Feb. 1, 1927. 1,616,149

J. TEIPEL ET AL

CONTROLLER HOUSING

Filed Oct. 26, 1922

Fig. 1.

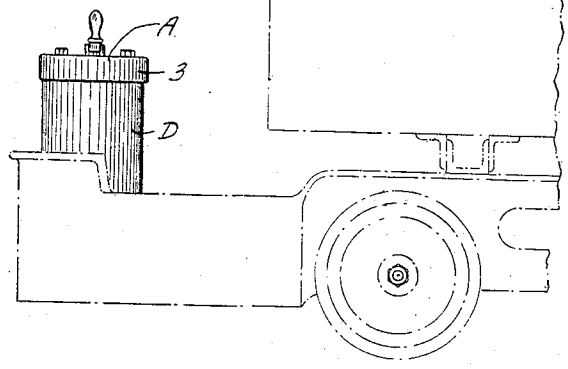


Fig. 2.

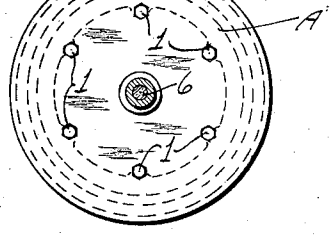


Fig. 3.

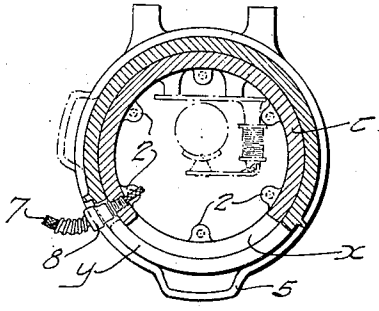


Fig. 4.

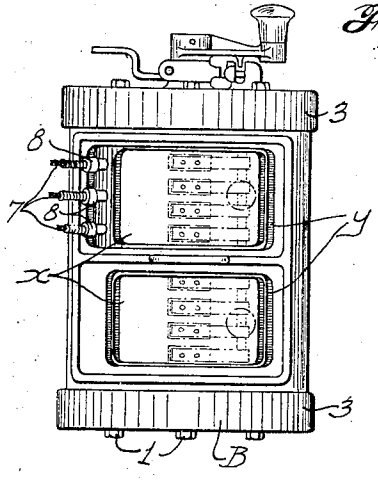
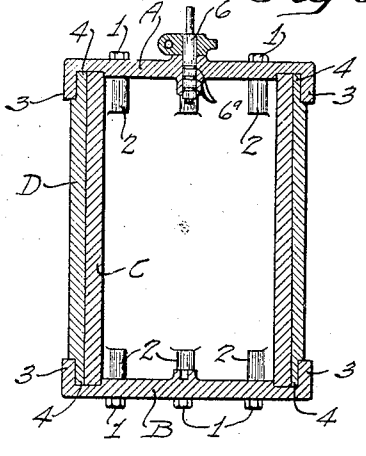


Fig. 5.



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CONTROLLER HOUSING.

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This invention relates to housings for electric controllers, and has for one of its objects to provide a controller housing which is of such construction that if an explosion occurs on the inside of the housing, the resulting flame cannot escape from the housing.

Another object is to provide a flame-proof controller housing that can be opened quickly and easily to give access to the controller located inside of the housing.

And still another object is to provide a controller housing having the desirable characteristics above mentioned, that is of simple design and inexpensive construction.

To this end we have devised a controller housing, which, in its simplest form, consists of a casing having an opening in one portion of same that provides access to the controller arranged inside of the casing, and a closure for said opening arranged in sliding engagement with the portion of the casing in which the opening is formed. In the preferred form of our invention, as herein illustrated, the casing is provided with a cylindrical wall that contains the opening previously referred to, and the closure is formed by a cylindrical shell that surrounds said wall and which is provided with a co-operating opening that is adapted to be brought into registration with the opening in the wall of the casing by turning or oscillating said shell. It is not essential, however, that the closure and the portion of the casing on which it is slidingly mounted be of the particular form mentioned or be combined in the particular manner herein illustrated.

The main advantage of a controller housing of the construction above described is that it can be made flame-proof and also easily accessible to the controller arranged inside of same. Consequently, it is particularly well adapted for use on electric storage battery locomotives such as are used in mines, owing to the fact that it eliminates the possibility of a gas leak in a mine being ignited by a spark produced by the controller.

Figure 1 of the drawings is a side elevational view of our improved controller housing, showing it arranged in operative position on an electric storage battery mine locomotive.

Figure 2 is a top plan view of said controller housing.

Figure 3 is a horizontal sectional view of said controller housing.

Figure 4 is a side elevational view, showing the movable closure of the housing arranged in its open position, so as to provide access to the interior of the housing; and

Figure 5 is a vertical longitudinal sectional view of the housing.

Referring to the drawings which illustrate the preferred form of our invention, A and B designate the top and bottom walls or end pieces, and C designates the side wall of a casing that constitutes a housing for an electric controller. Said casing has an opening that provides access to the controller arranged inside of same, and a movable closure is provided for normally covering said opening, the closure being slidingly mounted on the portion of the casing in which the opening is formed. In the preferred form of our invention, as herein illustrated, the side wall C of the casing is of cylindrical form and is provided with one or more openings x, as shown in Figure 4. The closure for said opening or openings is formed by a cylindrical shell D that surrounds the cylindrical wall C of the casing and which is provided with one or more openings y that are adapted to be brought into registration with the opening or openings in the wall C so as to provide access to the controller arranged inside of the casing by turning or oscillating said closure D into the position shown in Figure 4.

