P. H. YAWMAN.

DRAWER SUPPORT.

APPLICATION FILED NOV. 5, 1909.

1,109,812.

Patented Sept. 8, 1914.

3 SHEETS—SHEET 1.

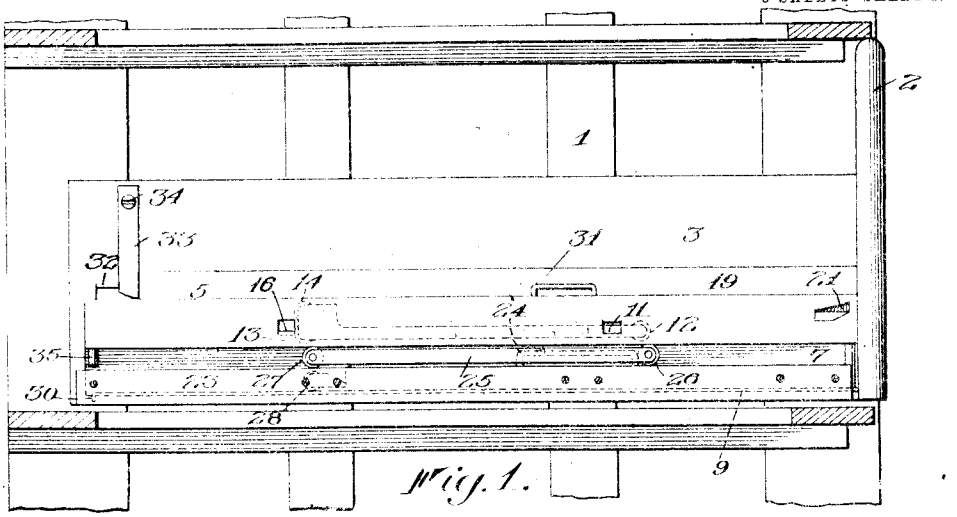


Fig. 1.

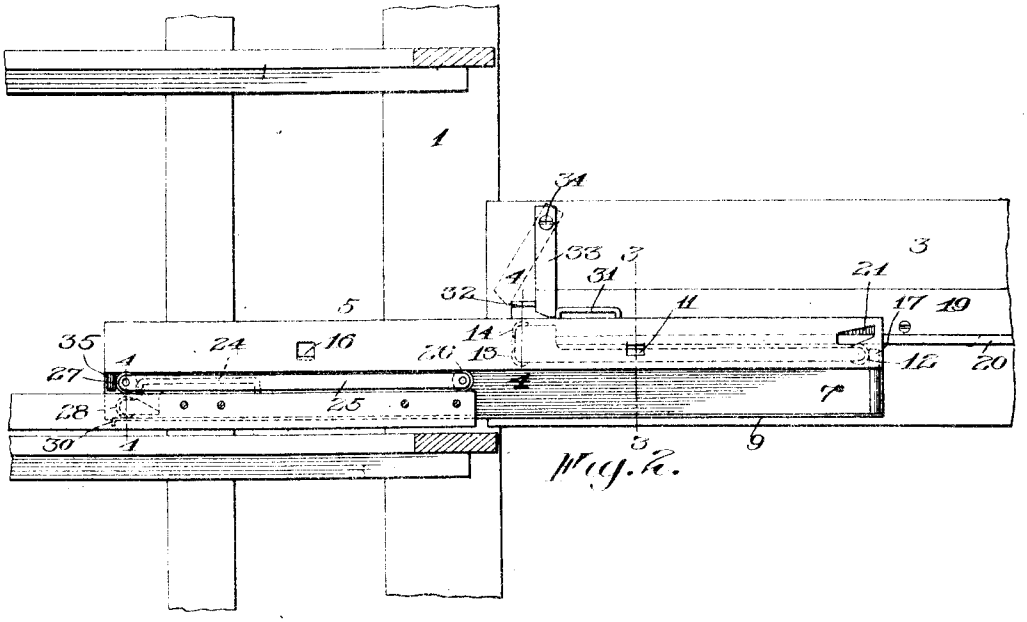


Fig. 2.

