(No Model.) 3 Sheets—Sheet 1.

H. J. HOFFMAN.

ADJUSTABLE SHELVING.

No. 291,513. Patented Jan. 8, 1884.

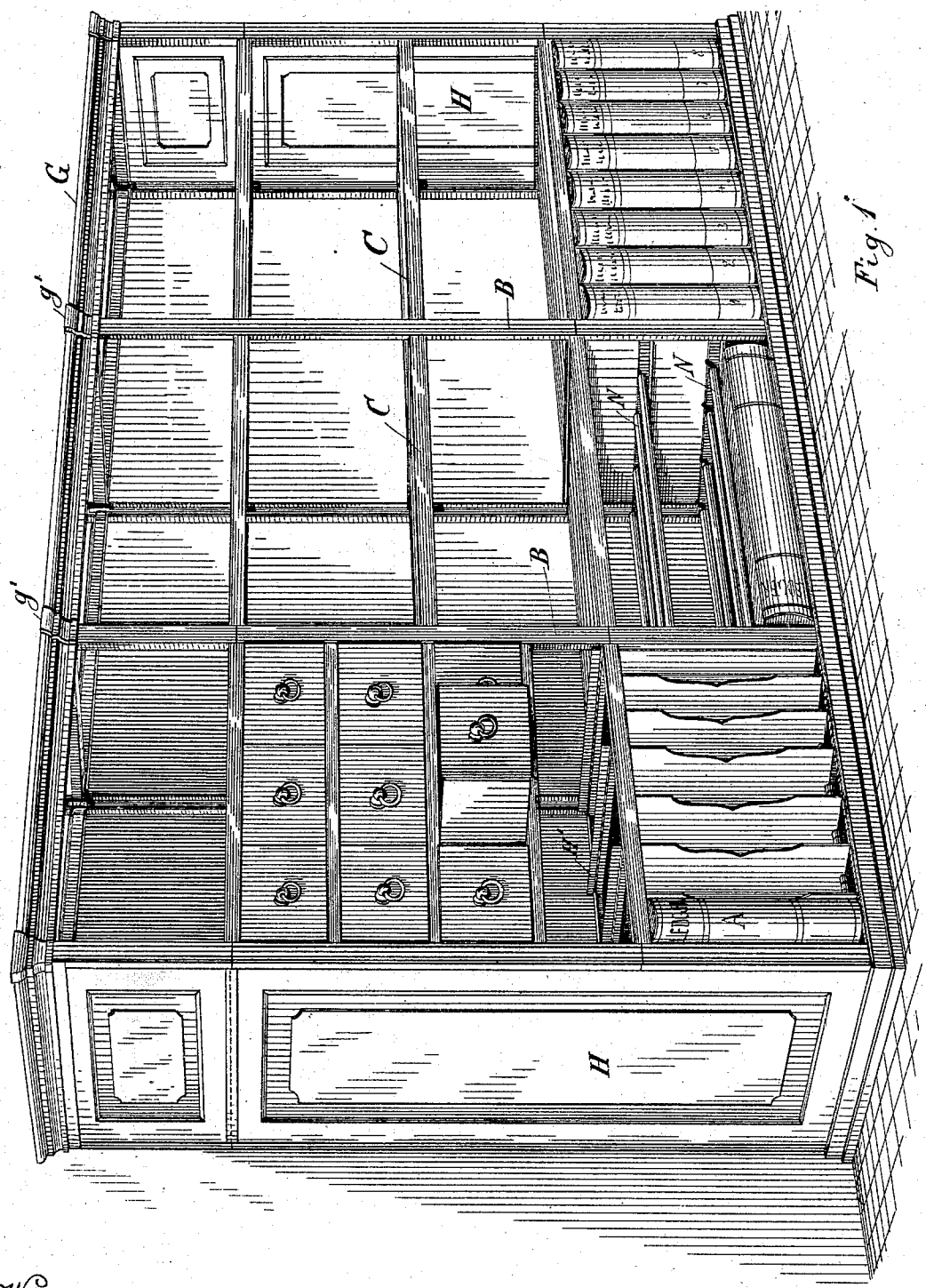


Fig. 1.

