

D. W. BAIR.
SECTIONAL BOOKCASE.
APPLICATION FILED JUNE 12, 1909.

946,872.

Patented Jan. 18, 1910.

2 SHEETS—SHEET 1.

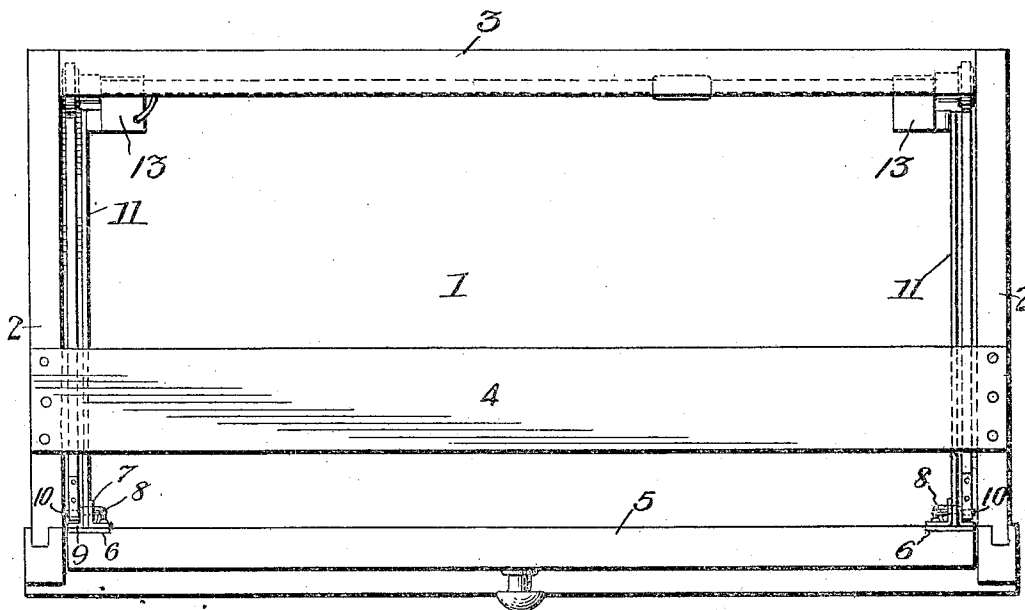


Fig. 1.

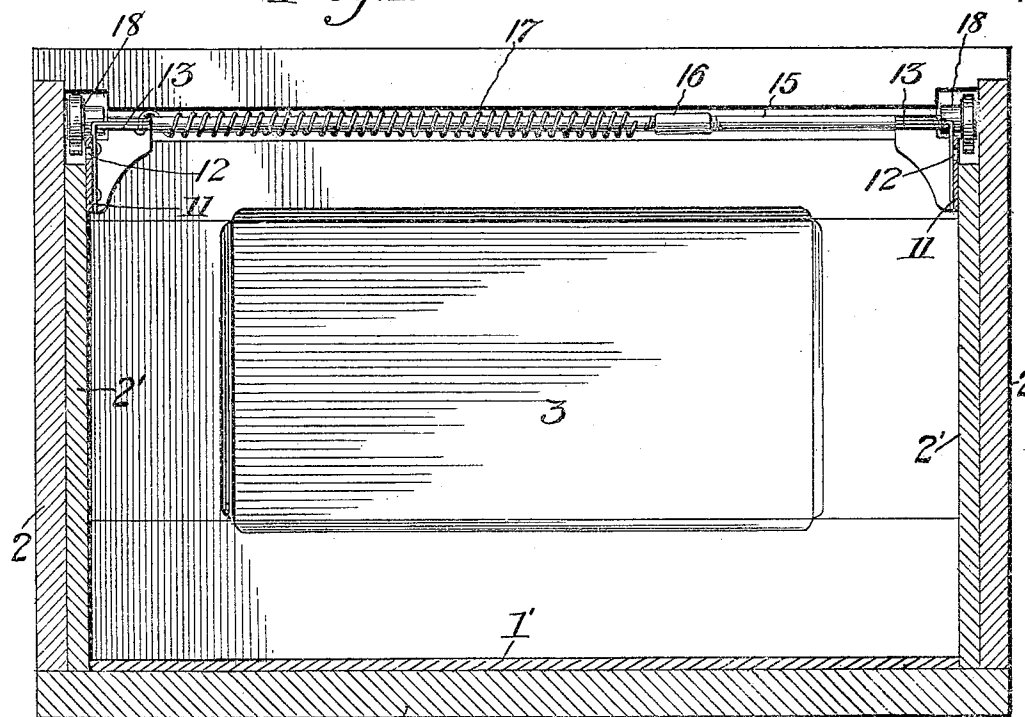


Fig. 2

Witnesses.

