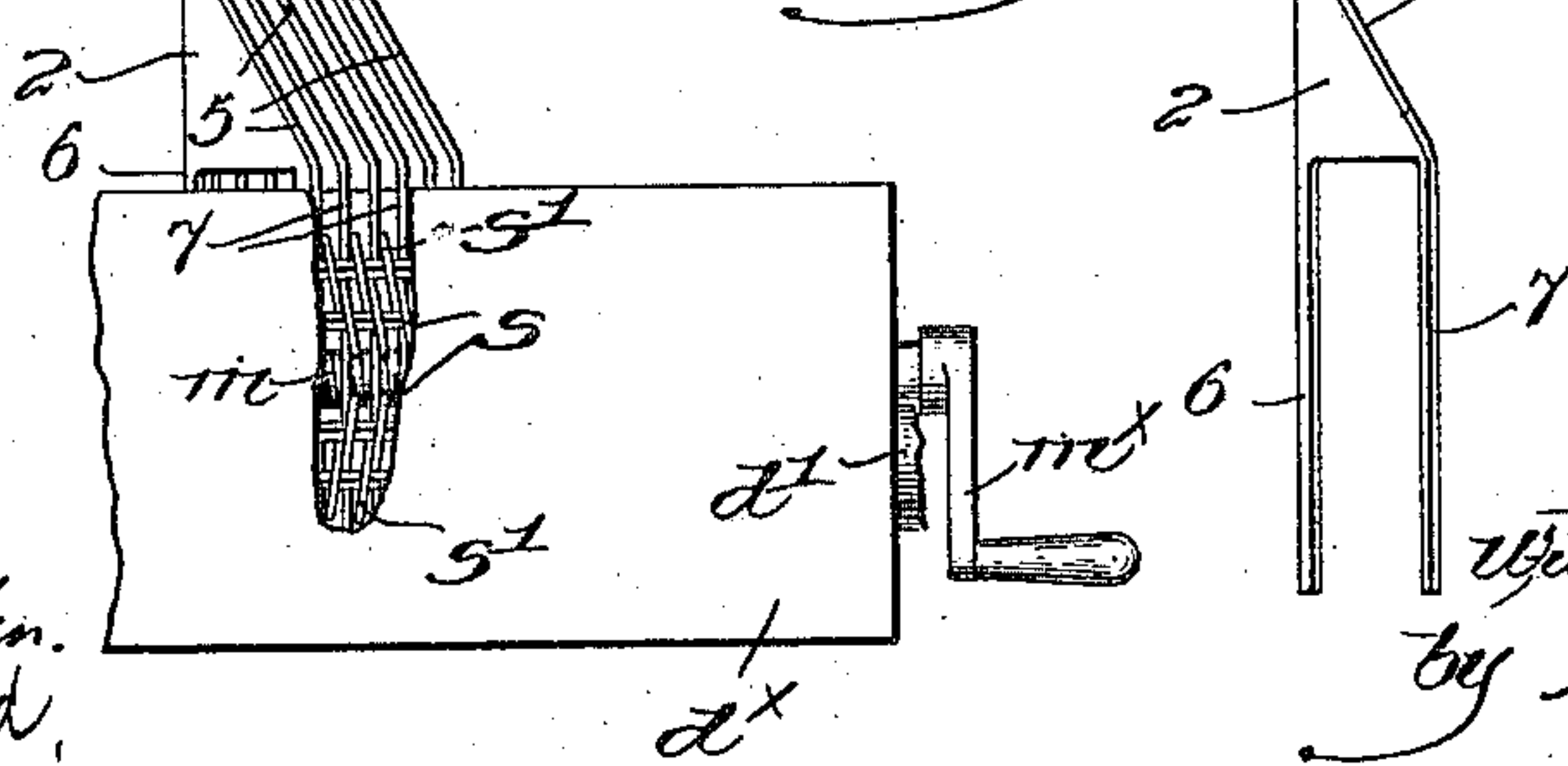
