(No Model.) 3 Sheets—Sheet 1.

H. B. HITESHEW & W. F. SPIETH.

ADJUSTABLE SCHOOL FURNITURE.

No. 601,875. Patented Apr. 5, 1898.

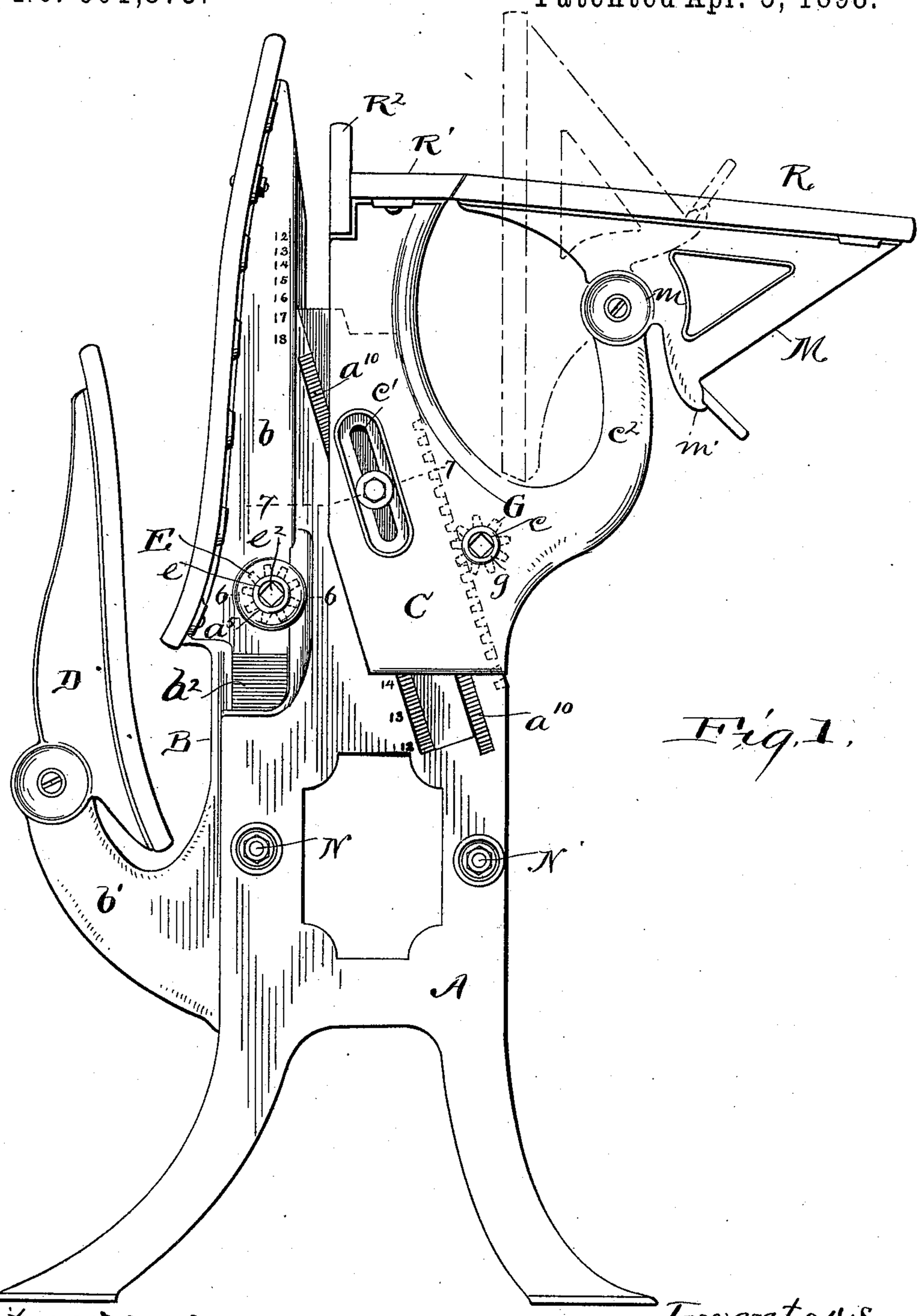

Fig. 1.

