

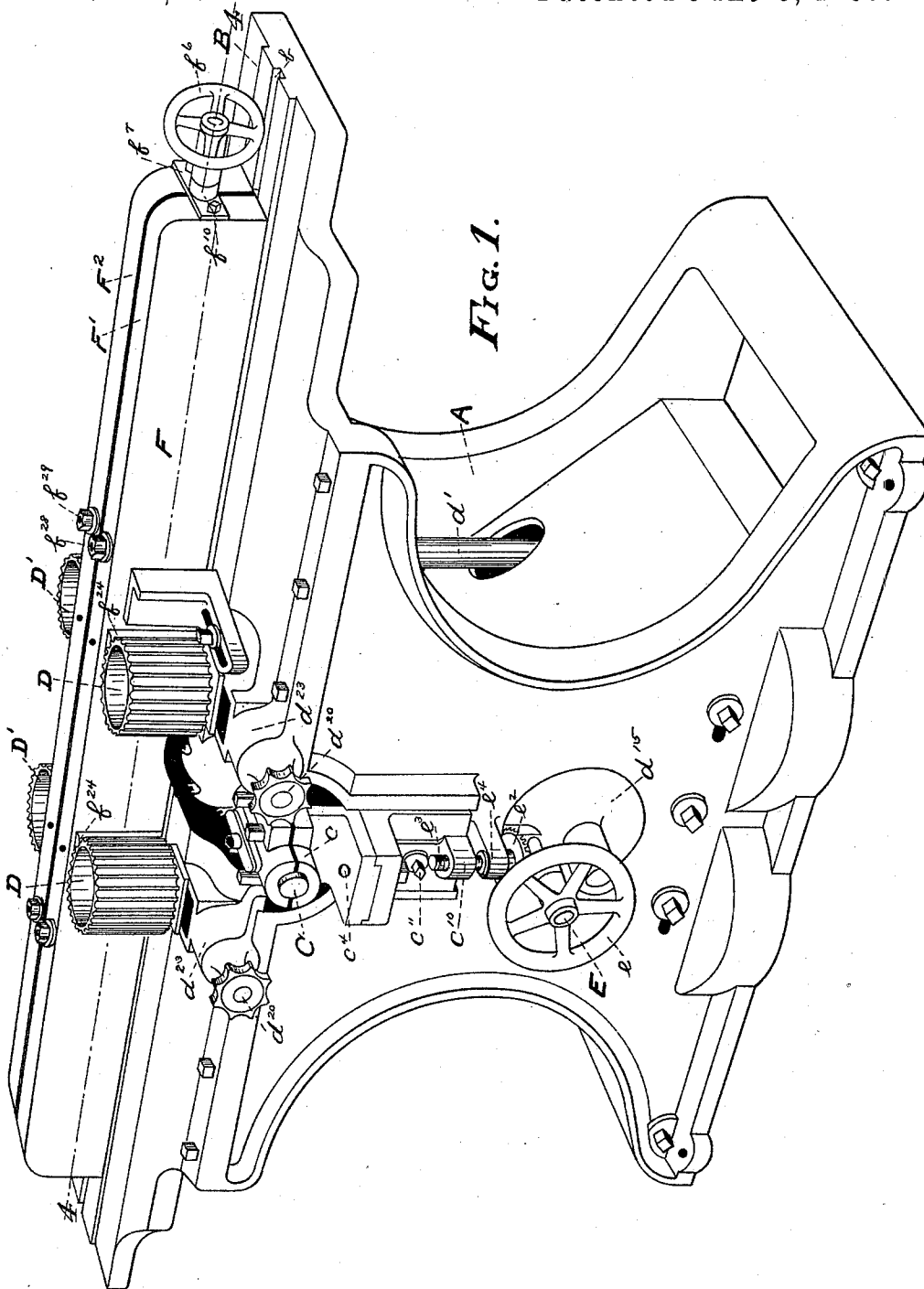
(No Model.)

4 Sheets—Sheet 1.

G. W. BUGBEE & F. DANNER.
PLANING AND MATCHING MACHINE.

No. 584,302.

