March 16, 1965 L. L. LAWRENCE 3,173,186

SCREENED VENT AUXILIARY FORM

Filed Sept. 26, 1963

Fig. 1.

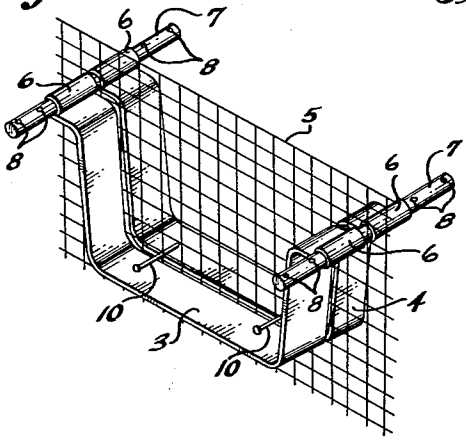


Fig. 3.

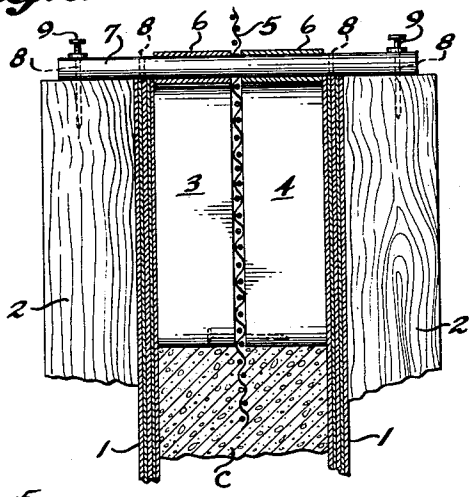
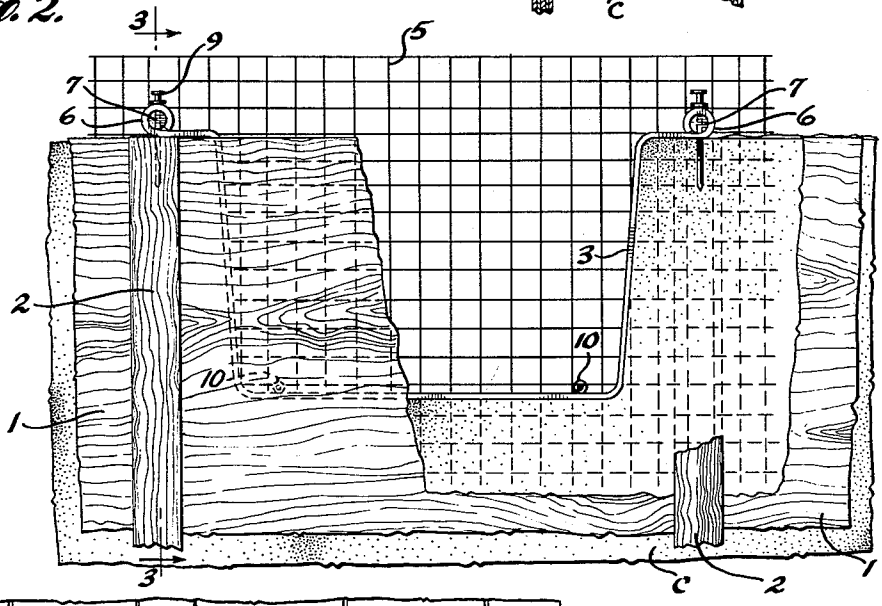


Fig. 2.



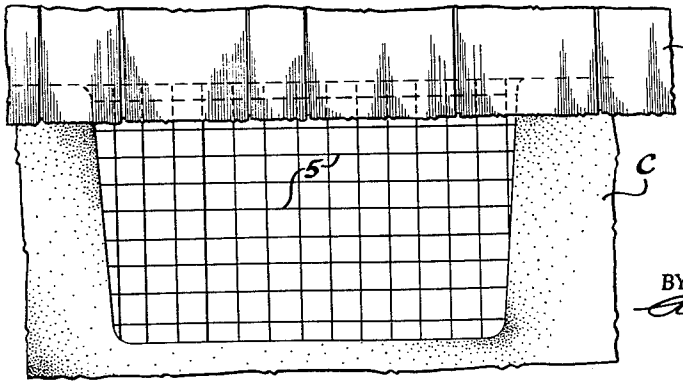


Fig. 4.

