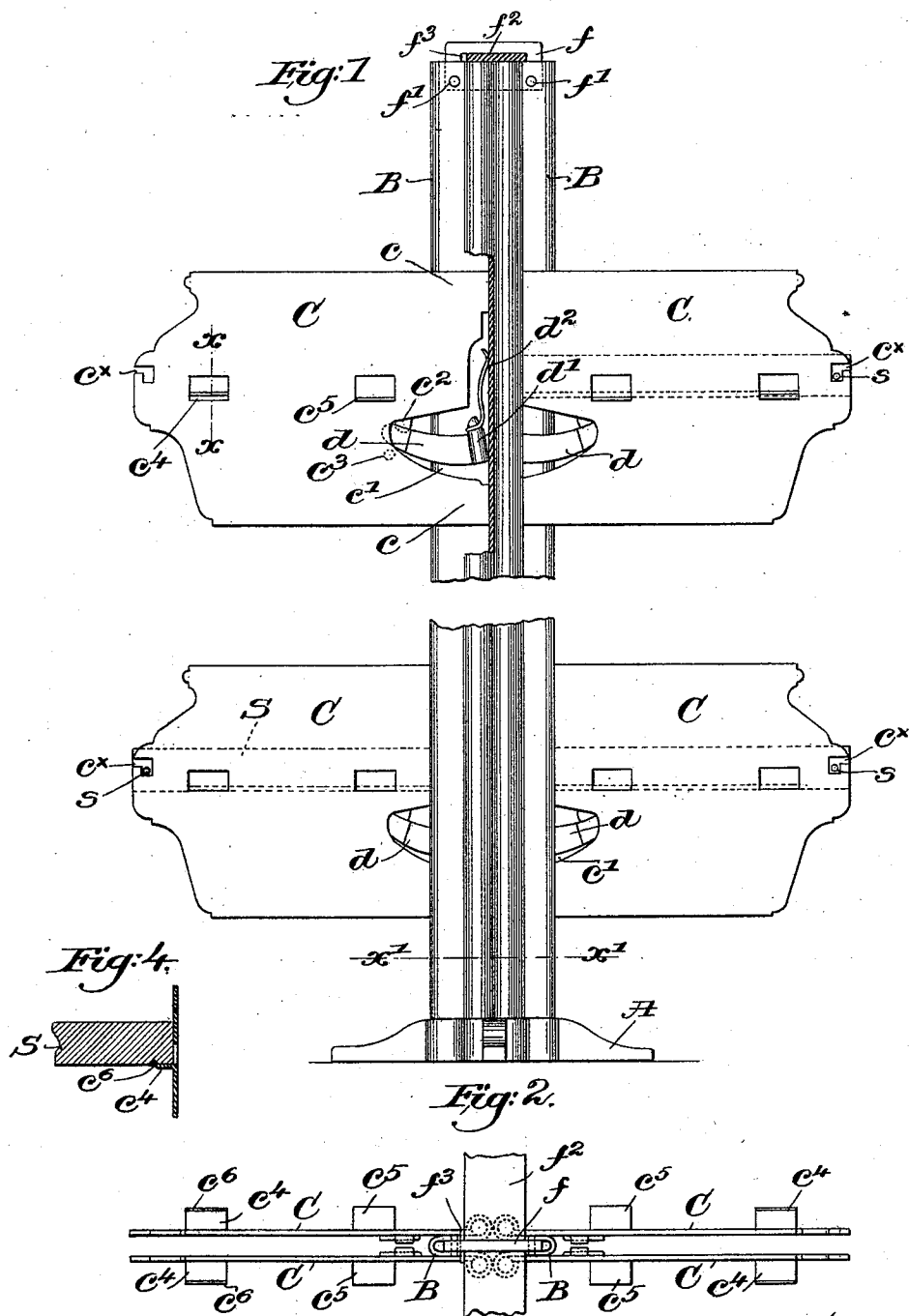


D. E. HUNTER.

ADJUSTABLE SUPPORT FOR BOOK OR OTHER SHELVES.

