

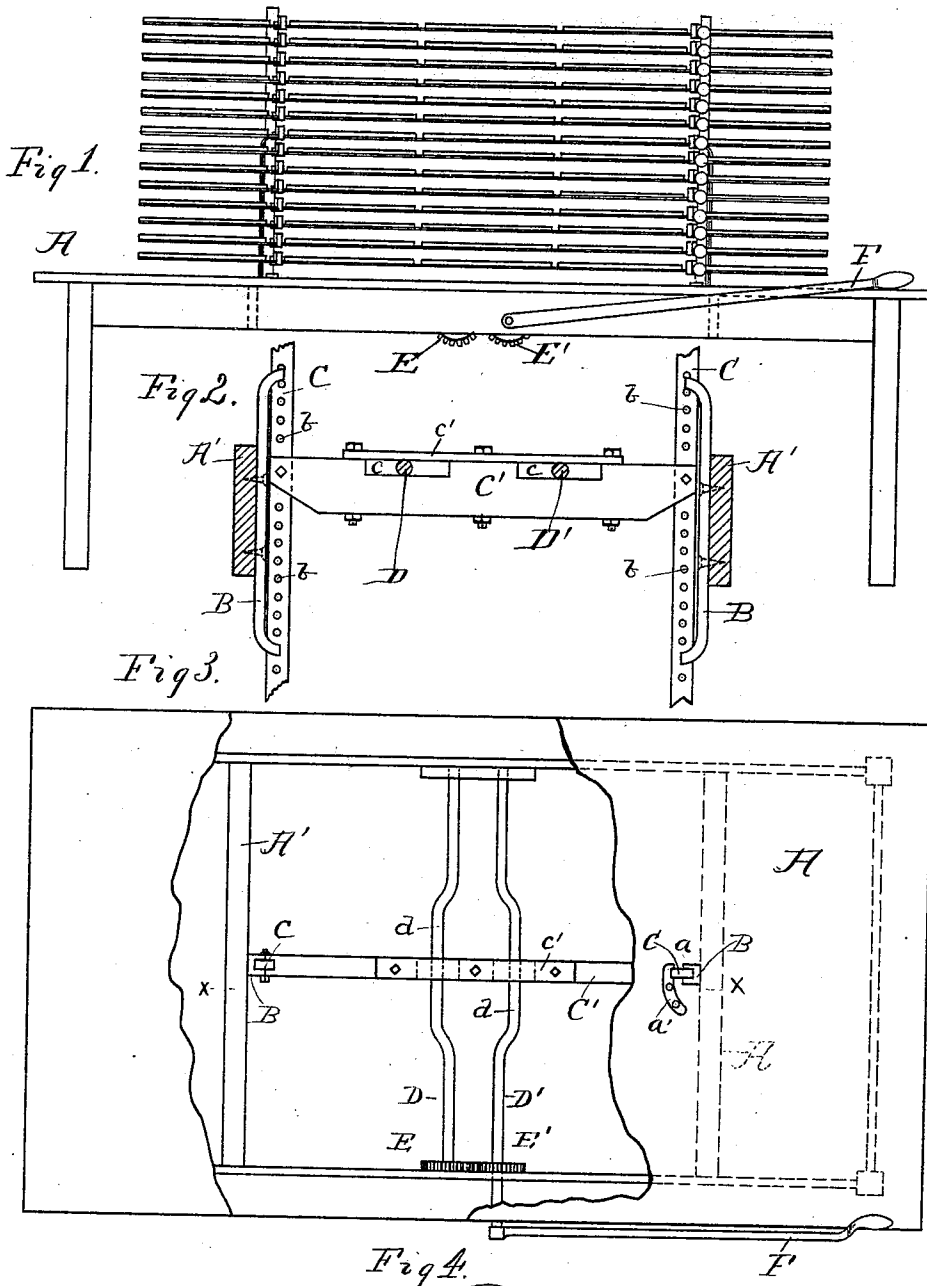
(No Model.)

2 Sheets—Sheet 1.

A. B. WAGNER & E. LIESENHOFF.
SHELVING.

No. 521,626.

Patented June 19, 1894.



WITNESSES:

Lester L. Allen.
A. Alexander

INVENTORS.

