

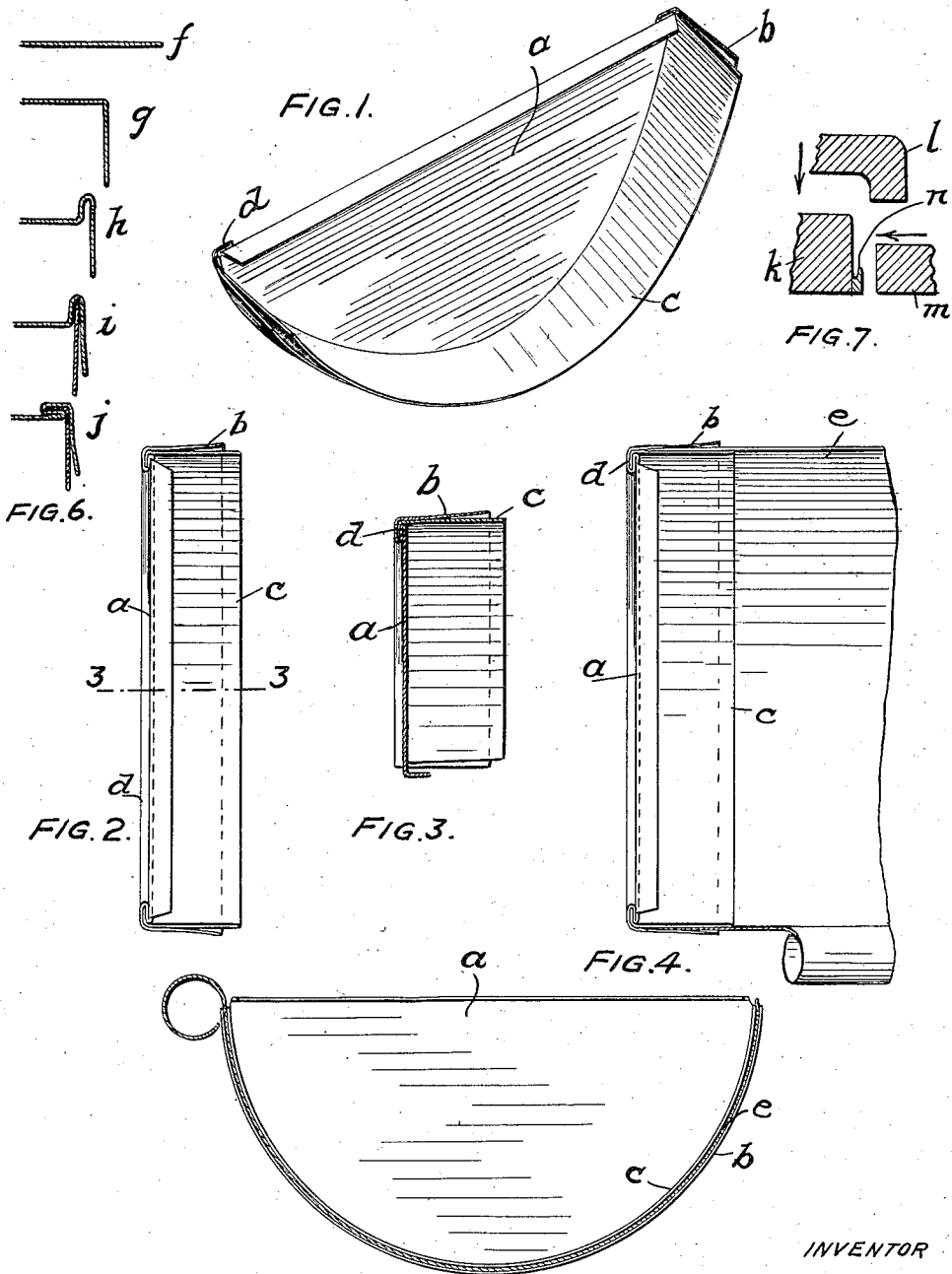
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GUTTER END PIECE

Filed May 25, 1922



WITNESS:  
*Robt. M. Kitchel.*

FIG. 5.

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# UNITED STATES PATENT OFFICE.

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## GUTTER END PIECE.

Application filed May 25, 1922. Serial No. 563,626.

*To all whom it may concern:*

Be it known that I, THOMAS RIGBY, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Gutter End Pieces, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to gutter ends, or ends for eaves troughs.

The object of my invention is to provide ends of this character which are uniform, which can readily be applied to the ends of troughs or gutters without first separating the trough receiving elements, and which may be driven into position to form tight joints without soldering.

Another object of my invention is to provide dies for forming the final step in the manufacture of the ends so as to form a tapered spout receiving recess between the spout receiving elements, as well as a method of forming such ends.

The precise nature of my invention shall be best understood by reference to the accompanying drawings, which will now be described, it being premised, however, that changes may be made in the form of the ends, the dies as well as the method of forming the joint between the different elements, without departing from the spirit and scope of my invention, as defined in the appended claims.

Fig. 1 is a perspective view of one form of end made in accordance with my invention.

Fig. 2 is a plan view thereof,

Fig. 3, is a sectional view on the line 3—3 of Fig. 2,

Fig. 4, is a view similar to Fig. 2, showing a gutter end, in position on a trough.

Fig. 5, is an end view thereof with the trough in sections.

