

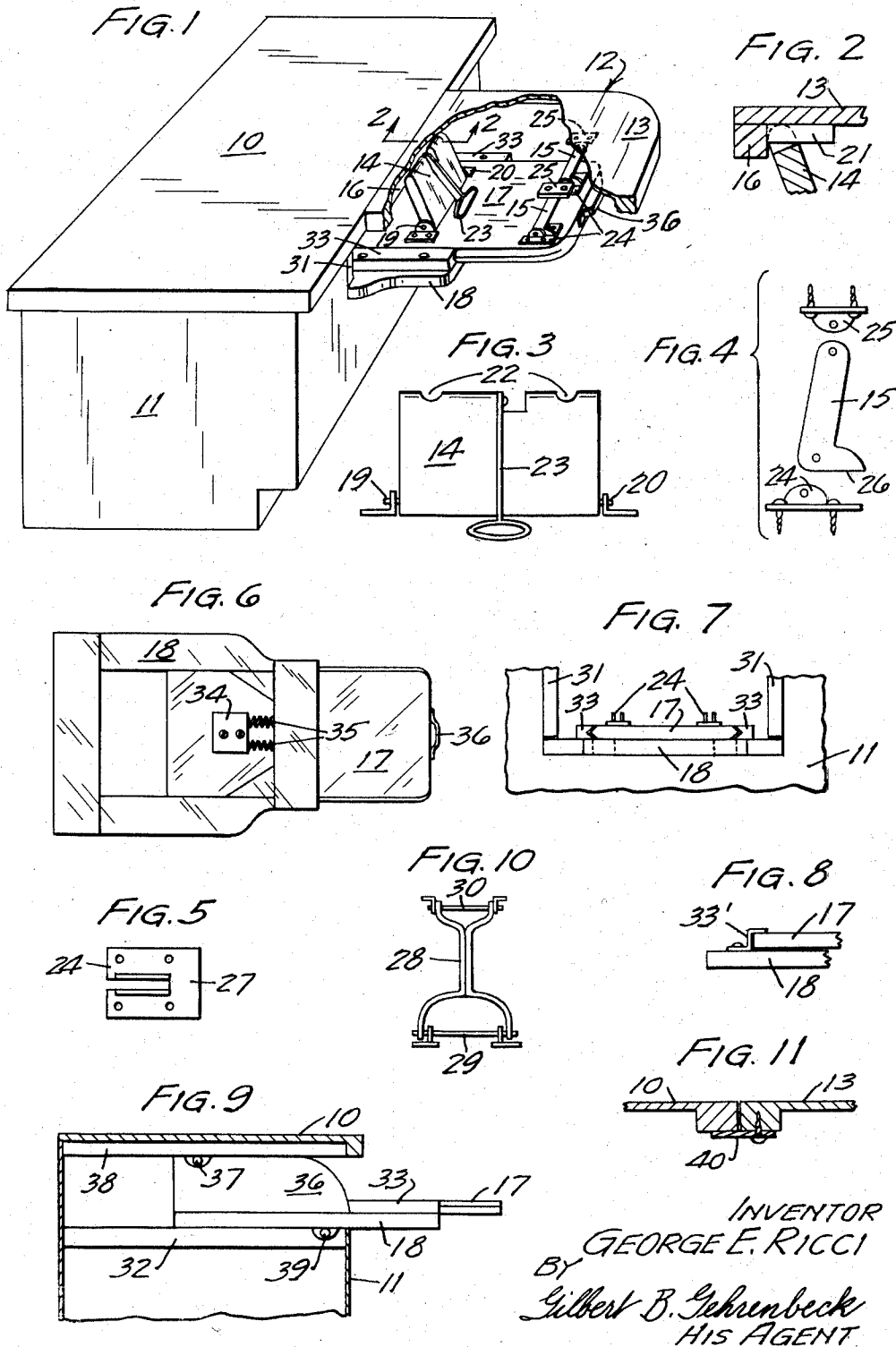
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RETRACTABLE SHELF

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## RETRACTABLE SHELF

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1 Claim. (Cl. 312—303)

This invention relates to retractable shelves and the like, and has particular utility in the form of extensible and retractable shelf-like extensions of the working surfaces of kitchen cabinets. There is provided a shelf structure which may be stored within the cabinet in the space normally required for a drawer, and which in open position forms a firm, rigid extension of the work area. The invention is therefore useful in providing extra table or bar area, built-in ironing-boards, etc. in crowded locations such as frequently exist in modern dwellings and apartments.

The invention is best described and understood in connection with the accompanying drawing, in which:

Figure 1 is a view in perspective of a retractable shelf according to the invention, partly cut away to disclose structural details, and in position on a kitchen cabinet;

Figure 2 is a fragmentary cross-section taken along the line 2—2 of Figure 1 showing a rear brace detail;

Figure 3 is a plan view of the rear brace and handle member;

Figure 4 is an exploded elevation of a front brace unit;

Figure 5 is a top plan view of the lower support member of Figure 4;

Figure 6 is a bottom plan view of the frame and base assembly of Figure 1;

Figure 7 is a front elevation of the frame and base assembly in position in the storage area of the cabinet;

Figure 8 represents a partial front elevation of the frame and base assembly showing an alternative guide means;

Figure 9 represents a side elevation of a portion of an alternative frame and base assembly in position in the cabinet, shown partly in section;

Figure 10 represents in elevation an alternative front brace assembly; and

Figure 11 illustrates in cross-section a detail of the shelf and cabinet edge area.