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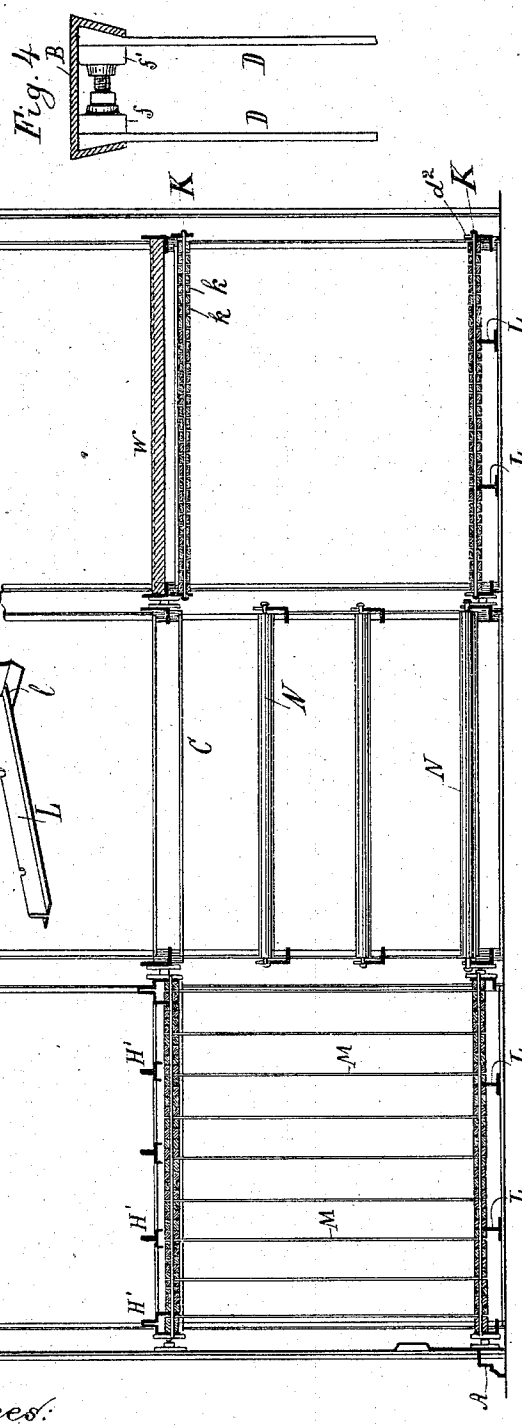
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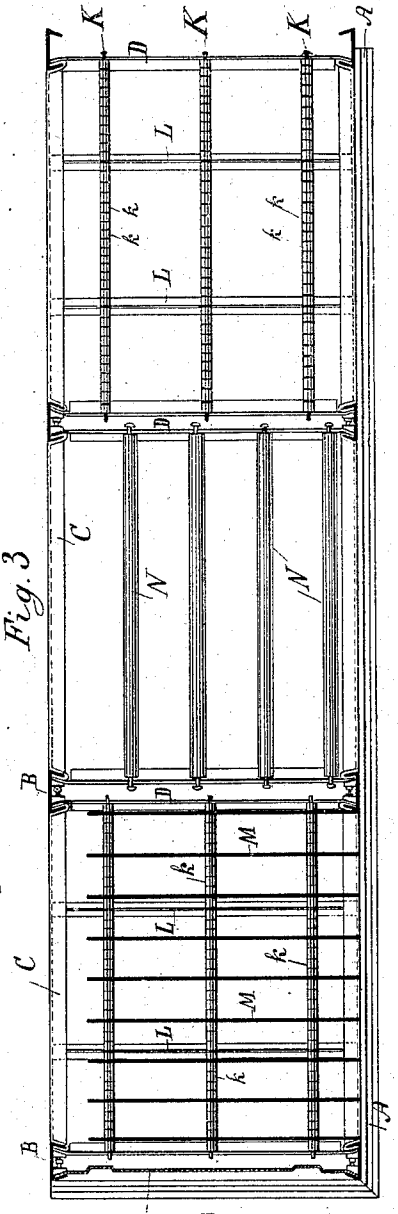
(No Model.) 3 Sheets—Sheet 2.

