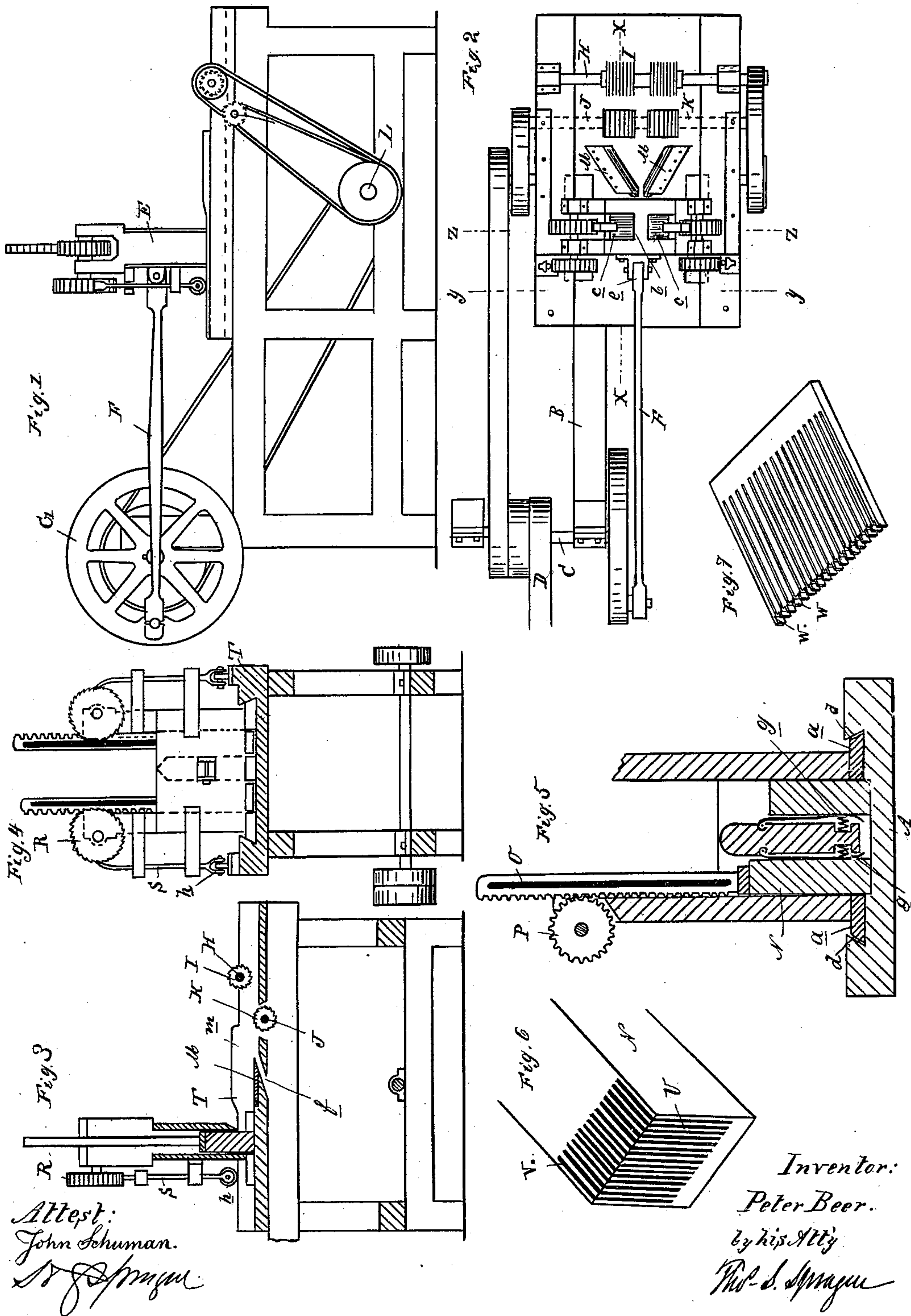


(No Model.)

P. BEER.
MATCH MACHINE.

No. 335,416.

Patented Feb. 2, 1886.



Attest:
John Schuman.
[Signature]

Inventor:
Peter Beer.
by his Atty
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UNITED STATES PATENT OFFICE.

PETER BEER, OF DETROIT, MICHIGAN.

MATCH-MACHINE.

SPECIFICATION forming part of Letters Patent No. 335,416, dated February 2, 1886.

Application filed April 29, 1885. Serial No. 163,822. (No model.)

To all whom it may concern:

Be it known that I, PETER BEER, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Match-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

10 This invention relates to new and useful improvements in a machine for making match-splint cards; and the invention consists in the construction, arrangement, and combination of the various parts, by means of which the match-splint cards are manufactured in a novel way, all as hereinafter described.

20 In the drawings which accompany this specification, Figure 1 is a side elevation of my improved machine. Fig. 2 is a plan thereof. Fig. 3 is a vertical longitudinal section on line *x x* in Fig. 2. Fig. 4 is a cross-section on line *y y* in Fig. 2. Fig. 5 is another cross-section, enlarged, on line *z z* in Fig. 2. Fig. 6 is a perspective of a bolt operated upon by the machine, and Fig. 7 is a perspective of a match-splint card as produced by the machine.

30 A is a horizontal table supported upon a suitable frame, B, to one end of which is journaled the shaft C, to which the power for operating the machine is conveyed by means of a belt, D.

35 E is a reciprocating carriage consisting of a box mounted upon the slides *a* and divided by a central partition, *b*, into two like compartments, *c c*, which are open at top and bottom. The slides *a* rest upon the table, which latter is provided with checks *d*, to guide the carriage in its reciprocating movement upon the table.

