Dec. 18, 1928. 1,696,160

S. H. HART

GREENHOUSE COMBINATION OUTLET

Original Filed April 5, 1926 2 Sheets-Sheet 1

Fig. 1

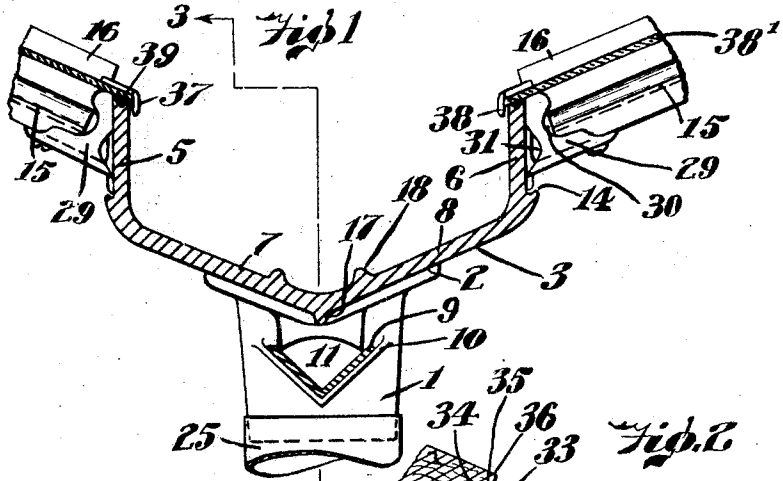


Fig. 2

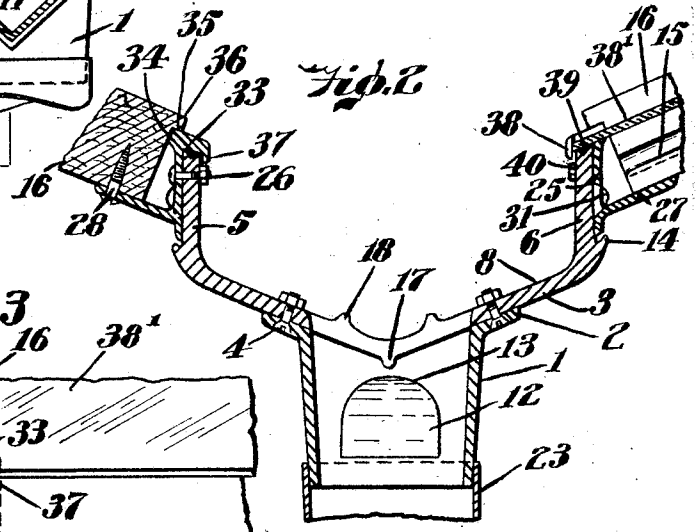


Fig. 3

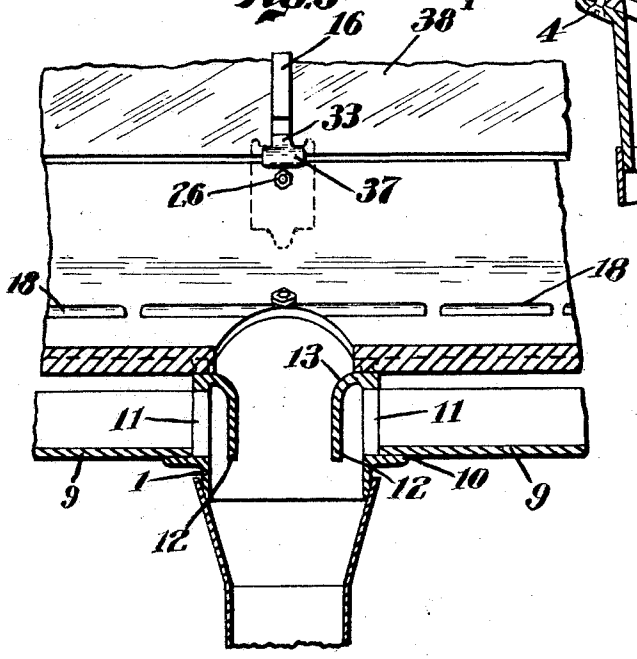
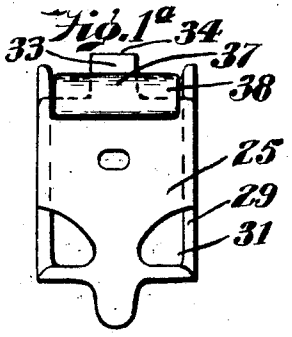


