

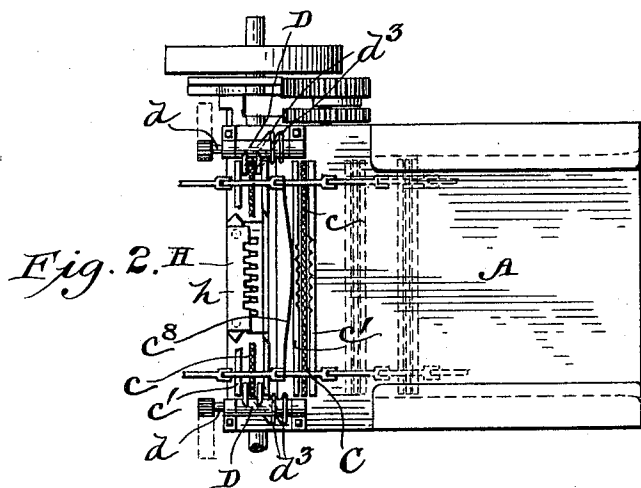
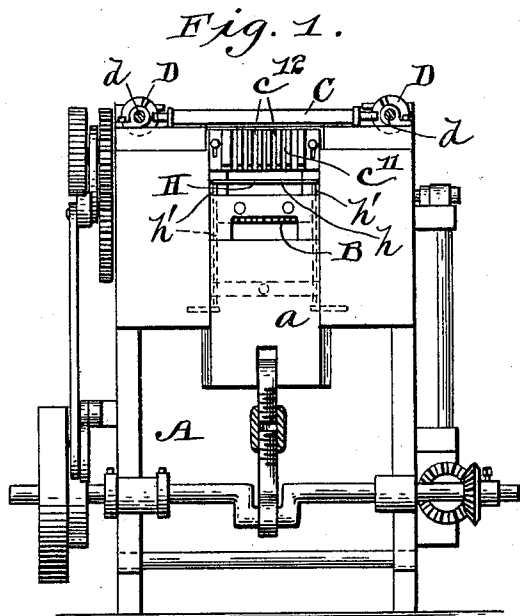
(No Model.)

3 Sheets—Sheet 1.

B. T. STEBER.
MATCH MAKING MACHINE.

No. 587,461.

Patented Aug. 3, 1897.



