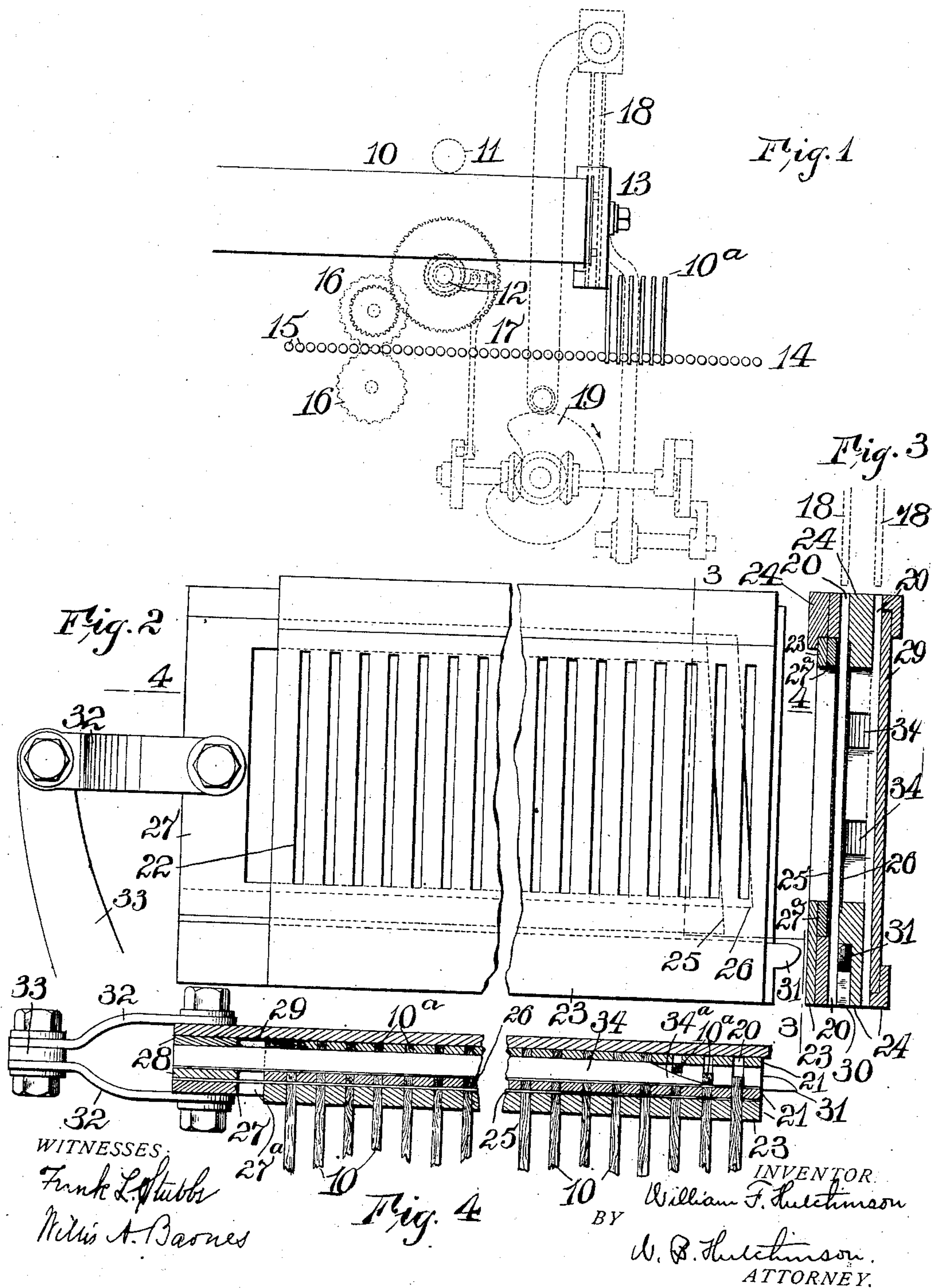


No. 866,648.

PATENTED SEPT. 24, 1907.

W. F. HUTCHINSON.
MATCH MACHINE.
APPLICATION FILED SEPT. 14, 1906.



UNITED STATES PATENT OFFICE.

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MATCH-MACHINE.

