

F. A. REDNER.
WOODWORKING MACHINE.
APPLICATION FILED AUG. 12, 1912.

1,059,069.

Patented Apr. 15, 1913.

4 SHEETS-SHEET 1.

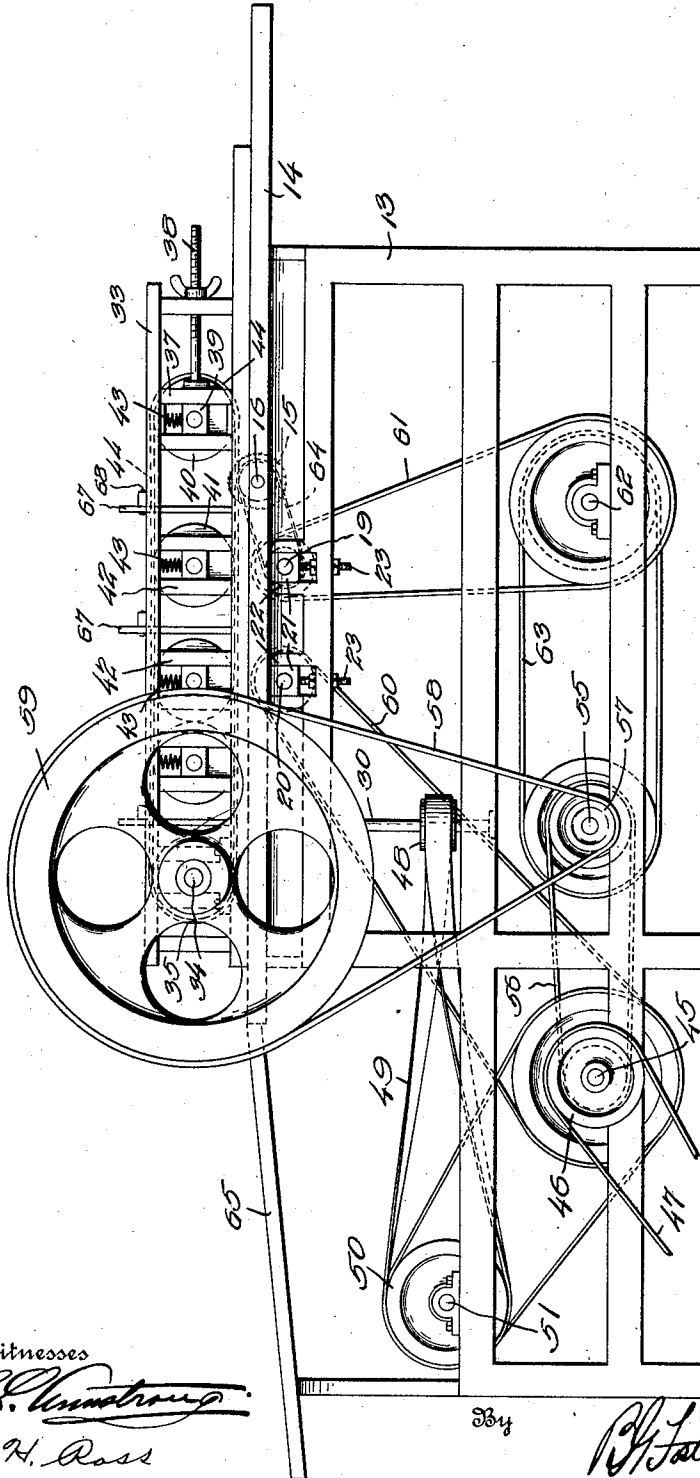