Patented June 8, 1897.



WITNESSES:

Harry S. Spencer.
E. S. Russell.

INVENTORS:

George W. Bugbee,
Frederick Danner,
By A. F. Verbeke, Their Attorney.

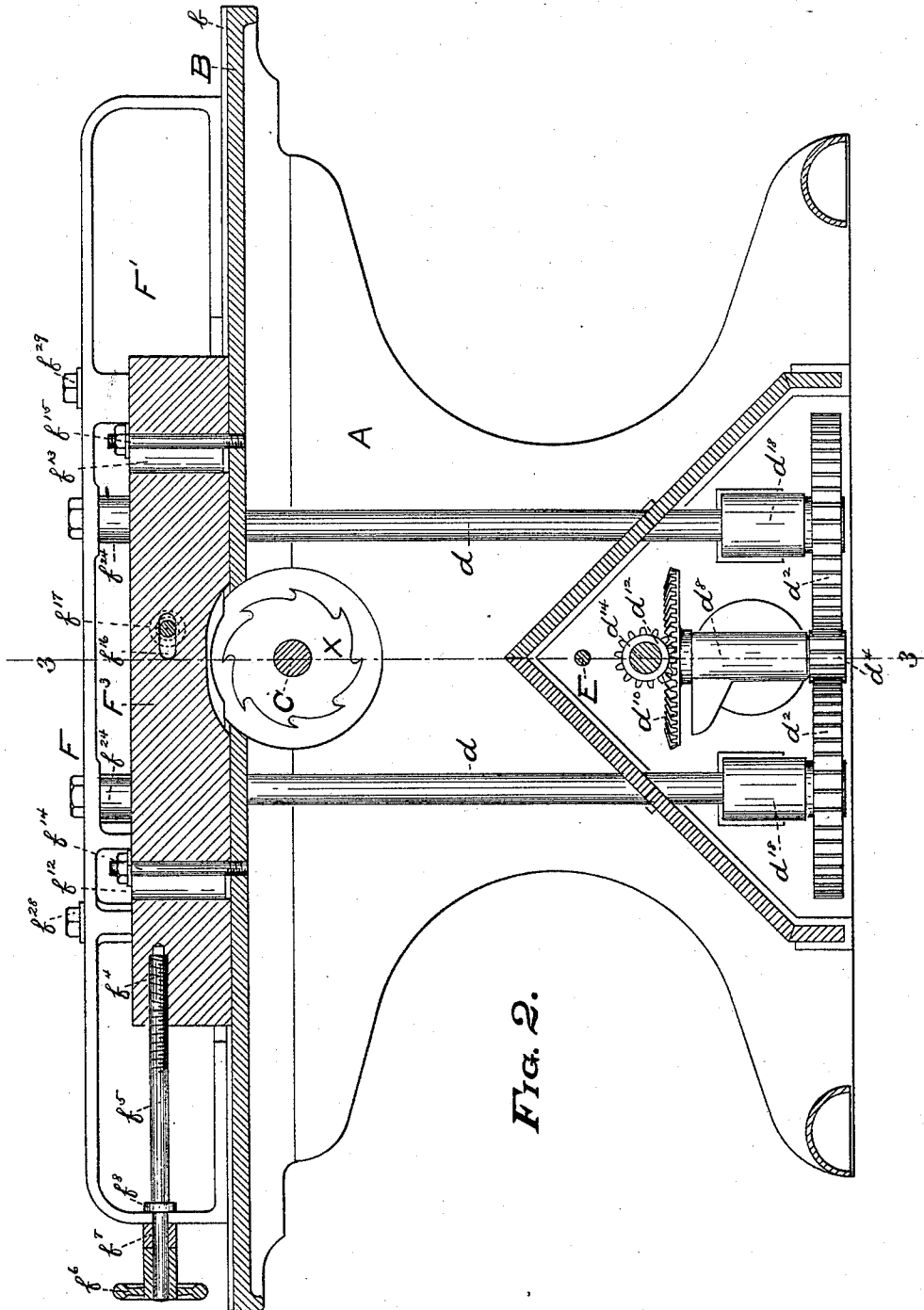
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4 Sheets—Sheet 2.