No. 539,618.

Patented May 21, 1895.



Witnesses.
A. C. Hammond
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Inventor.
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(No Model.)

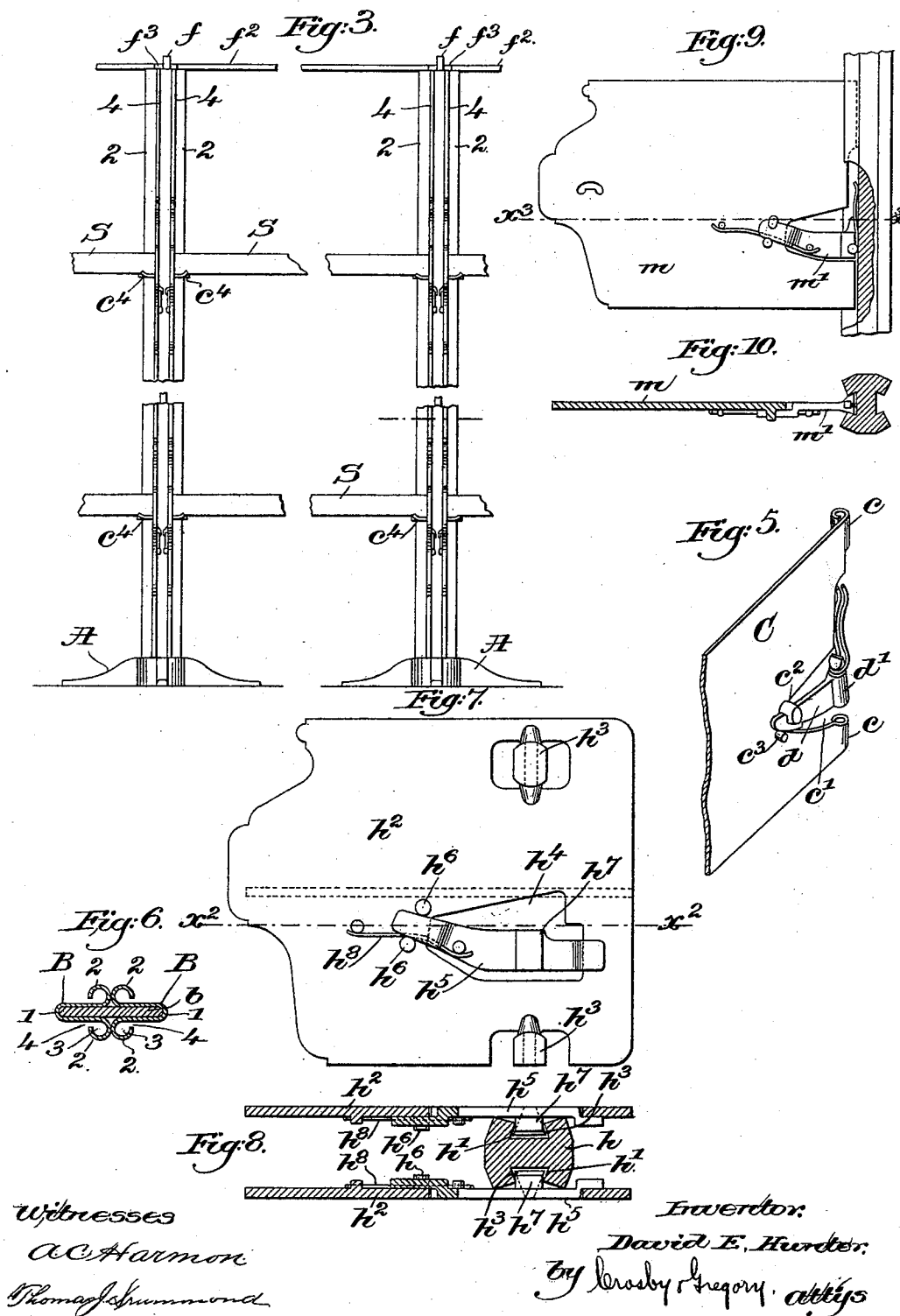
2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

DAVID E. HUNTER, OF CAMBRIDGE, ASSIGNOR OF ONE-HALF TO HERBERT E. DAVIDSON, OF WATERTOWN, MASSACHUSETTS.

