

*G. Ross,*  
*Casting Pipe Elbows.*  
*No. 112,286. Patented Feb. 28, 1871.*

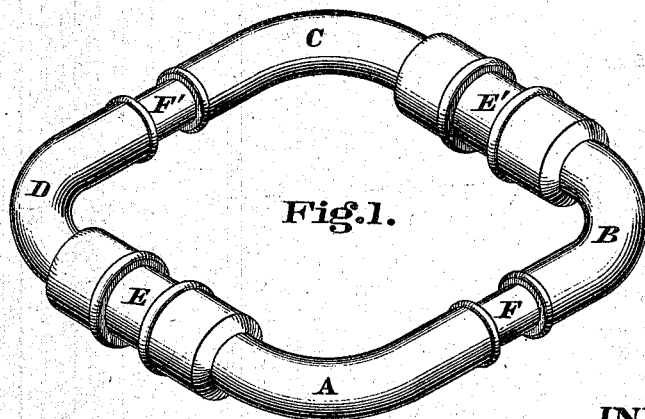


Fig. 1.

Attest.  
 *Jas. H. Layman,*  
 *Wm. Rauer*

INVENTOR.

*G. Ross*  
*By R. H. H. H. H.*

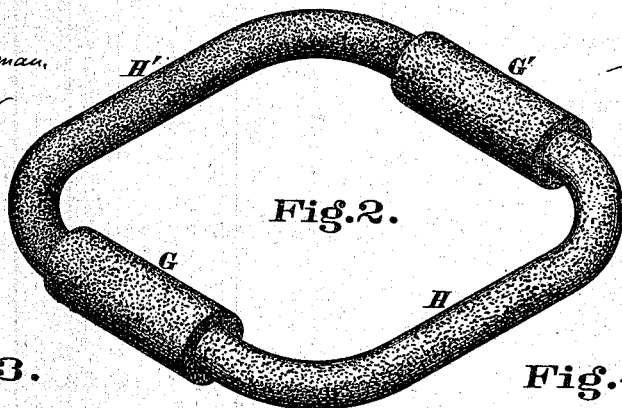
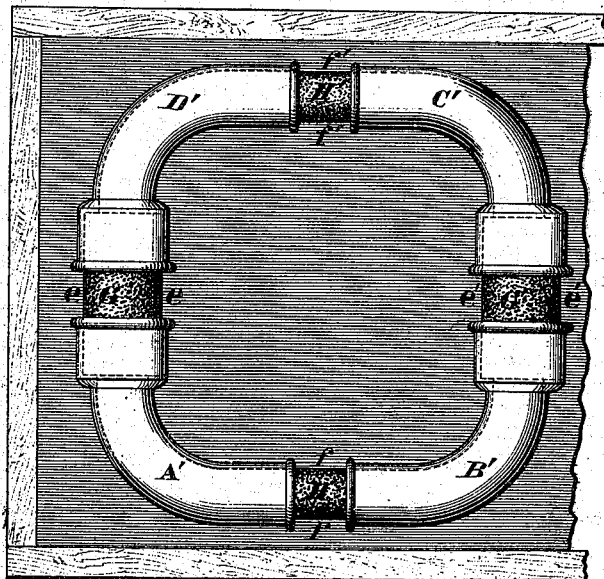
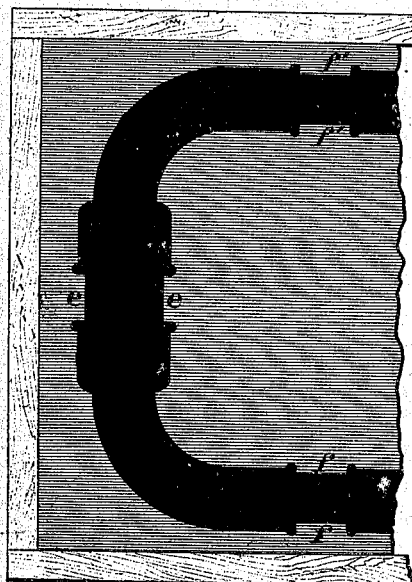


Fig. 2.

Fig. 3.

Fig. 4.



# UNITED STATES PATENT OFFICE.

GEORGE ROSS, OF NEWPORT, KENTUCKY.

