P. BERNARD.

WINDOW.

APPLICATION FILED APR. 24, 1916.

1,211,053.

Patented Jan. 2, 1917.

2 SHEETS—SHEET 1.

Fig. 1.

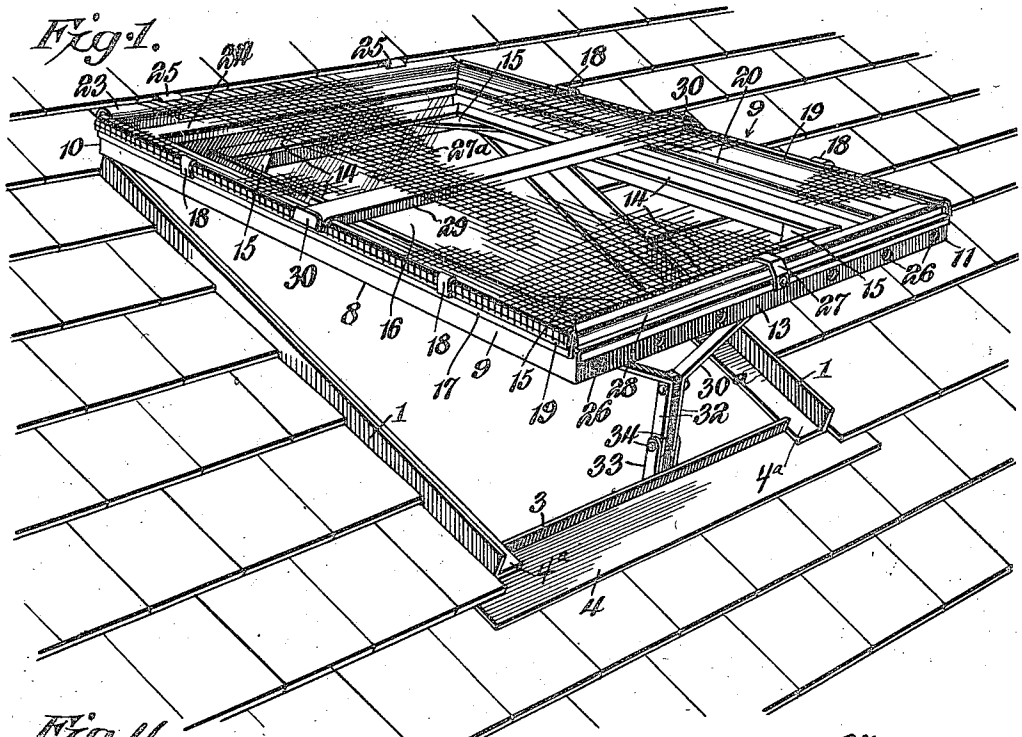


Fig. 4.

