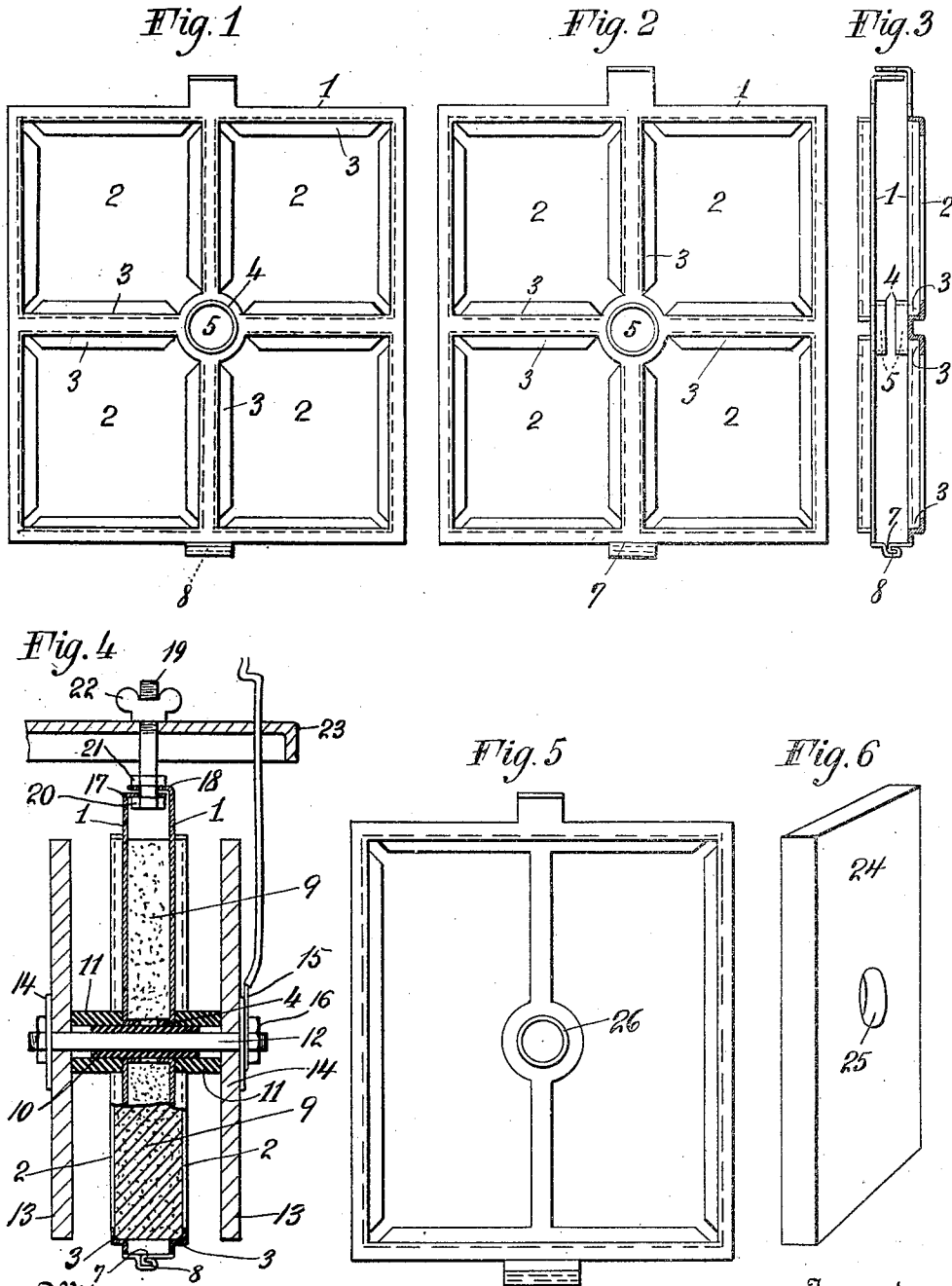


R. C. WOOD.
BATTERY.
APPLICATION FILED MAY 10, 1912.

1,049,961.

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BATTERY.

1,049,961.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ROBERT C. WOOD, a citizen of the United States of America, residing at the city of New York, in the county and State of New York, have invented certain new and useful Improvements in Batteries, of which the following is a specification.

My invention relates to primary batteries and it consists as one feature in the manner in which I assemble the parts constituting the negative element; also in the manner in which I make up the combination of the negative and positive elements.

Figure 1, is a perspective view of one part of a device embodying my invention. Fig. 2, is a similar view of a second part of said device. Fig. 3 is a similar view of the combined elements. Fig. 4 is a central vertical sectional view of the device of Fig. 1. Fig. 5 is a perspective view of a slightly modified form of one part of the structure. Fig. 6 is a perspective view of the oxid adapted for use with other parts like those of Fig. 5.

