

No. 771,310.

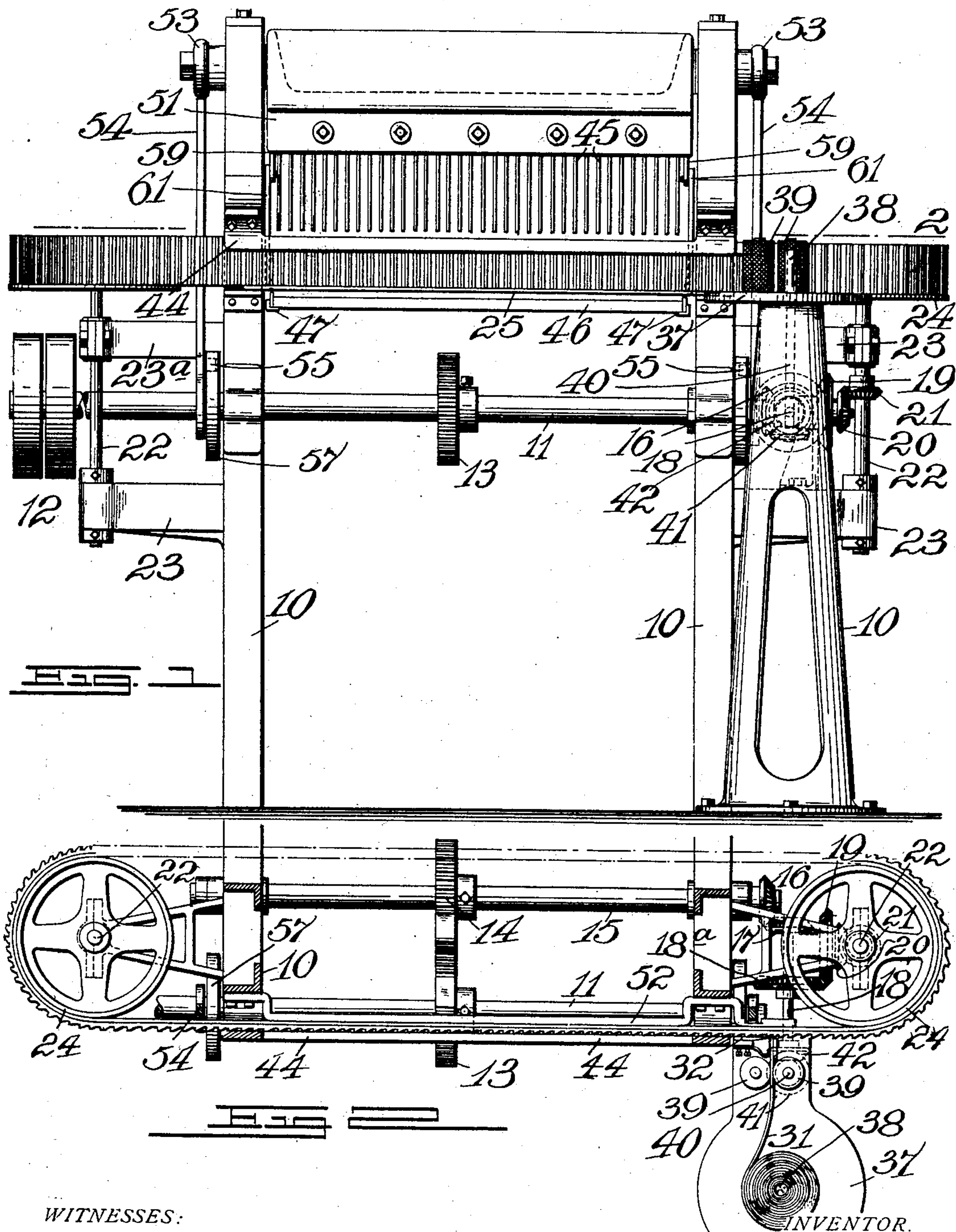
W. F. HUTCHINSON.
MATCH MACHINE.