N. M. Down.

T. Bair.

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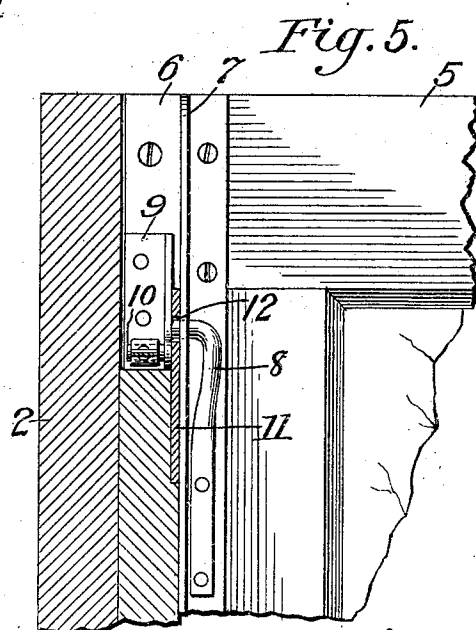
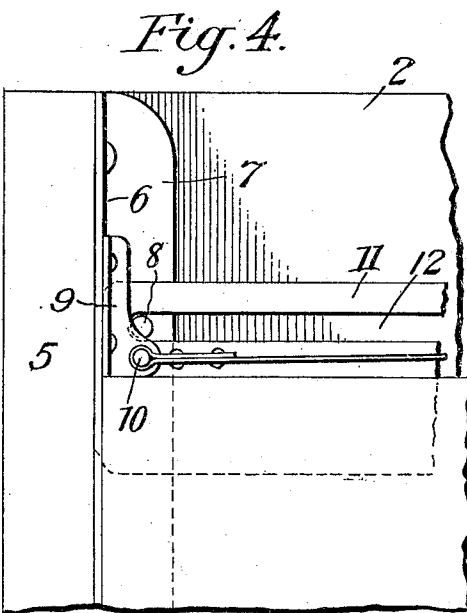
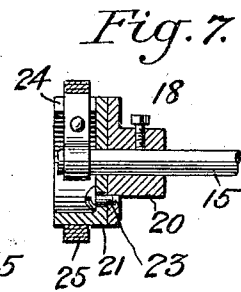
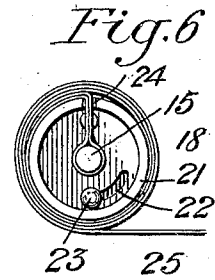
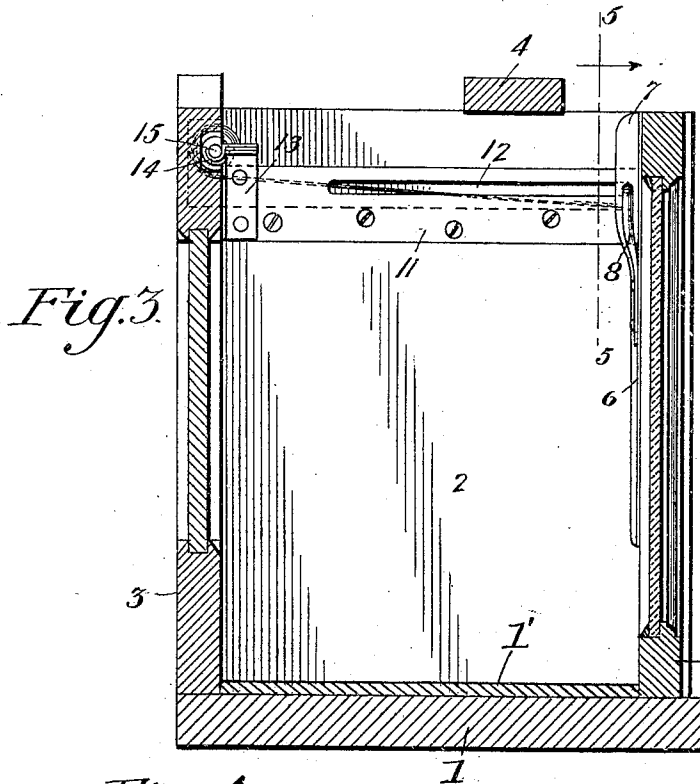
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Witnesses:

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UNITED STATES PATENT OFFICE.

DAVID W. BAIR, OF DES MOINES, IOWA.

SECTIONAL BOOKCASE.

946,872.

Specification of Letters Patent.

Patented Jan. 18, 1910.

Application filed June 12, 1909. Serial No. 501,775.

To all whom it may concern:

Be it known that I, DAVID W. BAIR, a citizen of the United States, residing at Des Moines, in the county of Polk, State of Iowa, have invented certain new and useful Improvements in Sectional Bookcases; and I do hereby 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 the same.