H. J. HOFFMAN.

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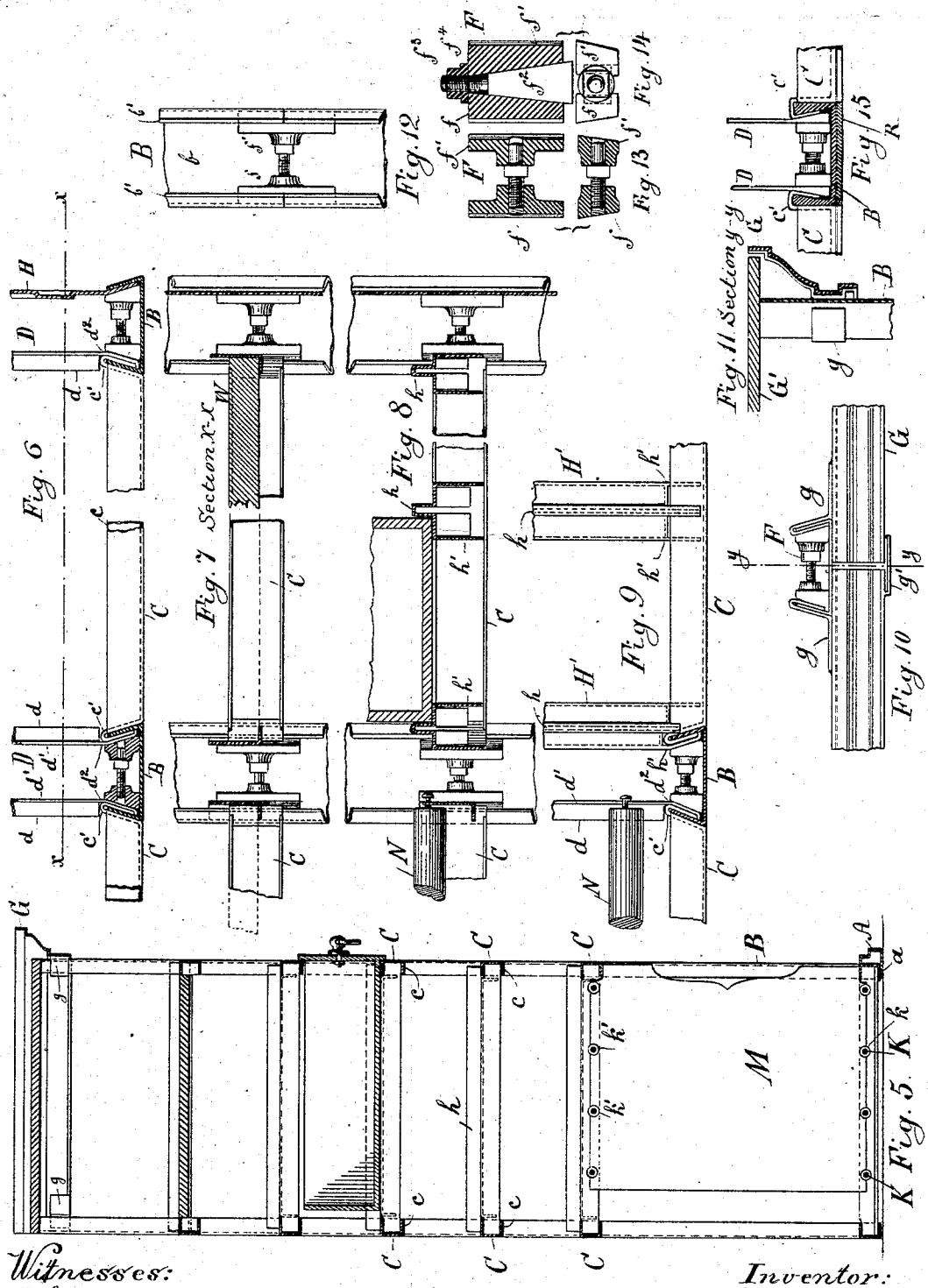
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(No Model.) 3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