ADJUSTABLE SUPPORT FOR BOOK OR OTHER SHELVES.

SPECIFICATION forming part of Letters Patent No. 539,618, dated May 21, 1895.

Application filed December 28, 1894. Serial No. 533,167. (No model.)

To all whom it may concern:

Be it known that I, DAVID E. HUNTER, of Cambridge, county of Middlesex, State of Massachusetts, have invented an Improvement in Adjustable Supports for Book or other Shelves, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 This invention relates to adjustable supports for book and other shelves of the type wherein are employed a series of supporting standards, carrying one or more vertically sliding or adjustable brackets on which the shelves are carried. Prior to my invention in supports of this type the standards have been made from rolled or wrought iron and provided with suitable guide-ways in which the adjustable shelf-carrying brackets are made to slide. To cheapen and lighten these standards without sacrificing strength and rigidity, and at the same time provide two parallel guide-ways for brackets of abutting shelves, my present invention comprehends a sheet metal standard bent or folded centrally upon itself and having its leaves or edges again curved or bent over to form two vertical guide-ways at opposite sides respectively of the said central bend or fold, and in which the vertically adjustable brackets may slide, suitable devices being employed to hold the brackets in desired position.

My invention further comprehends a sliding bracket formed from sheet metal, and having the shelf-supports struck up or stamped from the metal between its edges so as to leave upwardly and downwardly extended portions of the brackets to constitute bookguards.

40 My invention further comprehends a novel friction locking device which is independent of, though fulcrumed upon the shelf carrying bracket, and upon relative movement of the bracket and locking device acts to frictionally lock the said bracket to the standard upon which it is mounted, yet by mounting the locking device upon a fulcrum, this friction device or grip cannot be so tight as to prevent ready release and adjustment.

50 Other features of my invention will be here-

inafter described and pointed out in the claims.

In the drawings, Figure 1, in side elevation, shows a pair of standards embodying my invention with four brackets applied thereto, a part of one of the standards being broken out to expose the locking device; Fig. 2, a top or plan view of Fig. 1, showing brackets applied at opposite sides of each standard; Fig. 3, a face view of two of a series of standards with the shelves carried thereby, the latter being broken out to save space in the drawings; Fig. 4, a sectional detail on the dotted line xx , Fig. 1; Fig. 5, a perspective detail showing the preferred form of locking device; Fig. 6, a cross-section on the dotted line $x'x'$, Fig. 1, showing one means of stiffening the standards when necessary; Fig. 7, a side elevation of a bracket, showing a modification of my invention; Fig. 8, a horizontal section on the dotted line x^2x^2 , Fig. 7; Fig. 9, a side view of yet another modified form of bracket, and Fig. 10 a section on the dotted line x^3 thereof.

Referring to the drawings, in the particular embodiment of my invention shown, to enable the same to be understood, A, Fig. 1, is a suitable base upon which are erected one or more, preferably two, abutting standards B, B, each standard, see Fig. 6, being formed from sheet metal and, as shown, bent centrally at 1 into U-form, and having each of its leaves or edges rolled or turned over as at 2 to form tubular guide-ways 3, opening into which are suitable slots 4, for a purpose to be described.

Should it be necessary to stiffen the standards, by reason of an unusual load resting thereupon, such for instance as the lowermost standard in a stack several tiers high, I propose to insert in the U-portion of the standard or standards, between the leaves of the central bend one or more stiffening plates b which may or may not be common to both standards.