Witnesses

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3 SHEETS—SHEET 2.

Fig. 6.

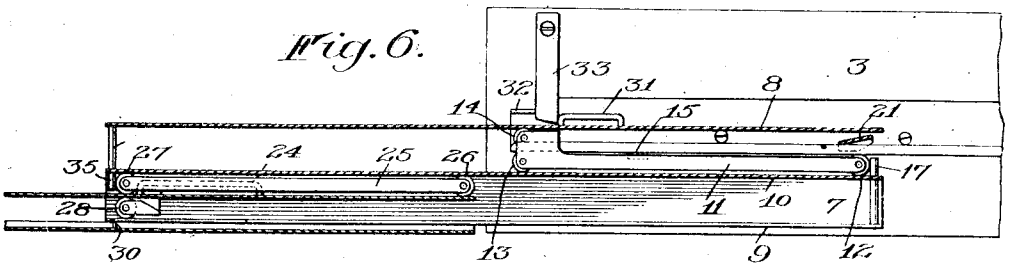
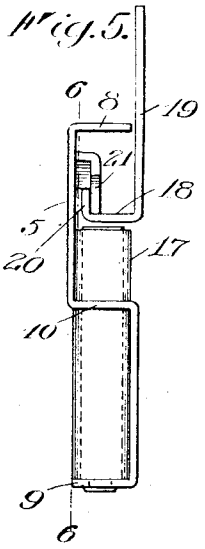


Fig. 5.



