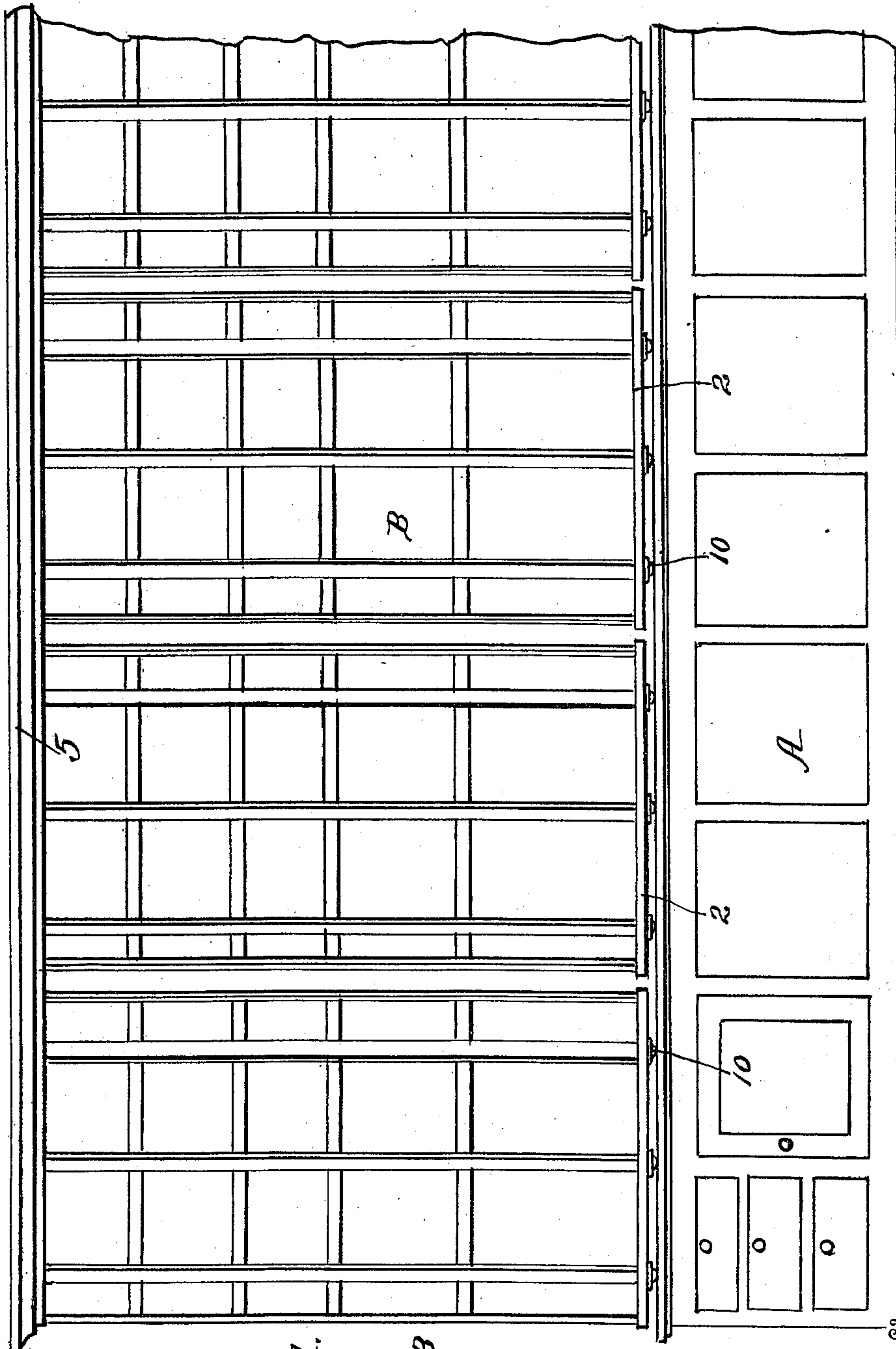


M. F. HAWKINS & J. C. BERRY.
ROTARY SHELVING AND DISPLAY CABINET.
APPLICATION FILED MAR. 12, 1910.

996,852.

