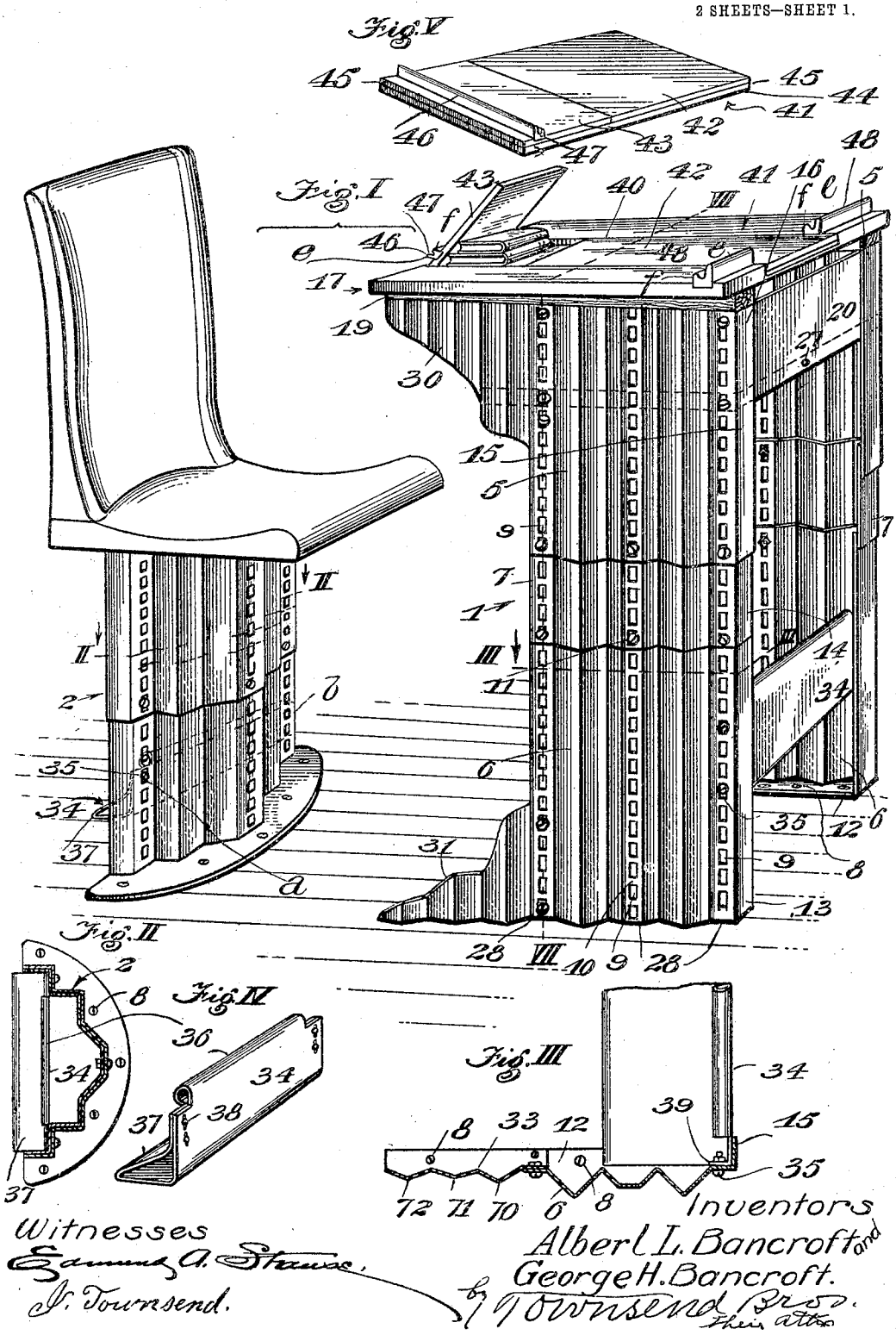
No. 820,336. PATENTED MAY 8, 1906.

A. L. & G. H. BANCROFT.

SCHOOL DESK AND SEAT AND OTHER FURNITURE.

APPLICATION FILED SEPT. 29, 1902.