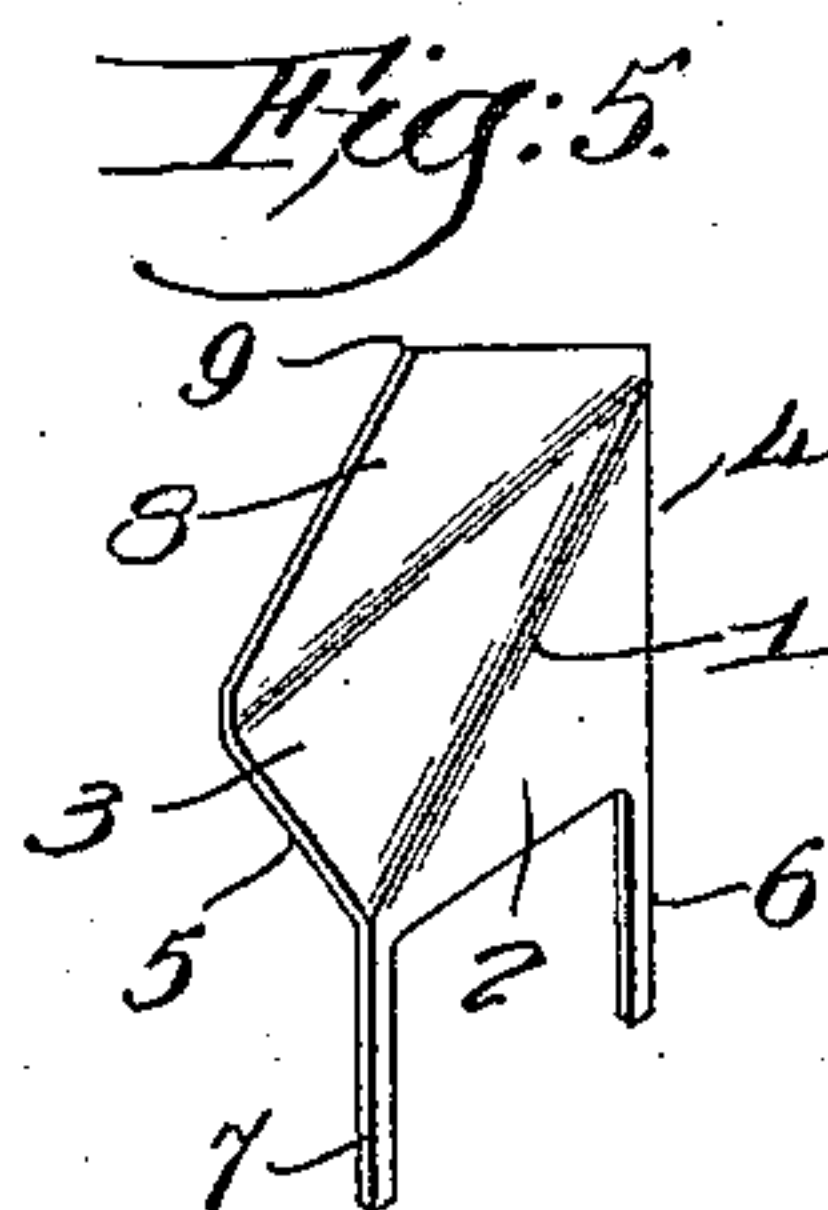
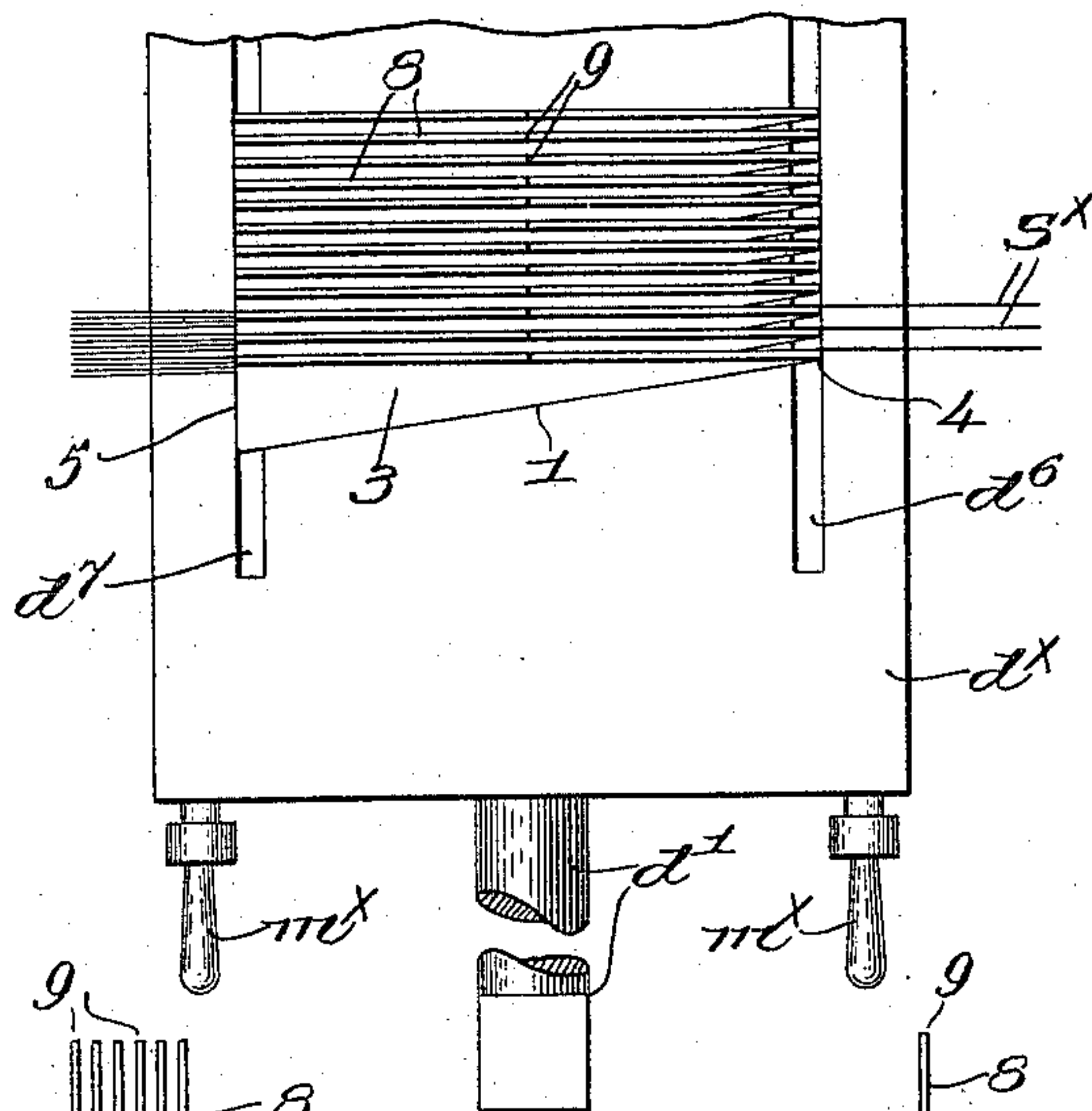
