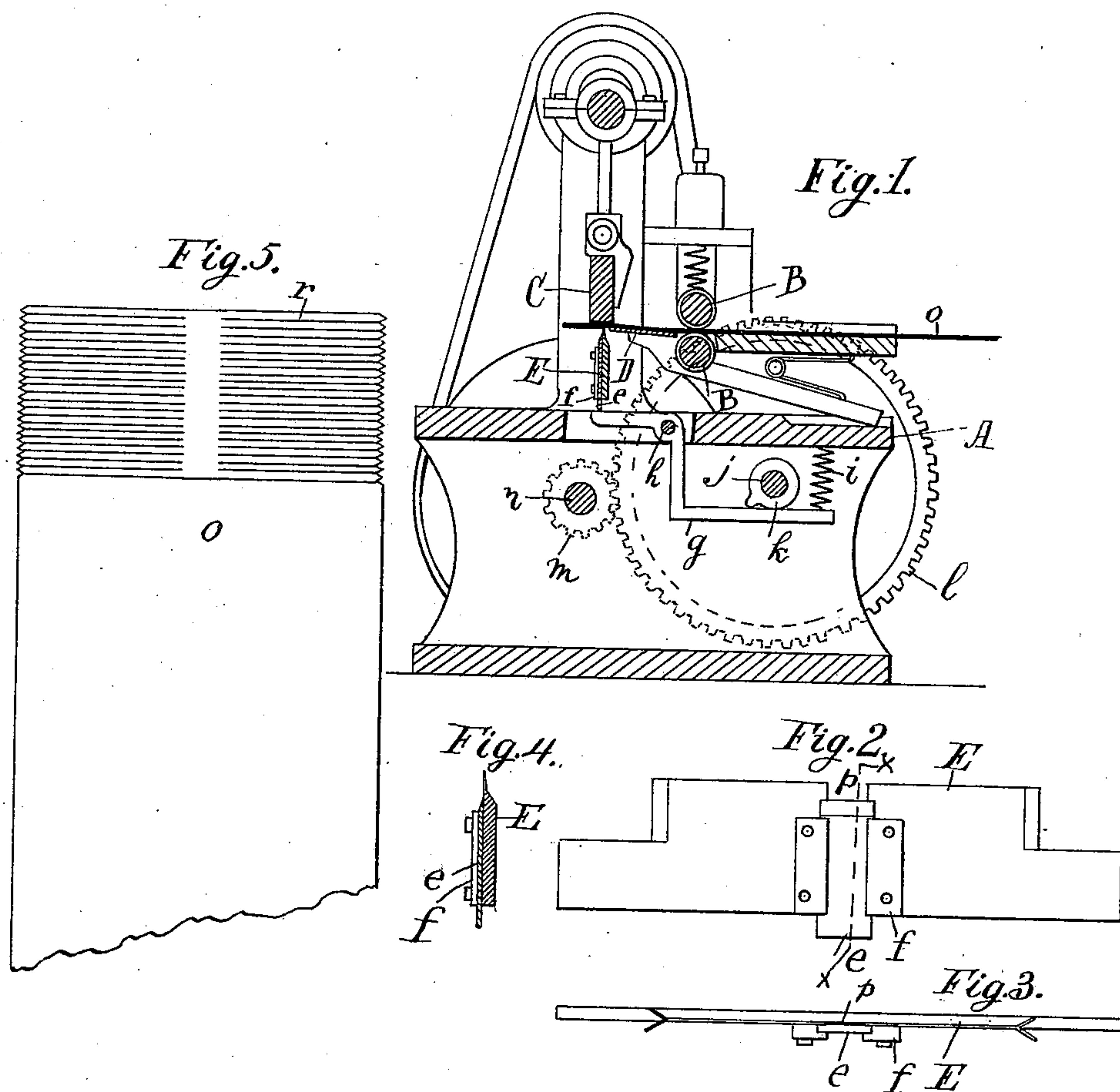


(No Model.)

C. F. SCAMMAN.  
MACHINE FOR FORMING MATCH CARDS.

No. 560,939.

Patented May 26, 1896.



