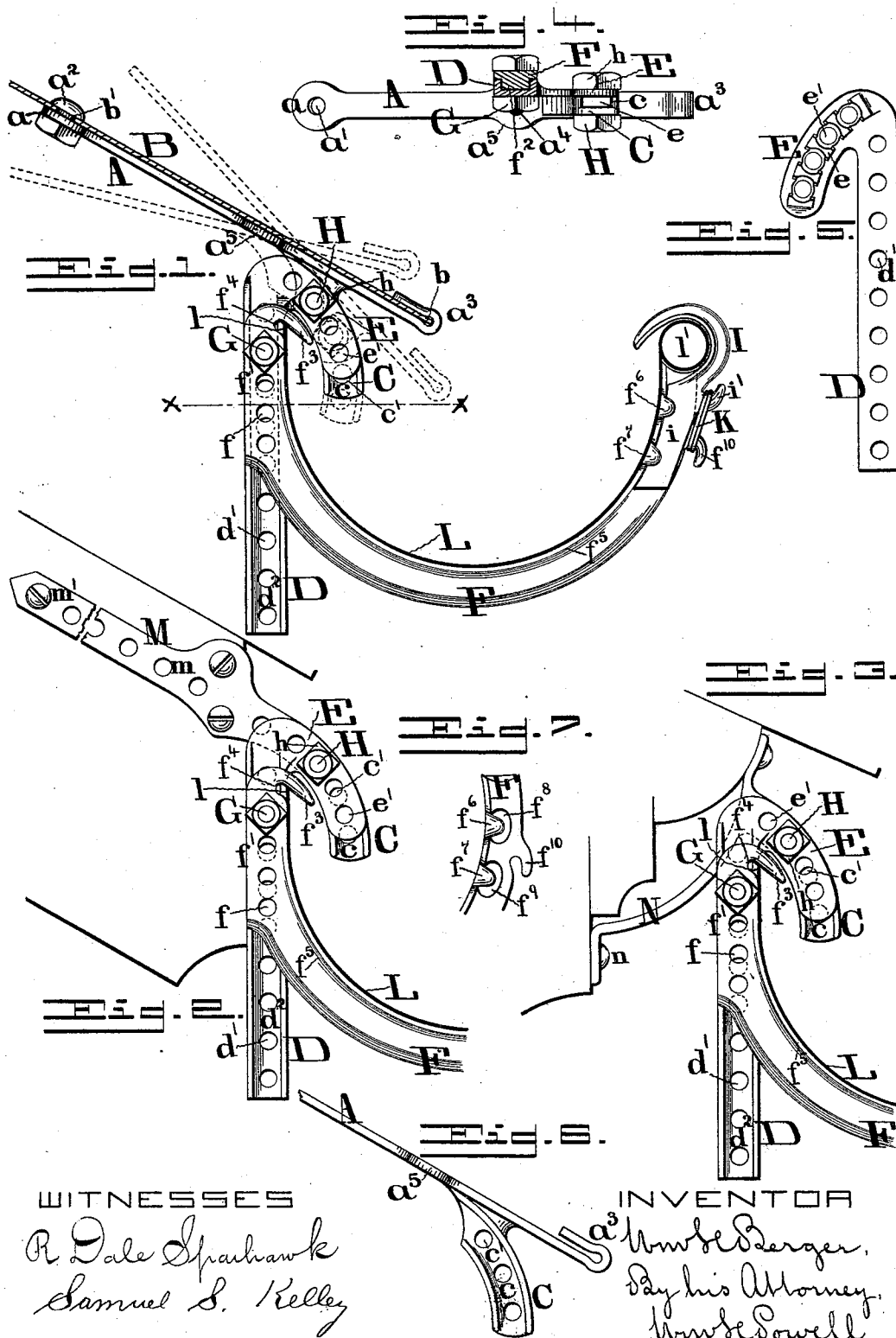


(No Model.)

W. H. BERGER.
EAVES TROUGH OR GUTTER HANGER.

No. 540,896.

Patented June 11, 1895.



WITNESSES

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EAVES TROUGH OR GUTTER HANGER.

