

No. 857,071.

PATENTED JUNE 18, 1907.

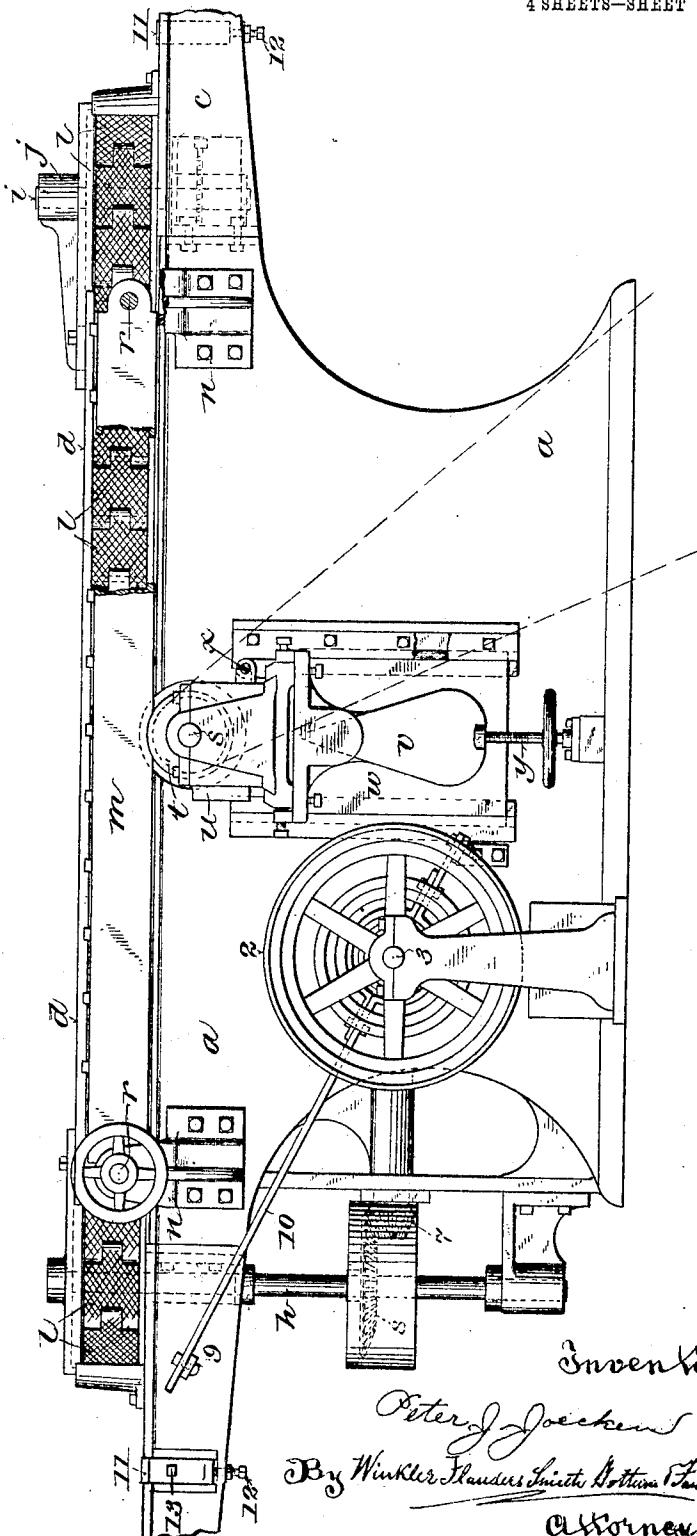
P. J. JOECKEN.

JOINTING MACHINE.

APPLICATION FILED NOV. 28, 1906.

4 SHEETS—SHEET 1.

Fig. 1.



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Chas. L. Ross.