Fig. 1a



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Fig. 4

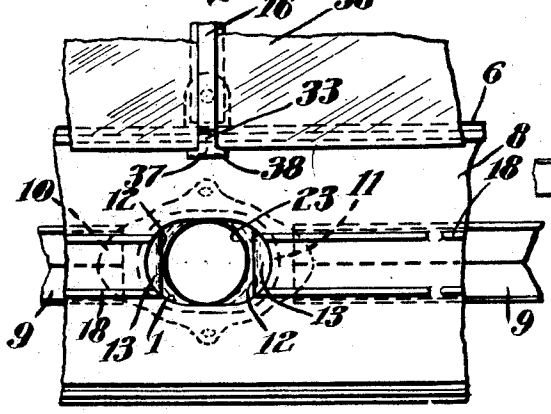


Fig. 5

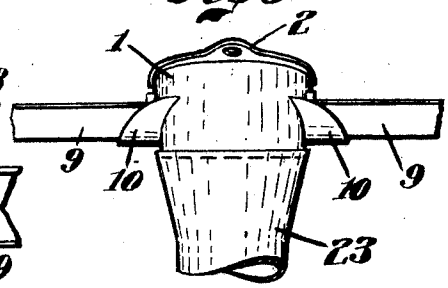


Fig. 6

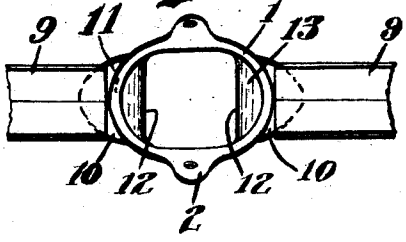


Fig. 7

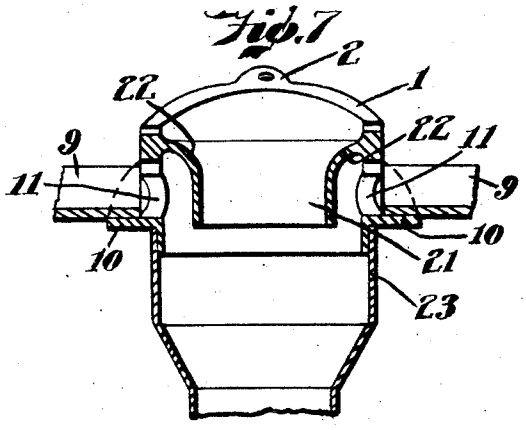
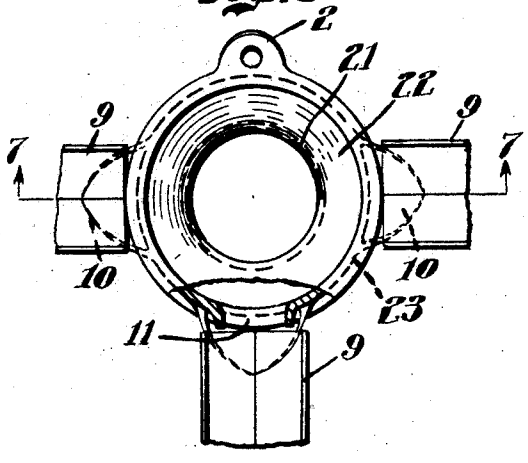


Fig. 8



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Patented Dec. 18, 1928. 1,696,160

UNITED STATES PATENT OFFICE.

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GREENHOUSE COMBINATION OUTLET.

Original application filed April 5, 1926, Serial No. 99,688. Divided and this application filed July 27, 1928. Serial No. 295,796.

This invention relates generally to greenhouses and more particularly it relates to improved combination outlet features of construction which will enable the rain water from the main gutter and the water of condensation, within the house, to be disposed of.

This is an application for a combination outlet for a greenhouse main and supplemental gutter. It is a divisional case from a co-pending application filed by applicant on April 5, 1926, Serial No. 99,688.

One of the objects of this invention is to provide a new and improved combination outlet and downspout for the main gutter and a supplemental, or drip gutter. The main gutter is the one which carries away the rain water, exterior of the house, and the supplemental, or drip gutter, carries away the water of condensation collected within the greenhouse.

It is necessary in providing a combination outlet for water from two or more different sources, one from without, and the other from within the greenhouse, to provide open and unobstructed passages which are readily accessible so that leaves and twigs, or other obstructions, may be removed.