Witnesses:  
E. Dudley Freeman  
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Inventor:  
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# UNITED STATES PATENT OFFICE.

CHARLES F. SCAMMAN, OF DEERING, MAINE.

## MACHINE FOR FORMING MATCH-CARDS.

SPECIFICATION forming part of Letters Patent No. 560,939, dated May 26, 1896.

Application filed August 19, 1895. Serial No. 559,731. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES F. SCAMMAN, of Deering, in the county of Cumberland and State of Maine, have invented a certain new and useful Improvement in Machines for Forming Match-Cards; 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 the manufacture of match-splints, and particularly to those used in what are known as the "Star" matches. These matches are formed in cards by partially splitting the splints apart by the use of a thin knife, one end being connected by the solid wood, the opposite ends of the splints being tapered or pointed to give a space between the brimstone ends of the matches. As these match-splints have hitherto been made the lumber has first been sawed into planks having a thickness equal to the width of a card of matches. The planks are then sawed crosswise into strips having a width equal to double the length of the card. The blocks thus formed are then slashed and formed into blanks having twice the length of the card, after which they are dried and cut in two in the middle, forming two cards. The next operation is to clamp them together and groove them at the ends to form the tapering points, after which they are passed through the cutting-machine, where the separate splints are formed by a cut extending from the bottoms of the notches partially across the blank, a solid space being left uncut at the end.

The aim of my present invention is to cheapen and to hasten this process by cutting these match-blanks from continuous strips by the use of the rapid-running machines which are now used in the manufacture of toothpicks. The machine which I have found particularly applicable to this purpose is the toothpick-machine such as is shown in Patent No. 539,011, granted to me March 7, 1895, and in other patents to me. In this machine there is a stationary knife with a cutting-block reciprocating against the edge of said knife and feed-rolls by which the veneer strip is fed between the knife and the cutting-block. These machines are so constructed that they can be

run at a very high rate of speed, usually as high as four thousand revolutions per minute.

According to my invention I substitute in place of the double knife used in making toothpicks a single straight knife extending a portion of the way across the veneer strip by which the strip is divided into match-splints joined together at one end, the knife being provided with shaping-cutters at the end by which the edge of the strip is notched and the picks are pointed.

As I construct the machine an auxiliary knife is employed to separate the cards of match-splints from the veneer strip as fast as they are formed; but this may be done, if desired, by an independent operation after the veneer strip has been run through the machine.

In the accompanying drawings I have illustrated a toothpick-machine of the class described in said patent, to which I have added the devices necessary to convert the veneer strips into match-splints and to cut them off into cards as fast as they are formed.

In the drawings, Figure 1 is a general section through the toothpick-machine. Fig. 2 is an elevation of the cutting-knife with the auxiliary knife mounted thereon. Fig. 3 is a top view of the same, and Fig. 4 is a section on the line *xx* of Fig. 2.

A is the bed of the machine.

B B are the feed-rolls.

C is the cutting-block, which reciprocates against the upper or cutting edge of the knife, and D is the lifting-plate by which the veneer is lifted above the edge of the knife after each cut.

I make use of a knife E, which is firmly fastened in the machine below the cutting-block C. It has two straight cutting edges in line with each other and separated by a space *p* in the center of the knife. At the ends of the knife are formed shaping-cutters, here shown as being V-shaped, for the purpose of cutting notches in the edges of the veneer.

The cutting-block C reciprocates against the knife E and, forcing the veneer strip against it, notches the edges and cuts it into two sets of splints, one on each edge, the inner ends of the splints being connected by the solid uncut wood.

I have provided in the present machine for



cutting off the cards as fast as they are formed, and for this purpose I make use of an auxiliary knife, which acts to completely separate the last splint in the card when sufficient splints  
5 have been cut to form a complete card.

As herein shown, I mount the knife *e* in suitable guides *f f* on the straight side of the knife *E*, so that its cutting edge will come normally below the cutting edge of the knife  
10 *E*, the lower end of the knife *e* projecting below the knife *E*.

