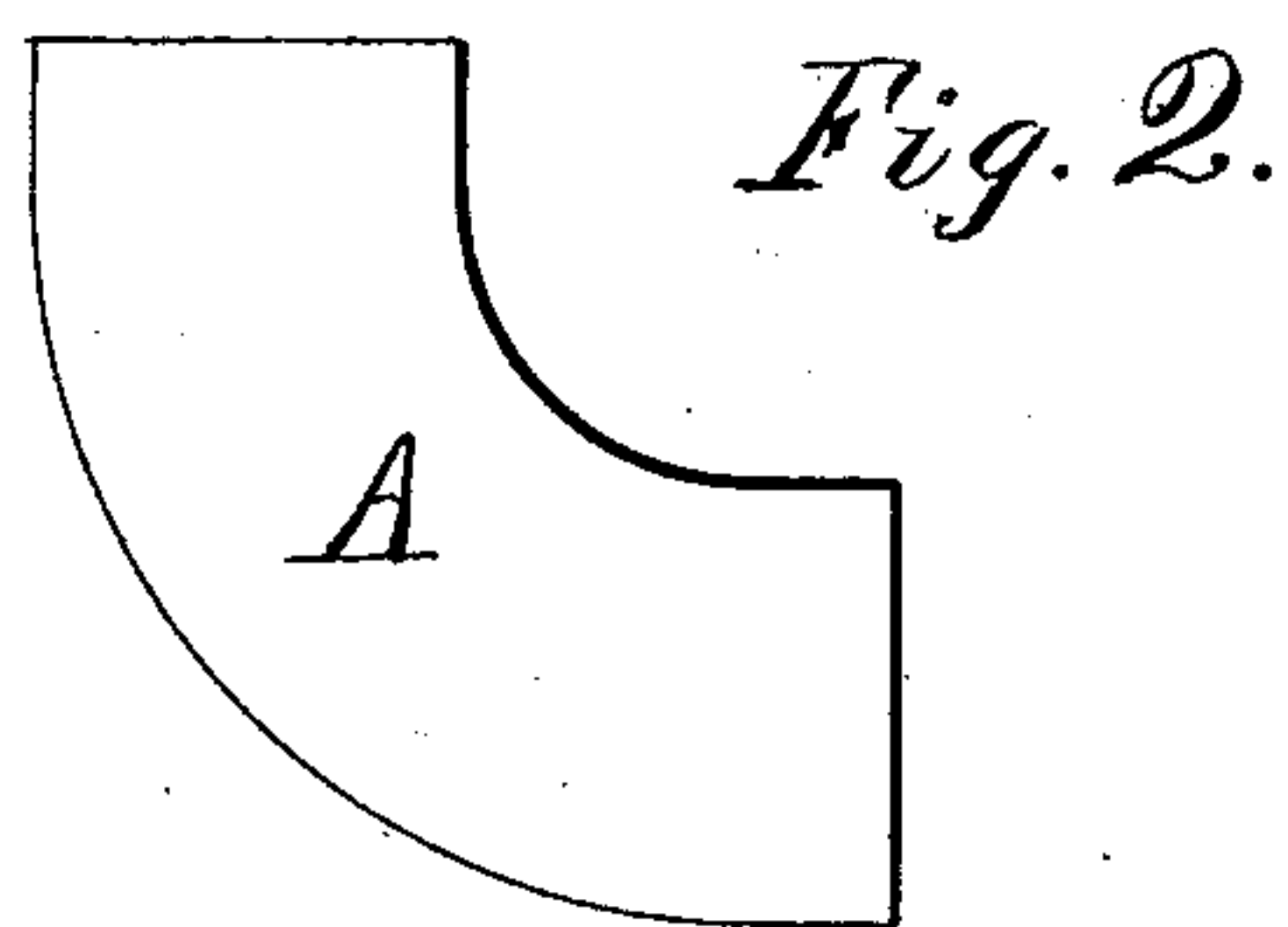