WITNESSES

Everance.
T. R. Clift

INVENTOR

Bernard T. Sletter
by his Attorneys
Mason Fenwick Lawrence

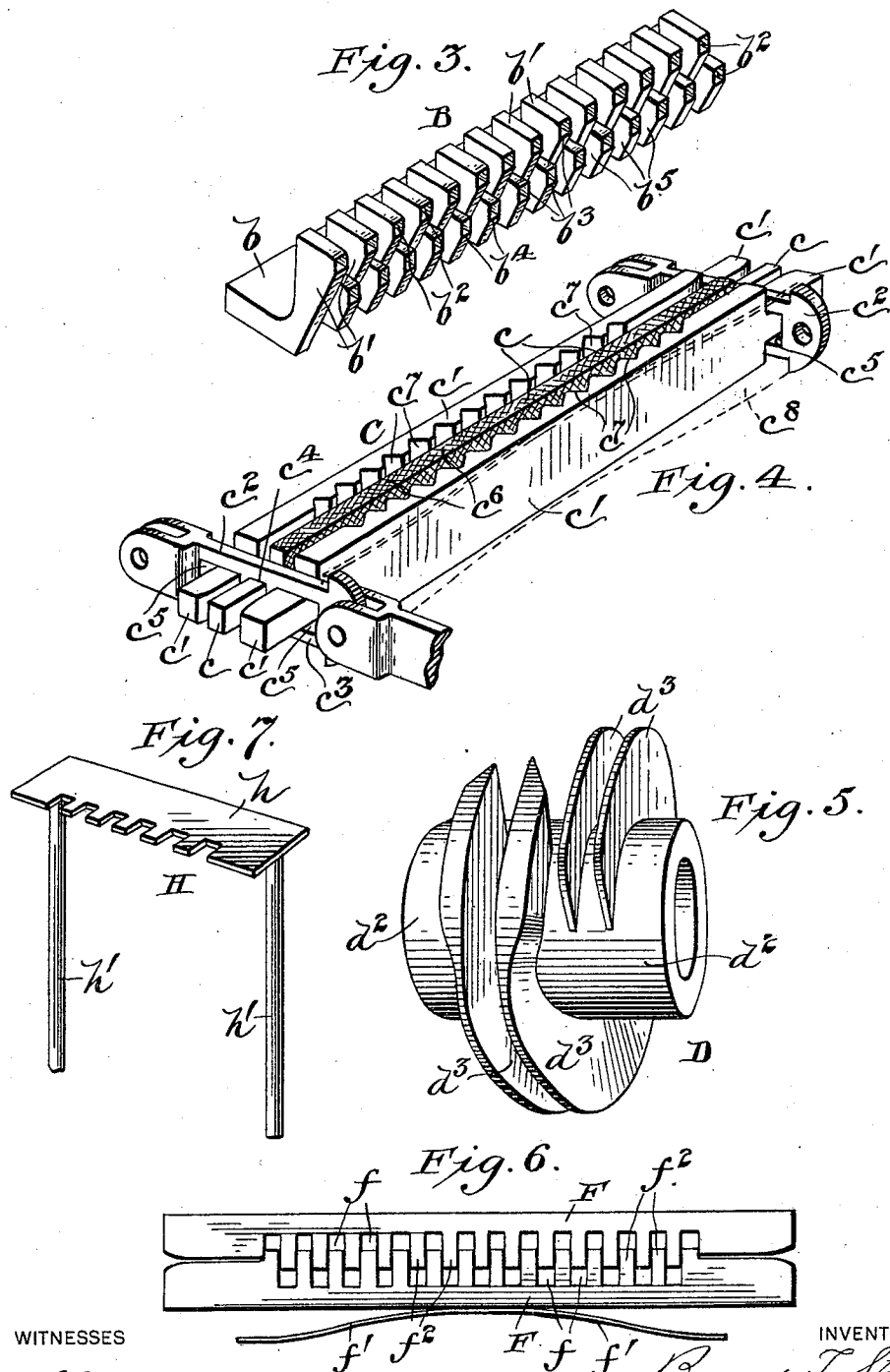
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Mason, Lemwick & Hauser