No. 866,648.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM F. HUTCHINSON, of Nyack, Rockland county, 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 cuts match splints from strips of veneer the width of which corresponds to the length of the match and the thickness to the thickness of the match.

My invention relates more particularly to machines of this class in which a plurality of strips are fed side by side into the machine and the splints are cut off successively from the protruding ends of the stock by a knife which sheers across such ends. In machines of this class it has been customary to use a single knife which cuts across the whole series of stock strips, thus successively cutting a single series of splints. Suitable mechanism forces these splints into a carrier by means of which the splints are dipped in the paraffin and firing compositions. In such machines the speed is generally limited by the rapidity with which the knife can be operated.

The object of my invention is to produce a plurality of cut-off knives which will reciprocate in unison and in parallelism and which will act on the veneer strips or stock, so that at a single stroke a plural series of match splints will be cut.

My invention also provides for regulating the feed of the stock to the end that at least two splints can be cut practically simultaneously from each strip of stock, and provides for simultaneously ejecting the two series or rows of cut splints and placing the said splints in an appropriate manner in the carrier. It will be seen that such an arrangement makes the machine much more rapid in operation than would otherwise be the case.

With these ends in view my invention consists of certain features of construction and combination 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 letters and figures of reference indicate corresponding parts in all the views.

Figure 1 is a diagrammatic elevation showing the general arrangement of the feed mechanism, the cutting mechanism, the ejecting mechanism, and the carrier mechanism. Fig. 2 is a broken, enlarged detailed front elevation of the cutting mechanism, to which our invention chiefly relates. Fig. 3 is a cross section on the line 3—3 of Fig. 2, and Fig. 4 is a horizontal section on the line 4—4 of Fig. 2.

In the drawings I have shown only sufficient mechanism of a match machine of the class described to make

clear the application of my particular cutting mechanism and details connected therewith.

As shown, a series of strips 10 of stock, which is usually veneer, is conveyed forward into the machine between feed rolls 11 and 12, where the ends of the strips are cut off transversely by the cutting mechanism 13, and formed into splints 10^a, which are driven into the carrier 14, and the latter may be of any approved type but as shown comprises a series of cross-rods 15, which are driven by the gears 16, and the latter are driven by the mechanism 17. As the splints are cut, ejectors 18, which are operated from the cam 19, push the splints from the cutting mechanism into the carrier 14, as shown in Fig. 1.

All the matter referred to above is shown merely in outline, because I do not claim it except for the cutting mechanism, which will be hereinafter more specifically described.

When the several strips 10 of stock are conveyed forward they pass into vertical pockets 20, which are formed between the fingers 21, and the strips are properly guided into the aforesaid pockets or recesses through the slots 22 in the face plate 23, which is held rigidly in the machine in any convenient manner. As illustrated, the fingers 21 are integral on the parts 24, and the various sliding parts of the cutting mechanism are supported on the said parts 24, as the drawing shows.

After the stock is fed through the slots 22, a distance corresponding to the width of two match splints, it is severed into splints by the parallel knives 25 and 26, which move transversely across the machine behind the plate 23, the knife 25 sheering across the plate 23, and the knife 26 sheering across the backs of the first set of fingers 21.

By referring to the knife edges shown by dotted lines in Fig. 2, it will be seen that the knives are inclined on the edge so as to have a sheer cut, and the back knife 26 extends a little in advance of the front knife 25, so that the innermost splint will be first cut from each strip of stock 10. This provides for the proper clearance and the sequential placing of the splints, as will presently appear.

The knives 25 and 26 can be reciprocated in any convenient manner and, as shown, the first knife 25 is held against a generally U shaped frame comprising the back part 27 and the transversely extending guides 27^a which are secured to the knife and serve to stiffen it. The knives are secured to the cross-head or block 28, which also carries the back plate 29, and the latter reciprocates with the two knives and moves across the backs of the rear fingers 21, as shown clearly in Fig. 4. The block 28 also carries the plunger 30, which has a nose 31, and this plunger moves along below the

knives suitably guided in the part 24 and it serves to eject from the cutting mechanism any little splinters which may gradually accumulate, or which would otherwise accumulate in cutting. As illustrated, the block 28 and plate 29 connect by straps 32 with the oscillating arm 33, and in this way the knives on the back plate 29 are reciprocated, but, as above stated, any suitable means can be used for this purpose.

