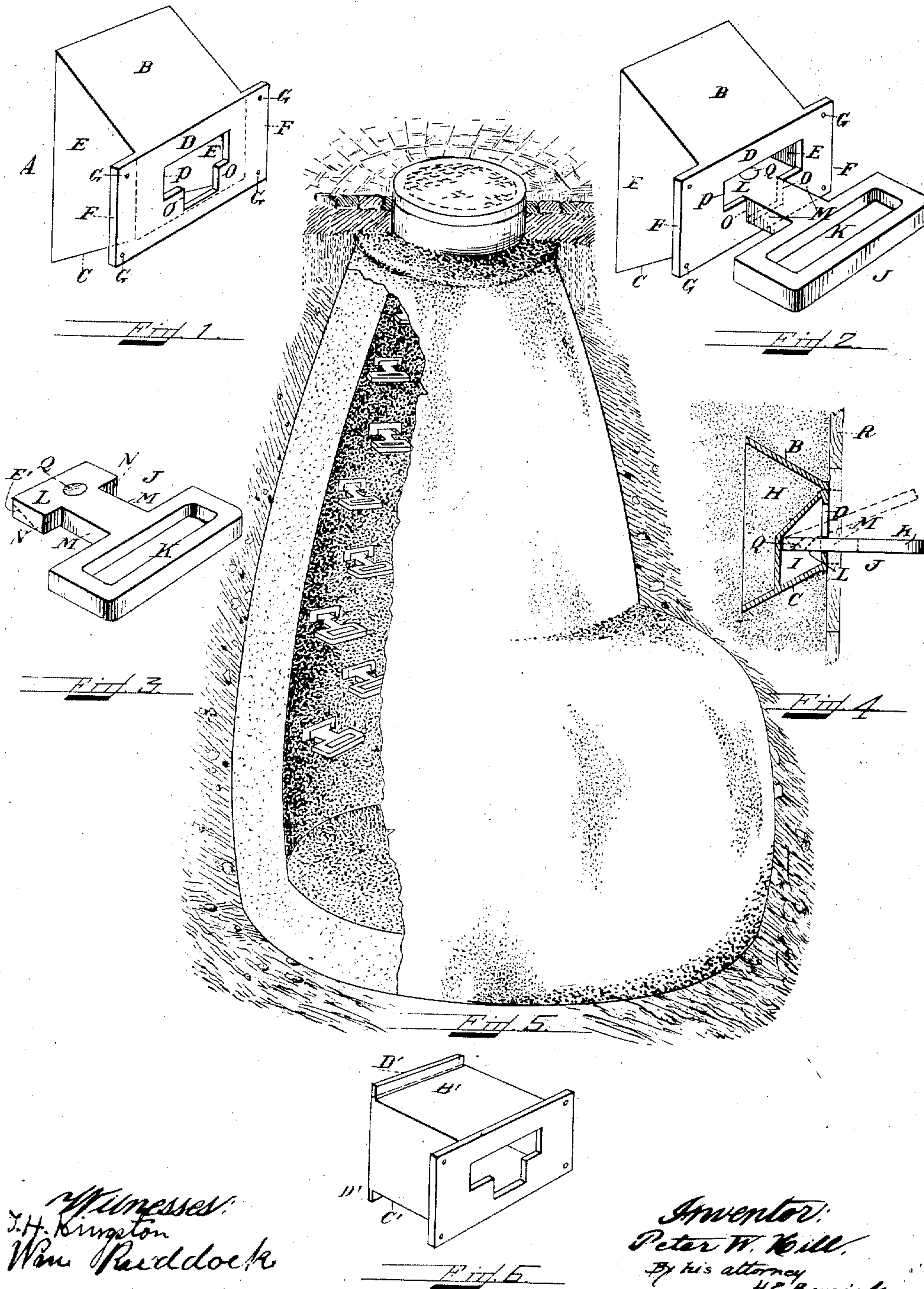


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LADDER.

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990,267.

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# UNITED STATES PATENT OFFICE.

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## LADDER.

990,267.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, PETER W. HILL, a citizen of the United States, and a resident of Dorchester, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Ladders, of which the following is a specification.

My invention relates to improvements in ladders, and specifically to the type which is built into the construction during the progress of the work.

The object of my invention is to provide a two-piece durable and dependable device particularly applicable to the interiors of concrete construction, but also adapted with slight modification to walls of brick and similar building material. I attain this object through the novel construction illustrated in the annexed drawing forming a part of this specification, wherein:—

Figure 1, is a perspective view of the primary or receiving member of my invention. Fig. 2, denotes a similar view exhibiting the secondary member in its assigned position when the device is assembled. Fig. 3, is a perspective of the secondary member or step, disconnected from the primary member or receptacle. Fig. 4, is a vertical central section of the primary member and exhibits my invention embedded in concrete during the progressive construction. Fig. 5, illustrates the practical adaptation of my improvement to the inside of a street sewage construction or catch basin, the foot rests placed alternately of a median line, or vertically as desired. Fig. 6, is a modified form of construction adaptable to structural walls of brick and stone.

