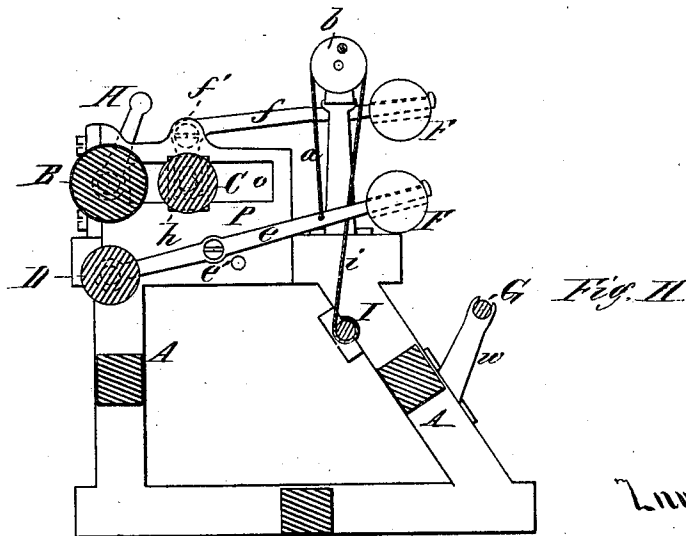
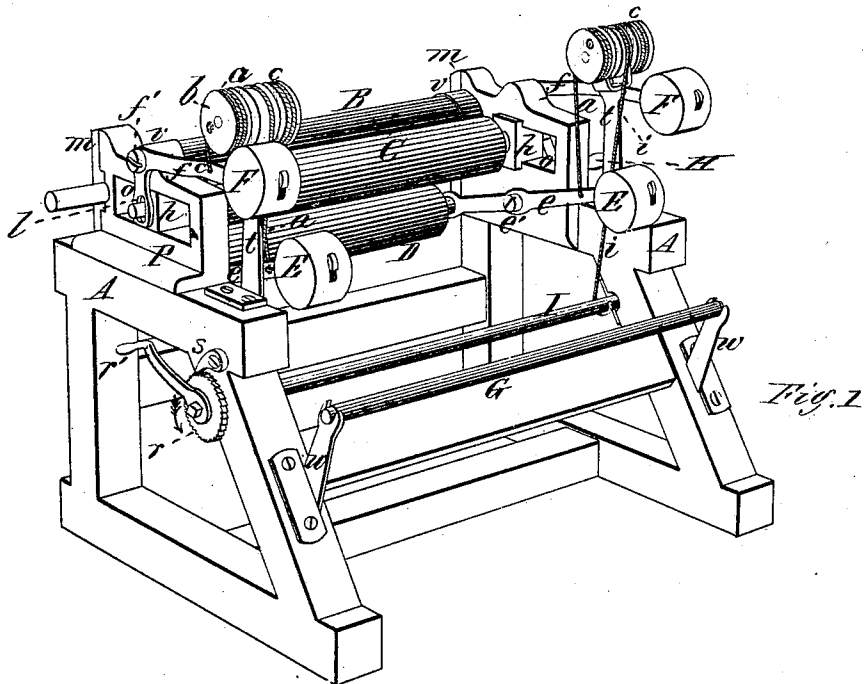


G. M. FULLER.

MACHINERY FOR MAKING HOSE-PIPE.

No. 179,183.

Patented June 27, 1876.



Witnesses,
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UNITED STATES PATENT OFFICE.

GEORGE M. FULLER, OF HOLYOKE, MASSACHUSETTS, ASSIGNOR TO THE ASPHALT PIPE COMPANY, (LIMITED,) OF NEW YORK.

IMPROVEMENT IN MACHINES FOR MAKING PIPE.

Specification forming part of Letters Patent No. **179,183**, dated June 27, 1876; application filed October 9, 1875.

To all whom it may concern:

Be it known that I, GEORGE M. FULLER, of Holyoke, in the State of Massachusetts, have invented a new and useful Improved Machine for Making Pipe; and that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, and to the letters of reference marked thereon.

The object of my invention is to manufacture pipe by rolling sheet fabric with plastic material under pressure, such as asphaltum mixed with any substance to give it the proper consistency to work well, or of any other desired substance that can be used in the same manner, combined with fabric, such as paper or cloth, felt, wire-cloth, perforated sheet metal, &c.; and to this end my invention consists of three rollers arranged in a frame, one roller having fixed bearings, and the other two arranged in movable bearings, with weighted pivoted levers disposed at the movable bearings upon the frame, and a winding-shaft or windlass, with a cord attached at one end to the said shaft, and at the other to a pulley. Other cords are attached to the same pulley, and also to the weighted levers which actuate the movable bearings of the rollers, so that, by turning the said winding-shaft, the movable rollers will be moved closer together or farther apart, through the medium of the weighted levers, pulleys, and cords, as will be hereinafter more fully explained.

Figure I is a perspective view of my invention, and Fig. II is a transverse-vertical section through the machine midway its length.