PATENTED OCT. 4, 1904.

APPLICATION FILED DEC. 23, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

Wm. H. Campfield.
John T. Carolan.

INVENTOR.
William F. Hutchinson
BY
W. B. Hutchinson.
ATTORNEY.

No. 771,310.

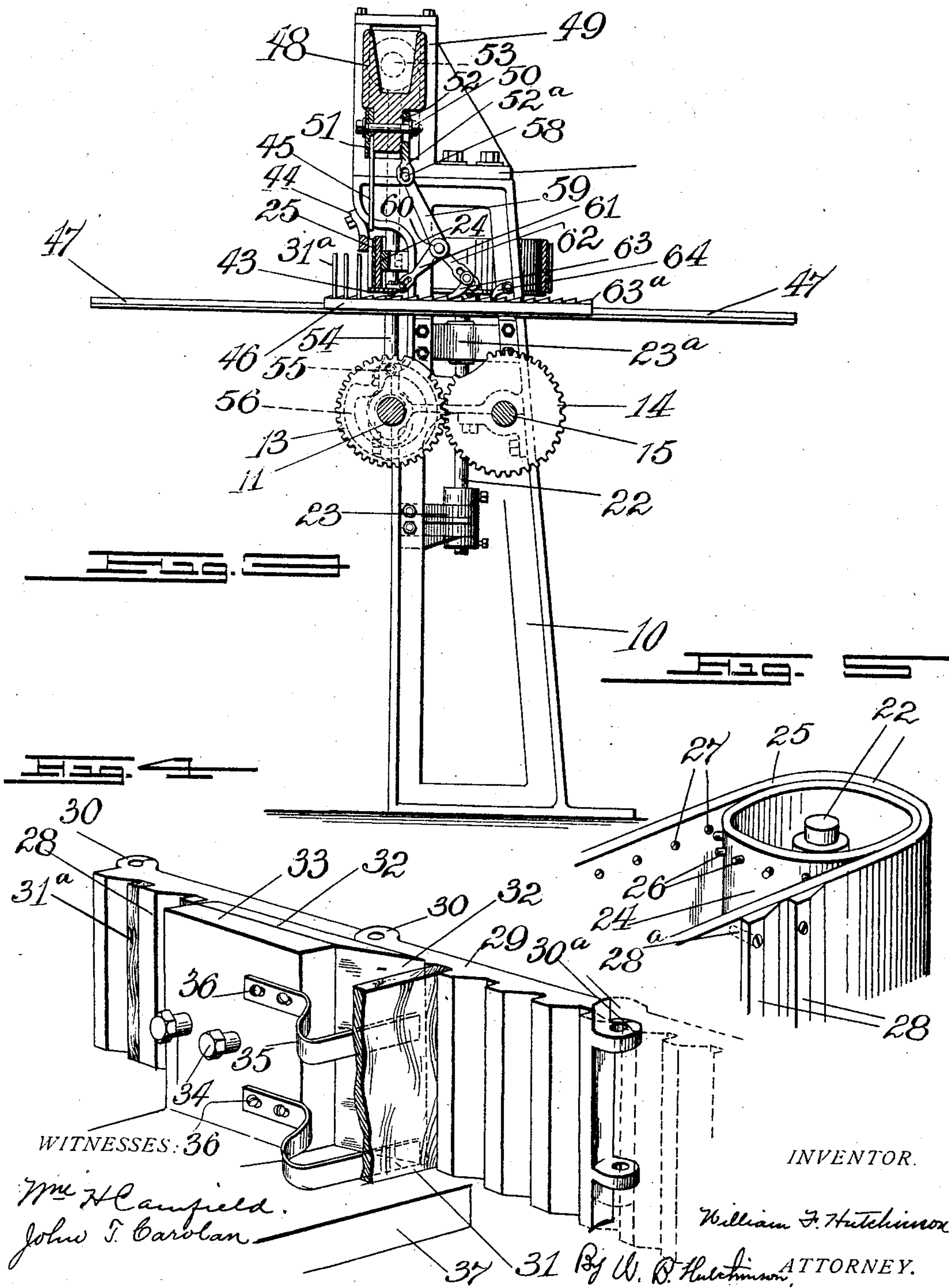
W. F. HUTCHINSON.
MATCH MACHINE.