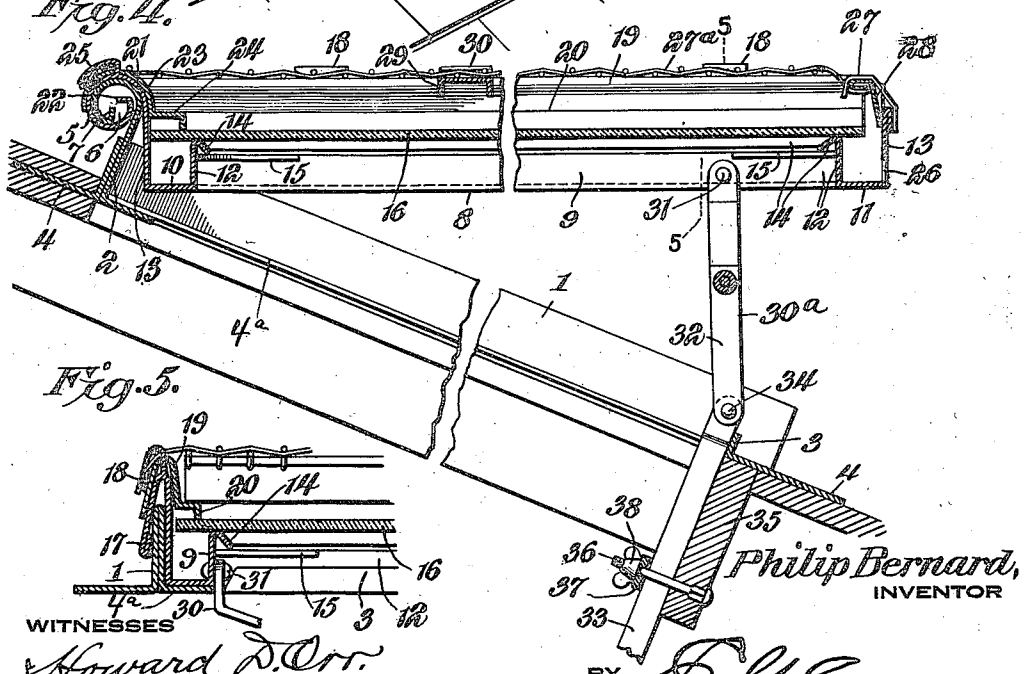


Fig. 5.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 2.

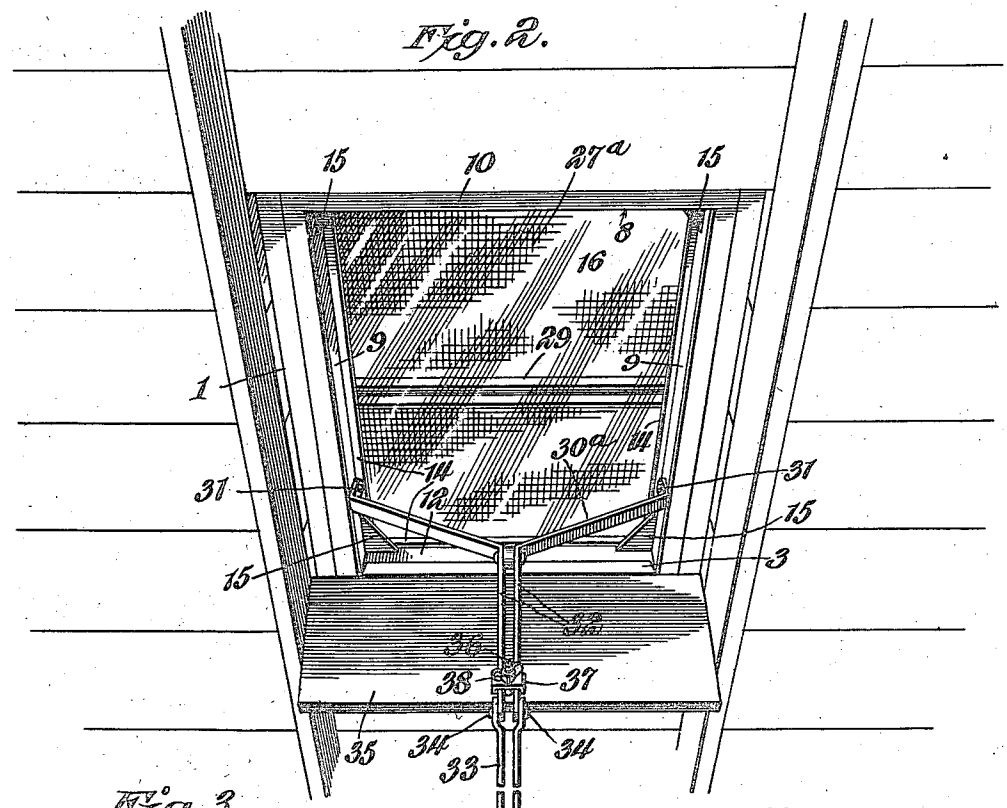
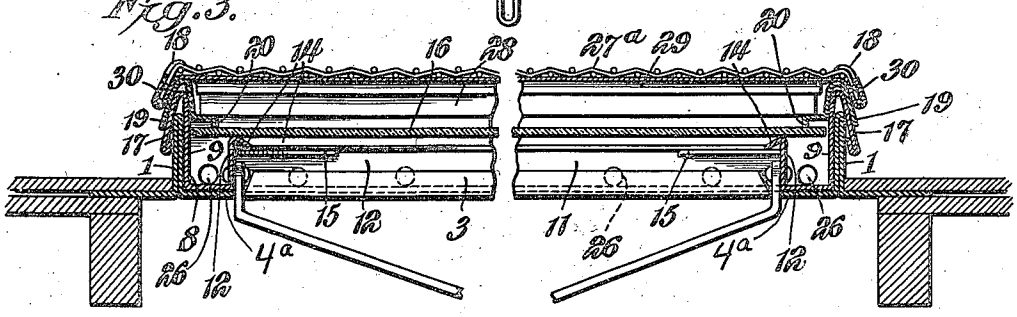



Fig. 3.




