

W. GEUDER.
ADJUSTABLE SHELVING.

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UNITED STATES PATENT OFFICE.

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ADJUSTABLE SHELVING.

SPECIFICATION forming part of Letters Patent No. 566,305, dated August 25, 1896.

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To all whom it may concern:

Be it known that I, WILLIAM GEUDER, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Adjustable Shelving; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The main objects of my invention are to facilitate the adjustment of the shelves, to support them firmly in any desired position, to avoid obstructions to placing various articles upon and between the shelves and removing such articles therefrom, and generally to improve the construction of this class of devices.

It consists of certain novel features in the construction of the shelving, and particularly of the shelf-supports hereinafter described, and defined in the claims.

In the accompanying drawings like letters designate the same parts in the several figures.

Figure 1 is a perspective view of shelving embodying my improvements, the upper part of the case or frame and a portion of the upper shelf being broken away. Fig. 2 is an enlarged section on the line 2 2, Fig. 3, of one shelf, showing in elevation the supporting devices at one end thereof. Fig. 3 is a horizontal section on the line 3 3, Fig. 2, and a plan view of a shelf. Fig. 4 is a vertical section on the line 4 4, Fig. 2; and Fig. 5 is a perspective view, on an enlarged scale, of one of the shelf-supports.

Adjustable metallic shelving as generally constructed is open to the objection that the adjustable supporting devices for carrying the shelves cannot be changed in position with sufficient ease and rapidity, and often present obstructions to the placing of articles, particularly books, upon or between the shelves and removing such articles therefrom. It is my aim, in the construction of the shelving herein shown and described, to enable anybody without tools to easily and quickly raise or lower the shelves to accommodate books of different heights or other articles of differ-

ent dimensions, and to avoid projections on the under sides of the shelves that will interfere with any articles, books, merchandise, or otherwise that may be placed upon the shelves.

Referring to Fig. 1 of the drawings, A designates a portion of a case or frame suitable for containing and carrying a number of shelves one above another. It comprises suitable uprights $a a'$, arranged at the ends of each tier of shelves and having vertical series of holes a^2 to receive and hold the shelf-supports, as hereinafter explained. These uprights may be continuous boards, plates, or panel-work, such as a , or separate posts, bars, or columns, such as a' . The uprights at each end of the shelves are provided with at least two vertical series or rows of holes a^2 , the holes of each row or series being made at such intervals from each other as will admit of the desired adjustment of the shelves. The posts or columns a' may be made of solid metal bars, or they may be made tubular or hollow, of any convenient shape in cross-section, and the holes therein may be punched, drilled, or otherwise formed.

B B designate the shelves, which are preferably made of sheet metal and provided at the ends with depending flanges $b b$, which may be conveniently formed integrally therewith, the metal being folded back upon itself, as shown in Figs. 2, 3, and 4, when light material is used, in order to give the flanges the requisite strength and stiffness. These flanges, however, may be made of angle-iron or separate metal strips riveted or otherwise attached to the shelves. The shelves are also formed or provided on their back edges with depending flanges b' and on their front edges with flanges or rolls b^2 , projecting preferably as far below the shelves as the end flanges b and stiffening and strengthening the shelves lengthwise, so as to prevent their sagging when loaded.

C designates a shelf-support consisting of a heavy wire, rod, or bar bent near the ends downwardly, thence laterally outward, thence upwardly, forming depending hooks $c c$, terminating in outwardly and slightly downwardly projecting pins or tenons $c' c'$, which are adapted to be loosely inserted in corresponding holes a^2 in the uprights of the case

or frame. The hooks *c c* of the support are adapted to catch under and receive the end flanges *b* of the shelves, which are preferably notched or recessed, as shown in Fig. 2 at *b*³, so as to bring the lower edges of the flanges about flush with the lower ends or bends of said hooks, and thus prevent books or other articles which may be placed on the shelves below them from catching thereon. These notches also serve by engagement with the hooks to hold the shelves from moving forward or back out of their proper positions. When the holes *a*² are made in solid uprights, they are inclined downwardly, as shown in Fig. 4, to correspond with the downward pitch of the pins or tenons *c'* of the supports *C*. In this way the weight of the shelves and their load bearing in the lower bends of the hooks *c* is prevented from turning said supports and withdrawing the tenons *c'* from said holes, the bearings of the tenons in the uprights being close to their faces and the lower portions of the hooks bearing outwardly against said faces. The horizontal connecting portions of the supports between their hooks pass inside of the end flanges *b* of the shelves against or close to the bottoms of the shelves and prevent them from pulling away from the standards or out of engagement with the hooks and at the same time rigidly hold the hooks in proper position to receive the flanges and to hold the shelves thereon. For wide shelves two or even more of these supports may be employed to carry each end of a shelf, two rows of holes being provided for each support, which is formed as shown and hereinbefore described.

To raise or lower the shelves, it is necessary simply to lift them out of the hooks *c c* of the supports and to change the supports to another set of holes, taking care to insert the pins or tenons *c' c'* in holes at the same level or in the same horizontal plane.

I claim—

1. In adjustable shelving the combination with a shelf having depending flanges at the ends, and uprights having vertical series of holes, of shelf-supports consisting of rods or bars formed at the ends with laterally-turned depending hooks adapted to receive and hold the end flanges of the shelf, said hooks ter-

minating in pins or tenons adapted to enter the holes in the uprights, substantially as and for the purposes set forth.

2. In adjustable shelving the combination with a shelf having depending flanges at the ends and uprights having vertical series of holes, of supports consisting of rods or bars bent near the ends downwardly then laterally and then upwardly, thus forming two depending hooks with a horizontal connecting part adapted to be caught under the end flanges of the shelf, the upper outer ends of said hooks being bent outwardly and slightly downward, thus forming pins or tenons adapted to enter corresponding holes in the uprights, substantially as and for the purposes set forth.

3. In adjustable shelving the combination with a shelf having at the ends depending flanges which are notched in their lower edges, and uprights having two or more vertical series of holes at each end of the shelving, of shelf-supports consisting of rods or bars each formed at the ends into laterally-turned depending hooks adapted to catch under the end flanges of the shelf and enter the notches therein, and terminating at their upper outer ends in outwardly-projecting pins or tenons adapted to enter corresponding holes in said uprights, substantially as and for the purposes set forth.

4. In adjustable shelving the combination with suitable uprights arranged to support shelves at their ends and having two or more vertical series of holes at each end of the shelves, of a sheet-metal shelf bent at the ends into depending flanges and supports consisting of rods or bars formed at the ends into outwardly or laterally turned depending hooks adapted to catch under the end flanges of the shelf, and terminating in outwardly-turned pins or tenons adapted to enter corresponding holes in said uprights, substantially as and for the purposes set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

WILLIAM GEUDER.

Witnesses:

A. W. HARD,
CHAS. L. GOSS.