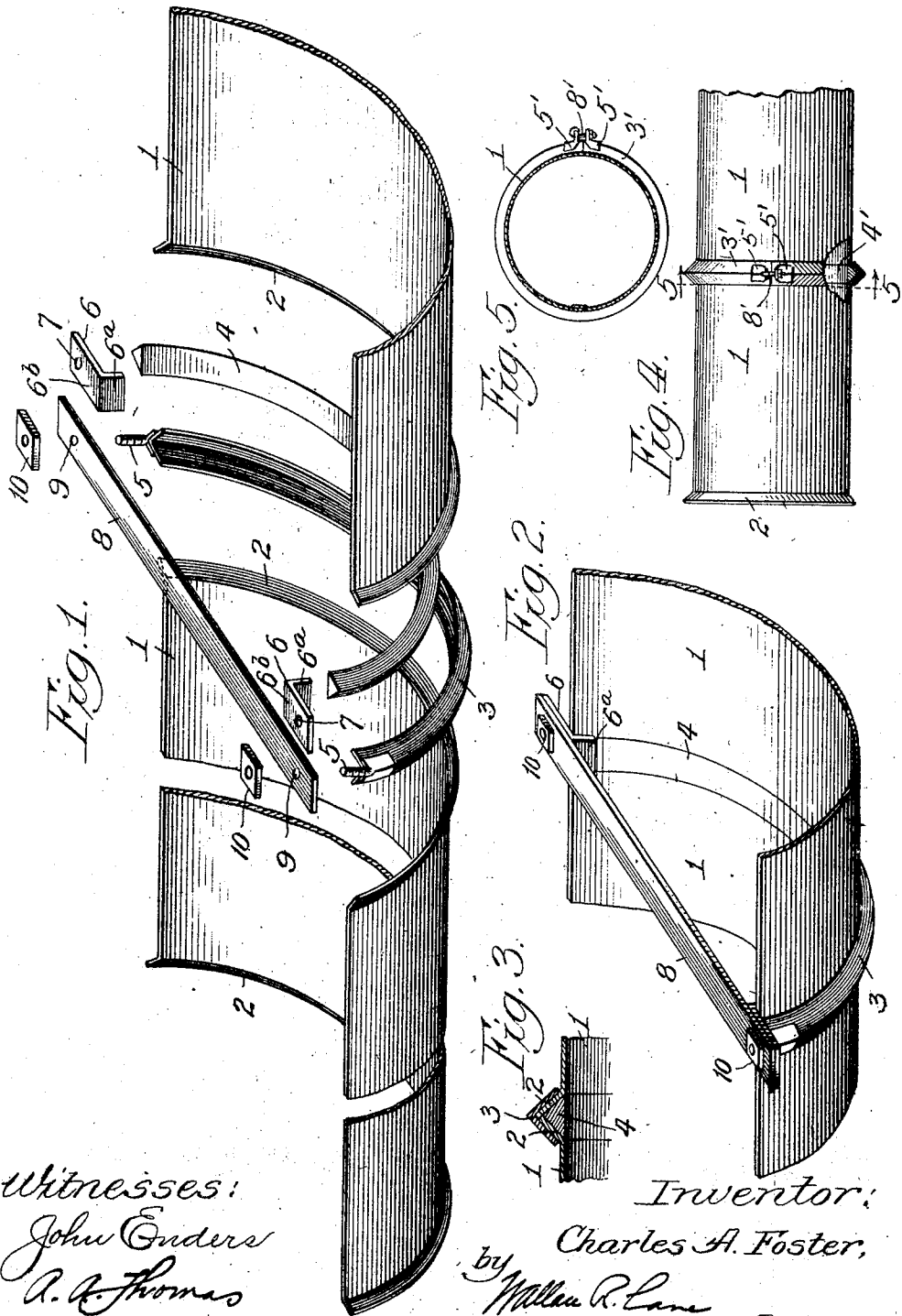


1,010,419.

Patented Dec. 5, 1911.



Witnesses:
John Enders
A. A. Thomas

Inventor:
Charles A. Foster,
by William R. Lane Attorney

UNITED STATES PATENT OFFICE.

CHARLES A. FOSTER, OF PORTLAND, OREGON.

SHEET-METAL FLUME.

1,010,419.

Specification of Letters Patent.

Patented Dec. 5, 1911.

Application filed June 10, 1911. Serial No. 632,502.

To all whom it may concern:

Be it known that I, CHARLES A. FOSTER, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented a new and useful Improvement in Sheet-Metal Flumes, of which the following is a specification.