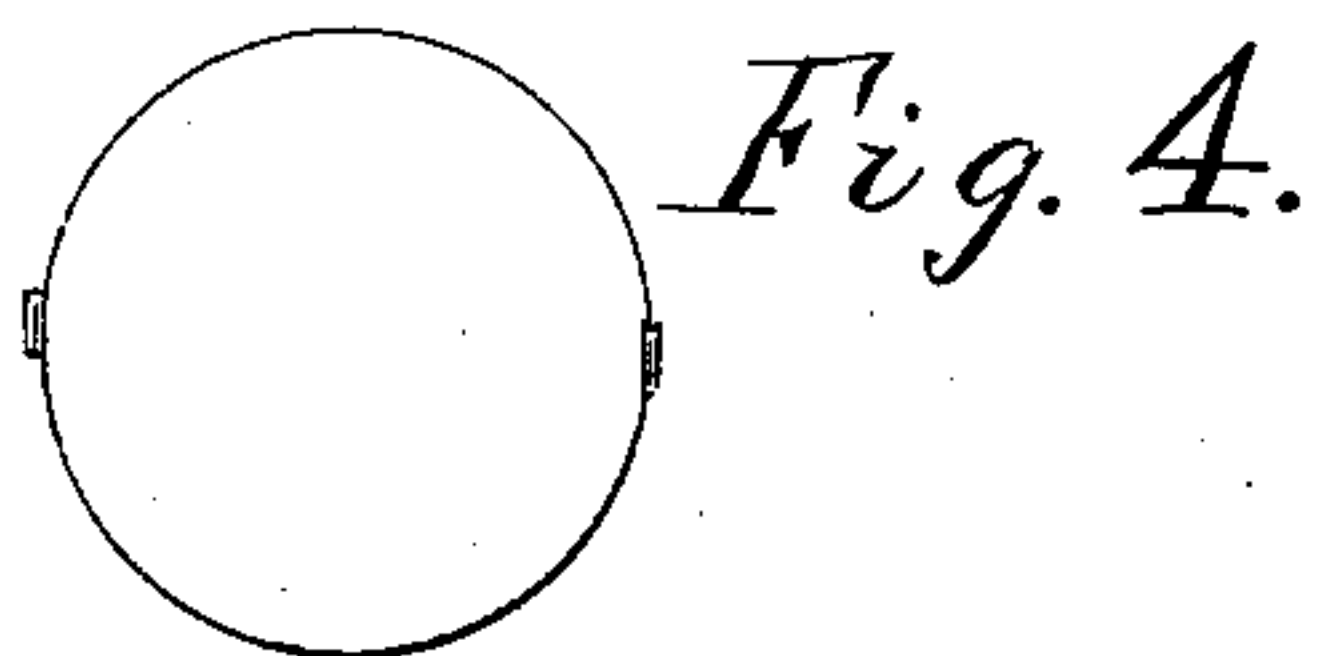
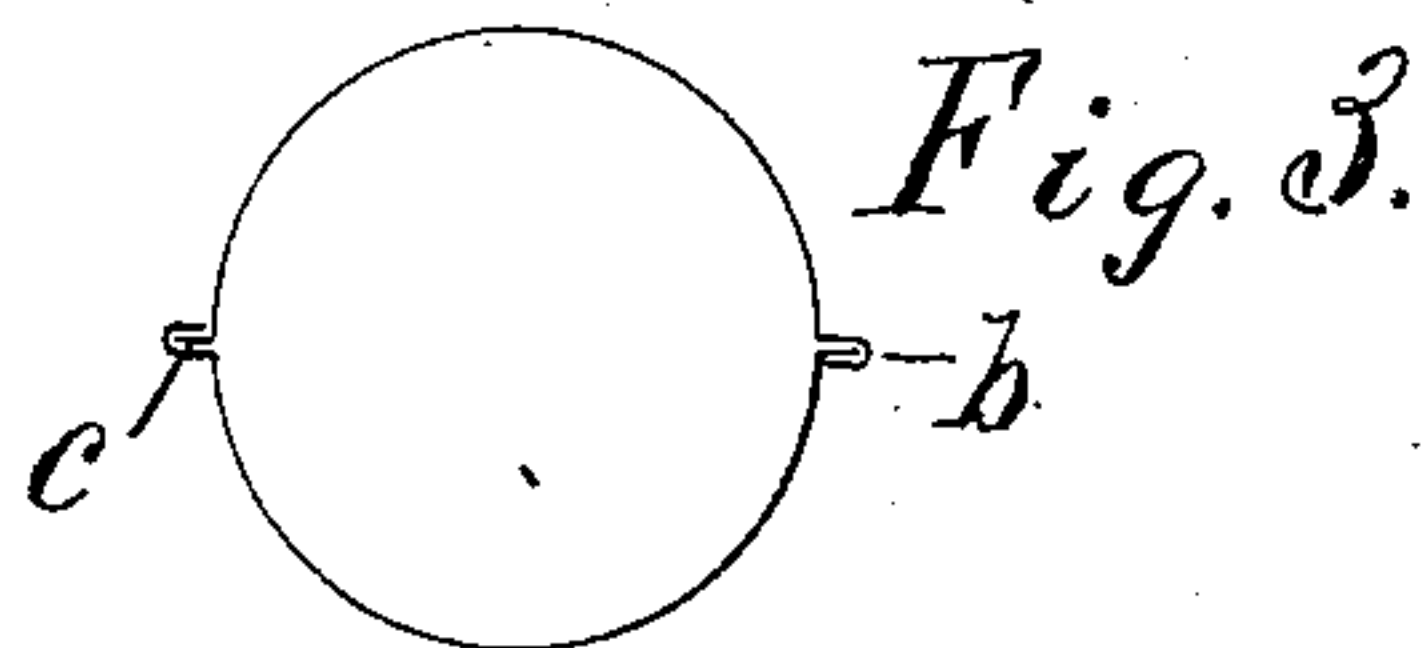