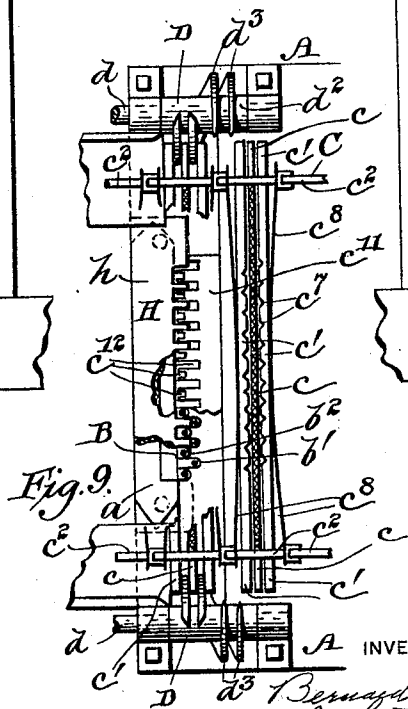
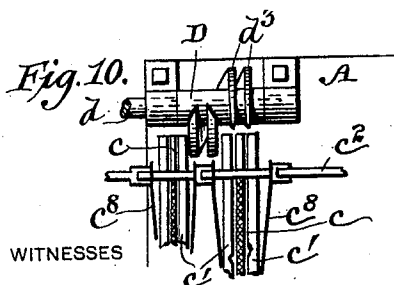
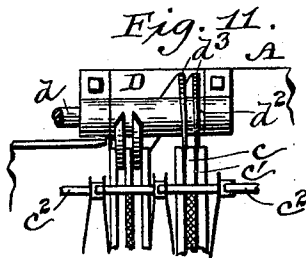
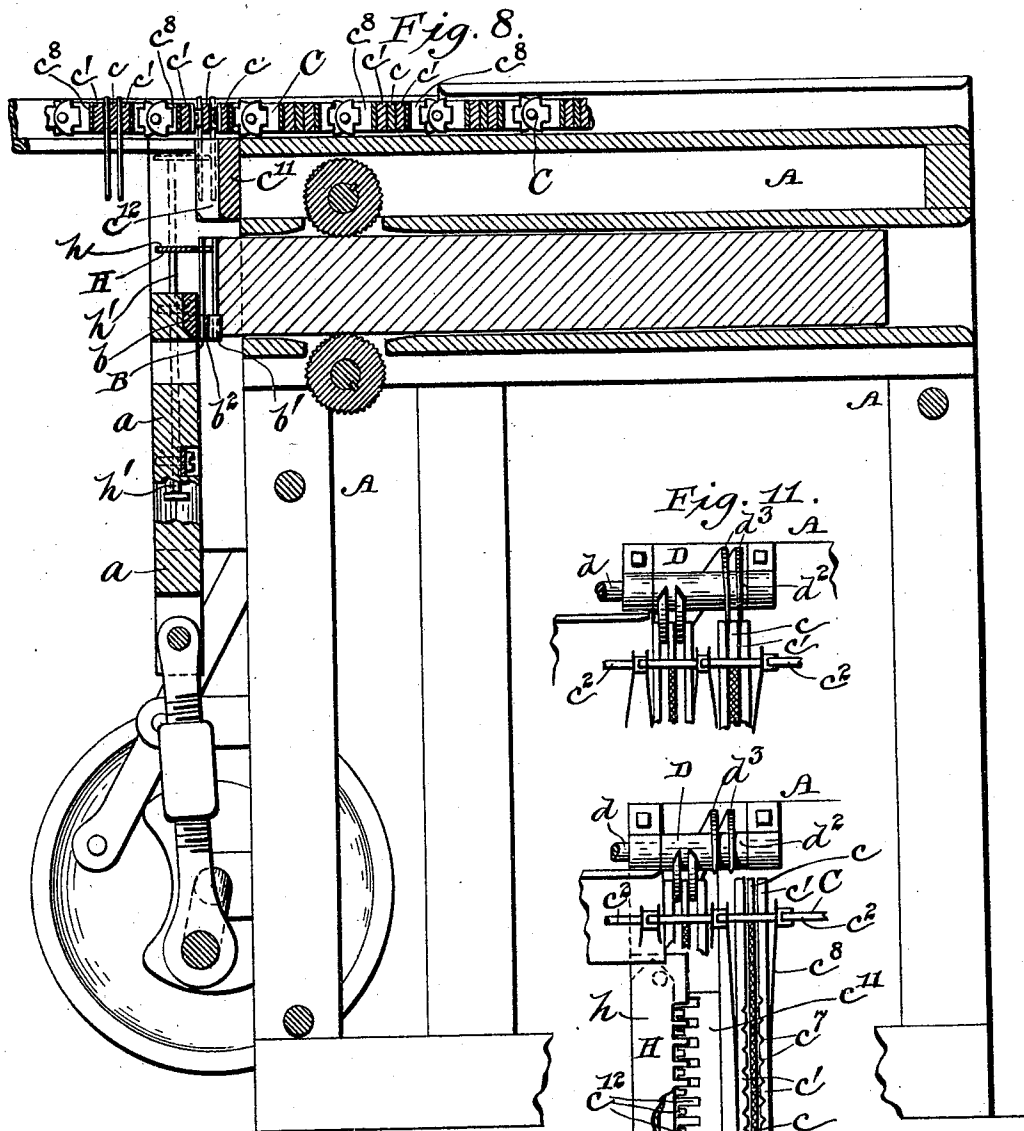
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WITNESSES

Everance.
Bunyan Chase.

INVENTOR

23 Bernard J. Stuber
by his atty
M. J. Farnsworth

UNITED STATES PATENT OFFICE.

BERNARD T. STEBER, OF UTICA, NEW YORK.

MATCH-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 587,461, dated August 3, 1897.

Application filed July 28, 1896. Serial No. 600,850. (No model.)

To all whom it may concern:

Be it known that I, BERNARD T. STEBER, a citizen of the United States, residing at Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Match-Making Machines; and I do hereby 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.

My invention relates to improvements in match-making machines, and has more particular relation to the cutters or dies for such machines.

The invention consists of a cutter or die having a plurality of rows of punches or shaping-cutters arranged alternately in different planes.

It also consists, in a match-making machine, of an endless splint-carrier composed of sections linked together and each comprising three bars applied side by side, the middle one being covered with some elastic material and the outers being grooved upon their sides.