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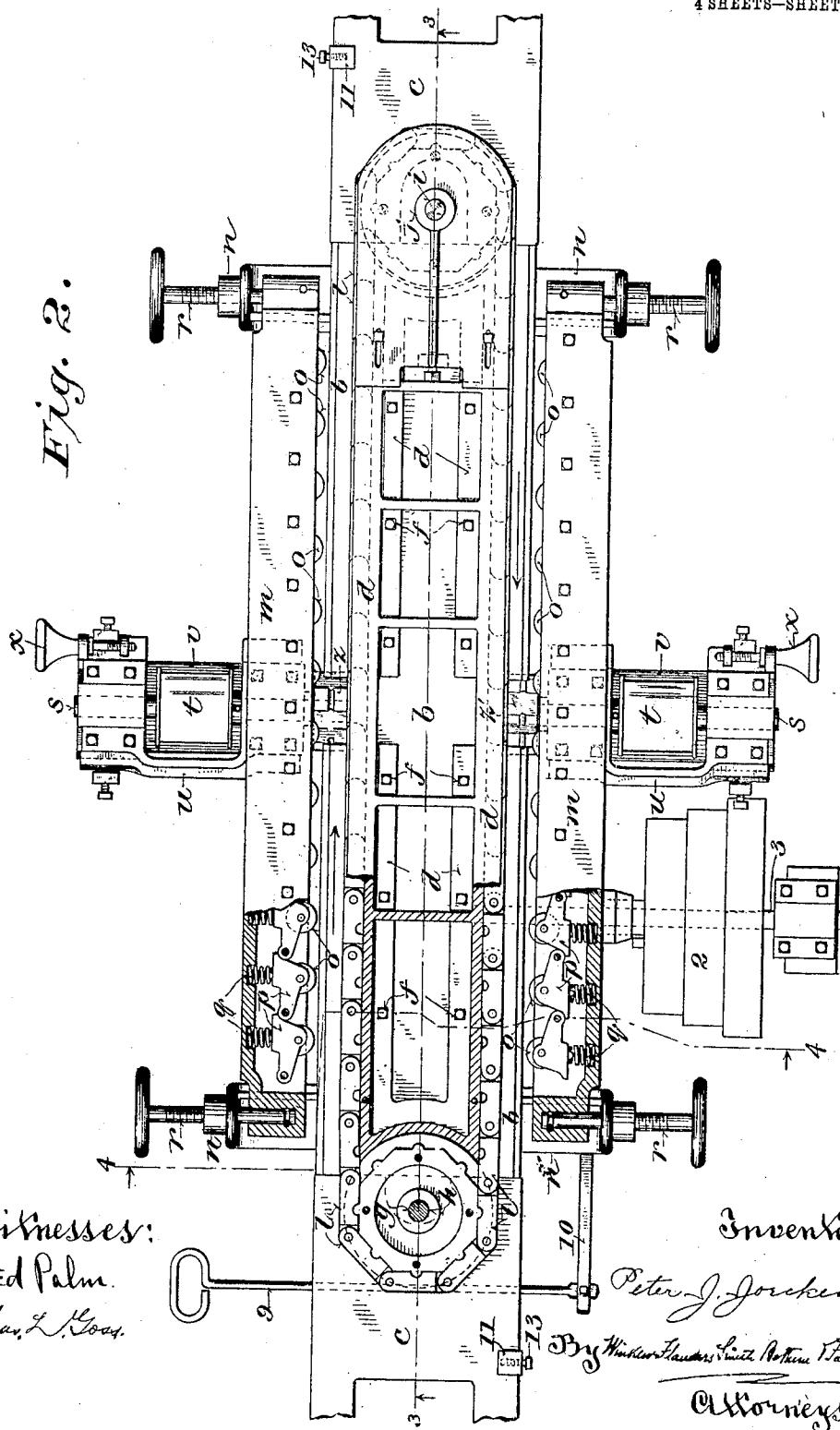
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4 SHEETS—SHEET 2.

Fig. 2.



