Jan. 17, 1961 J. YOUNG ET AL 2,968,196

FLUSH PANEL CONSTRUCTION

Original Filed Nov. 10, 1954

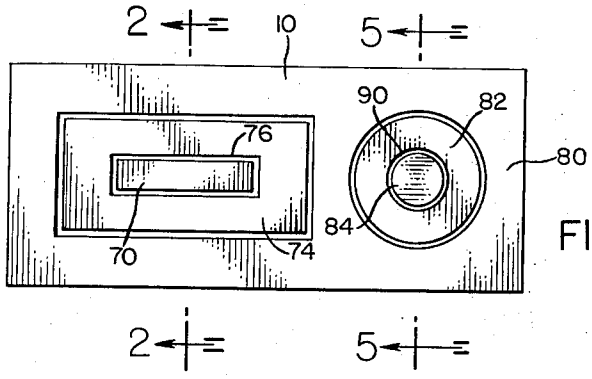



FIG. 1

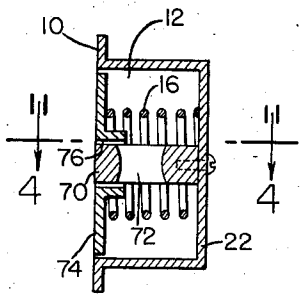



FIG. 2

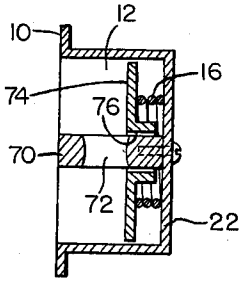



FIG. 3

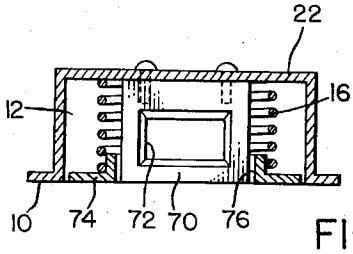



FIG. 4

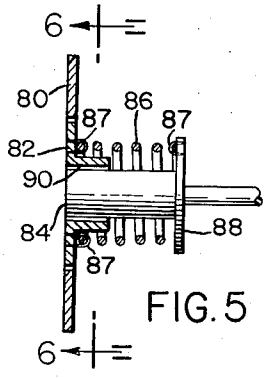



FIG. 5

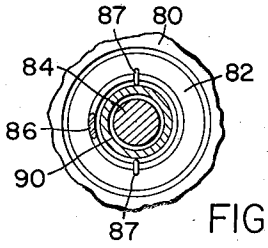



FIG. 6


*INVENTORS*
JULIUS YOUNG &
BENJAMIN W. COLMAN

*BY*

ATTORNEY

United States Patent Office 2,968,196
Patented Jan. 17, 1961



2,968,196

# FLUSH PANEL CONSTRUCTION

Julius Young, 19328 Birwood, Detroit, and Benjamin W. Colman, Berkley, Mich. (8616 Nadine Ave., Huntington Woods, Mich.)

Original application Nov. 10, 1954, Ser. No. 468,044, now Patent No. 2,841,031, dated July 1, 1958. Divided and this application Apr. 17, 1958, Ser. No. 753,388

1 Claim. (Cl. 74—504)

This invention relates to flush panel construction and more particularly to a construction in which knobs or handles or similar manually or digitally operated parts are employed.

This application is a continuation of Young et al. Application Serial No. 468,044 filed November 10, 1954, which issued in Patent No. 2,841,031 on July 1, 1958, entitled Flush Panel Knob Construction.

The invention provides for a construction in which knobs or handles are necessary components and are arranged to lie flush with the panel framing into which they are set for use. The knobs or handles are surrounded by a recess panel that recedes under finger pressure into an opening or a recess chamber in the panel construction, against the resilient pressure of a spring or section of foam rubber or similar means, so that the fingers may come into manual manipulating contact and control of the knob or handle, as the case may be. When the fingers are withdrawn from the knob or handle, the recess panel moves forward under the pressure of the spring or other resilient means to assume its initial flush alignment with the outer panel in which it is located.

The invention provides a construction in which knobs or handles may be employed that are flush with the panel in which they are used or required. Simple examples and applications in which the invention serves are television sets, radio sets, automobile dashboards, automobile doors, electrical and gas household appliances of all types, furniture chests and cabinets, and a large host of equipment employing projecting knobs or handles or both.

Some of the problems generally incident to the use of projecting knobs or handles in a television or radio set or other appliances and devices are the difficulty and expense of protecting the device in packing and shipping, the high rate of damage to projecting knobs and handles in transit, storage and use, damage often done to clothing and the person by projecting knobs and handles, and the often unpleasing appearance made by such projections in a beautiful piece of furniture.

At the present time, there is a positive need for improvements in the exterior appearance of various devices, for the reasons above given. These problems are constantly being confronted in the design of appliances and devices, and the invention here disclosed provides a positive structural solution therefor.