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# UNITED STATES PATENT OFFICE.

PHILIP BERNARD, OF SIOUX CITY, IOWA.

## WINDOW.

1,211,053. Specification of Letters Patent. Patented Jan. 2, 1917.

Application filed April 24, 1916. Serial No. 93,249.

*To all whom it may concern:*

Be it known that I, PHILIP BERNARD, a citizen of the United States, residing at Sioux City, in the county of Woodbury and State of Iowa, have invented a new and useful Window, of which the following is a specification.

This invention has reference to windows, and its object is to provide a construction of window which may be opened to desired extents for the purpose of ventilation.

The window of the present invention is designed more particularly for hog and chicken houses, although applicable to various other purposes, and by its use not only is light transmitted to the interior of the house, but the window may be opened as desired for ventilation.

The improved window is so constructed that it may be made, so far as the framework is concerned, entirely of sheet metal, and is capable of receiving and supporting glass without the use of putty or like means for excluding rain and the like, but at the same time avoiding leakage of water into the house and permitting the ready insertion of a glass pane should the one in place become broken.

In accordance with the present invention there is provided a frame of appropriate size with upstanding edges and with marginal flashing adapting the window frame to either the side or roof of the building. The sash of the window is connected at one end, which in the installed position is the upper end, to the window frame by means of a hinge of such nature as to be weatherproof, but at the same time permit the ready removal from or application of the sash to the frame.

Means are provided for adjusting and holding the sash in various angular relations to the window frame for ventilating or other purposes with the adjusting means so arranged as to be unobtrusive when the window sash is in the closed position.

The sash and window frame construction is such that the whole structure is readily dismantled as may be needed, and any water which during a storm may beat into the frame is directed to the exterior thereof in a manner to escape without entering the building.

The invention will be best understood from a consideration of the following detailed description, taken in connection with the accompanying drawings forming part of this specification, with the further understanding that while the drawings show a practical form of the invention, the latter is not confined to any strict conformity with the showing of the drawings, but may be changed and modified so long as such changes and modifications come within the scope of the appended claims.

In the drawings: Figure 1 is a perspective view of the window frame and sash as applied to the roof portion of a building. Fig. 2 is a perspective view of the window from the interior of the building, the sash being in the closed position. Fig. 3 is a cross-section of the sash and the window frame with the sash in the closed position. Fig. 4 is a longitudinal section of the sash as seen in Fig. 1. Fig. 5 is a detail section on the line 5—5 of Fig. 4, distant parts being omitted.

Referring to the drawings, there is shown a window frame comprising side bars 1 and end bars 2, 3, respectively, the lower end bar 3 being of less height than the remaining bars with flashing continuations 4 for each bar, the whole being united into a frame customarily of rectangular outline, although not necessarily so. The side bars join with the end bar 2 at the upper end of the frame, but extend some distance beyond the end bar 3 as shown in Fig. 1. The purpose of the flashing is to permit the sealing of the frame about the usual window opening with the flashing entering under shingles or other roof covering which may be employed, such arrangements being customary. The frame is made of sheet metal, and because of its exposure to weather conditions, the frame is usually made of galvanized iron. Inwardly from the side bars 1 and end bar 2 there extends a horizontal flange $4^a$, which is practically a continuation of the metal forming the flashing, said flange serving as a base support for the sash.