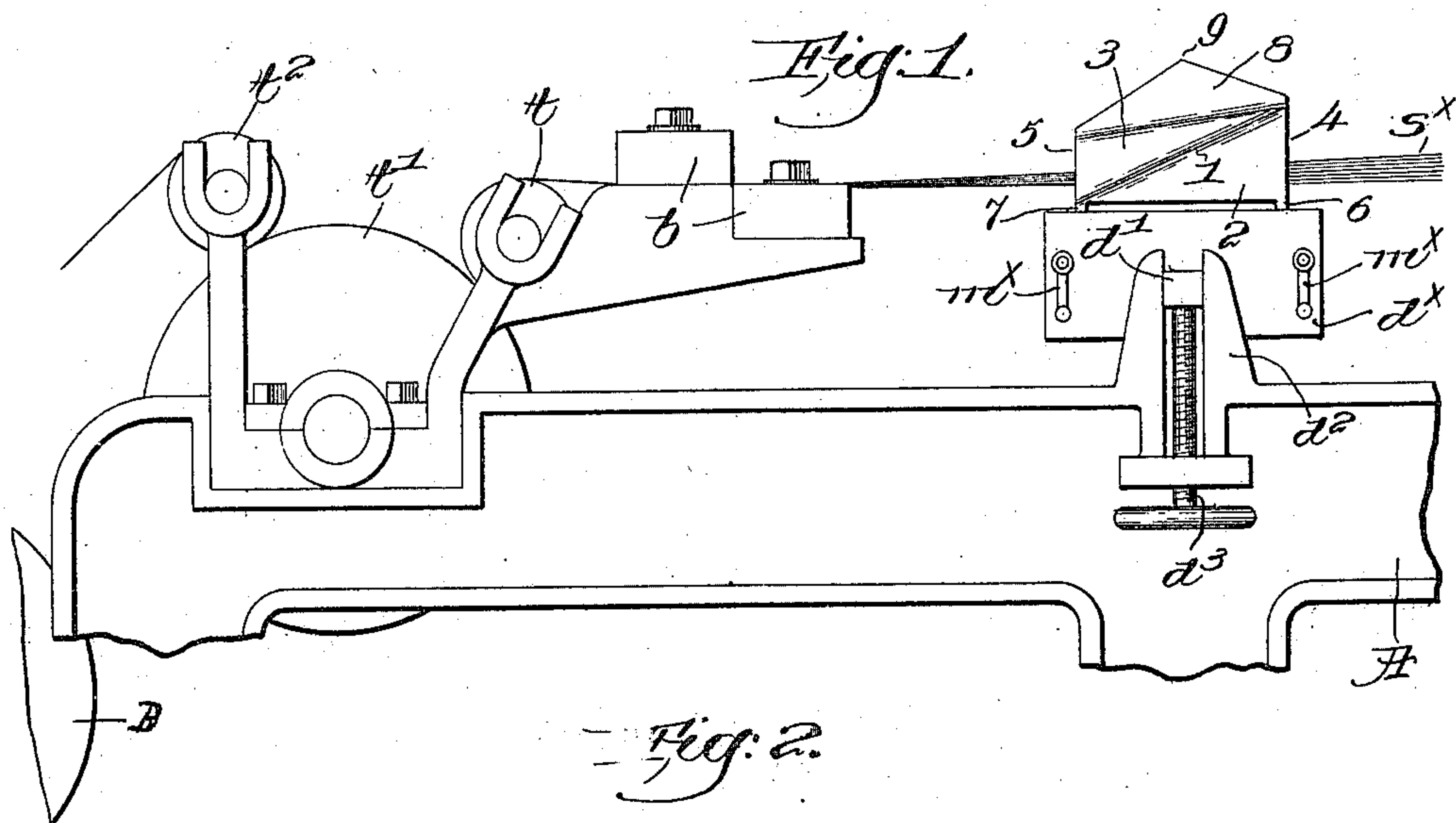


