(No Model.)

E. H. GOWING.

CLIP FOR USE IN MAKING JOINTS IN CAST IRON PIPE.

No. 517,611. Patented Apr. 3, 1894.

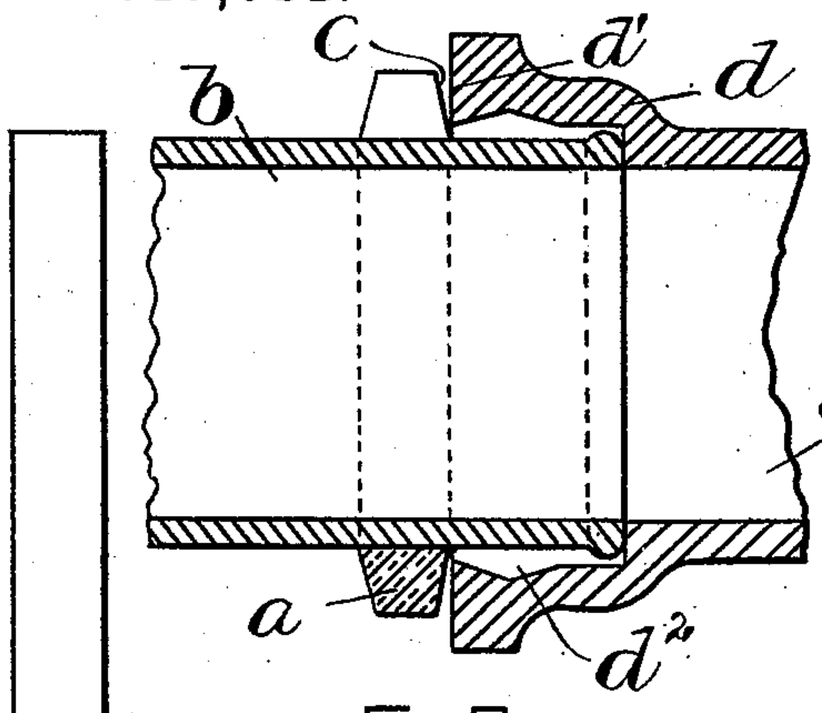

FIG. 2.

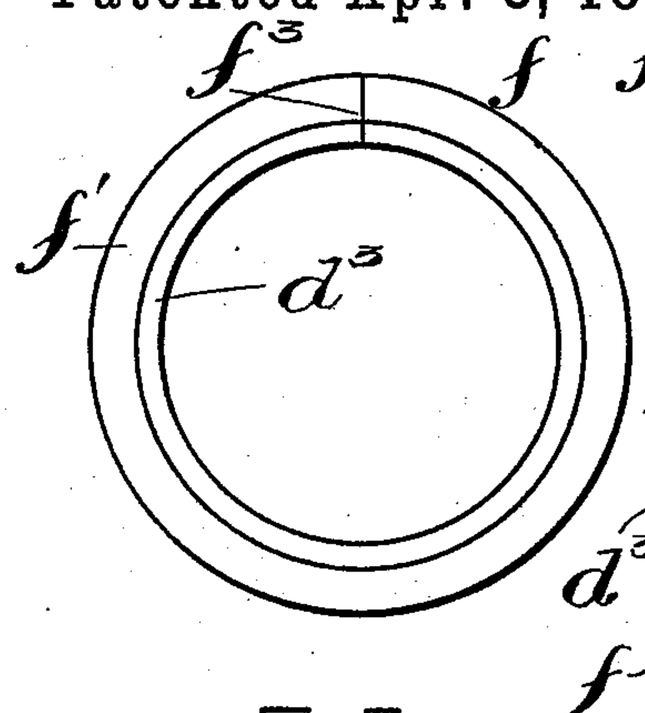

FIG. 3.

FIG. 4.

