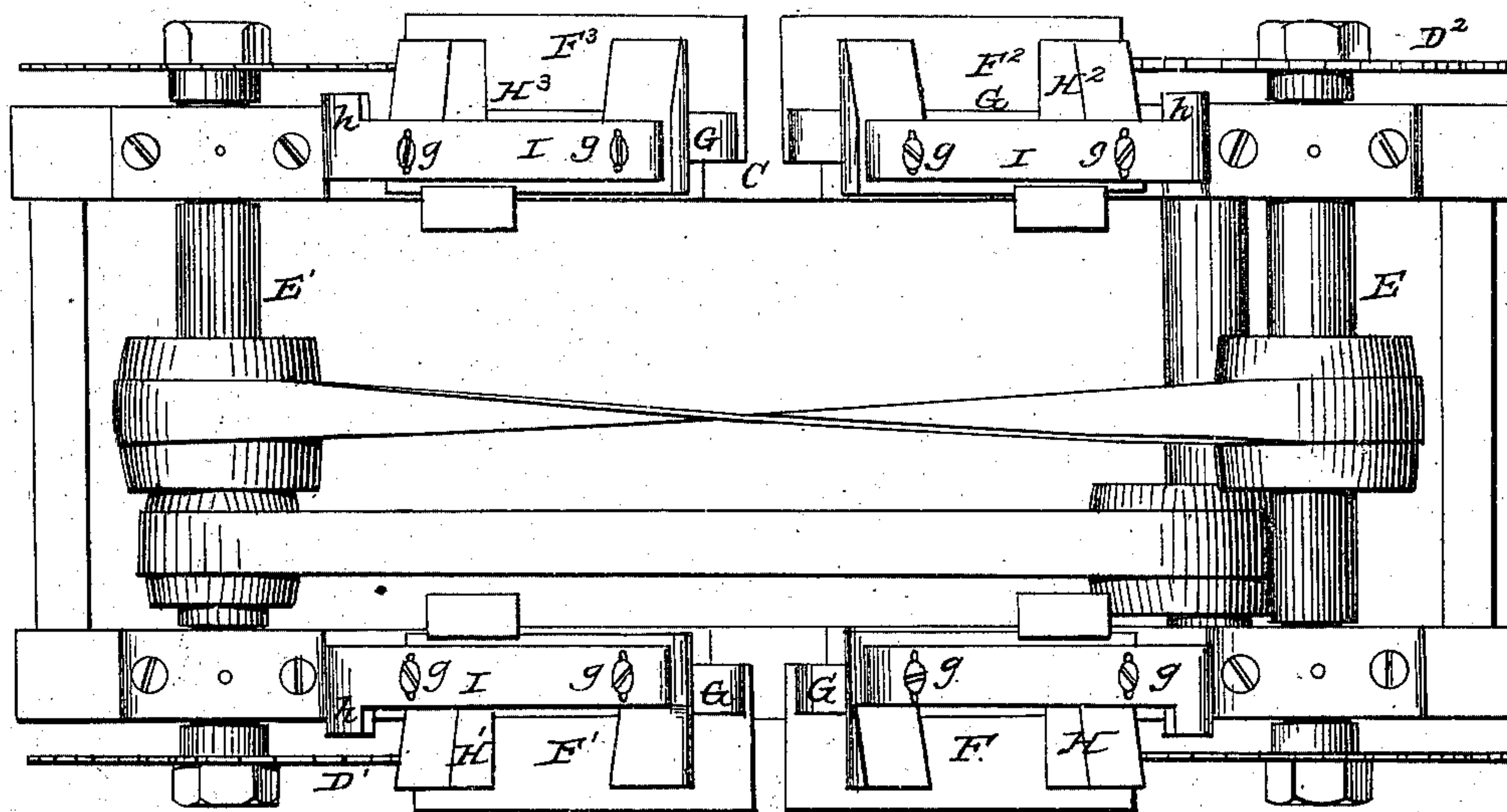


2 Sheets—Sheet 1.

No. 100,610.