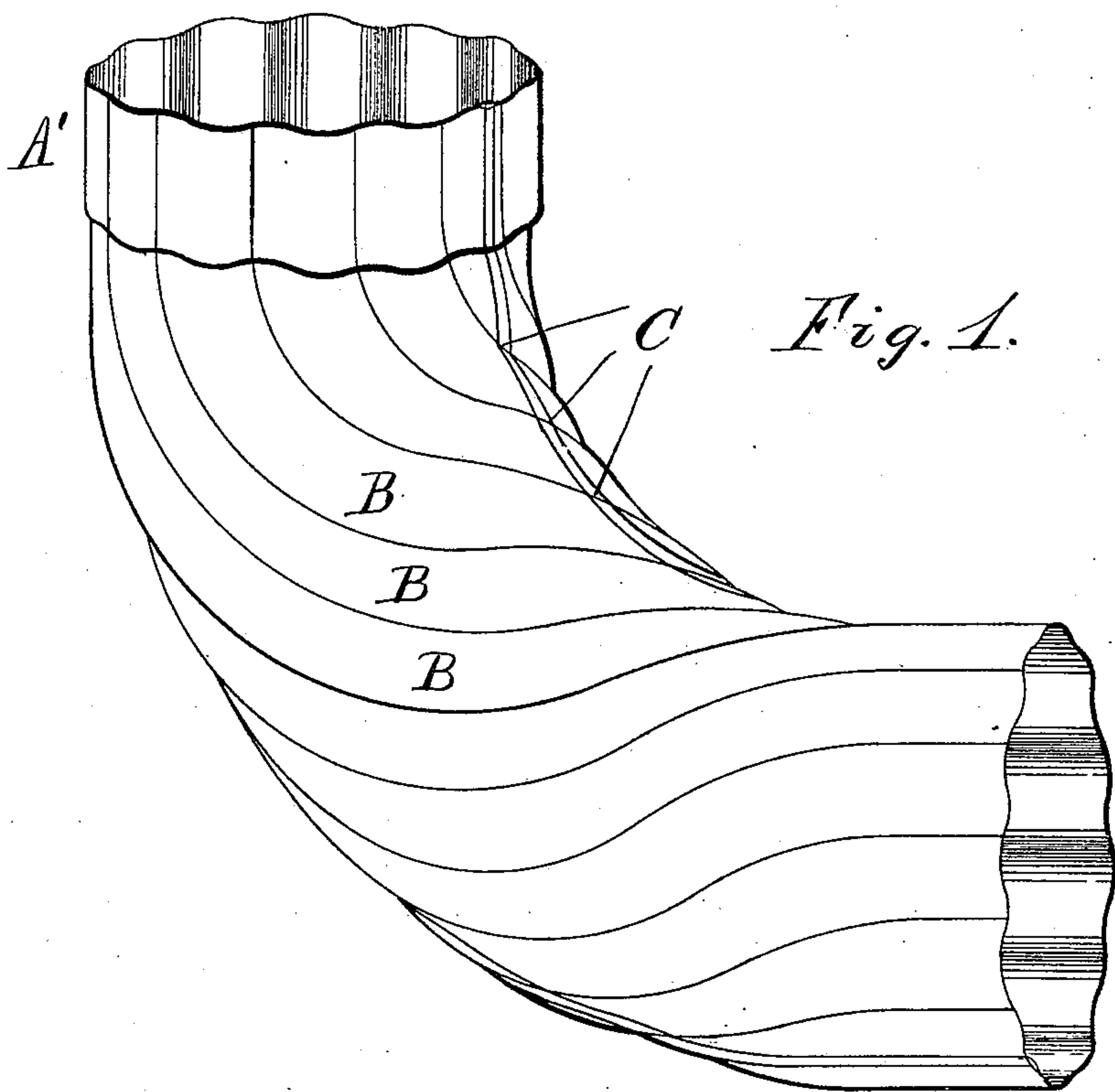