Secured to and extending lengthwise of the end bar 2 is a hinge member 5 of tubular form substantially as long as the bar, but circumferentially incomplete leaving a longitudinal opening 6 for a purpose to be described, while the margin of the tubular member at the opening is bent into a stiffening angle 7. There is also provided a sash frame 8 of sheet metal with side bars 9 and

end bars 10, 11, respectively, all of channel form, each channel member having an inner wall 12 and an outer wall 13 with the latter of greater depth than the former. Considering the window as installed in a roof, the sash frame has a slant corresponding to that of the roof and the sash frame 8 then has the walls 12 and 13 extending upwardly. The upper edge of each wall 12 of the side and end bars of the sash frame has an angle continuation 14 serving to stiffen the edge of the wall, and these angle continuations at their meeting ends constituting the corners of the opening through the sash frame are joined by angle connectors 15 which may be conveniently soldered in place, stiffening the frame and rendering it resistant to distorting forces. The upper edges of the walls 12 are substantially in one plane, so as to form a support for a glass pane 16. Usually the windows are not so large but that a single glass pane may be employed, but this is a structural matter which need not be here considered. The walls 12 define a light transmitting opening through the window sash and are spaced inwardly from the walls 13, and the glass pane is of a size to fit easily in the space defined by the walls 13, while resting upon and supported by the upper edges of the walls 12. Any accuracy of fit is not at all necessary, but the glass pane should be of a size that it always extends beyond all the walls 12.

Each side wall 13 terminates in an exterior return portion 17 spaced sufficiently from the respective side wall to receive the upper edge of the corresponding side bar 1 of the window frame, so that when the sash is closed on the window frame an effective seal against the entry of wind or rain or the like between the side bars of the sash and the side bars of the window frame is provided. The return portions are located beyond each end of the hinge member 5, and it will be understood that when said return portions are in engagement with the side bars, the sash is held from lateral movement.

Fast to and projecting from each side bar 9 at what may be termed its upper edge is a tongue 18 made of some metal, such as copper, which may be easily bent without the aid of tools and which will withstand numerous bendings without breaking.

Applied to the upper edge of each wall 13 of the side bars 9 is a channel strip 19 shaped to snugly embrace the corresponding portion of the wall 13 of the side bar and its return part 17. Each channel strip 19 has an angle continuation 20 along one edge to bear against the corresponding side portion of the glass pane 16 holding the latter against the upper edge of the corresponding wall 12. The channel strips 19 are each provided with passages for the tongues 18, so that when the channel strips 19 are applied to the walls 13 the tongues 18 project through them for a purpose to be described.

The wall 13 of the end strip 10 of the sash frame is formed with a tubular extension 21 similar to the tubular hinge member 5 and of a size to embrace the member 5, the member 21 constituting the other member of the hinge being incomplete circumferentially, but about as long as the width of the window sash, and having a curvature about its longitudinal axis to permit the tubular member 21 to snugly embrace the tubular member 5 but rock for an appropriate distance about the longitudinal axis of the latter. The members 5 and 21 therefore constitute an elongated hinge extending crosswise of the window sash, and because of their concentric relation permitting the window sash to be turned from the closed position to a full open position. At the same time the construction prevents any access of rain or the like to the interior of the window frame. The inner long edge of the tubular member 21 is formed with an angle strengthening flange 22 like the flange 7 of the member 5.

Embracing the member 21 is an incomplete tubular strip 23 terminating along one edge in a longitudinally extended annular flange 24 adapted to engage the glass pane 16 to coact with the strips 19 in holding the glass pane in place. The tubular hinge member 21 or the wall 13 carrying it has fingers 25 fast thereto, which fingers extend through appropriate passages in the strip 23 to hold it in place, and for other purposes to be described. The purpose of the curved strip is to cover or shield the hinge of the sash and prevent the ingress of water.

The wall 13 of the end bar 11 of the window sash rises to a less height than the other walls 13 and along its lower edge is provided with perforations or passages 26. When the window is subjected to the action of rain, the window being closed so that the glass pane 16 is in a slanting position, water caught by the window pane is directed toward the channel member 11 and deposited therein, but immediately escapes by way of the passages 26 on to the roof. Any water which may pass from the glass pane 16 into the side channels 9 or end channel 10 follows these channels to the channel member 11, and also escapes through the passages 26. When the window sash is closed its side bars 9 and end bar 10 rest upon the flange $4^a$, while the end bar 11 is located outside the end bar 3 of the window frame and rests upon the flashing 4. (See Figs. 3, 4 and 5.) The wall 13 of the channel member 11 carries a finger 27 similar to the fingers 18 and 25 and for a like purpose, as will presently appear.