The object of my invention is to provide a sheet metal flume construction in which the sections are so joined together as to leave the inner surface of the sections smooth and uninterrupted throughout so that the water can flow with a minimum coefficient of friction. At the same time the form of joint which I have provided for the sections is water tight and holds the sections in fixed relation to each other. My improved joint is equally applicable to semi-cylindrical and cylindrical sections.

In the accompanying drawings Figure 1 is a perspective view of flume sections provided with my new form of joint, the different parts being shown disassembled for the sake of clearness; Fig. 2 is a perspective view showing the parts of Fig. 1 in an assembled condition; Fig. 3 is a fragmentary detailed view showing a cross-section through the joint; Fig. 4 is an elevational view of my new form of joint applied to cylindrical sections; and Fig. 5 is a cross-section on line 5-5 of Fig. 4 looking in the direction of the arrows.

The flume sections 1 which may either be semi-cylindrical, as shown in Figs. 1 and 2, or cylindrical, as shown in Figs. 4 and 5, are provided with outwardly flaring end flanges 2. When the sections are joined together the flanges 2 terminate in proximity to each other without overlapping, as clearly indicated in Fig. 3. An angular clamping band 3 is arranged to fit snugly around the outside of the flanges. The angular recess formed in the angle iron 3 is preferably of sufficient size to receive substantially the entire width of the flanges 2. An inner clamping band 4 fits into the recess formed between flanges inside of the sections. In the drawing the band 4 is shown as a solid bar triangular in cross section. When this band is in place, the flat face thereof is substantially flush with the interior surface of the sections, as shown in Figs. 2 and 3 so as to provide a smooth uninterrupted surface over which the water can run with a very small coefficient of friction. The con-

verged sides of the triangular band 4 bear against the inner faces of the flanges 2, as shown in Fig. 3. The ends of the outer clamping band 3 are provided with upstanding screw-threaded lugs 5. Angular clips 6 are provided each with an opening 7 through which the screw-threaded lugs or bolts 5 extend. The clips 6 are provided with a clamping extension 6^a adapted to engage the ends of the inner clamping band 4. The horizontal portions 6^b of the clips extend over the edges of the flume sections when the parts are in assembled condition, as in Fig. 2. A transverse bar 8 is provided with openings 9 adapted to receive the screw threaded lugs 5. Nuts 10 are screwed on the lugs 5 for holding the clips 6 and transverse bar 8 rigidly connected with the clamping members 3 and 4.

It will be seen from the above that I have provided an exceedingly simple and effective means for securing a water tight joint between flume sections, without interrupting the smooth surface inside of the flume. My new form of joint may be applied equally well to cylindrical sections, as shown in Figs. 4 and 5. The only difference between the construction described above and that shown in these figures is that the outer and inner clamping bands 3' and 4', respectively are in the form of rings. This dispenses with the necessity of the clips 6 used in the construction shown in Figs. 1 and 2. The ends of the outer clamping ring 3' are provided with perforated lugs 5' through which a connecting bolt 8' passes for firmly drawing the ends of the clamping ring 3' together. However, both forms shown in the drawings embody the same principle.

While I have herein shown and described two specific constructions embodying the principle of my invention, it is to be understood that changes and modifications may be made by those skilled in the art without departing from the invention as defined in the appended claims. For instance, if desired, the solid triangular clamping member 4 could be replaced by an angular member similar to the outer clamping band 3. While this would not leave a smooth surface across the joint on the inside of the flume, it would present a perfectly practical construction. Furthermore, the inner clamping band need not be strictly triangular in cross section, but it may have an oval shape,

or in fact, any other shape which could be used in conjunction with the outside angle iron to hold the flanged edges of the flume sections in place. Also the transverse connecting bar 8 may assume various forms, and might in some instances even be dispensed with where the sections would be sufficiently braced upon the outside.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a construction of the class described, the combination of two adjoining sections provided with outwardly flaring flanges at their adjacent ends, said flanges terminating in proximity to each other without overlapping, an angular clamping band arranged to fit snugly around the outside of said flanges, an inner clamping band fitting into the recess formed by the flanges inside of the sections, the outer face of the said inner band being substantially flush with the interior surface of the sections, and means for clamping said bands together to produce a tight joint.

2. In a construction of the class described, the combination of two adjoining sections provided with outwardly flaring flanges at their adjacent ends, said flanges terminating in proximity to each other without overlapping, an angular clamping band arranged to fit snugly around the outside of said flanges, an inner clamping band fitting into the recess formed between flanges inside of the sections, the outer face of the said inner band being substantially flush with the interior surface of the sections, lugs secured rigidly to the ends of the outer band, and clips attached to said lugs and engaging said inner band to hold the two bands firmly against the flanges, whereby a tight joint is produced.