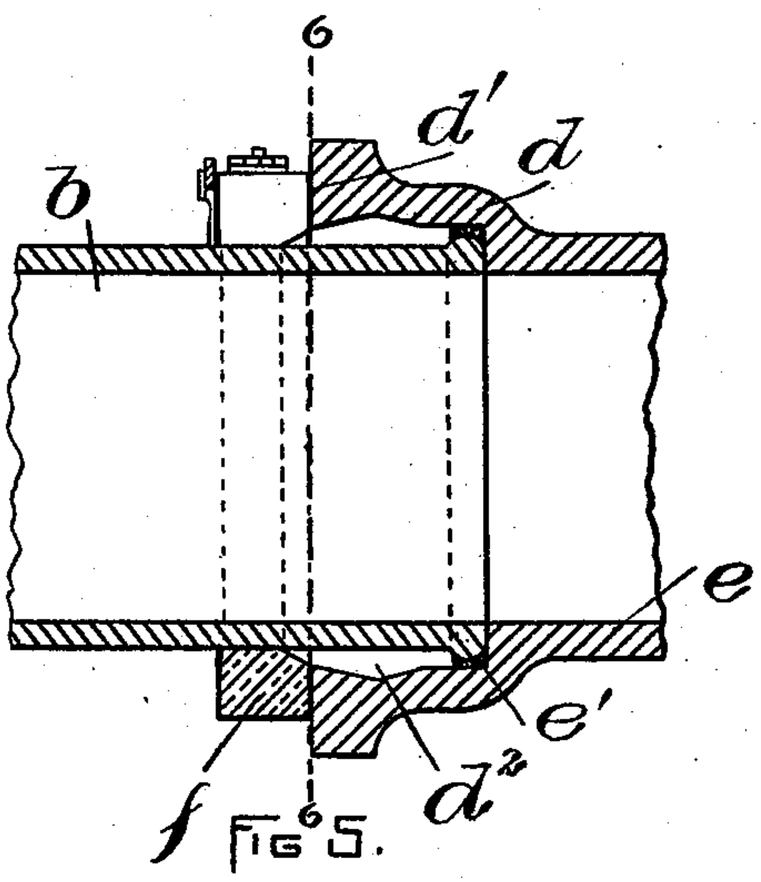

FIG. 5.

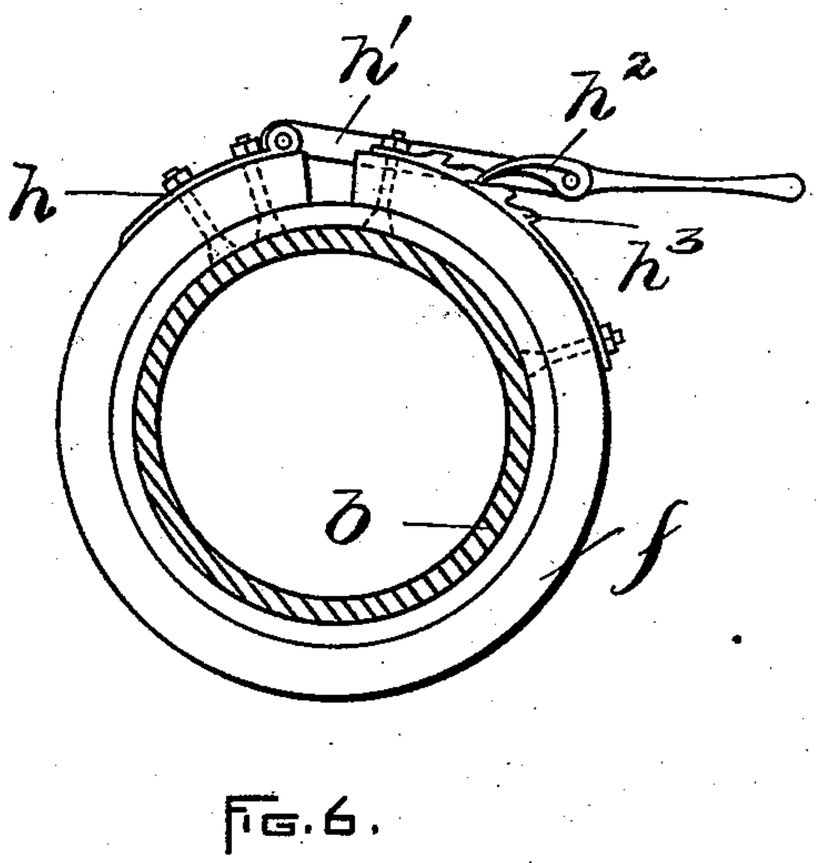

FIG. 6.

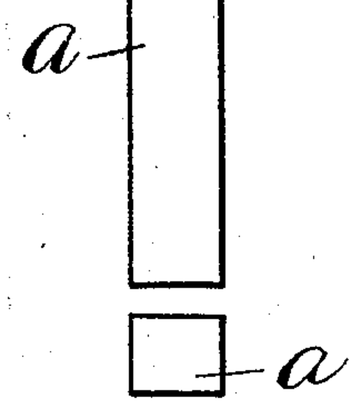

FIG. 1.

