

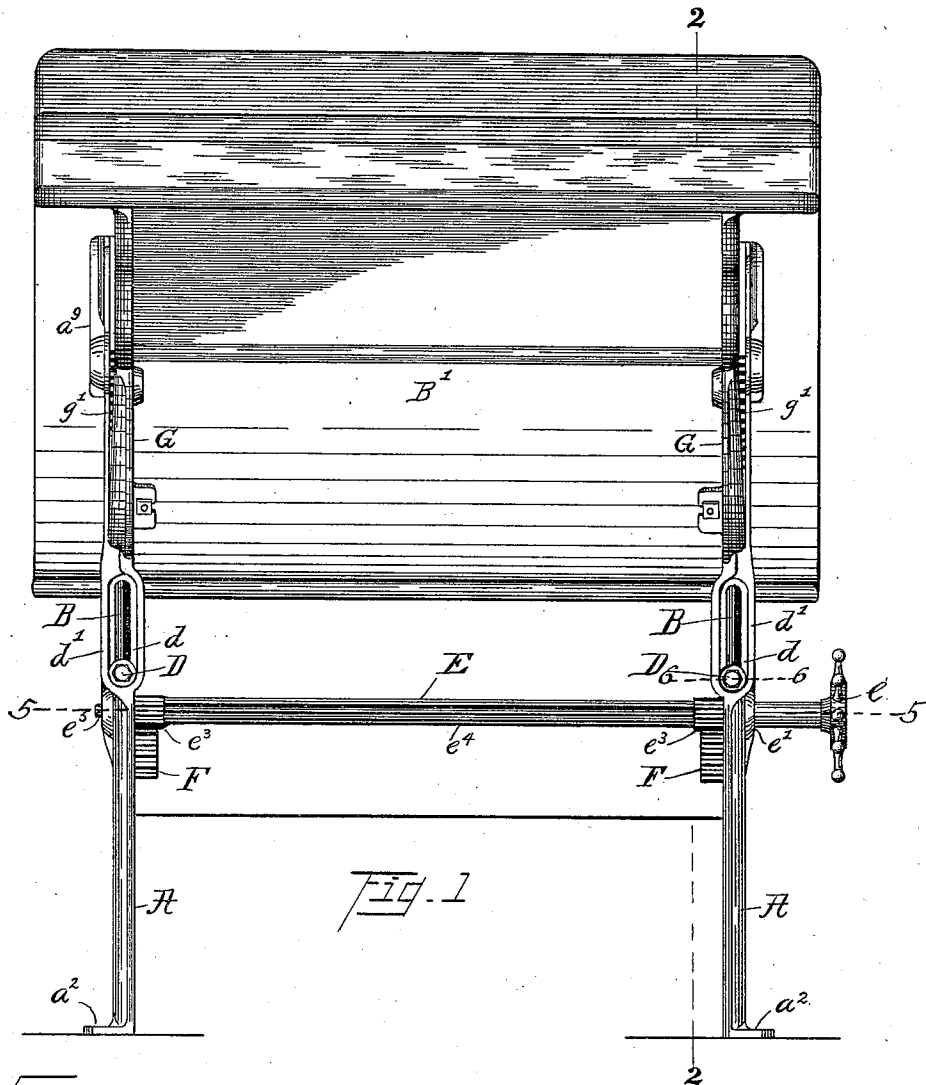
(No Model.)

3 Sheets—Sheet 1.

W. F. SPIETH.  
ADJUSTABLE SCHOOL FURNITURE.

No. 574,829.

Patented Jan. 5, 1897.



Witnesses.

*H. Griswold*

*Wm. T. Black.*

Inventor.