Alfred B. Wagner.
Edward Liesen Hoff.

BY

R. J. McCarty.
ATTORNEY.

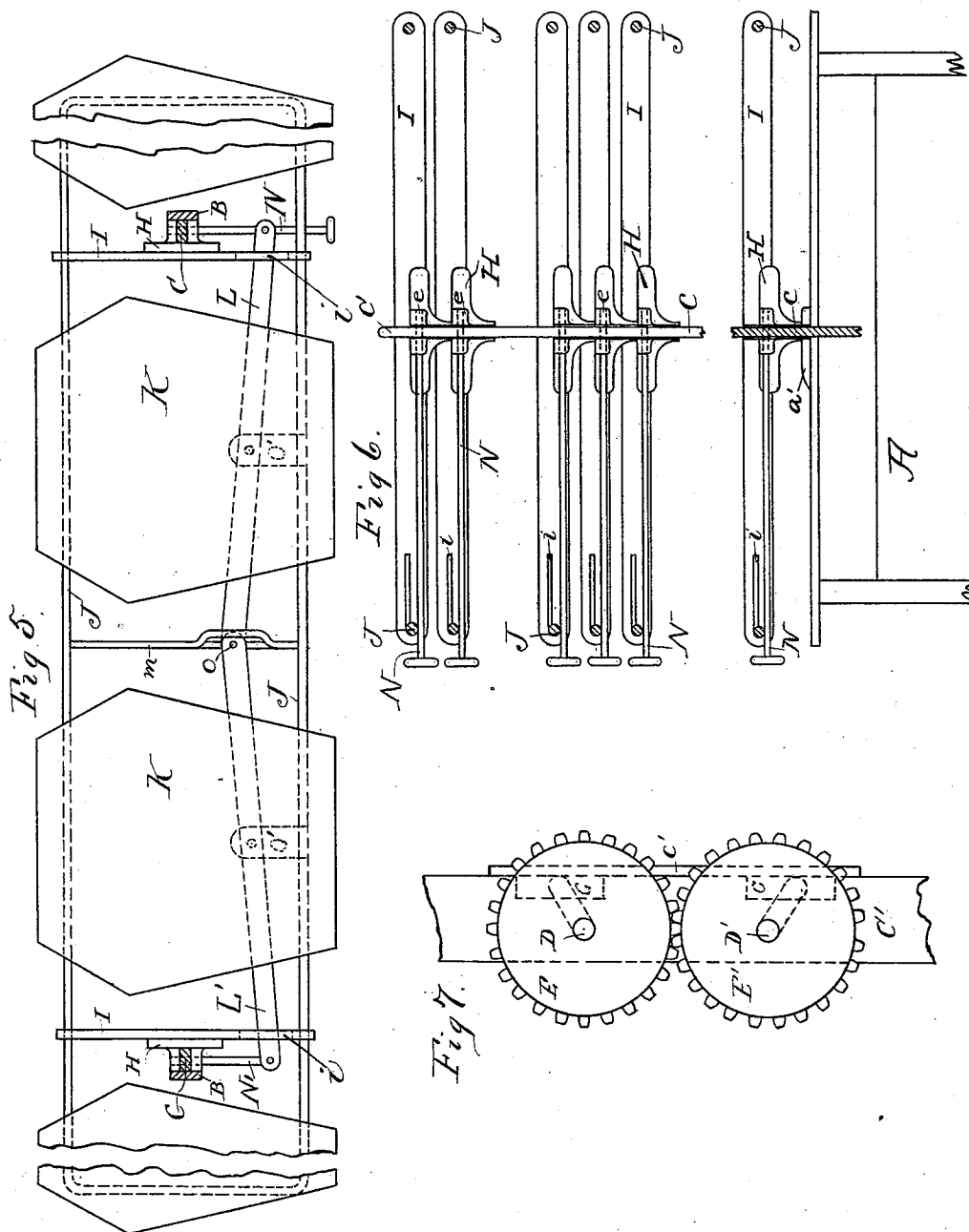
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UNITED STATES PATENT OFFICE.

ALFRED B. WAGNER AND EDWARD LIESENHOFF, OF MIAMISBURG, OHIO.