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N. M. Hutchison.

Inventors,
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(No Model.) 3 Sheets—Sheet 2.

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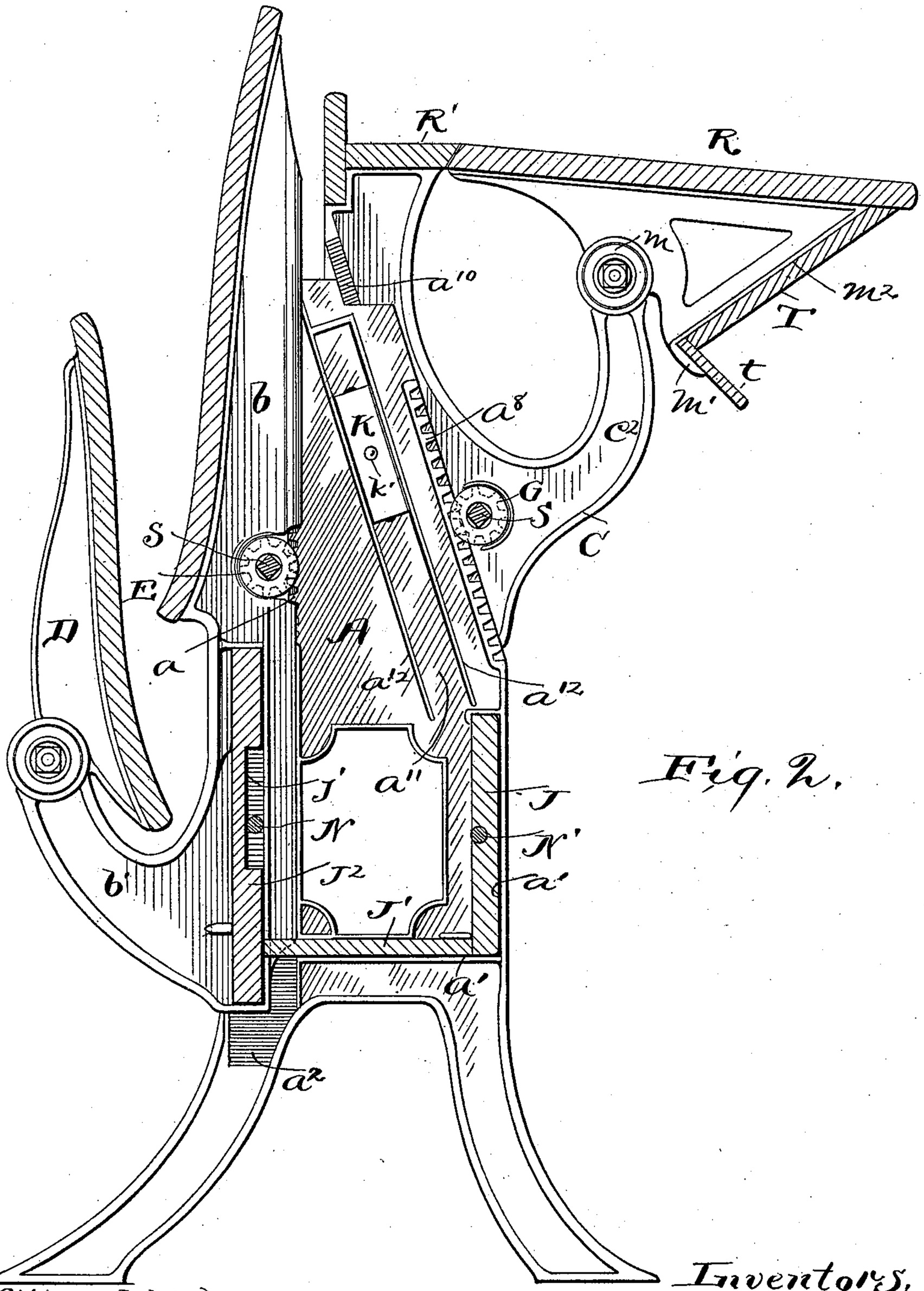

Fig. 2.

