(No Model.) 3 Sheets—Sheet 1.

E. E. ELDER.

MACHINE FOR SAWING WOODEN GUTTERS.

No. 356,280. Patented Jan. 18, 1887.

Fig. 1.

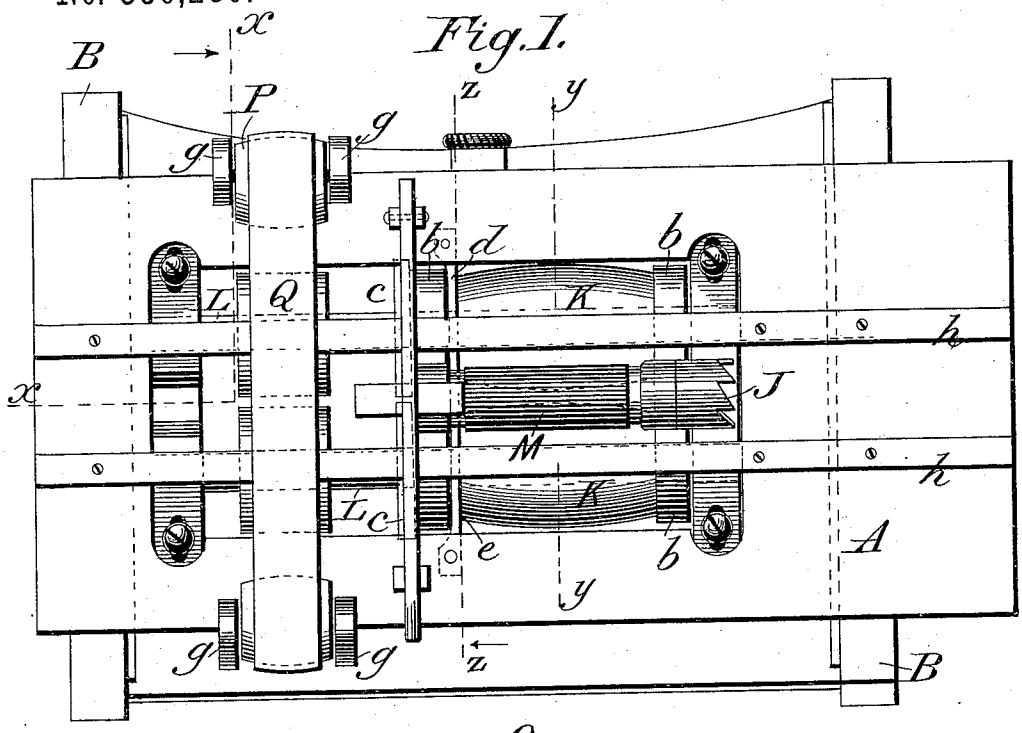
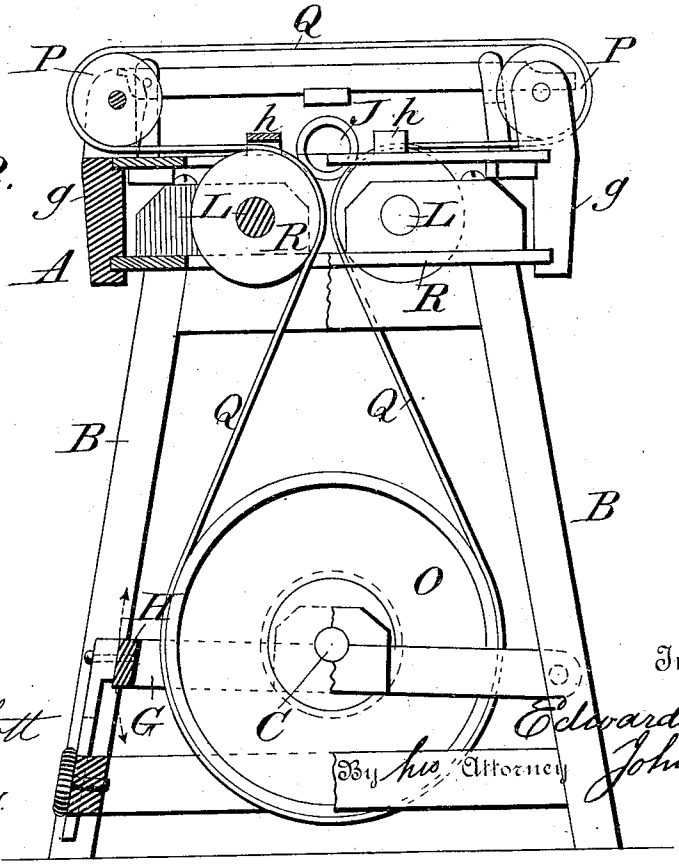


Fig. 2.