The invention relates to cases, of the type known as sectional book cases, which are provided with vertically suspended doors adapted to swing upwardly and slide rearwardly, and has for its object to improve and simplify the mounting of the door, so that its movement in the directions of opening and closing is effected with ease and facility and the tendency, present in many of the old types of door mountings, to bind and stop the operation of the door, is entirely obviated.

The invention also contemplates the provision of an improved form of counterbalancing spring motor associated with the door which further facilitates the operation of the door in its opening movement and likewise serves to exert sufficient strain on the door to retain the same in closed position.

These and other features of the invention will appear from the following specification, considered in connection with the accompanying drawings, in which,

Figure 1 is a plan view of a case involving the invention. Fig. 2 is a vertical longitudinal section. Fig. 3 is a transverse vertical section. Fig. 4 is an enlarged fragmentary view, showing the upper corner of the door in elevation. Fig. 5 is a section on line 5—5 of Fig. 3. Fig. 6 is an enlarged end view of the spring motor mechanism for counterbalancing the door. Fig. 7 is a sectional elevation of the same.

Referring to the drawings, 1 indicates the bottom of the case or section which is provided with sides 2, 2 and a back 3, the top being open and preferably provided with a cross strip 4 for interlocking with a superposed section.

The front of the case is adapted to be closed by a door 5, which is adapted to swing upward into horizontal position and then to be moved inwardly along the upper portion of the case in a rearward direction, as will

be understood by those familiar with this character of device. The upper portions of the side members 2 of the case are shouldered on their interior faces, which effect may be provided in any desired manner, as for example by securing facing members 2', 2' to the inner side walls as indicated in Fig. 2. These facing members also serve as abutments for the door when the latter is closed, and the bottom may be provided with a similar facing member 1' so that the door, when in closed position has a firm bearing against the edges of the said facing members 1' and 2', 2'. Of course it will be understood that instead of securing separate facing members to the sides and bottom, the latter may be rabbeted along their front edges and the sides may be rabbeted along their upper inner edges to produce the desired shouldered effect.

Secured to the inner faces of the sides 2, along the upper edges of the shoulders formed thereon, are two sheet steel guide plates 11, each provided with a longitudinal slot 12, each of said plates 11 extending from the forward shoulder of the side to the back or rear wall of the case, as indicated in Figs. 1 and 3. Said guide strips are conveniently secured to the side walls by screws or other suitable fastening devices.

Secured to the inner faces of the door stiles are wear plates 6, the flat surfaces of which are adapted to engage the front edges of the adjacent guide plates 11 when the door is in closed position, and the upper edges of said guide plates 11 when the door is in open position and also during the opening movement of said door. Each of said wear plates 6 is provided with a flange 7 normal to its flat surface, which lies in juxtaposition to the face of the cooperating guide plate. This flange 7 may be formed integrally with the wear plate or may be attached thereto in the form of an angle shape. Secured to the wear plate 6, by rivets or similar means, are two spring fingers 8 which are rounded at their free ends and bent at right angles to form pivots or pintles which project through openings in the flange 7 and engage the slots 12 in the guide plates 11, and afford the pivots upon which the door swings, serving as guides for retaining the door in proper relation with the guide plates during the sliding movement of the door, both in opening and closing.

It will be particularly noted that the sliding engagement between the guide plates and the wear plates and between the guide plates and fingers 8, admits of the door being opened and closed easily and smoothly without any tendency to bind or chock, and furthermore reduces the wear between the sliding parts to a minimum. It will also be apparent that by springing the fingers 8 inwardly, the pintle ends thereof may be freed from engagement with the slots 12 in the guide plates and the door may be removed.

In order to counterbalance the door and to materially assist in the rearward movement of the same, after the door has been swung to horizontal position, there is provided a spring motor, located at the rear of the case and secured to the door by flexible band or cord connections. The spring motor is conveniently formed as a shaft 15 journaled in brackets 13, attached to the rear end of the guide plates 11. Mounted on said shaft 15 is a helical spring 17, one end of which is secured to said shaft and the other end to one of the brackets 13, as illustrated in Fig. 2. In order to adjust the shaft 15 as to length, the latter may be formed in two sections connected by an adjustable collar or sleeve 16.