40 F is a pitman, pivotally secured at *e* to the carriage, and connected to a crank-wheel, G, on the shaft C.

45 H is a saw-arbor, journaled upon the table at its rearend. It is provided with two groups of small circular saws I, with the saws of each group spaced apart the thickness of a match.

J is another saw-arbor, journaled a little in front and below the arbor H, and is provided with circular saws K, arranged the same way as the saws I.

50 L is a counter-shaft, which receives motion from the drive-shaft C and conveys it to the

saw-arbors by means of belts and pulleys suitably arranged.

55 M are two knives, obliquely secured into the table A, as shown. The face of the table is upon two planes. The portion in front of the knives is upon the higher plane and the knives are secured flush with it, while in rear of the knives the table drops the thickness of a match to a lower plane. Below the cutting edges of the knives discharge-throats *f* are provided through the table.

60 N are the bolts from which the match-splint cards are to be cut. They are inserted in the compartments *c c* from the top, and are cut away at the bottom by the action of the knives. The bolts N are prevented by suitable springs, *g*, or otherwise from feeding down by their own gravity, and a mechanical feed to accomplish this object is arranged as follows: O is a vertical feed-rack engaging with a wheel, P, and R is a ratchet-wheel secured upon the same shaft with the gear wheel P. S is a feed-pawl, vertically supported by suitable brackets, and resting with its lower end, which is provided with an anti-friction roller, *h*, upon a guide-track, T.

70 Each compartment of the box is provided with such a feed mechanism as will operate independently of each other.

75 In practice, upon power being applied the carriage E is reciprocated back and forth upon the table A in such a manner that at the end of the feed-stroke the saws K operate upon the lower ends of the blocks N, while the saws I operate against the rear sides of the blocks, which are exposed to the action of these saws through openings cut into the rear side of the box. Upon the return-stroke the knives cut away from the lower ends a match-splint card.

80 In Fig. 6 the action of the saws K and I is illustrated in a perspective view of a block which has been subjected to these saws, and in which U are a series of parallel saw-kerfs made by the lower saws, K, into the lower face of the blocks N. These saw-kerfs extend some distance into the wood, but they run only partially across the blocks, so that when the knives subsequently cut off a card the individual splints still connect together at their butt-ends, as shown in Fig. 7.

85 V are the saw-kerfs produced by the saws I. They correspond with the saw-kerfs U,

but they are wider, owing to the greater thickness of the saw-blades H. The object of this arrangement is to produce more space between the tips of the splints, so as to allow the cards to enter between the tips. The knives M operate upon the return-stroke after the saws have completed their operation. They are placed obliquely, so as to produce a drawing-cut.

The feed operates as follows: As the carriage approaches the saws the feed-pawls S are forced up by a raise, *m*, in the guide-tracks T, thus turning the ratchet-wheels and imparting a downward motion to the feed-racks, the carriage arriving at the same time over the lower plane of the table. The raise *m* in the guide-tracks is just sufficient to feed the blocks down the thickness of a splint. I prefer to feed the blocks in this manner, as it prevents any upward thrust of the blocks under the action of the knives, while at the same time the blocks bear on the table, thus relieving the frictional resistance of the carriage.

What I claim as my invention is—

1. In a machine for cutting match-splint card, a reciprocating carriage provided with one or more compartments, and a table having a higher and lower plane, in combination with a series of rotary saws operating against the under side of the block or blocks, a series of rotary saws operating against one end of the block or blocks, and a stationary knife or knives to cut off the cards, all substantially as described.

2. In a machine for cutting match-splint card, a reciprocating carriage having one or more compartments, and a table having a higher and lower plane, in combination with a series of rotary saws operating against one end of the block and a stationary knife between the higher and lower plane of the table for shaving off the cards, and a block-feeder, all substantially as described.

3. In a machine for cutting match-splint

card, a reciprocating carriage having one or more compartments, and a table having a higher and lower plane, in combination with a series of rotary saws operating against the lower face of the block, a series of rotary saws operating against one end of the block, a stationary knife secured to the table for shaving off the cards, a spring for holding the block in its compartment, and a block-feeder, all substantially as described.

4. In a machine for cutting match-splint card, the combination of the reciprocating carriage E, having one or more compartments, *c c*, the table A, arranged beneath said carriage, and having a higher and lower plane, the rotary saws K, carried by the shaft J and operating against the under side of the block, the rotary saws I, carried by the shaft H and operating against the rear side of the block, the knife M, arranged between the higher and lower plane of the table, the feed-pawl S, supported in brackets, ratchet R, and spur-gear P, carried by a suitable shaft, feed-rack O, and guide-track T, secured to the table A, all substantially as described.

5. In a machine for cutting match-splint card, the combination of the reciprocating carriage E, having two compartments, *c c*, the table A, arranged beneath said carriage and having a higher and lower plane, the rotary saws K and I, carried by the arbors H J, journaled in said table, the stationary knives M, obliquely and inversely secured between the higher and lower planes of the table, the springs *g*, holding the blocks in their compartments, the feed-racks O, operating on said blocks, gear-wheels P, ratchet-wheels R, operating on said racks, feed-pawls S, operating on said ratchet-wheels, and guide-tracks T, secured to said table and having raised portions *m*, all substantially as described.

PETER BEER.

Witnesses:

H. S. SPRAGUE,
CHARLES J. HUNT.