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(No Model.) 3 Sheets—Sheet 3.

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Fig. 3.

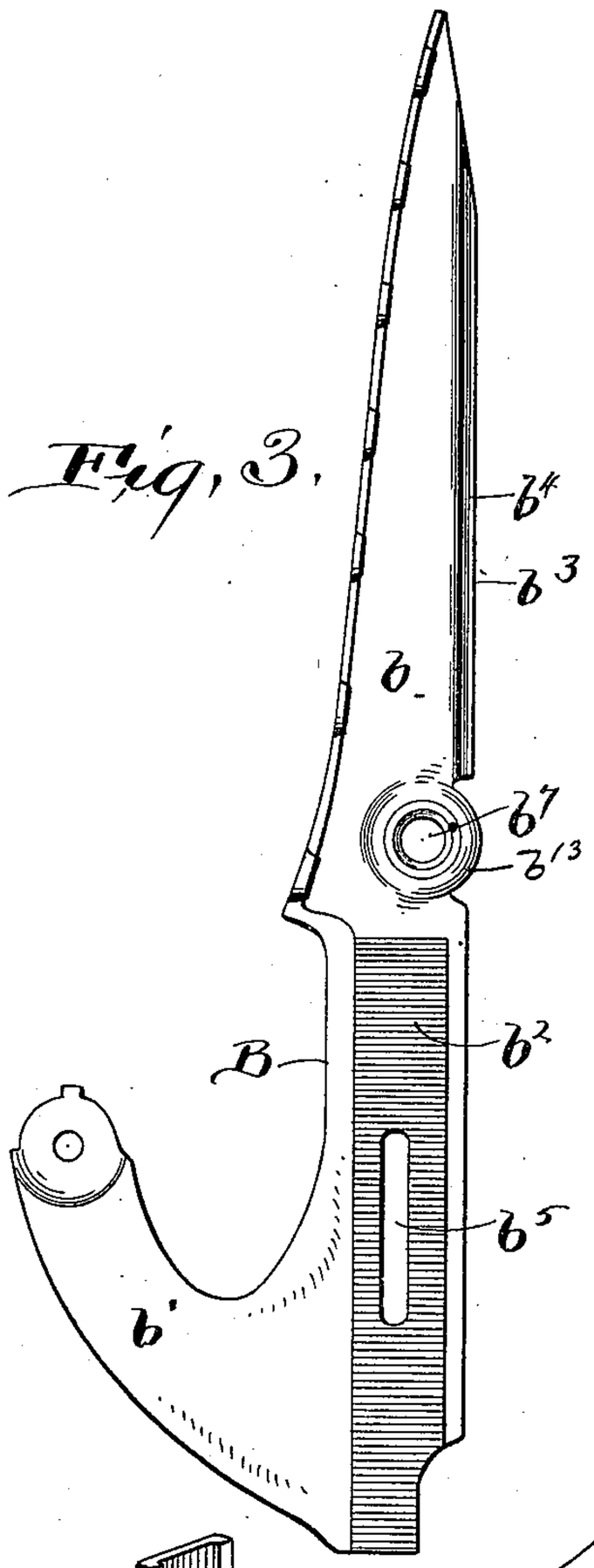


Fig. 4.

