

*Andrews & Tucker,
Making Matches.*

N^o 68,144.

Patented Aug. 27, 1867.

Fig. 1

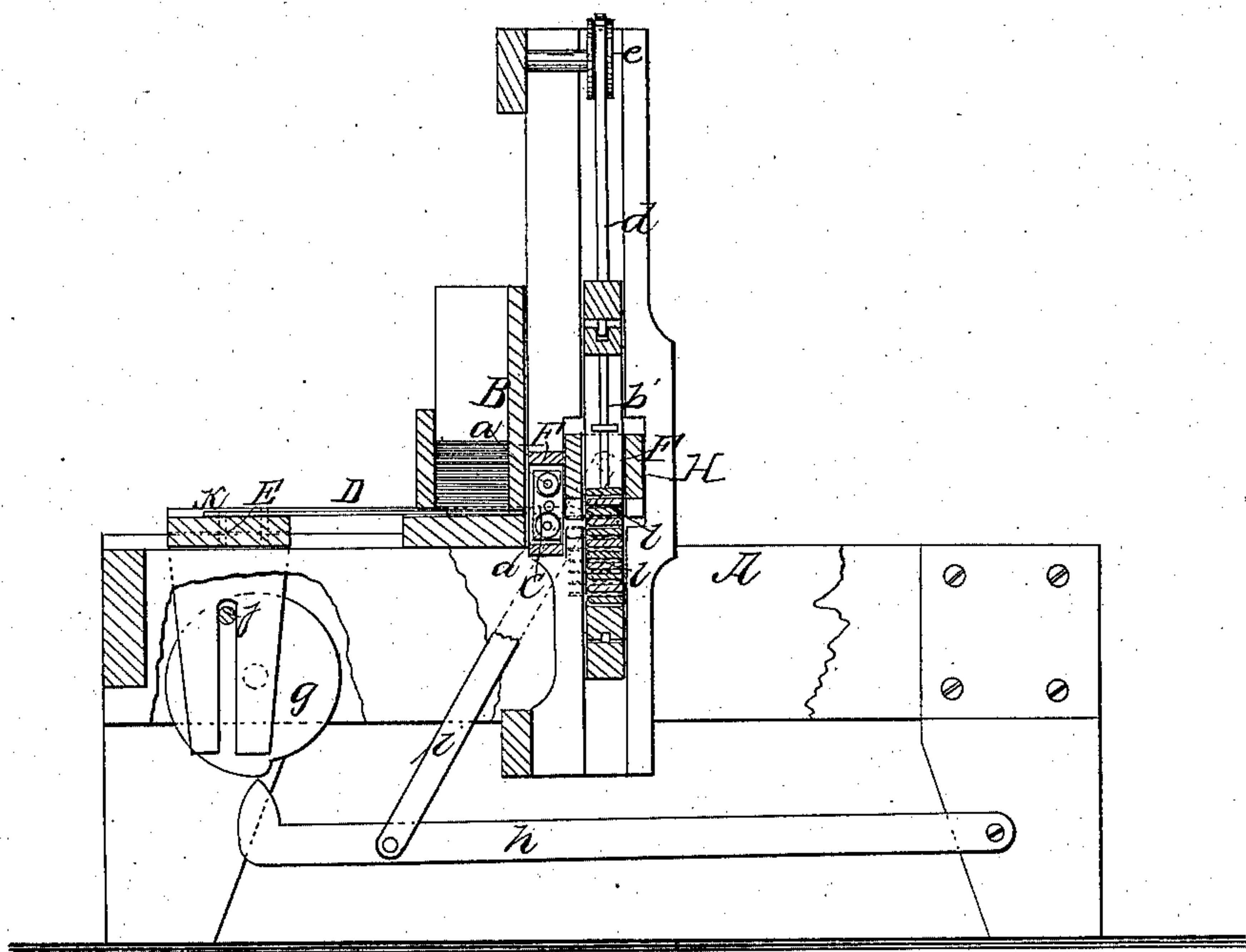


Fig. 2

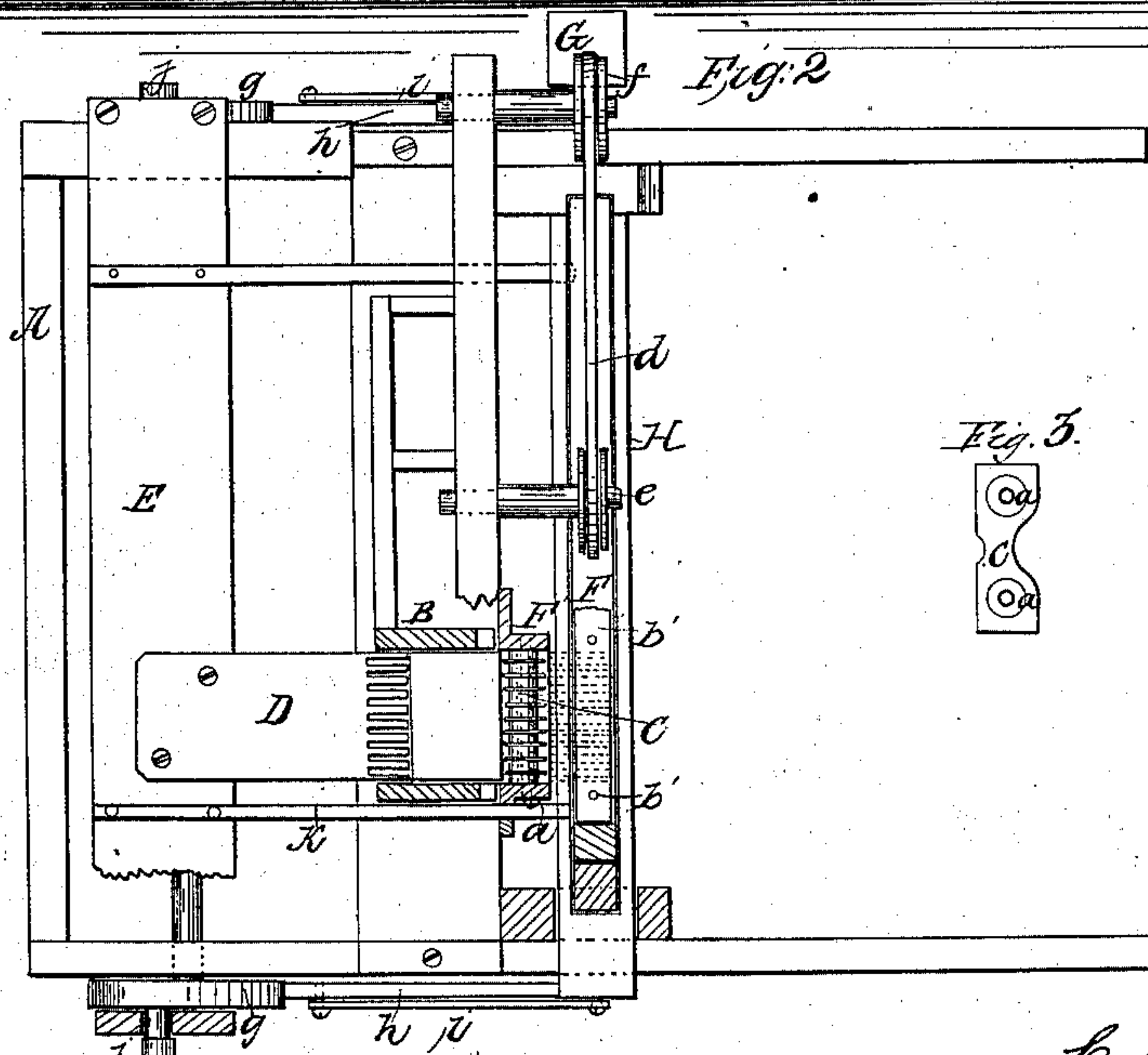


Fig. 3.



Witnesses:

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EMERY ANDREWS AND WILLIAM TUCKER, OF PORTLAND, MAINE.

Letters Patent No. 68,144, dated August 27, 1867.

IMPROVEMENT IN MACHINES FOR MAKING MATCH-SPLINTS. .

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, EMERY ANDREWS and WILLIAM TUCKER, of Portland, in the county of Cumberland, and State of Maine, have invented a new and improved Machine for Manufacturing Match-Splints; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a longitudinal vertical section of this invention.

Figure 2 is a sectional plan or top view of the same.

Figure 3 is a detached side elevation of the knives in a larger scale than the previous figures.