It also consists of certain other novel constructions, combinations, and arrangements of parts, all of which will be hereinafter more particularly set forth and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 represents a front end elevation of the machine embodying my invention. Fig. 2 represents a top plan view of the same. Fig. 3 represents a detail perspective view of the die or cutter embodying my invention. Fig. 4 represents a detail perspective view of a portion of my improved endless splint-receiving conveyer. Fig. 5 represents a detail perspective view of one of the chain-actuating cams, and Fig. 6 represents a detail top plan view of a portion of a modified form of match-splint-receiving conveyer. Fig. 7 represents a detail perspective view of the improved guide which I employ. Fig. 8 represents a vertical longitudinal section of my match-splint machine. Fig. 9 is an enlarged detail plan view of a portion of the same, showing the chain-actuating cams. Fig. 10 is a similar view showing one of the cams in another relation to the chain. Fig. 11 is a fragmentary top plan view of the cam and a portion of the carrier-chain.

A in the drawings represents the splint-cutting machine, which is preferably similar to that granted to me December 17, 1895, No. 551,562.

B represents the cutter or die, C the endless conveyer-chain, and D the operating-cams for the said chain.

The cutter or die B, which is mounted on a reciprocating slide *a* of the machine A, is constructed with two or more separate rows of hollow punches arranged in alternate order, so that no two adjoining punches come in the same plane.

The die comprises a plate *b*, having spaced forwardly-projecting brackets *b'*, in the outer ends of which are formed vertical passages *b²*, leaving sharp cutting edges *b³* at the lower edges of the same. The lower surfaces of these brackets *b'* recede upwardly toward the plate *b*, so as not to interfere with the action of the alternate cutters *b⁴*, which are similar to the before-mentioned cutters, but are formed in brackets *b⁵*, which are not in the same vertical plane with the brackets *b'*, but are arranged between the said brackets *b'* and not extending as far forward as the same. The result of this construction is a die in which a plurality of rows of cutters are provided, no two rows being in the same vertical plane.

I do not care to limit myself to the particular form of rectangular cutter shown, as round or any other desirable shape may be employed with equal facility.

I employ a guide H in connection with my cutter to guide the two rows of splints squarely into the comb hereinafter mentioned. This guide comprises a notched plate *h*, mounted upon the upper ends of movable guide-rods *h'*. These rods are mounted in the head carrying the cutter and move therewith.

After the splints have been cut, as above described, they are carried up by the cutters and deposited into the endless carrier or chain C. Said splints are guided in their upward movement by a comb *c¹¹*, mounted as in my aforesaid Letters Patent and provided with guiding-grooves *c¹²* *c¹²* of different depths to accommodate and guide the two rows of splints. The tracks over which the endless chain travels prevent the guide from ascending too high. After the guide has contacted

with the tracks and stopped the knife and slide continue to move up until its top is in proximity to the guide-plate. The guide-plate and slide now descend together until the guide is a short distance below the top of the block from which the splints are being cut, when the two rods of the guide strike against suitable stops at their lower ends, thus stopping the movement of said guide-plate. The guide-plate now holds the splints being cut into the grooves in the blocks of wood.

It will be observed that when the knife with its splints ascends the guides direct the upper ends of the splints into the grooves of the comb and also into the clamps of the endless chain.

The endless chain comprises bars or slats c c' , arranged in groups of three and secured flexibly together by links c^2 . Each of these links comprises a plate c^3 , provided with a central aperture c^4 , adapted to receive the end of one of the slats c and hold it stationary therein, and with apertures c^5 c^5 , arranged upon each side of the aperture c^4 and adapted to receive the ends of the slats c' , but being of sufficient size to permit them to move longitudinally therein. The ends of all the slats extend a sufficient distance through the links to form projections to be engaged by the operating-cams hereinafter described. The middle slat c of each group is covered with felt or like material c^6 , while each of the two outer slats c' c' is formed with vertical grooves c^7 , which in combination with the opposing face of felt firmly hold the splints deposited in them. The ends of the flexible links are connected by suitable bolts or rivets. Between the groups of slats are arranged springs c^8 , that keep the slats c' c' normally against the slat c under spring-pressure.