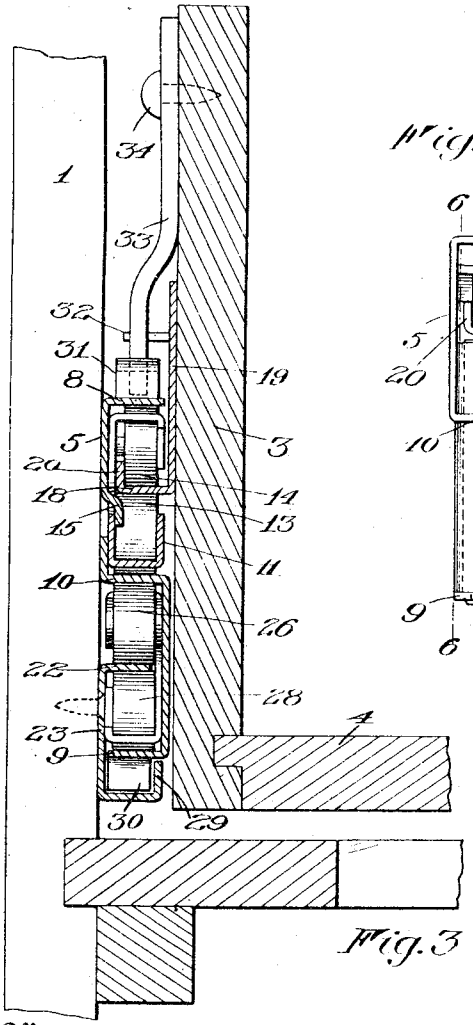


Fig. 3

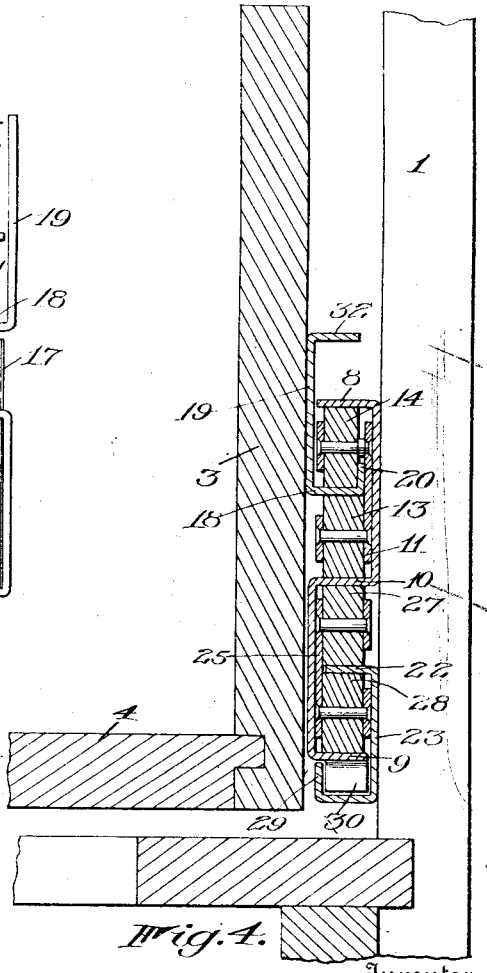


Fig. 4.

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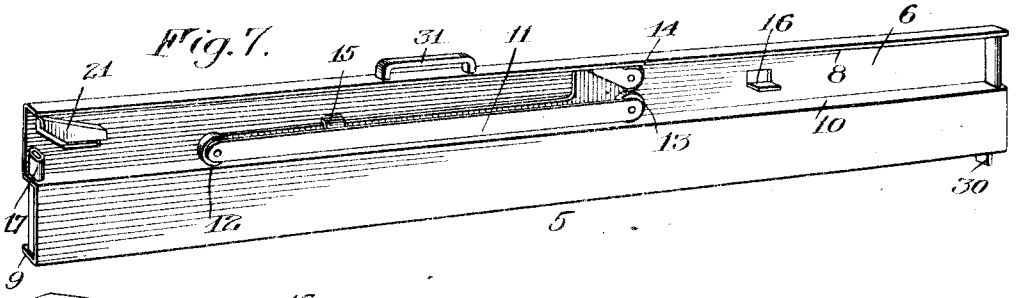
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3 SHEETS-SHEET 3.

Fig. 7.



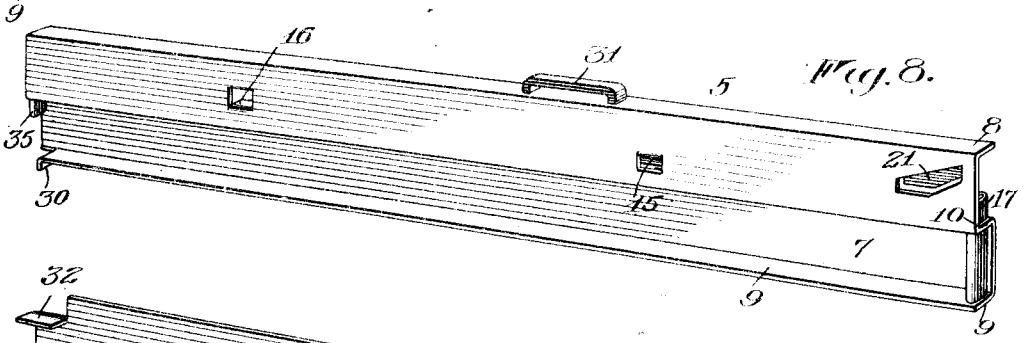


Fig. 8.

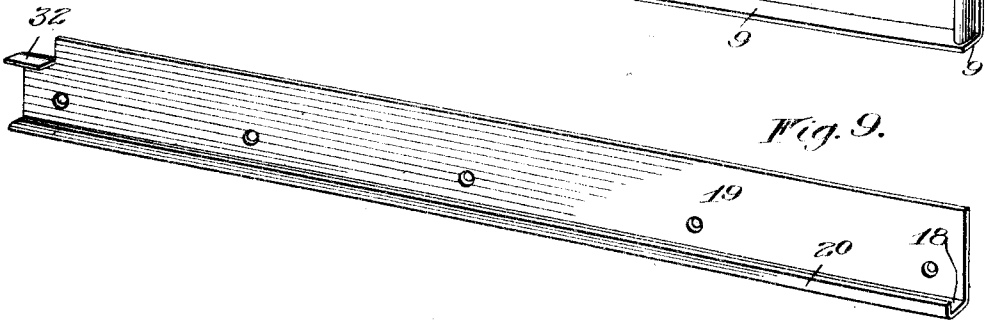


Fig. 9.