Patented March 8, 1870.



Witnesses:
Fred. Haynes
R. Rabeem

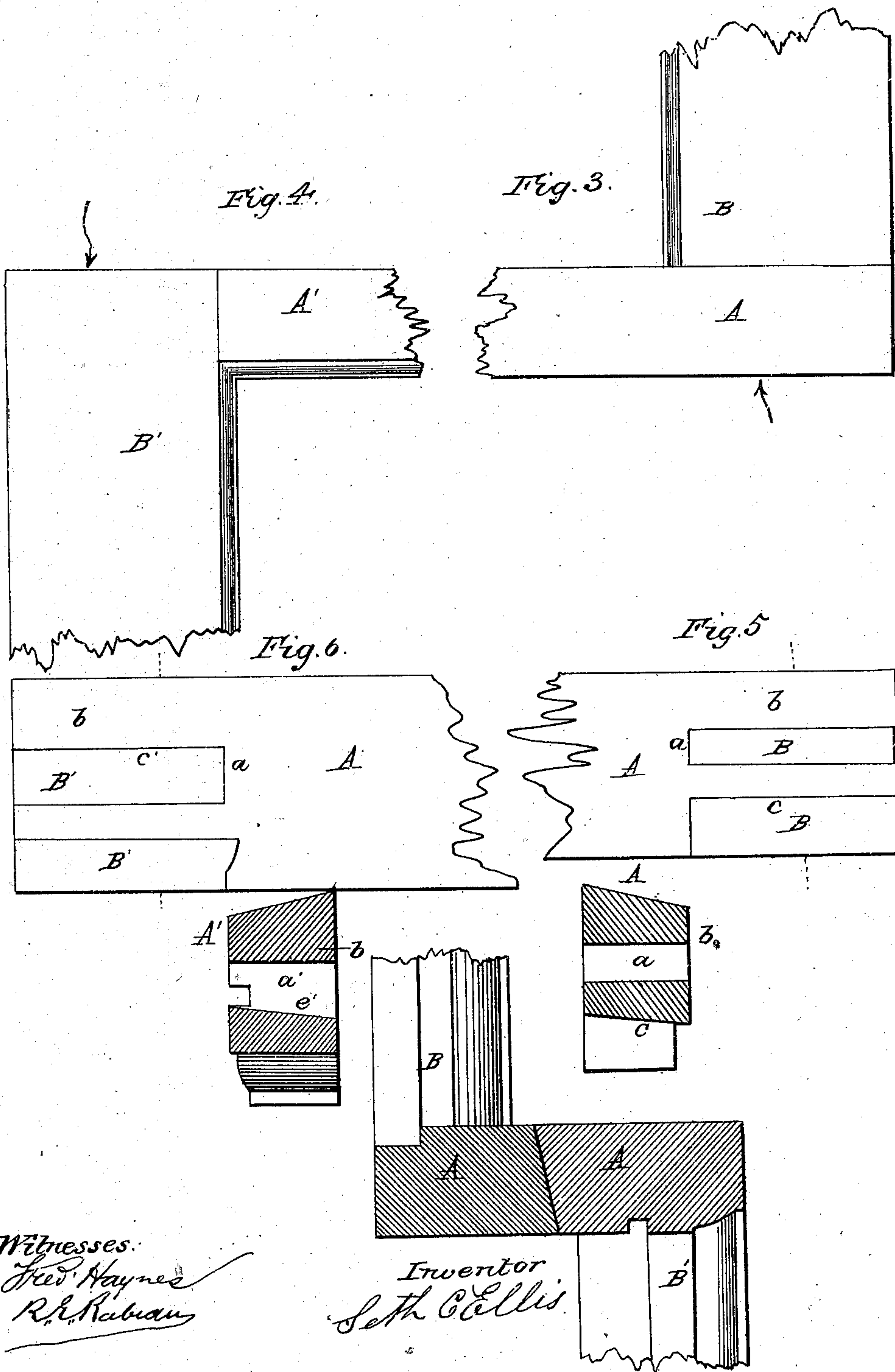
Seth C. Ellis

S. C. ELLIS.

Machine for Making Sash.