SHELVING.

SPECIFICATION forming part of Letters Patent No. 521,626, dated June 19, 1894.

Application filed March 7, 1894. Serial No. 502,632. (No model.)

To all whom it may concern:

Be it known that we, ALFRED B. WAGNER and EDWARD LIESENHOFF, of Miamisburg, county of Montgomery, State of Ohio, have
5 invented a new and useful Improvement in Shelving; and we do 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
10 the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates to new and useful improvements in shelving.

The object of the invention is to furnish a system of shelving that may be lowered or raised in a body, or that will enable the tiers of shelves to be parted at any desired plane,
20 to admit of free access to the shelves of any one of said tiers, without disturbing the goods on the shelves of the remaining tiers; a further object is to provide easy and convenient means for adjusting or effecting a division of
25 the tiers of shelves either collectively or individually.

Our improved system of shelving is generally useful in stores where the frequent removal and replacement of goods thereon, is
30 necessary as it enables the goods to be classified, and avoids the necessity of placing two or more varieties of goods upon one shelf. It is a well recognized fact among salesmen in clothing stores, for example, that it often be-
35 comes necessary to remove the bottom article from a shelf; this disarranges the entire lot, and in order to place them in their former position, the lot has to be removed from the shelf, by the use of our invention this unnecessary labor may be avoided, and to this end
40 our improvements consist of means that will be fully described in the following specification and specifically mentioned in the claims.

Referring to the accompanying drawings forming a supplement to this specification,
45 Figure 1, is a front elevation of our improved shelving. Fig. 2, is a section on the line $x-x$ of Fig. 3. Fig. 3, is a plan view of the counter or table with the shelving removed, and

the table partly broken away. Fig. 4, is a de- 50
tached, detail plan view of one of the brackets; Fig. 5, a plan view of one tier of shelving; Fig. 6, an end elevation partly in section, showing the shelving supports; Fig. 7, a front elevation of the cog wheels. 55

Similar letters of reference will denote corresponding parts throughout the different views.

A designates the counter or table to which the actuating mechanism is attached and 60
which has openings (a) in the top thereof.

(a') is a guide and bearing plate rigidly attached to the top of the table adjacent to said openings, which will be again referred to.

A' represents cross-pieces suitably secured 65
to and beneath the table.

B designates guide-pieces with bifurcated ends, rigidly attached in a vertical position to the center of their supports A'.

C denotes vertically movable bars, provided 70
with openings (b) throughout their length; these bars extend through the openings (a) in the table, and are outwardly and inwardly inclosed by the bifurcated ends of the guides B, and the plates (a') whereby said bars are 75
maintained in a vertically movable position.

C' is a bar arranged horizontally beneath the table and rigidly to the lower ends of the vertical bars C, and which together with said vertical bars comprise the shelf carriage. 80

(c) designates slots in the upper surface of the bar C', the upper terminals of which are inclosed by a bar (c') rigidly attached to said bar.

D and D' designate cam levers, placed horizontally from front to rear of the table, and beneath said table; these levers have bearings in the table as shown in Fig. 3. 85

E and E' are cog wheels, keyed to the front ends of the cam levers, and F indicates a 90
hand lever attached to the outer end of lever D' by means of which the power to rotate the levers D and D' is imparted; the rotation of these levers brings the cam portions (d) against the surfaces of the slots (c) to raise 95
and lower the shelf carriage; Fig. 7 shows in dotted lines, the extent of the angle of said cam portion.

Referring now to the specific construction of the shelving operated by the foregoing mechanism; H designates a series of brackets preferably constructed of metal having bifurcated portions, or ears *e* projecting from the center making a slot for the vertical bars C to fit and move in; these brackets are also provided with horizontal openings extending through the ears (*e*) the function of which is similar to that of the openings in the bars C and will be hereinafter referred to.

I designates a series of cross-pieces constructed preferably of hard wood and rigidly attached to the brackets H.

J indicates metal rods which pass through openings in the ends of the cross-pieces I and are supported thereon. K represents a series of shelves supported on said rods and secured thereto. Of course it will be understood that the parts comprising these shelves may be varied to suit the uses to which the shelves are to be put. Those shown in Fig. 5 are especially designed for holding clothing and are constructed of cloth supported on a wire frame conforming to the shape thereof; they may be made of stout paste board, wood or any suitable material.