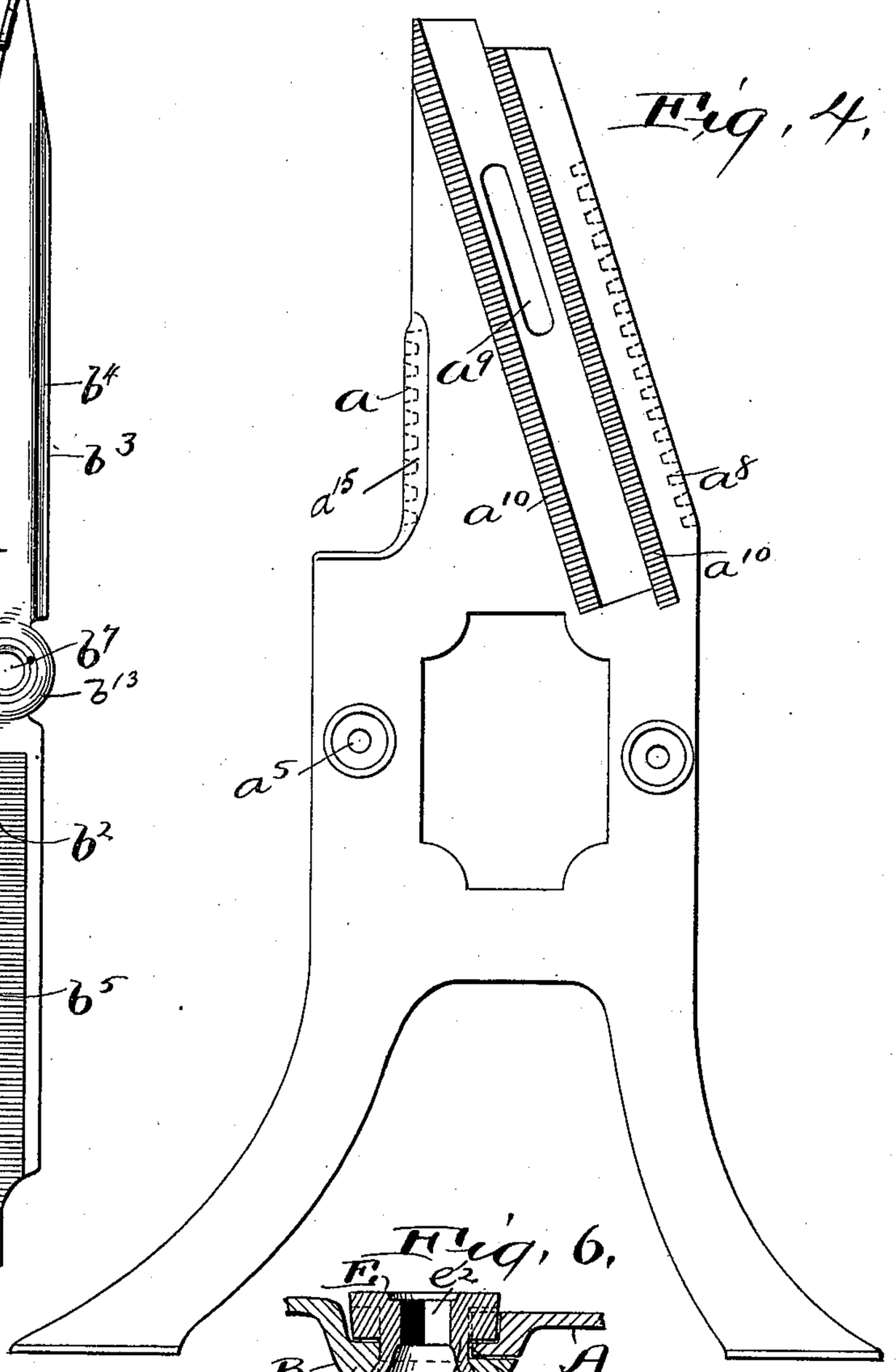


Fig. 5.