Fig. 1-

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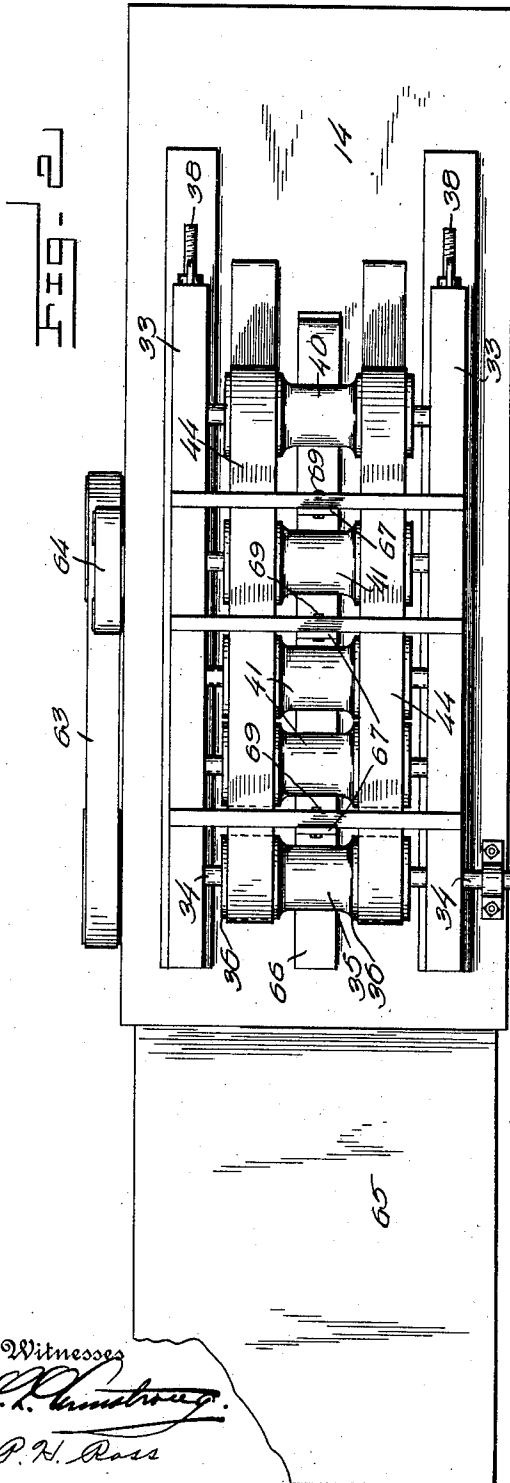


Fig. 10. Fig. 11.

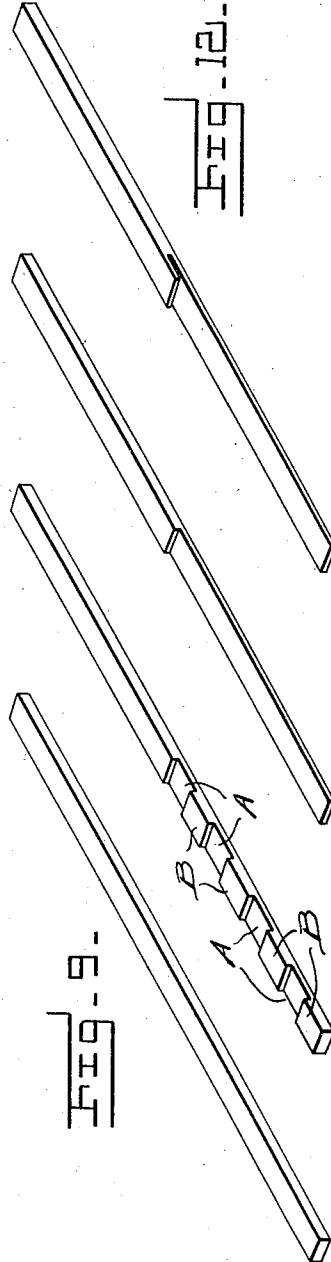


Fig. 9.