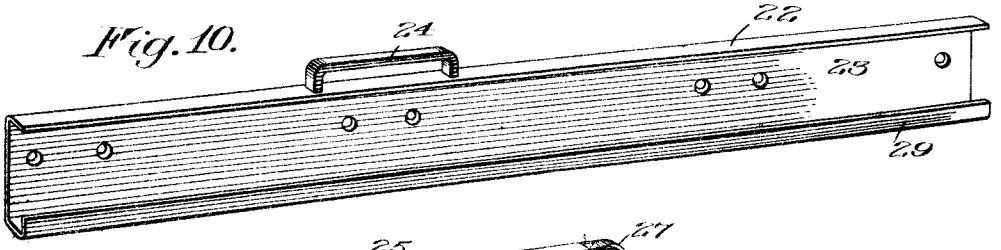


Fig. 10.



Fig. 11.



Fig. 12.

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UNITED STATES PATENT OFFICE.

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DRAWER-SUPPORT.

1,109,812. Specification of Letters Patent. Patented Sept. 8, 1914.

Application filed November 5, 1909. Serial No. 526,394.

To all whom it may concern:

Be it known that I, PHILIP H. YAWMAN, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Drawer-Supports; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference numerals marked thereon.

The present invention relates to furniture and it has for its object to provide a simple means of supporting or hanging drawers and similar receptacles which will considerably reduce the frictional resistance of the parts in moving the drawer between its open and closed positions and which will support the latter securely and with reasonable rigidity in an extended position wherein it is free from the chamber or inclosed space built in the supporting structure to receive it.

My improvements are further directed toward providing means whereby the drawer can be completely detached or removed with ease, when so desired, and on the whole to furnish a structure embodying these advantages which will be both light and strong and capable of production at a moderate cost.

To these and other ends the invention consists in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings: Figure 1 is a side elevation of a drawer and a support therefor constructed in accordance with and illustrating one embodiment of my invention, the main supporting structure or cabinet being shown in section taken in the plane of the inner face of a side wall of the drawer chamber. The drawer is in closed position. Fig. 2 is a view similar to Fig. 1 showing the drawer in open or extended position. Fig. 3 is a detail transverse section much enlarged through the supporting devices taken substantially on the line 3—3 of Fig. 2. Fig. 4 is a view similar to Fig. 3 but taken on the lines 4—4 of Fig. 2. Fig. 5 is a front end view in detail of the extension support and the cooperating member on the drawer. Fig. 6 is a vertical section taken longitudinally of the extension support on the line 6—6 of Fig. 5 with the parts in the position of Fig. 2. Fig. 7 is a detail perspective view, enlarged, of one of the extension supports viewed from the drawer side. Fig. 8 is a similar view of the opposite side of the extension support. Fig. 9 is a perspective view of the guide or supporting device that is attached to and removed from the drawer. Fig. 10 is a perspective view of the corresponding element on the casing. Fig. 11 is a detail perspective of one of the sets of rollers showing the carrier or space bar on which they are, in the present instance, mounted, and Fig. 12 is a similar view of a modified form of carrier.

Similar reference numerals throughout the several figures indicate the same parts.

A drawer support having the characteristics of my present invention, as before outlined, is particularly useful and applicable to drawer cabinets such as are used for instance in the vertical system of filing papers wherein the contents of the drawer are often indexed to the extreme rear wall thereof and must therefore be readily accessible for both inspection and for removal in a vertical direction and I have therefore illustrated the invention in its present embodiment in connection with such a cabinet comprising a main supporting structure 1, hereinafter termed the casing, the same being in the present instance of a skeleton type to form one or more drawer chambers, only one of which is herein shown in its entirety. Operating in this drawer chamber is a drawer having a front wall 2 that normally closes the front of the chamber, side walls 3 and a bottom wall 4, the width of the drawer in rear of its front wall being slightly less than that of the chamber at the same point so that there may be accommodated between each wall of the latter and a wall of the drawer, a supporting mechanism as hereafter referred to. As this supporting mechanism is duplicated upon the two sides of the drawer in the present instance to properly distribute the weight, the following description will be in the singular and confined to an explanation of one such group, the other being identical with the exception of the differences of right and left hand parts.

