

G. HOLDEN.
SHELVING.

APPLICATION FILED APR. 3, 1907.

914,572.

Patented Mar. 9, 1909.

3 SHEETS—SHEET 1.

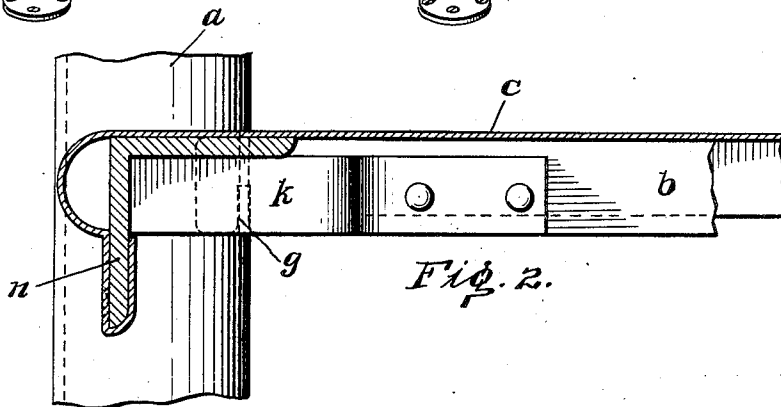
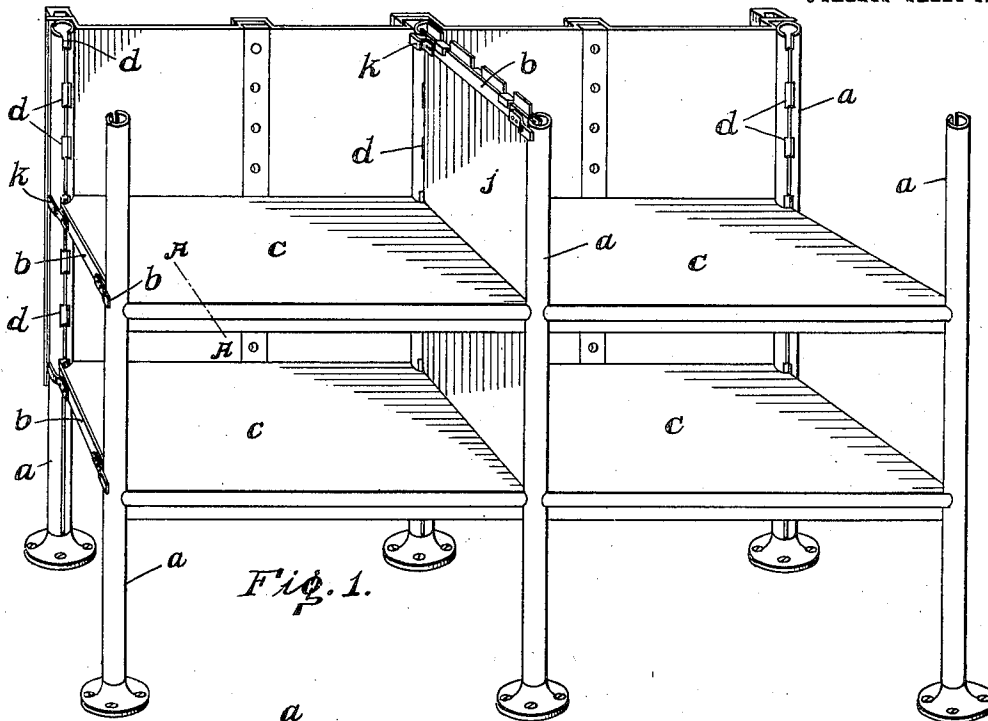
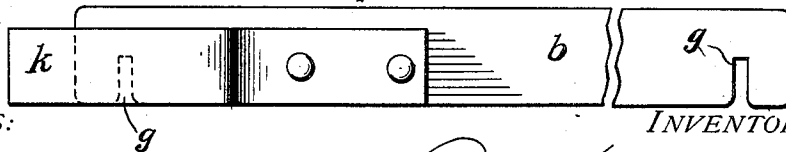


Fig. 3.



