(No Model.) 2 Sheets—Sheet 1.

L. V. MOULTON.

MACHINE FOR MAKING SCHOOL CRAYONS.

No. 492,361. Patented Feb. 21, 1893.

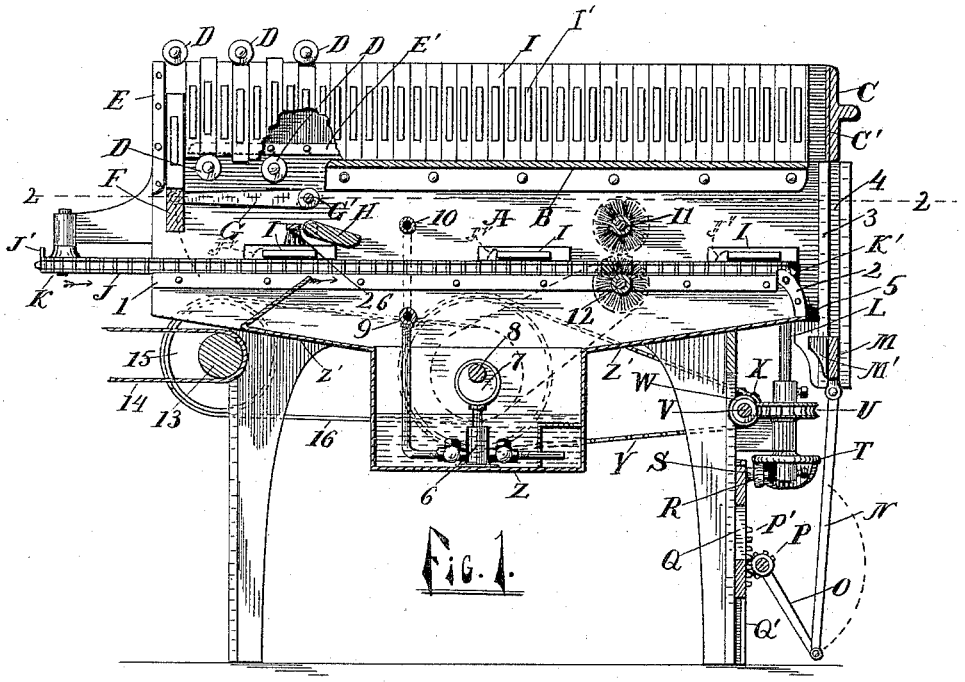

FIG. 1.

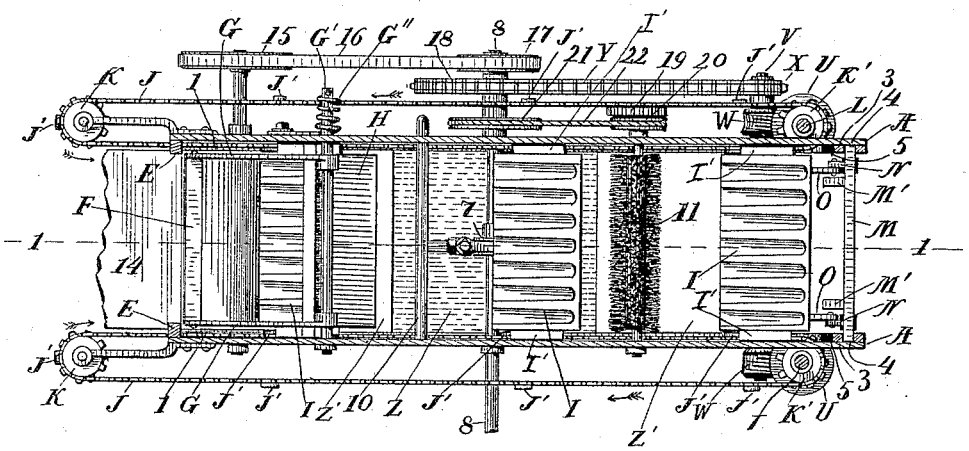

FIG. 2.

WITNESSES:

Ada M. Harvey

L. E. Flanders

INVENTOR

Luther V. Moulton

(No Model.) 2 Sheets—Sheet 2.