Referring first more particularly to Figs. 3, 7 and 8 an extension support 5 is interposed between the drawer and casing that

is provided with oppositely turned upper and lower ways 6 and 7 to receive respectively the supporting and guiding members on the drawer and casing. I prefer to form this support of a single piece of sheet material bent somewhat in the form of an S, as shown, in which manner are derived upper and lower flanges 8 and 9 forming respectively an upper track on the upper way and a lower track on the lower way and an intermediate web 10 forming the lower track of the upper way and the upper track of the lower way. Arranged to travel in the upper way 6 is a carrier 11 in the present form of a channel bar having its open side uppermost and journaled at forward and rearward positions thereon are two rollers 12 and 13, respectively, which bear upon the lower track 10 of the way, while an extension at the rear end of the carrier has journaled therein an upper roller 14 held in a position to engage the upper track 8 but normally spaced slightly therefrom. The carrier is held against the closed side or lateral wall of the way by a projection 15 thereon that extends downwardly into the channel of the carrier and prevents lateral disengagement thereof from the way although it is free to move longitudinally therein, its rearward movement being limited by a stop 16 engaged by the rear roller 13 and its forward movement by a stop 17 engaged by the forward roller 12.

A horizontally projecting supporting flange and guide 18 having an attaching portion 19 is secured to the side wall 3 of the drawer and projects into the upper way 6 of the extension support 5 between the tracks 8 and 10 thereof and rests upon the rollers 12 and 13 of the carrier 11 and between the lower rear roller 13 and the upper roller 14 of the latter, which rollers cooperate respectively with the upper and lower guiding faces of the flange, while a second upwardly extending flange 20 at the outer edge of the first engages laterally of the upper roller 14 and prevents lateral disengagement of the drawer from the carrier. This guiding flange is also engaged for the same purpose directly by an off-set projection 21 on the lateral wall of the way 6.

A supporting and guiding flange 22, shown in Fig. 10 is secured by an attaching portion 23 to the casing 1 and carries on its upper side a projection 24 that coöperates with the channel of a second inverted channel bar carrier 25, shown in detail in Fig. 11, to hold the latter on the guide. This carrier is substantially the same as the carrier 11, but is in an inverted position, the forward and rearward rollers 26 and 27 being arranged to coöperate with the upper guiding face of the flange 22 and the single rearward roller 28 with the under face, the latter being normally slightly spaced therefrom. This flange 22 with its carrier 25 is received within the lower way 6 of the extension support in a similar manner to the flange of the drawer in its way so that it is between the upper and lower tracks 10 and 9 of the way upon which tracks respectively engage the rollers 26 and 27 of the carrier. An upwardly projecting off-set flange 29 on the attaching portion 23 carried by the casing coöperates with a projection 30 on the rear end of the extension slide 5, and tends to prevent relative lateral disengagement of the way 6 and the supporting guide 22 when the drawer is withdrawn, the front end of the extension support being always prevented from disengaging in the direction of the drawer as it is constantly in engagement therewith, as will hereinafter appear, while the rear end of the support is not.

It will thus be seen that the carrier 25 is supported on the guiding flange 22; that the extension support 5 travels on the carrier 25; that the carrier 11 travels on the upper way of the extension support 5 and that the supporting flange or guide 18 of the drawer is supported and travels on the carrier 11. It will also be observed that while the rollers on the two carriers act between the latter on the one hand and the tracks of the ways and the faces of the guiding flanges on the other, in the sense that they are journaled on one part and bear on the others, it is also true that the rollers act directly between the guiding faces of the flanges and the tracks of the ways in which view the carriers 11 and 25 act in the capacity of spacing members to keep the rollers in their proper relative positions. In either instance, separate smaller rollers might be used in the proportion of two to one of each large roller, as shown in Fig. 12, in which the rollers *a* bear upon the tracks of the ways 6 and 7, while the rollers *b* bear upon the guiding flange of the drawer or casing.

