(No Model.) 2 Sheets—Sheet 1.

O. H. LAWRENCE.

PIPE ELBOW.

No. 485,124. Patented Oct. 25, 1892.

Fig. 1.

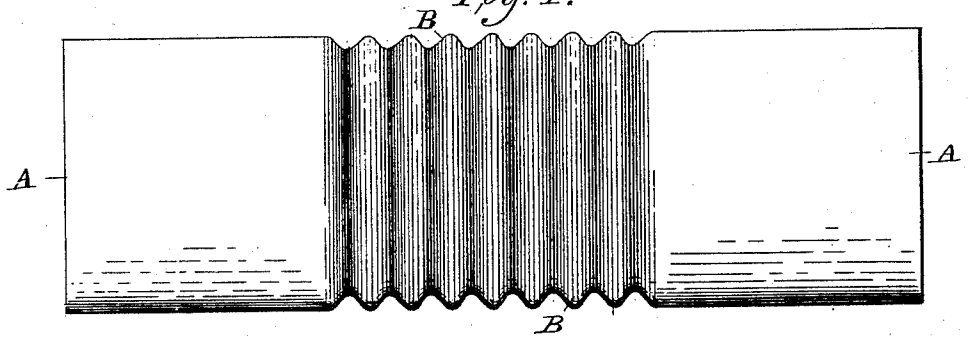


Fig. 2

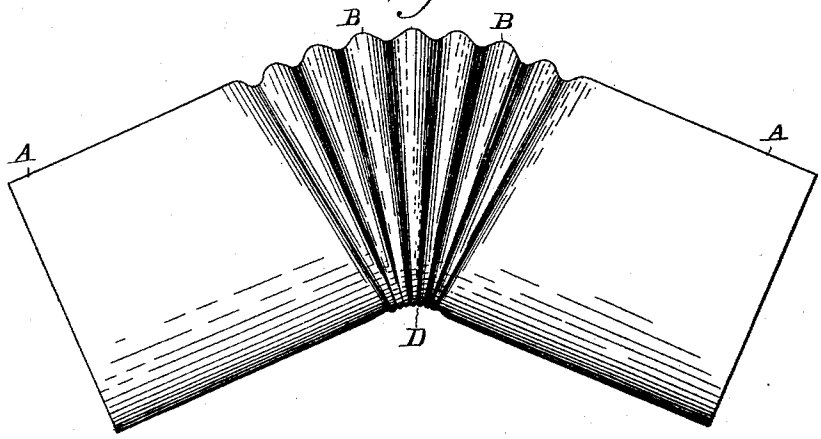
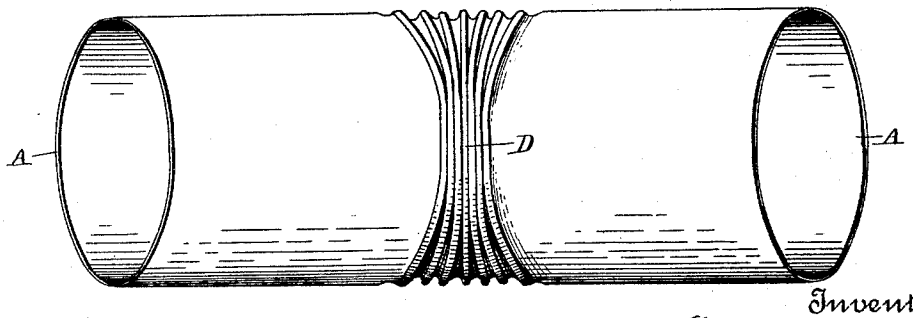


Fig. 3.



Witnesses
Jos. H. Blackwood
A. F. Hoeck.

Inventor
Orville H. Lawrence
By Attorney W. H. Woolslair

(No Model.) 2 Sheets—Sheet 2.

O. H. LAWRENCE.

PIPE ELBOW.

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Fig. 4.