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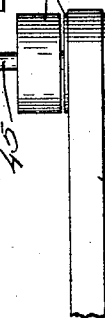
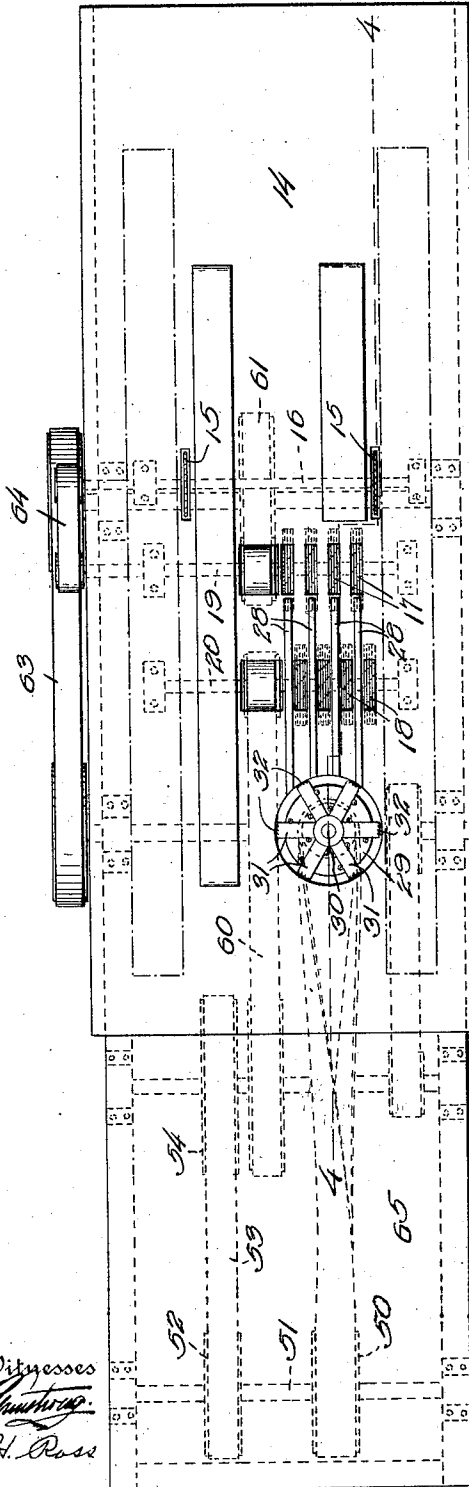
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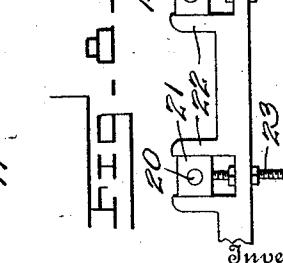
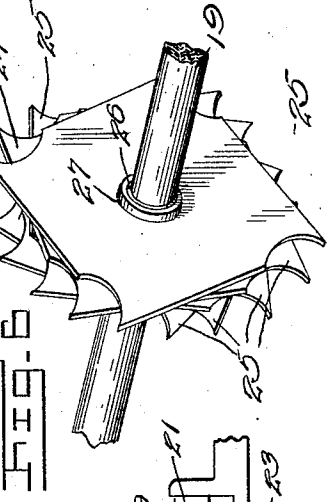
