Dec. 11, 1962 P. W. ZURLES 3,067,629

SAFETY SWITCH HANDLE SHAFT STOP MEANS

Filed April 20, 1959

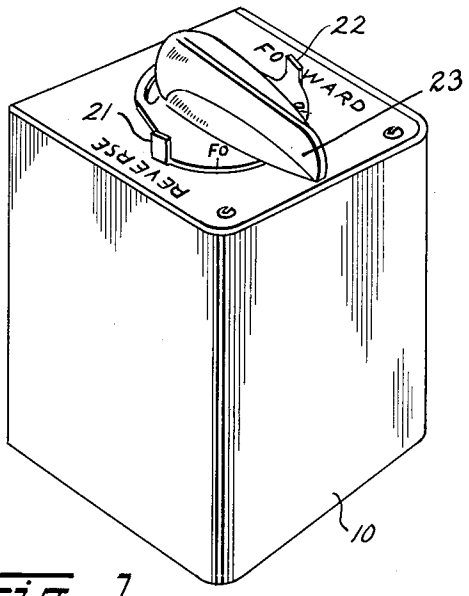


Fig_1

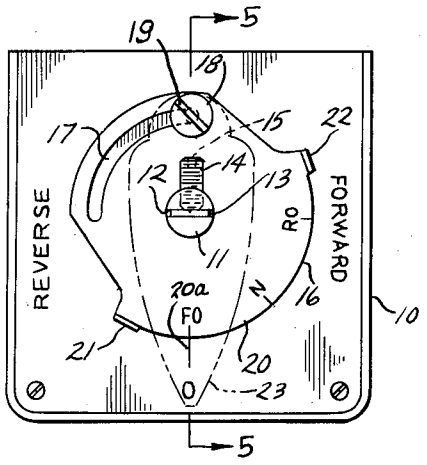


Fig_2

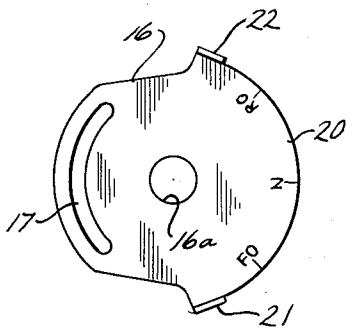


Fig_3

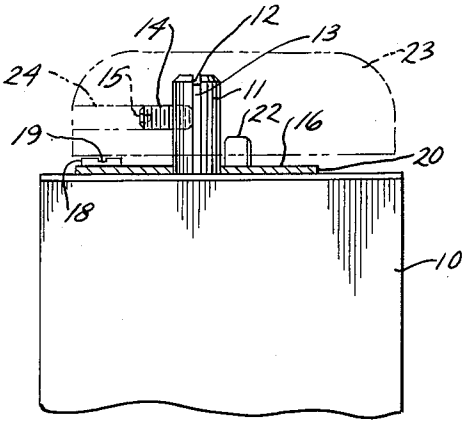


Fig_5

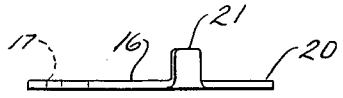


Fig_4

INVENTOR.
PETER W. ZURLES
BY
H. G. Manning
ATTORNEY

United States Patent Office 3,067,629 Patented Dec. 11, 1962

3,067,629

SAFETY SWITCH HANDLE SHAFT STOP MEANS

Peter W. Zurles, 1070 East St., New Britain, Conn.

Filed Apr. 20, 1959, Ser. No. 807,633
2 Claims. (Cl. 74—504)

This invention relates to motor controlling switches of the reversible drum type, and more particularly to a safety stop for such a switch.

One object of the present invention is to provide a safety stop for a reversing drum switch which will permit the switch handle to be turned in only one direction, when desired, or when set in neutral position, will permit the switch handle to be turned in either direction.

A further object is to provide a device of the above nature which will be simple in construction, inexpensive to manufacture, easy to install and manipulate, compact, ornamental in appearance and very efficient and durable in use.

With these and other objects in view, there has been illustrated in the accompanying drawings one form in which the invention may conveniently be embodied in practice.

In the drawings,

FIG. 1 represents a perspective view of the apparatus adapted for use on a "Cutler Hammer" type of reversing drum switch having a short recessed "tear drop" shaped plastic switch operating knob.

FIG. 2 is a top plan view of the same, with the plastic knob shown in dotted lines.

FIG. 3 is a top plan view of the stop plate employed, shown by itself.

FIG. 4 is a side view of the same.

FIG. 5 is a fragmentary view, partly in section, showing the upper portion of the switch casing, the stop plate, and the vertical switch shaft, with the handle indicated in dotted lines.

The main feature of the present invention is the stop plate which may be fitted over the top of the vertical shaft of a drum type switch, and which is provided with a concentric arcuate slot for embracing a binding screw which may be used to lock the plate in adjusted angular position upon the switch casing.

