

C. L. HOLT.
GRAVEL GUARD FOR ROOF DRAINS.
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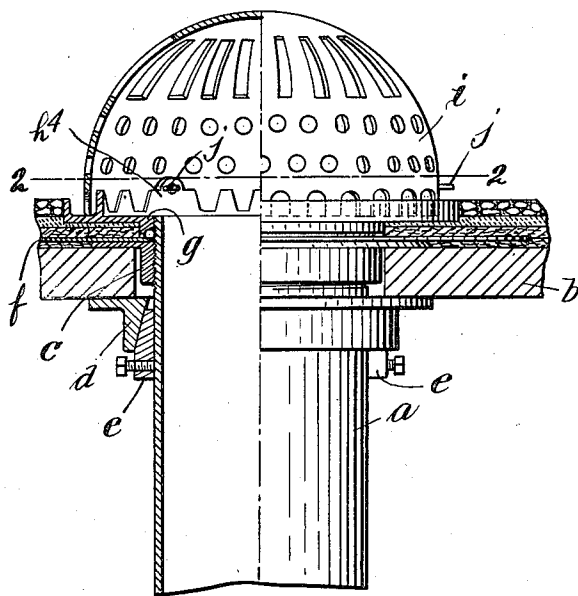


Fig. 1.

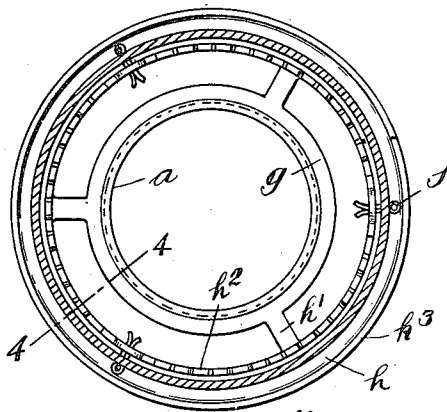


Fig. 2.

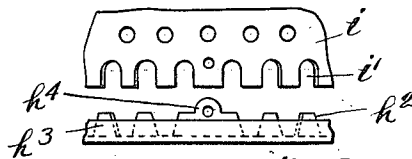


Fig. 3.

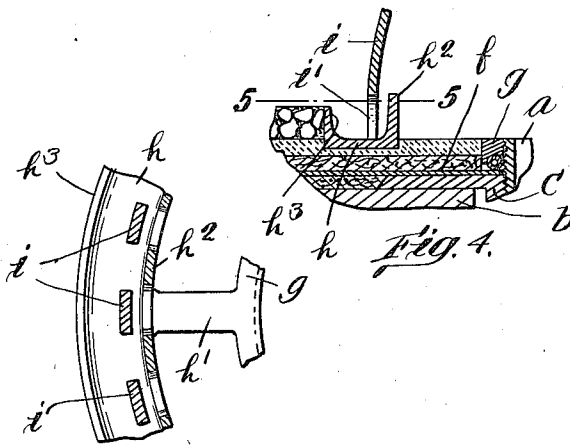


Fig. 4.

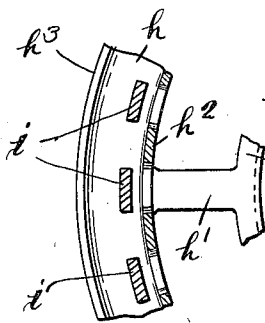


Fig. 5.

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UNITED STATES PATENT OFFICE.

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GRAVEL-GUARD FOR ROOF-DRAINS.

1,266,948.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES L. HOLT, a citizen of the United States, residing at Lawrence, in the county of Essex and State of Massachusetts, have invented an Improvement in Gravel-Guards for Roof-Drains, of which the following is a specification.

This invention relates to certain improvements in drain-pipe inlets for roofs, and more particularly to means for preventing the passage of matter into the roof drain which would tend to clog it, or prevent the free flow of water therethrough, difficulty in this regard being especially liable to occur with gravel-covered roofs, as, in case of heavy rains, the gravel is liable to be washed into the outlet, unless adequate means are provided to prevent such occurrence.

The object of my invention is to provide, in connection with a strainer cup, which will inclose the drain-pipe entrance, an improved means for intercepting the gravel, so that it will not be washed into the drain pipe, but which will not obstruct the flow of water from the roof surface to the drain pipe to a substantial extent.

I accomplish this object by the means shown in the accompanying drawings, in which:—

Figure 1 is a view, partly in elevation and partly in central vertical section, of a drain pipe roof connection illustrating an embodiment of my invention.

Fig. 2 is a horizontal sectional view thereof at the line 2—2 of Fig. 1.

Fig. 3 is a detail view on an enlarged scale, of portions of the gravel-intercepting means, disassembled.

Fig. 4 is a detail sectional view, taken at the line 4—4 of Fig. 2.

Fig. 5 is a detail sectional view, taken at the line 5—5 of Fig. 4.