As to the operation of the device, a forwardly arranged stop or abutment 31 on the top of the extension support 5 is provided out of alinement with and preferably below a stop or abutment 32 provided in a rearward position on the side wall 3 of the drawer, but as the drawer is drawn out from the position of Fig. 1 a latch bar 33 pivoted at 34 to the drawer simultaneously engages these abutments or is, in fact, in the present instance, in normal engagement with the abutment 32 and in a position to engage the abutment 31 and the drawer and extension support are thereby interlocked at a predetermined point in their relative movement. During its initial movement, the drawer first travels on the carrier 11 and the rollers 12 and 13 thereof until the first mentioned roller reaches its limit of forward movement by engaging the stop 17

at the end of the way 6 and it is at this point and simultaneously with this engagement that the latch bar 33 interlocks the drawer and extension support while the drawer is in a partially extended position. Continued outward pull on the drawer causes the extension support to travel in a similar manner on the carrier 25 and on the rollers 26 and 27 thereof until the latter, in its forward movement on the guide 22 on the casing, engages with the projection 24 whereat it is halted. As it halts, it is engaged from the rear by a stop or abutment 35 at the rear of the lower way 7 of the extension support so that the latter is, through the medium of the carrier, locked with the guide on the casing and prevented from being withdrawn too far. When this action has occurred the drawer is in its fully extended position, as shown in Figs. 2 and 6.

Assuming the drawer to be evenly loaded, its weight will be approximately evenly distributed when it is in its closed position on the carrier 11 and the lower rollers 12 and 13 thereof and it will still rest thereon until its center of gravity passes over the forwardly arranged roller. The guide 18 of the drawer will then leave the rear roller 13 and engage the upper roller 14 with its opposite face which roller will be raised slightly to bear upon the upper track 8 of the upper way on the extension support and prevent relative tilting of the parts. The same action occurs with respect to the lower carrier 25 acting between the extension support and the guide on the casing except that the arrangement of the rollers on this carrier being reversed the initial travel will be on the upper rollers 26 and 27 and the bearing will then be transferred from the roller 27 to the lower roller 28 engaging on the under guiding face of the guide 22 of the support. By inspecting Fig. 6, it will be seen why the projection 30 on the extension support 5 is arranged at the rear end of the latter to engage the retaining flange 29 and prevent disengagement of the support from the guide in an inward direction.

When it is desired, for any purpose, to entirely remove the drawer from the casing, the operator has simply to rotate the latch 33 thereon from the full line position of the figures to the dotted line position shown in Fig. 2 wherein its engaging portion rests in rear of the abutment 32 on the drawer. The abutment 31 on the extension support 5, being, as before described, out of alinement with this abutment 32 on the drawer, the latter readily clears it and issues from the front end the upper way 6 of the support above the stop 17. For the re-insertion of the drawer the latch is restored to its former position and the rear end of the retaining flanges 20 of the drawer guides are threaded behind their coöperating projections 21 on the ways which, it will be noted, are readily accessible for this purpose. The operator has then only to thrust the drawer inward in the ordinary manner whereat the latch 33 will ride the abutment 31 as it passes the same and fall in behind it to its normal position in engagement with the abutment 32.

I claim as my invention:

1. The combination with a casing and a drawer operating therein, of a guiding flange on one of said members having guiding faces on opposite sides thereof, a supporting member provided with a way with which the guiding flange coöperates and having tracks disposed at opposite sides of the flange, rollers arranged to act between each guiding face of the latter and one of the tracks on the supporting member and supporting connections between the latter and the other of said first mentioned members.

2. The combination with a casing and a drawer operating therein, of a guiding flange on one of said members having guiding faces on opposite sides thereof, a supporting member provided with a way with which the guiding flange coöperates and having tracks disposed at opposite sides of the flange, rollers having axes movable relatively to both flange and support arranged to act between each guiding face of the latter and one of the tracks on the supporting member, and supporting connections between the latter and the other of said first mentioned members.