HORACE J. HOFFMAN, OF NEILSVILLE, WISCONSIN.

ADJUSTABLE SHELVING.

SPECIFICATION forming part of Letters Patent No. 291,513, dated January 8, 1884.

Application filed June 23, 1883. (No model.)

To all whom it may concern:

Be it known that I, HORACE J. HOFFMAN, a citizen of the United States, residing at Neilsville, in the county of Clark and State of Wisconsin, have invented certain new and useful Improvements in Separable Shelving, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My present invention has relation to the construction of shelving for books, deed or safety boxes, and other purposes, and in particular does it relate to the construction of shelving for use in offices where it is desirable at times to change the arrangement of the shelving or from time to time to increase its capacity.

The object of this invention is to provide separable or "knockdown" shelving of such improved construction that the various parts may be quickly and substantially joined together in a manner that will enable it to be readily taken apart, that will allow the size or amount of shelving to be varied, as desired, by simply adding or removing certain of the detachable sections, and that will permit the arrangement of the shelves to be conveniently changed to suit the particular uses to which the shelving may be applied.

A further object of invention is to furnish improved means whereby heavy books—as, for example, ledgers, record-books, and the like—may be readily placed into or withdrawn from their places, and without the wear upon them incident to shelves of ordinary construction. These objects of invention I have accomplished by the construction of parts hereinafter described, illustrated in the accompanying drawings, and particularly claimed at the end of the specification.

Figure 1 is a perspective view of shelving embodying my invention. Fig. 2 is a view in vertical longitudinal section. Fig. 3 is a view in transverse longitudinal section. Fig. 4 is a detail view in section of a modified form of cross-plates connecting main standards. Fig. 5 is a view in vertical transverse section. Fig. 6 is a view in longitudinal transverse section of a portion of the front of the shelving. Fig. 7 is a sectional view on line $x\ x$, Fig. 6. Fig. 8 is a view in central vertical section through the rests for drawers and the large roller-supports detached. Fig. 9 is a view in transverse longitudinal section, showing in plan the rests for the drawers and large rollers. Fig. 10 is a top view of a portion of the cornice, with means of attaching the same. Fig. 11 is a sectional view on line $y\ y$ of Fig. 10. Fig. 12 is a rear view of the abutting sections of the main standard, showing one way of joining the same. Figs. 13 and 14 are detail sectional views of modified locking-keys. Fig. 15 is a sectional view, showing modified shape of main standard.

The various separable sections of which my improved shelving is composed, except where otherwise specified, are preferably formed of sheet metal, the exposed portions being faced with wood, as hereinafter described, or ornamented, as desired, in any approved manner known to the art.

A designates the base or foot rail, the front of which may be bent as shown, and the bottom of which is furnished with the flange a, that extends beneath the edge of the main portion of shelving which rests thereon. The main standards or posts, B, which may be of any desired number, depending upon the length of the shelving, consist of sections of metal plates bent to form the front portions, b, and the inwardly-projecting slightly-oblique flanges b', these sections being united together in a manner to be presently described.