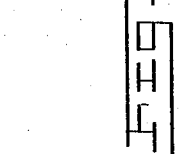
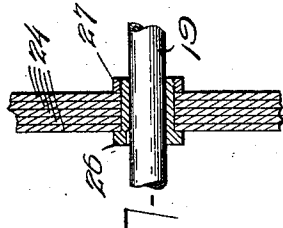
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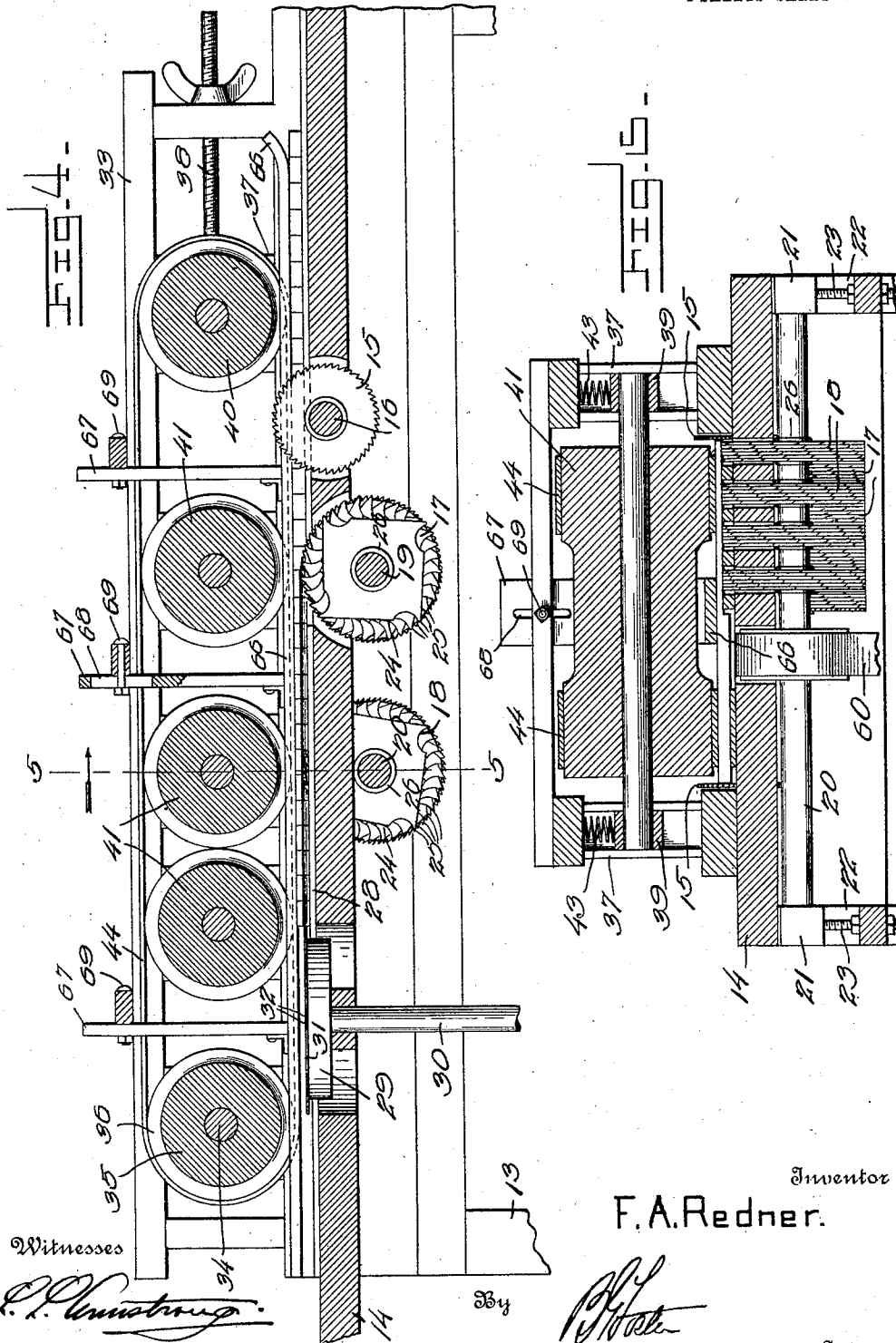
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4 SHEETS-SHEET 4.