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United States Patent Office 3,173,186 Patented Mar. 16, 1965

3,173,186

SCREENED VENT AUXILIARY FORM

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Filed Sept. 26, 1963, Ser. No. 311,880
3 Claims. (Cl. 25—118)

This invention relates to an auxiliary form to be used in conjunction with a concrete wall form for the purpose of forming screened vents in the upper portion of a poured concrete wall, in which a perforated sheet is cast in place in the concrete when the wall is poured for covering the vent.

A principal object of the invention is to provide an auxiliary screened vent form which will enable a perforated screening sheet to be suspended in the concerte wall form, and the edges of the vent to be formed so that margins of the perforated sheet are embedded in the poured concrete. A more specific object is to support such a perforated sheet firmly and accurately in the vent, either centered between the opposite walls of the concrete wall form or disposed in some other desired relationship to the form walls.

It is also an object to enable such an auxiliary form to be constructed in any appropriate size and to be located any place along a concrete wall form. A further object is to enable such an auxiliary form for a screened vent to be installed quickly and easily in a concrete wall form without requiring any modification of the form, which can accommodate and support a variety of types of perforated sheet material, and which can be removed without difficulty after the wall has been poured in the concrete wall form and the concrete has set.

An additional object is to provide an auxiliary vent form structure which can be secured to the board walls of the concrete wall form or to form studs, or to both, and which will serve as form wall spacing means and ties to improve the form structure.

Another object is to provide an auxiliary screened vent form which can be made economically of inexpensive material, yet which will provide a smooth concrete edge surface in the vent. Such a form can be made of various types of materials, preferably material which is light and which can be constructed for easy and compact storage or shipment.

An important object of the invention is to provide such an auxiliary screened vent form which will be extremely durable and can be reused many times.

The foregoing objects can be achieved by an auxiliary screened vent form composed of a pair of arched strips of resilient material having similar profiles which are preferably of hat shape, having generally parallel sides which flare somewhat from the base strip portion connecting such sides to provide draft to facilitate removal of the strips from the poured concrete. Such strips have terminal eyes which are in register when the form strips are in edgewise registry for receiving supporting rods with a sliding fit. Such rods are of a length greater than the combined widths of the strips and serve as supports for a perforated screening sheet received between the strips and have transverse nail holes through them to receive nails for securing the rods to opposite sides of a concrete wall form.

FIGURE 1 is a top perspective of the auxiliary screened vent wall form assembled ready for placement in a concrete form.

FIGURE 2 is a side elevation of a fragmentary portion of a concrete wall form in which the auxiliary screened vent form is installed, parts of the wall form being broken away, and FIGURE 3 is a transverse section through such form portion taken on line 3—3 of FIGURE 2.

FIGURE 4 is a side elevation of a portion of a concrete wall having a screened vent formed by the use of the auxiliary vent form, but the wall form and the vent form having been removed.

It is customary for residences and other buildings constructed without basements to have continuous foundation walls of poured concrete with a crawl space beneath the building, which ordinarily is 2 to 3 feet in height. To provide ventilation for such crawl space while excluding vermin from that space it is desirable to provide one or more screened vents in the foundation wall. Also, it is desirable for such vents to be located near the top of the wall to prevent any possibility of water flowing across the ground and through the vent. It is therefore desirable to provide a screened vent or vents in the upper portion of the poured concrete wall. The present auxiliary form has been devised to facilitate the formation of such screened vents in constructing a poured concrete foundation wall.

A representative type of customary concrete wall form is shown in FIGURE 2 and FIGURE 3 as having opposite walls 1 made of plywood panels three-quarters of an inch thick, which are braced by form studs 2. Such studs at opposite sides of the form are connected at intervals by strap ties or tie wires to hold the form walls against being spread by the pressure of concrete mix poured into the form. Consequently the studs at opposite sides of the wall form are in registry transversely of the form and such studs may be spaced along the form at desired intervals, such as 1 to 3 feet. Commonly such studs are spaced apart 16 inches or 2 feet along the concrete form so that joints between plywood panels of a width along the wall 4 feet or 8 feet will be in registry with such studs.