SPECIFICATION forming part of Letters Patent No. 540,896, dated June 11, 1895.

Application filed July 31, 1894. Serial No. 519,080. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. BERGER, a citizen of the United States, residing at Wyncote, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Eaves Trough or Gutter Hangers, of which the following is a specification.

My invention has relation to that class of eaves-trough or gutter-hangers which comprise a tang or fastening, a depending shank which supports the "circle" or part in which the trough or gutter is secured, and a hinge-joint or pivotal connection, between the shank and the tang or fastening, through the medium of which the latter is adjustable correspondingly with the angle of inclination of the roof, awning, &c., to which it is applied.

Ordinarily, sufficient clearance has to be left between the inner edge of the trough or gutter and the tang or fastening to permit of the swinging of the shank on its pivot, or such inner edge must be outside the line of the greatest diameter of the joint or connection, or at a distance from the roof, awning, &c., greater than the radius of said joint or connection, thereby preventing the location of the trough or gutter sufficiently close to such roof, awning, &c., to secure the best result; also, separate devices of various kinds, for bringing the inner edge of the trough or gutter as far under the edge of the roof, awning, &c., as possible, or for keeping the same in close relation with the shank or back of the hanger, or a separate operation, where a fixed retainer is employed, have been necessary; and, to have said trough or gutter firmly seated in the holder and in contact with every part of the bearing surface thereof, it has been found necessary for one man to draw the trough or gutter down while another secures it there by wiring or otherwise fastening it to the outer end of said holder. The holding down of such trough or gutter to the proper extent, while securing it in place, being more than one man can ordinarily accomplish.

My invention consists, first, in the provision of a tang, for an eaves-trough or gutter-hanger, which at one end is bolted or otherwise secured to the roof-awning, &c., and at its other end is bent or turned upon itself and pressed into clamping relation with the edge

of the same, thereby affording ample security without additional fastening for this end of the tang, while lessening the number of holes necessary for securing the latter to such roof, awning, &c., and the consequent tendency toward leakage, and rendering its application thereto a matter of considerably less work; second, in providing the shank and the tang or fastening of the hanger each with a rotary clamp-member, the meeting faces respectively of which have a segmental tongue thereon and a similarly curved groove therein adapted to slide in a circular direction one in the other, thereby changing the angle of said tang or fastening, which latter is secured in its adjusted position by the passage of a bolt through said clamp-members, the point of union of said shank and its clamp-member being inside the radius of the clamp-connection; the curvature of the latter the reverse of the ordinary pivotal connection; and the trough or gutter adjustable on such shank to a point within such radius, instead of outside the same as in the connection last mentioned, allowing such trough or gutter to be placed that much closer to the roof-awning, &c.; third, in the provision of a circle or holder having at its inner end an internal notch or recess and a downwardly inclined fixed hook which leads thereinto, and at its outer end provided with side clips or keepers and an external smaller fixed hook or catch, combined with a bead-hook, detachable, as heretofore, but held in place by the clips or keepers and having an external hook or projection similar to and in alignment with, though pointing the other way from the hook or catch aforesaid, the trough or gutter being placed in this circle or holder with its inner edge under the internal hoop and its bead inserted in the hook therefor. The mere winding of wire tightly around the external hooks on the circle or holder and the bead-hook effecting the drawing down of the bead of said trough or gutter sufficiently to cause its inner edge to ride on the inclined edge of the inner hook into close relation with the rear face of said circle or holder and such trough or gutter to rest firmly in the latter at every point, without further operation.

My invention also consists in the details of construction and the combinations of parts hereinafter fully described and claimed and

illustrated in the accompanying drawings wherein—

Figure 1 is a side elevation of my invention complete and in position for use, and Figs. 2 and 3 are similar views of different forms of fastenings therefor. Fig. 4 is a transverse section taken on line $x x$ of Fig. 1. Fig. 5 is a rear view of the improved shank, and Fig. 6 is a face view of the improved tang. Fig. 7 is a detail of the outer end of the circle or holder.

Referring to said drawings, A represents the improved tang composed, preferably, of malleable iron, provided with an enlarged upper end a with an opening a' therein for the passage of a bolt a^2 or other fastener and having its lower end turned or bent upon itself to form a crook a^3 .