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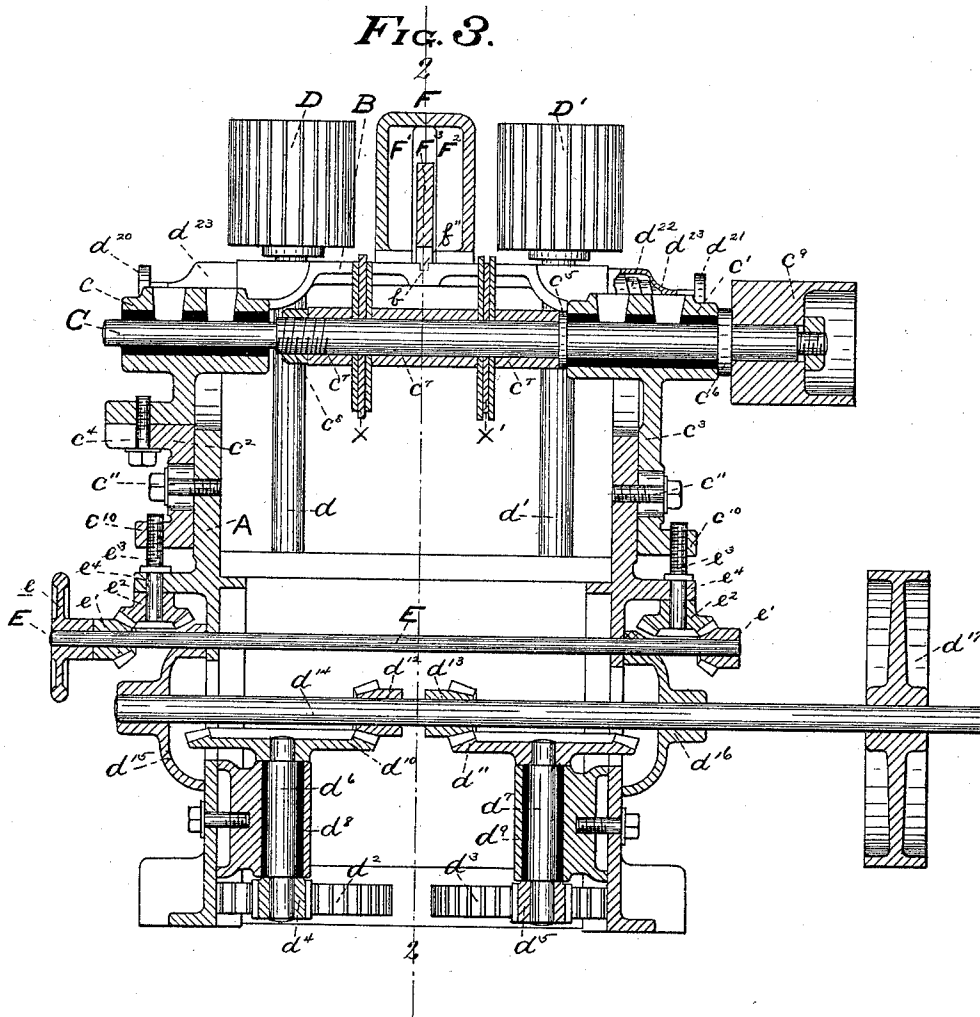
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4 Sheets—Sheet 3.

PLANING AND MATCHING MACHINE.

Patented June 8, 1897.



INVENTORS:
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Fig. 4.