## IMPROVEMENT IN THE MODES OF MOLDING AND CASTING PIPE-ELBOWS.

Specification forming part of Letters Patent No. 112,286, dated February 28, 1871.

I, GEORGE ROSS, of Newport, Campbell county, Kentucky, have invented a new and useful Mode of Molding and Casting Pipe-Elbows, of which the following is a specification:

### *Nature and Object of the Invention.*

My invention consists in molding and casting pipe-elbows in such a manner as to dispense with the customary anchor or prop that has heretofore been employed for supporting the core in the mold, the details of which mode of molding and casting will be hereafter fully described.

### *General Description with reference to the Drawing.*

Figure 1 is a perspective view of a pattern such as is employed when four elbows are to be cast in one mold. Fig. 2 is a perspective view of a core corresponding with the above pattern. Fig. 3 is a plan, showing a portion of either the cope or drag after the pattern has been removed therefrom; and Fig. 4 shows a portion of the flask after the metal has been poured, the core and casting remaining in the flask.

Whenever it is desired to mold and cast four elbows at one operation I provide a pattern similar to that represented in Fig. 1; and it will be seen that said pattern consists of four similar elbows, A, B, C, and D, which are placed so as to occupy the four sides of a square; and the ends of these elbows are united by diminished portions E E' and F F' to serve as core-prints. The members A B C D and E E' and F F' should be so united as to form one complete and inseparable pattern. After the pattern has been constructed I prepare, in a suitable core-box, a core of the shape represented in Fig. 2. This core, like the pattern, is made to occupy the four sides of a square; and two of its opposite sides are provided with enlargements G G', which correspond in diameter with diminished portions E E' of the pattern. The other sides, H H', of the core are of the same diameter as the smaller of the diminished portions F F' of the pattern.

The pattern with its accompanying core be-

ing formed as above described, I then proceed with the molding and casting operations in the following manner: The pattern is secured to a suitable follow-board, and an impression is taken therefrom in the sand of the cope and drag. A portion of one of these impressions is shown in Fig. 3. The diminished portions E E' F F' leave impressions *e e' f f'* in the sand, which serve as "prints" to designate the exact position of the core, and serve to support the same, which core is then applied in such a manner that its smaller sides H H' fit within the prints *f f'*, while its enlargements G G' occupy the other prints, *e e'*. The core, being thus applied, is entirely self-sustaining, and no anchors or props of any kind are required to support it. After the core has been placed in its proper position, which is the work of but a few minutes only, the two members of the flask are united and the metal poured in through suitable gates. When the metal has cooled sufficiently, so as to permit the separation of the drag and cope, the castings will be located as shown in Fig. 4, in which the pipe-elbows A' B' C' D' correspond exactly with the members A B C D of the original pattern.

It will be seen, by referring to this last illustration, that the core remains in the pipe-elbows, as shown by dotted lines, and also at the prints *e e' f f'*.

In the above-described molding operations the pattern has been alluded to as being made of an entire piece, and employed in connection with a follow-board; but it is evident that it may be divided in half by a plane passing through the axis of the elbows, in which case each part of said divided pattern should be attached to a match-plate and used therewith in the ordinary manner of using match-plates.

Although describing this mode of molding and casting as employed for the production of four distinct elbows at a single operation, I do not propose to confine myself to this exact number, as it is evident that the pattern may consist of only two or three elbows, which elbows may have the represented quarter-bend or any other desired curvature.

In the usual method of casting it is custom-

ary to support the bend of the elbow of the core upon anchors or props, which become embedded in the casting and have to be cut off from the pipe when cast. This method not only involves the expense of preparing the props and the loss of time in placing them in position, but it is also the cause of many imperfect pipes, as the metal chills around the anchors and forms blow-holes, through which the contents of the pipes will escape as soon as they are placed in service.

By my improved method of casting all of these objections are overcome, and a perfect

and reliable elbow is furnished at a reduced price.

*Claim.*

I claim as my invention—

The mode of molding and casting pipe-elbows by a self-supporting core, when arranged and adapted to be operated substantially as herein described, and for the purpose set forth.

In testimony of which invention I hereunto set my hand.

Witnesses:

GEORGE ROSS.

WM. BAUER,

JAMES H. LAYMAN.