A further object is to provide a combination outlet and downspout having open and unobstructed passages which are readily accessible for purpose of removing any possible obstruction. It is important that the passage of the outlet for the water from the main gutter be free from obstructions in order to carry off the relatively large quantity of water during heavy rain fall. It is also highly desirable to provide an outlet for the water from the drip gutter which is so arranged relative to the main passage of the downspout that a straight implement, or wire, may be passed there-through to clear the passage of leaves or other obstructions.

A further object is to provide a combined outlet and downspout for a main gutter and drip gutter, in which the outlet passage for the drip gutter is protected and shielded so that the water from the main passage cannot enter the outlet for the supplemental or drip gutter.

A further object is to provide a combination outlet having ample capacity for the respective gutters, and so arranged as to occupy a minimum space.

A further object is to provide a combination outlet which is of such a shape as not to interfere with the construction of partition members.

A further object is to provide a combination outlet which is generally elliptical in form and having the lower portion thereof with a perimeter equal to the circumference of a standard leader pipe, which standard cylindrical leader pipe may be easily fitted to the elliptical portion of the outlet by collapsing the standard leader pipe.

In the accompanying drawings and the following description a preferred form of the invention, together with certain modified forms, are shown and described for purposes of illustration.

In the drawings:

Figure 1 is a view showing the combination outlet downspout in elevation, a section of the main gutter, and a section of the drip, or supplemental gutter.

Figure 1[a] is an elevation of a bar clasp.

Figure 2 is a view showing the combination outlet in section; the bar clasp for supporting the roof bars on either side of the main gutter is also shown in section.

Figure 3 is a section taken longitudinally of the main and supplemental gutter on line 3—3 of Figure 1.

Figure 4 is a top plan view looking down upon the main gutter showing the end portion of one of the roof bars.

Figure 5 is an elevation showing the relative arrangement of the combination outlet, and the drip gutter.

Figure 6 is a top plan view of Figure 5.

Figure 7 is a vertical sectional view on line 7—7 of Figure 8 showing a modified form of the combination outlet having the shielding apron, or baffle plate continuous to adapt the combination outlet for more than two supplemental gutters.

Figure 8 is a top plan view of Figure 7 showing more clearly a provision for an additional drip gutter from the side.

The combination outlet as shown in Figures 1 to 6 comprises in general a casing 1, preferably oval in form. Projecting lugs 2 at the upper end of the casing are provided, said lugs extending outwardly and

upwardly to conform to the angle of the bottom of the gutter 3 to which the outlet is secured by suitable means, such for example by a nut and bolt connection 4 (see Figure 2).

The gutter as shown comprises upstanding sides 5 and 6, and a bottom generally V-shape, comprising downwardly and inwardly sloping portion 7 and 8 which meet at the center of the gutter as shown.

The water from the main gutter discharges in the upper portion of the outlet, the bottom of the gutter being cut away, thus providing an opening corresponding to the shape of the upper portion of the outlet.

A supplemental, or drip gutter 9, is supported by outstanding V-shaped troughs or brackets 10, integral parts of the outlet. The drip gutter is formed of a V-shaped angle bar. An aperture 11 is formed in the end walls of the outlet casing through which aperature the water from the drip gutter is discharged into the outlet.

In order to prevent the water discharged from the main gutter exterior of the greenhouse from entering the drip gutter discharge aperture, which is in communication with the interior of the greenhouse, a suitable shielding means, or baffle skirt 12 (see Figures 2, 3 and 6), is provided. As shown, this baffle comprises a vertical inner wall portion spaced from the outer wall of the casing which forms an independent vertical discharge passage for the water from the drip gutter. The lower end of the baffle shield extends preferably to a point below the drip gutter discharge aperture. The upper end of the drip gutter discharge passage is closed by a connecting portion 13 which joins the upper end of the baffle shield with the outer wall of the casing. The sides of the drip gutter discharge passage are also closed by extending the same so as to be continuous with the outer wall of the casing. This is more clearly shown in Figure 6 in which the baffle wall extends across one end of the oval shaped casing, and between the sides thereof. The outlet casing is preferably made oval in form so as not to interfere with the partition construction below and parallel with gutter. The perimeter of the lower portion of the oval shaped casing is preferably designed to be the same in extent as the circumference of the cylindrical leader pipe, so that a connection may be readily made between the lower end of the outlet by collapsing, or bending, the leader pipe to correspond to the shape of the oval outlet. A combination outlet constructed as above provides an open and unobstructed discharge path for the water from the main gutter and also for the water discharged from the drip gutter. Independent discharge chambers are provided. One of the very desirable features of the baffle construction is that the discharge passage from the drip gutter may be cleared of obstructions, such as leaves and twigs, by passing a wire, or other straight implement through the drip gutter discharge aperture in the casing; this passage is thus cleared without requiring the removal, or disassembly of the drip gutter. This feature is a marked improvement over other types of combination outlets heretofore provided.