The instant invention provides a flush panel construction that includes an opening or recess within which a knob or handle is located. The knob may be movable in a rotative fashion, fixed, or otherwise manipulatable, and the handle may be fixed in place or operative in one manner or another. The common feature in all of these arrangements is that a protecting and finishing plate or panel about the digital end of the knob or handle is movable and shiftable into the opening or recess or recess chamber of the outer panel, so that the knob or handle may be grasped by the fingers. Upon release of the fingers from the knob or handle, the recess panel is urged back into flush alignment with the outer panel by resilient means, such as a coiled helical spring or a form of sponge rubber or the like, located within the opening or recess and bearing upon the recess panel.



Other features of construction will become more apparent from the description given below. For a visual understanding of the invention, reference may be had to the accompanying drawings made an integral part hereof, and in which

Fig. 1 is a front elevational view of an outer panel in which flush handle and knob arrangements are shown. This view may be considered as severable for each of the arrangements shown.

Figs. 2 and 3 are both vertical sectional views taken substantially on the line 2—2 of Fig. 1, Fig. 3 showing the recess panel depressed inwardly of the recess chamber.

Fig. 4 is a horizontal sectional view taken substantially on the line 4—4 of Fig. 2.

Fig. 5 is a vertical sectional view taken substantially on the line 5—5 of Fig. 1.

Fig. 6 is a vertical sectional view taken substantially on the line 6—6 of Fig. 5.

A basic flush handle construction is shown in Figs. 1, 2, 3 and 4, in which a handle grip **70** is arranged flush with outer panel **10**. A finger opening **72** is provided behind grip **70** in recess chamber **12**. A recess panel **74**, urged into flush alignment with outer panel **10** by spring **16**, surrounds the digital end of handle grip **70**. The panel **74** is provided with an aperture **76** which conforms closely to the peripheral configuration of the handle grip **70** and about which it moves inwardly of the recess chamber. Protecting and finishing panel **74** is urged inwardly by finger pressure until grip **70** may be grasped by the fingers. Upon release of handle grip **70**, recess panel **74** assumes its initial flush alignment with outer panel **10**. Although handle grip **70** is shown as an elongated grip, it is to be understood that it may take other forms such as a round knob or an oval or irregularly shaped knob or finger grip. Handle grip **70** is arranged in fixed form, being secured to the recess rear wall **22** by suitable means.

In Fig. 5, the flush panel construction comprises an outer panel **80** having an opening in which is located a protecting and finishing panel **82** which is movable inwardly of the panel **80**. A knob **84**, having a rotatable movement, is mounted on a base (not shown). Panel **82** is shiftable against a spring **86** which is backed up against a flange **88** at the proximal end of knob **84**. The panel **82** is provided with an aperture **90** which conforms closely to the peripheral configuration of the knob **84** and about which it moves inwardly from the plane of the outer panel. In this construction, the panel **80** is not provided with a recess chamber as in the above described arrangement. The spring **86** is secured to the shiftable panel **82** and to the flange **88** by fastening means such as an adhesive, staples or other suitable means, staples **87** being shown in Figs. 5 and 6.

It will be observed that the panel recess chamber above described serves as a guide recess, or as a guide and spring operating recess, or as a support for functional and operating parts or various combinations of these functions.

In both of the constructions and arrangements here disclosed, the common features of construction include an outer panel, an opening or recess in the outer panel in which is mounted, fixedly or movably, a digitally gripped part having its digital end arranged adjacent the plane of the outer panel, and a movable recess or protecting panel arranged around the operating part's digital end shiftable inwardly of the opening or recess, the recess panel being urged into flush alignment with the outer

panel by resilient means contained within the recess or opening.

It will be apparent that the protecting and finishing or recess panels shown are merely illustrative of basic forms which they make take, these forms being modifiable according to particular applications. The handle grip **70** may not be completely cut through with a finger opening **72**, but may have merely upper and lower finger depressions. The outer panel **10** has been shown as a single element for several of the forms of finger gripped operating parts as a simple means of illustrating the inventive construction. It may be reduced to individual or coupled units of construction without departing from the essence of the invention. The recess chamber **12** may be arranged for a single or multiple knobs and/or handles. Various other changes and variations within the skill of those in the art to which the invention pertains are to be understood as encompassed within the invention and the appended claim.

We claim:

In a device having manually or digitally operated controls, an outer panel having an opening, an operating



control knob mounted for rotative movement on a shaft and having its digital end terminating in said opening in the plane of said outer panel and having a flange at its proximal end associatedly conjoined thereto, a protecting and finishing panel movably mounted in said opening around said digital end and shiftable inwardly to permit manual manipulation of said control knob, said protecting and finishing panel being provided with an aperture therethrough conforming to the peripheral configuration of said knob, and resilient means bearing at one end on said knob flange and at its oppcsite end bearing on said protecting panel and urging said protecting panel toward flush alignment with said outer panel.

**References Cited** in the file of this patent

UNITED STATES PATENTS

| | | |
|---|---|---|
| 2,165,060 | Krug | July 4, 1939 |
| 2,842,010 | Young et al. | July 8, 1958 |

FOREIGN PATENTS

| | | |
|---|---|---|
| 485,630 | Great Britain | May 23, 1938 |