G. M. W. GOETTLING.

STORAGE BATTERY.

APPLICATION FILED JAN. 4, 1909

939,006. Patented Nov. 2, 1909.

Fig. 1.

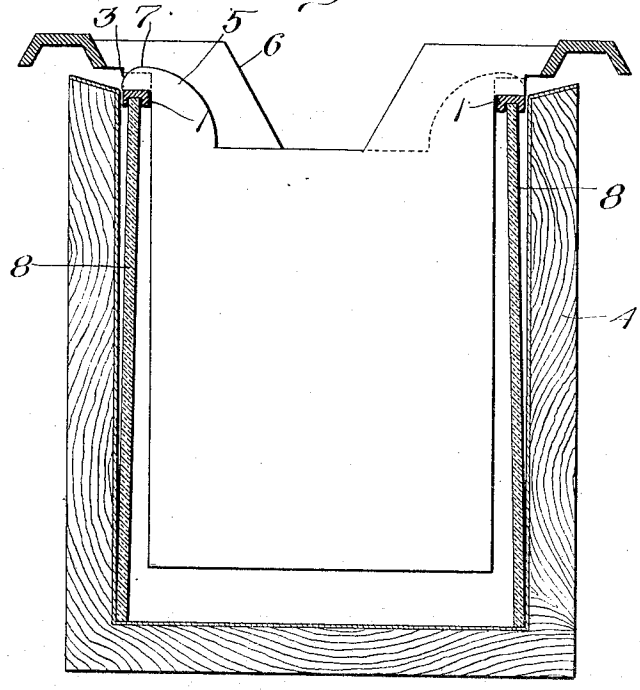
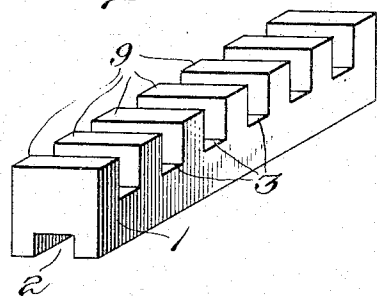


Fig. 2.



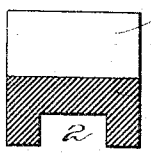


Fig. 3.

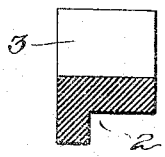


Fig. 4.

Witnesses:

Edward Maxwell.

M. J. Spalding.

Inventor:

Gerhard M. W. Goettling

by Geo. S. Maxwell, Atty.

UNITED STATES PATENT OFFICE.

GERHARD M. W. GOETTLING, OF BROOKLINE, MASSACHUSETTS.

STORAGE BATTERY.

939,006. Specification of Letters Patent. Patented Nov. 2, 1909.

Application filed January 4, 1909. Serial No. 470,681.

To all whom it may concern:

Be it known that I, GERHARD M. W. GOETTLING, a subject of Germany, residing at Brookline, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Storage Batteries, of which the following description, in connection with the accompanying drawings, is a specification, like figures on the drawings representing like parts.

In the practical use of storage batteries the insulating plates of glass which support the grids or active battery plates, frequently get broken and thereby cause much trouble and expense. Also the ears or supporting projections of said plates are apt to bend or buckle into short-circuiting contact with each other. My invention aims to prevent or minimize these troubles as much as possible, and to this end I have provided an insulating bar having a recess on its under side fitting over the top edge of the glass plate support mentioned and provided in its upper side with transverse grooves or notches for receiving the projecting ears of the active plates and thereby supporting said ears and properly spacing them apart. The bottom longitudinal groove or recess strengthens the glass plate, and, in case it should crack or break, tends to hold the parts thereof together and maintain them in alinement, and it also aids in distributing the heavy weight of the active plate throughout the entire extent of the glass plate and when a workman steps on the same my intermediate insulating bar serves to distribute his weight over a larger area of the glass plate than would otherwise be the case. Not only does my spacing and insulating bar properly position the active plates and prevent their supporting ears from contacting with each other, but it prevents the weight of any given plate from coming directly on the top edge of the glass plate at a single point as has heretofore been the case when the active plates have been hung in direct contact with the top edges of the insulating glass plate.

In the drawings, which more clearly illustrate my invention, Figure 1 is a sectional view of a usual storage battery with my invention applied thereto; Fig. 2 is a perspective view of my insulating and spacing bar; Fig. 3 is a cross-sectional view thereof; and Fig. 4 a similar sectional view of a modified form.