The stop plate is provided with a pair of side lugs which serve as handles to permit the manual adjustment of said stop plate to "forward only," "neutral," or "reverse only" positions. The side lugs also serve as stops for limiting the swing of the switch handle.

Referring now to the drawings in which like reference numerals denote corresponding parts throughout the several views, the form of the invention disclosed in FIGS. 1 to 5 shows a drum switch casing **10** of the type manufactured by "Cutler Hammer."

The numeral **11** indicates the split shaft of said switch having an open vertical slot **12** at the top thereof. The numeral **13** indicates a small vertical rectangular plate which is adapted to be located within the slot **12** and which causes said switch shaft to spread apart when said plate **13** is engaged by a headless set screw **14**, which is provided with a hexagonal socket **15** for the reception of an adjusting "hex" screw key of the Allen type.

The numeral **16** indicates a horizontal substantially circular stop plate provided with a circular central hole **16***a* fitted over the shaft **11**. The stop plate **16** is provided with an arcuate slot **17** near the periphery thereof for receiving a vertical headed binding screw **18** having a slot **19** for locking said plate in adjusted position upon the switch casing **10**. The stop plate **16** is also provided with a circular scale section **20** marked with three lines "FO," "N," "RO," indicating "Forward Only," "Neutral," and "Reverse Only," respectively. The top of the casing **10** has an indicating line **20***a* adjacent the circular edge of the stop plate **16**.

The stop plate **16** is also provided with a pair of upstanding ears or handles **21**, **22** which may be manually operated, when the binding screw **18** has been loosened, to swing the stop plate to any one of its three operating positions.

In this form of the invention, a hollow plastic "tear drop" switch operating knob **23** is provided, having a rear opening **24** for admitting the headless set screw **14**, as clearly shown in FIG. 5.

One advantage of the switch safety stop of the present invention is that it prevents injury to tools, work and personnel in case an attempt is made to swing the switch handle accidentally in the wrong direction to operate the motor or other machinery.

While the safety switch handle stop herein disclosed relates to a device for permitting the switch handle to move to a "forward only" position, "reverse only" position, or to operate normally in either forward or reverse directions, it will be understood that it is within the purview of this invention to employ a stop plate having stop positions for use on a multispeed motor controlling switch, said stops being set so that the switch handle will be stopped at the desired speeds.

While there has been disclosed in this specification one form in which the invention may be embodied, it is to be understood that this form is shown for the purpose of illustration only, and that the invention is not limited to this specific disclosure, but may be modified and embodied in various other equivalent forms without departing from its spirit.

In short, the invention includes all the modifications and embodiments coming within the scope of the following claims.

Having thus fully described the invention, what is claimed as new and for which it is desired to secure Letters Patent is:

1. In a safety motor controlling switch of the reversing drum type, the combination of a housing for said switch provided with a plane surface, a switch operating shaft projecting through said surface, means to selectively hold said shaft in any two of three operating positions, a manually operated control handle nonrotatably secured to the top of said shaft, a flat stop plate located on said plane surface under said handle, said stop plate having a central aperture loosely fitted around said shaft and having an arcuate slot near its periphery concentric with said shaft, a headed binding screw threadedly engaged in said plane surface and loosely fitted in said arcuate slot, the head of said screw when in locked condition being pressed tightly against said stop plate, and upstanding handle lug means on the periphery of said stop plate in the path of said handle to effect angular adjustment of said stop plate to a plurality of certain handle rotation limiting positions when said screw is loosened, said lug means, when said screw is tightened, serving to prevent said handle from being swung too far in one direction, the ends of said arcuate slot serving to locate said stop plate in said certain positions.

2. In a safety motor controlling switch of the reversing drum type, the combination of a housing for said switch provided with a plane surface, a switch operating shaft projecting through said surface, a manually operated control handle rigidly secured to the top of said shaft for rotation therewith to at least three distinct selective operating positions, a flat stop plate mounted on said surface under said handle and having a central aperture loosely fitted around said shaft for rotation with respect thereto, said stop plate having an arcuate slot near its periphery concentric with said shaft, a headed vertical binding screw threaded into said surface and lo-

cated within said arcuate slot, and integral stop lug means upstanding from said stop plate and serving as handle means to effect angular adjustment of said stop plate when said screw is loose, and to act as stop means to limit the angular movement of said handle to two of said selected distinct operating positions when said screw is tightened.

References Cited in the file of this patent

UNITED STATES PATENTS

804,783	Varley	Nov. 14, 1905
912,717	Murphy	Feb. 16, 1909
1,556,828	Wyman	Oct. 13, 1925
2,361,559	Mekelburg	Oct. 31, 1944
2,420,548	Mackay et al.	May 13, 1947
2,699,479	Gorham	Jan. 11, 1955
2,842,647	Khouri	July 8, 1958
2,903,893	Scott et al.	Sept. 15, 1959
2,953,937	Jackson et al.	Sept. 27, 1960
2,982,148	Jackson et al.	May 2, 1961

FOREIGN PATENTS

146,363	Great Britain	May 12, 1921
1,077,909	France	May 5, 1954