(No Model.)

# G. W. KNAPP.

## SHEET METAL PIPE.

No. 466,955. Patented Jan. 12, 1892.

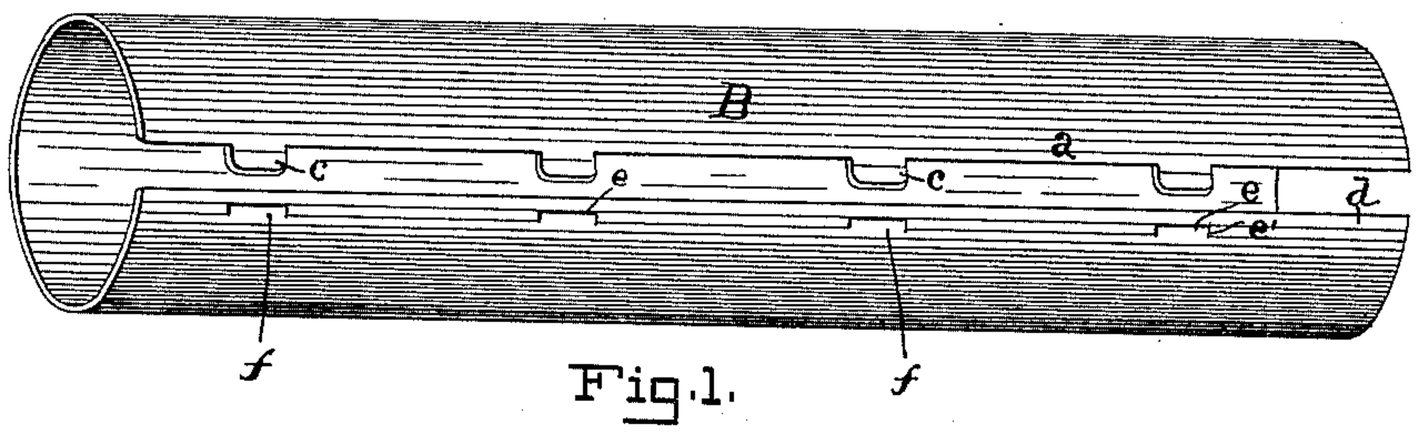



Fig. 1.

Fig. 2.

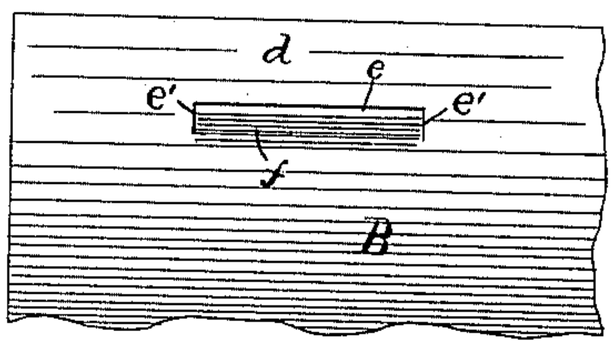
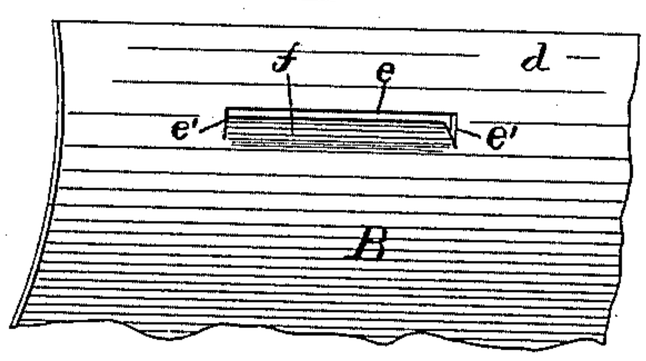



Fig. 3.



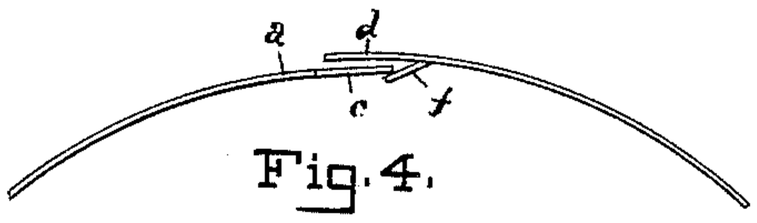




Fig. 4.

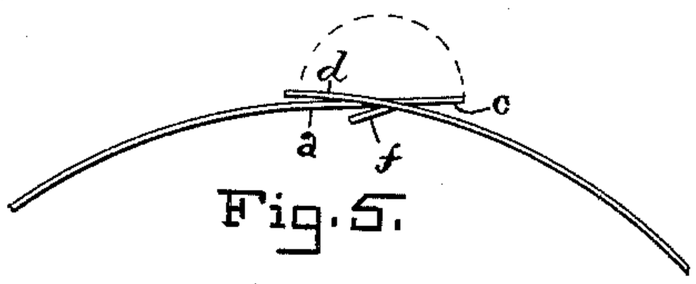



Fig. 5.