B represents, in section, a portion of a corrugated or other form of metal roof or awning, for use on which this tang is particularly adapted, the same, in practice, being placed on the under side of the roof or awning with the edge b of the latter in the crook a^3 , which crook is then closed or clamped on such edge, through the use of tongs, pinchers or other suitable tool, and the bolt or fastener passed through the opening in the end a and through a similar opening b' in said roof or awning. Now, for ordinary cases, said tang is thus amply secured, yet leaving the upper side of the roof or awning practically free of obstruction. Still, for occasions when extra security is necessary, an opening a^4 in an enlargement a^5 between the ends of the tang, for the passage of an additional bolt or fastener, is provided. Said tang, on its under side, is provided with a depending segmental clamp-member C which, at its upper end, is united edgewise thereto and extends at a tangent downwardly therefrom and has in its front face a flat-bottomed straight-sided groove c of like curvature. The shank D—which, for the most part, is like that shown and described in Letters Patent No. 220,515, granted to me on October 14, 1879, as is also that portion of the circle F which is secured thereto—terminates at its upper end in a clamp-member E of the same curvature as clamp-member C which, on its rear face, has a series of projections e arranged in a curved line, and adapted for engagement with the groove c ; when the respective clamp-members are placed face to face; forming, practically, a continuous curved tongue. Said shank has openings d' therein, vertically arranged, for registry with though at distances apart different from the similarly arranged openings f in the inner end f' of the circle F, through which openings are passed the fastening bolts G, and said end f' has on its rear face a vertical row of projections f^2 , alternating with the openings f , for engagement with the vertical groove d^2 in the shank, when the latter and said circle are in the relation shown in Fig. 1, whereby a greater number of degrees of vertical adjustment in a given length of shank is obtained; but, while the openings c' and e' , of the clamp-members

C and E, through which the bolt H is passed, are at different distances apart and the openings last mentioned alternate with the projections e , the same are, similarly to these projections, arranged in a curved line, thereby securing a greater variety of angular adjustments for the tang A in a given length of clamp.

As hereinbefore mentioned and shown in the drawings, the inner end f' of circle F terminates in an inwardly projecting downwardly inclined hook f^3 , and a notch or recess f^4 of like inclination in the inner edge of the circle has its upper side continuous of the lower edge of said hook. This circle, as is common to eaves-trough or gutter-hangers, is T shaped in cross-section. Integral with the flange f^5 , adjacent to the outer end of circle F, a pair of radial clips or keepers $f^6 f^7$, which extend outwardly parallel with and at a distance from the rear side of the latter, are located, the intervening spaces affording a slide-way for the shank i of the bead-hook I. Beneath these clips or keepers are openings $f^8 f^9$ which permit of the casting of the same integral with the circle, without the use of cores in the molding operation.

The shank i of the bead-hook is somewhat wider at the point where the wire-hook i' is located than is the circle F at the point of location of the wire-hook f^{10} , the effect of which, when the fastening wire K is bound around the hooks $i' f^{10}$, is to keep the bead-hook pressed inwardly against the flange f^5 and under the clips or keepers.

The trough or gutter L is placed in the circle F with its inner edge l under the hook f^3 and its bead l' in the hook I, as hereinbefore explained. If this inner edge be not placed at first in the position shown in the drawings, draft or pressure on the bead will cause such edge to ride easily on the incline of hook f^3 until the back of the trough or gutter rests wholly against the adjacent portion of said circle, in which position it is held by the hook last mentioned as long as this draft or pressure continues. Of course, the more tightly the wire K is bound around the hook $i' f^{10}$ the more firmly will the trough or gutter be seated in the circle or holder. Now, through the use of a common pair of pinchers, the ends of said wire, after the latter has been wound as tightly around the hooks therefor as possible, may be twisted to such extent as to draw said trough or gutter down absolutely tight, whereas, with the detachable hook shown in Letters Patent No. 345,102, dated July 6, 1886, granted to me, unless the holes in such hook and the circle register when the trough or gutter is pressed down its full extent, said hook must be eased up to find an opening for the fastening bolt and said trough or gutter to that extent loose in the holder.