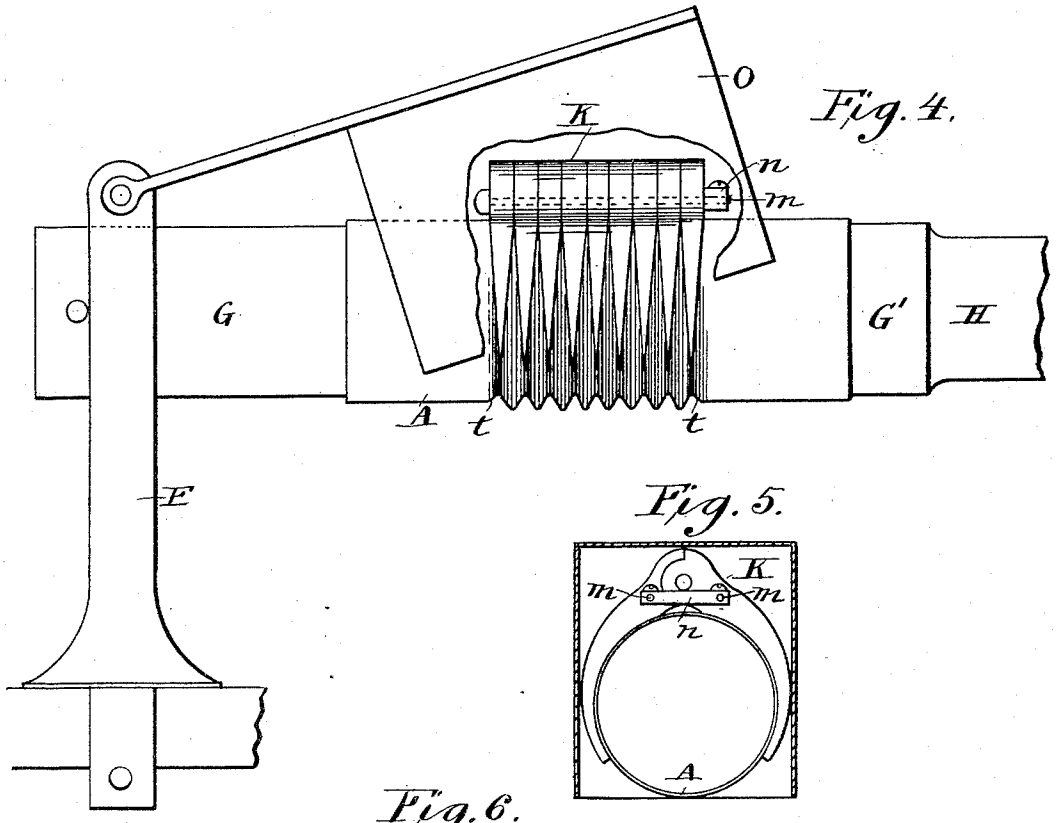


Fig. 5.

Fig. 6.

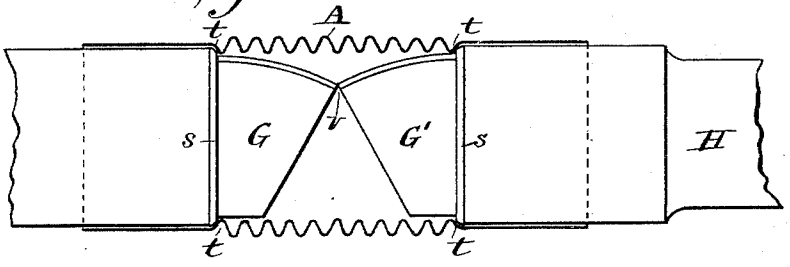
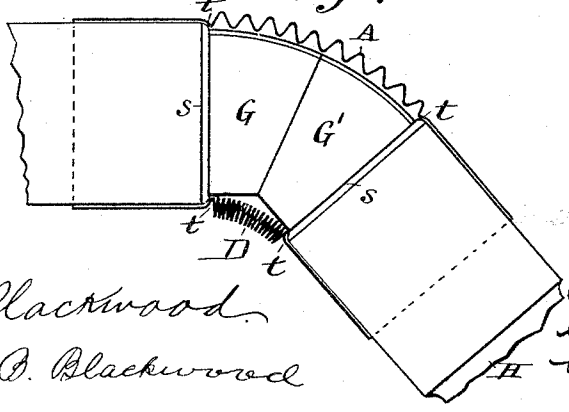


Fig. 7.



Witnesses

Jos. N. Blackwood.

Albert D. Blackwood

Inventor

Orville H. Lawrence

by W. A. Doolittle

Attorney

UNITED STATES PATENT OFFICE.

ORVILLE H. LAWRENCE, OF WAVERLY, NEW YORK.

PIPE-ELBOW.

