

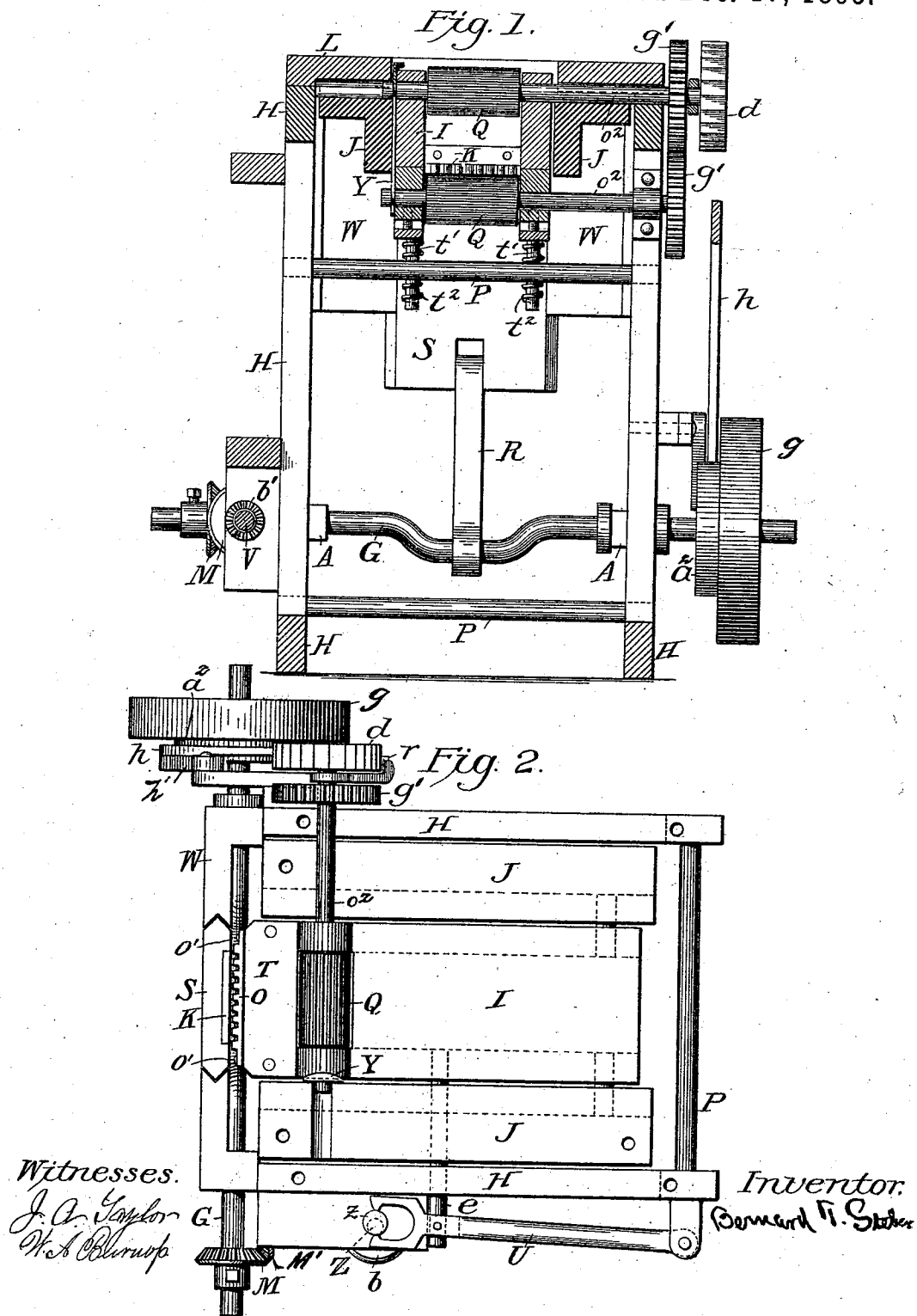
(No Model.)

4 Sheets—Sheet 1.

B. T. STEBER.
MATCH MACHINERY.

No. 551,562.