L and L' represent levers constructed of sheet metal having the required strength, and hinged to each other at (*o*) and pivoted to metal plates (*o'*) rigidly attached to the front one of the rods J.

(*m*) is an angular rod secured to the rods J, which has a slot forming a guide for the hinged ends of the levers L and L'; the other ends of these levers pass through and are movably supported in slots (*i*) in one end of the cross-pieces I.

N and N' are push rods pivoted to and supported on the outer ends of the levers L and L' and having their rearward ends normally resting in the opening in the forward one of the ears (*e*) of the brackets H; rod N projects forwardly beyond the shelf frame, and is provided with a finger piece by which it may be pushed in or pulled out. The function of these push rods and adjunctive devices is to engage or release the brackets H upon which the shelving is supported, with or from the vertical bars C. It will be understood that when the push rod N is operated either inwardly or outwardly, a corresponding movement is imparted to its counterpart N' by reason of the levers L and L' turning on the hinge, and sliding in the slot at that point, and also turning on their pivots on plates (*o'*) which results either in the push rods penetrating the openings in the bracket ears and vertical bars C, or in being withdrawn therefrom. Thus it will be seen that the brackets supporting the mechanism of one tier of shelves may be released from the bars C or any desired number of tiers may be, and those only that are attached to, or are released from said bars, but are resting upon a lower set of

brackets that are attached to said bars, are affected by the movement of said bars.

Looking at Fig. 6, it will be noted that the brackets supporting the lowest tier of shelves, when released from the bars C, will rest upon the plate (*o'*) and if the remainder of the brackets were released from said bars C, they would be supported one upon the other, and the bars C would move freely between the ears of said brackets when actuated by the cam-levers, without affecting the shelving.

The normal space between the tiers of shelves may be arranged as may be desired.

The operation of elevating or lowering the shelving carriage is performed through the agency of the hand lever F and the cam-levers D and D'.

Having fully described our invention, we claim—

1. In an adjustable shelving, the combination of the cam-levers, the horizontal bar with slots, adapted to be actuated by said cam-levers, vertical bars with openings therein, rigidly attached to said horizontal bar, a series of shelf-frames, and a series of brackets supporting said frames, and means for connecting said brackets with or releasing them from the vertical bars, substantially as described.

2. In an adjustable shelving, the combination of the slotted horizontal bar, vertical bars with openings therein, and guides, for said vertical bars to move in, a series of brackets with openings therein, a series of slotted cross-pieces to which said brackets are attached, and upon which the shelving-frames are supported; push-rods adapted to penetrate the openings in said brackets and vertical bars, connections between said push rods whereby the movement of one will correspondingly move the other, and means for operating the vertical bars.

3. The combination with the horizontal bar C', the vertical bars C provided with openings, rigidly attached thereto; of the slotted cross-pieces I, adapted to support the shelf frames, the brackets H rigidly attached to said cross-pieces, said brackets provided with slots for the bars C to move in, and openings, the levers L and L', and the push rods N and N' adapted to enter the openings in the brackets H and bars C, to secure them to each other, and means for raising or lowering the bars C' and C, as herein described.

4. The combination of the horizontal bar C' with slots therein, the vertical bars C provided with openings and guides, attached to the bar C', cam levers adapted to work in the slots in the bar C', to move said bar, and shelf frames provided with push rods and lever mechanism, whereby said frames may be supported on the bars C or released therefrom, as is herein described.

5. The combination of the vertical bars C provided with openings the cross-pieces I,

and rods J supported thereon, said cross-
pieces and rods comprising the shelf frame,
the brackets H provided with ears with open-
ings therein, the levers L and L' having their
5 fulcrum on the shelf frame, the push rods N
and N' attached to said levers and adapted
to enter the openings in the brackets and
vertical bars, as herein described.

In testimony whereof we have hereunto set
our hands this 3d day of March, 1894.

ALFRED B. WAGNER.
EDWARD LIESENHOFF.

Witnesses:

R. J. McCARTY,
C. A. ALEXANDER.