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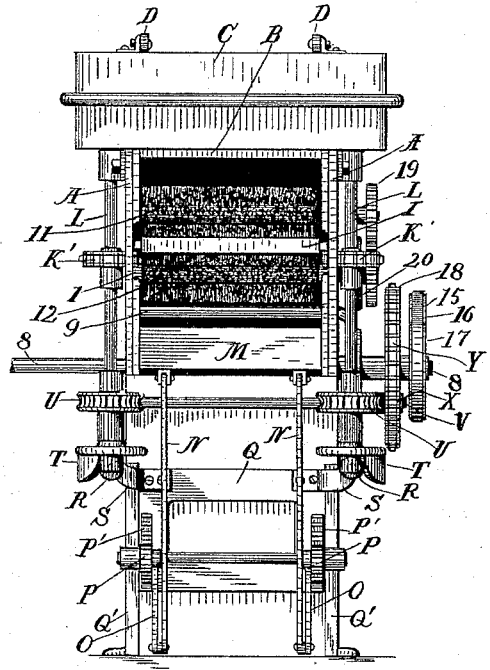

FIG. 3.

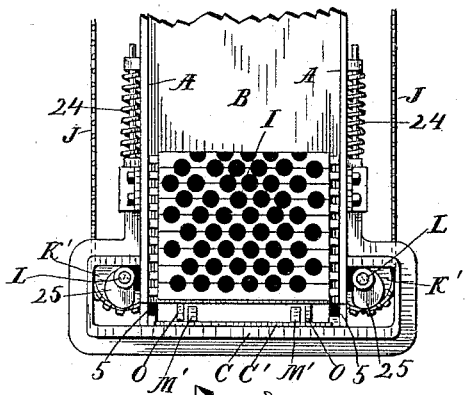

FIG. 4.

WITNESSES:

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INVENTOR

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UNITED STATES PATENT OFFICE.

LUTHER V. MOULTON, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR TO FREDRICK R. LUCE, EUGENE BOISE, AND JAMES R. SHELLY, OF SAME PLACE.

MACHINE FOR MAKING SCHOOL-CRAYONS.

SPECIFICATION forming part of Letters Patent No. 492,361, dated February 21, 1893.

Application filed September 12, 1892. Serial No. 445,683. (No model.)

To all whom it may concern:

Be it known that I, LUTHER V. MOULTON, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Machines for Making School-Crayons; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in machines for making school crayons, carpenters' chalks and other like articles, and more particularly to the mechanism for manipulating the molds whereby they are moved through the machine while the stock is setting; their contents discharged, and said molds cleaned, oiled, and restored to place for re-filling; and its object is to provide the same with certain new and useful features, hereinafter more fully described and particularly pointed out in the claims, reference being had to the accompanying drawings in which;

Figure 1 is a longitudinal vertical section (on the line 1—1 of Fig. 2) of a device embodying my invention. Fig. 2 a horizontal section of the same on the line 2—2 of Fig. 1. Fig. 3 an end elevation of the same; and, Fig. 4 a plan view of one end of the device.

Like letters and figures refer to like parts in all of the figures.

The stationary framework consists of two parallel vertical sides A A connected by a bed plate B, said sides being supported upon suitable legs and having the oil tank Z with inwardly inclined sides Z′ Z′ attached.

C is a ram for moving the molds I forward over the bed B, this ram is provided with a rubber or leather facing C′, to prevent injuring the molds and is horizontally movable in the straps toward and away from the end of the bed and is forced against the molds by means of cams 25—25, which cams rotate in and engage one side of openings in the end of said ram and are attached to the upper ends of vertical shafts L L, which shafts are driven by worm gears U engaged by screws W on a shaft V, which shaft is driven from the main driving shaft 8 by sprocket wheels X and 18, and sprocket chain Y. The return movement of the ram is effected by means of the coiled springs 24, which engage the ends of the ram and tend to force it away from the molds. As the molds are driven forward, they leave the bed and are received upon the strips E′, which strips are attached to the inner surface of the sides A A and engage the reduced ends or cogs I′ on the molds, which are thus prevented from dropping down too far while passing the rolls D. Said rolls are located in pairs alternately above and below the path of the molds and projecting within the plane thereof, the molds are thereby alternately elevated and depressed as shown in Fig. 1, whereby the crayons are loosened in the said molds. As the molds pass under the last rolls in the series, they leave the ends of the strips E′ and drop upon the bar F, which bar is pivoted at each end to the arms G, said arms being attached at their other ends to a rock shaft G′ journaled in the sides A A, and provided with a spring G″ which spring is adjusted to sustain the bar and arms in an elevated position to receive the mold, and to yield and lower the same upon the sprocket chains J J. The mold being held in an upright position during its descent by the vertical strips E E attached to the sides A A, until it nearly reaches the chains when it clears said strip and falling forward off the bar F upon the chains, discharges its contents upon the carrier 14, which latter is operated by the roll 13, which roll is driven by the pulley 15, connected by a belt 16 to a pulley 17 on the shaft 8; this releases said bar which again rises out of the way, and allows the mold to pass as carried forward by the chains; said mold next engages the fixed brush 26, which removes any crayons which may chance to remain on its upper surface. Said mold next engages the drag H, which is pivoted at one edge above the chains and rests upon the same at its free edge, which drag engages the advancing side of the mold and slides it along the chain until engaged by the lugs J′ on the same, which now force the molds forward and lifting the drag carry said molds forward said drag thus checks the molds until reached by the lugs, and also removes any crayons that may chance to re-