Witnesses
F. H. Schott
F. E. Baker.

Inventor
Edward E. Elder
John C. Tasker

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 3 Sheets—Sheet 2.

E. E. ELDER.

MACHINE FOR SAWING WOODEN GUTTERS.

No. 356,280. Patented Jan. 18, 1887.

Fig. 3.

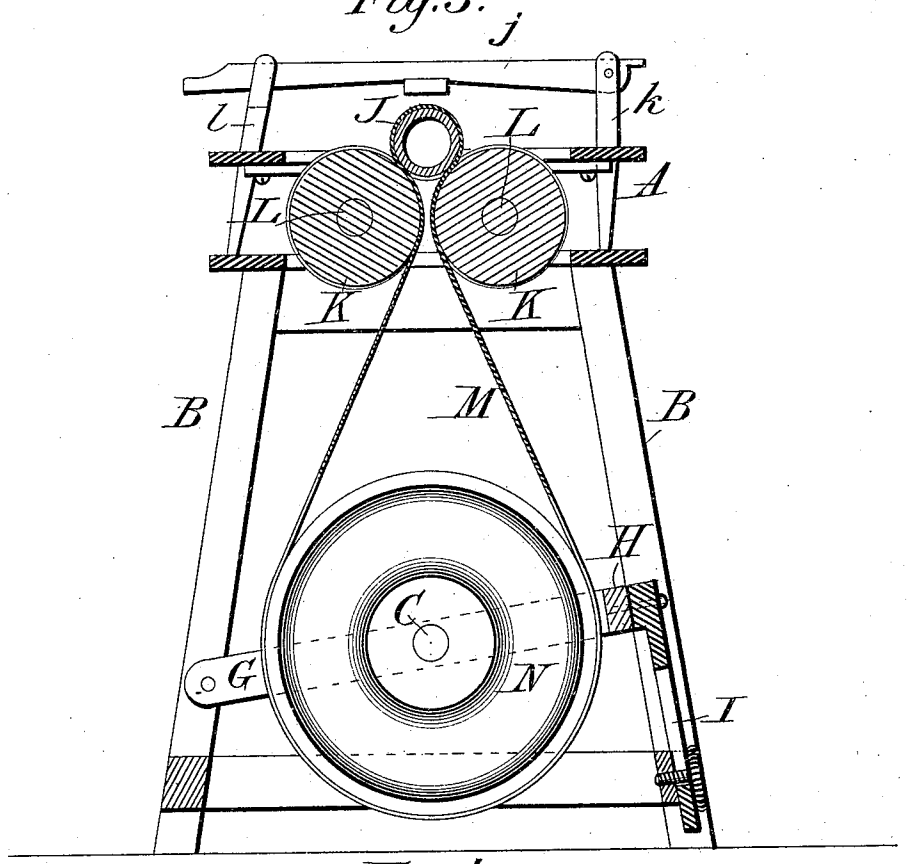


Fig. 4.

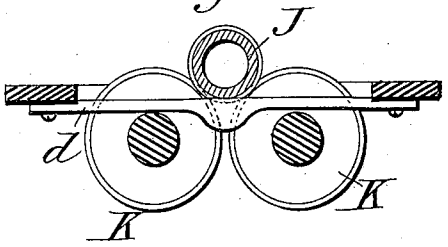
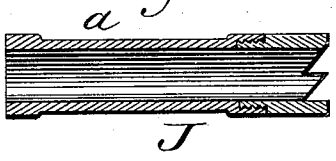


Fig. 5.



Witnesses
F. H. Schott
Fred E. Tasker.

Inventor
Edward E. Elder,
By his Attorney John C. Tasker.