Corresponding letters of reference indicate similar features throughout the drawing. Referring to which:—

A, designates broadly the casing or receptacle, preferably of metal, the upper and lower walls B and C respectively, diverging from the face D substantially as shown to secure the angular conformation necessary to its retainment in the concrete. The side walls E, E, may be vertical, the overlapping ends, F, F, of the face being provided with perforations G, for the purpose of temporary confinement, by nailing to the hoarding or barrier R (Fig. 4) of planking usually employed to confine the cementitious material during the interval of consolidation. The interior of the casing A comprises

practically two integral inclosures H and I within said vertical and inclined walls B, and C, the former being open rearwardly to admit the plastic material, while the latter, having an aperture of two dimensions admits the grout rigidly confining the secondary member J following its insertion and adjustment within said inclosure or chamber I. This member J embodies the footrest plate, which, it is obvious, serves the same capacity as the rung of the ordinary ladder, but with the further advantage of forming a substantial and roomy footing with strength to sustain the heaviest imposed weight. In design this plate or step (Fig. 3) is somewhat cruciform, the weight being supported by the protruding frame K, the anchor L positioned inside the inclosure I (Fig. 4) the reëntering spaces M—M, forming the shoulders N—N (Fig. 3) which interlock with the co-acting opposing edges O—O, of the aperture P, in the face plate D when the parts are assembled. In the final adjustment of the step J, it may be permanently secured by introducing grout through the orifice Q, slantingly perforating the anchor L, in a manner to facilitate the passage of the grout or similar material to the lower portion of the chamber I and filling said orifice Q, thus forming a bed insuring stability to the member J. To temporarily secure the part J, the lower half of said chamber I need only to be filled as previously described to the lower level of the orifice Q, thus forming a floor for the anchor L, by this method the step can be disconnected and replaced when desired, by moving the same to the position indicated in dotted lines (Fig. 4).

Under certain conditions it may be desirable to make abortive any use of the secondary members J, as in instances where ingress only to authorized employees, to whom access to said members J is permissible, and in divers ways that could be suggested; under such circumstances the temporary adjustment would be preferred.

The modified form (Fig. 6) is adapted to nearly all forms of bonded walls, and to this end the exterior surfaces B', C', may be corrugated or roughened to better retain the plastic material used to bind the structure or upper and lower flanges D', D', may project to engage with the courses of brick for its retainment. The lower plane of the anchor L may also be cut away on the dotted



line E', (Fig. 3) to facilitate its withdrawal. In other essentials it is the prototype of Fig. 2.

Obviously my invention can be utilized in exterior construction but preferably I confine its use as exemplified in Fig. 5, and while minor changes may be made in the precise details and exact arrangement of parts, I desire not to restrict myself to the specific embodiment herein given for the purpose of illustration and,

I claim:—

1. A ladder comprising in combination with a wall, a casing having a front face formed with a T-shaped opening and having its rear open, said casing having upper and lower walls which diverge from said front face, a dividing wall in the casing between the front and rear faces thereof, said dividing wall being of angular conformation to form a shoulder, a foot rest having a T-shaped inner end to engage in said opening of the front face of the casing and to abut said shoulder of the dividing wall.

2. A ladder comprising in combination with a wall, a casing having a front face formed with a T-shaped opening and having its rear open, said casing having upper and lower walls which diverge from said front face, a dividing wall in the casing between the front and rear faces thereof, said dividing wall being of angular conformation to form a shoulder, a foot rest having a T-shaped inner end to engage in said opening of the front face of the casing and to abut said shoulder of the dividing wall, said inner end of the foot rest being formed with an aperture to receive wet grout to allow the latter to be poured therethrough to form a bed for the foot rest.

3. A ladder comprising in combination with a wall, a casing having a front face formed with an opening and having an overhanging shoulder intermediate the top and bottom of said casing to the rear of said front face, and a foot rest introduced through said opening and having its inner end in engagement with said shoulder to hold the rest against upward movement at its inner end.

4. A ladder comprising in combination with a wall, a casing formed with an intermediate dividing wall to form a grout receiving chamber at its rear and a foot rest receiving chamber at its front, said dividing wall having a shoulder, the front face of the casing having an opening, and a foot rest having its inner end arranged in said front chamber and in engagement with said shoulder.

5. A ladder comprising in combination with a wall, a casing formed with an intermediate dividing wall to form a grout receiving chamber at its rear and a foot rest receiving chamber at its front, said dividing wall having a shoulder, the front face of the casing having an opening, and a foot rest having its inner end arranged in said front chamber and in engagement with said shoulder, and means whereby wet grout may be poured in the front chamber to fill the same below said foot rest to provide a bed for the latter.

In testimony whereof I have affixed my signature, in presence of two witnesses.

PETER W. HILL.

Witnesses:

NICHOLAS GENTLEMAN,  
JOSEPH P. MURRAY.