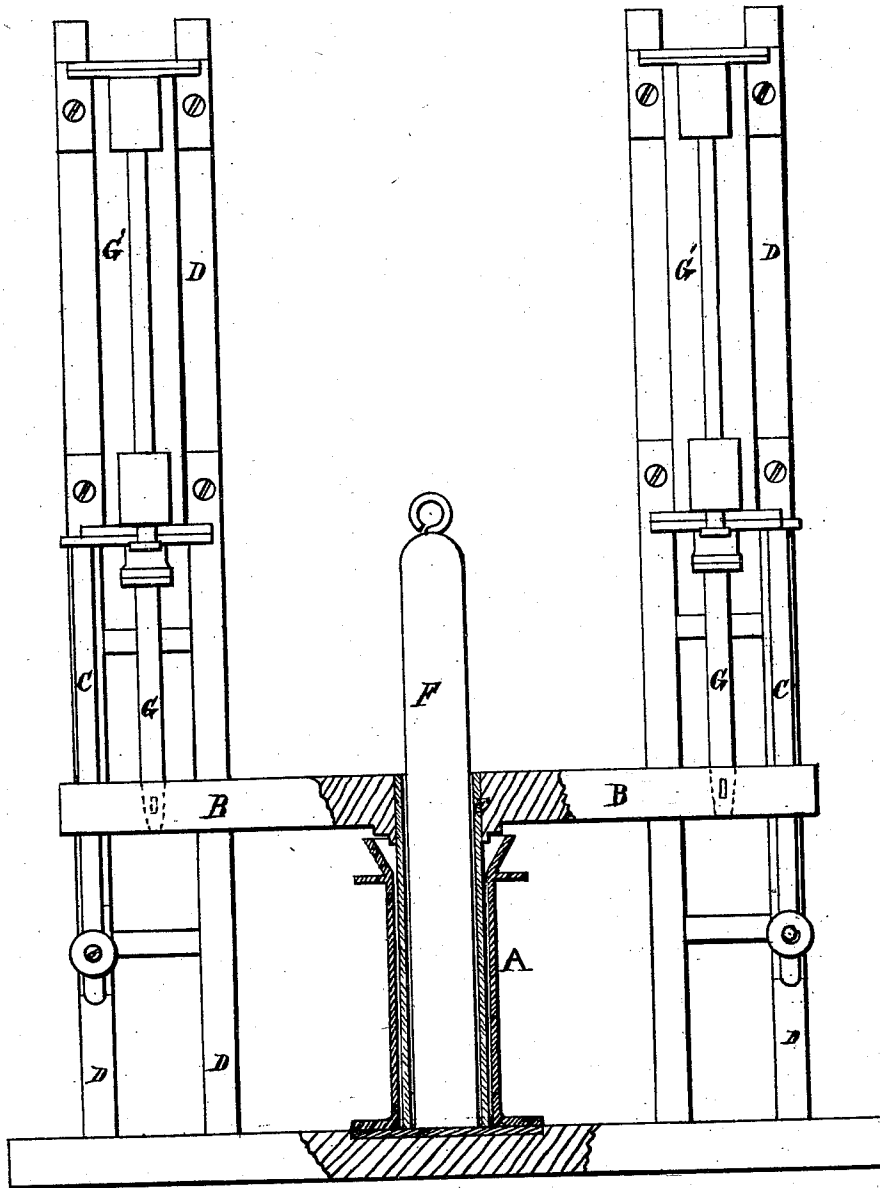


R. SKINNER & R. GAINES.
MACHINE FOR THE MANUFACTURE OF COMPOSITION PIPES FOR DRAINAGE.

No. 106,290.

Patented Aug. 9, 1870.



Witnesses:

David J. Smith
E. McQuiston

Inventors:

Robert Skinner
Richard Gaines
By Wm. M. Smith Atty

United States Patent Office.

ROBERT SKINNER AND RICHARD GAINES, OF SAN FRANCISCO, CALIFORNIA; SAID GAINES ASSIGNOR TO SAID SKINNER.

Letters Patent No. 106,290, dated August 9, 1870.

IMPROVEMENT IN MACHINES FOR THE MANUFACTURE OF COMPOSITION PIPES FOR DRAINAGE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, ROBERT SKINNER and RICHARD GAINES, of the city and county of San Francisco, State of California, have invented an Improved machine for the Manufacture of Composition Pipes for Drainage and other purposes; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters marked thereon.

The nature of our invention relates, principally, to the direct application of steam to a pipe-machine, for raising or lifting, and lowering or forcing down the cross-head and plunger or ram, for the purpose of forming the pipe more expeditiously, and in a much more solid and compact manner than by the ordinary methods.

In the drawing the figure represented is a sectional elevation of the machine.

To enable others skilled in the art or science to make and use our invention, we will proceed to fully describe its construction and operation.

A represents the flask, which may be divided vertically, and connected by hinges, and provided with suitable clamps, so that it can be readily opened for removing the pipe, when formed.

The top of the flask is made flaring, for feeding the material to the machine.

B is the cross-head, which moves on guide-rods C C, attached to the upright posts D D of the machine.

A ram or plunger, E, is permanently fixed to the cross-head, which serves, as the cross-head is operated, to force down the material or concrete used for forming the pipe in a solid and compact manner.

The core F passes through the cross-head to the bottom or lower end of the flask, and is caused to constantly revolve by suitable appliances not herein shown.

The piston-rods G G are directly attached to the cross-head inside of the guide-rods, and the cylinders are permanently fixed to the upright posts.

Steam is applied direct to the cylinders G' G' from the boiler, which causes the cross-head to move up and down in a rapid manner, carrying with it the plunger or ram, which forces down the concrete or material used in the manufacture of the pipe until the desired length is obtained, when the flask is opened and the pipe so formed removed.

In our experience in the manufacture of pipes, we have found it impossible, especially when using bituminous material, to successfully construct a perfect pipe without a rapid movement of the machinery employed, for the reason that the material sets so quickly. But by the use of this machine, pipes are constructed rapidly, and the product is much stronger by being more compact when set, and will stand a much greater internal and external pressure than when manufactured by any other machine in use.

Having thus described our invention,

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

The combination of the cylinders G' G' and piston-rods G G, cross-head B, and plunger or ram E of the pipe-machine, constructed, arranged, and operating substantially as herein described, and for the purposes set forth.

In testimony whereof we have hereunto set our hands and seals.

ROBERT SKINNER. [L. s.]
RICHARD GAINES. [L. s.]

Witnesses:

C. W. M. SMITH,
ISAAC T. MILLIKEN.