N. PETERS, Photo-Lithographer, Washington, D. C.

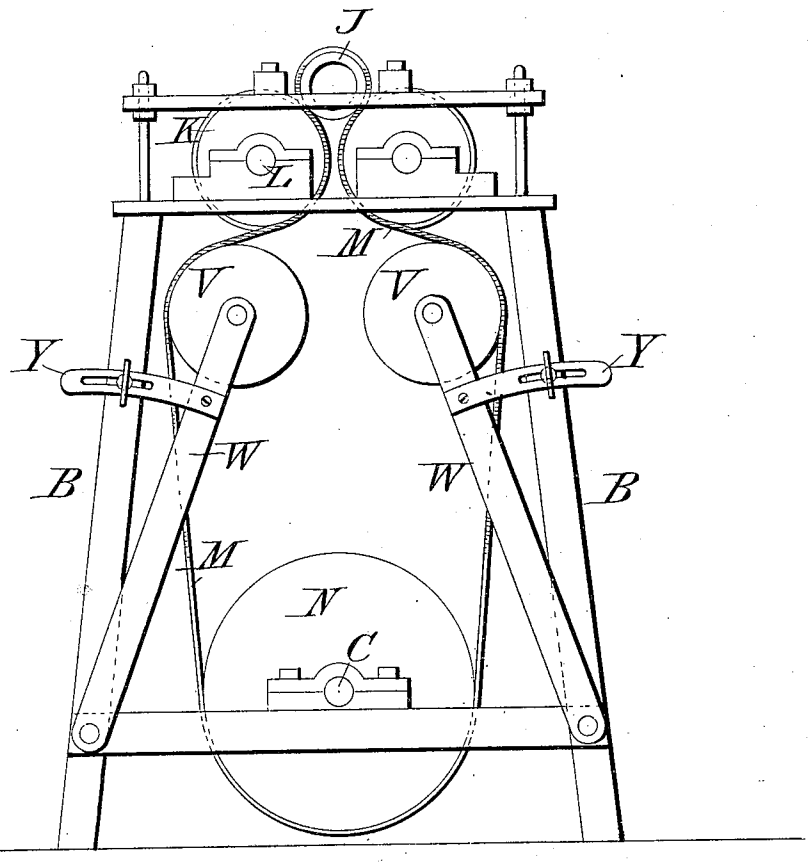
(No Model.) 3 Sheets—Sheet 3.

E. E. ELDER.

MACHINE FOR SAWING WOODEN GUTTERS.

No. 356,280. Patented Jan. 18, 1887.

Fig. 6.



Witnesses
F. H. Schott
Fred E. Basker.

Inventor
Edward E. Elder,
By his Attorney John C. Baxter

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

EDWARD E. ELDER, OF LYNN, MASSACHUSETTS.

MACHINE FOR SAWING WOODEN GUTTERS.

SPECIFICATION forming part of Letters Patent No. 356,280, dated January 18, 1887.

Application filed May 4, 1886. Serial No. 201,089. (No model.)

To all whom it may concern:

Be it known that I, EDWARD E. ELDER, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Sawing Wooden Gutters; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to that class of wood-working machinery known as "machines for sawing wooden gutters;" and it consists in the construction, arrangement, and combination of parts, as will be hereinafter fully set forth.

In the annexed drawings, illustrating my invention, Figure 1 is a top plan view of my improved machine for sawing wooden gutters. Fig. 2 is a sectional left-end elevation of the same on the line *x x* of Fig. 1. Fig. 3 is a vertical section on the line *y y* of Fig. 1. Fig. 4 is a detail cross-section on the line *z z* of Fig. 1. Fig. 5 is a longitudinal section of the tubular saw; and Fig. 6 is an end elevation of the machine, showing a modified arrangement of the actuating mechanism for the saw.

Like letters of reference designate like parts in the several views.

The mechanism comprising my improved device for sawing wooden gutters is mounted in a suitable frame-work consisting of a table, A, the supporting legs or braces B B, and the pieces for properly connecting and strengthening these various parts.

C represents the counter-shaft, which runs lengthwise of the table and carries suitable pulleys for driving said shaft, and the pulleys N and O for a belt-connection with the saw and the anti-friction rollers. The shaft C is journaled in an adjustable frame consisting of the horizontal side bars, G G, pivoted at one end to the frame of the machine, as shown in Figs. 2 and 3, and provided with the boxes in which the shaft C is journaled. The other ends of the side bars are connected by a strip, H, to which is secured a perpendicular slotted bar, I, which is held in place at any desired point by a clamp passing through the slot into the frame or by other convenient adjusting mechanism. The frame into which the shaft C is journaled is thus rendered movable, so that the connecting-belts between the pulleys on said shaft and the mechanism above may be tightened or loosened at pleasure.

The tubular saw J is constructed in the ordinary manner, it consisting of a piece of steel tubing bored smoothly and turned off on the outside. The exterior surface of the tube, except the terminal portions, is formed with a shrinkage, *a*, or is slightly depressed, to receive the thin driving-belt. One end of this tube is provided with the portion having saw-teeth, which portion is made to screw or otherwise fit tightly therein. The saw J, although in general constructed after the ordinary pattern, can be made much shorter than usual by reasons of the improved bearings which are provided for it, and thus a narrow belt is enabled to drive it.