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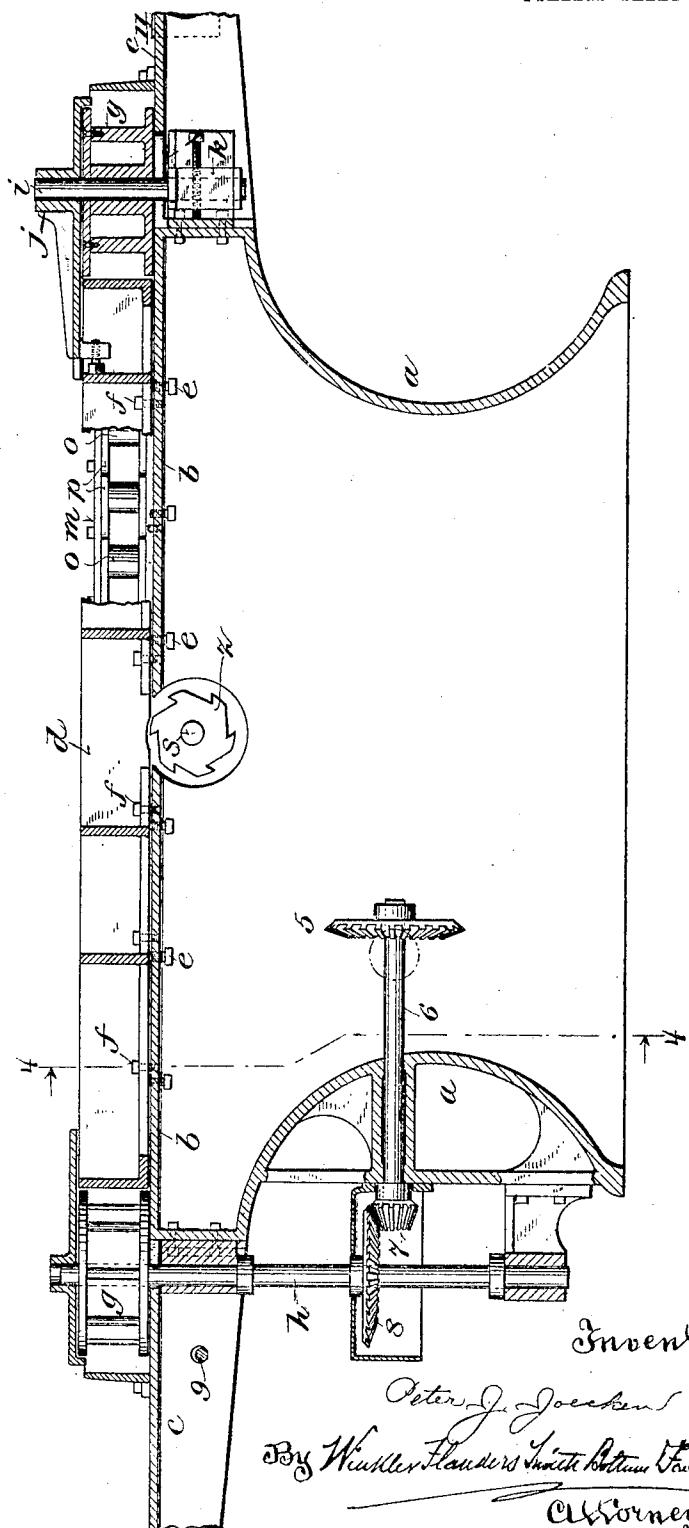
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4 SHEETS—SHEET 3.

Fig. 3.