It is understood, of course, that the usual types of drain pipe strainers or sieves may be employed without departing from the spirit of the invention.

A modified form of outlet is shown in Figures 7 and 8. The outlet shown in these figures is arranged to permit an additional drip gutter to enter the outlet at 90° to the other drip gutters. Of course, by providing additional drip gutter discharge apertures in the outlet casing, a greater number of gutters could be used. In the modified form, the inner baffle plate 21 is continuous, and, as shown, is formed concentric with the outer wall of the outlet casing providing an annular drip gutter discharge passage 22 within the combination outlet. A drip gutter 9 (see Figure 8) is shown entering the combination outlet at right angles to the other drip gutter 9.

A leader pipe 23 normally cylindrical in form is collapsed in its upper end so as to correspond in shape with the lower end of the combination outlet. The water discharged into the outlet from the main gutter and the drip gutter is thus carried away in the common downspout.

Gutter.

The gutter is provided with a projecting ridge, or bead 14 extending longitudinally along the outer side of the gutter near the lower portion of the sides 5 and 6. These ridges are very desirable because they serve to spread, or disperse the streams of the water of condensation that are delivered against the outer surface of the vertical side portions of the gutter from the drip groove 15 formed in the side of the roof bars 16. The water of condensation is at times delivered from the drip grooves of the roof bars in considerable volume so that unless a means is provided for spreading the volume of water over a considerable surface there is a possibility that the water will continue in stream-like fashion, and instead of following the under surface of the gutter, it will leave the gutter before finding its way down to the lower portion of the gutter.

Preferably a dependent bead or rib 17 is provided at the bottom of the gutter; such a rib serves to concentrate drip resulting from the condensation brought to and form-

ing on the surface of the main gutter; assuring the dropping of the water in drip gutter below.

It frequently becomes necessary for workmen to walk in the main gutter to clean the same and to remove leaves, twigs, or other obstructions, or to repaint the structure or replace broken glass. It is desirable to provide in a gutter with sloping sides, such as a V-shaped gutter, means to prevent the feet of the workmen from slipping. For this purpose non-slipping, or non-skidding ridges 18 are provided which extend longitudinally of the gutter on each of the inclined portions of the bottom of the gutter. Preferably, these ridges are not continuous, but are interrupted at intervals so as to form spaces 19 in order to permit the water from the upper portion of the gutter bottom to drain through to the lowest central portion of the gutter bottom.

Bar clasp.

It is important to provide a suitable means of supporting the roof bar 16 in proper position relative to the side of the main gutter. The means provided should be so constructed as to permit the water of condensation from the drip groove of the roof bar to be disposed of in suitable manner, and in providing such a construction it is very desirable to leave a free space at the end of the roof bar to afford circulation of air. If the end of the roof bar is abutted against another surface, the end of the roof bar, at the point at which the water is discharged from the drip groove, is kept in a damp, or moist condition, and is likely to rot so that the roof bar is weakened at the point of support where strength is essential.

As shown in Figures 1 and 2, a bar clasp is provided which comprises a vertical body web portion 25 which is secured to the side of the gutter by suitable means, such for example as a nut and bolt connection 26. A base support 27 projects upwardly and outwardly from a point adjacent to the lower portion of the vertical body portion 25. The base portion serves as a support for the end of the roof bar. The roof bar may be held in position upon the support 27 by means of a screw 28, or other means passing through the base 27 and into the roof bar 16. The side portions 29 extend between the upstanding web portion 25 and the base support 27. Preferably, the side portions 29 are cut away as at 30 (Figure 1) so as to permit circulation of air around the end of the roof bar. In order to permit the water of condensation to pass from the drip groove 15, onto the vertical sides 5 and 6 of the main gutter, drain aperture 31 is formed in the clasp. The water passes through the drain aperture onto the vertical side of the gutter and if the water is in any considerable volume, it is spread, or dispersed over a larger surface as the water passes over the bead 14, after which the water follows the under side of the gutter down to the central concentrating bead 17, from which the water drops into the drip gutter 9 below.