Referring now to Figs. 1 to 5 inclusive, the shelf-carrying brackets C are preferably struck up from sheet metal, as shown, they being provided at their inner ends with ears c rolled over to conform as nearly as possible to the interior contour of the guide-ways 3 of the standards and adapted to slide therein,

the web parts of the said brackets protruding from the guide-ways through the slots 4, Fig. 6. The brackets C, as herein shown, between their ears c are recessed at their inner ends, as at c', to receive the locking device d, the latter, as shown, being cast and provided within the guide-ways of the standards with preferably cylindrical or other suitably shaped heads d', adapted to slide in the guide-ways of the standards, the arms of the said locking device projecting from the said guide-ways through the slots 4 and held or fulcrumed on the brackets in suitable manner, as by arranging them between the lugs c², c³, on the sides of the said brackets, as best shown in Fig. 5. Within the guide-ways of the standards the heads d', of the locking device, are provided, in Figs. 1 to 5 inclusive, with retarding springs d² which act upon the inner walls of the guide-ways and tend to retard the downward movement of the said heads in the guide-ways.

The action of the device thus far described is as follows: Assuming the bracket to be in position in the guide-way, if the bracket is moved downwardly it will tend to carry the fulcrum end of the locking device with it, but the head end of the said locking device within the guide-way, is retarded in its movement by the friction spring d², so that the fulcrumed end moves the more rapidly and turns the said locking device about its fulcrum, thereby turning the head d' into an angular position within the guide-way, and causing the said head at its opposite, upper front and lower back edges to grip the walls of the guide-way firmly, and prevent further downward movement of the bracket. The greater the load upon the bracket the more tightly will the locking device grip the standard and therefore the more secure the locks.

To release the grip, the shelf bracket is raised, thereby raising the fulcrumed end of the locking device, which, owing to the retardation of the head end in the guide-way, turns the said head into a more nearly vertical position, in which position it is free to slide within the guide-way.

When downward movement of the bracket is necessary for adjustment, the operator by placing a finger upon the locking device holds it down, against the action of the retarding spring, in such position as will prevent its gripping the standard.

So far as is known to me, I am the first to provide an adjustable shelf-carrying bracket with a fulcrum locking device.

The great advantage of the locking device shown is that its angularity when in locking position is never so great as to render it possible for it to be so tightly locked as to prevent easy release, as is the case with the wedges or wedge roller locks now in use.

In the preferred embodiment of my invention Figs. 1 to 6, the depth of the bends 2, see Fig. 6, is preferably much less than the depth of the leaves of the central bend 1, in order that the outer faces of the said leaves may

constitute, outside of or beyond the guide-ways, lateral faces or supports for and to prevent lateral vibration of the shelf carrying 70 bracket.

Referring particularly to Figs. 1, 4 and 5, I strike or punch inwardly, portions c⁴, c⁵, of the bracket c, to form supports for the shelves S, one of the said shelf supports, as for instance c⁴, having its end c⁶ turned up to engage a groove or slot in the under side of the shelf, at its end, to thereby to a greater or less extent prevent movement of the bracket away from the shelf when in use; and to prevent 80 withdrawal of the brackets toward the front of the shelves, I have herein provided the same, at their ends, with pins s which enter the angular or L-slots c^x in the brackets, it being, therefore, necessary to raise the shelves before the pins can be withdrawn. See Fig. 1. It will be noted that the shelf supports c⁴, c⁵, are struck up from the middle portions of the brackets leaving portions of the latter both above and below the same to constitute upwardly and downwardly extended book- 90 guards to hold the books in upright position on the shelves.

In arranging a series of standards it is necessary to tie the same one to another at their tops to stiffen their construction, and to do this, in my present invention I insert in the U-shaped portions of abutting standards, at their tops, a plate f, secured in suitable manner, as by rivets f' to the standards, and slotted horizontally just above the ends of the standards to receive the stiffening bar f² extending from one to another of the pairs of standards. This stiffening bar f² is notched where it is passed through the slots in the several plates f, to straddle the metal at one edge of the slot, see dotted lines Fig. 2, the said stiffening bar being held against that edge of the slot at which it is notched, by a wedge f³, driven between the opposite edge of the stiffening bar and the opposite end of the slot. 105

Referring to Figs. 7 and 8, I have shown a modification of my invention to adapt the same to a standard h provided at its opposite sides with dove-tailed guide-ways h'. In such construction the shelf bracket h² is provided at one side with two dove-tailed guide-lugs h³, which slide in the guide-ways h', and, intermediate the said guide-ways h³, in an opening h⁴ in the bracket I have arranged the 120 locking device h⁵ fulcrumed at one end between the lugs h⁶ and provided with a locking projection or head h⁷ which upon movement of the locking device about its fulcrum acts, as does the device in Fig. 1, to grip at its opposite upper and lower edges the side walls of the guide-way in which the bracket travels.