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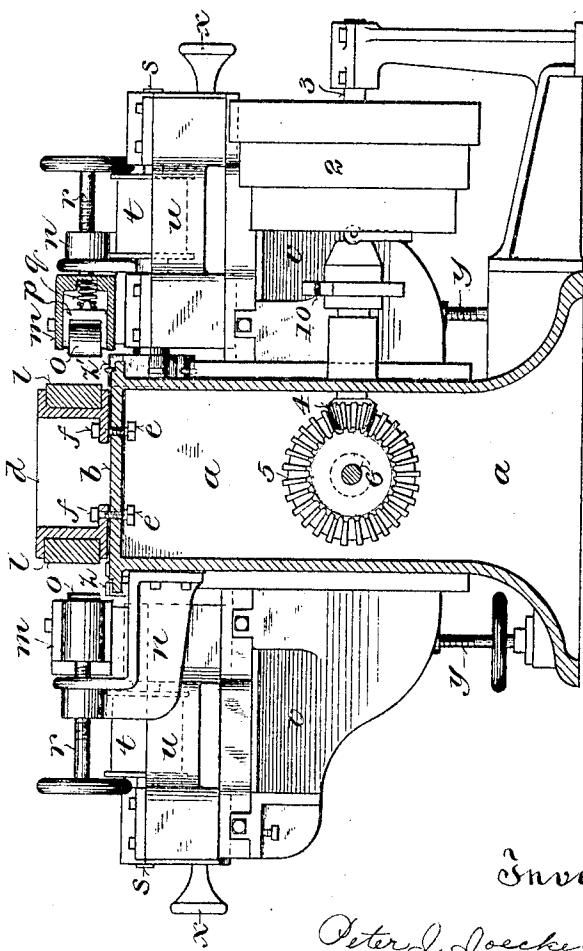
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4 SHEETS—SHEET 4.

Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

PETER J. JOECKEN, OF SHEBOYGAN FALLS, WISCONSIN, ASSIGNOR TO FALLS MACHINE COMPANY, OF SHEBOYGAN FALLS, WISCONSIN, A CORPORATION OF WISCONSIN.

JOINTING-MACHINE.

No. 857,071.

Specification of Letters Patent.

Patented June 18, 1907.

Application filed November 28, 1906. Serial No. 345,453.

To all whom it may concern:

Be it known that I, PETER J. JOECKEN, a citizen of the United States, residing at Sheboygan Falls, in the county of Sheboygan and State of Wisconsin, have invented certain new and useful Improvements in Jointing-Machines, of which the following is a specification, reference being had to the accompanying drawing, forming a part thereof.

This invention relates more particularly to continuous chain-feed machines for forming either tongue and groove or plain faced joints.

The main objects of the invention are to insure straight edges which will form perfectly closed joints from end to end, and generally to improve the construction and operation of machines of this class.

It consists in certain novel features of construction and in the peculiar arrangement and combinations of parts as hereinafter particularly described and pointed out in the claims.

In the accompanying drawing like characters designate the same parts in the several figures.

Figure 1 is a side elevation of a jointing machine embodying the present invention; Fig. 2 is a plan view of the same; Fig. 3 is a longitudinal section on the line 3-3, Fig. 2; and Fig. 4 is a cross section on the line 4-4, Figs. 2 and 3.

In machines of this class the feed chain guides have heretofore been permanently or immovably secured to the main frame or bed, and since the work as it passes through the machine along the jointing cutter head takes the direction of the feed chain, any warping or deflection from a right line of the chain guide will result in imperfect joints. It has been found in practice very difficult if not impossible to make both the bed on the main frame and the base of the chain guide perfectly straight and true, and if true when finished, to prevent their becoming warped or distorted when the machine is set up for use. If one of the parts is out of true it has been found that the other, even if perfectly straight, will be distorted when they are bolted together in the usual way, thus throwing the feed chain out of alinement and resulting in imperfect work. It has also been found, in practice, particularly in jointing

long stuff, that the weight of the unsupported ends of the pieces of material after they leave the feed chain, tend to lift the ends still held between the chains and the opposing pressure rollers away from the cutter heads and thus produce slightly curved or imperfect joints. To remedy these difficulties is the main purpose of the improvements constituting the present invention.