3. The combination with a casing and a drawer operating therein, of a guiding flange on one of said members having guiding faces on opposite sides thereof, a supporting member provided with a way with which the guiding flange coöperates and having tracks disposed at opposite sides of the flange, rollers having axes movable relatively to both flange and support arranged to act between each guiding face of the latter and one of the tracks on the supporting member, a spacing member operatively connecting together the rollers on both guiding faces to maintain them all in substantially fixed relation to each other and supporting connections between the supporting member and the other of said first mentioned members.

4. The combination with a casing and a drawer operating therein, of a guiding flange on one of said members having guiding faces on opposite sides thereof, a supporting member provided with a way with which the guiding flange coöperates and having tracks disposed at opposite sides of the flange, rollers having axes movable relatively to both flange and support arranged to act between each guiding face of the latter and one of the tracks on the supporting

member, and a spacing member operatively connecting together the rollers on both guiding faces to maintain them all in substantially fixed relation to each other, there being a forward and a rearward roller on one guiding face and a rearward roller on the other.

5. The combination with a drawer and a support, of a guiding flange on one of said members having guiding faces on opposite sides thereof, a way on the other with which said guiding flange coöperates and having tracks disposed at opposite sides of the flange, a forward and rearward roller acting between one track and one of the guiding faces and a rearward roller acting between the other track and the other guiding face to prevent relative tilting of the drawer and its support.

6. The combination with a casing and a drawer operating therein, of a supporting member provided with a way having parallel upper and lower tracks thereon, supporting connections between said member and one of the first mentioned parts, a carrier, forwardly and rearwardly arranged rollers thereon bearing on one of said tracks, a rearwardly arranged roller thereon bearing on the other track and a guide on the other of said first mentioned parts arranged between the tracks on the supporting member and having guiding faces on opposite sides thereof, one of said faces being arranged to coöperate with the rollers bearing on one track and the other with the roller bearing on the other.

7. The combination with a casing and a drawer operating therein, of a supporting member provided with a way having parallel upper and lower tracks thereon, supporting connections between said member and one of the first mentioned parts, a carrier, forwardly and rearwardly arranged rollers thereon bearing on one of said tracks, a rearwardly arranged roller thereon bearing on the other track, a guiding flange on the other of said first mentioned parts arranged between the tracks on the supporting member and having guiding faces on opposite sides thereof, one of said faces being arranged to coöperate with the rollers bearing on one track and the other with the roller bearing on the other, means for retaining the carrier in the way and a retaining flange on the guiding flange engaging laterally of one of the rollers to hold the guiding flange in the ways.

8. The combination with a casing and a drawer operating therein, of a way supported on the casing having upper and lower tracks, a carrier movable in the way having upper and lower rollers engaging the respective tracks of the way, a guiding flange on the drawer traveling between the upper and lower rollers of the carrier, means for retaining the latter in the way, a retaining flange on the guiding flange engaging laterally of one of the rollers on the carrier and a projection on the way also coöperating laterally with the retaining flange to prevent lateral disengagement of the way, carrier and guide.

9. The combination with a casing and a drawer operating therein, each of said members being provided with a guiding member, of an extension support arranged between the members and provided with upper and lower ways to receive the respective guiding devices of the drawer and casing, each way comprising upper and lower tracks, and rollers arranged in each way to act between the upper and lower tracks thereof and opposite sides of the supporting devices, said rollers being arranged to turn on axes movable relatively to the drawer, casing and extension support.

10. The combination with a casing and a drawer operating therein, each of said members being provided with a guiding member, of an extension support arranged between the members and provided with upper and lower oppositely turned ways to receive the guiding devices of the drawer and casing, each way comprising upper and lower tracks and being closed on the side opposite to that upon which its respective guiding device enters, and rollers arranged in each way to act between the upper and lower tracks thereof and opposite sides of the supporting devices, said rollers being arranged to turn on axes movable relatively to the drawer, casing and slide and confined within the way by the closed side wall thereof.

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