To protect the glass pane from injury from the exterior of the building it has a covering 27ª of wire cloth of suitable mesh, such wire cloth having fast to one end an inner strip 28 so arranged as to enter the end member 11 just inside of the wall 13. This is shown clearly in Fig. 4 of the drawing, and it will be seen that said strip serves as a cover for the top of the channel member 11. The wire cloth is intermediately supported by a channel bar 29 having end tongues 30 traversing the wire cloth and bent into engaging relation thereto, so that the bar serves the part of a spreader and of a support. The margins of the wire cloth are bent to lie against the exterior walls of the strips 19 and about the strip 23, the cloth being traversed by the fingers 18 and 25, wherefore when the fingers are bent down against the cloth the latter is held against the strips 19 and 23 and said strips are clamped against the respective side and end members of the frame. However, because of the ease with which the fingers 18 and 25 and also the finger 27 may be straightened out, the parts held thereby may be readily removed whenever desired. The fingers 18 and 25 also by holding the strips 19 and 23 maintain the glass in place without other securing means, and especially without the use of putty or the like. The finger 27 holds the corresponding end of the wire cloth in place by engagement with the strip 28.

The sash frame is provided with a yoke 30ª connected by pivots 31 or otherwise to the inner walls of the side bars 9 near the end thereof remote from the hinge connection of the sash to the frame. This yoke is made of two bar elements having terminal portions 32 in close but spaced relation. Connected to the ends of the portions 32 is an elongated loop 33, the connection being by way of pivots 34, so that the yoke 33 is jointed or hinged to the ends 32 of the yoke 30ª. The legs of the loop 33 are spaced apart similarly to the spacing of the terminals 32 of the yoke 30ª.

When the window is installed in a building there is provided a board or strip 35 or other suitable support near that end of the window frame remote from the hinge connecting the sash to the frame. This board or strip 35 is provided with a bolt 36 so arranged as to extend between the legs of the loop 33, and applied to the bolt is a plate or washer 37 and a wing nut 38, whereby the yoke 30ª and loop 33 may be readily fastened in any appropriate position either holding the window sash in the closed position or in the elevated position, as shown in Figs. 2 and 4, respectively. By jointing the yoke 30ª and loop 33 together at an appropriate point the loop 33 may hang pendently when the window is closed, thus having it out of the way and free from liability of interfering with any one within the building. At the same time the jointing of the means for elevating and lowering the window and holding it in place in no way interferes with such functions.

Whenever it is desirable to remove the window sash bodily from the frame, the plate 37 and nut 38 are removed, so that the loop 33 may be lifted away from engagement with the bolt 36 and then the window sash may be turned on its hinge connection with the frame until the side bars 9 are above the side bars 1 of the window frame, whereupon the hinge member on the sash may be moved lengthwise of the hinge member on the frame until free therefrom. However, in any position of the window frame whereby the end member 10 has the side members 1 of the window frame in its path, the unhinging of the window sash from the frame cannot occur.

What is claimed is:—

1. A ventilating window for stock and other buildings provided with a window frame, and a window sash having a hinge connection comprising coacting telescoping tubular members extending crosswise of the sash and frame and movable one in the other on the opening and closing of the window about a common axis, the tubular members being concentric one with the other, and the tubular member on the sash being exterior to the tubular member on the frame, and a curved strip carried by the window sash outside the tubular members and substantially fitting the same and serving as a shield for the hinge.

2. A ventilating window comprising a window frame including an end bar provided with a hinge member of tubular form substantially co-extensive with said bar and constituting one member of a hinge, a window sash including an end bar formed with a tubular member substantially co-extensive with said end bar, said tubular member of the window sash telescoping with the hinge of the window frame thereby forming an offset hinge connection between the window sash and the window frame, a curved strip arranged on the outside of the tubular member of the sash and having a curvature to fit the same and serving as a shield for the hinge, said strip terminating at its inner side in means for engaging the window pane, and means for connecting said shield to the tubular member of the sash.

3. A ventilating window comprising a window frame including an end bar provided with a hinge member of tubular form substantially co-extensive with said bar and constituting one member of a hinge, a window sash including an end bar formed with a tubular member substantially co-extensive with said end bar, said tubular member of the window sash telescoping with the hinge

member of the window frame thereby forming an offset hinge connection between the window sash and the window frame, a curved strip arranged on the outside of the tubular member of the sash and having a curvature to fit the same and serving as a shield for the hinge, said strip terminating at its inner side in means for engaging the window pane, and bendable fingers extending from the tubular member of the sash and passing through passages in said curved strip to hold the same in place.