SLASHER.

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985,543.

Patented Feb. 28, 1911.



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SLASHER.

985,543.

Specification of Letters Patent.

Patented Feb. 28, 1911.

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To all whom it may concern:

Be it known that I, WILLIAM S. PEPPERELL, a citizen of the United States, and resident of Warwick, county of Kent, State of Rhode Island, have invented an Improvement in Slashers, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to slashers, and more particularly to that portion of a slasher which acts upon and controls the warp sheaths or groups as they pass to the beam. Such groups or sheaths of warp threads, as they travel toward the beam, tend to turn irregularly or to roll over one another before they reach the flattening and tension devices adjacent the beam, thereby forming "draws" which seriously interfere with the operation of the loom when the warp is applied thereto. In United States Patent No. 949,732 granted February 15, 1910 to E. L. Morrill means are shown to reposition positively and automatically the groups or sheaths so that they are caused to lie side by side in a substantially horizontal plane as they approach the beam. This device is most successful in its operation, and the desired object is accomplished in the patent by the use of two separate transverse combs, the first one having upright teeth or dents between which the sheaths travel in upright and substantially parallel planes, the teeth of the second comb being inclined and acting upon the sheaths to turn them from their vertical planes of travel simultaneously and in the same direction toward a substantially horizontal plane. In my present invention this simultaneous and positive turning or deflection of the sheaths from their upright planes of travel toward a substantially horizontal plane is effected by a single comb composed of teeth or dents having a peculiar construction. The teeth or dents are herein shown made relatively wide in the direction of travel of the sheaths, and each tooth is bent diagonally to present an inclined front edge, at any suitable angle, say 45°, while its rear edge is upright and substantially vertical. Each tooth at its base is provided at or near its front and rear edges with two depending