SPECIFICATION forming part of Letters Patent No. 485,124, dated October 25, 1892.

Application filed March 5, 1892. Serial No. 423,864. (No model.)

To all whom it may concern:

Be it known that I, ORVILLE H. LAWRENCE, a citizen of the United States, residing at Waverly, in the county of Tioga and State of New York, have invented certain new and useful Improvements in Pipe-Elbows; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to pipe-elbows; and it consists of the construction hereinafter described and particularly claimed.

Hitherto it has been the practice in making elbow-joints in crimping the same to form the crimps or currugations quite widely apart, or at least on both sides of the seam joining the parts of the elbow or on both sides of the bend, but not so as to come together or be pressed on the under side, but to carry the crimps the same distance apart all around the pipe, or when a sharper bend was needed to corrugate the upper side of the bend only.

My invention consists in taking a straight piece of pipe having a limited number of corrugations or crimps around the entire circumference of the pipe at the point where the elbow is to be formed and then by suitable bending or staking tools to bend the pipe at this point to a sharp angle, and so as to fold, flatten, and compress the crimps, beads, or corrugations tightly together on the underside portion and at the throat of the bend. The advantages of this construction are the making of a much stronger elbow, one having a sharper bend when required, a neater appearance, and greater facility for packing the same for shipment in less bulk.

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

Figure 1 is a view of a straight single section of pipe having beads, corrugations, or crimps formed around its entire circumference at a point between its ends where the elbow is to be formed; Fig. 2, a view of the pipe bent, showing the invention when completed; and Fig. 3, a front view of the throat of the bend, showing more clearly the manner in which the beads or crimps are flattened and compressed on each other.

The means for producing my invention are shown in Figs. 4, 5, 6, and 7, and in which Fig. 4 is a side view in elevation broken away at one end of the apparatus; Fig. 5, an end view of part of the apparatus applied to the pipe; Fig. 6, a longitudinal view, partly in section, of a section of corrugated pipe with the staking-tools applied thereto before the pipe is bent; and Fig. 7, a similar view showing position of the tools after the pipe is bent and the corrugations compressed to form my finished elbow.

Referring to the drawings, A represents a straight single piece of pipe provided with the beads, corrugations, or crimps B around its entire surface. This pipe is beaded by any suitable means. It is then by suitable staking-tools bent into the form shown in Figs. 2 and 3.

D represents the throat or under side of the bend, which shows the beads or folds in the pipe flattened and pressed tightly together, so as to form a solid homogeneous mass of ridges, while the beads on the top of the bend have been to some extent drawn out. The result is an exceedingly stiff strong elbow made of a single piece of pipe.

The gist of my invention is the compressing of the corrugations upon one side of the pipe, however the corrugations and the rest of the pipe may be formed, and I have devised especial means for doing this, which are shown in Figs. 4 to 7, inclusive, but which means are not claimed in this specification. Referring to those figures, F is the standard, in which is supported a staking-tool G. G′ is an opposite duplicate staking-tool, to which a handle H is attached. These tools are inserted in the opposite ends of a corrugated piece of pipe A until a shoulder *s*, formed on the head of each of the stakes, meets the first or outer corrugation *t* at each end of the corrugated part, and which corrugations form bearings for the said shoulders. When thus inserted, the top of the beveled inclined faces of the stakes meet at a point *v*, as shown in Fig. 6.

K is a double set of fingers or grippers hung on wires *m*, united by cross-heads *n* and adapted to grip the corrugated part. The fingers are narrower and sharper at their points, so that when placed on the pipe and the pipe bent the corrugations will be held in symmetrical shape.

O is a box pivoted on the standard F and

designed to be placed on the set of fingers at the beginning of the operation to hold them in place.

When the fingers are in place on the corrugated part, the stake G′ is bent down by the handle H until the pipe and stakes are in the position shown in Fig. 7, with the faces of the stakes brought together and the corrugations compressed together tightly and closely on one side.

What I claim is—

1. A sheet-metal elbow formed from a tube having corrugations and bent into final shape by compressing the corrugations upon one side thereof, substantially as described.

2. A sheet-metal elbow provided with circumferential corrugations, the said corrugations compressed together to form the throat of the elbow, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ORVILLE H. LAWRENCE.

Witnesses:
ROSA E. TILLOTSON,
JAMES LEWIS.