My purpose is to form a combined charge for a battery consisting of a positive and a negative element, so assembled that they may be readily and conveniently assembled at the factory, shipped as assembled, remain in perfect adjustment where shipped and until and when used, adapted to be secured in place in a jar with a minimum of labor and without the necessity for readjustment of the parts, also to be as readily removed therefrom without the necessity of gloves or other protection for the hands, because there will be no necessity for touching the parts which have been submerged, and yet may be as readily disassembled, if that be desired, and, as a subsidiary feature, to accomplish this in such a way as to permit a central suspension and connection and thereby secure the important results in the way of heavy current and long life to the battery which such suspension and connection insures.

In constructing my device, I first stamp out or otherwise provide a structure 1, like a part of a box with a series of openings 2, preferably four, the edges of said openings being shaped to form sockets as at 3. This structure has a central boss 4 of sufficient size to give it strength to withstand considerable pressure and through this central boss there is an aperture or opening 5. The complementary part of the structure is in one form, a duplicate of part 1.

On one side I sometimes provide extensions 7, adapted to fit in slots 8, in the other side and thus constitute a variety of hinge or catch. I then mold blocks of oxid of copper 9, of a size and form adapted to set within and fit into spaces left between the socket portions 3 of one member of the box and those of the other member. Having seated the requisite number of said blocks 9, in the sockets of one member, I place the other member over it, then insert a bushing of insulating material 10 into the holes or apertures 5. Over this bushing I pass two sleeve like cylinders of insulating material 11 which are respectively longer than the projecting parts of bushing 10. Then I pass a bolt 12 through said bushing, set the zincs 13 upon the shaft of the bolt 12, first applying washers 14 and a terminal 15, and turn down the bolt 16 until they are all tightly secured together. Then the oxid blocks will be held firmly in place, the box like parts bearing tightly upon them and furnishing a more perfect electrical contact than could otherwise be secured, since considerable pressure may be used in bringing the parts together, which, as the socket flanges bear upon a flat surface of the oxid blocks, may be sustained without fracturing said blocks, a liability always present in the majority of structures wherein oxid blocks are used, unless the pressure is too slight to create that perfect contact which is necessary to produce a satisfactory battery.

At the upper side, or on one side of the box like pieces, I preferably project tang like extensions 17, 18, which may be struck up from the material of the box pieces. These tangs I pierce to accommodate a bolt 19 and bend over, so that they preferably lap one over the other, with the apertures in registry. Then I slip a nut 20 under one (this is done before bringing parts 17 and 18 together). Having brought the parts together, I pass a bolt 19 (preferably provided with an extra nut 21) down through the apertures in the tangs 17 and 18, and the device is ready to be placed in a jar in which it may be readily suspended by the single bolt 19, held to the cover, 23, by a wing or other nut 22, which furnishes a ready means of connecting one of the circuit wires, the other being secured to the terminal extending from bolt 12, as shown at 15.

Instead of the box of Figs. 1, 2, I sometimes employ one like Fig. 5, which is quite

similar to the first one, but designed to accommodate a single block of oxid 24, pierced with an aperture 25, to permit the entrance therein of the bosses 26.

5 One part of this box may be made a little larger, (as a box cover would be), to fit over the other part, and when I propose to use a single block of oxid in constructing the negative element, I prefer to omit the projections which form the sockets 3.

10 The arrangement of the insulators permits the transmission of pressure by the larger sleeves and yet insures that no portion of the bolt 12, adjacent to the negative element, shall be unprotected.

15 The arrangement of a central suspension of the zincs is especially advantageous, since it insures an evenness of action which is very difficult to attain, but which in this device is particularly well secured, and the design of the parts, permits the establishment of a particularly intimate contact, with all the beneficial results attendant thereon, and the easy maintenance of such condition.

20 Then too, as initially stated, though the charge, that is the first part of it composed of the negative and positive elements, may be shipped already assembled, they may equally well be shipped otherwise, thus saving freight, and readily and correctly assembled by unskilled labor. Again though the combination may be detached from the jar cover by removing one bolt, nevertheless, if there be a desire to disassemble, the removal of bolt 19 from the nut 20 and nut 16 from bolt 12, permits the separation of the charge into its integral parts with the minimum of labor.

What I claim as my invention and desire to secure by Letters Patent is:

40 1. In a battery, the combination of an oxid block, a sustaining structure, composed of two apertured pan like conductive parts whose peripheral flanges are less in height than the thickness of the oxid block, adapted to receive and hold the oxid block between them and in contact therewith, to be forced tightly against said block and with it to constitute a negative element, a central boss or hub formed in the pan like parts, but less in height than the thickness of the oxid block, a positive element formed of at least one plate of zinc, insulation interposed between the positive and negative elements, a support for the pan like parts adapted to be secured to a jar cover, and means substantially as set forth, independent of the cover and located substantially at the center, for holding said elements together.

