

No. 842,820.

PATENTED JAN. 29, 1907.

T. W. TILLMAN.
SMASH PREVENTER FOR LOOMS.
APPLICATION FILED OCT. 31, 1904.

FIG. 1.

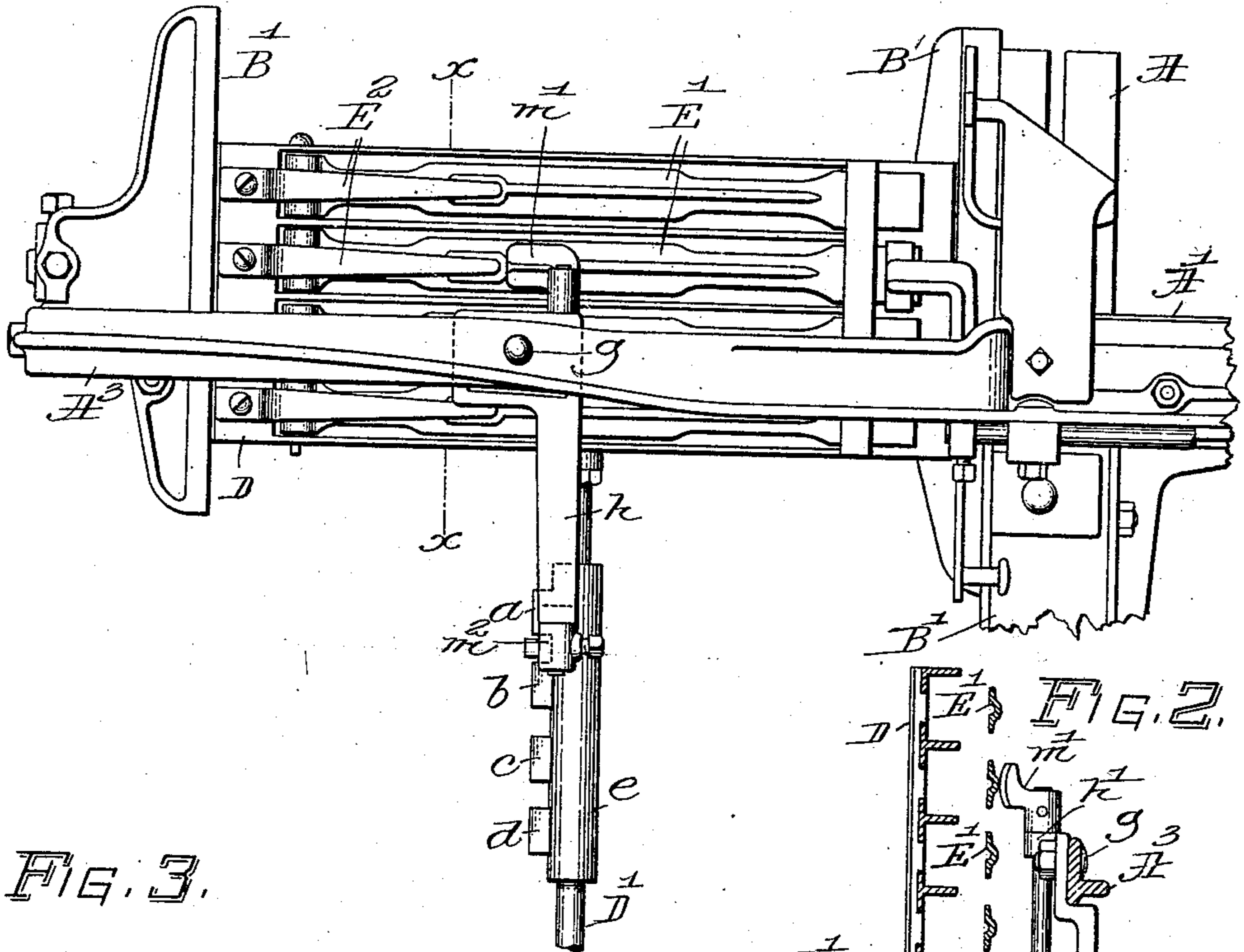


FIG. 3.