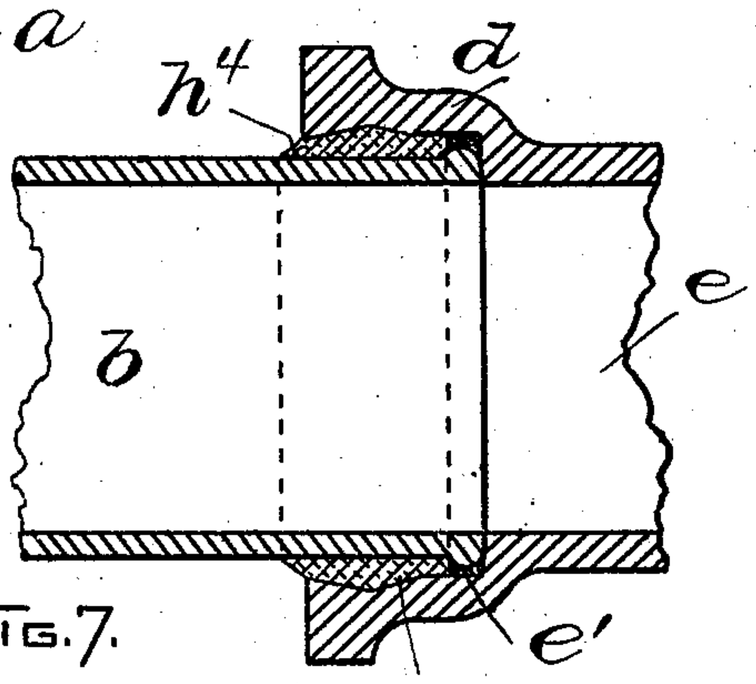

FIG. 7.

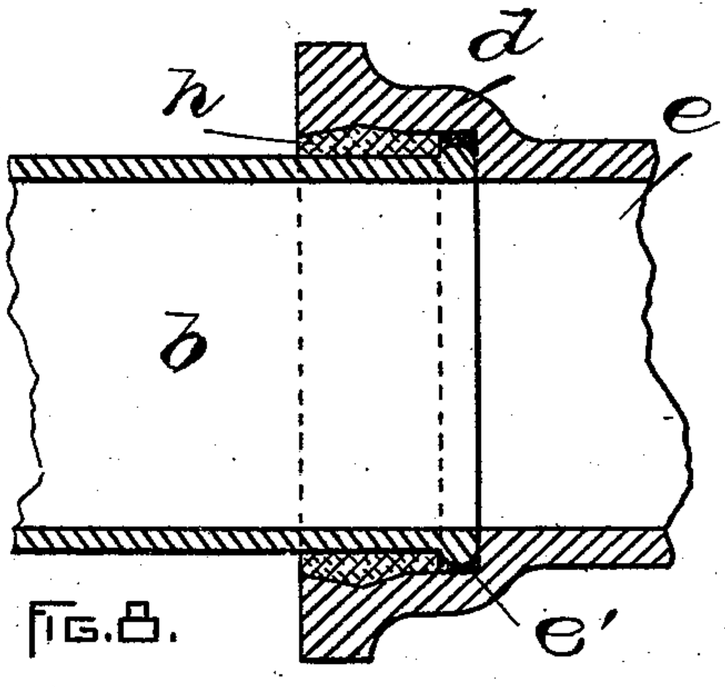

FIG. 8.

WITNESSES:
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UNITED STATES PATENT OFFICE.

EARLE H. GOWING, OF READING, MASSACHUSETTS.

CLIP FOR USE IN MAKING JOINTS IN CAST-IRON PIPE.

SPECIFICATION forming part of Letters Patent No. 517,611, dated April 3, 1894.

Application filed April 24, 1893. Serial No. 471,650. (No model.)

To all whom it may concern:

Be it known that I, EARLE H. GOWING, of Reading, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Clips for Use in Making Joints in Cast-Iron Pipe, of which the following is a specification.

This invention relates to an improvement in clips or pipe-jointers, for use in making the joints of cast-iron pipes.