To the main standards are connected what I designate the "front" and "rear" shelf-plates, C, having the backwardly-bent sides c, and the ends c' bent backward and returned, as shown in Fig. 6, so as to clasp the flanges b' of the main standards. To the main standards, at the points of attachment of the shelf-plates, are also connected the cross-plates D, the parts d and d' of which are bent at right angles, and the ends d^2 of which are held in position upon the main standards, and against the ends of the shelf-plates by means of suitable locking-keys. The inner sides of the flanges b' of the main standards and the ends of the shelf and cross plates are preferably corrugated, so as to form a more rigid connection when forced together by the locking keys or jacks. When plain flat shelves are to be formed, as seen in upper central part of Fig. 1, the part d of the cross-plates D is attached in suitable manner

to the wooden strips W, (see Fig. 7,) and serves to strengthen and support the same, thus allowing very light material to be employed. The front and rear edges of the wooden strips W abut against the shelf-plates, by which their edges are hidden and protected. The keys, which consist, preferably, of the screw-jacks F, having the sides $f f'$, adapted to be expanded by the screw f^2, rest within the flanges b' of the main standards, against which they firmly bind the ends of the shelf-plates C and cross-plates D, and by thus binding the ends of these plates serve to hold them in rigid connection with the main standards, and securely guard against displacement while in use. Within the main standards, at the abutting ends of the several sections of which these standards may be composed, are placed similar jacks, F, which bind the flanges b' of the standards, and thus prevent the separation of the sections. Instead of forming the cross-plates D of angle-plates, they may be formed of strips of malleable iron, having enlarged ends, as shown in Fig. 4, to form a locking or dovetail joint with the main standards, between the flanges of which these ends lie. By joining section to section it will be seen that the height of the shelving may be increased as desired, and its length may be readily extended, as becomes necessary, by connecting to the end standards additional main standards, cross, and shelf plates.

To the top of the upper section of the main standards is attached the sectional cornice, which consists of the front or face portion, G, and the top portion, G'. The front portion of this cornice is of wood or of sheet-metal strips of ornamental configuration, and each section of this front portion has attached at its back the oblique bent-metal clips g, which fit over the sides of the main standards, and are held securely in place by means of the jacks F, as seen in Fig. 10, or by means of suitable wedges or keys. One of every two abutting ends of the cornice-sections is bent in such manner as to slip past the other, or is made in the shape of a bracket, g', so as to hide the joint, and give to the cornice a more ornamental appearance. The top G' of the cornice, which may be of wood or thin metal in sections, and attached to the portion G, or may be separate therefrom, has its weight sustained by the tops of the main standards on which it rests. By this construction the cornice can be readily lengthened when the shelving is extended, or can be temporarily removed when the height of the shelving is to be increased.

The end plates, H, of the shelving are preferably formed in sections, and have their edges fitting within the sides of the end main standards, and are securely held in place by the same wedges or jacks that bind the shelf-plates and the cross-plates, as heretofore described. These end plates, as shown in Fig. 1, may be stamped into panels of more or less ornamental configuration, and when the height of the shelving is increased additional sections may be used, the bottom of such additional section being provided with an overlapping beading or flange, to hide the joint and give a more ornamental appearance.

From the construction of parts as thus far defined it will be readily seen that not only can the length and height of the shelving be varied as required, but the distance between the shelves can be increased and diminished, the shelf and cross-plates, when properly adjusted, being firmly held in position by the screw-jacks or wedges. When it is desired to arrange the shelving for the reception of drawers as seen in Fig. 1, the drawer-rests H' are placed between the front and rear shelf-plates, C. The drawer-rests consist, preferably, of sheet-metal strips, bent to form the guide-ribs h and sides h', the ends of the ribs being extended to fit over the shelf-plates, and the ends of the sides being extended to fit within the flanges c of such plates. The guide-ribs of the rests form suitable ways, within which the drawers may slide.

