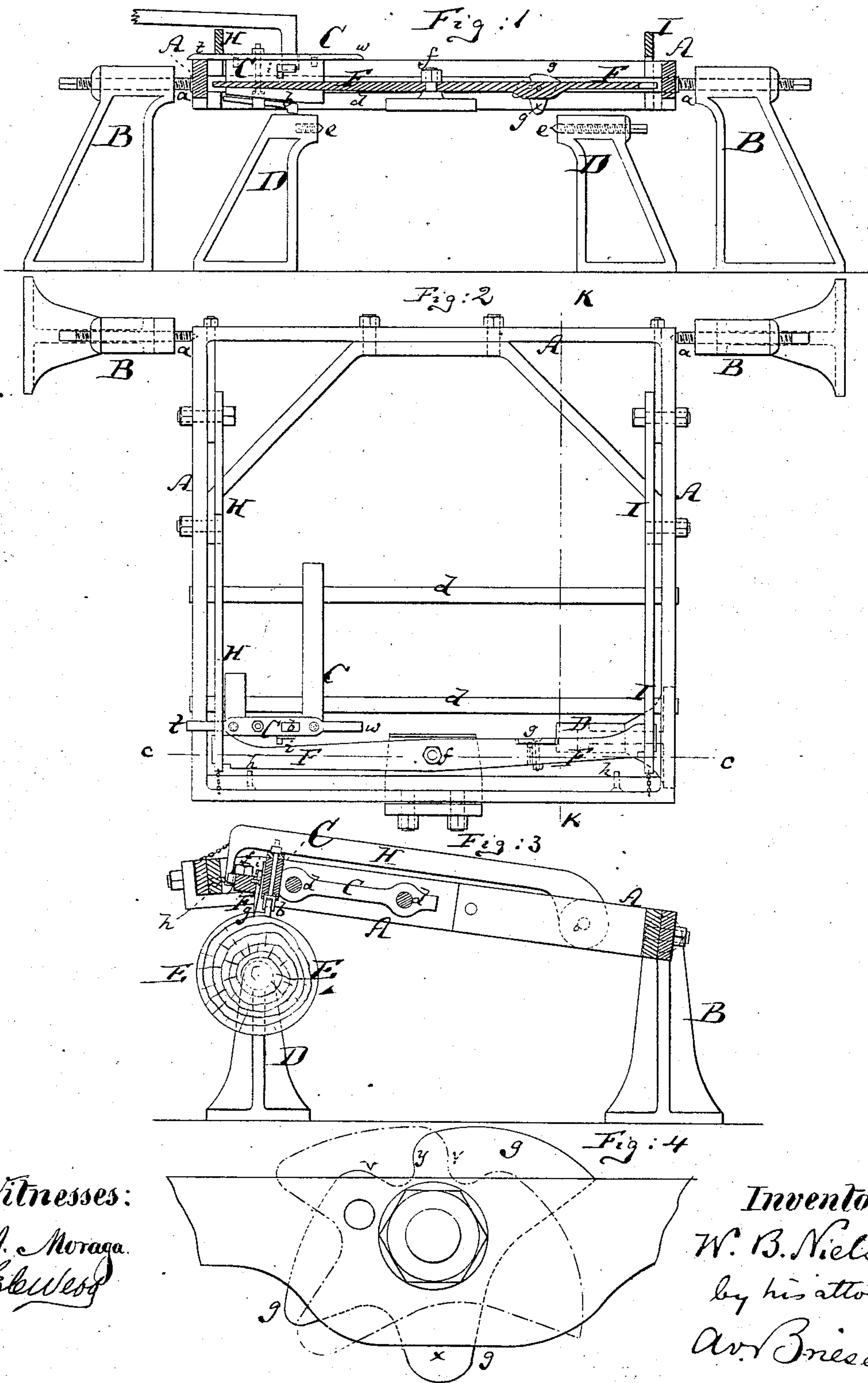


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Machines for Cutting Splints for Matches.

No. 158,968.

Patented Jan. 19, 1875.





# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN MACHINES FOR CUTTING SPLINTS FOR MATCHES.

Specification forming part of Letters Patent No. **158,968**, dated January 19, 1875; application filed December 12, 1874.

*To all whom it may concern:*

Be it known that I, WALDEMAR BERGIN NIELSEN, of Malmo, Sweden, have invented a new and Improved Machine for Manufacturing or Planing Splint for Matches, Shavings, &c., of which the following is a specification:

This invention relates to an improvement in machines for cutting splints for matches from the circumference of a log; and consists in the new combination and arrangement of appliances for imparting intermittent rotary motion to such log, and for holding the log firmly while it is being cut or shaved.

In the accompanying drawing, Figure 1 represents a vertical section of my improved machine for planing splints, the line *c c*, Fig. 2, indicating the plane of section. Fig. 2 is a plan or top view of the same. Fig. 3 is a vertical section thereof, on the line *k k*, Fig. 2; and Fig. 4 is a detail face view, full size, of the device for locking the log.

Similar letters of reference indicate corresponding parts in all the figures.

