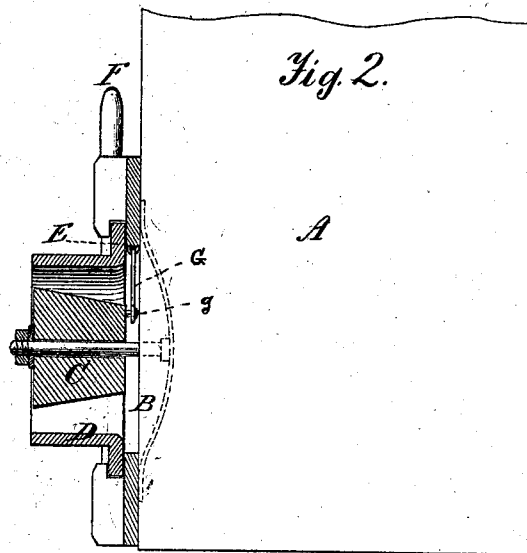
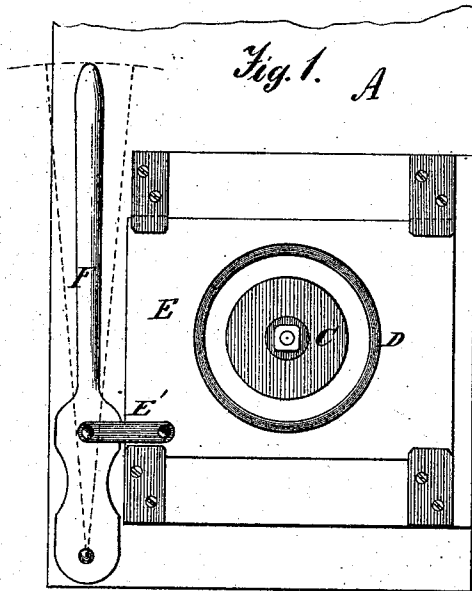


R. CONNABLE.

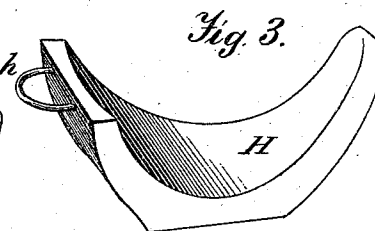
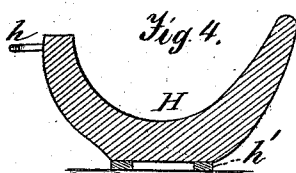
Machines for Making Curved Earthen Pipes.

No. 143,670.

Patented Oct. 14, 1873.



Witnesses.
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UNITED STATES PATENT OFFICE.

RALPH CONNABLE, OF JACKSON, MICHIGAN.

IMPROVEMENT IN MACHINES FOR MAKING CURVED EARTHEN PIPES.

Specification forming part of Letters Patent No. **143,670**, dated October 14, 1873; application filed September 24, 1872.

To all whom it may concern:

Be it known that I, RALPH CONNABLE, of Jackson, in the county of Jackson and State of Michigan, have invented certain Improvements in a Machine for Making Curved Pipes from Plastic Material, of which the following is a specification:

In a patent of even date with this one I have described and claimed certain processes for making curved pipes from plastic material. This invention consists in providing the means by which said processes may be practiced, which will be so fully explained hereinafter, and so specifically pointed out in the claims, that a detailed preliminary recital is not necessary.

Figure 1 is an end elevation, showing one form of mechanism for practicing the principle of my invention. Fig. 2 is a sectional elevation thereof. Figs. 3 and 4 illustrate, on an enlarged scale, a saddle to be used in connection with the machine.

The same letters of reference are employed in all the figures in the designation of identical parts.

A refers to the clay-receiver, in the end or bottom of which an aperture, B, is formed around the core C. In the example illustrated the core projects some distance beyond the receiver, and is encircled by a cylindrical sleeve or case, D, the clay which is forced from the receiver passing out of the space between the core and such case. The case is secured to the slide E, which moves in suitable guides secured to the receiver, and is connected by a link, E', to a lever, F, pivoted to the receiver. In the position of the lever shown in Fig. 1, the core and case are concentric, and the clay escaping from the annular aperture between them will assume the form of straight pipe. By shifting the lever to one side or the other, the case will be arranged eccentrically with reference to the core, so as to make the space between the die of varying width. Now the pipe will be curved toward the side of the die which is the narrowest, and consequently offers the greatest resistance to the escape of the clay, by reason of the more rapid escape of the clay upon the opposite side of the die.

The same result may be obtained by the use of a stationary case and a movable core, or by providing an independent sliding piece upon the inside of the receiver, capable of contracting the aperture B upon one side or another. In the latter case the mouth of the die will be of equal width all around, so that the wall of the curve will be of equal thickness all around likewise; but in the former case, where the mouth of the die is contracted upon one side and correspondingly enlarged upon the other, the convex side of the wall of the curve will be somewhat thicker than the concave short side, giving the greatest possible strength for the material used.

This invention is readily applied to all pipe-making machines in which the pipes are formed by forcing the clay out of an aperture around a core from a receiver.

In some of these machines the core rotates, and, it being essential to have it stationary while forming curves and other crooked work, I provide the guides with a hinged hook, G, to be hooked to a stud, g, on the core, so as to hold it stationary when forming curves.

A large smooth-topped table should be arranged beneath the dies for the support of the crooked work, saddles H being slipped under from the convex side at each turn. The saddles are made of plaster-of-paris, strengthened by a net-work of wire embedded in it, and provided each with a suitable handle, h, and feet h', made of suitable material, affording little frictional resistance in sliding the saddle over the table.

The form of the saddles used should be substantially like that shown, to give sufficient bearing-surface to the pipe to retain it in its proper cylindrical shape, and to prevent its flattening or cracking while drying.

In a machine for making one certain kind of curved pipe the obstruction against the escape of the clay upon one side of the die c may be made permanent.

What I claim, and desire to secure by Letters Patent, is—

1. A machine for making curved pipes combining in its construction the following instrumentalities, viz: A die for forming the emerg-

ing plastic material into pipe, mechanical means, substantially such as described, for forming curvatures in the pipe by increasing or diminishing the velocity of efflux on different sides of the pipe-former, and means for instantly shifting the resistance from side to side without stopping the machine.

2. The core C and case D, combined with a lever, F, for adjusting them laterally with ref-

erence to one another, substantially as and for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

RALPH CONNABLE.

Witnesses:

J. C. BONTECON,

T. J. JONES.