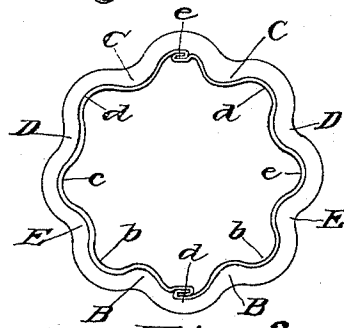
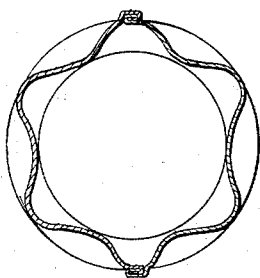
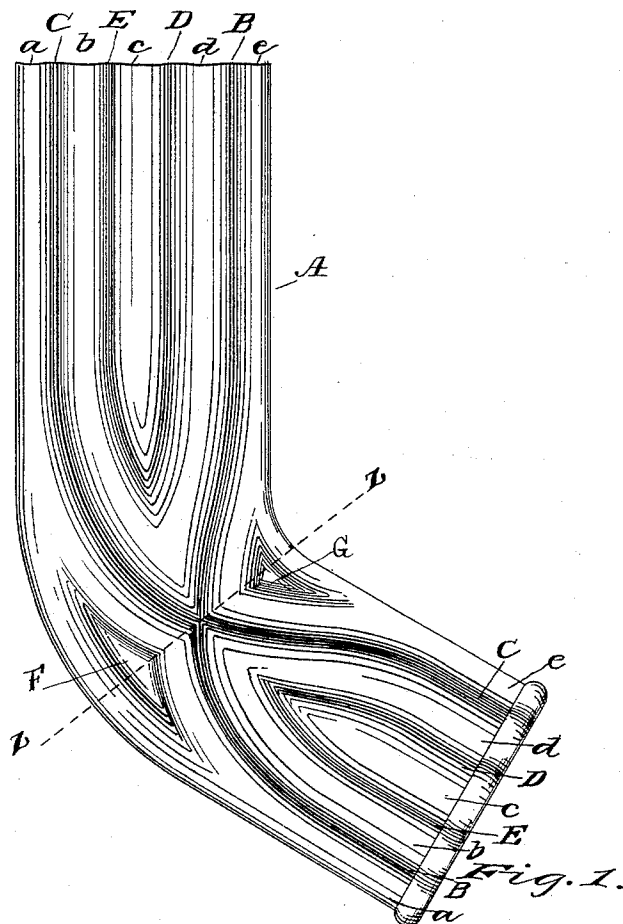


(Model.)

W. C. BERGER.
SHEET METAL ELBOW.

No. 485,783.

Patented Nov. 8, 1892.



Witnesses

E. H. Lane

Fig. 2.

Chas. P. Miller

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UNITED STATES PATENT OFFICE.

WILSON C. BERGER, OF CANTON, OHIO, ASSIGNOR TO THE BERGER
MANUFACTURING COMPANY, OF SAME PLACE.

SHEET-METAL ELBOW.

SPECIFICATION forming part of Letters Patent No. 485,783, dated November 8, 1892.

Application filed April 20, 1892. Serial No. 429,827. (Model.)

To all whom it may concern:

Be it known that I, WILSON C. BERGER, a citizen of the United States, and a resident of Canton, county of Stark, State of Ohio, have invented a new and useful Improvement in Sheet-Metal Elbows, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

- 10 My invention relates to an improvement in sheet-metal elbows for water-spouts, the object of which is to provide a sheet-metal ex-
pansible elbow to obviate the bursting of
such elbow when water freezes therein by
15 forming the elbow at the points most sub-
jected to expansion and contraction with an
abundance of metal, so that these points are
not only strengthened to resist such expan-
sion and contraction, but are strengthened
20 against breakage from other causes.

With this end in view my invention relates to certain features of construction and combination of parts, as will be hereinafter described, and pointed out in the claims.

- 25 Figure 1 of the accompanying drawings is a side elevation of a corrugated elbow, illustrating my invention; Fig. 2, a cross-section, as from Z to Z; and Fig. 3, an end view of the lower end portion.

- 30 Referring to Fig. 1 of the drawings, A designates a sheet-metal elbow having a groove or corrugation B to run a distance parallel with the front upper or pipe portion of the elbow, then to wind rearwardly about the center of the elbow to the lower rear portion, and
35 thence parallel with the pipe to the outer end of the elbow. A similar groove C is provided to run a distance parallel with the rear upper pipe portion, then to wind about the central
40 portion to the upper side of the lower pipe portion, and thence parallel with the pipe to the end. In the upper and lower portions of the pipe grooves, as D and E, are provided that
45 converging, come together at a point near the

crossing of the grooves C and B on the bent portion of the elbow, thus forming ribs *a*, *b*, *c*, *d*, and *e*. To further crimp or take up the flow of the metal as it inclines to the center and to prevent crippling or plaiting as the elbow is formed, depressions F and G are 50
formed, substantially as shown, the former a slight depression, the latter about the depth of the grooves hereinbefore mentioned, thus forming a series of grooves and ribs or cor- 55
rugations about the elbow, as described, to yield or expand when water freezes therein, and thereby obviate the bursting of the pipe.

Having thus fully described the nature and object of my invention, what I claim, and de- 60
sire to secure by Letters Patent, is —

1. The combination, in a sheet-metal elbow, of groove B to extend a distance parallel to the front upper portion of the pipe, thence about the central to the rear lower portion, a 65
groove C to extend a distance down parallel to the rear upper portion of the pipe, and thence about the central to the lower front portion, said grooves to cross at a point central to the bend, substantially as and for the purpose 70
set forth.

2. The combination, in a corrugated sheet-metal elbow, of the grooves B and C to parallel the end portions of the pipe to cross or in- 75
tersect at the center of the bent portion, the grooves D and E to converge and unite at a point near the crossing of the grooves B and C, substantially as and for the purpose set forth.

3. The combination, in a sheet-metal elbow, 80
of the grooves B and C, as described, the grooves D and E, and the depressions F and G, substantially as shown, and for the purpose set forth.

In testimony whereof I have hereunto set 85
my hand this 15th day of April, A. D. 1892.

WILSON C. BERGER.

Witnesses:

W. K. MILLER,
CHAS. R. MILLER.