There is provided at the upper end of the vertical web portion of the clasp an angularly disposed cap portion 33. The angularly disposed cap portion extends beyond both sides of the vertical web portion 25 so that on one side 34, it serves as a stop for the end of the roof bar. Preferably, the roof bar is arranged so that the bar is undercut, as at 35, so that the upper portion of the bar 36 overlies the top of the angularly disposed cap portion of the clasp. This is a very desirable feature because the water from the top of the roof bar is conducted down to a point so that it is readily carried off to the main gutter and a tight leak-proof joint is made at this point of connection.

A portion of the angular cap extends outwardly and downwardly on the other side of the vertical web portion, and, when in assembled position, overlies the top edge of the gutter. A bead, or lip 37 extends downwardly from the end of the cap portion, and also outwardly beyond each side of the cap portion so as to form stop 38 for the lower end of the first run of glass 38′. This is a very desirable feature. By this feature of construction, the lower run of glass is held securely in position without the necessity for the use of the Z-shaped strip heretofore used. A water tight joint is formed between the glass and the upper edge of the sides of the gutter by providing putty 39 in the putty retaining groove 40 formed in the upper edge of the gutter sides.

While certain preferred and modified forms have been shown in this application, it is to be understood that various changes and modifications may be made by the mechanics skilled in the art without departing from the spirit and scope of this invention as covered by the claims.

What I claim is:

1. In the combination of main gutter and a supplemental gutter, a combination outlet adapted to carry off the water from both the main and supplemental gutters, said outlet forming a downspout and providing an unobstructed path from the main gutter to a point below the supplemental gutter, said downspout including walls forming an unobstructed central passage open at the top and in direct communication with the main gutter, and an outer chamber formed between the outer wall of the downspout and an inner wall forming the central passage for the outlet from the main gutter, said outer wall having an aperture communicating with said outer chamber through which

the water from the supplemental gutter is discharged.

2. A combination outlet to carry off water collected in outside main gutter and an inside drip gutter comprising a casing including an inner wall forming an unobstructed central passage adapted to carry off water from the main gutter and an outer wall spaced from this inner wall and forming a drip gutter discharge passage adapted to carry off the discharge from the drip gutter.

3. A combination outlet adapted to carry off water collected in an outside main gutter and an inside gutter comprising a casing including a continuous inner wall forming an unobstructed central passage open at the top and bottom, and adapted to carry off the water from the main gutter, an outer continuous wall spaced from the inner wall and forming a drip gutter discharge passage therewith adapted to carry off the discharge from the drip gutter said outer wall having an aperture therein through which the water from the drip gutter is discharged into the passage formed by the inner and outer wall, and means connecting the upper portion of the inner wall with the outer wall to prevent the discharge from the main gutter passing into the drip gutter discharge passage.

4. A combination outlet having a main gutter and a drip gutter comprising a casing having an outer wall generally elliptical in form and forming an unobstructed central discharge passage for water delivered from the main gutter, supports at the side of the said casing adapted to receive a drip gutter, said casing having apertures therein through which the water from the drip gutters is discharged, a baffle wall within the casing spaced from the outer wall of the casing and so arranged as to prevent the water discharged from the main gutter from entering the aperture through which the water from the drip gutter is discharged, the lower end of said baffle wall extending to a point below the inlet aperture for the drip gutter.

5. A combination outlet adapted to receive water from a main gutter and an inside drip gutter and discharge the water from the separate sources into a common drain, said outlet comprising a tubular casing oval in form and open at the top and bottom and free of lateral obstructions through central passage for the water discharged from the main gutter, an opening at one end of the oval portion of the casing through which the water from the drip gutter passes, a vertical wall arranged within the casing and spaced from one end thereof and extending between the sides thereof, and a closure between the end of the casing and the vertical wall whereby a plurality of unobstructed discharged passages are formed, the lower end of said vertical wall extending down to a point below the drip gutter discharge opening.

6. A combination outlet to carry off water collected in an outside main gutter and an inside drip gutter comprising a casing including an inner wall forming a central passage adapted to carry off water from the main gutter and an outer wall spaced from said inner wall and forming a drip gutter passage adapted to carry off the discharge from the drip gutter.

In testimony whereof I affix my signature.

STEPHEN H. HART.