legs, mounted in a suitable case and controlled as to lateral position by expansion springs commonly used in comb cases or boxes. The inclined front edges of the dents correspond in function to the front comb having the inclined dents in the Morrill patent, while the vertical rear edges correspond to the regular back comb shown therein. After "striking in" I can when necessary, by adjustment of the springs, offset laterally the back and front edges of the dents to any desired extent, so that the sheaths traversing the back or rear edge of one dent will be caused to press against and traverse the inclined front edge of the next adjacent dent. Thus the sheaths are deflected or bent from their vertical or upright paths of travel, all in the same direction and simultaneously, toward a substantially horizontal plane. The dents or teeth are made of plate metal properly shaped by suitable dies, and each one serves the purpose of two dents in separate combs, such as in the patent referred to, the adjustment being easily and quickly made whenever necessary. The width of the dents and the arrangement of the surfaces thereof obviates any undue chafing of the threads as they travel through the comb, as no sharp and short bend in the sheaths is required, and I eliminate sharp corners or edges engaging the threads.

In adjusting the device substantially all of the strain can be made to come on the vertical or upright portions of the dents so that the warp threads in the sheaths have no tendency to slide upward on the inclined portions of the dents and off the same.

The various novel features of my invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a side elevation of a portion of a slasher adjacent the beam on which the sheet of warp is wound, with one embodiment of my present invention applied thereto; Fig. 2 is a top plan of a portion of the comb box or case, enlarged, showing the teeth or dents embodying my invention and their coöperation with the sheaths; Fig. 3 is a detail, broken out, looking at the series of dents from the left, Figs. 1 and 2, to show the inclined and parallel front edges thereof;

Fig. 4 is a front edge view of one of the dents, detached; Fig. 5 is a perspective view thereof, on a smaller scale.

Having reference to Fig. 1 the loom beam B, tension rolls t , t' , t^2 adjacent thereto, and the binding or smoothing bars b to smooth out and maintain flat and under tension the sheet of warp passing to the beam, are and may be of usual construction.

From usual splitting rods (not shown) the divided sheets of warp threads pass forward to the comb, and I will describe the peculiar and novel construction of the comb dents or teeth by means of which the groups or sheaths of warp threads are turned or deflected toward a substantially horizontal plane as they approach the beam.

Each dent is made of plate metal and comprises an elongated, quadrilateral body bent along the diagonal line 1, Figs. 1 and 5, to present lower and upper triangular parts 2, 3 having their apices extended in opposite directions, the lower part having an upright and substantially vertical rear edge 4 while the upper part 3 of the body has an inclined front edge 5. In practice the front edge may have any desired inclination, but about 45° will be found convenient and satisfactory, the part 2 of the body in practice being held in substantially vertical position, and depending shanks or legs 6, 7 extend from the base of the body at or near the rear and front edges, respectively.

Referring to Figs. 1, 2 and 5 it will be seen that each dent is relatively wide in the direction of travel of the warp, so that the edges 4 and 5 are at a considerable distance apart, and in practice the diagonal bend 1 does not present a sharp edge or corner, but is rounded over, as indicated by the shading in Figs. 1 and 5.

While the rear edges of the dents are upright and the parts 2 of the bodies of the dents are in vertical planes and in parallelism when the comb is in operative position said parts 2 are not parallel to the travel of the warp, but diagonal thereto, as clearly shown in Figs. 2 and 3.