Patented July 4, 1911.

2 SHEETS—SHEET 1.



Witnesses
W. H. Anderson
Joana M. Tallin

Fig. 1.

B

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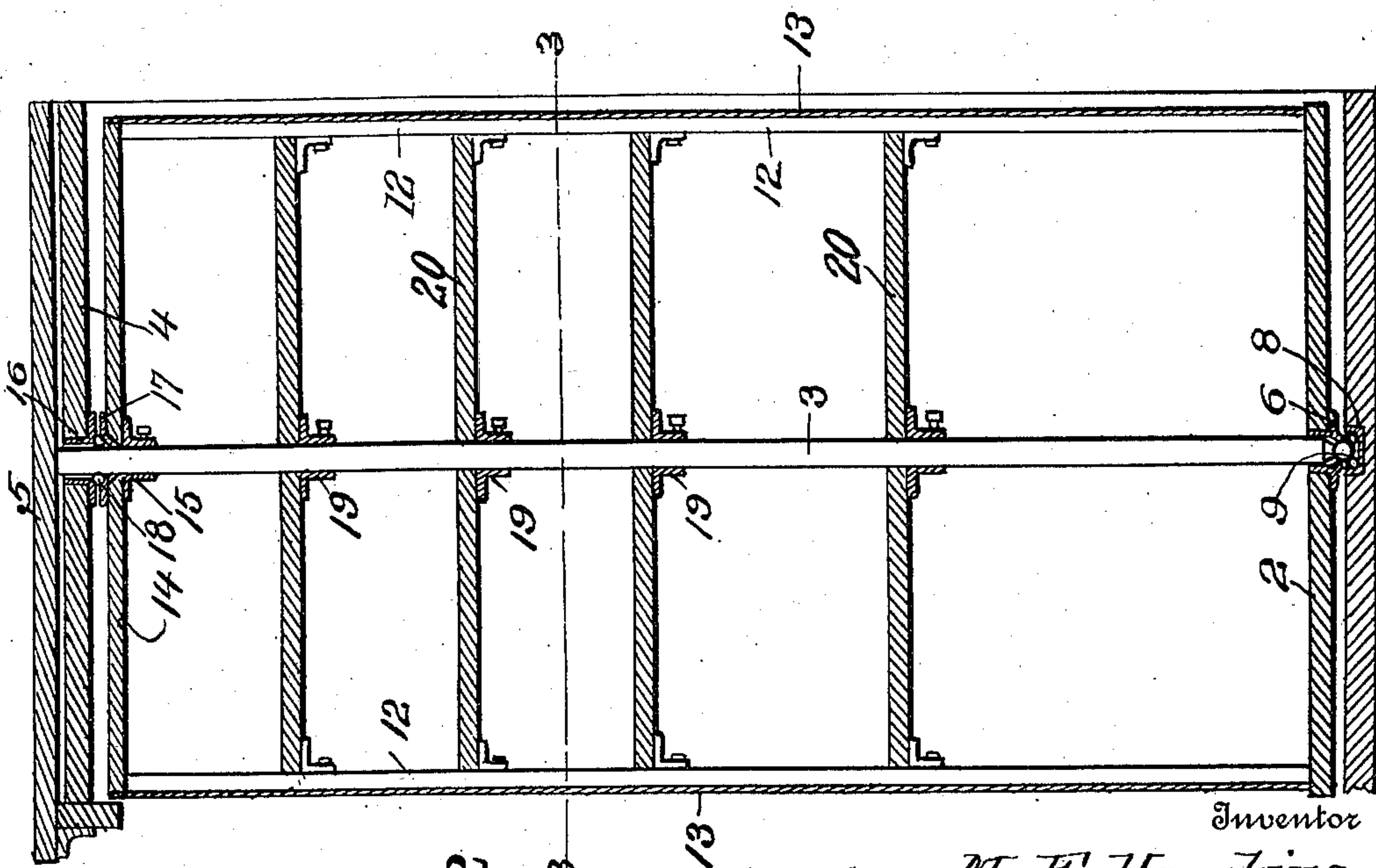
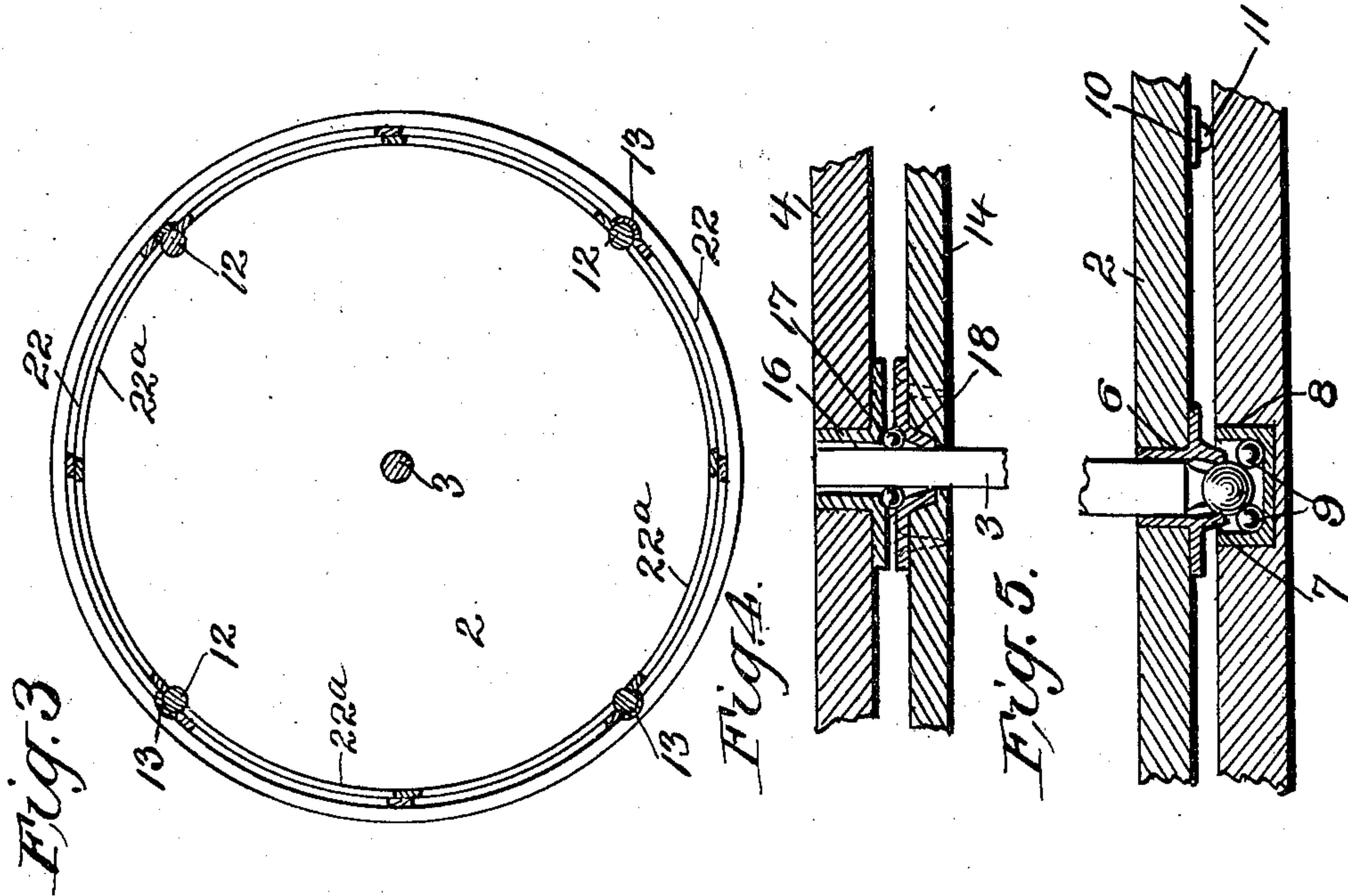
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2 SHEETS—SHEET 2.