The insulator bar 1 which constitutes the main feature of my invention, is acid proof and hence preferably made of vulcanized rubber, porcelain, glass, clay, or other similar acid proof insulating substance. The bar is preferably substantially rectangular in cross-section, as best shown in Fig. 2, and on its under side has a recess 2 shown in Figs. 2 and 3 as a longitudinal U-shaped groove, and in Fig. 4 as slightly different, having one lateral side open. Extending transversely across the top side or edge of the bar 1 are grooves 3 spaced apart according to the required spacing distance of the active plates of the battery.

Referring to Fig. 1, where I have shown one type of the usual battery, it will be seen that the box 4, usually of wood, contains a series of active plates 5, 6, whose ears 7 rest in the grooves 3 of the spacing insulator bar 1 and the latter is set down over the top edge of a supporting plate 8 of glass, located against or adjacent the contiguous wall of the box 4. A similar glass plate 8 is provided at the opposite side of the box, on which is another of my spacing bars for similarly supporting the battery plates at their adjacent edges. Preferably the grooves 2 are shallow so as not to interfere with the free inclined position of the supporting plates 8 as clearly shown in Fig. 1, and the transverse grooves 3 are relatively deep so that the intervening ribs or spacers 9 will act to prevent lateral swinging or tipping of the suspended battery plates.

I prefer the form of insulator shown in Fig. 3 but when it is desired to permit the glass supporting plate 8 to come closer to the contiguous walls of the battery box, the construction shown in Fig. 4 may be used. It will be understood that I am not limited to the particular form or arrangement of this longitudinal recess. Also the height of the intermediate ribs or spacers 9 between the grooves 3 may be varied to suit the particular kind of battery and purpose of the user.

From the above description it will be readily understood that the insulator bar 1 will readily maintain a supporting glass plate 8 in proper supporting relation to the rest of the battery even though said plate should crack or slightly break. Also the individual active plates 5, 6 no longer bring their entire weight directly on the glass plate at a single point, as heretofore, but the weight is distributed evenly along the top edge of

the glass plates. The plates 8 are frequently called upon to sustain four hundred pounds or more and also it is a common practice of the workmen to walk on top of the batteries, so that their weight often comes on the glass plates, and my insulator bars help to distribute this weight as well as the weight of the active plates 5, 6. The main object of my insulator bars, however, is the positive spacing apart of the ears 7 of the active plates which rest in the grooves 3 and are separated by the barriers or ribs 9, so that they cannot possibly buckle together and short-circuit.

Various other practical advantages of the invention will appear to those skilled in the art without further description.

As already intimated, I do not intend to restrict myself to the precise constructional details except as otherwise stated in the claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is,

1. In a storage battery, the combination with a series of successive battery plates, opposite supporting plates extending transversely of the adjacent ends of said series of plates, and a removable insulator bar at each side of the battery, separate from said supporting plates and from said series of battery plates, provided on its under side with a longitudinal alining recess removably fitting lengthwise along the top edge of the adjacent supporting plate and on its upper side with a series of transverse grooves spaced apart in accordance with said battery plates, one groove for each of the successive battery plates, and each battery plate having at each of its upper corners a laterally projecting ear for suspending the plate in the adjacent transverse groove of the adjacent bar, whereby each battery plate of the battery is suspended at its opposite upper corners in the transverse grooves of the opposite removable insulator bars and is supported at both sides by the two bars and the two supporting plates, and whereby the weight of all the battery plates of the battery is distributed throughout the length of the supporting plates by means of said two removable insulator bars.

2. In a storage battery, the combination with a series of successive battery plates, opposite supporting plates extending transversely of the adjacent ends of said series of plates, and a removable insulator bar at each side of the battery, separate from said supporting plates and from said series of battery plates, provided on its under side with a longitudinal alining recess removably fitting lengthwise along the top edge of the adjacent supporting plate and on its upper side with a series of transverse grooves spaced apart in accordance with said battery plates, one groove for each of the successive battery plates, said longitudinal grooves on the under side of said bars being relatively shallow and said transverse grooves on the upper side of said bars being relatively deep, and each battery plate having at each of its upper corners a laterally projecting ear for suspending the plate in the adjacent transverse groove of the adjacent bar, whereby each battery plate of the battery is suspended at its opposite upper corners in the transverse grooves of the opposite removable insulator bars and is supported at both sides by the two bars and the two supporting plates, and whereby the weight of all the battery plates of the battery is distributed throughout the length of the supporting plates by means of said two removable insulator bars.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

GERHARD M. W. GOETTLING.

Witnesses:
M. J. Spalding,
Edward Maxwell.