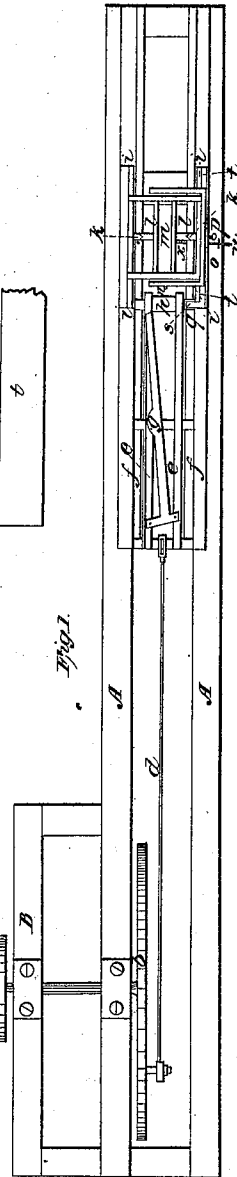
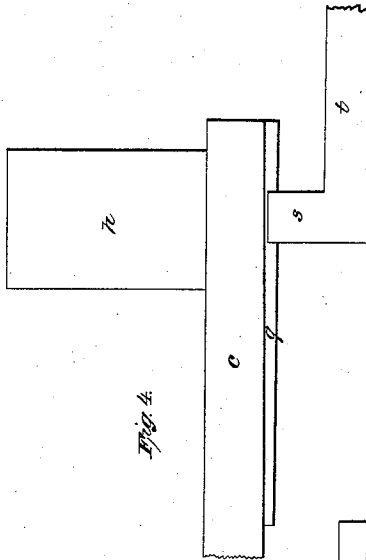
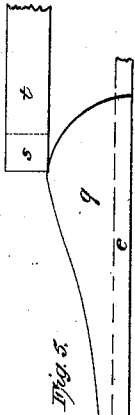
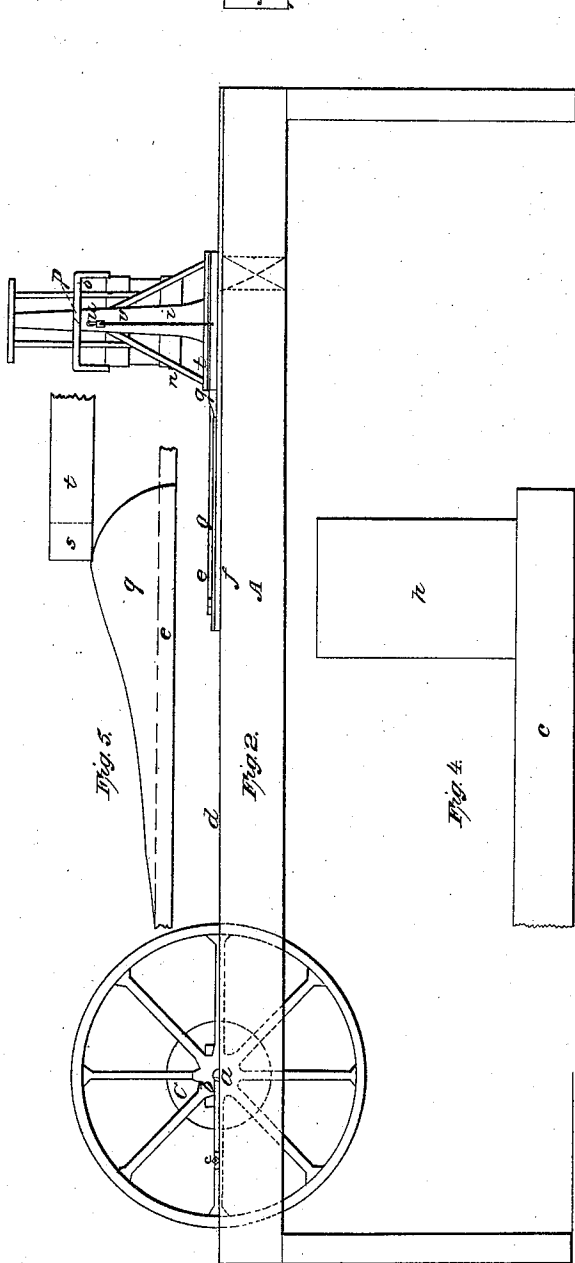
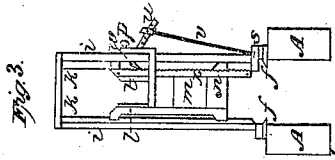


E. Fitzgerald,
Making Matches,

No. 1,695,

Patented July 18, 1840.



Witnesses:
Chauncey E. Warner,
Henry Candland.

Inventor:
Edward Fitzgerald.

UNITED STATES PATENT OFFICE.

ELISHA FITZGERALD, OF NEW YORK, N. Y., ASSIGNOR TO JNO. H. STEVENS.

MACHINE FOR CUTTING MATCH-SPLINTS.

Specification of Letters Patent No. 1,695, dated July 18, 1840.

To all whom it may concern:

Be it known that I, ELISHA FITZGERALD, of the city, county, and State of New York, a citizen of the United States, have invented, made, and applied to use a new and useful Machine for Cutting Match-Splints.

The following specification with the drawings therein referred to, contains a full, clear and exact description of the machine.

Figure 1 on the drawings is a plan of the machine as made and used by me. Fig. 2 is a side elevation of the same. Fig. 3 is a representation of the holding frame and parts seen from the working end of the machine.

The other figures are separately referred to and the same letters as marks of reference apply to the same parts in all the figures.