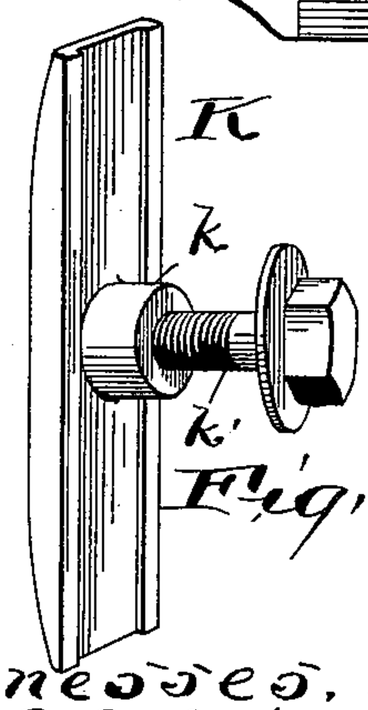
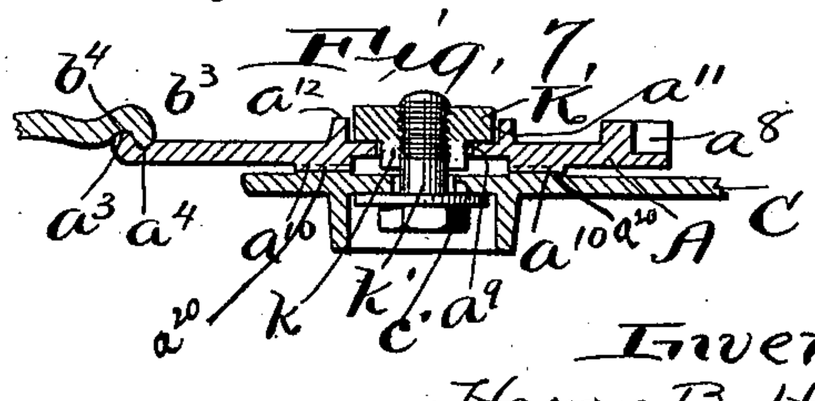


Fig. 6.

Fig. 7.



Witnesses,
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William F. Spieth,
By their Attorneys,
Thurston & Bates.

UNITED STATES PATENT OFFICE.

HARVEY B. HITESHEW AND WILLIAM F. SPIETH, OF CLEVELAND, OHIO, ASSIGNORS TO THE CLEVELAND SCHOOL FURNITURE COMPANY, OF SAME PLACE.

ADJUSTABLE SCHOOL FURNITURE.

SPECIFICATION forming part of Letters Patent No. 601,875, dated April 5, 1898.

Application filed May 12, 1897. Serial No. 636,143. (No model.)

To all whom it may concern:

Be it known that we, HARVEY B. HITESHEW and WILLIAM F. SPIETH, citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Adjustable School Furniture; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to a combined school seat and desk, the object being to produce a convenient, compact, and rigid structure wherein the seat and desk may be independently moved up or down and secured at any desired elevation by means which may be easily and quickly operated.

The invention consists in the construction and combination of parts hereinafter described, and pointed out definitely in the claims.

In the drawings, Figure 1 is a side elevation of a piece of school furniture embodying the invention. Fig. 2 is a sectional inner view of the same. Fig. 3 is a detached view showing the outer face of the seat and back-support. Fig. 4 is a detached view showing the outer face of one of the standards. Fig. 5 is a detached perspective view of the device for securing one of the desk-supports to one of the standards. Fig. 6 is a sectional view on line 6 6 of Fig. 1, and Fig. 7 is a sectional view on line 7 7 of Fig. 1.

Referring to the parts by letters, A A represent the two standards, which are intended to rest upon and to be secured to the floor. These standards are formed substantially as described, whereby they are adapted to properly support the movable seat-supports B B and the desk-supports C C. The vertical board J and the horizontal board J′ are placed between these standards, their ends entering pockets or grooves a' in the inner face of said standards. These boards hold the standards the proper distance apart, and they also serve as two sides of a book-rack.

The seat-supports consist each of a substantially vertical part b, to which the seat-back is secured, and a forwardly-extended bracket b', to which one of the seat-arms D is hinged in the usual manner. The rear edges of the seat-supports lie inside of and in contact with the standards, the engaging surfaces at the upper end of said standards being provided with the interlocking tongues a^3 b^3 and grooves a^4 b^4, whereby said supports are guided when moved. Just below these tongues and grooves a rack a is formed in the front edge of each standard. A vertical flange a^{15} on the standard extends in front of—that is to say, outside of—each rack, and thereby hides it from the sight of one looking at the side of the standard. Below this rack each standard is extended forward, whereby it overlaps and lies outside of the lower part of the seat-support. The engaging surfaces of this forward extension and of the seat-support are transversely corrugated, the corrugations being respectively indicated by a^2 and b^2. A vertical slot b^5 is formed in each seat-support, and a hole a^5 is formed in each standard. A board J^2 is placed between the two seat-supports, the ends of said board being held in pockets or recesses in said seat-supports. This board serves to hold the seat-supports at the proper distance apart, and it likewise serves as the third side to the book-rack. One tie-rod N passes through the holes a^5 and slots b^5, this rod lying behind the board J^2, but in a horizontal channel j therein. The top and bottom of this channel by engaging with this tie-rod limit the vertical up and down movements of the seat-supports. A second tie-rod N′ passes through the standards in about the same horizontal plane with the tie-rod N, but near the rear edge of said standards. As shown, this tie-rod passes through a hole in the board J. When the nut upon the tie-rod N is tightened, the two seat-supports, which, as before stated, lie just inside the two standards, are clamped to said standards, the engaging corrugated surfaces b^2 a^2 assisting in making them, when so clamped, relatively immovable. On the rear edge of each seat-support is a boss b^{13}, the rear edge of which extends in front of the flange a^{15} on the seat-support. This boss is placed at a point above the forward extension of the seat-support and is offset outward, so that it may