The cabinet of Figure 1 includes a flat top or working surface 10 supported on a frame 11 into which the shelf assembly 12 may be slidably retracted. The frame 11 is ordinarily fitted with additional shelf, drawer and door units, here omitted for clarity.

The assembly 12 comprises generally a flat top member 13 supported against and in line with the top 10 by means of a rear brace unit 14 and front brace units 15. The brace units are pivotally supported on a base member 17 which in turn is slidably supported by a slidable frame member 18, the latter being directly supported within the frame 11.

The rear brace unit 14, as illustrated in Figure 3, folds about pivots 19, 20 which are fastened to the base 17. Ordinarily the upper edge of the brace will fit against the end cross-member 16 of the top 13, as generally illustrated in Figures 1 and 2, although the brace may alternatively fit against a separate cross-member situated somewhat forwardly of the rear member 16. Lateral stability is improved by providing one or more guide

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members 21 beneath the top 13 and in cooperating position with channels 22 in the top edge of brace 14 where desired, but these are not essential and for clarity are omitted from Figure 1. Similarly, a release handle member 23 may be supplied for folding the brace 14 forwardly preparatory to retracting the shelf, but this member may be omitted particularly for relatively short shelf members.

The front braces 15 are foldably supported at the bottom by pivot bearings 24 and at the top by pivot bearings 25, fastened respectively to base 17 and top 13. The braces 15 have toe-like forward extensions 26 acting as a stop against the forward folding of the brace. The toe 26 preferably contacts an extension 27 of pivot bearing 24 to provide maximum solidity and reduced wear.

With short shelf members, the brace 14 will be seen to fold forwardly between the front braces 15. An alternative front brace structure, indicated in Figure 10, is preferred for longer top members. It consists of a brace 28 with bifurcated ends supported on pivot rods 29, 30 which in turn are supported in suitable bearings fastened to base and top. The structure provides rigid support for the top 13 while requiring somewhat less width of base 17, which accordingly may be reduced in width along the forwardly extending portion to provide added knee room beneath the top 13.

The frame member 18 slides within the cabinet in guideways formed between upper plates 31 (Figures 1 and 7) and lower supports, indicated as slide member 32 in Figure 9. Suitable stop members are provided, as in standard sliding drawer structures, to limit the extent of withdrawal of the frame member 18. Channel members 33 are attached to the upper surface of the frame member 18 to slidably retain base member 17, the edges of which are shaped to fit said channel members. Thus the base 17 slides with respect to the frame member 18 which in turn slides with respect to the frame 11.

An alternative form of channel 33' for supporting the base 17 is illustrated in Figure 8.

If preferred, the side plates 31 of Figures 1 and 7 may be replaced by plates 36 permanently attached to the frame member 18 as indicated in Figure 9, in which event a roller 37 may be provided on the plate 36 to operate against a track member 38 and one or more rollers 39 may be provided in the slide member 32 to operate against the frame member 18.

The edge of the panel 13 contacting the edge of the top 10 is provided with an extension 40, as shown in Figure 11, to provide for alignment of the two top surfaces. The frame member 18 is seen in Figure 6 to have an open central area, providing space for a spring housing 34 and compression springs 35 attached to the bottom of the base 17.

In the position shown in Figure 1, the springs 35 press against the forward member of the frame 18 to force the edge of the top 13 tightly against the edge of the top 10 of the cabinet. The rear brace 14 and front braces 15, in cooperation with the extension 40, rigidly support the top 13 against motion in any lateral direction. There is provided a sturdy and convenient extension of the working surface of the cabinet-top 10. When the extension is no longer required, pulling on the handle 36 compresses the springs 35 sufficiently to move the top 13 and extension 40 out of contact with the top 10, whereupon the lever 23 is used to fold the brace 14 forwardly and lower the rear of the top 13. The front braces 15 are thereby permitted to fold rearwardly, and the entire top 13 is lowered so that it, together with its base 17 and the attached frame 18, may

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then be slid beneath the top 10 and within the space provided in the frame 11, leaving the area available for other purposes.

What I claim is as follows:

A shelf assembly capable of providing a rigid retractable extension of the flat work-top of a cabinet as herein described and comprising a flat frame member slidably fitting within said cabinet and having an open central area, longitudinal guide members disposed along the upper surface of said frame member outside of said open area, a flat base member slidably retained between said guide members on said frame member, spring means attached to said base member within said open area and compressible against a forward boundary thereof, a forwardly folding rear brace member pivotally attached to a rearward area of said base member, at least one rearwardly folding front brace member pivotally attached

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to a forward area of said base member, a top member pivotally attached to and supported by said front brace member, and supportable by said rear brace member, in the plane of the work-top of said cabinet and having a rearward edge for making contact with the edge of said work-top, and means for preventing lifting of said rearward edge while making said contact.

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