WITNESSES:

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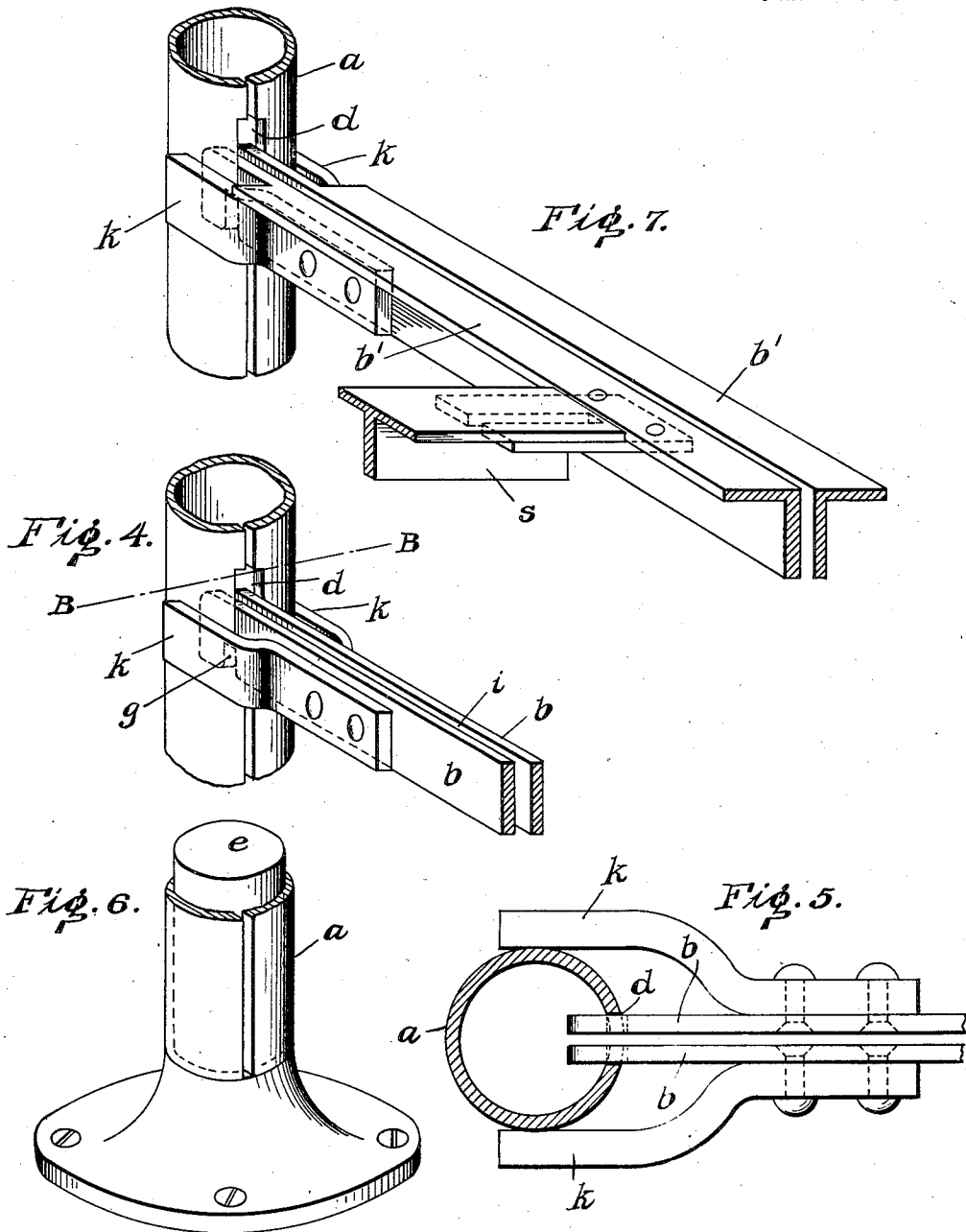
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3 SHEETS—SHEET 2.



WITNESSES:

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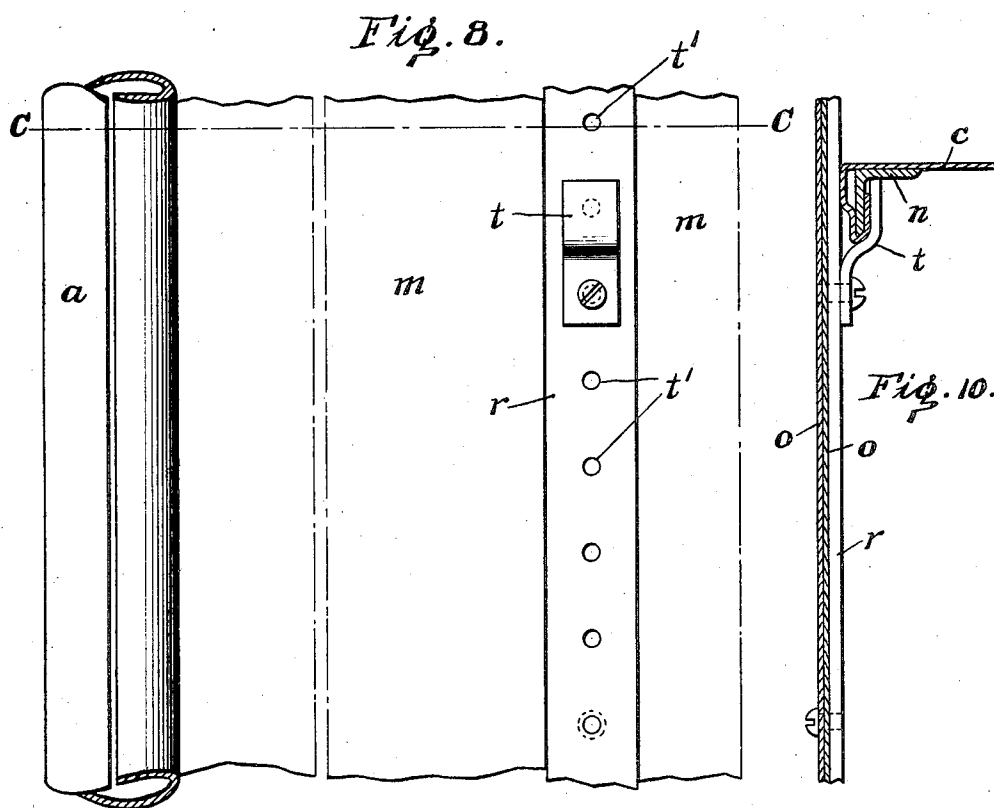
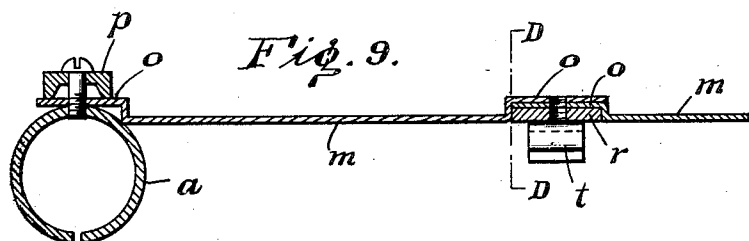
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3 SHEETS—SHEET 3.



Inventor

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UNITED STATES PATENT OFFICE.

GEORGE HOLDEN, OF MERCHANTVILLE, NEW JERSEY, ASSIGNOR TO MERRITT & COMPANY,
A CORPORATION OF PENNSYLVANIA.

SHELVING.

No. 914,572.

Specification of Letters Patent.

Patented March 9, 1909.

Application filed April 3, 1907. Serial No. 366,124.

To all whom it may concern:

Be it known that I, GEORGE HOLDEN, of Merchantville, county of Camden, and State of New Jersey, have invented an Improvement in Shelving, of which the following is a specification.

My invention relates to a combination of parts, preferably formed of metal, which may be easily assembled together to form shelving of simple and efficient construction.

More particularly my invention relates to improvements in shelving of the general character described in Letters Patent No. 829,967, dated Sept. 4, 1906.

A part of these improvements relates to the construction of the uprights and shelf supporting cross bars and their combination together, whereby a stronger structure is obtained and the use of fastening pins or similar devices is avoided.

Another part of these improvements relates to the construction of a back piece and its combination with the shelving structure. This back piece is composed of units which may be connected with facility to one another and to the rear uprights to form a back of any desired length, and may be provided with adjustable means for affording additional support to the shelf portions at the rear.

In the drawings: Figure 1 is a perspective view of metal shelving embodying the improvements; Fig. 2 is a transverse section on the line A—A of Fig. 1 on an enlarged scale; Fig. 3 is a side elevation of one of the cross bars; Fig. 4 is a perspective view illustrating the preferred construction of the cross bars and their connection with the uprights; Fig. 5 is a horizontal section on the line B—B of Fig. 4; Fig. 6 is a perspective view of one of the supporting posts showing an upright fitted to it; Fig. 7 is a perspective view of part of the shelving showing a modification in the form of the cross bars; Fig. 8 is an enlarged front elevation of part of the back; Fig. 9 is a horizontal section on the line C—C of Fig. 8; and Fig. 10 is a vertical section on the line D—D of Fig. 9.

The shelving consists, primarily, of uprights *a*, cross bars *b* supported by the uprights, and shelf pieces *c* supported by the cross bars. The uprights, which are preferably tubular metal posts, are arranged in pairs and may be secured to the floor in any

suitable manner as by the short posts *e* (Fig. 6).

The metal cross bars are formed with longitudinal slots or openings *i*, to receive the ends of the shelf sheets and vertical partitions, and preferably consist of two flat bars placed on edge and separated sufficiently to form the slot or space *i* between them. When greater strength is required, the cross bars may be formed of angle irons *b'*, as in Fig. 7, and for long shelves, or where much weight is to be carried, the opposite bars may be connected by cross bars *s*.