2 SHEETS—SHEET 1.



ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

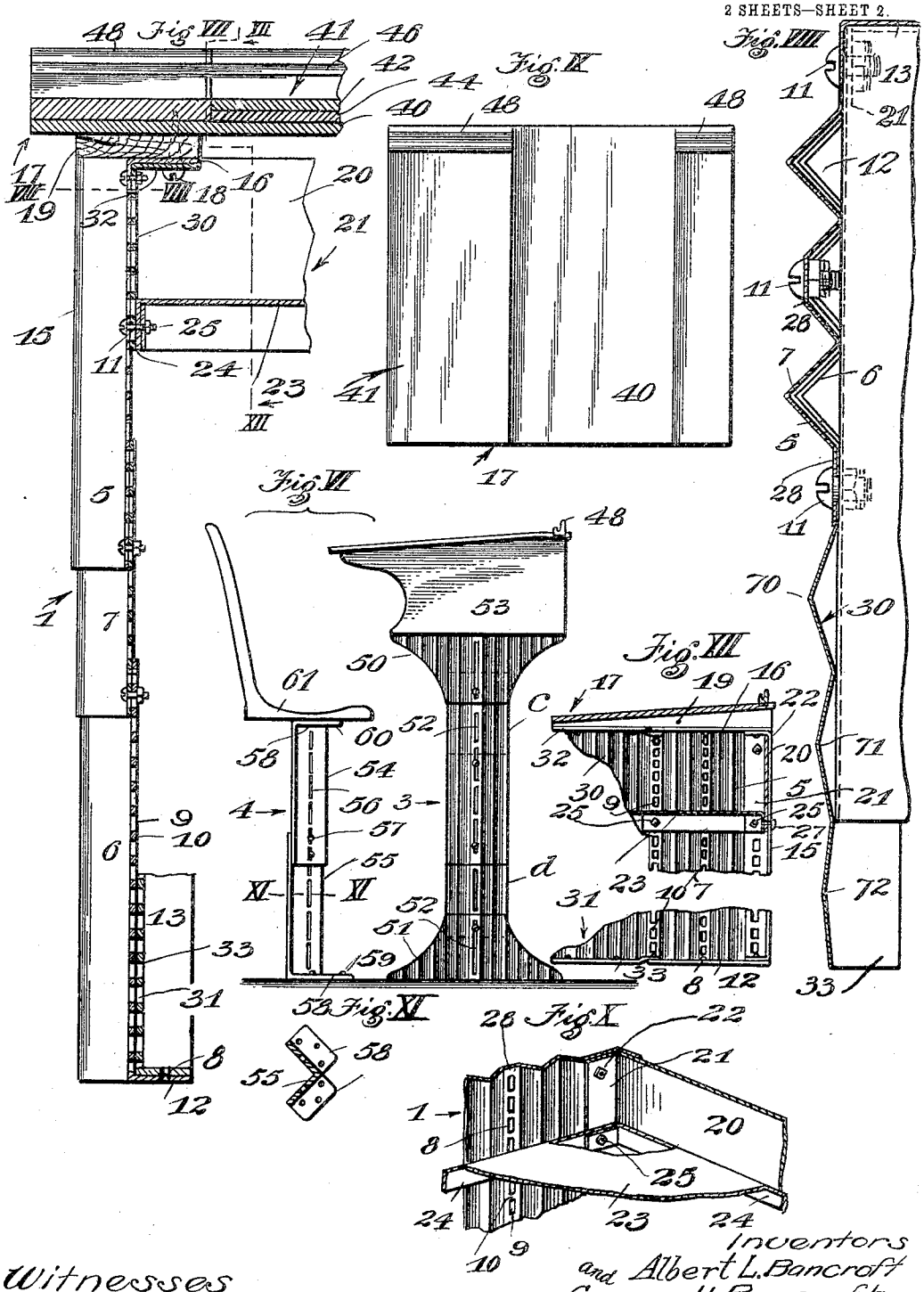
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Witnesses
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UNITED STATES PATENT OFFICE.

ALBERT L. BANCROFT AND GEORGE H. BANCROFT, OF LOS ANGELES, CALIFORNIA.

SCHOOL DESK AND SEAT AND OTHER FURNITURE.

No. 820,336. Specification of Letters Patent. Patented May 8, 1906.

Application filed September 29, 1902. Serial No. 125,312.