Patented Dec. 17, 1895.



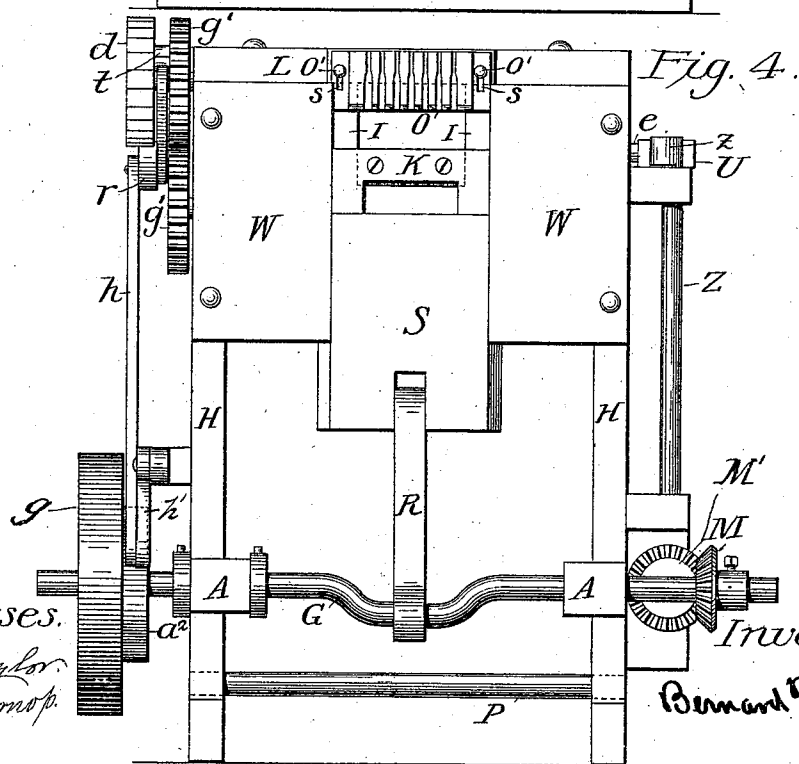
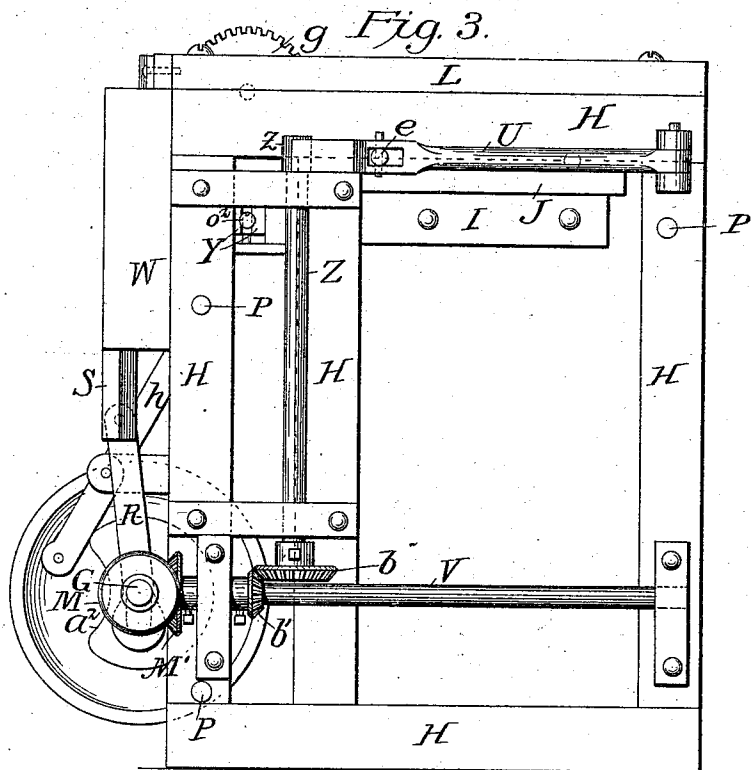
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Witnesses.
J. A. Taylor.
W. A. Burnop.