The shelves *c* preferably consist of sheet metal having their ends flanged or bent down and inserted in the slots or openings *i*, and the front and back edges of the shelves may be strengthened by angle irons *n*, over which the edges of the sheet metal are bent. Where partitions are required, they may be formed by sheets *j* inserted vertically through the slots *i*.

So far as it has been described the shelving is of the general character shown in Letters Patent 829,967 before referred to. In the construction shown in that patent, the uprights are slotted longitudinally and the ends of the bars are inserted in these slots and secured by transverse pins. To permit the cross bars and shelves to be adjusted the uprights are provided with a series of properly spaced holes for the fastening pins. In the present construction the continuous longitudinal slots or openings in the uprights and the fastening pins are omitted, and the uprights are provided with a series of properly spaced short slots or openings *d* of a width sufficient to receive the ends of the bars, and said ends of the bars are provided with notches *g*. When the ends of the bars are inserted in the slots these notches *g* engage the lower edge of the metal of the uprights, and a sufficiently rigid connection is obtained without the use of the fastening pins or of the unsightly slots extending the whole length of the uprights. The uprights are much stronger, as they are not weakened by the continuous slot and the multiplicity of pin holes. To increase the rigidity bent cleats *k* may be attached to the ends of the cross bars forming jaws embracing the uprights.

In some cases it is desirable to provide the shelving with a closed back. For this purpose I employ specially formed pieces *m* of

sheet metal adapted to be attached to the rear uprights, and to be connected together to form a longer backing sheet when the length of the shelves requires it. These sheets are provided on their vertical side edges with bayonet bends *o o*, by which they may be secured to the uprights, as by the channel strip *p* and screws (see Fig. 9).

When two sheets are to be connected together to form a long back piece, the bayonet ends *o o* are fitted one over the other, forming on the inside a channel, in which is inserted and secured a metal strip *r*. This metal strip *r* not only strengthens the back sheet but affords a means for the attachment of angular supports *t* for the shelf portions. The angle irons *n* at the back of the shelf portion will fit over and rest upon these supports as shown in Fig. 10. This feature is of importance where the shelves are of considerable length and intermediate support is desirable. The strips *r* are preferably provided with a series of holes *t'* spaced to correspond with the spacing of the supporting notches *d* in the uprights so that the shelf supports *t* may be attached at the proper position without the necessity of drilling holes at the time the shelving is being erected. I prefer also to provide the backing sheets *m* of uniform size so that the cutting and fitting of sheets will not be required. A backing sheet of the proper length may be obtained by uniting a series of units in the manner described. While I have spoken of these sheets *m* as backing pieces, it is apparent that they may be similarly applied to the ends or front if desired.

What I claim is as follows:

1. In metal shelving, the combination of pairs of vertical uprights each provided with a series of short longitudinal slots, cross-bars extending between each pair of uprights and having notched portions at the under edges of their ends, said portions being inserted in the slots of the uprights with their notches engaging the edges of the metal at the slots, a pair of cleats carried by said cross-bars at their ends and forming jaws extending outside of and embracing the uprights at both sides, and shelf pieces independent of said cross-bars but supported thereby.

2. In metal shelving, the combination of

pairs of vertical uprights each provided with a series of short longitudinal slots, longitudinally slotted cross-bars extending between each pair of uprights and having notched portions at the under edges of their ends said portions being inserted in the slots of the uprights with their notches engaging the edges of the metal at the slots, and shelf pieces provided at their ends with downturned flanges inserted in the slots of the cross-bars.

3. Metal shelving consisting of uprights, cross bars carried by said uprights, and a shelf piece carried by said cross bar, in combination with a back-piece composed of a series of uniform units or sections of sheet metal connected together and to the rear uprights, and means for strengthening the sections of the back at their meeting portions.

4. Metal shelving consisting of uprights, cross bars carried by said uprights, and a shelf piece carried by said cross bars, in combination with a sectional back-piece formed of sheet metal secured to the rear uprights and having a vertical metal strengthening strip at the meeting portions of the sections.

5. Metal shelving consisting of uprights, cross bars carried by said uprights and a shelf piece carried by said cross bars, in combination with a back-piece formed of sheet metal secured to the rear uprights and having a vertical metal strengthening strip, and a shelf supporting piece carried by said strip and adapted to support the shelf piece at the back.

6. The back-piece for shelving composed of a series of sheet metal units, a vertical metal strip, means for uniting the adjacent edges of successive units to one another and to said strip, said strip being provided with a series of spaced holes, a shelf supporting piece, and means for attaching said shelf supporting piece to said vertical strip at any of said holes.

In testimony of which invention, I have hereunto set my hand.

GEO. HOLDEN.

Witnesses:

ROBERT O. FORSYTH,
DANIEL F. MALONEY.