In the drawings, A represents a frame, to which is secured a head-piece, P, at each end, in which a roller, B, has fixed bearings in which to revolve, and this roller, for convenience of removing the pipe therefrom after being formed, is made in two longitudinal halves or parts. Each head-piece P has a rectangular opening, o, in which slides to and fro a block, h, and in this block a roller, C, has its bearings. To the head-piece P, or to the frame A, is pivoted, at *e'*, a lever, *e*, having a weight, E, attached at one end, and in the other end of each said lever the roller D has a bearing, and another pair of levers, *f*, (one at each end

of the machine,) is pivoted at *f'*, the short arm of which lever, at *l*, is pivoted to the sliding block *h*, the long arm of said lever having the weight F attached. The winding-shaft I extends from one end of the frame to and through the other end, with a ratchet, *r*, and winch *r'* attached to the shaft, and a pawl, *s*, arranged to operate with the ratchet. An upright, *t*, is attached to each end of the frame, to which is pivoted a pulley, *b*, and one end of a cord, *i*, is wound about this pulley, and is attached thereto, the other end being attached to the winding-shaft I, and a cord, *c*, is passed around said pulley, with its end secured thereto, and its other end secured to the lever *f*, so that, as the winch *r'* is turned in the direction indicated by the arrow, the cords *i* are wound upon the shaft I, and the pulleys *b* rotated, and the cords *a* and *c* wound thereon, which raises the levers *e* and *f*, and moves the rollers C and D away from the fixed roller B, and, by unwinding the cords *i* from the shaft I, the weighted levers *e* and *f* are allowed to fall, and the rollers C and D are thereby moved nearer to the fixed roller B. A roll or shaft, G, is supported in brackets *w*, (one at each end,) upon which the fabric which is to be rolled with the asphaltum is wound.

The operation of my invention is as follows: The roller B is first prepared so that the asphaltum will not stick to it—preferably by winding it with a thin layer of paper—and the cords being unwound from the shaft I by turning the winch *r'*, the rollers C and D are forced together by allowing the levers *e* and *f* to drop. The fabric is drawn from the roll G, and its end, coated with a thin layer of asphaltum, is inserted between rollers C and D, and the roller B is turned one revolution by a pulley or winch attached to its end.

The shaft I may then be turned to raise the levers *e* and *f* slightly, so as to move the rollers C and D away from the fixed roll B, say, about an eighth of an inch, and a preparation of asphaltum, mixed with earth or sand or other substance to a consistency to make it sufficiently plastic, is poured on top, between the fabric passing over the roller C and that already wound around the roller B, and the latter is then turned, say, one revolution. The

ratchet *r* is then turned one or two teeth more, and held by the pawl *s*, thereby raising the levers *e* and *f*, and moving the rolls C and D; say, another eighth of an inch away from the fixed roll B, and more of the plastic asphaltum is poured in, and the roller B turned another revolution. This operation continues until the fabric has been wound around the roller B a sufficient number of times, and the requisite quantity of plastic material has been combined with and rolled into the fabric, and the pipe formed of the desired thickness, when the fabric is cut off, and the shaft I turned, so as to let the levers *e* and *f* drop, and the whole force of the weights E and F be exerted to press the rollers C and D against the material upon the roller B. The latter is then rotated until the material thereon is pressed and rolled sufficiently smooth and hard by the rollers C and D; and the cap *m* (which may be arranged to be attached to and detached from the head-piece P in any convenient manner) is removed, and the roller B is rolled forward from its bearings in the machine upon supports placed for that purpose.

The roller B is divided longitudinally into two parts, each part being somewhat wedge-shaped, and these parts are drawn each way, one from one end of the pipe, and the other from the other end, and the pipe carried away or left to dry. The two parts of the roller B are then placed together, an annular flange or collar at each end confining them, and the roller replaced in its bearings in the machine and secured by attaching the cap *m*.

The roller C I design to operate principally as a gage to determine the thickness of each

layer of the plastic material as it is applied, and the roller D to force the mass firmly into or in contact with the fabric, although it is evident that both rollers C and D operate to press the mass together.

It is obvious that any fabric suitable for the purpose may be used in connection with the plastic material that can be manipulated readily upon the roller B, such as wire-cloth, perforated thin sheet metal, paper, felt, or any woven fabric, as the plastic material will be forced into the interstices, and the mass will be quite hard and solid when dry. After the pipes are dried sufficiently, the inside thin coating of paper may be removed readily by wetting it and rubbing it out.

The weights E and F may be arranged to slide to and fro along the levers *e* and *f* when desired, to aid in regulating the force which which the rollers are brought together.

Having thus described my invention, what I claim as new is—

The combination of the roller B, arranged in fixed bearings, the roller C, having movable bearings *h*, the pivoted weighted levers *f*, suspended from the pulleys *b* to move said bearings, the roller D, having bearings in the weighted levers *e*, suspended from the said pulleys, the pulleys *b*, and the winding-shaft I, and cord attached thereto, the whole constituting an improved machine for making pipe, substantially as described.

GEORGE M. FULLER.

Witnesses:

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