overlap and lie outside of said seat-support, as stated. In this boss a hole b^7 is formed. In each hole the hub e of a pinion E is journaled, said hub being preferably held in the hole by the upsetting of its end e', like an eyelet. This pinion engages with a rack a. The pinion and the hub are tubular, the hole e^2 being preferably square or of some other angular formation. The two pinions are in line with each other, whereby a long key S may be inserted and both pinions turned at the same time, with the result of causing said seat-supports to move simultaneously up or down upon the standards.

On the upper rear edge of each standard is an inclined rack a^8, the inclination being such that its upper end is nearer than its lower end to the seat-supports. The desk-supports C lie against the outer faces of the standards. In each is a hole c, in which the hub g of the pinion G is mounted, the pinions engaging with the racks a^8. These pinions are substantially like the pinions E, both as to their construction and the manner of holding them in the holes.

Above the pinions G an inclined slot a^9 is formed in each standard, which slot is parallel to the rack. On each side of each slot and on the outer face of the standard are the two slightly-raised and transversely-corrugated ribs a^{10}, leaving an inclined groove between them. On the inner faces of the desk-supports are transversely-corrugated ribs a^{20}, with which the corrugated ribs a^{10} engage. On the inner face of each standard is a similarly-inclined groove a^{11}, formed by the ribs a^{12}. In each desk-support is a correspondingly-inclined slot c'. A rectangular plate K, having an integral boss k, lies and is movable in the groove a^{11}, the boss passing through the slot a^9. A bolt k' passes through the slot c' and screws into this boss. This bolt and plate serve as the means for clamping together one standard and the corresponding desk-support and also of guiding the desk-support in its up and down movements in a line parallel with the slots c' and a^9. The possible movement of the desk-supports is equal to the sum of the lengths of both slots c' and a^9.

Each desk-support has a curved bracket c^2, to which is hinged the desk-arms M. These desk-arms are approximately triangular plates, the hinged ear m being at about the middle of one of the short sides. The desk-boards R are secured to the upper long side of said desk-arm, the rear end of said board being beveled, so as to make a fairly tight joint with the board R′, which also forms a part of the desk-top and is secured to the upper end of the desk-support. A vertical board R^2 may likewise be secured to said desk-supports in contact with the rear edge of the board R′. To the front inclined side of the desk-arm M a board T is secured, the ends of said board resting in grooves or pockets m^2 on the inner face of said desk-arm. A board t, at right angles to the board T, is secured to ears m' on said desk-arm. The boards T and t form, respectively, a book rest and support, and they are brought into operative position by turning the desk back upon its hinge substantially as shown in Fig. 1 in dotted lines. The board T then stands at an angle of about forty-five degrees, and the scholar's open book is intended to lean against it or to be supported by the shelf t.

To effect the adjustment of the desk, a key is placed through both of the pinions G. Both bolts k' are loosened. When then the key is turned, both desk-supports move up or down by reason of the action of the pinions upon the rack. This movement is not vertical, but follows the inclination of the rack. Wherefore the higher the desk is moved the farther it is moved from the seat of that scholar who is to use the desk. When lowered, it is likewise moved toward the scholar. This effects a double adjustment to meet the requirements of each case, because as the scholar is larger the desk should be raised and moved from him. When the desk is at the proper elevation, the bolts k^2 are tightened.