(No Model.)

A. O. KITTREDGE.
SHEET METAL ELBOW.

No. 407,356.

Patented July 23, 1889.



Attest:
L. Lee.
F. C. Fischer.

Inventor.
Anson O. Kittredge, per
Ernest Miller, Atty.

UNITED STATES PATENT OFFICE.

ANSON O. KITTREDGE, OF SLATE HILL, NEW YORK, ASSIGNOR TO JAMES A. MILLER AND ROBERT B. MILLER, OF CHICAGO, ILLINOIS.

SHEET-METAL ELBOW.

SPECIFICATION forming part of Letters Patent No. 407,356, dated July 23, 1889.

Application filed January 25, 1889. Serial No. 297,544. (No model.)

To all whom it may concern:

Be it known that I, ANSON O. KITTREDGE, a citizen of the United States, residing at Slate Hill, Orange county, New York, have invented certain new and useful Improvements in Sheet-Metal Elbows, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

10 The object of this invention is to form a corrugated sheet-metal elbow adapted for use with sheet-metal pipes by stamping the one half of the elbow from all sheet-metal segmental blanks, and to provide a convenient and effective means of taking up the surplus stock in the blanks when bent from a flat to a semicircular form. Various means, as the longitudinal and transverse corrugations, have been employed in making sheet-metal elbows from flat blanks to dispose of the surplus stock; and my invention consists in the discovery that spiral corrugations are adapted to operate in the desired manner.

My invention is illustrated in the annexed drawings, in which—

Figure 1 represents in perspective an elbow provided with my improvement. Fig. 2 represents a plan of a sheet-metal blank from which one half of such elbow would be formed. Fig. 3 represents an end view of the two halves of the elbow when prepared for seaming, and Fig. 4 a similar view of the seams closed and bent down the same as in the perspective view in Fig. 1.

35 A is a sheet-metal blank, which should be stamped with suitable dies to impart the spiral corrugations shown in Fig. 1 and at the same time be bent into a semi-cylindrical form with the flanges *b* and *c* upon its opposite edges, as shown in Fig. 3. Such flanges are then seamed together by any suitable means, and pressed down upon the pipe to present as faint an appearance as possible, as shown in Figs. 1 and 4.

45 I am aware of D. A. Ritchie's patent, No. 342,465, issued May 25, 1886, which claims a

sheet-metal elbow of particular construction containing longitudinal corrugations arranged parallel with the axis of the elbow. I do not claim a corrugated elbow, broadly, and hereby disclaim the aforesaid patent.

In the elbow with parallel corrugations there is no tendency to take up the surplus metal at the inner and outer curves adjacent to the seam, where such surplus always manifests itself most strongly, whereas it must be obvious that the disposition of the spiral corrugations B upon the elbow does afford the surplus metal an opportunity to draw toward the seam at various points upon the inner and outer sides of the curve, for the same reason that transverse corrugations operate satisfactorily to take up such surplus herein.

The operation of the spiral corrugations in a manner similar to transverse corrugations will be perceived most readily at the point C upon the seam in Fig. 1, where the spiral corrugations intersect the seam at a considerable angle and form folds of sheet metal obliquely to the seam and adapted to absorb the surplus metal in the desired manner.

The elbow is shown in Fig. 1 formed at the ends suitable to join upon straight lengths of corrugated pipe, the end A' being shown a little enlarged to form a socket for the reception of such pipe ends; but it is immaterial to my present invention how the ends of the elbow are shaped, or how they are coupled to the adjoining pipes.

Having thus set forth my invention and distinguished it from others, what I claim is—

A sheet-metal elbow longitudinally divided by seams and formed with spiral corrugations oblique to said seams, as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ANSON O. KITTREDGE.

Witnesses:

E. R. KITTREDGE,
THOS. S. CRANE.