To all whom it may concern:

Be it known that we, ALBERT L. BANCROFT and GEORGE H. BANCROFT, citizens of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in School Desks and Seats and other Furniture, of which the following is a specification.

An object of this invention is to provide an extremely light and economical construction adapted for adjustable school furniture and the like.

Further objects are minimum occupation of space for storage and transportation, maximum strength, rigidity, and unbreakableness, ready and easy putting together from knockdown form, and convenient adjustment to desired height. By this invention we secure in each and every desk complete adjustability from the lowest to the highest, and vice versa.

Another object is to provide a construction whereby school and other furniture can be manufactured from stock materials without a special manufacturing plant.

We propose to provide for the manufacture of furniture which will supply the place of all the various sizes of school-desks and seat-standards and to do this from stock material by the use of only one set of rolls and dies, which may be applied to the standard machinery in any plant adapted for working sheet metal, and therefore to dispense with the necessity for the numerous sets of patterns of different sizes now required for the castings of the usual form of desk.

A further object of this invention is to provide a desk which may without any change in the construction of the standard or support be constructed as a horizontal-top or as a slanting-top desk.

A further object is to provide a desk the top of which may be used as a desk-top or as an easel, a book-rest, or a drawing-board. This is accomplished by means of a sliding member of special construction, which will be fully described in the following specification.

A further object is to provide an improvement in desks by forming at the front edge thereof a combined stop and pen-and-pencil rack made of one or more pieces in the form of a cleat or strip grooved in its top and having a front wall of greater height than the rear wall. In this description the front of the desk is understood to be that portion of the desk which is farthest from the person sitting at the desk.

A further object is to provide a cheap and convenient adjustable foot-rest for the person using the desk and seat.

A further object is to provide a new type of desk which will present a novel ornamental appearance.

The accompanying drawings illustrate the invention as applied to school furniture.

Figure I is a perspective view of a school desk and seat embodying our invention in a form in which a part which forms a portion of a standard of the desk also forms a portion of the book-box of the desk. The sliding member of the desk is shown arranged for use as a book-rest. Fig. II is a plan section on line II II, Fig. I. Fig. III is a fragmental plan section on line III III, Fig. I. Fig. IV is a view of the foot-rest and brace detached. Fig. V is a perspective view of the sliding member of the desk-top detached. Fig. VI is a view of another form of school desk and seat embodying our invention. Fig. VII is a fragmental vertical section on line indicated by VII VII, Fig. I. The left standard is shown. Fig. VIII is a detail plan section on line VIII VIII, Fig. VII. Fig. IX is a plan of the desk shown in Fig. I without the sliding member, which is removed. Fig. X is a fragmental detail illustrating the construction at one corner of the book-box looking toward the front. Fig. XI is a fragmental plan section on line XI XI, Fig. VI. Fig. XII is a fragmental sectional elevation of the form of desk shown in Fig. I.

In the drawings different forms of standard embodying our invention are represented. Thus in Fig. I the desk-standards are indicated in a general way at 1, while 2 designates the seat-standard. In Fig. VI, 3 designates a modified form of desk-standard, and 4 a modified seat-standard.

A novel feature of our invention consists in a standard for furniture formed of corrugated sheet material. We propose to combine strength, rigidity, lightness, compactness, simplicity, and great adjustability by constructing the standards of our novel fur-

niture from corrugated sheet material appropriately formed for the purpose.

Referring first to the form shown in Fig. I, the characters 5, 6, and 7 designate three sheets of bent sheet metal, the same being desirably corrugated and perforated. The perforations 8 9 may be of any form perferred by the constructor or user and may be of any determined length. The perforations 9 are desirably oblong slots arranged with stops 10 between them, which are of less vertical length or height than the length of the slots 9. The sheets are slidingly fitted together, and slots of engaging sheets register with each other.

11 designates bolts through the slots 9 for adjustably fastening the sheets together. The form of corrugation may be varied from a rectangular or box-plait form to an acute or obtuse bend or may be in wavy lines. All this will be readily understood by any one versed in the art, and no illustration of the numerous forms in which the corrugations may be made is attempted.

Preferably the corrugations of the different sheets or members are formed to correspond with each other, so that when assembled with their ends overlapping each other the corrugations will interlap—that is, those of one member will fit in or slide lengthwise upon those of the other member, and thereby mutually support and brace each other and also tend to prevent the edgewise movement of the sheets upon each other with the bolts or fasteners as a center.