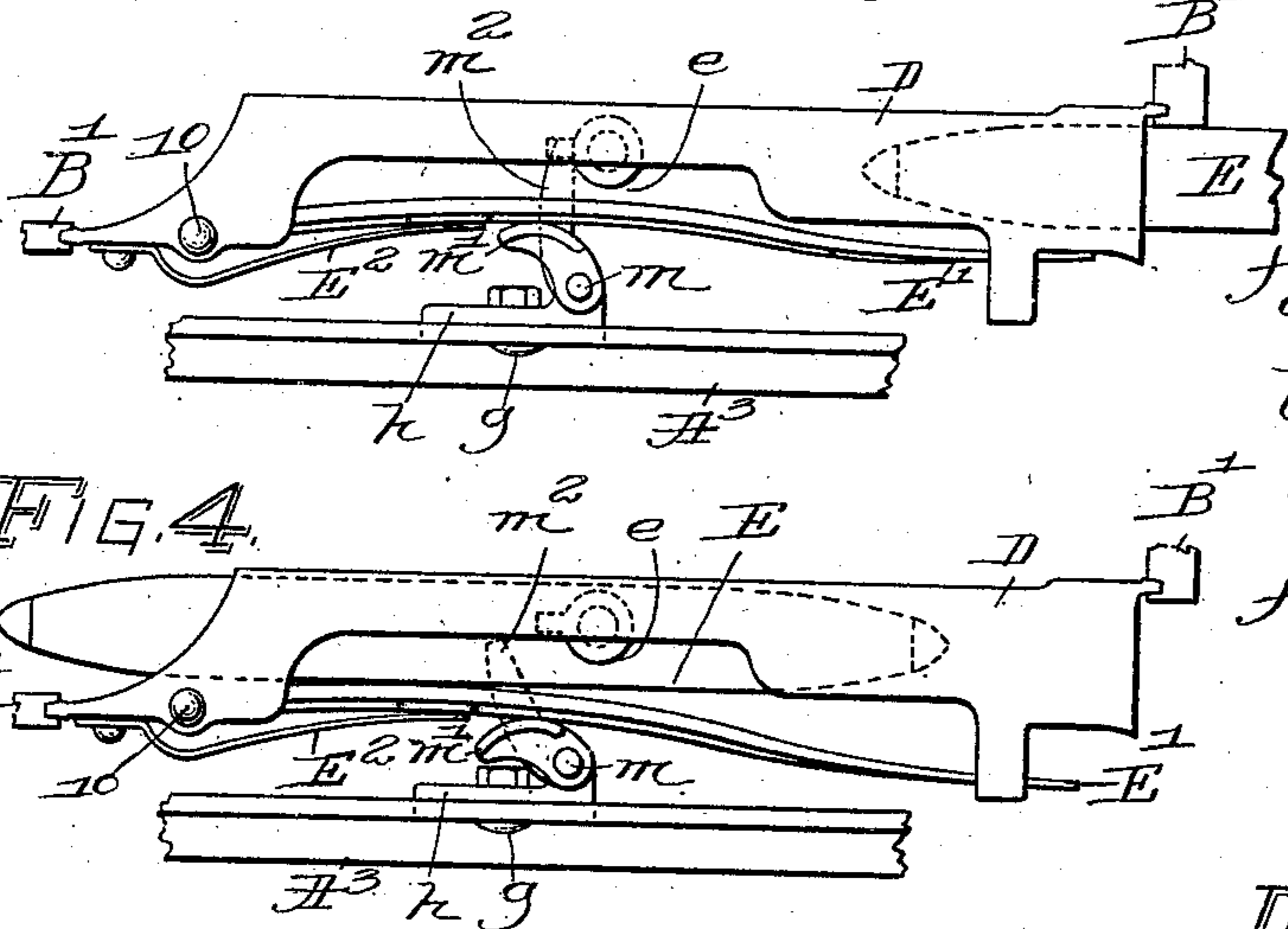
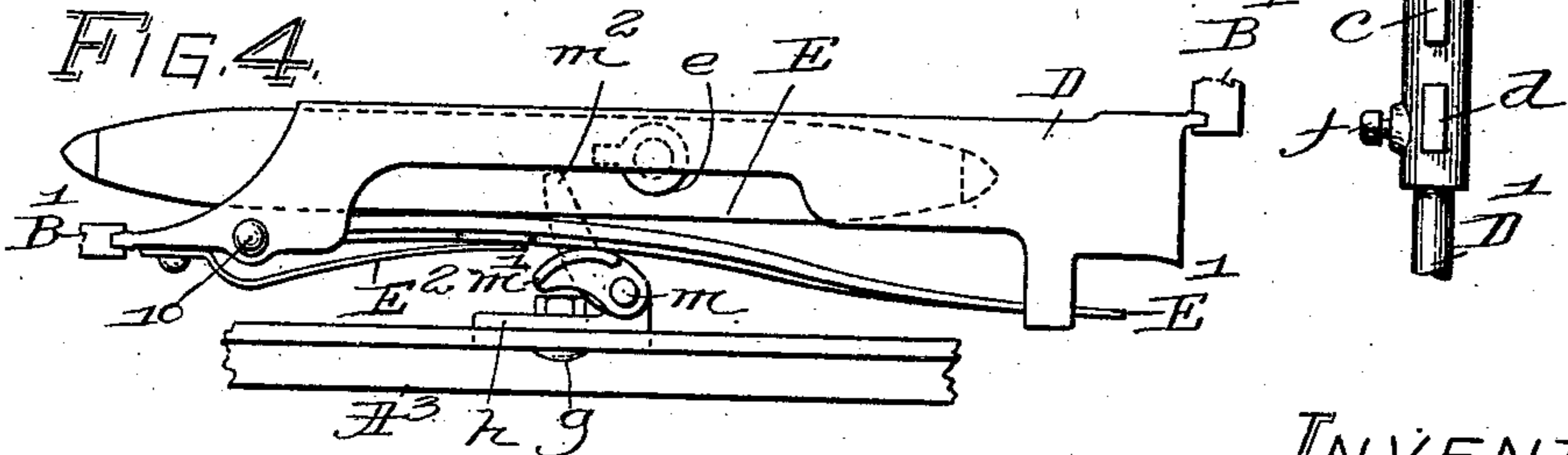


