

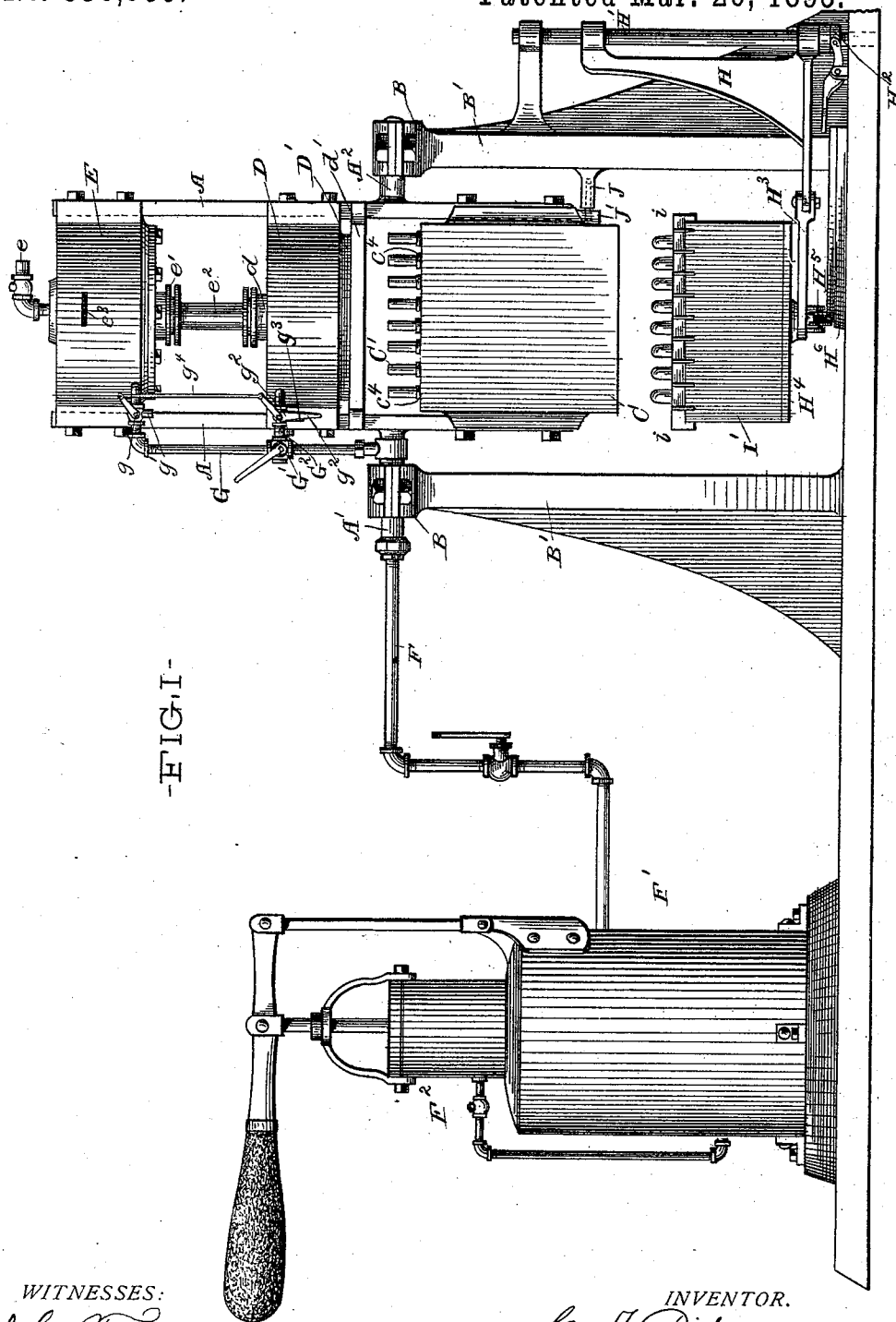
(No Model.)

3 Sheets—Sheet 1.

C. A. RITTMAN.
MACHINE FOR MOLDING CRAYONS.

No. 536,359.

Patented Mar. 26, 1895.



WITNESSES:

J. C. Turner
Jm " Lecher

INVENTOR.