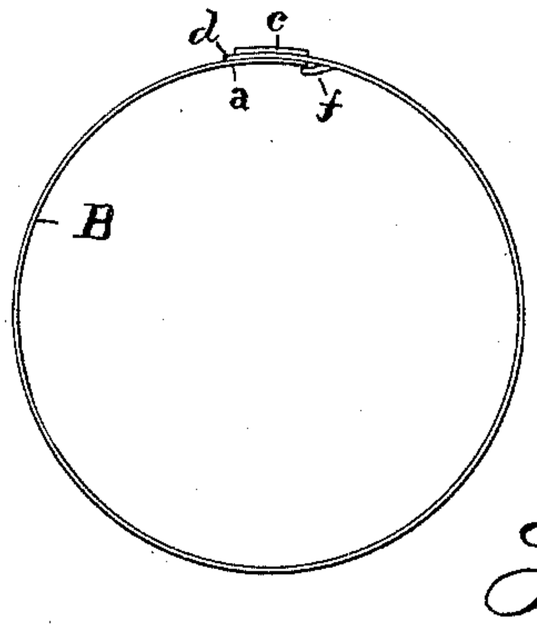



Fig. 6.

WITNESSES:

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# UNITED STATES PATENT OFFICE.

GEORGE W. KNAPP, OF BALTIMORE, MARYLAND.

## SHEET-METAL PIPE.

SPECIFICATION forming part of Letters Patent No. 466,955, dated January 12, 1892.

Application filed August 4, 1891. Serial No. 401,702. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. KNAPP, a citizen of the United States, residing at Baltimore city, in the State of Maryland, have invented certain new and useful Improvements in Sheet-Metal Pipe, of which the following is a specification.

My invention relates to an improvement in seaming or uniting the edges of sheet-metal pipe for conveying smoke, and has for its object to provide a simple and cheap seam-fastener by the use of which the seam may be left open in order that a number of "joints" of the pipe may be telescoped or nested for shipment, and when it is desired to use the pipe the edges may be readily united and the seam secured by unskilled persons and without resorting to the use of special tools.

In the drawings which illustrate the invention, Figure 1 is a view of an unclosed joint of pipe with my improvement. Figs. 2, 3, 4, and 5 are views, on an enlarged scale, showing the parts that comprise the seam-fastener. Fig. 6 is an end view of the pipe closed and seam fastened.

One edge *a* of the pipe B is provided with tangs *c*, which project straight from the edge. In practice these tangs may be spaced apart as far as desired. For an ordinary five-inch pipe the tangs may be about six inches apart. The other edge *d* is a continuous straight edge without fold or crease of any kind. Near this edge are incisions, the longest part *e* of each of which is parallel with the said edge *d*, and is long enough to receive the breadth of the said tangs *c*, and each end of the said parallel part *e* of the incision terminates in a short lateral part *e'*. It will be observed that no metal is removed or cut out in making the incision, the said incision being a mere slit cut and not a slot. At one side of the incision is a lip *f*. The shape of the incision—that is, the long part *e* with the two short lateral ends *e'*—is such as to form the lip, which is depressed or inclined inward, as shown in Figs. 3 and 4. When the pipe is in the open or unclosed condition, as shown in Fig. 1, it is in shape to be telescoped or "nested." Three, four, or a half a dozen joints of pipe, one within the other, may be thus closely packed together for shipment. When it is desired to use the pipe, the two edges *a d* are brought together and overlapped, the continuous straight edge *d* having the incisions being outermost. The tangs *c* on one edge are thus brought upon the outer surface of the inclined lips *f* near the other edge, as shown in Fig. 4, and a slight compression of the pipe then forces the tangs to slide up the lips and pass through the incisions *e e'* to the exterior, as shown in Fig. 5. The tangs *c*, projecting through the incisions, are then bent back on the exterior toward the edge *d* and form hooks, and the pipe is placed on a mandrel or other suitable internal support and said hooks and the inclined lips *f* are flattened or closed tight. It will be seen that by this form of incision and lip, which is made without the removal of any metal, two advantages result: First, the tangs are readily guided into the incisions, and thereby it is easy to close or unite the pipe edges, and, second, after the tangs are entered into the incisions and bent back to form hooks the lips *f* are flattened and closed tightly against the said tang-hooks, and thereby confine the hooks and prevent them from slipping out, and also close the incisions and prevent leakage or escape of smoke. This construction is also economical of metal, there being no folds or creases, and is readily made by machine-tools.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A joint of sheet-metal pipe having one edge provided with projecting tangs which may be bent and provided near the other edge with slits or incisions which remove none of the metal, said incisions comprising a longitudinal part *e*, the two ends of which terminate with a lateral part *e'*, and the bent lip *f* between said three parts serving, first, to guide the tangs into the incisions, and, second, to confine the tangs and close the incisions.

2. A joint of sheet-metal pipe having one edge provided with projecting tangs which

may be bent and provided near the other edge with incisions comprising a longitudinal part *e*, the two ends of which terminate with a lateral part *e'*, and the metal included between said three parts bent out of the plane of the sheet metal of the pipe-joint and forming an opening through the latter to receive the said projecting tangs, and said bent portion constituting a lip *f*, which serves to guide the tangs into the openings.

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

GEORGE W. KNAPP.

Witnesses:

F. P. DAVIS,

JNO. T. MADDOX.