Inventor:
Bernard T. Steber

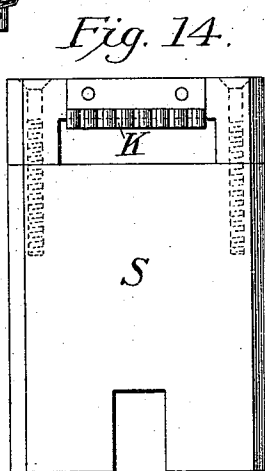
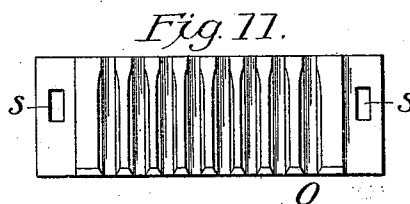
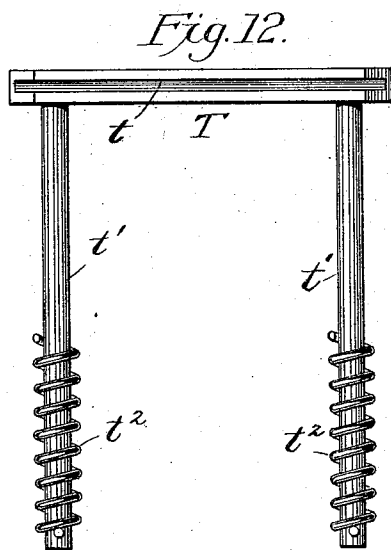
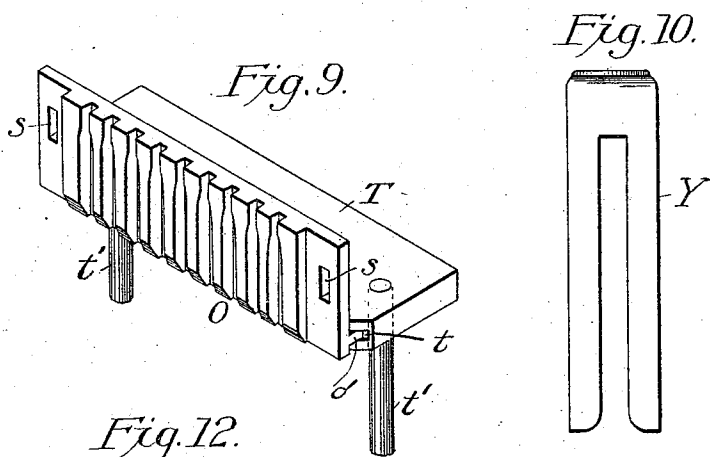
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4 Sheets—Sheet 4.

B. T. STEBER.
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Patented Dec. 17, 1895.



Witnesses.

J. A. Taylor
W. A. Burroughs

Inventor:
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UNITED STATES PATENT OFFICE.

BERNARD T. STEBER, OF UTICA, NEW YORK.

MATCH MACHINERY.

SPECIFICATION forming part of Letters Patent No. 551,562, dated December 17, 1895.

Application filed June 25, 1895. Serial No. 554,053. (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, county of Oneida, and State of New York, have invented a new and useful Improvement in Match Machinery, of which the following is a description.

My invention relates to improvements in match-making machinery, and has particular relation to that class of machines which employ endless chains or aprons to carry the match-splints which have been cut from a block of wood and automatically deposited thereon.