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C. A. Pittman

By Hall & Gay
ATTORNEYS

(No Model.)

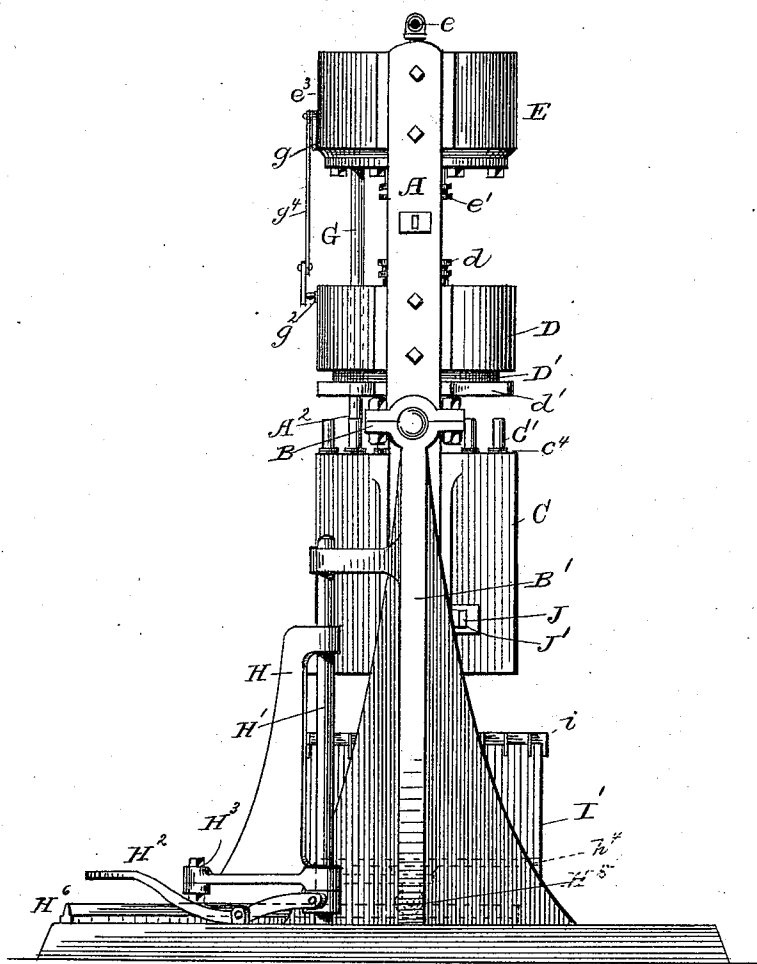
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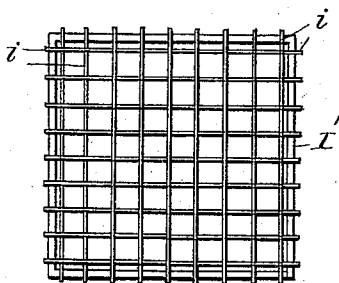
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-FIG. II-



-FIG. IV-



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(No Model.)