Heretofore it has been the custom to use a straight piece of rubber, square in cross-section, which is wrapped around the spigot end of the pipe so as to fit against the end of the bell or socket and stretched tightly and its ends suitably secured together. A lead filling is then poured into the annular cavity formed between the bell and the clip, the clip is removed, and the lead is calked by upsetting or hammering it into the joint. The rubber clip being square in cross-section, when it is stretched around the pipe this cross-section will be distorted so that it resembles a trapezoid more than a square, and one of its inclined sides bears against the end of the bell or socket. Thus the clip does not fit closely to the end of the bell or socket, and is liable to allow melted lead filling to run out.

The object of my invention is to provide an improved clip, which will fit closely against the end of the bell or socket, and will allow a protrusion of lead from the said bell or socket, so that, after calking the lead by hammering it in, the lead will be flush with said end-face of the bell, as is required by water-works engines.

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

Figure 1 shows a side and end view of the old style clip. Fig. 2 shows a sectional view, illustrating the appearance of this old style clip when applied to a pipe-joint. Fig. 3 shows a view of my improved form of clip as it comes from the mold. Fig. 4 shows a cross-section of the same. Fig. 5 shows a longitudinal section of the pipe-joint, with my improved clip applied thereto. Fig. 6 shows a cross-section on the line 6—6 of Fig. 5. Fig. 7 shows a sectional view of the joint after the clip has been removed, and before the lead filling is calked. Fig. 8 shows a similar section, after the lead has been calked in the joint.

The same letters of reference indicate the same parts in all the figures.

Referring to Figs. 1 and 2, the letter *a* designates an old style clip, which consists of a straight piece of rubber, square in cross-section. When this piece of rubber is tightened around the spigot end of the pipe *b*, as illustrated in Fig. 2, the base-portion will be expanded, while the outer portion is contracted, thus converting the cross-section into a trapezoid. The inclined or oblique side *c* bears against the end-surface *d'* of the bell or socket *d*, while a portion of the clip projects into the cavity d^2 of the bell *d*. The objection to this form of clip will be apparent from the illustration.

In carrying out my invention, I mold the rubber of which the clip is formed into a ring *f*, of a size to fit the pipe, as seen in Fig. 4. One side *f'* of the ring is slightly dished toward the center, and in cross-section forms an acute angle with the outer side f^2; and the inner corner on the same side is cut away, as at d^3, to allow the lead to form a fillet around the spigot outside the bell or socket. The ring *f* is cut on the line f^3, Fig. 3, and a suitable detachable fastening is secured to it, so that the two ends may be drawn toward each other when the ring is placed around the pipe. In the present instance, this fastening device consists of a strap *h* fastened to one end of the ring, a hasp *h'* connected with said strap, a dog h^2 pivoted in said hasp, and a rack h^3 fastened on the other end of the ring and arranged to be engaged by the dog. After the two pipes *b* and *e* have been fitted together in the usual way, with the end of the pipe *b* within the bell *d* of the pipe *e*, and packing *e'* inserted to prevent the melted lead filling from running between the abutting surfaces of the pipes, then the ring *f* is opened and placed around the pipe *b* and locked. The slight contraction of the outer portion of the ring, and the expansion of the inner portion, brought about by the stretching of the rubber when tightened around the pipe, are compensated for by the incline of the dished side

f', so that, after the ring has been tightened, the said side f' will fit squarely against the end-surface d' of the pipe, and form a tight joint through which the lead cannot escape. By reason of the acute-angle formed between the sides f^2 and f', greater flexibility in the rubber is secured at this point, which adapts it for more readily conforming to irregularities in the face d' of the bell and obviating possibility of crevices existing through which the molten lead may escape. The melted lead is poured in the opening between the ends of the ring, and fills in the cavity d^2. It will be seen that the cut-away portion d^3 of the ring forms an extension of the cavity d^2, and the lead will also fill into this cut-away portion, so that, when the clip is removed, there will be a projecting fillet h^4 of the lead h from the end-face d' of the pipe e. This gives sufficient extra lead so that, when calked, the lead will be flush with the face of the bell or socket d', as shown in Fig. 8.

It will be seen that the objections to the old style clip are overcome by my improved construction.

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

As an improved article of manufacture, a clip for use in filling pipe-joints, the same being composed of rubber, molded in ring form, divided, and having the side for contact with the pipe-end slightly dished or concaved from the outer corner to a point part way toward the inner corner, and from said point to the said corner concaved or cut away to a greater extent, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 15th day of April, A. D. 1893.

EARLE H. GOWING.

Witnesses:
A. D. HARRISON,
M. W. JACKSON.