Means are provided for lifting the knife *e* as fast as a card is formed, and for this purpose I make use of a lever *g*, pivoted below  
15 the knife at *h* and having a rearward-extending arm which drops down below the bed of the machine. A cam *k*, mounted on the shaft *j*, is arranged to depress the rear end of the lever *g* at each revolution, and the cam is  
20 operated by a gear *l*, engaged by a gear *m* on the end of the main driving-shaft *n*. These gears are so timed that the cam *k* will make one revolution when the block *C* has made as many cuts as there are matches in a card,  
25 which is ordinarily twenty-three. The lower end of the knife *e* rests on the forward end of the lever *g* and when the rear end of said lever is depressed the knife is lifted into operative position, the cutting edge filling the  
30 space *p* and making a continuous cutting edge with the edge of the knife *E*.

A spring *i* is secured to the rear end of the lever *g* and serves to keep it normally up when the cam is not depressing it, so that the  
35 knife *e* will drop immediately after it has made one cut.

From what has been said the operation of my machine is evident. The veneer strip *o* is fed through between the rollers *B* and a  
40 row of splints is cut on each edge with pointed ends, a solid section being left in the center. As fast as a card has been formed the cam *k* lifts the auxiliary knife *e* into cutting position and cuts the last splint completely off.  
45 After the cards are formed they are dried and cut in two, when they are ready for dipping, as in the process first described.

It will be seen that I do in two operations what required four under the old method and  
50 that my process of making matches must be very much more rapid than the old process.

In addition to the advantages which come from a more rapid production of the match-splints there is much less waste of wood in  
55 my process than in the old process, for the reason that the grain of the wood is much straighter in a veneer strip turned from a log than in splints slashed from sawed planks.

I have herein shown one way of bringing  
60 the knife *e* into operative position; but it is evident that it can be done in other ways while still keeping within the spirit of my invention.

I claim—

65 1. In a machine for making match-cards from veneer strips the combination of one or

more straight slitting-knives, transverse to the feed of the veneer and of less length than the width of the veneer, with a cut-off knife  
70 arranged in line with the first-named knives and means for causing said knives to operate on the veneer, so timed that the cut-off knife comes into operation only once for several operations of the first-mentioned knives.

2. In a machine for making match-cards  
75 from veneer strips the combination of one or more straight slitting-knives, transverse to the feed of the veneer, and of less length than the width of the veneer, and having shaping-cutters at the ends thereof, with a cut-off  
80 knife in line with the above-mentioned knife or knives and means for causing said knives to operate on the veneer, so timed that the cut-off knife comes into operation only once for several operations of the first-mentioned  
85 knife.

3. In a machine for making match-cards from veneer strips, the combination of one or more straight slitting-knives transverse to  
90 the line of feed of the veneer and of less length than the width of the veneer and having shaping-cutters at the ends thereof, a cut-off knife in line with the above-mentioned knife or  
95 knives, a pair of continuously-acting feed-rolls and means for causing said knives to operate upon the veneer, so timed that the cut-off knife comes into operation only once for several operations of the first-mentioned knife.

4. In a machine for making match-cards  
100 from veneer strips, the combination of a pair of feed-rolls for feeding the veneer strips, a fixed slitting-knife having shaping ends over which the veneer strip feeds, and having its  
105 slitting edge of less length than the width of the veneer strip, a cutting-block reciprocating against the edge of said fixed knife, a cut-off knife mounted in guides on the face of said fixed knife and having its edge nor-  
110 mally below the edges of said fixed knife, a lever for lifting said cut-off knife into operative position, and a cam for operating said lever at intervals of several cuts of said fixed knife.

5. In a machine for making match-cards  
115 from veneer strips the combination of one or more straight slitting-knives transverse to the feed of the veneer and of less length than the width of the veneer and having V-shaped  
120 shaping-cutters at the ends thereof with a cut-off knife in line with the above-mentioned knife or knives and means of causing said knife to, operate upon the veneer, so timed that the cut-off knife comes into operation only once for several operations of the first-  
125 named knife.

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

CHARLES F. SCAMMAN.

Witnesses:

ALBION LITTLE,  
WM. A. GOODWIN.