The shanks 6, 7 of the dents are extended downward through transverse, parallel slots d^6 , d^7 in the comb-box d^x , and each set of such shanks is controlled by coiled springs, as s , s' , Fig. 3, governed by an adjusting screw-shaft m conveniently rotated by means of a crank-handle m^x . Thus the comb-box herein illustrated is practically two expansion devices of old construction and operation, arranged in one box or case, and the expansion devices may be substantially as in United States Patent No. 602,771 granted April 19, 1898 to Rhoades.

The comb-box is sustained in the slasher in any suitable manner, as by gudgeons d' extended from opposite ends of the comb-box and entering vertically slotted ears or

brackets, as d^2 , mounted one on each side of the slasher frame A. Vertical adjustment of the comb-box can be provided for by adjusting screws, as d^3 , rotatably mounted in said brackets and supporting the gudgeons. By this or any other suitable arrangement I provide for vertical adjustment of the comb-box and for any necessary manipulation thereof in "striking in," and to facilitate the latter operation the top of each dent is upturned above the body in a substantially vertical plane, as at 8, with the inclined edges thereof upwardly converging to the center, as at 9.

The dents are set up in the box d^x at the desired distance apart, determined by the character of the warp to be handled, the distance between adjacent dents being controlled by the expansion devices, and in Fig. 2 the tops 8 are shown substantially parallel to the original paths of movement of the sheaths s^x .

The upright edges 4 of the dents I term the rear edges, as they correspond in their action on the sheaths to the first or rear comb teeth in the patent to Morrill, referred to, and the inclined edges 5 are designated by me as the front edges as they determine the deflection of the sheaths, as is accomplished in the Morrill patent by the front or second comb. As a sheath, composed of a plurality of warp threads positioned one above another, travels toward the beam B in a substantially vertical path it draws across the upright rear edge 4 of a dent, which edge is laterally offset from the bottom of the inclined front edge 5 of the next adjacent dent on the same side, so that the sheath is caused to travel around the diagonal bend 1 of such latter dent and along the inclined or skew part 3 of its body, passing onward from the front edge 5 thereof. Thus the sheath is bent or deflected as it traverses the skew face of the part 3 of a dent and as such skewed parts of all the dents are equally inclined the sheaths are bent or turned positively and simultaneously in the same direction, and as they pass to the binding bars said re-positioned sheaths will lie side by side in substantially the same horizontal plane. The offsetting of the rear edges of the dents from the inclined front edges causes a sufficient amount of tension to be exerted on the threads composing the sheaths to press them firmly upon the upper faces of the inclined parts 3 of the dents.

I prefer the mode of operation described, whereby a sheath passes from the upright rear edge of one dent to and across the upper face of the inclined part of the next dent, as the component threads of a sheath travel smoothly over the diagonal bend 1 onto the plane but inclined face of the part 3, with a gradual and positive turning over of the sheath. By setting the dents so that

the parts 2 of the dents are parallel to the travel of the warp, however, so that each traverses the face of the part 2 which is overhung by the part 3 of the same dent, the sheaths will be turned by traversing the under faces of the parts 3, but in such an arrangement the sheath will traverse the same dent from its rear to its front edge. This latter mode of operation tends to exert more friction on the threads, hence in the majority of cases the first mode described is preferable. Relative adjustment of the front and rear edges of the teeth can, within reasonable limits, be effected by means of the two expansion devices in the comb-box.

From an inspection of the drawing it will be manifest that the rounded turning corner 1 of each dent extends downwardly from the top of the upright rear edge 4 to the bottom of the front inclined edge 5, and it is inclined not only longitudinally of the warp but also transversely thereto, when the dents are set in the preferred form, as herein illustrated.

Inasmuch as the dents are made of plate metal they can be constructed accurately and at small cost, and possess sufficient inherent rigidity or stiffness to properly control very heavy or refractory warp as easily as lighter warp can be controlled.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a slasher, a beam on which the sheaths of warp threads are wound, and means to turn the sheaths positively and simultaneously from their original upright planes of travel toward a substantially horizontal plane, said means comprising a series of dents each having an upright rear edge and an inclined front edge, and a skew surface interposed between and increasing in width from the rear to the front edge, said skew surface acting upon and turning the sheath over gradually from its upright plane of travel.