Fig. 6, diagrammatically illustrates the various steps in the formation of the ends.

Fig. 7, is a detail sectional view of portions of one form of dies for carrying out the final step of forming the ends shown in Figs. 1-5.

The gutter end shown in the drawings comprises an end member *a* of semi-cylindrical form, having an integral arcuate flange *b*, slightly flared. The gutter end is

also provided with an inner arcuate flange member *c* adjacent to the flange *b*. This flange member *c* is secured in position by a radially disposed flange along one edge thereof which is secured within an arcuate bead *d* formed of members extending from the end *a* and flange *b*. The flange member *c* is substantially normal to the end *a*, while the flange member *b* extends at an angle thereto, so as to form a tapered recess between the flange members *b* and *c*, as clearly shown in Figs. 1, 2 and 3.

I preferably form the flange member *c* normal to the end member *a*, as well as somewhat longer than the flange member *b*. This facilitates the application of the device to the end of a trough, and also causes the flange member *c* and trough to lie parallel to each other when the end is driven home on the end of a trough.

When applying a gutter end to a gutter or trough which has been previously shaped as shown at *e* in Figs. 4 and 5, the end of flange member *c*, which extends beyond member *b* is laid within the trough, and the trough end is pushed longitudinally relative to the trough, until the trough is well seated between flange members *b* and *c*.

The trough end is then gently tapped along the bead *d* to firmly wedge the end of the trough *e* between the flange members *b* and *c*. As the flange member *c* is parallel to the trough *e* and the inner face of the trough is forced against the outer face of flange member *c*, by the wedging action, a water tight joint will be formed between these faces, without soldering.

When it is desired to remove an end or replace an end with a new end, the end can readily be removed from the trough by tapping, without injury to either the end or trough.

In the manufacture of the ends such as shown, blanks of substantially semi-cylindrical form are first died out, a section of a portion of one being shown at *f* in Fig. 6. The blanks are then placed between dies to form a deep arcuate flange thereon as shown at *g* in Fig. 6. The flanged blanks are then placed between drawing dies and an arcuate bead is formed, with an arcuate recess between the bead forming members as shown at *h* in Fig. 6. The beaded blanks together with narrow strips of sheet metal are assembled as shown at *i* in Fig. 6, and

are assembled in dies such as shown in Fig. 7. The dies are then closed about the assembled blanks to roll the bead inwardly and bend a flange on the inserted strip, which forms flange *c* and secures said flange in position as shown at *j* in Fig. 6 and thus completing the article as shown in Figs. 1-3.

The finishing dies comprise a fixed male member *k*, a longitudinally movable female member *l*, and a laterally movable clamping member *m*.

The die member *k* is provided with an arcuate shaped flange *n*, slightly spaced from the body of the die member, to form an arcuate recess for the reception of the strip for forming the flange member *c*.

This flange *n* together with the other die members coacting therewith, maintain the flange member *c* normal to the end member *a* and flare the flange member *b*.

In the last step of manufacturing these gutter ends, the strip for forming flange member *c* is first placed in the recess in die member *k*, a beaded blank such as shown at *h* in Fig. 6, is then placed on die member *k*, and the positioned strip, the upper portion of the strip will be seated in the groove between the bead forming members as shown at *i* in Fig. 6.

The die member *m* is then moved laterally and locked in position to clamp flange member *b* of the blank against flange *n* of die member *k*. Die member *l* is then moved toward die member *k* to roll and flatten the bead shown at *i* in Fig. 6, and form the bead *d*, shown in Figs. 2-4.

The advantages of my invention result from the provision of a gutter end having two flanges extending therefrom, arranged to receive the end of an eaves trough or gutter between them, one of the flanges extending at an acute angle to the other whereby a tapered recess is formed, to permit wedging the trough between them and form a tight joint without the use of solder, and in which the mouth of the recess is of sufficient width to readily permit the entrance of the trough.

Also from the provision of dies and

method of forming ends to form the tapered recess, and thereby form uniform structures, in which the spreading of the flanges after formation is not required, in order to permit entrance of the end of the trough.

I claim:

1. A gutter end having a substantially semi-circular end wall or body member, a flange extending from the arcuate peripheral portion thereof and extending in a plane substantially normal to the plane of the body, a second flange adjacent to the first flange, and a bead at the junction of the flanges and the body member in which the inner edge of the second flange is secured, the outer edge of one of the flanges being sprung radially from its normal position away from the other flange, so that the radius of the said flange at one plane differs from the radius at another plane whereby a flared channel is formed between the flanges for the reception of a gutter.

2. A gutter end having an end wall and a plurality of flange members connected thereto and extending beyond the end wall, a bead at the junction of the flange and end wall one of said flanges being at an angle to the other to form a tapered recess for the reception of the end of a gutter.

3. A gutter end having an end member, a flared flange extending therefrom, and a second flange extending from the end member within the first flange and substantially normal to the end member, said second flange being of greater depth than the first flange.

4. A gutter end of semi-cylindrical form, having an end member, an integral flange extending therefrom, said flange being flared, a second flange within the first flange, normal to the end member, and a rolled bead at the junction of the end member and the first flange within which the second flange is secured, one of said flanges being of greater depth than the other.

In testimony of which invention, I have hereunto set my hand, at Philadelphia, Pa., on this 23d day of May, 1922.

THOMAS RIGBY.