To effect the adjustment of the seat-supports, the tie-bolt N is alone loosened, the pinions are turned by a key, and when the seat-supports have reached the desired elevation the tie-bolt is tightened up again.

Having described our invention, we claim—

1. In school furniture, in combination, two standards, each having a rack on its front edge and a forward extension below said rack, with seat-supports, each having its lower part overlapping and in contact with the inner face of the forward extension of the standard, a pinion mounted on the inner side of each seat-support and in engagement with the adjacent rack, and means for forcing into intimate contact the overlapping parts of the seat-supports and standards, substantially as specified.

2. In school furniture, in combination, two standards each having a rack on its front edge, and a forward extension below said rack, and a flange which lies outside of and is coextensive with said rack, whereby the rack is hidden from view, seat-supports, the lower parts of which overlap and are in contact with the inner faces of the forward extensions of the standards, each seat-support being provided with an offset boss b^{13}, the rear edge of which extends in front of the flange on the corresponding standard, a pinion, lying against the inner face of each seat-support in engagement with the adjacent rack on the standard, and having its hub rotatively secured in a hole in said boss, and means for clamping together the overlapping parts of the seat-supports and standards, substantially as specified.

3. In school furniture, in combination, two standards each having a vertical rack, and a forward extension, means for holding the rear part of said standards apart, two seat-supports which respectively overlap the forward ex-

tensions of said standards and are in contact with the inner faces thereof, a pinion rotatably mounted upon each seat-support above the part which overlaps the forward extension of the standard, and in engagement with the adjacent rack, said pinions being respectively in alinement and having each an angular hole adapted to receive an operating key or shaft, and mechanism for clamping together the overlapping parts of the seat-supports and standards, substantially as specified.

4. In adjustable school furniture, in combination, two standards each having a vertical rack, the horizontal and vertical boards J J′ secured between them, two vertically-slotted seat-supports placed against the inner faces of said standards, said seat-supports and standards having interlocking tongues and grooves, a vertical board placed between said seat-supports in front of the front edge of the horizontal board J′, the tie-rods N N′, and the pinions mounted in said seat-supports, substantially as specified.

5. In adjustable school furniture, in combination, two standards, each having a vertical rack on its front edge, and a forward projection, the inner surface of which projection is horizontally corrugated, a spacing-board held between the rear parts of said standards, two seat-supports which overlap the forward extensions of said standards and are in contact with the inner faces thereof, said contacting portion being likewise horizontally corrugated, a spacing-board secured to and between the lower part of said seat-supports, and two tie-rods, one connecting the rear parts of said standards, the other passing through vertical slots in the seat-supports and through holes in the standards, whereby the corrugated surfaces of the seat-supports and standards may be forced into intimate contact, and pinions mounted on the inner faces of said seat-supports adjacent to and in engagement with said racks, substantially as specified.

6. In adjustable school furniture, in combination, two standards, each having an inclined rack on its upper rear end, a correspondingly-inclined corrugated surface on the outer face thereof, a correspondingly-inclined channel on the other face, and a correspondingly-inclined slot through said corrugated surface and channel, two desk-supports having an inclined slot, and correspondingly-inclined corrugated surfaces on their inner faces, the plates K with bosses *k*, and bolts *k′*, and pinions mounted on the desk-supports and engaging with the racks, substantially as specified.

7. In adjustable school furniture, in combination, the standards each having a vertical rack on its front edge, and an inclined rack on its rear edge, a spacing device secured between said standards, two seat-supports movable against the inner faces of said standards, a spacing-board secured between them, pinions mounted on the inner faces of said seat-supports in engagement with said racks, two desk-supports mounted upon and in engagement with the outer faces of said seat-supports, inclined guides therefor, pinions mounted on the inner faces of the desk-supports in engagement with the inclined racks, and clamping devices for securing the seat-supports and desk-supports to the standards, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

HARVEY B. HITESHEW.
WILLIAM F. SPIETH.

Witnesses:
E. L. THURSTON,
ALBERT H. BATES.