PATENTED OCT. 4, 1904.

APPLICATION FILED DEC. 23, 1903.

NO MODEL.

2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

WILLIAM F. HUTCHINSON, OF NYACK, NEW YORK.

MATCH-MACHINE.

SPECIFICATION forming part of Letters Patent No. 771,310, dated October 4, 1904.

Application filed December 23, 1903. Serial No. 186,281. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. HUTCHINSON, of Nyack, in the county of Rockland and State of New York, have invented a new and Improved Match-Machine, of which the following is a full, clear, and exact description.

My invention relates to improvements in that class of match-machines which takes a roll or strip of veneer, cuts the splints therefrom, and delivers the splints to a carrier or frame preparatory to dipping.

The object of my invention is, primarily, to make a simple machine of this class which will work faster and to better advantage than the machines generally employed for the purpose.

More specifically my object is to get rid of many of the motions generally used, and consequently to avoid complication, and particularly to produce a guide-belt having a series of notches to receive the stock, the belt and stock being arranged to have virtually a continuous feed, and to have the belt carry the stock against a stationary knife, so that the stock shall be rapidly cut off into splints. By having the knife stationary and the belt moving, as hereinafter described, I avoid the complication resulting in the attempt to use a reciprocating or rotary knife, and I have found by experiment that I attain better results.

Another object of my invention is to construct and arrange the parts so that perfect splints shall be cut, to provide means for holding the splints in the guide-belt until they are ejected into the dipping frame or carrier, to provide a simple and positive means of ejecting the splints and advancing the carrier, and in general to produce a simple and efficient match-machine especially adapted to work on veneer-stock.

With these ends in view my invention consists of certain features of construction and combinations of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is an end elevation of the machine embodying my invention. Fig. 2 is a sectional

plan on the line 2 2 of Fig. 1. Fig. 3 is a central vertical section of the machine. Fig. 4 is a detail perspective view showing one construction of the stock-guide belt and its relation to the cutting-off knife, and Fig. 5 is a detail perspective view of another form of the guide-belt.

The machine can be provided with any suitable framework 10, and I have shown this supporting a transverse main shaft 11, having tight and loose pulleys thereon, as at 12, though any means of driving can be employed. The driving-shaft 11 connects, by means of gears 13 and 14, with a counter-shaft 15, which is parallel with the shaft 11, and the gears just mentioned are mutilated at a certain point, as shown in Fig. 3, so that there will be a momentary slip, during which the counter-shaft will not turn, which slip is timed so as to be coincident with the descent of the plungers 45, which push the match-splints into their carrying-frame, all as hereinafter specifically described.

The counter-shaft 15 connects, by the miter-gears 16 and 17, with a short shaft 18 at one side of the machine, and this in turn through the gears 18^a, 19, and 20 drives one of the vertical shafts 22, which are arranged in suitable supporting-brackets 23 and 23^a on opposite sides of the machine. The shafts 22 carry at their upper ends the pulleys 24, which in turn carry the continuous guide-belt 25, which may be made in any suitable way to provide a series of splint-receiving recesses, as will presently appear.

As shown in Figs. 1, 2, and 5, the belt is a continuous metallic belt, some suitable material, such as phosphor-bronze being used, and it has holes 27 at regular intervals to engage the sprocket-pins 26 on the pulleys 24.