Referring to the drawing, *a* designates the main frame, preferably cast in one piece with a horizontal bed *b* at the top. At the ends 65 this bed is provided with extensions *c* for supporting the material as it is fed to and discharged from the machine. Upon the bed is mounted a chain guide *d* which is flanged on its outer and opposite sides to form longitudinal channels or ways for the feed chain. Instead of mounting this guide in the usual way directly upon the main frame or bed *b*, it is supported upon vertical adjusting screws *e*, which are threaded at intervals in the bed, 75 and it is secured thereto by binding screws *f* passing through inwardly projecting base flanges on the guide and threaded in the bed *b*. At the ends of the chain guide chain wheels *g* are mounted on vertical shafts *h* and 80 *i*. The bearings *j* and *k* of the shaft *i* are adjustable lengthwise of the machine for taking up slack in the feed chain.

Upon the wheels *g* is mounted the feed chain, which is composed of links *l* which are 85 fitted in the channels or ways in the guide *d* and are corrugated on their outer faces to insure a firm hold upon the material engaged thereby and the movement of such material over the cutter heads without slipping. 90

Pressure bars *m* are mounted at the ends upon brackets *n* on each side of the machine parallel with and opposite the chain guide *d*. These bars are channeled on their inner sides and provided with a series of rollers *o*, which 95 are mounted in pivoted holders *p* pressed inwardly toward the feed chain by springs *q*. These pressure bars are connected at the ends with the brackets *n* by adjusting screws *r* for setting them to operate on stuff of different 100 dimensions.

A horizontal cutter arbor *s* provided with a belt pulley *t* is mounted on each side of the machine transversely to the guide *d* and pressure bars *m* in a frame *u* which is mounted and adjustable lengthwise of said arbor 105

upon a bracket *v* on a vertically movable slide *w*. Each frame *u* is adjusted lengthwise of the arbor by a screw *x* and each bracket *v* with the arbor frame and arbor is adjusted vertically by a screw *y*. These arbors are provided at their inner ends between the feed chain and the opposing pressure bars *m* with cutter heads having teeth or knives of the required shape to produce joints of the desired form. For the purpose of illustration one arbor is shown as provided with a head *z* for forming a tongue, and the other with a head *z'* for forming a corresponding groove.

15 It is frequently desirable to drive the cutter heads from pulleys located below the floor on which the machine stands, and to admit of this and at the same time to provide a rigid support for the cutter arbors, the brackets *v* are formed with inclined sides which converge upwardly so as to clear the driving belts, as shown in Fig. 1, the lower parts of the brackets being of sufficient thickness to give them the required strength and rigidity.

25 The feed chain is driven by a clutch pulley 2, loosely mounted on a horizontal shaft 3, at one side of the machine. The shaft 3 is connected as shown in Figs. 3 and 4, by bevel gears 4 and 5, with a longitudinal shaft 6, which is in turn connected by bevel gears 7 and 8, with the shaft *h*.

35 A rod 9 passing transversely through one of the bed extensions *c* and connected with the clutch lever 10 on the opposite side of the machine, affords means within reach of the head operator for stopping the feed chain when a wide piece of material passing through the machine prevents his reaching said lever from the position he occupies, it being sometimes desirable to instantly stop the feed in order to prevent accidents or waste of material.

45 In order to support the strips or pieces of material after they clear the feed chain in alinement therewith and to insure perfectly straight joints or cuts to the ends of the pieces or sections, the bed extensions *c* are provided on the delivery sides thereof with vertically adjustable slide rests 11, which are moved up and down by screws 12 and secured in place by screws 13. The tops of these rests are set so as to engage with the lower edges of the strips or pieces of material after they have been jointed and have cleared the feed chain.

55 In the operation of the machine, the pieces to be jointed are started upon the bed extensions *c* between the pressure rollers *o* and opposite sides of the feed chain *l* at opposite ends and on opposite sides of the machine, and are moved on the bed *b* by the feed chain over the rotary cutter heads *z z'*, which joint their lower edges. After passing the cutter heads, the jointed pieces will not rest on the bed *b* but will be supported by the feed chain

and the opposing pressure rollers. When the pieces are long they will be supported after they leave the feed chain by the rests 12, and prevented from sagging by reason of the unsupported weight of their advancing ends out of alinement with the feed chain and thus causing imperfect joints to be made toward their rear ends.