60 2. In a battery, the combination of an oxid block, a sustaining structure, composed of two apertured pan like conductive parts whose peripheral flanges are less in height than the thickness of the oxid block, adapted to receive and hold the oxid block between them and in contact therewith, to be forced tightly against said block and with it to constitute a negative element, a central boss or hub formed in the pan like parts, but less in height than the thickness of the oxid block, a positive element, formed of at least one plate of zinc, insulation interposed between the positive and negative elements, a support for the pan like parts adapted to be secured to a jar cover, means for connecting the extremities of said pan like parts, and a bolt extending through the central apertures and provided with a nut, adapted as described to produce the compression of the pan like parts together and upon the oxid block, all substantially as set forth.

70 3. In a battery the combination of two apertured plates, adapted to inclose a block of oxid of copper, and provided with central apertures and means for connecting the extremities, a bolt extending through the central apertures, an insulating sleeve surrounding said bolt, other insulating sleeves surrounding the first, bearing upon the respective plates, and interposed between said plates and the head and nut of the bolt respectively, means for suspending said plates, substantially as described, and an oxid of copper block inclosed within the plates, all substantially as set forth.

80 4. In a battery the combination of two apertured plates, adapted to inclose a block of oxid of copper, and provided with central apertures and means for connecting the extremities, a bolt extending through the central apertures, an insulating sleeve surrounding said bolt, other insulating sleeves surrounding the first, bearing upon the respective plates, and interposed between said plates and the head and nut of the bolt respectively, means for suspending said plates substantially as described and an oxid of copper block inclosed within the plates, together with a zinc plate supported on said bolt, all substantially as set forth.

100 5. In a battery the combination of two apertured plates adapted to inclose a plurality of blocks of oxid of copper, and provided with central apertures and means for connecting the extremities, a bolt extending through the central aperture, an insulating sleeve surrounding said bolt, other insulating sleeves surrounding the first, bearing upon the respective plates, and interposed between said plates and the head and nut of the bolt respectively, means for suspending said plates substantially as described and a plurality of oxid of copper blocks, inclosed within the plates, all substantially as set forth.

110 6. In a battery the combination of two apertured plates, adapted to inclose a block of oxid of copper, and provided with central apertures and means for connecting the extremities, a bolt extending through the central aperture, an insulating sleeve surrounding said bolt, other insulating sleeves surrounding the first, bearing upon the respective plates, and interposed between said plates and the head and nut of the bolt respectively, means for suspending said plates substantially as described and a plurality of oxid of copper blocks, inclosed within the plates, all substantially as set forth.

120 7. In a battery the combination of two apertured plates, adapted to inclose a block of oxid of copper, and provided with central apertures and means for connecting the extremities, a bolt extending through the central aperture, an insulating sleeve surrounding said bolt, other insulating sleeves surrounding the first, bearing upon the respective plates, and interposed between said plates and the head and nut of the bolt respectively, means for suspending said plates substantially as described and a plurality of oxid of copper blocks, inclosed within the plates, all substantially as set forth.

130 8. In a battery the combination of two apertured plates, adapted to inclose a block of oxid of copper, and provided with central apertures and means for connecting the extremities, a bolt extending through the central aperture, an insulating sleeve surrounding said bolt, other insulating sleeves surrounding the first, bearing upon the respective plates, and interposed between said plates and the head and nut of the bolt respectively, means for suspending said plates substantially as described and a plurality of oxid of copper blocks, inclosed within the plates, all substantially as set forth.

5. tremities, a bolt extending through the central apertures, an insulating sleeve surrounding the bolt, bearing upon the respective plates, and interposed between said plates and the head and nut of the bolt respectively, means for suspending said plates, substantially as described, and an oxid of copper block, inclosed within the plates, together with a zinc plate centrally supported on said bolt, all substantially as set forth.

10 7. In a battery the combination of two apertured plates, adapted to inclose a block of oxid of copper, and provided with central apertures and means for connecting the
15 extremities, a bolt extending through the central apertures, insulating sleeves, bearing upon the respective plates, and interposed

between said plates and the head and nut of the bolt respectively, means for suspending said plates, substantially as described, and 20 an oxid of copper block, inclosed within the plates, together with a zinc plate centrally supported on said bolt and interposed between an enlarged part thereof, and the insulation which bears upon the plate, all sub- 25 stantially as set forth.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, this 8th day of May 1912.

ROBERT C. WOOD.

Witnesses:

W. C. BANKS,

A. G. N. VERMILYA.