*William F. Spieth*

*By his attorney*

*E. L. Hurston*

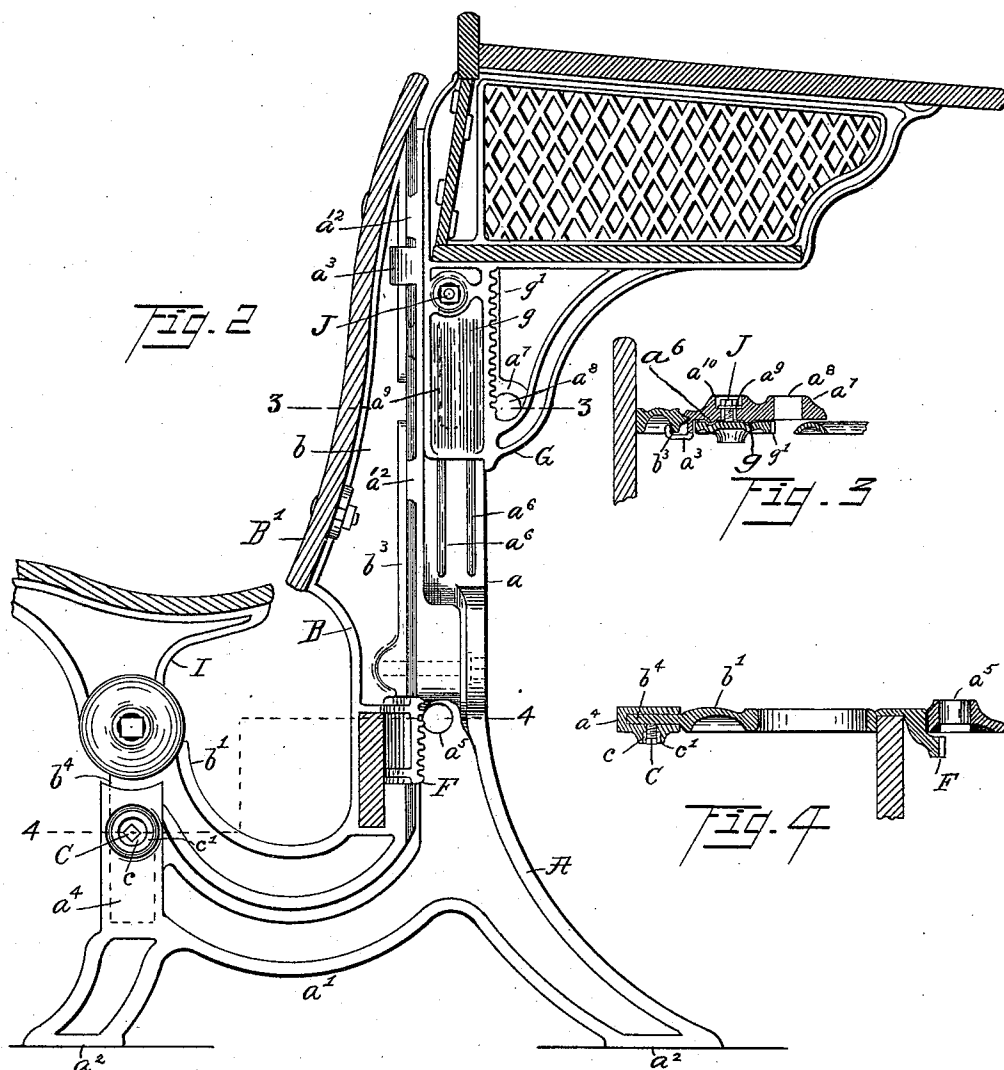
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L. Griswold  
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3 Sheets—Sheet 3.