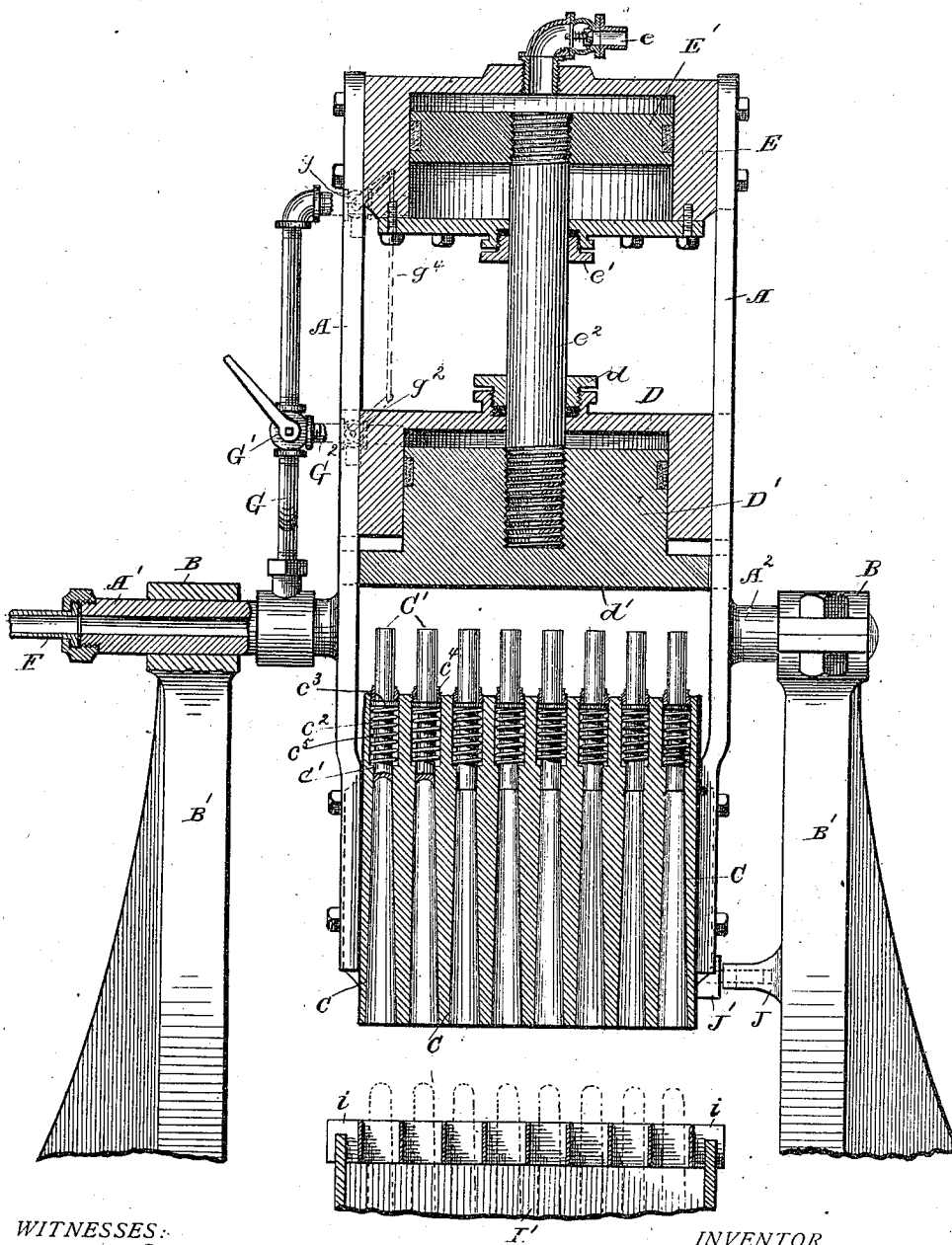
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-FIG. III-



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UNITED STATES PATENT OFFICE.

CHRISTIAN ADAM RITTMAN, OF SANDUSKY, OHIO, ASSIGNOR TO JOHN WHITWORTH, OF SAME PLACE.

MACHINE FOR MOLDING CRAYONS.

SPECIFICATION forming part of Letters Patent No. 536,359, dated March 26, 1895.

Application filed January 19, 1893. Renewed September 25, 1894. Serial No. 524,119. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN ADAM RITTMAN, a citizen of the United States, residing at Sandusky, county of Erie, and State of Ohio, have invented certain new and useful Improvements in Machines for Molding Crayons, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The annexed drawings and the following description set forth in detail, one mechanical form embodying the invention; such detail construction being but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings—Figure I represents a front view of my improved machine for molding crayons; Fig. II, a side view of the same; Fig. III, an enlarged vertical section of the machine, and Fig. IV, a top plan view of the crayon receiving box.