The slats c' c' are simultaneously separated from the opposite sides of the felt-covered slat c at the proper time by the cams D D . One of these cams is mounted upon each side of the machine upon a horizontal shaft d , suitably connected to the power mechanism, so as to be operated thereby. Each of these cams comprises a hub d^2 , provided with two parallel spiral flanges d^3 d^3 . These flanges pass a little over once about the hub d^2 and for the greater portion of their length are made of a uniform thickness, but toward the ends are gradually thickened to form oppositely-arranged wedges. Both ends of each flange are parallel with the direction of rotation, only the intermediate portions being spirally arranged. These cam-flanges revolve between the extended ends of the slats c and c' and move the endless conveyer along by means of the spiral engaging the rigid slats c . When the wedge portions of the flanges come between the movable slats c' c' and the rigid slat c , the forward movement of the chain ceases, and the slats are wedged apart to receive the splints. After the splints are de-

posited the continued revolution of the cams removes the wedge-flanges from between the slats and allows them to close, and at the same time the flanges d^3 d^3 of said cams, revolving between the adjacent groups of slats, move the chain forward again. Upon the next revolution of the cams they will repeat the operation just described and so on continuously.

When the parts of the machine are arranged as shown in Figs. 2, 9, and 10, it will be seen that two rotations of the cam would be necessary for every complete reciprocation of the cutter in order to move the chain properly so as to present each group of slats to receive the match-splints produced by the cutter, but when the parts of the machine are arranged as shown in Fig. 11 with each reciprocation of the cutter a new group of slats would be presented to receive the splints from the cutter.

It will be observed from the above that two rows of splints are deposited at the same time into the endless conveyer.

In the modified form of my conveyer illustrated in Fig. 6 I provide two clamp-plates F F to each link, the middle aperture in the links being omitted, as is also the stationary cloth-covered slat. The clamp-plates F F are each provided with recesses f f , into which the match-splints are forced and held securely until dipped. The splints are clamped between these plates by the projections f^2 of one plate entering the grooves f of the other. Springs f' between the pairs of plates keep them normally together. Only single-flanged cams are necessary to operate the plates of this form of conveyer.

With my improved construction it will not be necessary to shift either the block or the die laterally.

I wish it to be understood that I do not confine myself to the specific type of match-splint-clamping means herein described, although I prefer the same, for other known means for holding and carrying the splints may be employed in combination with my improved cutter.

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

1. A cutter or die for a match-splint machine comprising a plurality of suitably-spaced hollow punches or cutters arranged alternately in different planes parallel with the movement of said cutters, the cutters in one set filling the spaces between those in the other set, and cutting a plurality of rows of splints at one operation, substantially as described.

2. A cutter or die for a match-splint machine comprising a plurality of suitably-spaced cutters of the type described, arranged alternately in different planes parallel with the movement of the cutters and having their cutting edges all in the same plane, the cutters in one set filling or being opposite the spaces between those in the other set, and

cutting a plurality of rows of match-splints at one operation, substantially as described.

3. In a match-making machine, the combination of a plurality of suitably-spaced cutters arranged alternately in different planes parallel with the movement of said cutters, the cutters in one set filling the spaces between those in the other set, and cutting a plurality of rows of splints at one operation, and an endless carrier provided with means for holding said splints, substantially as set forth.

4. In a match-making machine, the combination of a plurality of cutters arranged in different alternate planes parallel with the movement of said cutters, and cut a plurality of rows of splints at one operation, an endless carrier provided with means for holding said splints composed of opposing slats and a cam provided with a plurality of flanges for simultaneously opening a plurality of slats to receive the splints and positively feeding said endless carrier, substantially as described.

5. In a match-making machine the combination of a plurality of cutters arranged in different alternate planes parallel with the movement of said cutters, an endless splint-carrier composed of sections linked together and each comprising three slats applied side by side and a cam having flanges provided with oppositely-thickened portions adapted

to separate the two outer slats from the middle slat so that the splints may be forced between said slats, substantially as described.

6. In a match-making machine the combination of a plurality of cutters arranged in different alternate planes parallel with the movement of said cutters, a carrier having clamping-slats, and a comb for guiding the splints cut by the cutter and provided with two sets of guiding-grooves one set being deeper than the other whereby the splints are adapted to be guided between different slats, substantially as described.

7. In a match-making machine the combination with a plurality of cutters arranged in different alternate planes parallel with the movement of said cutters, an endless splint-carrier composed of sections linked together and each comprising three slats applied side by side, the middle one being fixed and the outer ones being movable and yielding means for holding said outer slats against the middle one whereby the splints may be placed and held between the said slats, substantially as described.

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

BERNARD T. STEBER.

Witnesses:

GEORGE SIMMON,

LEONARD VAN BAASTEN.