A is the main frame carrying the working parts; B, a side frame to sustain the outer end of the shaft *a*, on which is a drum C from which a belt communicates with any first or moving power.

On the inner end of the shaft *a*, is a fly wheel, *b*, one arm of which serves as a crank and has a pin *c*, taking one end of a connecting rod, *d*, the other end of which is connected with the slide frame, *e*, working between the two slides, *f*, *f*, secured to the main frame. On the slide frame, *e*, the knife, *g*, is set, the edge of which is placed diagonal to and lengthwise with the frame, with the edge inward. On the end of the slide frame containing the knife and at the place indicated in the drawings by the dotted points, the plate, *h*, is placed across the frame, having inserted in it a number of points sharp like the points of a lancet standing vertically, each point is set parallel to the center line of the machine and one is placed diagonally to the other in succession as shown by the black lines between the dotted lines on the detached figure, 4. These points or as they may be called gage teeth are intended to divide the piece to be taken off by the knife into splints of the required size and must be placed far enough apart to divide the piece to be cut off into splints of the size required. The working positions of all these parts are shown in Fig. 1.

The upright frame, *i*, *i*, is placed upon and across the frame of the machine as shown by Figs. 1, and 3. Within this frame Fig. 3, are two vertical slide ways, *k*, *k*,

to receive the slides, *l*, *l*, to which the box, *m*, is attached as seen in Fig. 3. The block of wood to be cut into splints is first put into the box, *m*, in Fig. 3, and there secured at any given place by the screw, *n*, seen in said Fig. 3. The said box is secured in any particular position by a piece of metal bent around the frame shown in Fig. 3, and the ends secured to said box. This last piece of metal bent around as above, I call a double elbow. The letter, *o*, indicates the double elbow as shown on frame on Fig. 2, and the letter, *p*, indicates the screw inserted in it and which is secured against said frame, *i*, and thereby the box containing the block of wood is secured at any given point of elevation. On one of the slides, *l*, is placed the vertical ratchet bar, *x*, and through the corresponding piece of the frame, *i*, is placed the small cross lever, *u*, connected with the pawl, *w*, which works into the teeth in the ratchet, *x*. The outer end of the lever, *u*, is connected with and fastened to a horizontal side lever, *t*. The rear end of this horizontal side lever, *t*, is secured by a bolt to the rear brace of the upright frame, *i*, on which bolt the said lever works as required. The end toward the fly wheel is turned horizontally, at a right angle forming an elbow or arm across the slide way on which it rests and indicated by letter, *s*. On the side of the sliding frame on which the knife is fixed and at the spot to which the end of the horizontal side lever extends, when the slide frame is advanced nearest to the fly wheel is placed the cam, *g*, with its slope toward the fly wheel. These parts are shown on the drawings on a larger scale by Figs. 4 and 5. The cam, *g*, passes under the point of the arm, *s*, as the slide advances toward the fly wheel, and lifts the lever attached to it and depresses the pawl point, *w*, and brings down the frame and block of wood on it ready for the teeth to mark and the knife to cut off another set of splints. The points or gage teeth should be long enough and penetrate the wood far enough when they mark off the splints, to cause the same to separate when cut off by the knife. The knife is so placed as to enter the block of wood diagonally and moves on through it with the grain, but the edge not at right angles with it but diagonally with it. The knife is not forced into the wood by a chopping stroke but by a drawing stroke, that is while the

knife is pressed upon and made to penetrate the wood, it is drawn from the point to the heel till it passes across the lower end of the block of wood diagonally and thus cuts off the splints. By this operation the splints come off unbroken in separate solid pieces fit for use.

The carriage or slide on which the knife is fixed is made to move backward and forward by the fly wheel, *b*, to which it is attached by the connecting rod, *d*, and by giving it as rapid a motion as the machine the materials and work will allow match splints can be made with great rapidity and in great perfection and much cheaper than in any other way heretofore known, but to accomplish this the operator must see that his block of wood is well secured in its place with the grain running lengthwise with the box in which it stands, that all the parts of the machine are in perfect order and the knife is a good one with a keen edge and made to operate upon the wood as above described.

The use of the ratchet, the pawl, the lever, the drop bar, elbow, and cam is to make the machine feed itself. The position of the knife on the sliding frame and its motion give the proper stroke to the knife when it comes in contact with the block of wood intended to be cut into match splints. The same stroke may be given to a knife by a revolving motion by fixing it to a wheel instead of securing it in a sliding carriage with a reciprocal motion or it may be fixed to a carriage made to move perpendicularly or horizontally upon one side so as to have the edge of the knife lie perpendicularly. The invention and improvement consists in giving the knife a peculiar stroke and connecting it

with the points or gage teeth above described which marks off and separates the splints and leaves them solid and of the right size and shape.

In operating upon wood for the purpose of making match splints, substantially the same as herein described, it is essential that the wood be cut diagonally, and to effect this the operator can place if he pleases a row of teeth or other dividers resembling those indicated in the drawings Fig. 4, at proper distances from each other and set in a diagonal position, in place of using the diagonal knife as is above set forth and described or he may employ two knives in combination with the gage teeth above described, the said knives being placed in opposite direction to and the edges facing each other diagonally.

I do not claim as my invention any of the parts of the aforesaid machine separately and independently of their combination in said machine, nor do I claim as my invention or improvement any of the combinations in the above machine other than such as I have here specially named and claimed. But

I do claim as my invention and improvement,

The knife having a diagonal drawing stroke in combination with the points used as gage teeth in cutting off and separating match splints by one operation as herein described.

6 March 1840.

ELISHA FITZGERALD.

Witnesses:

JOHN THORNE,

SAMUEL W. DISBROWE, Jr.