supports the board to be cut or grooved. I prefer the arrangement shown in the drawings, because

it enables the attendant to follow the work which the saw performs and keep it under complete control, especially when the saw is to be used for grooving.

The operation of the machine will be readily understood. The board to be sawed is placed on the table J, against a suitable stop, *n*, and the saw, which is being revolved by the belt-connection with the shaft B, is then drawn forward, so as to cut through the board. Fig. 1 represents it in position where it is drawn forward to about half of its extent of motion. By being hung in the sliding carriage H, the saw-shaft G is capable of rectilinear motion when drawn or pushed by the handle *m*, and this support H also prevents the saw from exercising any influence on the wood it cuts by weight. It simply acts as a cutting-tool.

Instead of providing the saw-frame F with the handle *m*, that can be moved by hand, it may be connected with a projection, which may enable it to be moved by the foot or automatically, if desired. The guides or slides of the saw, by which a straight run is obtained, may either be of the construction shown in Fig. 3, or as in Fig. 5, where the carriage H is represented as traveling on rollers *o*, that are hung on the frame A, and beneath rollers *p*, that are hung on uprights *l*, which project from the frame A. In other words, the lower rollers, *o*, combined with the upper rollers, *p*, take the place of the groove which is shown in Fig. 3.

It will readily be perceived that the saw I can be moved freely backward and forward without altering the tension of the belt. The sliding carriage H is practically used only to give the saw a path wherein to travel during its reciprocating motion without straining the jointed frames D F or their belts *e* and *h*.

I do not claim a circular-saw mill in which the saw is movable and hung, as in Patents Nos. 176,343, 311,421, 176,060, and 128,472.

What I claim is—

The combination of the frame A and its driving-shaft B, having pulley *f*, with the bar D, swivel-frame F, having handle *m*, shaft E, which carries the pulleys *d* and *i*, and which joins the bar D to the frame F, saw-shaft G, having pulley *g*, carriage H, saw I, which is mounted upon the shaft G, and grooved table J, having stop *n*, all arranged substantially as described.

CHARLES TOLLNER.

Witnesses:
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C. F. WOODS.