A conventional poured concrete wall will usually be 6 inches or 8 inches in thickness and the auxiliary screened vent wall form should be adapted for use with a concrete form to be used in constructing a wall 6 inches thick or 8 inches thick, or it can be designed to be modified easily for use either with a concrete wall form used to construct a 6 inch wall or with a concrete wall form used to construct an 8 inch wall. The principal portion of the auxiliary screened vent form is composed of two arched strips 3 and 4 which, as shown in FIGURE 3, are of equal width, although they need not necessarily be equal in width. If the concrete wall form is designed for constructing a concrete wall 6 inches in thickness and the strips 3 and 4 are of equal width each strip will be of a width slightly less than 3 inches so that when they are located in edgewise registry as shown in FIGURE 1, they will be of a combined width substantially equal to the interior width of the wall form and fit snugly between the walls of the concrete wall form with their adjacent edges spaced apart slightly to receive between them a perforated vent screening sheet 5.

The vent screening sheet 5 received between the arched strips 3 and 4 is of a size, shape and type of material suitable for embedding permanently in the concrete poured for the wall to cover the vent. Thus, such perforated sheet may be hardware cloth, woven wire, the strands of which are unbonded, expanded metal or punched sheet metal whether galvanized steel, aluminum, copper or other metal. The strips 3 and 4 should be of a width such that their adjacent edges lie close to the opposite sides of the perforated sheet 5 when such sheet and the strips are installed between the walls of the form, as shown in FIGURE 3. If the form is designed to construct a wall 8 inches thick each of the strips 3 and 4 may be 4 inches in thickness to locate the perforated sheet 5 centrally of the wall, or one of such strips can be approximately 3 inches in width and the other strip approximately 5 inches in width, so that the 3 inch strip will be suitable for use as a vent form either in constructing a 6 inch thick wall or an 8 inch thick wall.

The end of each strip 3, 4 is provided with a terminal

eye 6 which may be formed either by rolling the end portion of the strip or by bonding the end portion of the strip to a tube. Such eye is of a size to receive slidably through it a form supporting rod 7, shown best in FIGURES 1 and 3. Such rod has one or more transverse nail holes 8 extending through its opposite end portions which preferably extend diametrically through the rod in parallel relationship. Through such holes double-headed nails 9 can be driven into the form wall panels 1 or the studs 2, or both. Thus, such rods will serve the dual function of supporting the form strips 3 and 4 from the upper edge of the form and connecting the opposite sides of the form to hold it against spreading.

It is preferred that the supporting rods 7 be sufficiently small or the apertures in the screen sheet 5 be sufficiently large so as to enable the supporting rods 7 to pass through apertures in the perforated sheet, as shown in FIGURE 1. Such rods will then serve the added function of suspending the perforated sheet 5 positively in the form while the engagement of the adjacent edges of the strips 3 and 4 with opposite sides of the perforated sheet support it against appreciable deflection. As shown in FIGURE 1 sheet 5 should be of a size and shape such that marginal portions of such sheet of substantial width project beyond the vent configuration defined by the strips 3 and 4.

While the strips 3 and 4 can be of any desired arched profile, depending upon the shape of vent desired, it is usually preferred that the vent be of approximately rectangular configuration. Consequently, it is convenient for the arched strips 3 and 4 to be of generally U-shaped profile, and preferably of hat-shaped profile, so that they will include two substantially parallel upright sides of such profile which, as shown in FIGURE 2, preferably flare or diverge somewhat upwardly away from the substantially horizontal base portion of each strip profile connecting the profile sides so as to provide draft to enable each strip to be removed readily from a poured concrete wall. The corners of the hat-shaped strips are of substantial radii so that generous fillets will be formed at the bottom corners of the vent, and the upper corners of the vent at the top of the poured wall will be rounded.

In assembling the auxiliary form and screening sheet the two rods 7 can be slipped into the opposite eyes 6 of one of the arched strips 3. Next, such rods can be threaded through appropriate apertures of the screening sheet 5, after which the rods can be threaded through the eyes 6 of the other arched strip 4. Nails 10 can be inserted through apertures of the perforated sheet 5 adjacent to the horizontal portions of the strips 3 and 4, if desired, to serve as additional temporary supports for the perforated sheet, as shown in FIGURES 1 and 3, or, if the sheet is narrower than the spacing of rods 7, as the sole temporary supports for such sheet.