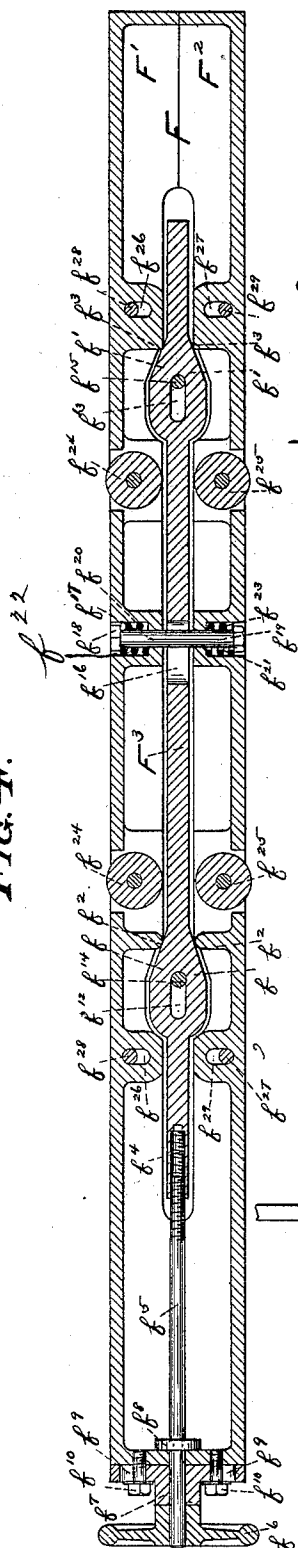


Fig. 6.

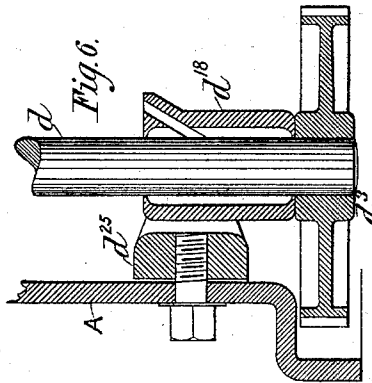
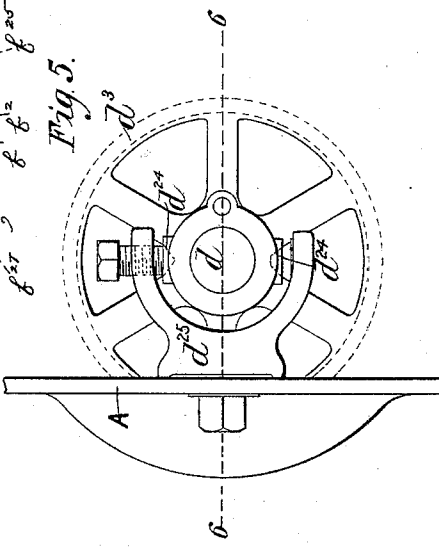


Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE W. BUGBEE, OF DELHI, AND FREDERICK DANNER, OF CINCINNATI,
OHIO, ASSIGNORS TO THE J. A. FAY & EGAN COMPANY, OF CINCINNATI,
OHIO.

PLANING AND MATCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 584,302, dated June 8, 1897.

Application filed September 4, 1894. Serial No. 522,042. (No model.)

To all whom it may concern:

Be it known that we, GEORGE W. BUGBEE, residing in Delhi, and FREDERICK DANNER, residing in Cincinnati, in the county of Hamilton and State of Ohio, citizens of the United States, have invented a certain new and useful Improvement in Planing and Matching Machines, of which the following is a specification.

Our invention relates especially to that class of planing and matching machines in which a board is fed through the machine on edge, the feeding-rolls being placed in a vertical position. In machines of this kind the cutter-
mandrel is usually provided with two sets of cutters, one set of which is usually for the purpose of tonguing one edge of the board, the other for grooving the other edge. The machine as heretofore constructed was provided with a stationary fence between the two cutter-heads against which the stock was fed through the machine. When stock of different thicknesses was being operated upon, it was necessary heretofore to change the position of the cutter-heads on their mandrel or, if bits were being used on a cutting-cylinder, to change the position of the bits on the cylinder, which necessitated stoppage of the machine and required considerable time in making the adjustment. We obviate the objections to the old method by means of our new improved device, which enables the adjustment for different thicknesses of stock to be readily and quickly made while the machine is in operation.

Our invention consists in a fence which can be expanded or contracted in width to accommodate itself to different thicknesses in material operated upon and in the various parts and arrangement and combinations of parts hereinafter more particularly described and claimed.