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UNITED STATES PATENT OFFICE.

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WOODWORKING-MACHINE.

1,059,069.

Specification of Letters Patent.

Patented Apr. 15, 1913.

Application filed August 12, 1912. Serial No. 714,605.

To all whom it may concern:

Be it known that I, FRANK A. REDNER, a citizen of the United States, residing at Tonawanda, in the county of Erie and State of New York, have invented new and useful Improvements in Woodworking-Machines, of which the following is a specification.

The present invention relates to wood-working machines, and the primary object is to produce a machine, which will gain and slot light or small articles with great accuracy and without any material amount of waste, due to imperfect operation on the articles.

The present embodiment of the machine is particularly intended for gaining or cutting away and slotting the sticks of that type of fan employing paper or analogous blades and used to a large extent for advertising purposes.

In the accompanying drawings:—Figure 1 is a side elevation of the machine. Fig. 2 is a plan view thereof. Fig. 3 is a horizontal sectional view or a top plan view of the table, with the feeding means removed. Fig. 4 is a sectional view substantially on the line 4—4 of Fig. 3. Fig. 5 is a cross sectional view on the line 5—5 of Fig. 4. Fig. 6 is a detail perspective view of one of the gaining cutters. Fig. 7 is a detail sectional view illustrating the preferred method of clamping the cutter elements together. Fig. 8 is a detail view illustrating the adjusting means for the gaining cutters. Fig. 9 is a perspective view of one of the fan stick blanks. Fig. 10 is a similar view showing the first blank after it has passed the first set of cutters. Fig. 11 is a similar view after the blank has passed the second set of cutters. Fig. 12 is a perspective view of the completed stick.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the embodiment disclosed, a suitable frame 13 supports a table 14, and projecting through one portion of this table, are spaced length-determining saws 15 mounted on a suitable shaft 16. Gaining mechanism is located in rear of the length-determining saws 15, and this gaining mechanism comprises two sets of gaining cutters 17 and 18, respec-

tively mounted on shafts 19 and 20. The shafts are journaled in boxes 21 vertically adjustable in suitable guide brackets 22 and held by bolts 23. The cutters of the first set 17 are disposed in spaced relation, as will be clear by reference to Fig. 3, and as illustrated in Fig. 6, these cutters preferably are in the form of correspondingly shaped angular sheet or plate elements 24 arranged side by side and having peripheral teeth 25 that are located out of abutment. They are mounted on a sleeve 26 and are clamped together by a nut threaded on the sleeve. The cutters 18 of the rear set are disposed in line with the space between the cutters of the first set, as is also shown in Fig. 3, and these cutters 18 are preferably constructed like the cutters of the first set. Extending from the cutters of the first set, in line therewith, and through the spaces between the cutters of the second set, are spaced supporting tracks 28 located upon the table 14.

A horizontal slot-cutting tool is located in rear of the above described gaining mechanism, and in the embodiment shown, is in the form of a disk 29 carried by the upper end of a vertical shaft 30 that is journaled in the frame 13, said disk having secured thereto and preferably set in its upper face flush therewith, a plurality of blades 31 that project beyond the periphery of the disk and have cutting teeth 32 on their free ends.

Mounted on the table 14 is an upper supplemental frame 33, in one end of which is journaled a shaft 34, carrying a roller 35 having enlarged end portions 36. Horizontally slidable carriers 37 are mounted in the opposite end of this supplemental frame 33, and are moved and held in different positions therein by tension bolts 38. Vertically sliding boxes 39 are mounted in the carriers 37, and journaled in these boxes is another roller 40 similar to the roller 35. Between the rollers 35 and 40 are idler rollers 41 journaled in vertically sliding boxes 42, the boxes 39 and 42 being urged downwardly by coiled springs 43. Spaced feeding belts 44 pass around these rollers and the lower stretches of the belts are of course yieldingly pressed downwardly by the rollers, due to the springs 43.