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Fig. 2

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UNITED STATES PATENT OFFICE.

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ROTARY SHELVING AND DISPLAY-CABINET.

996,852.

Specification of Letters Patent.

Patented July 4, 1911.

Application filed March 12, 1910. Serial No. 548,947.

To all whom it may concern:

Be it known that we, MILLARD F. HAWKINS and JOSEPH C. BERRY, citizens of the United States, residing at Amarillo, in the county of Potter and State of Texas, have invented certain new and useful Improvements in Rotary Shelving and Display-Cabinets, of which the following is a specification.

10 This invention relates to display cabinets, and particularly to a cabinet composed of a series of rotatable sections mounted upon a base counter or other convenient support, each section comprising a plurality of
15 shelves mounted to rotate upon or about a central spindle.

The primary object of our invention is to provide an exceedingly convenient display cabinet in which the capacity of the shelves
20 will be greatly increased in proportion to the length of the base counter upon which the rotatable shelving is supported.

A further object is to give a maximum of strength to the several display sections, with
25 a minimum of material, and to so construct the cabinet that there will be no danger of sagging at the base which will prevent the proper rotation of the sections.

A still further object is to provide a means
30 whereby a covering member may be provided for the rotary shelving and whereby the shaft supporting the shelving may be inserted or removed from its bearing to permit the positioning of the shelving or its
35 removal from the base upon which it is supported, the shaft serving as a locking means for holding the shelving in place.

For a full understanding of the invention and the merits thereof, and to acquire a
40 knowledge of the details of construction, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a front view of the cabinet;
45 Fig. 2 is a vertical section of one of the rotatable shelf elements; Fig. 3 is a horizontal section on the line 3—3 of Fig. 2; Fig. 4 is a vertical fragmentary section through the upper platform and bearing; and, Fig.
50 5 is a like section through the lower platform and bearing.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by
55 the same reference characters.

Referring to the figures, A designates a counter of any suitable ordinary character and which is used as a base. It is to be understood of course that the base A may be provided with drawers, cupboards, or any
60 other form of compartments.

Mounted upon the base counter A are a plurality of rotatable shelf sections. All these sections have practically the same construction, and hence a description of one
65 set will apply to all. Referring therefore to one of these sections, 2 designates a base platform or shelf which is circular in plan. Passing up from the center of the platform is the central shaft 3 which is of any de-
70 sired height and which is rotatably mounted at its upper end in a supporting member 4 having the form of a shelf or platform which is fixed to the wall or to any suitable supporting frame. Above the platform
75 4 is the cover shelf 5 which is also rigidly supported upon the wall or any suitable frame and projects over all of the several rotatable shelf sections and acts as a protection for the same. The central shaft 3
80 passes through the base shelf 2 and the under side of the base shelf immediately surrounding the lower end of the shaft 3 is provided with a collar 6 forming a wall
85 surrounding a ball 7 forming a bearing on which the entire shelf section is adapted to turn. This ball 7 in turn rests in the socket 8 which is provided with an annular race-
90 way in which are located the antifriction balls 9. The circumferential margin of the base shelf 2 is also provided with a series of sockets 10 in which are carried antifriction balls 11.

We do not wish to be limited to the specific construction shown, as it is obvious that
95 many other means might be used for antifrictionally supporting the base 2 upon the base counter. Attention is particularly called, however, to the fact that the ball bearings 10 and 11 are located immediately
100 beneath the outer edge of the base shelf so that the outer portion of the rotatable cabinet will not sag or become depressed under a weight. This is a very important feature and one which makes it practical to use ro-
105 tatable shelving in circumstances where any considerable weight is to be supported.