In the drawings, Figure 1 represents a view in perspective of our new improved machine; Fig. 2, a central longitudinal section as indicated by the line 2 2, Fig. 3; and Fig. 3, a central transverse section of the same as indicated by the line 3 3, Fig. 2. Fig. 4 represents a sectional plan view of the fence on the line 4 4, Fig. 1. Fig. 5 is a plan detail showing the mode of pivoting the feed-shafts; and

Fig. 6, a section of the same on the line 6 6, Fig. 5.

A is the frame of the machine, and B its table.

C is a mandrel on which cutter-heads $x x'$ are placed.

D and D' are vertical feeding-rolls mounted on shafts $d d'$, driven by gears $d^2 d^3$, meshing with pinions $d^4 d^5$, mounted on shafts $d^6 d^7$, journaled in bearings $d^8 d^9$ and carrying at their upper ends spur-wheels $d^{10} d^{11}$, which engage with pinions $d^{12} d^{13}$, secured to a shaft d^{14} , mounted in bearings $d^{15} d^{16}$ and carrying an operating-pulley d^{17} , driven by means of a belt from a suitable source of power. The shafts $d d'$ are supported in steps or boxes d^{18} , supported on pivots d^{24} , mounted on yokes d^{25} , bolted to the frame of the machine, as shown in Figs. 5 and 6. The purpose of attaching these steps or boxes pivotally is to allow a sidewise adjustment of the rolls D D', which is accomplished by means of hand-wheels $d^{20} d^{21}$, and the rolls are given the necessary pressure by means of suitable springs d^{22} in boxes d^{23} .

The rolls D D' are preferably slightly rounded and may be fluted or ribbed, the ribs being preferably angled on the face of the rolls—that is to say, the upper end of the flutes or ribs on the rolls, when they present their inner face to the adjustable fence, are in advance of the lower end of the flutes or ribs, thereby giving the necessary downward lead to the board and forcing it against the table and cutter-heads.

The mandrel C is mounted in bearings $c c'$, supported on plates $c^2 c^3$, adjustably secured to the frame of the machine. The bearing c is removable and can be slipped off the mandrel by unloosening the bolt c^4 to enable different or various cutters to be placed on the mandrel. The mandrel is secured against endwise displacement by means of collars $c^5 c^6$ at either end of the bearing c' . Collars c^7 , which can be made of various thicknesses, are adapted to be slipped over the mandrel so as to bring the cutter-heads to the desired position thereon, and the cutter-heads and collars are fastened on the mandrel by means of a nut c^8 . Power is applied to the mandrel by means of a suitable driving-pulley c^9 .

E is a shaft carrying a hand-wheel *e* for operating the same and spur-wheels *e'* *e'*, meshing with gears *e²* *e²*, carrying adjusting-screws *e³* *e³*, mounted on ears *e⁴* *e⁴* on the frame of the machine and engaging with a screw-thread in lugs *c¹⁰* on the adjustable plates *c²* *c³*. Clamping-bolts *c¹¹*, taking into the frame of the machine, are provided for giving the adjustable plates *c²* *c³* the necessary rigidity relatively to the frame of the machine.

F is a fence which consists, preferably, of two parts *F'* *F²*, which are adapted to be adjusted to and from each other, thereby varying the thickness of the fence and consequently the guiding-faces thereof relatively to each other. Between the parts *F'* *F²* a sliding bar *F³* is placed, provided with an inclined face or wedges *f f'*, which take against abutments or faces *f²* *f³* on the parts *F'* *F²*. The sliding bar is provided at one end with a threaded socket *f⁴*, into which a hand-screw *f⁵*, provided with a hand-wheel *f⁶*, takes. The hand-screw takes through a plate *f⁷*, which spans the two parts of the fence and is provided with a collar *f⁸*, which, with the hub on the hand-wheel *f⁶*, prevents an endwise movement of the screw when it is turned, thereby insuring a corresponding movement of the adjusting-bar. The plate *f⁷* is provided with slots *f⁹*, through which bolts *f¹⁰* pass into the two parts of the fence, respectively, which bolts may be drawn sufficiently tight to prevent play and at the same time allow the movement of the parts while they are being adjusted. The sliding bar *F³* is provided with a tongue *f¹¹*, which takes into a groove *b* on the table B and is also provided with slots *f¹²* *f¹³*, through which bolts *f¹⁴* *f¹⁵* pass into the table B of the machine. These bolts are preferably drawn sufficiently snug to give the necessary firmness to the bar, but allow its adjustment. The bar is also provided with a slot *f¹⁶*, through which a bolt *f¹⁷* passes, the latter being provided at one end with a head *f¹⁸* and at its other a nut *f¹⁹*. Springs *f²⁰* *f²¹* take about the bolt *f¹⁷* in recesses *f²²* *f²³*, respectively, and force the two parts of the fence together. The fence is also provided with rolls *f²⁴* *f²⁵*.