Arranged transversely of the belt and in a manner to extend vertically are the parallel ribs 28, which are secured to the belt by screws 28^a or equivalent fastenings and which on their back sides are beveled, as shown, so that the match-stock can be easily fed in between them. Instead, however, of using the continuous belt a series of flat links 29 (see Fig. 4) can be linked together, these having the ribs 28 produced

integrally thereon or fastened thereto, as already described, and the links have suitable knuckles 30, which are adapted to be hinged together, these being recessed, as shown at 30^a, to make a smooth joint. No novelty is claimed for the link belt, but only for the particular arrangement of the notches and ribs thereon.

The recesses between the ribs 28 are adapted to receive the front edge of a strip 31 of match material, which material is generally wood veneer, the width and thickness of which corresponds to the length and thickness of the match-splints to be produced. As the stock is severed it makes the ordinary match-splints 31^a. (See Fig. 4.)

As the stock 31 enters the notches of the guide-belt it is carried by the aforesaid ribs 28 against the edge of the stationary knife 32, (see Figs. 2 and 4,) which knife lies flush against the face of the belt, so that the splints as they are severed pass behind the knife. The knife can be held in any suitable manner, and I have shown it fastened to a knife-block 33, which is rigid on a part of the machine-frame, the knife being held in the ordinary manner by bolts 34 or equivalent fastenings. To help make perfect splints and hold the stock rigid during the cutting process, flat springs 35 are arranged to press against one side of the stock 31 as it is advanced, these springs being held, as shown, to the knife-block 33 by studs 36, and the drawings show that the springs are adjustable in relation to the stock. Any suitable means can be provided for holding them.

The stock 31 is fed edgewise over a supporting-table 37, and the stock usually is fed from a coil of veneer which can be mounted on the spindle 38, as shown in Fig. 2. The stock is advanced in the ordinary manner between feed-rolls 39, which are preferably knurled, and they may be driven in any usual way. I have shown one roll 39, secured to a vertical shaft 40, which connects by gears 41 and 42 with the shaft 18, already referred to. The matter of driving any part of the machine is, however, immaterial, and I have simply shown operative means, the essential thing being the arrangement of the guide-belt, the knife, and the ejectors, together with their coöperating functions, as described.

To prevent the splints 31^a from dropping from the guide-belt, a stop-plate 43 is used to extend between the lower edge of the belt 25 at the part of the belt which extends over the dipping-frames 46, as shown clearly in Fig. 3, and the upper portions of the splints are held in place by a cross-piece 44, which extends from one side of the machine-frame to the other. The splints are pushed from the belt by the plungers 45, which enter the recesses between the ribs 28 of the belt and which are actuated as presently described. When the plungers descend, the stop-plate 43 is pulled back and the plungers push the

splints 31^a down into a holding-frame or carrier 46, which can be of any preferred type and which, as shown, travels on a guide-track 47; but the carrier and its driving means and guiding means form no part of this invention.

The plungers 45 can be actuated in any convenient manner, and I have shown a simple means of doing it. As illustrated, they are carried by a cross-head 48, which slides in vertical ways 49, and the plungers are held to the cross-head by the bolts 50, which clamp the plungers between the cross-head and a clamping-plate 51, (see Fig. 3,) while a similar plate 52 on the back of the cross-head has depending ears 52^a, to which the dipping-frame and other actuating mechanism connects, as presently described. At the ends the cross-head 48 is pivoted, as shown at 53, to the connecting-rods 54, which impart vertical motion to the cross-head, these having at their lower ends rollers 55, which enter cam-grooves 56 in the cams 57, these latter being fixed to the driving-shaft 11. The cams are arranged so as to bring down the cross-head 48 and plungers 45 at the same time the counter-shaft 15, and consequently the belt 25, stop by reason of the mutilated gears 13 and 14.