Any suitable means for driving the above

described movable parts may be employed. Thus in the present embodiment, there is illustrated a power shaft 45, having loose and tight pulleys 46, on either of which a driving belt from any suitable source of power, not shown, may be run. From the power shaft 45, suitable belt gearing transmits motion to the various parts. Thus, the vertical shaft 30 is shown as having a pulley 48, around which a belt 49 passes, this belt operating on a pulley 50, carried by a countershaft 51. The countershaft has a second pulley 52, having a belt connection 53 with a pulley 54 on the power shaft 45. A countershaft 55 has a belt connection 56 with the power shaft 45, and a small pulley 57, on the countershaft 55, drives a belt 58, which passes around a large pulley 59 on the shaft 34 of the roller 35. The shaft 20 of the second set of gaining cutters, is driven directly from the power shaft 45 by a belt and pulley connection 60, while the shaft 19 of the first set of cutters, is belted, as shown at 61 to a countershaft 62 that is, in turn, driven from the countershaft 55 through belt gearing 63. The saw shaft 16 is shown as being driven from the shaft 19 by the belt 64.

Briefly described, the operation of the apparatus is as follows. The sticks, having first been cut to proper thickness, are laid in a pile at one end of the table 14, and are moved underneath the roller 40, transversely of the feeding belts 44. They are thus caught by these belts, and are carried past the saws 15, which cut the sticks to the desired length. The belts then move the stick blanks past the cutters 17 of the first set, which cut away spaced portions of the part to be gained, as illustrated at A in Fig. 10, leaving the portions B. The blanks thus partially cut, are carried rearwardly to the second set of cutters, and it will be observed that the cut portions will ride upon and be supported by the tracks 28. As the blank passes the second set of cutters 18, the remaining portions B will be removed, leaving the blank, as illustrated in Fig. 11. The feeding belts will thence carry the completely gained blank past the horizontal cutter 29, which will cut the longitudinal slot at the end of the gain. This completes the operation, and the stick is delivered from the machine preferably down the inclined platform 65.

In order to more fully prevent the buckling of the sticks during their passage through the machine, a guide strip 66 is disposed between the belts 44 and just over the table, this strip being supported by vertical arms 67 that are slotted, as shown at 68, in Fig. 4, the slots adjustably receiving holding bolts 69.

It will be evident that with this mechanism, fan sticks can be cut accurately and with great expedition, and the combination

disclosed has been found very effective in eliminating waste due to the improper cutting of the blanks. In explanation of this, it will be evident that these fan sticks are of soft wood and are comparatively thin. If the entire material cut away to form the gain, were taken out at once, there would be a large percentage of defective sticks, due to the splitting of the blanks and their twisting when being cut. This is almost wholly eliminated by the present mechanism, all the parts being properly braced and supported during the cutting operations, which take place successively, as above explained.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In apparatus of the character set forth, the combination with a set of cutters for cutting away portions of an article to be gained, of another set of cutters for cutting away the portions left by the first set, supporting means for the cut portions of the articles operated on by the first cutters, said supporting means extending alongside the second set, and a feeding belt extending over the cutters and supporting means and maintaining the articles against the cutters and upon the said supporting means.

2. In apparatus of the character set forth, the combination with a set of cutters for cutting away spaced portions of an article to be gained, of another set of cutters for cutting away the portions left by the first set, and supporting means for the cut portions of the articles operated on by the first cutters, said supporting means extending between the cutters of the second set.

3. In apparatus of the character set forth, the combination with a set of spaced cutters for cutting away spaced portions of an article to be gained, of another set of spaced cutters for cutting away the portions left by the first set, and spaced supporting tracks for the cut portions of the articles operated on by the first cutter, said supporting tracks extending between the cutters of the second set and disposed in substantial line with the cutters of the first set.

4. In apparatus of the character set forth, the combination with a set of cutters for cutting away spaced portions of an article to be gained, of another set of cutters for cutting away the portions left by the first set, sup-

porting means for the cut portions of the
articles operated on by the first set of cut-
ters, said supporting means extending along-
side the second set, and means for feeding
5 the articles across the cutters and holding
them thereagainst and against the said sup-
porting means.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit-
nesses.

FRANK A. REDNER.

Witnesses:

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ULASS W. SIMSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