3. In a construction of the class described, the combination of two adjoining sections provided with outwardly flaring flanges at their adjacent ends, said flanges terminating in proximity to each other without overlapping, an angular clamping band arranged to fit snugly around the outside of said flanges, an inner clamping band fitting into the recess formed between the flanges inside of the sections, the outer face of the said inner band being substantially flush with the interior surface of the sections, lugs secured rigidly to the ends of the outer band, clips attached to said lugs and engaging said inner band to hold the two bands firmly against the flanges, and a transverse bar connected to said lugs to prevent spreading of the bands.

4. In a construction of the class described, the combination of two adjoining sections provided with outwardly flaring flanges at the adjacent ends, said flanges terminating in proximity to each other without overlap-

ping, an outer clamping band arranged to fit snugly around the outside of said flanges, an inner clamping band arranged in the recess formed by the flanges inside of the sections, and means for clamping said band together to produce a tight joint.

5. In a construction of the class described the combination of two adjoining sections provided with outwardly flaring flanges at their adjacent ends, said flanges terminating in proximity to each other without overlapping, an outer clamping band arranged to fit snugly around the outside of said flanges, an inner clamping band arranged in the recess formed by the flanges on the inside of the sections, lugs secured rigidly to the ends of the outer band, clips attached to said lugs for engaging the inner band to hold the two bands firmly against the flanges, and a transverse bar connected to said lugs to prevent spreading of the band.

6. In a construction of the class described the combination of two adjoining sections provided with outwardly flaring flanges at their adjacent ends, said flanges terminating in proximity to each other without overlapping, an angular clamping band arranged to fit snugly around the outside of said flanges, an inner clamping band fitting into the recess formed by the flanges inside of the section, the outer face of said inner band being substantially flush with the interior of the sections, and clips for rigidly connecting the ends of the bands together.

7. In a construction of the class described the combination of two adjoining sections provided with outwardly flaring flanges at their adjacent ends, said flanges terminating in proximity to each other without overlapping, an angular clamping band arranged to fit snugly around the outside of said flanges, an inner clamping band fitting into the recess formed by the flanges inside of the section, the outer face of said inner band being substantially flush with the interior of the sections, clips for rigidly connecting the ends of the band together, and a transverse bar for connecting the ends of the outer band to prevent spreading of the bands.

8. In a construction of the class described the combination of two adjoining sections provided with outwardly flaring flanges at their adjacent ends, said flanges terminating in proximity to each other without overlapping, an angular clamping band arranged to fit snugly around the outside of said flanges, a solid triangular clamping band fitting into the recess formed by the flanges inside of the sections, the flat outer face of said inner band being substantially flush with the inner surface of the sections, and means for clamping said bands together to produce a tight joint.

9. In a construction of the class described the combination of two adjoining sections

provided with outwardly flaring flanges at their adjacent ends, said flanges terminating in proximity to each other without overlapping, an angular clamping band arranged to fit snugly around the outside of said flanges, an inner clamping band fitting into the recess formed by the flanges inside of the sections, the outer face of the said inner band being substantially flush with the interior surface of the sections, and a connection between the ends of the outer band for holding the two bands firmly against the flanges, whereby a tight joint is produced.

10. In a construction of the class described, the combination of two adjoining sections provided with outwardly flaring flanges at their adjacent ends, said flanges terminating in proximity to each other without overlapping, an angular clamping band arranged to fit snugly around the outside of said flanges, an inner clamping band fitting into the recess formed by the flanges inside of the sections, the outer face of the said inner band being substantially flush with the in-

terior surface of the sections, lugs secured rigidly to the ends of the outer band, and a rigid connection between said lugs to hold the two bands firmly against the flanges, whereby a tight joint is produced.

11. In a construction of the class described, the combination of two adjoining sections provided with outwardly flaring flanges at their adjacent ends, said flanges terminating in proximity to each other without overlapping, an angular clamping band arranged to fit snugly around the outside of said flanges, an inner clamping band arranged in the recess formed at the flanges inside of the sections, lugs secured rigidly to the ends of the outer band, and a connection between said lugs for holding the two bands firmly against the flanges, whereby a tight joint is produced.

In witness whereof, I hereunto subscribe my name this first day of June, A. D. 1911.

CHARLES A. FOSTER.

Witnesses:

L. D. MONROE,
CHAS. F. JENSEN.