4. In a ventilating window, a window frame including an upper end bar and two side bars, said upper end bar having a tubular extension offset therefrom forming one member of a hinge, in combination with a window sash comprising side bars and end bars of channel form, the upper end bar of the window sash having a tubular extension fitting on the outside of the tubular extension of the upper end bar of the window frame and telescoping with the same and constituting the other member of the hinge, said channel members constituting a support for a glass pane, and a curved strip fitting on the outside of the tubular extension of the upper end bar of the sash and co-extensive in length therewith and having a longitudinally extending flange adapted to engage the glass pane and retain the same on the channel member of the upper end bar of the sash, said curved strip serving as a shield for the hinge, and fingers extending from the tubular member of the upper end bar of the sash and passing through slots of the said curved strip to retain said strip in place.

5. In a ventilating window, a window frame comprising side bars and upper and lower end bars with a horizontal flange extending inwardly from the side bars and the upper end bar, the side bars and the flanges adjacent thereto extending beyond the lower end bar, a window sash hinged at its upper end to the upper end bar of the window frame by a hinge which is offset from both the window frame and the sash, said sash fitting down within the side bars and the upper end bar and resting upon the flanges thereof, the lower end of the sash fitting outside the lower end bar.

6. In a ventilating window, a window frame including an upper end bar and two side bars, in combination with a window sash having an offset hinge connection with the upper end bar, said hinge connection being formed of coacting telescoping tubular members provided on the upper end bars of the window frame and sash frame respectively, the side bars of the sash frame having returned portions substantially co-extensive with the said side bars and which are adapted to receive and embrace the side bars of the window frame, when the window sash is closed, said returned portions being located beyond the members of said hinge connection.

7. In a ventilating window, a window frame including an upper end bar and two side bars, the said upper end bar having an offset tubular member co-extensive with said end bar, in combination with a sash frame comprising side and end bars of channel form, the outer wall of the upper end bar of the sash frame having a tubular extension to fit the tubular member of the end bar of the window frame and thereby constitute a hinge connection, said hinge connection extending crosswise of the sash, the side bars of said sash having the outer wall of the channel portion terminating in a returned portion which embraces the side bars of the window frame when the window sash is closed.

8. In a ventilating window, a window frame including an upper end bar and two side bars, in combination with a window sash comprising side bars and end bars formed of channel members, a hinge connection between the upper end bar of the sash and the upper end bar of the window frame, said hinge connection being offset from both the sash and the frame and substantially co-extensive with said parts and permitting the disconnection of the sash frame laterally from the window frame, and a connection between the side bars of the sash frame and the side bars of the window frame, said connection fitting down over the last-mentioned side bars and embracing the same so as to hold the sash from lateral movement and at the same time provide a seal between the sash frame and the window frame.

9. A window structure for stock and other buildings comprising a sheet metal window frame and a sheet metal window sash, the frame having marginal walls outstanding from the building in which the frame is installed and the sash having side walls adapted to enter between the walls of the frame, the sash having at one end a hinged connection to the frame with said hinge connection comprising tubular extensions of the corresponding walls of the frame and sash in telescoping relation and extended crosswise of the sash and frame, one tubular member being interior to the other and concentric therewith and the tubular member on the sash being capable of sliding lengthwise of the tubular member of the frame into and out of telescoping relation thereto, and a connection between the side walls of the sash and the side walls of the frame formed by bending the first-named side walls outwardly and then downwardly into embracing relation with the second-named side walls so as to hold the sash from sliding and maintain a seal between the sash and frame.

10. In combination with a sash frame composed of side bars and end bars formed of channel members, having an inner wall, an outer wall and a bottom wall, the top being open, the inner wall of the channel member having an angle continuation and constituting a support for a glass pane, means provided at the upper end bar and at the side bars for holding the glass pane down upon the inner walls of said end bar and side bars, said glass pane terminating short of the outer wall of the lower end bar of the sash frame, and a wire covering supported upon the glass retaining means, the lower end of said covering terminating in a strip which fits within the channel member constituting the lower end bar of the sash and serving as a cover therefor.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

PHILIP BERNARD.

Witnesses:
MABLE ARME,
ESTHER ANDERSON.