The ears 52^a, above referred to, connect, as shown, at 58 with the arms 59, which have journals 60 pivoted on opposite sides of the machine, and the journals 60, which serve as rock-shafts, have also projecting arms 61 and 62, the former having a sliding connection with the stop-plate 43 and the latter a similar connection with the pawls 63, which engage the ratchets 63^a on the dipping-frame 46. A detent 64 engages the ratchet and prevents any backlash of the frame. The descent of the cross-head 48 causes the arms 59 to be depressed; but the arms do not begin to move until the plungers 45 engage the splints 31^a by reason of the loose connection between the parts 52^a and 59. The continuous movement of the arms 59 pulls back the arms 61 and 62, thus removing the stop-plate 43, so that the splints can go into the dipping frame or carrier, while the pawl 63 is by the same movement brought back a distance of one tooth on the ratchet 63^a. The upstroke of the cross-head 48 reverses the above movements, and the advance of the arms 61 and 62 replaces the stop-plate 43 and advances the carrier or dipping frame 46.

I have described this mechanism with a good deal of detail, but the part relating to the movements of the cross-head and dipping-frame is mostly for clearness, as my invention consists chiefly in the cutting and ejecting means. By reference to Fig. 2 it will be seen how simple a matter it is to feed the stock into the recesses of the guide-belt 25 and that by using a belt it is a simple matter to keep the belt and knife parallel, so that the splints

shall be nicely cut and held until placed in the dipping-frame.

Having thus fully described my invention, I claim as new and desire to secure by Letters

5 Patent—

1. A match-machine comprising a stationary knife, a belt moving parallel with the knife and provided with transverse stock-receiving recesses, means for feeding the stock
10 endwise into the recesses of the belt, and means for ejecting the severed splints endwise from the recesses of the belt.

2. A match-machine comprising a stationary knife, a belt moving parallel with the
15 knife and provided with transverse stock-receiving recesses, means for feeding the stock endwise into the recesses of the belt, splint-holding means at one edge of the belt, and means for ejecting the splints endwise from
20 the belt into the said splint-holding means.

3. A match-machine comprising a guide-belt having transverse recesses extending across its face, said recesses being adapted to receive match-stock, a knife held flatwise
25 against the carrying-belt to cut off the stock in the recesses, splint-holding means moving at one edge of the belt, and means for carrying the splints endwise from the recesses of the belt into the splint-holding means.

30 4. A match-machine, comprising a traveling guide-belt having transverse recesses to receive the match-stock, a stationary knife held opposite the belt, and plungers arranged transversely of the belt and adapted to push
35 and eject the matches from the recesses therein.

5. A match-machine, comprising a moving belt having transverse recesses therein, a sta-

tionary knife held opposite the belt, ejectors arranged to push splints from the belt, and a movable stop-plate arranged at one edge of
40 the belt to hold the splints in the recesses until they are engaged by the plungers.

6. A match-machine, comprising a guide-belt having stock-receiving recesses, said recesses extending from edge to edge of the
45 belt, means for cutting off the stock in the aforesaid recesses, a stop-plate at one edge of the belt, plungers held at the opposite edge of the belt so as to move through the said recesses, and means for withdrawing the stop-
50 plate as the plungers advance.

7. A match-machine, comprising a traveling belt having transverse stock-receiving recesses extending from edge to edge thereof, a stationary knife held opposite the belt, suitable guides to retain the severed splints in
55 the aforesaid recesses, and ejectors moving through the said recesses to eject the splints therefrom.

8. A match-machine, comprising a travel-
60 ing belt having transverse stock-receiving recesses therein, the said recesses being vertically arranged, means for feeding stock into the said recesses, a stationary knife held opposite the belt so as to cut off the stock as it
65 is forced against the knife, a guide to hold the severed splints in the belt, a stop-plate at the lower edge of the belt, ejectors moving through the belt-recesses, and means for withdrawing the stop-plate as the ejectors advance.
70

WILLIAM F. HUTCHINSON.

Witnesses:

W. B. HUTCHINSON,
J. G. DUNBAR.