A frame composed of two side pieces, A A, has two laterally projecting trunnions, A' and A², journaled in boxes, B B, upon uprights, B' B'. A mold, C, consisting of a square block, is secured in one end of the frame, between the ends of the side pieces. Said mold has tapering mold cavities, c, of the shape desired for the crayons, and has, furthermore, bores, c', formed with enlargements, c², at their outer portions. Ejectors, C', slide in the bores, and have their inner ends formed with concavities which serve to close and complete the inner ends of the mold cavities. The ejectors are formed with collars, c³, which bear against the inner ends of glands, c⁴, secured in the outer ends of the enlargements; and the upper ends of the ejectors are normally held to project beyond the mold by means of springs, c⁵, coiled around the ejectors and bearing against the collars upon the latter and against the inner ends of the enlargements. Two cylinders, D and E, are secured between the side pieces of the pivoted frame, at the side of the trunnions opposite the mold. The inner cylinder, D, has its inner end open and a stuffing box, d', in its closed, outer head. The outer cylinder, E, has both ends closed and has an outwardly opening check valve, e,

in its outer head, and a stuffing box, e', in its inner head. A plunger, D', having a square plate, d', upon its outer end, slides in the inner cylinder; and a piston, E', slides in the outer cylinder, and is connected to the plunger by a piston rod, e², which passes through the stuffing boxes of the two cylinders.

One trunnion, A', of the pivoted frame, is hollow and is connected by means of a pipe, F, to an air reservoir, F', containing air under pressure, or to any other suitable supply source for a fluid under pressure. A suitable air compressing pump, F², may be connected to the reservoir, to compress air into the same. A pipe, G, extends from the hollow trunnion, and has a three-way cock, G', from the casing of which a pipe, G², extends into the outer end of the inner cylinder, back of the plunger in the same. The pipe extends beyond the three-way cock, into the inner end of the outer cylinder, and is there provided with a cock, g, the casing of which has an outlet, g', and by means of which cock inlet of compressed air into and outlet of such air from the inner portion of the outer cylinder may be controlled. The branch pipe G² is also provided with a cock, g², having an outlet, g³, for the control of the compressed air into and out of the outer end of the inner cylinder; and both of said cocks, g and g², are connected by means of a rod, g⁴, so that the inlet of one cylinder and the outlet of the other cylinder may be simultaneously opened. The outer cylinder has a slot, e³, in its side, a distance from its outer end.

A bracket, H, is pivoted upon a vertical bar, H', supported at the side of one of the uprights, and the lower end of said bracket rests upon one end of a foot lever, H², by means of which the bracket may be raised or lowered upon the vertical bar. An arm, H³, is pivoted to the outer end of the bracket, and has a plate, H⁴, secured to its outer end. A grooved wheel or roller, H⁵, is preferably journaled under the outer end of the arm, and said roller travels upon a curved track, H⁶. A tray, I', may be supported upon the plate, and said tray corresponds in size and outline to the size and outline of the outer end of the mold, against which it may be brought to bear by pressing upon the foot lever and thereby raising the

5 bracket, arm, plate and tray. The upper, open end of the tray has a number of sheet metal strips, *Z*, crossing each other at right angles and secured in the upper edges of the sides of the tray, and said strips form square compartments which may register with the outer ends of the mold compartments.

10 A stop, *J*, upon one of the uprights, serves to engage a stop, *J'*, upon the mold, so as to stop and hold the mold to exact register with the tray, when the latter is pushed beneath the mold.

When the machine is operated, the pivoted frame is revolved so as to bring the mold upward, with the open, wide ends of its tapering mold cavities pointing upward. The mold cavities are now filled with the composition from which the crayons are molded, and which composition "sets" very readily, so that the 20 crayons are sufficiently hard to remove them from the mold, as soon as the outer end of the mold has had the surplus composition removed, and the frame has been revolved to again bring the mold in its lower position. 25 When the frame has been revolved to bring the mold in its lower position, the cock for the inner cylinder is opened to the compressed air, and the cock for the outer cylinder is opened to the outlet. As the plunger is forced down, it will draw the outer piston with it, creating a partial vacuum in the upper cylinder until the piston in said cylinder passes the slot in the same, when, by the sudden release of the resistance, the plunger and piston 30 will strike downward with a sudden tap, striking the ends of the ejectors and throwing the molded crayons out of the mold into the tray. The cocks are then shifted and the piston and plunger again raised. The tray has been 40 raised by the foot lever before the crayons are ejected, and the filled tray is again lowered for removal, while the mold frame is again inverted and the mold filled. The check valve in the outer end of the outer cylinder 45 will admit air to escape at said end when the outer piston is forced outward, but will prevent air from entering the outer end when the piston is drawn inward. The sharp tap upon the ejectors in the mold, caused by the 50 suddenly released resistance for the plunger, is necessary to successfully eject the crayons from their mold cavities, as the crayon composition "sets" very quickly and is liable to stick in the mold cavities if not loosened by a quick tap.