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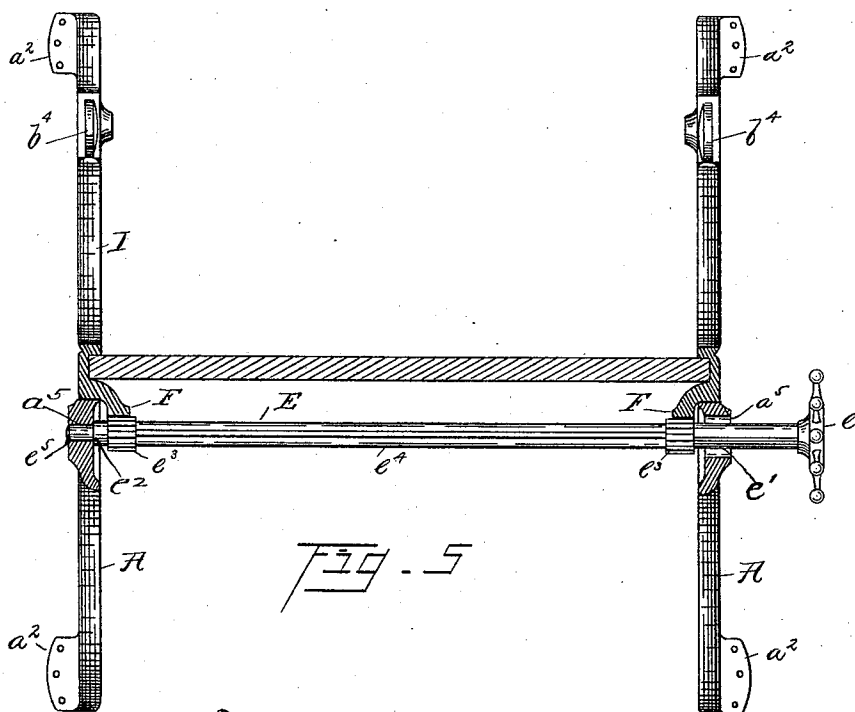


Fig. 5

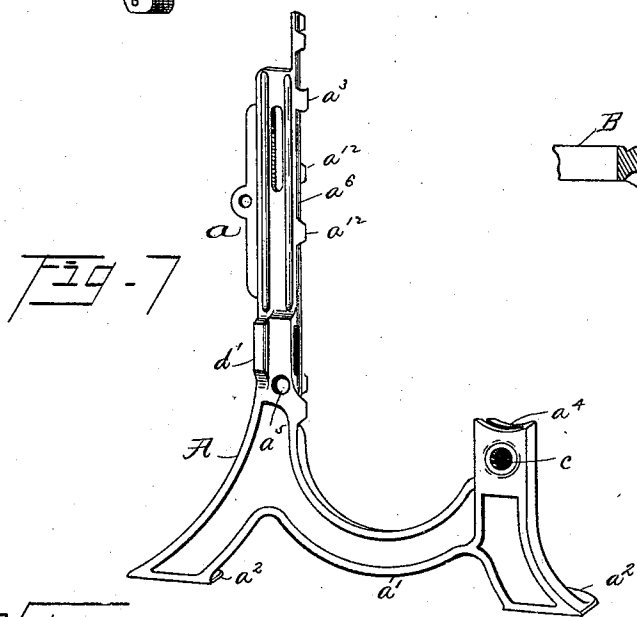


Fig. 7

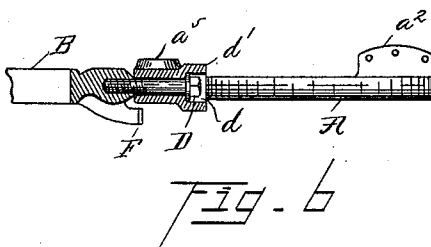


Fig. 6

Witnesses.

*H. Griewold*  
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Inventor.

*William F. Spieth*  
By his attorney  
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# UNITED STATES PATENT OFFICE.

WILLIAM F. SPIETH, OF CLEVELAND, OHIO, ASSIGNOR TO THE CLEVELAND SCHOOL FURNITURE COMPANY, OF SAME PLACE.

## ADJUSTABLE SCHOOL FURNITURE.

SPECIFICATION forming part of Letters Patent No. 574,829, dated January 5, 1897.

Application filed September 23, 1895. Serial No. 563,434. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM F. SPIETH, a citizen 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 I 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.

My invention relates particularly to the class of adjustable school furniture in which two side standards, which are ordinarily secured to the floor, support the adjustable parts.

The principal object of my invention is to provide a construction for adjustable school furniture in which both sides of the movable part must be simultaneously moved equal distances up or down, said result being effected easily, quickly, and certainly.

Another object of the invention is to provide a construction in which mischievous boys cannot, with bicycle-wrenches or other common tools which they are apt to carry, loosen the fastenings between the fixed and movable parts.