This invention consists of certain 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 vertical section of a machine embodying my invention, taken on the line *xx* of Fig. 2. Fig. 2 represents a top plan view of the same, the top plate being removed. Fig. 3 represents a side elevation of the said machine, showing the shifting mechanism. Fig. 4 represents a front elevation of the said machine. Fig. 5 represents a side elevation of the machine, showing the mechanism for feeding the block. Fig. 6 represents a detail perspective view of one of the feed-roller shafts, showing the longitudinal and circular grooves therein. Fig. 7 represents a detail perspective view of one of the feed-rollers and its shaft. Fig. 8 represents a detail perspective view of the feed-box and its holders. Fig. 9 represents a detail perspective view of the comb and the holding and accommodating plate in which it is mounted. Fig. 10 represents a detail side elevation of the key which locks the feed-roller shafts in position. Fig. 11 represents a front elevation of the comb-plate. Fig. 12 represents a front elevation of the holding and accommodating plate. Fig. 13 represents a detail side elevation of the shifting-lever; and Fig. 14 represents a detail rear elevation of the slide and cutters.

The frame of the machine comprises a top plate L, side pieces H, and the binding-rods P P P P. Beneath the bed-plate L are the feed-box holders J, which are firmly bolted to said bed-plate and are provided with holes

a a a a, through which the projecting lugs *i i* of the feed-box I pass, and the said feed-box is thus supported, but is free to swing laterally. The said feed-box is connected by means of the shifting-rod *e* with the shifting-lever U, which is pivoted at its rear end to the frame and derives its motion from the cam *z* at the upper end of the vertical shaft Z, a yoke on the end of said lever engaging the opposite sides of the said cam.

At the front end of the top plate L is the comb O, which is attached by means of screws which pass through the slots *s*. The comb O is provided with a lateral extension *o'*, which fits into a groove *t* of a holding and accommodating plate T. This plate is provided with two pendent guiding-stems *t'*, that pass through the frame and are surrounded at their lower ends with coil-springs *t''*, that bear against the under side of the frame and lateral pins in the ends of the stems. It will be seen from the foregoing that the accommodating-plate and the comb-plate are normally held down by the coil-springs, but that they may both rise when necessity requires—as, for instance, when an abnormally large block is introduced.

It will be observed that the accommodating-plate and the comb-plate are attached together in such a manner as to enable the former to move laterally with the feed-box, while the comb, which is attached to the top plate of the machine, cannot move laterally, but is readily moved up or down by the action of the accommodating-plate when adjusting itself to the block.

W W are the ways or guides between which the slide S reciprocates. This slide carries the serpentine cutting-blade K and is connected to the crank-axle G by a pitman R.

The crank-axle G is mounted in bearings A and is provided at one end with a belt-wheel *g* and at the other with a bevel-gear M. Said latter gear meshes with a gear M' on a shaft V. This shaft carries a small bevel-gear *b'*, that meshes with a gear *b* on the shaft Z.

The feeding-rollers Q Q are keyed to their respective shafts *o''* by suitable grooves and keys in such manner that they rotate with the said shafts; but the latter may be withdrawn longitudinally when it is desired to remove the rollers. The said shafts are held nor-

mally in position by a key Y, which takes into the annular grooves in the ends of the said shafts and thus prevents them from moving longitudinally.

- 5 The box I is provided with apertures through which the shafts o^2 pass, the feed-rollers coming between the side walls of the box, so that as the box is moved laterally the rollers and shafts move with the same. Said rollers are
10 corrugated, so as to take a firm hold of the block and feed it evenly forward without slipping. The outer end of each shaft o^2 is provided with a gear-wheel g' , said gears meshing one with the other, so that the shafts and
15 consequently the feeding-rollers are revolved simultaneously, but in opposite directions. The upper shaft o^2 is provided with a ratchet-wheel d , rigid thereon. A spring-pressed pawl t is pivoted on the frame so as to en-
20 gage said wheel and prevent it turning backward. The said ratchet-wheel is turned forward by a pawl r , pivoted on the end of a short arm r' , which has its end loosely mounted on the upper shaft o^2 . This pawl r is actu-
25 ated by a lever h , which lever is pivotally connected at its upper end to said pawl and at its lower end to a supporting-link h' , which link is in turn pivoted to the frame. A cam a^2 is mounted on the shaft G, so as to engage
30 the lower end of the lever h and thus actuate it to turn the ratchet-wheel forward a predetermined distance at each revolution.