By making the slots of greater length than the stops 10 between them complete adjustment is secured. A sufficient adjustment of the furniture as to height may be secured by the use of only two sheets, and in some cases it is necessary to employ a greater number of sheets. Said sheets overlap each other, and where three sheets are used, as in Fig. I, the upper sheet 5 will overlap on the outside of the next lower sheet, which in Fig. I is a splicer 7, and the sheet 7 overlaps on the outside of the next lower sheet 6, so that the outer face of the standard is free of any ledge formed by overlapping edges.

The splicer 7 in the form shown in Fig. I overlaps the base-sheet 6 and is adjustably secured thereto by bolts. In order to provide for further rigidity and also to provide for connecting the standards to the parts with which they are to be connected, said sheets 5, 6, and 7 are bent to form flanges.

12 designates a base-flange for the bottom of the base-sheet 6 for the purpose of securing the same to the floor.

13 is a vertical flange which extends up along the front edge of the sheet 6.

14 and 15 are like vertical flanges on the front edges of the sheets 7 and 5, respectively.

16 designates a flange at the top of the top sheet 5, by means of which the said sheet may be fastened to the under side of the desk-top member 17.

18 designates screws by which the flanges 16 may be fastened to the desk-top member 17.

In order that the desk-top member may be inclined and yet be of uniform thickness and the flanges 16 be at right angles to the upright standard, wedge-shaped cleats 19 may be interposed between the flanges 16 and the desk-top member 17, the thicker end of the wedge being at the front and the thinner edge being at the rear of the desk. Desirably the screws 18 will pass through the flange 16 into the wedges 19 and may extend up into the top member 17, as indicated in Fig. VII.

20 designates a brace formed of a sheet of material bent at each end to form flanges 21, which may be fastened by bolts 22 to the sheet-metal standards 1.

23 is a shelf member, desirably formed of sheet metal downwardly bent and perforated at its ends to form perforated flanges 24, two of which are fastened to the side standards 1 by bolts 25, and the other may be fastened to the front member or brace 20 by a bolt 27. The downturned flanges 24 afford a secure means for fastening the shelf member 23 to the standard and to the front bracket member 20 and are out of the way of the books which are to be placed on the shelf, and by this arrangement the fastening bolts or screws 25 are also out of the way of said books.

Desirably the portions of the standard along which the rows of slots or perforations are arranged are flat-faced, as shown at 28, for giving a true seat for the head of the bolts or screws which fasten the parts together and also to add to the ornamental appearance of the standards.

The brace 20 is arranged for closing the space between the front edges of the desk-top member and shelf member. Said space may be fully or partially closed, as desired. In Fig. I the brace 20 is shown as closing the space partially. 30 designates bracket extensions fastened to the edges of the standards, respectively, for supporting the rear portion of the top member. 31 designates foot-pieces fastened to the rear edge of the lower end of the standards to rest upon the floor and give additional rigidity to the standards. These members 30 and 31 are constructed of bent sheets of material desirably corrugated and provided with flanges 32 and 33, respectively. When said parts 30 and 31 are formed in pieces separate from the body portion of the standard, said standard may be made with straight longitudinal edges and manufactured more cheaply than if formed all in one piece.

The corrugations of the sheets which are

secured together for vertical adjustment are of a determined depth requisite to give the necessary rigidity against lateral flexure, and the corrugations of the bracket and foot extensions are of desirably less depth than the corrugations of the standards in order to give greater strength to resist edgewise flexure of said extensions. This will be understood by reference to Fig. VIII, in which the corrugations 70, 71, and 72 of the bracket 30 are shown of decreasing depth from the standard toward the back of the desk.

The top and base sheets 5 and 6 of the standards are bent, respectively, to form horizontal flanges 16 and 12, respectively, for the purpose of fastening said top and base members to the desk-top 17 and the floor, respectively.

