

James L. Griffin's Machine for

Manufacturing Composition Pipe

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PATENTED JUL 11 1871

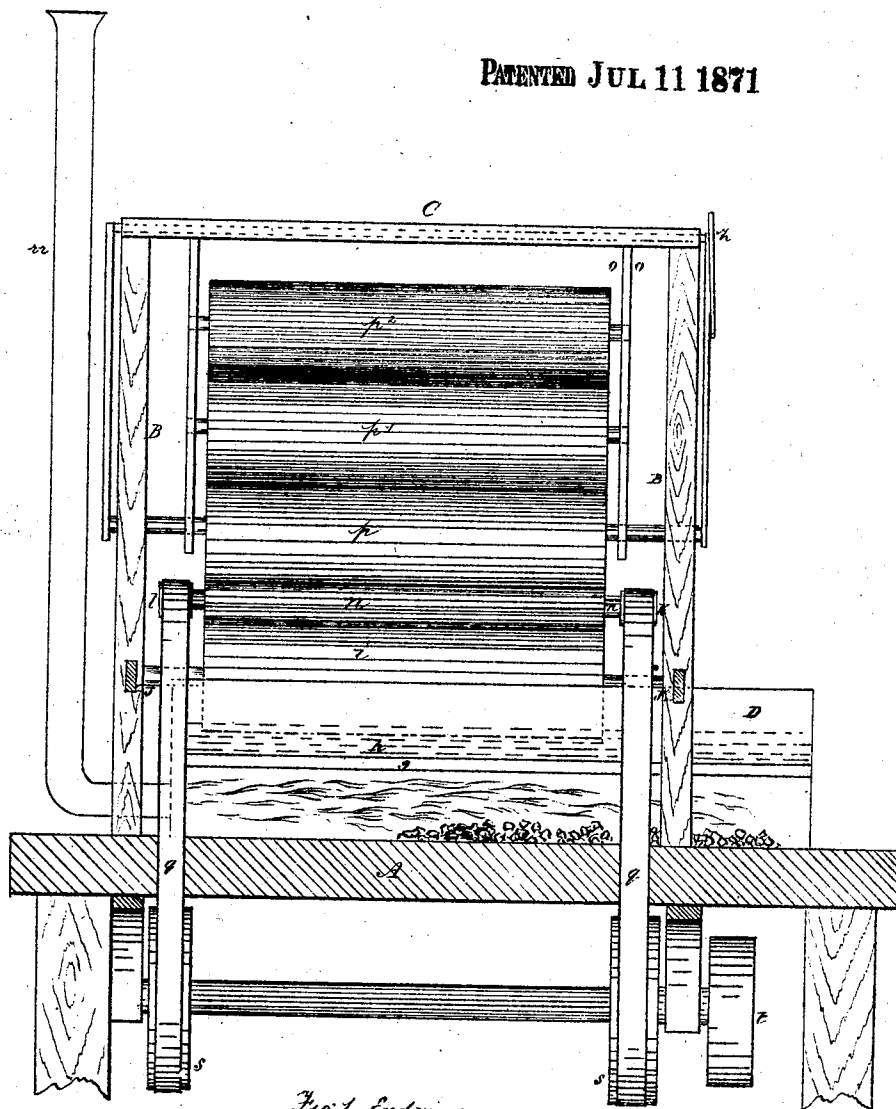


Fig 1. End view.

James L. Griffin, Inventor

W. Bruce } Witnesses
William C. Egan

Hamilton Canada, February 25th 1871.