60 In case either the frame bed *b* or the chain guide *d* is warped or out of true when it is finished, or it becomes so after the machine is set up and in use, the guide may be easily alined and trued so as to hold the chain perfectly straight between the chain wheels by the proper adjustment of the bolts *e* and *f*. 75 If the chain guide is warped or out of true, it can be sprung into alinement by setting the tips of the bolts *e* exactly in line with each other and then drawing the base of the guide down upon them by tightening the binding bolts *f*; or in case the bed *b* on the frame is warped and out of true, the chain guide may be readily and firmly secured in place thereon without correspondingly warping or bending it out of true by the adjustment of the bolts *e* 85 and *f* in like manner.

80 The head operator can at any time instantly stop the feed if anything goes wrong on either side of the machine, by simply pulling the rod 9, which is close at hand.

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90 The brackets *v* are preferably inclined symmetrically on both sides as shown, so that they may be used interchangeably on either side of the machine and a single pattern will serve for both, but they may be made right and left with but one inclined side to permit the driving belt to run to a pulley below.

I claim:

1. In a jointing machine the combination 105 of a bed, a chain guide mounted thereon, and adjustable at different points in its length perpendicularly to the bed, chain wheels at the ends of said guide, and a feed chain mounted upon said wheels, substantially as 110 described.

2. In a jointing machine the combination 115 of a bed provided with adjusting screws, a chain guide supported upon said screws and secured to said bed against said adjusting screws by binding screws, chain wheels at the ends of said frame, and a feed chain mounted upon said wheels, substantially as 120 described.

3. In a jointing machine the combination 125 of a frame having a horizontal top bed, a chain guide supported upon said bed by vertical adjusting screws and secured against said adjusting screws by binding screws, chain wheels at the ends of said guide, a feed chain mounted upon said wheels, a pressure bar parallel with said guide and a rotary cutter head mounted between said guide and pressure bar on a transverse arbor, substantially as described.

130

4. In a jointing machine the combination of a frame provided with a horizontal bed, a longitudinally channeled guide mounted on said bed, screws for lining up said guide and securing it to said bed, chain wheels at the ends of said guide, a feed chain mounted on said wheels and confined between them in said guide, a laterally adjustable pressure bar parallel with said guide and a rotary cutter mounted on a transverse arbor between said guide and pressure bar, substantially as described.

5. In a jointing machine the combination of a frame having a horizontal bed, a channeled chain guide mounted upon said bed, vertical adjusting and binding screws for lining up and securing said guide upon the bed, chain wheels at the ends of said guide, a feed chain mounted on said wheels and confined between them in said guide, a bar mounted on said frame opposite and parallel with said guide and provided with yielding pressure rollers, and a rotary cutter between said guide and bar, substantially as described.

6. In a jointing machine the combination of a frame having a horizontal bed, a channeled chain guide mounted on said bed, vertical adjusting screws supporting said guide at

intervals, binding screws securing said guide to the bed at intervals, chain wheels at the ends of said guide, a feed chain mounted on said wheels and confined in said guide, a laterally adjustable bar mounted on said frame opposite and parallel with said guide and provided with a series of laterally yielding pressure rollers, and a rotary jointing cutter between said guide and bar, substantially as described.

7. In a jointing machine the combination of a frame having a horizontal bed, a chain guide mounted on said bed, chain wheels at the ends of said guide, a feed chain mounted on said wheels, a pressure bar mounted on the frame opposite and parallel with said guide, a rotary jointing cutter between said guide and pressure bar, and a vertically adjustable rest mounted on an extension of the bed in the path of the lower jointed edge of the material after it passes the feed chain, substantially as described.

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

PETER J. JOECKEN.

Witnesses:

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MAUDE L. EMERY.