In order to sustain very heavy books so that they may be easily withdrawn from and returned to their places, and with as little wear as possible, I have formed in the cross-plates D the seats d^2, within which rest the rods K, on which are loosely placed a number of disks or rollers, k, upon which the bottom edges of the books will rest. Supporting-plates L, having their ends l fixed within the flanges of the bottom-shelf plates, and having suitable seats, are placed between the cross-plates, and serve to sustain the rods. In order to form individual spaces for the hooks, the partition-plates M, having recesses in their top and bottom edges, are slipped between the rollers k and corresponding set of upper rollers, k', the rods of which rollers rest within the recesses. By this construction of plates and rollers the individual spaces may be formed of any desired width.

Where very large books—as heavy ledgers and the like—are to be held in the shelving, I provide the arrangement of sustaining-rollers N shown in Figs. 8 and 9. These rollers are journaled in suitable bearings in the cross-plates, and upon these the books will be placed upon their sides. If desired, (and for certain classes of work—as shelving for stores and offices—it is the preferred construction,) the exposed portions of the shelving may be provided with a thin wooden facing, R, attached thereto, as shown in Fig. 15.

It will be understood that the construction above described may be varied within wide limits without departing from the spirit of my invention, and I do not wish, therefore, to be understood as restricting myself to the precise arrangement or form of parts shown.

The screw-jacks by which the union of parts is effected may be of any approved construction; but I prefer that shown.

In Figs. 13 and 14 the sides $f f'$ of the jack are obliquely inclined to correspond with the sides of the main standards, and in Fig. 14

these sides are expanded by the wedge-block b^2, operated by the end screw, f^3, and washer f^4.

In Fig. 15 the form of the main standards is shown as somewhat modified, the flanges b b' being formed of metal with their inner faces obliquely inclined, while their outer faces are straight.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The main standards for separable shelving having the projecting flanges, substantially as described.

2. The main standards for separable shelving having the oblique backwardly-projecting flanges, substantially as described.

3. The combination, with the main standards having projecting flanges, of the locking-wedges, or their equivalents, for connecting the abutting ends of said main standards, substantially as described.

4. The combination, with the main standards having flanges, of the shelf-plates having bent ends to clasp said flanges, substantially as described.

5. The combination, with the main standards, of the shelf-plates having flanges, and having bent ends to engage with the main standards, substantially as described.

6. The combination, with the main standards having flanges, of the wooden shelves having metal plates to engage with said flanges, substantially as described.

7. The combination, with the main standards having flanges, of the cross-plates having ends adapted to fit within said flanges, substantially as described.

8. The combination, with the main standards having flanges, of the end plates adapted to fit within the flanges of said main standards, substantially as described.

9. The combination, with the main standards having flanges, of the cornice having lugs adapted to clasp the flanges of the main standards, substantially as described.

10. The combination, with the main standards having flanges, of the cornice having lugs adapted to clasp said flanges, and the top plate adapted to rest upon said main standards, substantially as described.

11. The combination, with the main body of the shelving, of the cornice formed in sections having overlapping bracket-shaped ends, and having clips for holding said sections in position, substantially as described.

12. The combination, with the main standards and the shelf-plates having flanges, of the drawer-rests having ends adapted to fit between the flanges of the shelf-plates, substantially as described.

13. The combination, with the main standards and the shelf-plates, of the drawer-rests having the guide-ribs, substantially as described.

14. The combination, with the shelving, of the book-supporting rods, each of said rods being provided with a series of small rolls thereon, upon which the several books may rest and slide independently, substantially as described.

15. The combination, with shelving for books, of the rods carrying small rollers whereon the books may rest, and the movable plates for forming individual book-spaces, substantially as described.

16. The combination, with the main standards, of the cross-plates, the upper and lower rods and small rollers, and the division-plates for forming individual book-spaces, substantially as described.

17. The combination, with the main standards having flanges, of the cross-plates having ends projecting within said flanges, and the long rollers journaled in said cross-plates, substantially as described.

18. The combination, with the metal parts of the shelving, of the wooden facing attached thereto, substantially as described.

In testimony whereof I have hereunto set my hand.

HORACE J. HOFFMAN.

In presence of—

GEO. P. FISHER, Jr.,

JAMES H. PEIRCE.