On the ends of the shaft and adjacent the brackets 13 are mounted drums 18, which rotate with the shaft and serve to take up or pay off flexible bands 25 which are conveniently formed of thin strips of sheet steel or other suitable material, connected at their free ends to the door. The drums 18 are secured to the shaft by means of set screws or pins, and in order to make the drums adjustable so as to take up any slack in the flexible bands, each of said drums is formed of a cup-like member 21, on the outer cylindrical surface in which the band 25 is adapted to be wound, the end of the band being passed through a slot 24 in said member 21, and connected to the end of the shaft 15 by means of a loop. The other member of the drum comprises a collar 20 which is rigidly connected to the shaft 15 by a set screw or equivalent means and the member 21 is connected to the collar 20 by means of a screw 23 passing through an arc shaped slot 22 in the rear wall of member 21 into the collar 20, so that by loosening the screw 23, the member 21 may be adjusted circumferentially about the shaft sufficiently to take up any looseness or slack in the bands 25.

The outer ends of the bands 23 are each formed with a loop which takes over a lateral pin 10 mounted in a bracket 9 attached to the wear plate 6. Preferably the pins 10 are so located on the wear plates 6 that when the door is closed they lie below the pintles of the guide fingers 8 so that the pull on the

flexible bands due to the tension of the spring 17 serves to hold the door in closed position.

When the door is closed, it hangs from the pintles on the ends of the guide fingers 8 which engage the forward end of the slots 12 in the guide plates 11. When it is desired to open the door, it is swung to horizontal position on the pintles of guide fingers 8 and then moved rearwardly in a horizontal plane, either by the hand or by the spring motor until the spring fingers 8 reach the rear ends of the slots 12 in the guide plates 11. During this movement the weight of the door and consequently the wear of the parts is taken up by the engagement of the upper edges of the guide plates 11 and the flat surfaces of the wear plates 6. The door is smoothly and accurately guided in its rearward movement, without any tendency to twist or bind, first by reason of the engagement of the pintles on the ends of the spring fingers 8 with the guide slots 12, and second by reason of the fact that the flange 7 of each of the wear plates engages the upper edge of the inner face of the cooperating guide plate and prevents any lateral movement of the door. It will also be noted that the pendent sides of brackets 9 engage the opposite surfaces of the guide plates 11 and therefore assist in the guiding of the door in its opening and closing movements in strictly rectilinear lines while the pintles on the spring arms 8 prevent the door moving vertically out of engagement with the supporting and guiding plates 11.

What I claim is:—

1. In a case provided with a vertically suspended door adapted to swing upwardly and slide rearwardly, guide plates on the side walls of the case and having longitudinal slots spaced from said side walls and closed at their rear ends, wear plates on the rear face of the door, each cooperating with the inner face and top edge of the adjacent guide plate, and pivoting guide fingers on the respective wear plates engaging the slots in the guide plates.

2. In a case provided with a vertically suspended door adapted to swing upwardly and slide rearwardly, guide plates on the side walls of the case and having longitudinal slots spaced from said side walls, wear plates on the rear face of the door, each having a flange normal to its base, said plates cooperating with the edges of the guide plates and the flanges engaging the inner faces of said guide plates, and pivoting guide fingers on the wear plates passing through openings in the flanges and engaging the slots in the guide plates.

3. In a case provided with a vertically suspended door adapted to swing upwardly and slide rearwardly, longitudinally slotted guide plates secured to the inner side walls

of the case near the upper edges thereof, wear plates on the rear faces of the door stiles adapted to engage the top edges of the guide plates during the sliding movement of the door, each wear plate having a flange normal to its surface to engage the face of the adjacent guide plate, and a spring finger on each wear plate having a lug on its end engaging the slot in the adjacent guide plate.

4. In a case provided with a vertically suspended door adapted to swing upwardly and slide rearwardly, longitudinally slotted guide plates on the side walls of the case, wear plates on the rear face of the door, each cooperating with the inner face and top edge of the adjacent guide plate, pivoting guide fingers on the respective wear plates engaging the slots on the guide plates, journal bearings on the rear ends of the guide plates, a spring motor shaft mounted in said bearings, drums on the ends of said motor shaft, and flexible bands on said drums and connected at their outer ends to the door.

5. In a case provided with a vertically suspended door adapted to swing upwardly and slide rearwardly, longitudinally slotted guide plates on the side walls of the case,

wear plates on the rear face of the door, each cooperating with the inner face and top edge of the adjacent guide plate, pivoting guide fingers on the respective wear plates engaging the slots on the guide plates, journals on the rear ends of the guide plates, a spring motor shaft mounted in said journals, drums on the ends of said motor shaft, flexible bands on said drums and connected at their outer ends to the door, and means for adjusting said drums to take up the slack of the bands.

6. In a case having a sliding door, a spring motor for counterbalancing the door comprising a shaft having a torsion spring thereon, collars fixed to the shaft, winding drums loose on the shaft and having an adjustable pin and slot connection with said collars, and flexible bands engaging said drums and connected at their outer ends to the door.

In testimony whereof I affix my signature, in presence of two witnesses.

DAVID W. BAIR.

Witnesses:

M. MAPLE,
H. J. TILLIO.