Extending upward from the base shelving to any desired height are a plurality of supporting posts 12, preferably of wood, 112

faced each upon its outer face with metal, as at 13. These posts extend upward and support an uppermost platform 14 which is supported upon the central post 3 by means of a collar 15. The central post 3 extends upward loosely through the uppermost platform 14 and into a bearing formed in the platform 4. In order to support the upper end of the central post 3 on the platform 4 we preferably provide the platform with a bushing 16 larger than the shaft which is formed on its under side to provide a raceway for a plurality of antifriction balls 17. The upper face of the uppermost platform 14 is also provided with a collar 18 through which the shaft passes loosely, the upper face of the collar forming the under raceway for the antifriction balls. It will thus be seen that both the upper and lower ends of the central rotatable post 3 are antifrictionally supported.

Shiftably mounted upon the central post 3 are a plurality of collars 19 which are attached to the central rod by set screws or other suitable means and which support the circular shelves 20. The posts 12 pass through the margins of these shelves and are connected to the shelves by brackets 21, these brackets being also adjustable upon the posts.

It will be seen that as the supporting member 4 is fixed that it would be impossible to insert the shelf in place with the shaft 3 extending into a bearing in the supporting member 4, and this is particularly the case inasmuch as the covering shelf 5 has a downwardly extending molding at its outer edge which extends below the uppermost shelf 14. It is to permit the shaft 3 to be readily removed from the base that we have provided the peculiar construction for the support of the shaft, as above described. It will be plain that the shaft is loosely mounted in all of the collars 19 and the collar 15, and also loosely mounted in the plate 18 which is attached to the upper face of the uppermost shelf 14. It will also be seen that the shaft 3 passes entirely through the supporting member 4 and is loosely surrounded by the collar 16 which takes the wear of the rotating shaft from the wall of the opening in the supporting member 4. Assuming that the covering member 4 has been removed, or a portion of it removed immediately above the shaft opening 16, it will be seen that in order to put the shelves in place it is only necessary to insert the shelves between the base and the member 4, the collar 6 being placed in engagement with the antifriction bearing in the base and the central opening in the uppermost shelf brought into alinement with the central opening in the supporting member 4. The shaft is then inserted downward through the supporting member 4 through the annular plate 18

through the collar 15 and through the collars 19 until the lower end of the shaft rests in the socket 6, this socket 6 being constructed at its lower end so as to support the shaft. When the shaft is in place the set-screw on the uppermost collar 15 is engaged with the shaft and the shelves 20 being properly adjusted the set-screws on the collars 19 are also engaged with the shaft, the brackets on the shelves being connected to the vertical supports 12. This binds the shelves to the vertical supports and to the shaft, thus rigidly connecting these various parts together into a unitary device. When it is desired to remove the shelving it is only necessary to remove the covering shelf 5, or a portion thereof immediately above the shaft, to loosen the set-screws on the collars 15 and 19, and then to pull the shaft upward until the shaft passes beyond the upper face of the annular plate 18, whereupon the rotary shelving may be tilted slightly and removed. It will be seen, therefore, that the shaft 3 when in position locks the rotary shelving in place. It is also to be noted that comparatively little strain comes upon the shaft 3. The shaft 3 does not project through the collar 6 which forms the socket for the shaft, and thus there is no projecting end of the shaft which would receive the strain of supporting the rotatable shelving. This strain comes upon the collar 6, hence the shaft forms merely the spindle, as it were, upon which the shelving revolves.

While we may leave the rotatable shelving open upon all sides, we preferably form the shelving with sliding doors 22 and 22^a. These doors are preferably mounted between each two shelves, suitable guides being provided for the purpose. The doors are preferably of glass, set in a suitable frame, and one section 22 slides past the other section 22^a.

Our shelving is particularly adapted for use in retail trade, such as grocers, druggists, etc. The principal advantage gained by shelving of the character described is that a great amount of waste space will be saved. For instance, twenty feet of wall space equipped with the shelving above described, will hold the same amount of goods that sixty feet of wall space would hold with the ordinary shelving, and what is more, the shelving as described by us will be much more convenient and attractive in every way. Furthermore, the ball bearings to the shelf sections are located at the center and extreme outside edges of the lowermost platform, and hence are placed at such points as to give sufficient strength to carry any desired weight.