As shown in the drawing, a roof pipe *a*, which, in the present instance may be of galvanized iron, is extended through an aperture in the roof *b*, and projects a suitable distance above the surface thereof. A roof collar *c* is threaded on the upper end of the pipe *a* and is adapted to rest on the upper

surface of the roof and support the pipe therein. A clamping ring *d* is adjustably mounted on the pipe *a* below the roof and is held in engagement with the under side of the roof by wedges *e*, so that the pipe is held against movement with relation to the roof, a slip joint, not shown, being provided between the pipe *a* and the drain pipe connected thereto. The flashing *f*, when employed, is placed on the upper surface of the collar *c* and extended over the surface of the roof, and clamped in position by a nut *g*, which is threaded on the upper end of the pipe *a*, said nut being screwed thereon until its upper side is flush with the upper end of the pipe *a*. A packing ring may be provided between the nut and the flashing to make a tight joint therebetween. The nut *g* is provided with a series of radially extending arms *h'* and a flat ring *h* is integrally connected, at its inner periphery, to the ends of said arms. While it is preferable to cast the nut, arms, and ring in one piece, the nut may be formed separately, or entirely omitted, if desired, the arms *h'*, in such case, being extended to engage the pipe directly, so as to hold the ring concentric with the end of the pipe. The ring *h* and the arms *h'* are formed so that they may lie flat on the roof covering and are preferably slightly embedded in the pitch or tar which is usually applied to the surface of the roof, before the final coating of gravel is placed thereon. The inner periphery of the ring *h* is provided with a series of gravel-intercepting plates, or projections, *h²*, arranged in a circular row, and spaced apart to provide drain-passages therebetween, the bottoms of which are closely adjacent to the upper surface of the ring *h*. An annular rib *h²* is provided on the outer periphery of the ring *h*, which is also extended upwardly from the upper surface of the ring, to provide a gravel stop, or an abutment for the gravel, which is placed on the roof to the level of the upper edge thereof.

The rim of a hemispherical, or inverted, cup-shaped strainer *i* is seated on the flat surface provided on the upper side of the

ring h between its projections h^2 and rib h^3 and concentric therewith, so that the strainer incloses the projections h^2 and the upper end of the drain pipe. The rim portion of the strainer has slots or openings i' formed therein at regular intervals, to provide a series of drain passages therethrough at the surface on which it rests, said passages corresponding in size and number to the projections h^2 . The strainer i is removably secured to the ring h in such a position that each passage i' is directly opposite one of the projections h^2 , the latter being of sufficient area and so located that a direct passageway through the openings i' to the pipe a is prevented. The strainer is removably secured to the ring h in this position by cotter pins j , which pass through the walls of the strainer and through ears h^4 formed in the row of projections h^2 . The diameter of the strainer at the rim is such that the rim rests on the ring h in a position at a substantial distance from both the projections h^2 and the rib h^3 , so that an annular space, of substantial width, is provided between the strainer rim and the projections. A series of free, but somewhat devious passages is thus provided from the roof surface to the drain pipe, as illustrated in Figs. 4 and 5.

With the above-described construction, rib h^3 acts as a gravel stop, at the time the gravel is originally applied, and normally holds the gravel in place. When the flow of water is heavy, gravel is sometimes washed from the surface of the roof, and will, or is liable to be washed over the rib h^3 onto the ring h . In such case, at least half of the gravel thus washed over onto the ring h will be intercepted by the rim portion of the strainer i , but a portion thereof is likely to be washed through the openings i' therein, so that it passes into the annular space between the strainer rim and the projections h^2 . As the projections h^2 prevent any substance from passing directly through the passages i' to the drain pipe, the gravel passing into said annular space will, in most instances, be intercepted by said projections, so that it will be retained in said space. The flow of water through said passages will not, however, be seriously obstructed, and in any event, the strainer openings above the rim will be sufficient to conduct away any great excess of the water, in case the rim openings are somewhat clogged.

Accumulations of the gravel on the ring h may be readily removed by first removing the strainer, so that easy access may be secured to the surface of the ring.

I claim:—

1. A roof-drain-guard comprising a

strainer cup adapted to be inverted over the roof outlet and having a series of notches leading from its rim to provide drain passages therethrough at the roof surface, and a ring adapted to rest on the roof and having a circular series of upwardly extending projections disposed at a distance from the rim and opposite the notches therein.

2. A roof-drain-guard comprising a ring adapted to rest on the roof and to encircle the roof outlet, a series of upwardly extending projections on said ring spaced apart to provide passageways therebetween, and a cup-shaped strainer adapted to be supported in inverted position with its rim encircling said projections and providing an annular space therebetween, the rim-portion of the strainer having a series of openings arranged opposite said projections.

3. A roof-drain-guard comprising a ring adapted to rest on the roof and to encircle the roof outlet, said ring having an upwardly projecting rib at its outer periphery, to provide a gravel stop, and having upwardly extending, gravel-intercepting projections adjacent its inner periphery, and a strainer cup adapted to be inverted over said outlet with its rim resting on said ring between said rib and said projections.

4. A roof-drain-guard comprising a flat ring having a gravel-holding rib extending about its outer periphery and a circular series of vertically disposed gravel-intercepting projections adjacent its inner periphery, providing passageways therebetween at the ring surface, and a strainer cup secured in inverted position to said ring with its rim resting thereon between said rib and said projections and in position to provide annular spaces therebetween, the rim portion of the strainer having a series of projections opposite the passageways between said projections.

5. In combination with a roof, a drain-pipe extending therethrough and terminating approximately flush with the roof surface, a flat ring resting on the roof and encircling said pipe, a series of projections on said ring extending entirely about its inner periphery and spaced apart to provide drain passages therebetween, a cup-shaped strainer inverted over said pipe and having its rim resting on said ring beyond said projections at a substantial distance therefrom, and provided with drain passages in its rim-portion opposite said projections.

6. In combination with a roof having a drain-pipe terminating at the roof surface, a cup-shaped strainer inverted over said pipe and having openings in its rim to provide drain passages at the roof surface, and a circular series of gravel-intercepting

plates each arranged at a distance from said rim and opposite one of the said openings therein.

5 7. In combination with a roof having a drain pipe terminating at the roof surface, a cup-shaped-strainer inverted over said pipe and having openings therein to provide drain passages at the roof surface, and a plurality of gravel intercepting plates

disposed at intervals about said pipe and at 10 a substantial distance within the rim of said strainer.

In testimony whereof, I have signed my name to this specification.

CHARLES L. HOLT.

Witness:

L. H. HARRIMAN.