In the construction Figs. 7 and 8, the spring h⁸ tends to retain the same normally in locking position, it being moved into unlocking position by upward movement of the bracket, causing the latter to lift the fulcrum end of the locking device, the locking or headed end 130

of which is retarded by the friction incident to its travel in the guide-way.

In Figs. 9 and 10, the dove-tailed grooves are arranged at the front and back of the standard, the brackets *m* being provided with suitably shaped ends to travel in their guide-ways, the locking device *m'* operating on the principle of the device Figs. 7 and 8, except that the locking head is at the end rather than at the side of the device.

The modification shown illustrates the range of adaptability of my invention so far as it relates to the locking device, and my said invention is not thereby limited to the particular arrangement or construction shown, for it is evident that the same may be varied, yet more, without departing from the spirit and scope of the invention.

I claim--

1. The combination with a plurality of brackets, of a standard therefor consisting of a metal sheet folded or bent centrally upon itself and having its leaves again rolled or bent over to form vertical guide-ways at opposite sides respectively the said central bend or fold and in which the said brackets may slide for adjustment, substantially as described.

2. The combination with a plurality of brackets, of a standard therefor consisting of a metal sheet folded or bent centrally upon itself and having its leaves again rolled or bent at their edges to form guide-ways at opposite sides respectively the said central bend or fold and of a considerable less depth from front and back than the depth of the leaves of the said central bend or fold, whereby the outer faces of the latter constitute lateral supports for the brackets beyond or in front of the said guide-ways, substantially as described.

3. A standard having substantially parallel engaging surfaces, combined with a shelf supporting bracket on the said standard, and a fulcrumed friction locking device on but independent of said bracket and adapted to move in contact with the said engaging surfaces, and on relative movement of the bracket and locking device to engage the said surfaces to lock the bracket in position, substantially as described.

4. A standard having substantially parallel engaging surfaces, combined with a shelf carrying bracket movable on the said standard, a friction locking device fulcrumed on but independent of the said bracket and

adapted on relative movement of the said bracket thereto, to grip said engaging surfaces, and a spring tending, during adjustment to move said locking device into locking position on the said standard, substantially as described.

5. The combination with a standard having a vertical bracket-receiving guideway, one of the side walls of which is projected forward beyond the other to constitute a lateral bracket-support, of a sheet metal bracket adapted to slide in said groove and having a portion to fill the groove rolled or bent over at that side of the bracket opposite the said lateral bracket-support, and means to clamp the said bracket in adjusted position, substantially as described.

6. In a device of the class described, the combination with two sheet metal standards each folded upon itself centrally, and with the leaves thus formed again folded or bent to form guide-ways at opposite sides respectively the said central bend or fold, the said standards being arranged back to back, of a stiffening plate inserted between the leaves of the said central folds of the two standards and serving to stiffen both of the same, substantially as described.

7. The combination with two folded or bent sheet metal standards, and a slotted plate uniting the same at their upper ends, of a stiffener bar inserted in the said slot and notched to embrace the said plate, and a wedge holding the said notch in engagement with said plate, substantially as described.

8. The combination with a plurality of brackets of a standard therefor having two vertical and parallel bracket-receiving guide-ways separated by a middle portion projecting forward to a considerable distance beyond the normal front face of the standard at either side, its side surfaces constituting lateral supports for the brackets outside or in front of the said normal front face of the standard whereby lateral vibration of the brackets working in the guideways is prevented, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DAVID E. HUNTER.

Witnesses:

FREDERICK L. EMERY,
AUGUSTA E. DEAN.