The letter A, in the drawing, represents the frame of my improved machine. The same is pivoted at one end by suitable pins *a a*, in two stationary uprights, B B, so that it may freely swing on such pivots *a*. C is the slide that carries the planing-tool *b*. This slide is arranged to move on guide-rails *d d*, that extend across the frame A, and are parallel to the pivots *a a*, as clearly shown in Fig. 2. D D are two uprights, between which the log E, to be cut, is held. These uprights have centering-pins *e e*, as in Fig. 1, for holding the log, as though the same were in a lathe, allowing it to turn on the pins *e e*, and preventing it from being displaced lengthwise.

The intention of my mechanism will be understood when I state that, by every motion of the plane C from left to right, I intend to cut from the log one splint, and then to partly turn the log to bring a new splint under the action of the plane, so that the plane, during its next motion from left to right, may cut off a new splint, and so on, the frame A, being pivoted, allowing the plane to follow the log, as the diameter of the same becomes reduced.

In order to carry this programme into effect, I must devise means for locking the log and preventing it from turning while the plane C

moves from left to right, and for turning it while the plane C moves from right to left. To do this I employ a lever, F, which is pivoted, by a vertical pin, *f*, to the frame A, near to the path of the slide C. This lever F carries, at a convenient distance from the pivot *f*, a pivoted finger or locking-knife, *g*, which is more clearly shown in Fig. 4. The lever F is allowed to vibrate on its pivot, but its vibrations are limited by pins or stops *h h*, that project towards the end of the lever from the frame A, as shown in Fig. 2. To the sides of the frame A are pivoted hooks H and I, respectively, that rest with their free ends on the respective ends of the lever F, in such a manner that one of these hooks will always lock the lever F in one of its two extreme positions. Thus, when the lever F is, as in Fig. 2, swung with its right-hand end inwardly—that is, toward the pivots *a*—the hook I will catch over and hold the right-hand end of F in such position; but when the lever F is swung so that its left-hand end is brought farther inwardly, the hook H will catch over that end and hold it. The slide C, which carries the planing-tool *b*, carries also a projecting pin, *i*, which serves to vibrate the locking-knife *g* of the lever F, in the manner hereinafter described—that is to say, when the slide C is drawn, by hand or other mechanism, from left to right, the lever F is in the position shown in Fig. 2, and held therein by the hook I. At the same time, the knife *g* enters, with its lowermost prong *x*, Fig. 4, into the log E, in the manner indicated in Fig. 3, and thereby such log is prevented from turning, while the planing-tool takes off one splint. By the time the projection *i* of the slide C reaches the knife *g* the splint has been detached, and the projection *i*, finding the knife *g* in the position in which the same is shown by full lines in Fig. 4, catches against the shoulder *y* of such knife, and swings it into the dotted position shown in Fig. 4, thereby taking the projection *x* out of the log and releasing the log, or rather disengaging the lever F from the log. The motion of the slide C toward the right being continued, such slide, with a wedge-projection, *w*, enters next under the hook I, and lifts said hook from off the lever F, thus liberating such lever. When the lever F has thus been lib-



erated, the slide C, by coming in contact with its right end, crowds said right end of F outwardly, and reverses thereby the position of the lever F, so as to bring its left end inwardly. The hook H, thereupon, immediately swings over and holds the left end of the lever F.

It will be observed that, by the last-named vibration of the lever F, its knife *g* was carried over a new part of the log E, the distance traversed by said knife *g* being equal to the width of a splint which the plane can detach from the log. The slide C is now drawn from right to left, and its first effect is to bear with its pin *i* on a shoulder, *v*, of the knife *g*, and thereby to swing such knife from the dotted position (shown in Fig. 4) into the full-line position shown in the same figure. Thereby the lower projection *x* of such knife is forced into the log E again, and once more connects such log firmly with the lever F; but as the position of the log has not yet been changed, the return motion of the plane *b* is not obstructed. Upon reaching the left side of the frame A, the slide C first lifts the hook H off the lever F by means of a wedge-projection, *t*, and then swings, by bodily contact, the lever F back into the position shown in Fig. 2, whereupon the hook I will at once catch over and lock said lever. But by the last-mentioned vibration of the lever F, the knife *g* thereof, being connected with the log E, took such log along with it—that is to say, partly turned said log on the pins *e*, and brought it

into a position which will enable the planing-knife to take off a new splint during its next motion from left to right, and in this manner the operation can be continued at liberty until almost the entire log has been cut into splints.

It will be seen that by this machine the splints will be taken off the circumference of the log in a spiral line, and that the frame A, by its weight, will hold the planing-knife in contact with the log until the same has been nearly entirely consumed.

I claim as my invention—

1. In a machine for cutting splints from logs, the combination of a reciprocating plane, C, with the vibrating lever F, which holds the vibrating tool *g*, for locking and unlocking the log, substantially as described.

2. In combination with the vibrating lever F and reciprocating plane C, the hooks H and I, arranged substantially as and for the purpose described.

3. In a machine for cutting splints from logs, the combination of the pivoted frame A, which guides the plane, with the supports D of the log, all arranged so that the log is free to turn between its supports, while the frame A and its plane follow the log as its size is being reduced, substantially as described.

W. B. NIELSEN.

Signed in presence of—

HENRIK OLSON,

H. RAMSTON,

*U. S. Consular Agent at Malmo.*