The improved bearings for the saw consist, essentially, of a pair of parallel horizontal anti-friction-rollers, K K, mounted close together upon shafts L L, which are journaled in suitable boxes on the frame of the machine. These rollers K K support the tubular saw, which rests thereon in the manner shown in Fig. 3. They are constructed as follows: Each end is made for a short distance perfectly cylindrical in form, as at *b;* but the remainder of the rollers intermediate between these cylindrical sections is made slightly convex or crowned, as seen in Fig. 1, in order to form the face of a pulley, since these rollers serve the double function of pulleys to drive the saw and bearings to support it. The terminal portions of the saw, which, as above stated, are slightly larger than the middle belt-holding portion, rest upon the parts *b* of the rollers. The rollers are further provided with rear encircling-flanges, *c*, which receive the end-thrust of the saw in one direction, while any thrust in the opposite direction is overcome by means of a horizontal cross-bar, *d*, secured at either end to the frame-work of the machine, and let into deep grooves *e*, formed in the rollers K K, to receive it.

The saw is actuated by means of the belt M, which passes around the pulleys N on the shaft

C, thence upward between friction-roller K and the saw J on the one side, over the saw J, and then down between the roller K and the saw on the other side, said rollers being located so closely together that the belt will bind tightly against them, as well as the saw, and thus impart motion simultaneously to the saw and to the rollers, thereby causing the former to be steady, uniform, and powerful in its operation.

In addition to the single driving-belt M for the saw and rollers it is often best to provide other mechanism to assist in accomplishing the same purpose. This additional mechanism is shown in Fig. 2. A pulley, O, is mounted upon the counter-shaft C in like manner with the pulley N, also pulleys P P are journaled in suitable standards, *g g*, secured upon opposite sides of the upper portion, A, of the frame, and pulleys R R are mounted upon the shafts L L, which pass through the rollers K. A belt, Q, passes around the pulley O, then upward on each side over the pulleys R, and then around the pulleys P. The actuation, therefore, of the shaft C will impart motion to the rollers K through the medium of the belt and pulleys just described. This supplementary driving mechanism serves to re-enforce the power given by the belt M, and thus increase the effective operation of the saw; but it may be dispensed with, if desired.

Instead of having the shaft C journaled in an adjustable frame, as shown in Figs. 2 and 3, the feature of adjustability in this frame may be dispensed with and the loosening or tightening of the belt effected by different means.

In Fig. 6 is represented a modified form of the actuating mechanism for the saw. The driving-shaft C is not adjustable; but the loosening and tightening of the belt M is accomplished by means of rollers V V, journaled in adjustable frames, consisting of the pivoted bars W and the slotted rods Y, the rods W being pivoted, preferably, to the posts B, and the rods Y secured at one end to the rods W, and clamped at the other extremity by any suitable clamp to the posts or legs B. The arrangement of the rollers is clearly shown in Fig. 6. They are so situated beneath the rollers K K that the belt M, as it leaves the rollers K K, may pass around the said rollers V, and by means of the adjustability of the frame in which these last-mentioned rollers are journaled the belt M can be tightened at pleasure. By this means, also, the driving-power of the belt M will be increased, inasmuch as the rolls V are so located that a greater amount of the belt surface will be in contact with the rolls K K.

The operation of the saw is obvious. The piece out of which the gutter is to be sawed having been cut to the proper size is passed along the table A, between the guides *h h*, and the saw operates thereon to form the gutter. A transverse pressure-lever, *j*, pivoted to an upright, *k*, on the one side and held between a forked upright on the other side, is preferably used to bear upon and hold the stuff in place as it passes through the machine.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a tubular saw, supporting-rollers journaled beneath and in contact with the same, said rollers having grooves, and provided with annular flanges which receive the end-thrust of the saw in one direction, a stationary transverse bar located in said grooves for receiving the thrust of the saw in the opposite direction, and the actuating mechanism for the saw, consisting of a belt passing around the saw and between the supporting-rollers and over a pulley on the counter-shaft, substantially as described.

2. The combination of a tubular saw having raised annular end portions, supporting-rollers, also having raised annular end portions that are in contact with the raised portions of the saw, said rollers having grooves, and provided with annular flanges for receiving the saw-thrust in one direction, a stationary transverse bar located in said grooves for receiving the thrust of the saw in the opposite direction, and the actuating-belt for the saw and the rollers, substantially as described.

3. The combination, with a tubular saw and supporting anti-friction rollers, of the driving-belt M, actuated by the pulley N, and the belt Q, actuated by the pulley O, and passing over the pulleys P P and R R, to actuate the supporting-rollers, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD E. ELDER.

Witnesses:
WINTHROP A. HILTON,
JOHN E. MORSE.