FIG. 4.



WITNESSES:
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THOMAS W. TILLMAN, OF COLUMBUS, GEORGIA, ASSIGNOR TO RANDOLPH CROMPTON, GEORGE CROMPTON, EDWARD D. THAYER, AND WILLIAM B. SCOFIELD, OF WORCESTER, MASSACHUSETTS, A FIRM.

SMASH-PREVENTER FOR LOOMS.

No. 842,820.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed October 31, 1904. Serial No. 230,710.

To all whom it may concern:

Be it known that I, THOMAS W. TILLMAN, a citizen of the United States, and a resident of Columbus, in the county of Muscogee and State of Georgia, have invented an Improvement in Smash-Preventers for Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object the production of novel means for preventing "smashes," so called, in looms, I having herein provided automatic means for preventing the movement of the multicell shuttle-boxes for shifting from one shuttle-box to another at all times except when the cell of the shuttle-box last used contains a shuttle.

Figure 1 in side elevation represents a sufficient portion of a loom embodying my invention to enable the same to be understood. Fig. 2 is a section looking to the right of the dotted line x , Fig. 1. Fig. 3 is a partial top or plan view of the parts shown in Fig. 1, the shuttle being shown as not holding out the binder. Fig. 4 shows the shuttle as acting on the binder and as having turned the shuttle-box-locking means into its inoperative position.

Referring to the drawings, A represents the upper end of the lay-sword of the loom; A', part of the lay, having a loop-like extension A³. B' represents the guides for the ends of the multicelled or shifting shuttle-box D, connected with the upper end of a shuttle-box rod D'; E, a shuttle; E', the binder, and E² the binder-spring, said parts being common to looms of the Crompton variety.

In accordance with my invention I apply to the shuttle-box rod carrying the multicells of the shifting shuttle-box, which rod may be moved to shift the shuttles by any usual or suitable shuttle-box means, such as commonly used in the Crompton or Crompton-Knowles patents, a series of projections $a b c d$, said projections, as herein shown, extending from a sleeve e , fixed in position on the shuttle-box rod by means of suitable set-screws f .

I apply to the loop-casting A³ of the lay by a bolt g a depending bracket h , said bracket having two inturned projections h' and h^2 ,

which are bored to constitute bearings for the rock-shaft m , having applied to its upper end a finger m' and to its lower end an arm m^2 , said rod having secured to it by a set-screw n (see Fig. 2) a collar n' , to the under side of which is attached the upper end of a spring n^2 , surrounding said shaft, the lower end of said spring engaging the bracket h , said spring acting normally to turn the shaft in a direction to cause the finger m' to contact with the exterior of whatever shuttle-binder is then opposite said finger.

When the shuttles are in the cells of the box D, as shown in Fig. 4, each shuttle acting on the inner side of the binder between its free end and its pivot 10 moves the binder outwardly, causing it, acting on the finger m' , to turn the rock-shaft, as shown in Fig. 4, and place the arm m^2 in the dotted-line position, Fig. 4, which is its inoperative position.