No. 100,610.

Patented March 8, 1870.



United States Patent Office.

SETH C. ELLIS, OF JERSEY CITY, NEW JERSEY.

Letters Patent No. 100,610, dated March 8, 1870.

IMPROVEMENT IN MACHINE FOR MAKING SASH.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, SETH C. ELLIS, of Jersey City, in the county of Hudson, and State of New Jersey, have invented a new and useful Improvement in Machines for Cutting Check-Rails of Sashes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, sheets 1 and 2, forming part of this specification, and in which—

Figure 1 represents a side view, and

Figure 2 a plan of a machine constructed in accordance with my improvement.

Figures 3 and 4 represent front views in part of an upper and lower check-rail, as fitted to their respective stiles, or to one of such, of an upper and lower sash, in illustration of the work to be done by my improved machine.

Figures 5 and 6, top and under views of such parts.

Figure 7, a vertical section through the lower check-rail, showing the upper one in contact with it, and

Figures 8 and 9, transverse sections through the tenon portion of the said check-rails as detached from their stiles.

Similar letters of reference indicate corresponding parts.

My invention consist in a certain combination and arrangement of parts or devices in a machine for cutting the check-rails of sashes to fit them to their stiles, whereby the mortises are cut in the tenons of said rails at their opposite ends, and dovetails formed therein, in a simple, expeditious, and accurate manner, and whereby the saws or cutters for thus preparing or forming the opposite end of the rails may be arranged in close proximity to each other.

Referring, in the first instance, to sheet 2 of the accompanying drawings—

A represents the check-rail of an upper sash, and A' the check-rail of a lower sash.

B and B' are the stiles of said sashes, with which the check-rails interlock on opposite sides, only one of such stiles to either check-rail here being shown.

Figures 3, 4, 5, 6, and 7, show the relative arrangement of these parts, and the manner in which the same are fitted together, in respect to which nothing is here claimed as new.

My improvement is not designed to form the ends of the stiles, nor in any way to prepare them, the work on such being done by other mechanism; neither is it adapted to dress or prepare the check-rails any further than to cut the mortises *a a'* in their tenons *b b'*, and to form the dovetails *c* and *c'* in or to their ends, and to fit which the ends of the stiles are suitably cut.

The tenons *b b'* are formed on the check-rails, at their opposite ends, before said rails are introduced to the machine which embraces my improvement.

In further preliminary explanation it should be observed that while, owing to the relative arrangement of the two sashes, the tenons *b* of the upper check-rail A, have their mortises *a* on the front or fair side of the sash, the tenons *b'* have their mortises *a'* on or over the putty side of their sash, and that said mortises are of different width, or at least preferably so; also that the dovetails or bevels *c* of or to the tenons *b* of the upper check-rail are on the outside of the mortises *a*, at opposite ends of said rail, while the two ends or tenons *b'* of the lower check-rail A' have their dovetails or bevels *c'* on the inside of the mortises *a'*. This difference in the arrangement of the mortises *a a'*, and dovetails or bevels *c c'*, necessitates a difference in the arrangement of the devices for cutting or forming the same, and this my machine accomplishes, as will appear from the following description of it, or of such parts as are necessary to explain how the work is done.

Referring now more particularly to sheet 1 of the drawing—

C is the frame of the machine, arranged to carry, at opposite ends and on reverse sides of it, circular saws D D' and D² D³, the same being arranged in pairs, and which should be hung so as to have a drunken motion on cross-shafts E E', that may have rotary motion communicated to them by any suitable means, to revolve either pair of saws as indicated by arrows in fig. 1.

The saws D D' on the one side of the machine are for operating on the top check-rail A, at its two ends successively, and the saws D² D³ on the other side of the machine, for operating on the opposite ends of the bottom check-rail A'.

In their operation on said rails it is desirable that the cuts should be made from their more exposed sides to their less exposed ones, so as to leave no ragged edges when the sashes are put together.