It is immaterial, so far as our broad idea is concerned, how the end pieces and side wall of the casing are combined, but we prefer to form the side wall C of the casing from a cylindrical shell whose ends are clamped tightly against the end pieces A and B of the casing by bolts or other suitable fastening devices 1 which project through said end pieces and are threaded into lugs 2 on the inner side of the side wall C of the casing. The outer face of the side wall C and the inner face of the shell D that surrounds same are preferably machined surfaces so as to provide a substantially air and gas tight joint between said parts, and means is provided for protecting the ends of the joint between said shells C and D. In the form of our invention herein illustrated the end pieces A and B of the casing are so con-

structed that they lap over the ends of the outer shell D of the housing, and said end pieces are provided with flanges 3 that embrace the end portions of the outer shell D, and thus serve as guides in which said outer shell D turns. In order to make the joints between the end pieces A and B and the shells C and D as tight as possible and at the same time produce an easily accessible controller housing that is capable of successfully withstanding great internal pressure, we form annular recesses 4 in the end pieces A and B that receive the end portions of the cylindrical shells C and D, as shown in Figure 5, and also recess the ends of the outer shell D, so that the flanges 3 on the end pieces A and B of the casing will accurately guide the outer shell D and at the same time tend to prevent the ingress and egress of gases to and from the interior of the housing.

In constructing the housing it is preferable to form the elements C and D from cast metal shells whose meeting faces are machined so that a substantially air and gas tight joint will be formed between the side wall C of the casing and the cylindrical closure D that surrounds the same. After the shells C and D have been arranged one within the other, as shown in Figure 5, the end pieces A and B of the casing are slipped over the reduced portions at the ends of the outer shell D and the fastening devices 1 are inserted so as to draw said end pieces into snug engagement with the ends of the inner shell C, and thus rigidly connect said parts together. The outer shell or closure D of the housing is preferably provided with a handle 5 that can be grasped to turn said closure in one direction so as to cause the opening therein to register with the opening in the stationary wall C of the casing, and in the opposite direction to close the opening in said stationary wall. The operating shaft or stems 6 of the controller projects upwardly through the top wall A of the housing, and in order to provide a flame-proof joint between said stem and the portion of the housing through which it projects, the stem is provided with a plurality of annular recesses 6^a, as shown in Figure 5, that virtually form expansion chambers which effectively prevent a flame from escaping from the interior of the housing through the joint around the stem 6. The electrical conductors 7 may be led into the housing in various ways, but we prefer to provide the stationary side walls C with packing devices 8 through which the conductors 7 pass, said packing devices projecting outwardly from the side wall C of the casing through the opening y in the closure D and being arranged far enough from the side edge of the opening x in the side wall C to provide a substantial bearing between said devices and the edge of the opening x for the closure D when said closure is moved into a position to close the opening or openings in the stationary side wall of the casing.

Due to its simple design a controller housing of the construction above described can be manufactured at a low cost, as it is composed of only a few parts that can be easily machined on a lathe. The controller inside of the housing can be gotten at easily and simply by turning or oscillating the outer shell D into such a position that the opening in same registers with the opening in the stationary side wall C of the housing, and when the closure D is in its closed position the interior of the housing is effectively sealed from the atmosphere. While there is very little possibility of air or gas entering the interior of the housing, still, if gas should enter the housing and become ignited by a spark produced by arcing of the co-operating parts of the controller, the resulting flame cannot escape from the housing, due to the fact that the side wall C in which the opening y is formed is surrounded by the cylindrical shell D that completely covers the opening in said side wall and the end pieces of the housing are combined with the side wall and with the outer movable shell D in such a way that it is impossible for a flame to pass through the joints between said parts. Consequently, such a controller housing is admirably adapted for use on an electric storage battery mine locomotive, as it eliminates the possibility of a gas leak in a mine being ignited by an explosion produced inside of the controller housing.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. A controller housing, comprising a cylindrical side wall provided with an opening, a movable cylindrical shell surrounding said side wall and provided with a co-operating opening, separate end pieces provided with annular recesses that receive the end portions of said shell and cylindrical side wall, flanges on said end pieces that surround reduced portions at the ends of said shell, fastening devices passing through said end pieces and threaded into lugs on said cylindrical wall, a controller in said housing provided with an operating shaft or stem that projects through one of said end pieces, and means for producing a flame-tight joint between said stem and the portion of the housing through which it projects.

2. A controller housing having an opening in same that provides access to the controller inside of the housing, electrical supply conductors leading into said housing and arranged in proximity to said opening, and a movable closure for said opening slidingly mounted on the portion of the housing in which said opening is formed and provided

with a co-operating opening through which said supply conductors pass both when the closure is in its open and closed positions.

3. A controller housing consisting of a casing having a cylindrical side wall provided with an opening, electrical supply conductors that lead into said casing at a point in proximity to one edge of the opening in said side wall, and a rotatable cylindrical shell surrounding said side wall and provided with a co-operating opening that is adapted to be brought into registration with the opening in said side wall, the supply conductors projecting outwardly from the side wall of the casing through the opening in said shell.

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