34 is a foot-rest formed of sheet metal bent upon itself to give rigidity and to afford an easy support for the foot of the occupant of the desk. This foot-rest is adapted for adjustment to either the standard of the desk or the standard of the seat. In Fig. I the foremost desk of a row of desks is supposed to be shown, other desks of the row being omitted from the view, and the foot-rest 34 is shown fastened to the desk-standards by bolts 35. A foot-rest of corresponding form is also shown attached to the standard 2 of the seat. It is to be understood that the length and other dimensions of the foot-rest may be varied to fit the space in which the foot-rest is to be mounted and that the foot-rest for the desk may be longer than that on the seat-standards. Said foot-rest has an oblique rear face and may be bent at its upper edge to form an eye 36 and also bent to form a ledge 37 at the bottom, as shown in Fig. IV. 38 designates perforations through which the bolts 35 may be passed to fasten the foot-rest to the standards.

By the construction shown the article of furniture, whether a desk or seat-standard, has two points of support *a b* for the foot-rest 34.

Desirably the foot-rest for the desk may be provided with flanges 39, through which the fastening-bolts 35 may be passed to enter the oblong slots 9 of the standards.

40 is a channel in the top of the desk, and 41 a sliding member in said channel-top furnished with hinged leaves 42 and 43, said leaves being hinged to a member 44 and which extends from the back to the front of the desk. Said member 44 is desirably constructed of soft wood to form a drawing-board, and the members 42 and 43 are hard-finished to form the top of the desk when in ordinary use. 45 designates hinges connecting members 42 43 to the sliding member 41. Said hinges may be of flexible material—such as canvas, leather, or the like—covering the entire edges of the members, as indicated at 45, Fig. V, or they may be of any other suitable construction. One of the members, as 42, may be of greater length than the other and adapted to serve as an easel when said member is raised at one edge for the purpose. This adjustment of said member is to be understood without illustration. The other member, 43, is desirably of less length and is furnished with a ledge 46 and is adapted to serve as a book-rest. Said ledge 46 is desirably a cleat having a longitudinal groove 47, and its top is adapted to serve as a pen and pencil rack for the desk when the sliding member 41 is in its usual position, which it is to be understood is the reverse of that shown in Fig. I.

48 designates two grooved cleats corresponding to the cleat 46, fastened to the desk-top at the opposite sides of the channel 40 to form extensions of the pen and pencil rack 46 when the sliding member 41 is arranged for using the desk as an ordinary school-desk.

Desirably the channel 40 is located nearer to the right side of the desk (as clearly shown in Fig. IX) than the left, this being the most convenient arrangement for use of the pupil when the sliding member is used as a drawing-board, book-rest, or easel.

The side walls of the channel 40 are desirably vertical and the removable sliding member 41 desirably fits snugly therein and can be withdrawn therefrom vertically and can also be slid therein in order to adjust it in either direction. When it is desired to use the easel, the hinged member 42 will simply be raised at its rear edge and propped up with books or any other suitable support, and thus held at a desirable angle. The sliding member may be slid forward to bring the rear edge of the sliding member 41 forward from the rear edge of the channel portion of the desk-top 17 to form a ledge to support any article placed on the easel.

To use the book-rest, the sliding member 41 will be withdrawn from the channel 40 and reversed end for end, and the leaf 43 will be raised to an appropriate angle, where it may be propped up by books or other articles. The cleat 46 forms a convenient ledge upon which the book or other article may rest. The user may slide the member 41 forward or back to bring the book-rest to a desired position.

To use the sliding member 41 as a drawing-board, the same may be inverted, and if desired to give the same a greater slant than that of the desk-top the cleat 46 may be allowed to rest on the floor of the channel 40 at the front of the desk. If it is not desired to give it a different angle than the desk-top, the member 41 may be adjusted forward sufficiently to allow the cleat to come in front of the front edge of the desk-top, or said member 41 may be placed in position with the cleat 46 behind the rear edge of the desk.

The front walls *e* of the grooves in the tops of the cleats 46 and 47 are higher than the rear walls *f*, so that pens and pencils may be easily put into the grooves by the pupil sitting at the desk, and there will be no liability of pushing the same out forward over the front of the desk.