2. In a slasher, a beam on which the sheaths of warp threads are wound, and means to turn the sheaths positively and simultaneously from their original upright planes of travel toward a substantially horizontal plane, said means comprising a series of dents each having a quadrilateral body bent diagonally from the rear to the front edge thereof to present a substantially vertical lower part having an upright rear edge and a skewed upper part having an inclined front edge, and depending shanks extended from the body adjacent its rear and front edges, respectively.

3. In a slasher, a beam on which the sheaths of warp threads are wound, and means to turn the sheaths positively and simultaneously from their original upright planes of travel toward a substantially horizontal plane, said means comprising a se-

ries of dents made of plate metal and each having an upright rear edge and bent diagonally to form a sheath-deflecting portion having an inclined front edge, combined with means to support the dents in upright position with their rear and front edges, respectively, in parallelism.

4. In a slasher, a beam on which the sheaths of warp threads are wound, and means to turn the sheaths positively and simultaneously from their original upright planes of travel toward a substantially horizontal plane, said means comprising a series of dents each having a body bent diagonally from its rear to its front edge to present an upright lower part having an upright rear edge and a skewed upper part having an inclined front edge, and an upright top surmounting and extending from end to end of said skewed part of the body.

5. In a slasher, a transverse comb having a series of laterally-adjustable dents, each dent having an upright rear edge, an inclined front edge, and an intervening skew surface, said surfaces acting to turn simultaneously and in the same direction toward a single plane the sheaths of warp threads traveling in parallel planes between the upright rear edges of the dents, and means to adjust laterally the dents at their rear and front edges.

6. In a slasher, a transverse comb having a series of laterally-adjustable dents, each dent having an upright rear edge, an inclined front edge, and an intervening flat, skew surface, said surfaces acting to turn simultaneously and in the same direction toward a single plane the sheaths of warp threads traveling in parallel planes between the upright rear edges of the dents, each dent having depending shanks adjacent its rear and front edges, respectively, and separate, manually-controlled means cooperating with the rear and front shanks of the dents to effect lateral adjustment thereof.

7. In a slasher, a transverse comb having a series of laterally adjustable dents, each dent having a body presenting an upright rear edge and an inclined front edge and bent diagonally between said edges to form a flat, triangular portion increasing in width from the rear to the front edge, to act upon and turn over the sheath traveling in an upright plane against the upright rear edge of the next adjacent dent, the rear edge of each dent being offset laterally from the lower end of the front edge thereof.

8. In a slasher, a transverse comb having a series of dents each having an upright rear edge and an inclined front edge, and an intervening sheath-turning portion increasing in width from the rear to the front edge, the upright rear edges of the dents being in parallelism and acting upon the sheaths of warp threads in their original planes of

travel and said sheath-turning portions being parallel to each other and acting upon the sheaths to turn the same positively and simultaneously from their upright planes of travel toward a single plane.

9. A comb for slashers, comprising a box-like support, and a series of dents mounted thereon, each dent having an upright rear edge and an inclined front edge, and an interposed, elongated sheath-turning portion having a diagonal lower edge extended from the top of the upright rear edge forward and downward to the bottom of the inclined front edge.

10. As an article of manufacture, a tooth or dent for slasher combs, made of plate metal and having a quadrilateral body bent diagonally from its rear to its front edge to present a skewed sheath-turning portion gradually increasing in width from the rear to the front edge of the dent, the rear edge

thereof being upright and the front edge inclined.

11. A comb for slashers, having a series of dents each having an upright rear edge and an inclined sheath deflecting front edge.

12. A comb for slashers, comprising a box-like support, and a series of dents mounted thereon, each dent having an upright rear edge and an inclined front edge, and an interposed sheath-turning portion extended from the top of the upright rear edge forward and downward to the bottom of the inclined front edge.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

WILLIAM S. PEPPERELL.

Witnesses:

W. I. STIMPSON,
E. D. OSGOOD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."