Viewing Fig. 3, where the shuttle is shown as not in contact with the inner side of the binder, it will be seen that the spring n^2 has maintained the contact of the finger m' with the binder and has turned the rock-shaft m far enough to enable the finger m^2 at the lower end thereof to enter the space between one of the projections referred to, as shown in Fig. 1, as between the projections $a b$, which indicates that there is no shuttle in the second shuttle-box from the top, and in this condition the shuttle-box rod D' could not be moved vertically in either direction to change the position of the shuttle-box.

It will be understood in the running of a loom having a multicell shuttle-box at one side that the shifting of the shuttle-box is done only when each cell thereof contains its own proper shuttle, and, for instance, should a shuttle stick and fail to cross the warps or fail to enter properly its own box preparatory to shifting the shuttle-box then in such instance the binder of the shuttle-box that should have received the shuttle will remain in, as in Figs. 1 and 3, and the arm m^2 , entering one or the other of the spaces between the projections referred to of the sleeve e , will prevent the movement of the shuttle-box and shuttles until such time as a shuttle comes properly into the box, it being understood that the shuttle-box rod has coacting with it any usual give-way devices.

When weaving regularly and the shuttles

are returned properly into the proper cells of the shuttle-box, then as the usual shifting-shuttle-box mechanism is about to act to raise or lower the rod D' whatever binder is
 5 opposite the finger m' will turn the shaft and cause the arm m^2 to occupy the position, Fig. 4, out of engagement with the projections a , b , c , and d .

The rock-shaft, its finger, arms, and spring
 10 constitute what I shall designate as a "shuttle-box-locking means," it coacting with the series of projections carried by the shuttle-box rod.

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

1. The combination with a shifting shuttle-box having multicells, and a series of binders, one for each cell, and a shuttle-box
 20 rod having a series of projections, of locking means controlled by the binders to lock and restrain movement of the shuttle-box rod whenever a shuttle is absent from a cell of the shuttle-box.

25 2. A shuttle-box rod connected with a shuttle-box having multicells and binders, and a sleeve applied to said rod and provided with projections, combined with a rock-shaft sustained by the lay and having at its upper
 30 end a finger and at its lower end an arm, and a spring acting normally to keep said finger pressed toward the binder opposite it, each binder, when acted upon by a shuttle in the cell opposite it moving said finger and rock-
 35 shaft in a direction to cause said arm to retire from locking engagement with the projections carried by the shuttle-box rod, leaving the shuttle-box rod free to be moved.

3. In a shuttle-box mechanism of looms,
 40 the combination with a vertically-moving shuttle-box rod having a notched or recessed surface thereon, of a shaft having an arm thereon adapted to engage any one of the notches or recesses, and also having an arm
 45 or finger thereon adapted to engage a shuttle-binder, substantially as shown and described.

4. In a shuttle-box mechanism of looms, the combination with a vertically-moving

shuttle-box rod having a notched or recessed surface thereon, of a shaft having an arm
 50 thereon adapted to engage any one of the notches or recesses, and also having an arm or finger thereon adapted to engage a shuttle-binder, and to be moved by the outward movement of the shuttle-binder to release
 55 the locking-arm, substantially as shown and described.

5. In a shuttle-box mechanism of looms, the combination with a vertically-moving shuttle-box rod having a notched or recessed
 60 surface thereon, of a shaft having an arm thereon adapted to engage any one of the notches or recesses, and also having an arm or finger thereon adapted to engage a shuttle-binder, and to be moved by the outward
 65 movement of the shuttle-binder to release the locking-arm, and a spring for yieldingly holding the finger or arm in engagement with the shuttle-binder, and the locking-arm in en-
 70 gagement with a notched or recessed surface, substantially as shown and described.

6. In a shuttle-box mechanism for looms, the combination with the give-way mechanism connected with the box-lever, and with the vertically-moving shuttle-box rod, and
 75 said vertically-moving shuttle-box rod, of a locking mechanism to lock said shuttle-box rod, said locking mechanism comprising a notched or recessed surface secured to and moving with said rod, a stand secured to the
 80 box-frame, a shaft supported on said stand, a locking-arm on said shaft to engage said notched or recessed surface, a finger or arm on said shaft to engage a shuttle-binder, and
 85 a spring for holding said arm or finger in yielding engagement with the shuttle-binder, and said locking-arm in yielding engagement with the notched or recessed surface, substantially as shown and described.

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

THOMAS W. TILLMAN.

Witnesses:

ROBERT WILSON KERR,
 JULIUS A. THOMPSON.