The pair of saws at one end of the machine cuts the mortises *a a'* and dovetails or bevels *c c'* in the right-hand tenons of the two rails, and the other pair of saws, the mortises and dovetails in the left-hand tenon thereof.

Each pair of saws on the same side of the machine have arranged in front of or in between them, reversely set or inclining feed-boards or bed-pieces F F' and F² F³, the same inclining upward from the saws, and at such angles as in feeding the check-rails down them successively, said rails ride or pass over the saw opposite to that on the same side of the machine which is operating upon the end of the rail.

This arrangement economizes space in the machine, or allows the saws on the same side of it to be arranged closer to each other.

Each of these bed-pieces F F' and F² F³ is provided with an inner guiding-strip, G, made adjustable by

slots and set-screws *d* to suit different widths of rail, and furnished with a stop, *e*, at foot, to arrest the feed of the rail at the finishing of the mortise.

Said bed-pieces are also made adjustable up or down by slots and set-screws *f* to suit different thicknesses of rail.

To cut the mortises *a* in the tenons of the upper rail *A*, said rail is first fed down the one inclined bed-piece *F* under guidance and regulation of its strip *G* and stop *e* against the saw *D*, which cuts the mortise in the one tenon, and then reversed, or the opposite end of the rail exposed in like manner, down the reversely-inclined bed-piece *F*¹ to the action of the other saw *D*¹ on the same side of the machine, which cuts the mortise in the opposite end of the rail.

A like operation, and by similar means, namely, bed-pieces *F*² *F*³, with their guides *G* and stops *e* and saws *D*² *D*³, is also performed on the lower check-rail *A'* to cut the mortises *a* in it.

To dovetail or cut the bevels *c* *c'* in the tenons of the rails, the latter are then transferred respectively to, and fed down or over upper bed-pieces *H* *H*¹ *H*² *H*³ arranged over the bed-pieces *F* *F*¹ *F*² and *F*³, set also to incline (but preferably at a different angle,) in reverse direction away from the saws.

These upper bed-pieces are likewise provided with guiding-strips, *I*, adjustable by slots and set-screws *g*, to suit different width of tenons, and stops *h* to arrest the rails at the proper point in their feed.

The bed-pieces *H* *H*¹ on the one side of the machine answer for cutting, by the saws *D* *D*¹, bevels *c*, on the opposite ends of the upper rails *A*, and to this end are set sloping in an upward direction, outwardly or away from the guides *I* of said bed-pieces, in order to give the proper direction to said bevels, while the bed-pieces *H*² *H*³ answer in like manner in connection

with the saws *D*² *D*³ for the dovetails or bevels *c'* in the tenons of the lower rail *A'*, and are set inclining on their faces in a reverse direction, or in a downward direction outwardly or away from the guides *I* of such bed-pieces *H*² *H*³.

By the angular set of the several upper and lower bed-pieces relatively to the saws, each pair of the latter may be set comparatively close together, and the rails, in being slid down separately over them, meet with no impediment either from the saws not operating thereon, or their respective bed-pieces, thus securing great compactness to the machine, while the work done is effected in a most expeditious and accurate manner.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The arrangement, substantially as shown and described, of the saws *D* *D*¹ or *D*² *D*³, and their respective lower bed-pieces *F* *F*¹ or *F*² *F*³, provided with suitable guides and stop for operation, essentially as specified.

2. The arrangement, herein described, relatively to the saws *D* *D*¹ or *D*² *D*³ of the inclined bed-pieces *H* *H*¹ or *H*² *H*³, provided with guides *I*, and operating in the manner essentially as herein set forth.

3. The arrangement, relatively to each other, of the lower bed-pieces *F* *F*¹ *F*² *F*³, with their guides and stops, the upper bed-pieces *H* *H*¹ *H*² *H*³, with their guides and stops, and the saws *D* *D*¹ *D*² *D*³, substantially as shown and described, and for the purpose or purposes herein set forth.

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Witnesses:

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