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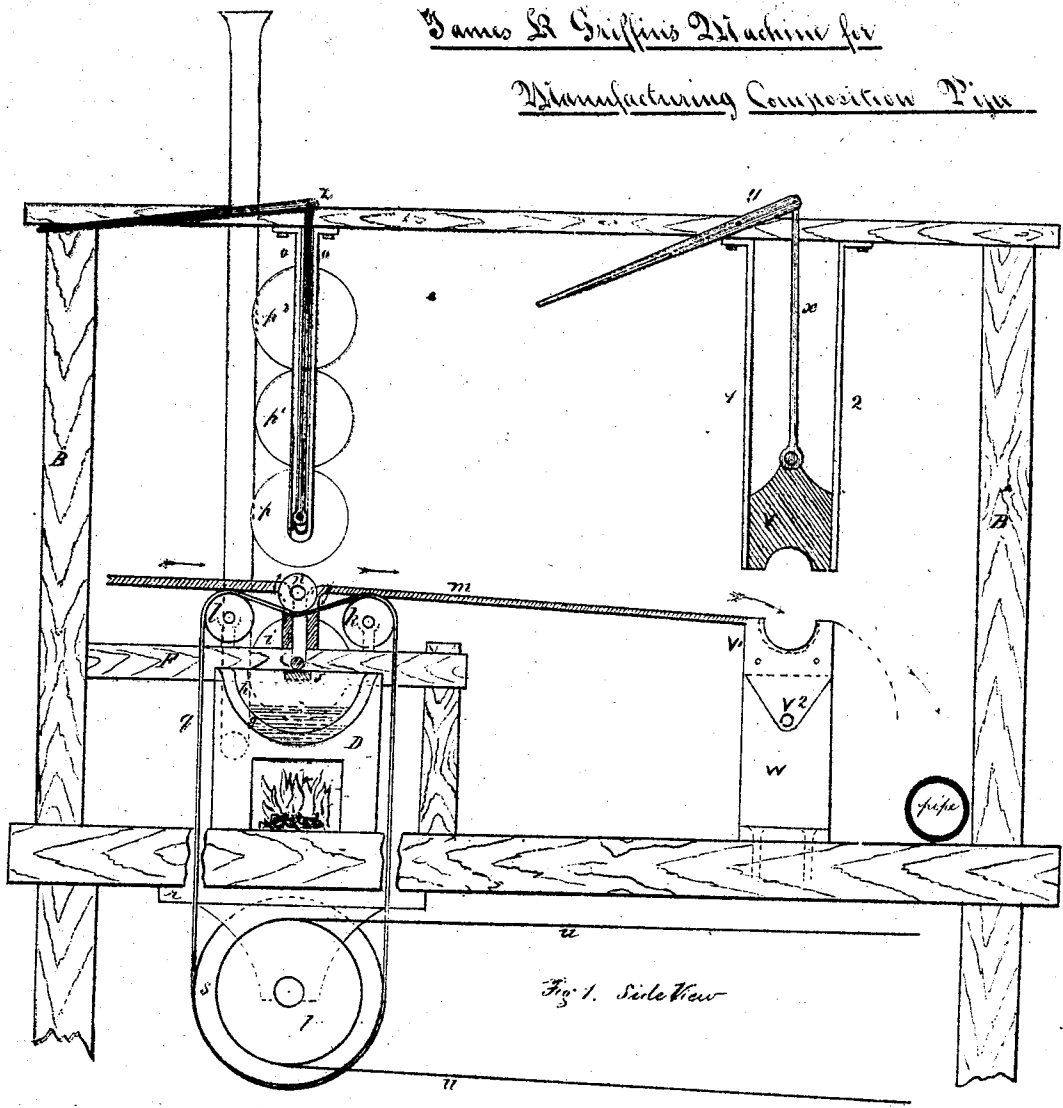


Fig. 1. Side View

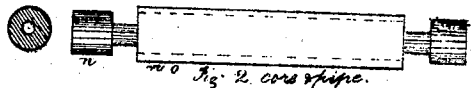


Fig. 2. Cross section of pipe.



Fig. 3. Longitudinal section of core box and pipe.



W. Bruce,
William Edgar

Witness

James L. Griffin, Inventor

Hamilton Canada February 25th 1874.

UNITED STATES PATENT OFFICE.

JAMES KENT GRIFFIN, OF WATERDOWN, CANADA.

IMPROVEMENT IN THE MANUFACTURE OF COMPOSITION PIPES FOR WATER, GAS, &C.

Specification forming part of Letters Patent No. 116,949, dated July 11, 1871.

To all whom it may concern:

Be it known that I, JAMES KENT GRIFFIN, of Waterdown, in the county of Wentworth, in the Province of Ontario, in the Dominion of Canada, have invented certain new and useful Improvements in Water, Gas, and other Pipes, and machinery for carrying out the same; and I do hereby declare that the following is an exact description of the same, sufficient to enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1, plate 1, is a side view of the machine. Fig. 2, plate 1, is a longitudinal view of the core detached from the machine. Fig. 3, plate 1, is a longitudinal central section of the core-box and pipe. Fig. 4, plate 1, is a transverse section of the cemented pipe; while Fig. 1, plate 2, is an end view of the machine.

My invention relates to certain improvements in pipes designed for water, gas, and other like purposes, and the machinery necessary for their proper construction. It consists, 1st, in combining with a cement, clay, concrete, or artificial-stone pipe, a composition pipe or pipes of asphalt, tar, or other water-proof or adhesive compound and any fibrous or pulpy material, so that the inside or outside, either or both, of the composition pipe will be provided with a secondary cement pipe in such a manner as to be rigid and immovable upon each other; and, 2d, it consists of a novel construction and arrangement of devices which constitute the machine, whereby I am enabled readily to produce the said composition pipes, all of which will hereafter be more fully set forth.

In the drawing, A B C is the frame of the machine, which is substantially constructed. D is a tar-vat placed in the floor, having a fire-chamber, *d d*. F is a frame for supporting the feeding-roller *i*. *l k* are driving-pulleys; *t*, the drum; and *s*, the driving-wheel. *g* is a belt connecting the driving-wheel *s* and pulleys *l k*. *i* is a feeding-roller bearing on cushions *j*, of India rubber or its equivalent, in the beam F. *m m* represent guides or supports, upon which roll the cores *n*. *o o* are guides bolted to the top of the frame C to hold and guide the pressure-rollers *p p*. 3 is a rod connecting the lower roller *p* and lever *z*. *v v*¹ is a core-box or clamp made in two parts,

the under one supported by the frame, and is pivoted to the standard *w* at the point *v*², and moves in the direction of the dotted lines. The top half of the core-box slides up and down in the guides 1 2, and is connected by the rod *x* to the lever, by which it is operated.