The parts of the fence are provided, respectively, with slots *f²⁶* *f²⁷*. Bolts *f²⁸* *f²⁹* pass through the slots into the table B and may be screwed down firmly to hold the fence in place after having been adjusted.

We claim—

1. The combination in a planing and matching machine of a main frame, a mandrel mounted therein, cutters on the mandrel, vertical feeding-rolls and a two-part expansible fence, located between the feed-rolls, constructed and arranged to simultaneously vary the guiding-faces of the fence equidistantly from its center, substantially as and for the purpose specified.

2. The combination in a planing and matching machine, of a main frame, a table, a mandrel, cutters thereon, sliding plates in which

the mandrel is mounted, screws or similar means for adjusting the same vertically, a removable bearing for the mandrel, feed-rolls, an expansible fence between the feed-rolls, and a sliding bar therefor, constructed and arranged to vary the bearing-faces equidistantly from the center of fence, substantially as and for the purpose specified.

3. The combination in a planing and matching machine, of a main frame, a table, feeding-rolls and an expansible fence consisting of two parts, located between the rolls with a wedge or wedges, or similar device taking between the two parts of the fence and a screw-shaft or similar means connecting therewith for operating the same, constructed and arranged to adjust the two bearing-faces of the fences simultaneously equidistantly from each other, substantially as and for the purpose specified.

4. The combination in a planing and matching machine, of a main frame, a table, feeding-rolls, and a fence consisting of two parts, a sliding bar provided with inclined faces between the same for adjusting them equal distances simultaneously, a screw-shaft, and a spring or similar means for normally holding the two parts together, substantially as and for the purpose specified.

5. The combination in a planing and matching machine, of a main frame, a table mounted thereon, a two-part expansible fence, a sliding bar interposed between the two parts of the fence, and constructed and arranged to vary the guiding-faces of the fence simultaneously equal distances from the center of the latter, a slot or slots in the sliding bar and a bolt or bolts taking therethrough and into the table for holding the sliding bar in position, substantially as and for the purpose specified.

6. The combination in a planing and matching machine, of a main frame, a table, the fence F, comprising the parts *F'*, *F²*, the sliding bar *F³*, the faces *f*, *f'*, thereon taking against the parts *F'*, *F²*, the tongue *f¹¹* and groove *b* for guiding the bar, and the part *f⁵* for operating the latter, substantially as and for the purpose specified.

7. An upright fence comprising two vertical guiding-faces, an adjusting device interposed between the guiding-faces, a rest for the adjusting device, a laterally-unyielding connection between the rest and adjusting device, a shaft operating the latter and adjusting the vertical guiding-faces equal distances simultaneously, substantially as and for the purpose specified.

8. The combination in an upright fence, of two parts, a sliding bar interposed between the same, a rest for the latter, a laterally-unyielding connection between the sliding bar and the rest, a wedge or wedges between the bar and each of the parts, a shaft connecting with the bar, and a spring or springs normally forcing the two parts together, substantially as and for the purpose specified.

9. The combination, in a fence, of two parts, a sliding bar interposed between the same, a screw-shaft for operating the same, inclined faces on the sliding bar taking against the
5 two parts respectively, recesses in the two parts respectively, springs in recesses, and a bolt passing through the two parts of the fence and normally compressing the springs, substantially as and for the purpose specified.

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Witnesses:

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