In Fig. VI a form of construction different from that shown in Fig. I is illustrated, the intermediate portion of the desk-standard being narrower than in Fig. I. The top member 50 may be formed of a single piece and the base member 51 of another piece. These two pieces may be duplicates of each other and interchangeable. The slots 52 in these members are shown of greater length than the slots 9 in Fig. I. The book-box 53 is shown as constructed independently of the standards. It is to be understood that the members 50 and 51 are provided with flanges (hidden in Fig. VI) which correspond to the flanges 16 and 12. (Shown in Fig. XII.) The standard 4 of the seat (shown in Fig. VI) may be formed of two corresponding members 54 and 55, provided with slots 56 and fastened together by bolts 57. Said members are desirably made of sheet metal bent along the body, as shown in Fig. XI, and bent at the lower end to form flanges 58, the same being perforated, as shown in Fig. XI, to receive the floor-screws 59.

60 designates screws through the flanges 58 of the top member 54 to fasten the same to the seat-piece 61.

The desk-standard 3 is shown as formed of two intermediate members *c* and *d*, fastened together and respectively fastened to the top and bottom members 50 and 51 by means of bolts.

It is to be understood that double horizontal rows of bolts may be used wherever desired for increased strength of fastening for the standards. The corrugations in the sheet-metal standard have the effect of producing a lateral extension of the bearing area against the floor and top piece. Even in case there were no end flanges at top and bottom the corrugations would give sufficient width of bearing on the floor to afford a stable support; nor does this advantage disappear when the flanges are used, as the corrugations serve to give a stiffening or bracing effect to the flanges, so that while the effective bearing width of the flange extends the full width of the corrugations the unbraced portion is only that part that extends beyond the corrugations. Furthermore, the corrugated ends of the sheet metal form a zigzag line, which construction provides for a greater length of edge for attaching the flange than would be afforded by a standard having a straight base. This construction secures the desired strength by the use of thinner material than could be used were it not for the coöperation of the corrugated and the flanged portions of the standards, because a thin flange of great length along the line of union with the base is equal in strength to a thicker flange of less length along said line.

Now, having described our invention, what we claim, and desire to secure by Letters Patent of the United States, is—

1. A standard for school furniture and the like comprising a plurality of overlapped, interlapping pieces of longitudinally-corrugated sheet metal, the upper end of the top piece and the lower end of the bottom piece being each provided with a flange, and means for securing the overlapping ends of said pieces together.

2. An adjustable standard for furniture and the like comprising a plurality of overlapped, interlapping pieces of longitudinally-corrugated sheet metal, the upper end of the top piece and the lower end of the bottom piece being each provided with a flange, and the overlapping portions of said pieces being provided with registering perforations, and bolts through said perforations.

3. An adjustable standard for furniture and the like comprising a plurality of overlapped, interlapping pieces of longitudinally-corrugated sheet metal, the upper end of the top piece and the lower end of the bottom piece being each provided with a flange, and the overlapping portions of said pieces being perforated, the perforated portions of said pieces being flat or standing in the planes of the sheets, and bolts through said perforations.

4. An adjustable standard for furniture and the like comprising a plurality of overlapped, interlapping pieces of longitudinally-corrugated sheet metal, one edge of each of which pieces is flanged lengthwise at substantially right angles to the plane of the sheet, and the upper end of the top piece and the lower end of the bottom piece being each provided with a flange, and the overlapping portions being perforated, and bolts through said perforations.

5. An adjustable standard for furniture and the like comprising a plurality of overlapped, interlapping pieces of longitudinally-corrugated sheet metal, each of uniform width throughout its length, brackets of corrugated metal secured to the end pieces of the standard to extend laterally in the plane of said sheets, and means for securing the overlapped ends of the main pieces together.

6. A desk comprising two perforated sheet-metal standards, a top member fastened to said standards and a shelf member having perforated flanges at its ends, bolts through the perforations and the standards of the shelf member, and a brace fastened to the

standards and closing the space between the front edges of the top member and shelf member.

7. A desk comprising two longitudinally-corrugated sheet-metal standards spaced apart and each provided at its front edge with perforations, two braces secured in said perforations, one above the other, the upper brace forming a shelf and the lower brace forming a foot-rest, and a top and bottom for the shelf at the tops of said standards.

8. A desk comprising standards, each of which is formed of a plurality of sheets having straight longitudinal edges and connected for vertical adjustment, bracket extensions fastened to a longitudinal edge of the standards respectively, and a top member fastened to the tops of the standards.