According to the height at which it is desired to place the trough or gutter will the particular holes in the shank and circle through which the bolt G is passed be. If it

be necessary to have such trough or gutter as close to the roof or awning as possible, which is particularly the case with metal roofs, awnings, &c., which have no cornice, or where
 5 the trough or gutter is very long and it is necessary to bring one end of it close up to secure the proper fall, the edges of said trough or gutter may be brought higher than the edge of the roof or awning to which it is secured, there being, in this event, no more
 10 space between the inner edge of the trough or gutter and the roof or awning than the thickness of the tang A and the width of the clamp-members. The adjustment of said
 15 tang to the proper angle, variations of which are shown by the dotted lines in Fig. 1, involves simply unscrewing the nut *h*, removing the bolt H and turning one clamp-member on the other to the proper extent, then re-
 20 placing the bolt in such holes as there register and screwing the nut thereon; said bolts preventing the parts which they secure together from slipping on each other, while the sides of the grooves with which the projections on
 25 the different parts engage prevent such parts from turning on the bolts.

Where the rafters are exposed, the clamp-member C may be provided with a tang of the character shown at M, in Fig. 2, the same hav-
 30 ing a number of openings *m* therein whereby, through the medium of screws *m'* or other fasteners, the same may be secured to the side of a rafter, the improved connection permitting said tang to be placed at such angle as to
 35 avoid having the screws or fastenings in line with the grain of the wood and the consequent splitting thereof; or, for securing the improved hanger to a wooden cornice, said clamp-member may be provided with a bracket N
 40 through the ends of which the nails *n*, or other fastenings, may be driven, said connection allowing such ends to be placed at such angles as the necessities of the case require.

What I claim as my invention is as follows:
 45 1. In an eaves trough or gutter hanger, a tang having an opening therein, and a crooked lower end, and provided with a segmental clamp member united thereto, and having a
 50 groove in its front face, a shank piece terminating in a clamp member, said shank having openings therein and said clamp member thereof having projections for engagement with the said groove and fastening bolts, said parts being combined substantially as de-
 55 scribed.

2. A tang with a crooked lower end, the seg-
 mental clamp C connected with said tang, and

having the groove C in its front face, the straight shank D with openings therein, and having its upper end terminating in the 60 curved clamp member E, provided with a projection to engage said groove, the circle F with inner end *f'* having openings therein and terminating in an inwardly projecting hook *f*³, said parts being combined substantially as 65 described.

3. A tang with a crooked lower end, the seg-
 mental clamp member C having the groove *c* therein, the shank D with a clamp member E having projections fitting in said groove, and 70 the circle F having the end *f'* with openings, and provided with the hook *f*³ and recess *f*⁴ below said hook, said parts being combined substantially as described.

4. A tang with a depending segmental clamp 75 member, having a groove therein, a shank piece with segmental clamp member having projections engaging said groove, a circle having its inner end adapted to be secured to said shank, a bead hook with shank, radial clamps 80 forming a slide way for the shank of the bead hook, and binding means for said hook and radial clamps, said parts being combined substantially as described.

5. In an eaves-trough or gutter-hanger, the 85 combination with the trough or gutter of a suitably supported circle therefor provided at its outer end with an external fixed hook and having side clips or keepers adjacent thereto, and a detachable bead-hook provided with a 90 similar external hook and secured in place beneath said clips or keepers by a suitable binding passed around the external hooks aforesaid, substantially as specified.

6. In an eaves-trough or gutter-hanger, the 95 combination with the trough or gutter of a suitably supported circle therefor provided at its outer end with an external fixed hook and having side clips or keepers adjacent thereto, and a detachable bead-hook provided with a 100 similar external hook and wider at the point of location of the same than is the circle where the external hook of the same is located, said bead-hook being secured in place beneath said clips or keepers by a suitable binding passed 105 around the external hooks aforesaid, substantially as specified.

In testimony whereof I have hereunto set my hand this 23d day of July, A. D. 1894.

WILLIAM H. BERGER.

Witnesses:

R. DALE SPARHAWK,
 WM. L. POWELL.