By my new method of shifting the block laterally I retain all the advantages of the
35 direct feed, and am enabled to watch more easily the grain of the wood, and still can deposit the splints into any position which can be done by using a diagonal feed.

One of the principal features of my invention is the manner in which I attach the feed-
40 rollers. It is sometimes desirable to remove the feed-rollers. To enable the operator to do this rapidly I have constructed my devices as described and shown in Figs. 1, 6, and 7 of
45 the drawings.

It will be observed that as the slide S, carrying cutting-tool K, moves up the match-splints are deposited directly into their respec-
50 tive places. To facilitate this operation I employ the comb O. The cutting-tool ascends, carrying with it the splints to be deposited into the openings of the endless chain, said cutting-tool passing between the corruga-
55 tions of the comb. The grooves in the said comb are cut wide enough to enable the cutting-tool to enter them, but are reduced to nearly the diameter of the splint at their top
60 ends, so as to guide the splints accurately into the holes or grooves of the endless chain above.

By shaping the grooves in the comb so that the cutter may enter the same upon its up-
stroke the cut splints are driven well into the endless carrying-belt, and at the same time they are cut until they are well fixed in the
65 perforations of the belt or plate.

Having now described my invention, what

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

1. In a match machine, the combination with a suitable frame, of a laterally reciprocating feed box, fluted feed rollers mounted in the same and geared together so as to revolve in opposite directions, a cam and lever for reciprocating said box, a pawl for revolving the feed rollers with a step by step motion, a cam on the power shaft, a lever for connecting said pawl and cam, a slide carrying cutters adapted to cut the splints from the blocks fed forward by the fluted rollers, and a spring pressed accommodating plate, a comb plate mounted in the same and adapted to bear upon the block from which the splints are to be cut, substantially as described. 70 75 80

2. In a match machine, the combination with a suitable frame, of a laterally reciprocating feed box, of feed rollers, a slide carrying cutters, a spring pressed accommodating plate, a comb plate mounted in said accommodating plate and having grooves wide at the bottom and narrow at the top and adapted to receive the cut splints and guide them to a holder, and means for operating the slides and rollers, substantially as described. 85 90

3. In a match machine, the combination with a suitable frame, of a laterally reciprocating feed box, of feed rollers, reciprocating cutters, a spring pressed accommodating plate, and a comb mounted in said accommodating plate and having grooves large enough to admit the cutters at one end and reduced to nearly the diameter of the cut splints at the other end, substantially as described. 95 100

4. In a match machine, the combination with a suitable frame, of a laterally reciprocating feed box, feed rollers, reciprocating cutters, a spring pressed accommodating plate and a comb plate mounted in the same and bearing upon the block from which the splints are cut and adapted to receive and guide the cut splints from the time they are cut until they are deposited in the perforated belt, substantially as described. 105 110

5. In a match machine, the combination with a suitable frame, of a laterally reciprocating feed box, feed rollers, reciprocating cutters, an accommodating plate mounted on said feed box and having pendent stems and a horizontal groove, a spring surrounding said stems to hold said plate normally down, and a comb plate mounted on the groove of said accommodating plate, the construction being such that the accommodating plate can move laterally independent of the comb plate but must move vertically therewith, substantially as described. 115 120 125

6. In a match machine, the combination with a suitable frame, of a feed box, feed rollers, shafts mounted in the box and carrying the rollers and provided with longitudinal grooves and annular grooves, keys in the longitudinal grooves and connecting the shafts and rollers, a removable key for fitting into 130

the annular grooves of both of said shafts and engaging one side of the said box and preventing said shafts from moving longitudinally independent of said box, and a slide carrying cutters, substantially as described.

plate carried by the feed box, and a comb 10 plate fixed against lateral movement but movable vertically with the accommodating plate, substantially as described.

BERNARD T. STEBER. [L. S.]

Witnesses:

W. A. BURNOP,
J. A. TAYLOR.

5 7. In a match machine, the combination with a suitable frame, of a laterally reciprocating feed box, feed rollers, reciprocating cutters, a vertically movable accommodating