Similar letters of reference indicate like parts.

This invention relates to certain improvements on a machine for making match-splints, for which a patent has been granted to us December 20, 1864.

The improvements consist in a rack arranged with slats, which are strung on wires with washers interposed between them in such a manner that the match-splints can be firmly clamped between the slats, and the principal strain is thrown on the wires. The rack is fed down by a compensating feed composed of a feed-bar which is moved down against the action of springs by means of cams on the driving-shaft, and which is so constructed that it moves the rack for the thickness of one slat for each stroke of the head which pushes the cards against the knives. The slats of the rack are opened by suitable wedges, so that the match-splints can readily enter between them. The cards are driven against the knives by a toothed feed-plate which drives the splints clear through between the knives. Said knives are firmly secured on two screws supporting the ends thereof, and they are kept apart by washers interposed between them. A portion of the knives are placed in the rear of the other, so that they do not all cut simultaneously, and the wood is relieved of a part of the compression which it would receive were all the knives in a line. The cutting edges of the knives are concave, whereby a drawing cut is produced each way, from the centre of the card, and the knife is less liable to follow the grain of the wood than it is when made with a rectilinear cutting edge.

A represents a frame made of wood or any other suitable material, and provided with a box, B, just wide enough to receive the cards, which are arranged in said box in a pile, each card being equal in width to the length of the match-splints to be produced. If desired the box B may be made in sections, each section containing its own pile of cards. An opening in the bottom end of this box allows the lowest card of the pile to escape, and this lowest card in the pile is pushed against the knives C by a feed-plate, D, which is attached to the reciprocating head E. Said feed-plate is provided with teeth which fit between the knives, so that the cards are cut clear through, and the splints, as they leave the cutting mechanism, require no further separation. The knives C are secured in a frame or head, F', and they are supported by screws *a*, near their upper and lower ends, the cutting edges being between said screws, as shown in figs. 1 and 3 of the drawing. Said knives are kept at the desired distance apart by washers, interposed between them, and they are arranged in a zigzag position, or in two rows, one in front of the other, so that the wood, on being forced up against them, is not exposed to the full compression which it would have to sustain if all the knives were in line. The cutting edges of the knives are concave, as shown in fig. 3, and thereby a drawing cut is produced each way from the centre, and the knives are less liable to follow the grain of the wood than they do if their cutting edges are straight. As the splints are driven through between the knives they enter the rack F. This rack is composed of a series of slats, *b*, which are strung on wires *b'*, provided with screw-threads and nuts, and which are kept apart by suitable washers. The rack F is suspended from a strap, *d*, which passes over pulleys *e f*, and it is balanced by a weight, G. H is the feed-bar, which is slotted so as to pass over the rack F, and to which the requisite feed motion is imparted by cams *g*, which act on tappet-levers *h* that connect by rods *i* with the slotted feed-bar. The cams *g* are mounted on the driving-shaft, and from the sides of said cams project eccentric studs *j* which catch in slots in the cross-head E and impart to the same the required reciprocating motion. As the cross-head advances, two or more wedges, *k*, attached to the same, pass in between the slats of the rack and open the same so that they will admit the splints as the same are discharged from the knives. By the action of the feed-bar the rack is fed for a distance equal to the thickness of one slat and one splint, as has been fully described in our former patent of

December 20, 1864, and after all the slats have been filled the nuts on the wires *b'* are tightened and the rack is removed and replaced by another.

By this arrangement the operation of cutting matches is materially facilitated and the splints are readily introduced in and retained by the slats in the proper position for dipping.

What we claim as new, and desire to secure by Letters Patent, is—

1. The compensating feed, which is so constructed that the rack is fed down by the thickness of the card, the “wave” or feed-bar being slotted, so that the rack slides through it, the slats *b* being opened by the wedges *k*, which are secured to the reciprocating head *E*, substantially as herein shown and described.

2. The construction and arrangement upon the reciprocating head *E* of the feed-plate *D*, whose forward end pushes the cards through between the knives *C* and between the slats *b* of the rack *F*, as herein set forth, for the purpose specified.

3. So arranging the knives *C* on the bars *a* that their cutting edges will be in a zigzag line for the purpose of decreasing the compression of the splint, substantially as set forth.

4. Providing the knives with concave cutting edges, substantially as and for the purpose set forth.

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Witnesses:

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