The auxiliary vent form thus assembled can then be lowered into the upper portion of a concrete wall form and slid along the form into the desired position lengthwise of it. Double-headed nails 9 can then be driven through nail holes 8 in the rods 7 to secure the auxiliary wall form in place in the wall form and tie the opposite walls of the wall form together more securely. Such nails also hold the strips 3 and 4 down against the tendency to be forced upward by the pressure of concrete poured into the form against the lower horizontal portions of these strips. As will be seen in FIGURES 2 and 3, however, such strips 3 and 4 serve as mold elements for the concrete poured into the form which define the boundaries of the vent. The marginal portions of the perforated sheet 5 outwardly of the strips 3 and 4 become embedded permanently in the poured concrete.

When pouring of the concrete into the form has been completed the double-headed nails 9 are pulled out of the nail holes 8 in the rods 7 so that the concrete forms 1, 2 can be dismantled or the auxiliary vent forming forms removed first, whichever is preferred. In either case, the rods 7 will be pulled lengthwise out of the eyes 6, the nails

10 will be removed and the strips 3 and 4 can then be pulled readily out of the formed vent at opposite sides of the permanently anchored perforated sheet 5. If the strips 3 and 4 are sufficiently flexible divergence of the upright walls is not necessary to facilitate their removal because the eyes 6 can simply be moved toward each other to peel the upright portions of the strips from the upright sides of the vent, and the horizontal connecting portion of each strip can be bent upward sufficiently to free its portion of the strip from the formed vent opening.

The completed vent with the perforated sheet anchored in the wall in screening position covering the vent is shown in FIGURE 4. An upper finish wall W may have its upper portion extending downward over the upper edge of the poured concrete wall C and the vent, if desired. The upper portion of the perforated sheet 5 can be bent over to close the space between the vent and the inner side of the wall W or such upper portion of the sheet 5 can be clamped between the portions of a divided plate laid on top of the wall C, or such upper margin can be nailed against one edge of a plate spanning the upper side of the vent. Whatever expedient is used it is desirable for the upper side of the vent to be disposed in contacting relationship to the sheet 5.

I claim:

1. In combination, a concrete wall form, and a screened vent auxiliary form adjacent to the upper edge of said concrete wall form locating a sheet for covering a vent to be provided in the concrete wall including a pair of strips of similar arched generally U-shaped profile of an extent in each direction less than the corresponding extent of such sheet and of a combined width substantially equal to the interior width of said wall form and having eyes in opposite ends disposed in registry when said strips are disposed in edgewise registry and a pair of rods extending through the registering eyes of said pair of strips maintaining said strips in edgewise registry with each other and such sheet lodged between the adjacent edges of said registering strips.

2. In combination, a concrete wall form, and a screened vent auxiliary form adjacent to the upper edge of said concrete wall form locating a sheet for covering a vent to be provided in the concrete wall including a pair of resilient strips of similar arched, generally U-shaped profile of an extent in each direction less than the corresponding extent of such sheet and of a combined width substantially equal to the interior width of said wall form, the opposite sides of each such strip profile diverging away from the base of such profile connecting such profile sides and supporting means engageable with the end portions of said strips to maintain them in edgewise registry with each other and such sheet lodged between the adjacent edges of said registering strips.

3. In combination, a concrete wall form, and a screened vent auxiliary form adjacent to the upper edge of said concrete wall form locating a sheet for covering a vent to be provided in the concrete wall including a pair of resilient strips of similar arched, generally U-shaped profile of an extent in each direction less than the corresponding extent of such sheet and of a combined width substantially equal to the interior width of said wall form, the opposite sides of each such strip profile diverging away from the base of such profile connecting such profile sides and the corners of said strips constituting curves of substantial radius, said strips having eyes in opposite ends disposed in registry when said strips are disposed in edgewise registry, a pair of rods each being of a length considerably greater than the combined widths of the strips extending through the registering eyes, of said pair of strips, maintaining said strips in edgewise registry with each other and such sheet lodged between the adjacent edges of said registering strips, spanning the width of said wall form and supportingly engaging its opposite ends with the opposite sides of said wall form, and the end portions of said rods having

nail holes therethrough receiving nails securing said rods to said wall form.

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