With these principal objects in view my 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 rear view of my improved furniture. Fig. 2 is a vertical sectional view on line 2 2 of Fig. 1. Fig. 3 is a horizontal sectional view on line 3 3, looking up. Fig. 4 is a sectional view on line 4 4, looking down. Fig. 5 is a horizontal section on line 5 5 of Fig. 1, showing the operating-shaft, which is not sectioned, in position for raising or lowering the supports B. Fig. 6 is a sectional view on line 6 6 of Fig. 1, and Fig. 7 is a perspective rear view of one of the standards.

Referring to the parts by letters, A A represent the standards. Each is constructed with an upward extension  $a$ , a curved forward extension  $a'$ , and feet  $a^2$ , said standard being in its general form and in the particulars above mentioned substantially like the seat-standards in common use with non-adjustable school furniture.

B B represent the supports for the back and seat. It is considered desirable that in adjustable furniture the relative position of the back and seat shall not be affected by their vertical adjustment. To secure this result, the movable supports B B are constructed so as to be adapted to support both the back and seat in the desired relation to each other, said supports being in their general form substantially like the standards which have heretofore been used to support the back and seat in non-adjustable school furniture—that is to say, said supports have upwardly-extended parts  $b$ , to which the back B' is secured, and curved forward extensions  $b'$ , to which the seat-brackets I are pivoted. This form of support has the approval of long use and is especially suitable for use in adjustable school furniture containing my invention.

The front edges of the upward extensions  $a$  of the standards lie in the direction which it is desired to move the supports B B. Projecting at opposite sides from the edges of the standards are the lugs  $a^{12}$ , said lugs forming a V-shaped channel. The rear edges of the supports B B are made V-shaped, and these rear edges lie in the V-shaped channel formed by said lugs, whereby said supports are guided so as to move in straight lines. On the inner rear edge of each support B is a rib  $b^3$ . On the part  $a$  of each standard A is a curved finger  $a^3$ , which extends around in front of said rib and prevents the supports from swinging forward when their fastenings are loosened. In the front part  $a'$  of the standards is a vertical socket  $a^4$ , which receives a leg  $b^4$  on the under side of the part  $b'$  of the supports B. This construction also serves to guide the supports B B in the desired direction. A set-screw C screws through a boss  $c$  on the standard against the leg  $b^4$ , with the result of steadying said leg and helping to support the seat. Surrounding the head of this set-screw is a raised flange  $c'$ , formed on the standard and extending above the head of the screw C. This flange lies so near to the head of the screw that only a key-wrench of special size may be made to engage with it and turn the screw.

In each part  $a$  of the standards is formed a vertical slot  $d$ , extending through it from back

to front, through which passes a set-screw D, which screws into the back edge of the support B. A raised flange  $d'$  surrounds this slot and lies so close to the head of the set-screw D that only a key-wrench of the special size can be used to turn the screw. The screws D form the principal connection between the standards and supports and might alone be relied upon, but when the other set-screws C are used they serve to support in a measure the weight on the seat, making the furniture more rigid and making it possible to make said curved arms  $b'$  lighter than they could be made if said screws C were not used.

F F represent racks on the supports B B, preferably integral therewith, and lying just inside of the standards. Adjacent to these racks transverse holes  $a^5$   $a^5$  are made in the standards. These holes serve as bearings for an operating-shaft E, which is adapted to extend across from one standard to the other, and is provided with an operating crank or wheel  $e$  at one end. The parts  $e'$   $e^2$  of the shaft, which lie in the holes  $a^5$   $a^5$ , are cylindrical. The parts  $e^3$ , adjacent to the racks F F, are longitudinally corrugated, so as to form teeth (or pinions) which engage with the rack.

The part of the shaft between the two corrugated parts thereof is constructed so that it may pass the rack F on the side at which the shaft is introduced. This middle part of the shaft may be of smaller diameter than the teeth formed by the corrugations, and it may be strengthened by one or more longitudinal ribs  $e^4$ , which are in line with said teeth. The end  $e^5$  of the shaft should also be of smaller diameter than the corrugated part thereof, so that it may pass the racks. The shaft E is not intended to remain permanently in the bearings above described, but, because of the construction as above described, is adapted to be easily inserted and removed whenever desired. One operating-shaft may therefore be used with any number of pieces of furniture. When the shaft has been inserted and is turned, both supports must go up or down simultaneously and exactly the same distance.