By reference to Fig. 4 it will be seen that the fingers 21 in each series, are spaced apart so as to give the right distance between the splints in a row, and the two sets of fingers are spaced apart so as to give the distance between the two rows of splints. It will also be noticed that as the two knives 25 and 26 move against the fronts and backs, respectively, of the first set of fingers 21, means must be provided to move the inner or back splints so as to give the necessary space row-wise. To this end the back knife 26 is provided with ribs 34, which at their front edges are inclined as shown at 34^a, but which for the greater part of their length just fill the space between the two sets of fingers 21. Referring to the same figure, it will be seen then that as the knives advance the knife 26 cuts off a splint 10^a, and the splint is held from turning by the back fingers 21 which are milled out from the part 24 and are also milled out to provide for the sliding of the ribs 34. The continued advance of the knives causes the inclined parts 34^a of the ribs to push the severed splints back. Further movement of the knives and the ribs causes the innermost splints to be pushed well back between the fingers 21 and against the back plate 29, which is advanced a little beyond the knives, as the drawing shows. When the knives are retracted the back plate 29 is also retracted and a clear opening is left through the cutting mechanism so that the upper ends of the splints can move freely with the carrier 14. Before this retractile movement takes place, however, it will be noticed that each splint is held positively in a pocket 20, the front row of splints being held between the front fingers 21 and the two knives 25 and 26, and the back row of splints being held between the ribs 34, the back fingers 21 and the back plate 29. Thus the splints are accurately held until they are struck by the descending plungers 18, and moved into the carrier. No novelty is claimed for this plunger mechanism as it is common to use it in ejecting a single row of splints.

From the foregoing description it will be seen that the feed mechanism may be adjusted so as to feed the stock 10 the required distance into the guide fingers 21, that the knives 25 and 26 cut two rows of splints simultaneously, and that the latter are practically and

nicely held and guided. Obviously a single rib 34 of the proper width would do the work of the two ribs, but it is better, chiefly for reasons of lightness, to use the plural ribs.

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

1. In a match machine, the cutting mechanism comprising guiding means for a plurality of strips of match stock, a plurality of knives sliding through the guiding means and acting successively on the same stock strips to cut the stock into splints, and means operating with the knives to separate the splints into a plurality of rows.

2. In a match machine, the combination with spacing and guiding means adapted to receive a series of strips of match stock, of a plurality of knives arranged one behind the other and traversing the stock so as to act on the same stock strips to cut the strips successively into splints, and means operating in conjunction with the knives to separate the splints into rows.

3. The combination with a stock feed constructed to feed a series of parallel strips of match stock, of reciprocating parallel knives sliding across the match stock so as to act successively on the same stock strips each knife acting to cut a splint from each strip of stock, and guiding means arranged to receive and hold the splints in rows.

4. In a match machine, the combination with the stock feed adapted to feed a series of stock strips side by side and spaced apart, of reciprocating knives acting to successively cut a series of match splints from each strip of stock, and a separating device acting with the knives to engage the splints and separate them into rows.

5. The combination with a plural series of guide fingers, one series being in front of the other, of means for feeding veneer strips between the fingers, and a pair of reciprocating knives traversing the several fingers to cut the stock into splints, one knife moving along the front of the forward fingers and the second knife moving between the two sets of fingers.

6. In a match machine, the cutting mechanism comprising a double set of guide fingers arranged with one set in front of the other, a knife moving along the front of the first set of fingers, a second knife moving between the two sets of fingers, and a back plate moving along the backs of the rear fingers.

7. In a match machine, the combination of the two sets of guide fingers and the means for feeding match stock between both sets of fingers, of the knives moving in unison one knife sliding along the front of the fingers and the second knife moving between the two sets of fingers, the spacing rib on the back of the rear knife, and a movable back plate on the backs of the fingers.

8. In a match machine, the combination with the series of guide fingers spaced apart to receive the stock, and also spaced apart row-wise, of the cut-off knives sliding across the fingers, and a plunger traveling with the knife and below the space between the two sets of fingers, the said plunger extending forward in advance of the cutting edge of the knife.

WILLIAM F. HUTCHINSON.

Witnesses:

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MARY A. S. MOELLER.