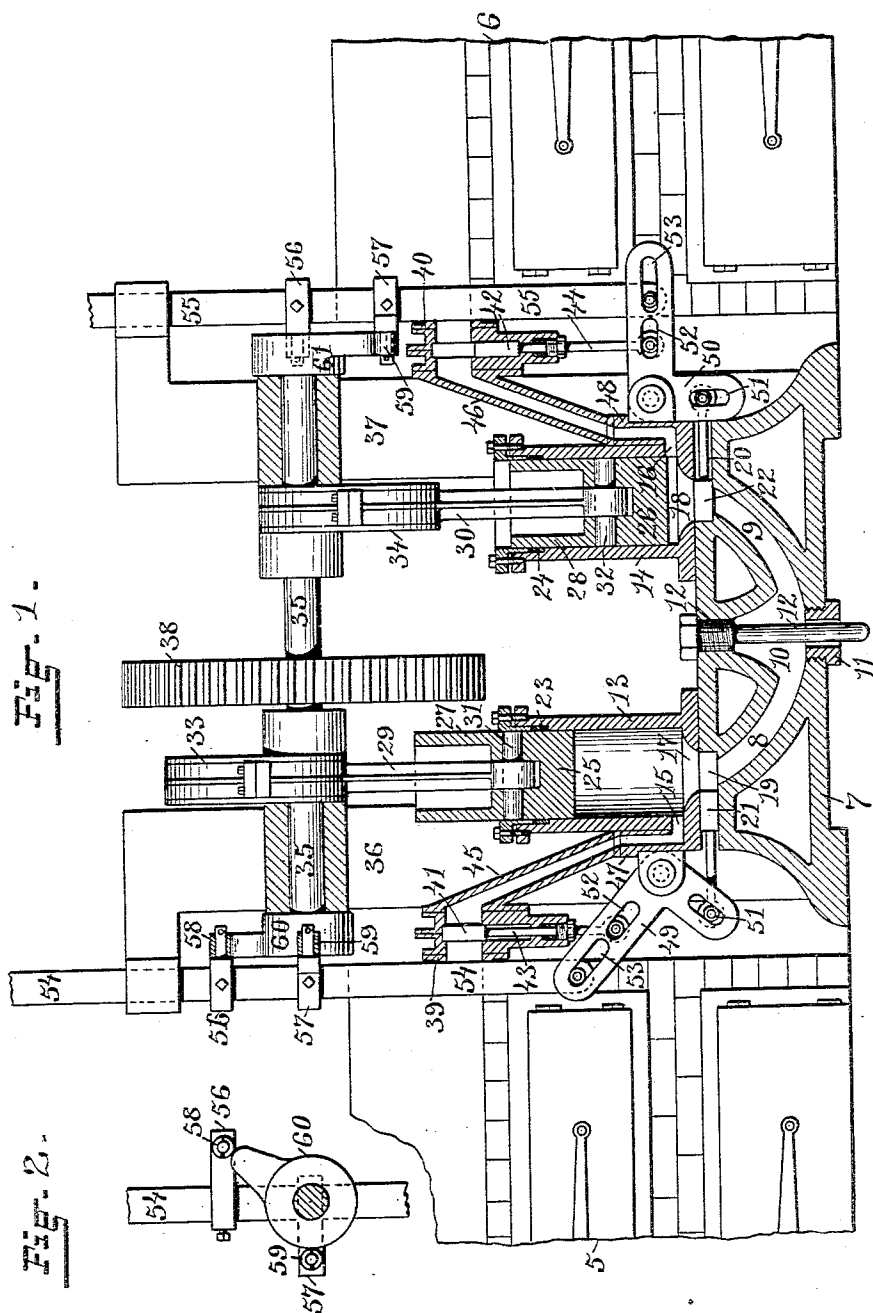


(No Model.)

G. H. WINSOR.
MACHINE FOR MAKING PIPES OR TUBES.

No. 504,687.

Patented Sept. 5, 1893.



WITNESSES:

Henry J. Miller
M. Louise Mahoney.

INVENTOR:

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attys

UNITED STATES PATENT OFFICE.

GEORGE H. WINSOR, OF CENTRAL FALLS, ASSIGNOR TO HIMSELF, HENRY RANDALL WILCOX, TRUSTEE, OF CRANSTON, AND STEPHEN CUSHING HARRIS, OF PROVIDENCE, RHODE ISLAND.

MACHINE FOR MAKING PIPES OR TUBES.

SPECIFICATION forming part of Letters Patent No. 504,687, dated September 5, 1893.

Application filed September 1, 1892. Serial No. 444,823. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. WINSOR, of Central Falls, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Machines for Making Pipes or Tubes; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to improvements in machines for making tubes or pipes, the device being particularly adapted for the construction of the tubes or pipes from metal or material which will flow at a comparatively low temperature.

The object of this invention is to produce a pipe-making machine which will be continuous in its action.

Another object of the invention is to produce a pipe-making machine by which the length of the pipe constructed is not limited to the amount of material contained in the die-chamber at one time.

The invention consists in the peculiar construction of the die-chamber and the compression-cylinders and the combination therewith of dissimultaneously-operating pistons, together with suitable supplies and gates for closing the same.

Figure 1 represents a vertical sectional view of the improved machine located between two furnaces from which the material is supplied. Fig. 2 is a view of a portion of the gate-rod provided with roller-bearings; and the cam by which these bearings are engaged to lift or depress the gate-rod.

Similar numbers of reference designate corresponding parts throughout.

In the drawings 5 and 6 indicate portions of furnaces into which the metal, or other material, is placed to be heated or prepared for its conversion into pipes.