The side desk-supports G lie inside of and against the parts  $a$  of the standards A A. Ribs  $a^6$  and grooves  $g$  on the standards and desk-supports G, respectively, serve to guide the movements of said desk-supports. On the rear edge of each desk-support is a rack  $g'$ , and on the standards adjacent to these racks are brackets  $a^7$ , in which are formed holes  $a^8$ . These holes serve as bearings for the same shaft E before described, by means of which, when it is inserted, both desk-supports G must be simultaneously moved up or down equal distances. In each standard is a slot  $a^9$ , parallel with the ribs  $a^6$ , through which pass the bolts J. These bolts pass through the desk-supports G and are the means by which said desk-supports are secured to the said standards. A flange  $a^{10}$

likewise surrounds the slot  $a^9$  and lies close to the head of the bolt, and thus prevents it from being turned except by a key-wrench of special size.

Having described my invention, I claim—

1. In adjustable furniture, the combination of two standards A A each of which includes the upwardly-extended part  $a$  having a vertical slot which extends through it from front to back, and having also a transverse hole adapted to serve as a bearing for one end of a removable operating-shaft, with two supports adapted to slide upon the front edge of the parts  $a$ , racks secured to said supports adjacent to said holes, a removable shaft finding its bearings in said holes and having pinions which engage with said racks, and set-screws passing through said slots and screwing into said supports, substantially as and for the purpose specified.

2. In adjustable furniture, the combination of two standards having transverse holes which serve as bearings for a removable operating-shaft, with two combined seat and back supports movable up and down upon the front edge of said standards, and racks on said supports adjacent to said holes, with a removable shaft adapted to find its bearings in said holes and having near its ends corrugations which serve as pinions and engage with said racks, said pinions being of smaller diameter than one of said holes, and means for rigidly connecting said standards and supports, substantially as and for the purpose specified.

3. In adjustable school furniture, the combination of two standards each having a transverse hole which is adapted to serve as one bearing for the removable operating-shaft, with two supports movable upon said standards and provided with racks, and a removable shaft adapted to extend from one support to the other and to find its bearings in said holes and having (1) two longitudinally-corrugated parts near its ends which are of smaller diameter than one of said holes, and are adapted to engage with said racks, (2) a part intermediate of said corrugated parts which is of still smaller diameter, and (3) two approximately-cylindrical portions outside of said corrugated parts, which are adapted to lie within said holes, substantially as and for the purpose specified.

4. In adjustable furniture, the combination of two side standards A A, each of which includes (1) an upwardly-extended part  $a$  on the front edge of which a guiding-channel is formed, and in which a vertical slot is formed extending through it from front to back, and (2) a forwardly-extended part  $a'$ , with two combined supports B B for seat and back, each of which includes (1) the upwardly-extended part  $b$  of which the rear edge lies in said guiding-channel, and (2) a forwardly-extended part  $b'$  which is provided with a leg  $b^4$  on the under side, means for connecting said leg and the parts  $a'$  of the standards, and set-

screws which pass through the slots in part *a* of the standards and screw into the supports, substantially as and for the purpose specified.

5 In adjustable furniture, the combination of two standards each consisting of (1) an upwardly-extended part *a* which is provided on its front edge with a guiding-channel, and is also provided with a vertical slot *d* extending from rear to front, and (2) a forwardly-extended part *a'* having a socket *a''*, with two  
10 supports for the seat and back each consisting of (1) an upwardly-extended part *b* the rear edge of which lies in said guiding-channel, and (2) a forward extension having a leg *b'* on

its under side which enters said socket, and set-screws passing through the parts *a'* and engaging with the said leg, set-screws which extend through the slot *d* and screw into said supports, and raised flanges on the standards around the heads of said set-screws, substantially as and for the purpose specified.  
20

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM F. SPIETH.

Witnesses:

E. L. THURSTON,  
L. F. GRISWOLD.