55 Other modes of applying the principle of my invention may be employed for the mode herein explained. Change may therefore be made as regards the mechanism thus disclosed, provided the principles of construction set forth respectively in the following claims are employed.

I therefore particularly point out and distinctly claim as my invention—

65 1. In a machine for molding crayons, the combination of a mold, an ejector in such

mold and having a portion projecting from the same, a plunger arranged to strike the projecting portion of the ejector, and a resistance device for said plunger provided with 70 a release device, substantially as set forth.

2. In a machine for molding crayons, the combination of a mold, an ejector in such mold and having a portion projecting from the same, a cylinder and plunger in the same, 75 such plunger arranged to strike the projecting portion of the ejector, a cylinder closed to inlet at one end and having a slot a distance from such closed end, and a piston in said cylinder connected to said plunger, substantially as set forth. 80

3. In a machine for molding crayons, the combination of a mold having a number of mold cavities, ejectors in the ends of said cavities and projecting beyond one end of the 85 mold, a plunger formed with a plate corresponding to the end of the mold and arranged to simultaneously strike all of the projecting ejectors, and a resistance device for the plunger provided with a release device, substantially as set forth. 90

4. In a machine for molding crayons, the combination of a frame pivoted upon trunnions at about its middle, a mold supported in the frame to one side of its trunnions and 95 formed with longitudinal mold cavities, ejectors sliding in the inner ends of the mold cavities, a cylinder secured in the frame at the side of the trunnions opposite the mold, a plunger sliding in the cylinder and having 100 a plate constructed to simultaneously strike all of the ejectors, means for controlling the inlet and outlet of actuating medium into and out of the outer end of the cylinder, a cylinder supported in the outer end of the side 105 of the frame supporting the inner cylinder and formed with a slot near its outer end, means for controlling inlet and outlet of actuating medium into and out of the outer cylinder, an outwardly opening valve in the outer end of the cylinder, and a piston sliding in 110 the cylinder and connected to the plunger, substantially as set forth.

5. In a machine for molding crayons, the combination of a frame pivoted at about its 115 middle, a mold secured in the frame at one side of the trunnions, and air cylinders and ejector operating mechanism secured in the frame at the opposite side of the trunnions, substantially as set forth. 120

6. In a machine for molding crayons, the combination with a pivoted frame having a mold secured in it with its open end facing outward, of a bracket supported to swing in a horizontal plane and to slide in a vertical 125 plane, a lever engaging the bracket to raise or lower it, and a tray supported from the bracket to register with the open end of the mold, substantially as set forth.

7. In a machine for molding crayons, the combination with a mold having mold compartments opening at the outer side of the 130

mold and having suitable ejectors, of a tray having strips at its upper side crossing each other to form openings registering with the mold cavities, substantially as set forth.

5 8. In a machine for molding crayons, the combination with a pivoted frame having a mold secured in it with its open end facing outward, of a bracket supported to swing in a horizontal plane and to slide in a vertical
10 plane, a lever engaging the bracket to raise and lower it, an arm pivoted to said bracket to swing horizontally, a plate secured to the end of said arm and having a wheel, a curved track for said wheel and arranged to extend
15 beneath the mold, and a tray supported upon the plate, substantially as set forth.

9. In a machine for molding crayons, the

combination of a mold, an ejector in such mold, and a reciprocating and fluid actuated plunger arranged to strike said ejector, substantially as set forth.

10. In a machine for molding crayons, the combination of a mold; an ejector in such mold, a plunger arranged to strike said ejector, and a resistance device for said plunger
25 provided with a release device, substantially as set forth.

In testimony that I claim the foregoing to be my invention I have hereunto set my hand this 12th day of January, A. D. 1893.

CHRISTIAN ADAM RITTMAN.

Witnesses:

CHARLES H. CRAMER,
JOHN WHITWORTH