9. A desk comprising standards each formed of corrugated sheets, the corrugations being of a determined depth, corrugated brackets, one on the edge of each standard, the corrugations of the brackets being of less depth than the corrugations of the standards, and a top member fastened to the standards and their brackets.

10. A desk-standard, comprising a plurality of sheets having vertical rows of slots, the upper and lower of said sheets being provided at top and bottom respectively, with flanges, a bracket fastened to the edge of the upper sheet and provided with a flange, and a foot fastened to an edge of the lower sheet.

11. A desk-top, flanged sheets forming supporting-standards therefor, a shelf member having downturned portions fastened to the standards below the desk, and a sheet fastened to the standards and forming the front of a book-box.

12. A desk-top, standards formed of flanged sheets supporting said desk-top, a shelf member fastened to the standards and having a flange at its front edge and a sheet fastened to said flange and to the standards to form the front of a book-box.

13. A desk-top, standards formed of corrugated, perforated and flanged sheets fastened to said top, a perforated flanged sheet, and bolts through the perforations of the standards to hold the flanged sheet in position to form a shelf under the desk-top.

14. A composite desk-standard constructed of corrugated sheets fitted together and having longitudinal rows of perforations, triangular top brackets and foot-pieces perforated along one edge, and bolts through the perforations of the several pieces to adjustably fasten the same together.

15. A desk comprising two standards at a distance apart, each formed from a plurality of overlapped, interlapping pieces of perforated, longitudinally-corrugated sheet metal, bolts for securing the overlapped pieces of metal together, a top secured to the tops of said standards, a foot-rest having its ends each provided with a plurality of perforations registering with the perforations of the standards, and bolts through said registering perforations for securing the foot-rest in position.

16. A desk provided with longitudinally-corrugated sheet-metal standards, the front edge of each standard being flanged lengthwise and perforated adjacent to the flange, and a foot-rest secured by said perforations and engaging with said flanges.

17. A composite desk-standard formed of longitudinally-corrugated and perforated sheets flanged at one end having longitudinal rows of bolts through said perforations for fastening the sheets together, the upper and lower ends of the standards thus formed being bent to form horizontal flanges, and flanged bracket and foot pieces perforated along one edge and fastened to the upper and lower sheets by means of bolts.

18. A desk-top, standards formed of sheet metal bent over at the top to form horizontal flanges, wedges between the desk-top and flanges, and means for fastening the top flanges and wedges in place.

19. A desk having its top channeled transversely, a slidable, reversible and invertible member in said channel, one side of said member comprising two pieces pivotally secured at their opposite ends to the ends of the other member so as to be stood at an angle to the plane of said member, and having their adjacent ends abutting each other when said members are in their normal position.

20. A desk having its top channeled transversely at one side of the center, a slidable, reversible and invertible member in said channel, one side of said member comprising two pieces pivotally secured at their opposite ends to the ends of the other member so as to be stood at an angle, and having their adjacent ends abutting each other when in their normal position, one of said two members being longer than the other.

21. In school furniture, a desk having a top furnished with a channel and with grooved cleats on opposite sides of said channel, and a member sliding in said channel and furnished with a corresponding grooved cleat.

22. In school furniture, a desk having a top furnished with a channel and grooved cleats at the opposite sides of said channel, and a sliding member having a hinged leaf provided with a grooved cleat adapted to form a continuation of the first-mentioned cleats when the sliding member is in one position and to form a ledge for a book-rest when the sliding member is in another position.

23. A desk having a channeled top and a

sliding member in said top one side of which is hard-finished to form the top of the desk and the other is composed of soft wood to form a drawing-board.

24. A desk having a channeled top and a sliding member to fit the channel thereof, one side of said sliding member being formed of a soft-wood portion and the other side formed of two leaves of hard-finished wood hinged to the soft-wood portion.

In testimony whereof we have hereunto subscribed our names, in the presence of two subscribing witnesses, at the places and dates set opposite our names respectively.

Signed at Los Angeles, California, September 17, 1902.

ALBERT L. BANCROFT.

Witnesses:
JAMES R. TOWNSEND,
F. M. TOWNSEND.

Signed at Hanford, in the county of Kings and State of California, this 20th day of September, 1902.

GEORGE H. BANCROFT.

Witnesses:
R. G. SIMPSON,
J. N. HOYT.