The operation of making the pipes is as follows: The paper, cloth, or other fibrous material is supplied from a roll or sheet to the core *n*, round which it is wound as the core revolves against the cylinder or roller *i*, which is turned in the heated tar, asphalt, or other compound in the vat D. As the core *n* is revolved by the driving-pulley or wheel *t* and belt *g* every part of the sheet is thoroughly saturated and coated with the tar, &c., as it is fed to it by the cylinder *i*. When the pipe has attained its proper thickness, adhesion, and solidity, the pressure of the rollers *p p*¹ *p*² throws it out upon the guides *m m*, the ends of which are placed against the journals of the core *n* at the proper elevation to allow of the escape of the pipe, which is constantly elevated as it increases in thickness. The core and pipe (another core having taken their place) are then rolled into the cavity of the core-box *v*¹ by their own weight on the inclined guides, where the pipe undergoes its final pressure by the upper part of the clamp *v* being let down upon it, which holds it fast while the core *n* is driven out by the operator in attendance. The upper half of the clamp is then raised by the lever *y*, while the lower section *v*¹ of the clamp is swung outward on its pivot *v*² in the direction of the dotted line, when the pipe is rolled upon the floor. The machine is rendered nearly automatic.

Or the process of manufacturing the said composition pipe may be varied as follows: Instead of the fiber being supplied to the core from a roll or sheet, as above described, the loose fiber or pulp, of whatever kind, may be mixed in proper proportions directly with the adhesive compound in the vat D, and be supplied to the feeding-roller *i*, from which it is taken up by the core *n* and pressed as it revolves till a sufficient thickness is attained, as in the first instance, thus forming a solid unlaminated fibrasphalt body for the pipe. Numerous cores are provided, so that while one pipe is being finished another is being formed.

I prefer making the pipes straight, and cover

the joints with collars cut in a lathe or otherwise from other pipes of proper size manufactured in the same manner.

In the manufacture and combination of the pipe of cement, &c., it may be either first formed on the core *n* and then covered by the manufacture of the composite pipe upon it, as aforesaid, or it may be formed within or upon the composite pipe by ordinary processes.

Pipes manufactured and combined as above shown and described are perfect. Pipes of cement, concrete, &c., while firm and rigid, are too weak for the necessary internal pressure. Composite pipes, of the character described, as manufactured by me, have ample strength for any internal pressure, but not the rigidity or firmness to bear the crushing weight to which they are exposed in handling or when embedded in the earth; but the combination of the two secures every requirement. The pipe of cement or concrete, &c., when within the other, forms an arch of great strength—bound by the composition pipe as with a band of iron—unitedly meeting every possible requirement. Pipes of iron and pipes of cement, &c., cannot be successfully combined, owing to the hardness of the iron and its liability to expansion and contraction; but the combined pipes as manufactured by me unite perfectly, being unaffected by any ordinary change of temperature or location. They are non-conductors of frost and electricity. They do not affect the water passing through them, nor does the water affect them in any way; on the contrary, water is preserved in them as perfectly as in the best cistern, free from frost or any taint. They may be laid nearer the surface of the ground, last longer, and cost less than any other pipe.

I do not claim, separately, the construction of water or gas-pipes of cement, concrete, &c., or

composition pipes of any kind, nor the construction of vats, cores, or rollers for the purposes described; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of a composition pipe, as described, with a pipe of cement, concrete, clay, or artificial stone, or their equivalents, placed within the said composition, substantially as described.

2. The combination of the said composition pipe with the said cement pipe, when the said composition pipe is incased within the said cement pipe, substantially as described.

3. The composition pipe interposed between the cement pipes, substantially as and for the purpose set forth.

4. The clamp *v*, moving in guides and operated as described, in combination with the clamp *v*¹, substantially as set forth.

5. In combination with the clamps *v* *v*¹, the guides *m m*, core *n*, feeding-roller *i*, vat *D*, and the driving mechanism, as set forth.

6. The self-adjusting pressure-roller *p*, core *n*, feeding-roller *i*, and vat *D*, in combination with the guides *m m* and the clamping mechanism, substantially as described, and for the purpose set forth.

7. The improved method of manufacturing a composite pipe by intermixing in a vat the fiber, in a pulpy state, with the adhesive and preserving compound and feeding them unitedly to the core of the pipe, substantially as described.

Dated at Hamilton, Canada, this 25th day of February, 1871.

JAMES K. GRIFFIN.

Witnesses:

W. BRUCE,
WILLIAM EDGAR.