Located between the furnaces 5 and 6 is a strong and substantial base 7 which is supported by a suitable foundation through which an opening is left for the pipe to pass from the machine; the base is provided with the branch-channels 8 and 9 curving downward toward the central portion of the base

to enter the die-chamber 10. Immediately below this die-chamber the base is vertically perforated and the surface of this perforation is screw-threaded or provided with other means by which an interchangeable die 11 is firmly secured therein, the opening through the die determining the exterior diametrical shape and size of the pipe. The upper portion of the die-chamber 10 is also perforated and in this perforation is removably secured the upper portion of the core 12, the lower portion of which extends through the die 11, its cross-sectional shape and size determining the shape and size of the interior of the pipe. This core may be removed and a wire or cable to be covered may be passed through the die.

Mounted upon the base 7, immediately above each of the channels 8 and 9, are the compression-cylinders 13 and 14 having the inlets 15 and 16 and the outlets 17 and 18, these latter connecting with the channels 8 and 9. Portions of the upper surface of the base 7, immediately below the compression-cylinders, are cut away to form the guides 19 and 20 in which the gate-valves 21 and 22 slide to close the open ends of the channels 8 and 9. The cylinders 13 and 14 have stuffing-boxes 23 and 24 at their upper ends, and vertically movable in the cylinders are the substantial pistons 25 and 26 having the flanges 27 and 28 and central sockets in which the lower ends of the piston-rods 29 and 30 are journaled on the shafts 31 and 32 extending through the bodies of the pistons. The upper ends of the piston-rods are furnished with metallic straps which are clamped around the alternate eccentrics 33 and 34 mounted on the horizontal-shaft 35; this shaft being journaled in the frames 36 and 37 and provided with a gear 38 which is driven from any suitable compound driving-mechanism.

Connected with the furnaces 5 and 6 are the supply-mains 39 and 40, situated in positions to allow the liquefied material to readily pass through the same, and governed by the gates 41 and 42 moving in vertical-guides and having stems 43 and 44. The supply-mains are connected by the pipes 45 and 46 with the side extensions 47 and 48 of the cyl-

inders, these extensions having channels formed therein to connect the pipes 44 and 45 with the inlets 15 and 16.

Pivoted between lugs on the extensions 47 and 48 are the bell-crank levers 49 and 50. In the depending arms of these levers are formed slots 51—51 in which roller-bearings, on the outer ends of the rods for operating the gates 21 and 22, engage, and in the extension-arms of the levers are formed slots 52—52 in which the roller-bearings of the stems 43 and 44 engage, these latter arms having also the slots 53—53 in which roller-bearings on the lower ends of the gate-rods 54 and 55 engage. The gate-rods are vertically movable in guides with which the frames 36 and 37 are provided and are balanced by springs or counterweights. Extending in opposite directions from these rods are arms 56 and 57 having roller-bearings 58 and 59 which are alternately engaged by the cams 60 and 61, secured to the ends of the shaft 35, to lift and depress the gate-rods and to operate the bell-crank levers 49 and 50.

In the drawings the piston 26 is shown at the completion of the downward stroke and the piston 25 at the farthest point of upward movement. The cylinder 13 having been filled with material through the supply-main 39, the gate 41 of which remains open during the greater portion of the up-stroke, but closes rapidly during the last quarter of that stroke by the engagement of the cam 60 with the roller-bearing 58 on the arm of the gate-rod 54. In the meantime the gate 21 has also opened and as the piston 25 moves downward the material is forced through the outlet 17 and the channel 8 into the die-chamber 10 and thence out through the space left between the inner surface of the die 11 and the core 12, the material reaching the die in such a condition as will retain the form into which it is pressed. In the meantime the piston 26 has been lifted and a new charge delivered from the furnace 6 to the cylinder 14, the outlet-gate 22 of which has been closed to prevent the backward movement of the material which is alternately supplied to the cyl-

inders and forced from them by the pistons into the die-chamber and through the die; 50 the length of the pipe depending wholly on the amount of material supplied by the furnaces.

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

The combination of the reservoirs 5 and 6, the base 7 located between the same, the chamber 10, formed in the lower central part of the base, the chambers 8 and 9 connecting this central chamber with the upper part of the base a removable die secured through the lower wall of the chamber 10 and a removable mandrel secured through the upper wall thereof, guides 19 and 20 formed in the upper part of the base 7, the gates 21 and 22 movable in said guides, the cylinders 13 and 14 secured to the base and having the inlets 15 and 16 and the outlets 17 and 18 connecting with the channels 8 and 9, the pistons 25 and 26 movable in said cylinders and connected by the rods 29 and 30 with the eccentrics 33 and 34 carried on the shafts, and means for rotating said shaft, of the supply-mains 39 and 40 connected with the inlets 15 and 16, the gates 41 and 42 for closing the mains, the bell-crank levers 49 and 50 having the slots 51—51 in which roller-bearings of the stems of the gates 21 and 22 engage, the slots 52—52 in which roller-bearings of the gates 41 and 42 engage, and the slots 53—53 in which roller-bearings on the rods 54 and 55 engage, the vertically-movable rods 54 and 55, the arms 56 and 57 secured to said rods and carrying roller-bearings, and the cams 60 and 61, carried by the shaft 35, adapted to alternately engage the roller-bearings on the arms 56 and 57 to lift or depress the rods 54 and 55, as and for the purpose described.

In witness whereof I have hereunto set my hand.

GEORGE H. WINSOR.

Witnesses:

HENRY J. MILLER,
M. F. BLIGH.