While we have shown what we believe to be the preferable details of our construction, we do not wish to be limited to these exact details, as it is obvious that the principle of

the invention might be applied in many ways, without departing therefrom.

Having thus described the invention, what is claimed as new is:—

1. In a construction of the character described, a base having an anti-friction bearing, a supporting member projecting over said base and having an opening alining with said bearing in the base, a set of rotatable shelves disposed between the base and the supporting member, a bearing member mounted on the lowermost shelf and rotatably engaging with said first named bearing, a central shaft passing loosely through the shelves and resting in a seat formed in the lowermost shelf, said shaft projecting beyond the uppermost shelf and through the opening in the supporting member, means for detachably connecting the uppermost shelf to the shaft but permitting the shaft to be moved through said shelf, and anti-friction bearings between the uppermost shelf and the supporting member.

2. In a construction of the character described, a base, an anti-friction bearing formed in said base, a supporting member extending over the base, spaced therefrom and having an opening therethrough, alining with said bearing in the base, a bushing lining said opening, a plurality of shelves located between the base and the supporting member, the lowermost shelf having a socket located in its center, said socket having a portion projecting below the shelf and engaging the anti-friction bearing in the base, a shaft passing loosely through all of said shelves, the lower end of said shaft resting in said socket, the upper end of said shaft passing through the uppermost shelf and into the opening in the supporting member, means for detachably connecting the shelves to the shaft, but permitting the shaft to be withdrawn from engagement with the shelves, and an anti-friction device located between the uppermost shelf and the supporting member.

3. In a construction of the character described, a base having a socket in its upper face, anti-friction members carried in said socket and engaging a central anti-friction ball, a supporting member extending over the base and having a central opening alining with said socket in the base, a bushing lining said central opening, the lower end of said bushing being flanged beneath the supporting member and formed with a raceway, a set of shelves disposed between the base and the supporting member, each shelf having a passage through its center, the lowermost shelf being provided with a collar disposed in the central opening and extending

down below the lower face of the lowermost shelf and adapted to engage the ball of the bearing in the base, an annular bearing plate mounted upon the upper face of the uppermost shelf and surrounding the opening therethrough and formed with a race corresponding to the race in the bushing of the supporting member, a shaft passing loosely through all of the sleeves and resting at its lower end in the socket in the lowermost shelf and passing upward through the annular plate on the uppermost shelf and into the bushing on the supporting member, and collars, one for each shelf, on said shaft, each collar having means whereby it may detachably engage with the shaft.

4. In a construction of the character described, a base having a socket in its upper face, anti-friction members carried in said socket and engaging a central anti-friction ball, a supporting member extending over the base and having a central opening alining with said socket in the base, a bushing lining said central opening, the lower end of said bushing being flanged beneath the supporting member and formed with a raceway, a set of shelves disposed between the base and the supporting member, each shelf having a passage through its center, the lowermost shelf being provided with a collar disposed in the central opening and extending down below the lower face of the lowermost shelf and adapted to engage the ball of the bearing in the base, an annular bearing plate mounted upon the upper face of the uppermost shelf and surrounding the opening therethrough and formed with a race corresponding to the race in the bushing of the supporting member, a shaft passing loosely through all of the shelves and resting at its lower end in the socket in the lowermost shelf and passing upward through the annular plate on the uppermost shelf and into the bushing on the supporting member, collars, one for each shelf, on said shaft, each collar having means whereby it may detachably engage with the shaft, anti-friction rollers disposed between the margin of the lowermost shelf and the base, and a peripheral series of vertical supports rigidly connected to the uppermost and lowermost shelves, and means for adjustably supporting the peripheries of the intermediate shelves upon said vertical supports.

In testimony whereof we affix our signatures in presence of two witnesses.

MILLARD F. HAWKINS. [L. S.]

JOSEPH C. BERRY. [L. S.]

Witnesses:

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W. L. CRAINE.