main on the upper side of the mold. If preferred a fixed brush engaging the upper side of the mold may be used in place of the drag to retain the molds and clear them of the crayons. The molds now pass between the perforated pipes 9 and 10, which pipes are connected to the oil pump 6, which pump discharges oil through said pipes upon both sides of the molds, which are now carried between the rotary brushes 11 and 12, which brushes are journaled in the sides A A, being connected to each other by gears 19 and driven from the shaft 8 by the belt 22, and pulleys 20 and 21 stationary brushes engaging the respective upper and lower sides of the molds, as they pass may be used instead of the described rotating brushes, but the latter I deem more effective. Said molds finally leave the chains near the other end of the machine, they are now received by the curved guides 2, which engage the cogs I′ on the end of said mold and turn the same into a vertical position, with said cogs resting against the strips 3, 3, in the pockets 5 5, at the bottom of said guides. The bar M now engages the under side of the mold by means of brackets M′, and moving in vertical grooves 4, carries the mold up in front of and between the ram C, and the molds already on the bed B, from which position said ram forces said mold forward upon the bed, crowding the entire column of molds on the same forward by the thickness of one mold. The bar M is operated by rods N, pivoted to the same at their upper ends, and to the ends of levers O O at their lower ends, the other ends of said levers being pivoted to the frame Q, and provided with pinions P, which engage racks P′ on a frame Q arranged to move vertically in ways Q′, and operated by cams T on the shafts L L, which cams engage rolls R on arms S attached to said frame, and are so formed on their faces that the bar rises soon after the mold drops into the pockets 5, and remains elevated until the ram has moved the mold enough to engage it with the bed B, and then said bar descends before the next mold reaches the pocket.

The sprocket chains J J engage and are driven by sprocket wheels K′ on the shafts L, and extend horizontally through the machine, to idlers K at the opposite end of the same, and pass along the inner surface of the sides A A, where they slide in and are supported by grooved strips 1, 1, and return on the outside of the machine, simultaneously moving in the direction indicated by the arrows, and adjusted so that the lugs J′ on each, shall be opposite those on the other. By this construction I am able to have nearly all the molds on the bed at once, thus greatly increasing the capacity of a given number of molds, each mold is also separate and removable at pleasure, and the device is simpler and operates with less friction and wear.

The drag H insures that each mold shall be in contact with lugs on the chain and fall into the pocket 5 at the proper time, and by spraying and brushing each mold separately on both sides, I secure thorough cleaning and oiling of the same. The intermittent motion of the molds is also of advantage in filling the same, as it can be better accomplished when they are not in motion.

What I claim is—

1. In a crayon machine in combination with vertical walls and a bed between the same, and molds adapted to move upon said bed, a ram sliding in loops attached to said walls, springs engaging said ram to move it back, and vertical shafts having cams engaging said ram to move it forward, and mechanism to rotate said shafts, substantially as described.

2. In combination with a bed plate and side walls and molds adapted to move upon said bed, vertical shafts having cams and sprocket wheels, and mechanism to rotate said shafts, a ram operated by said cams and engaging said molds at each stroke, chains beneath said bed moved by said sprocket wheels and adapted to move said molds from one of said bed to the other, and mechanism for placing a mold between said ram and the series of molds on the bed, substantially as described.

3. In combination with a bed and side walls, and a series of molds adapted to move over said bed and between said walls, vertical shafts having upper and lower cams and sprocket wheels, and mechanism to rotate said shafts, a ram operated by said upper cams, chains moved by said sprocket wheels and passing beneath said bed and along the inner surface of said walls, lugs on said chains, curved guides on said walls, near said sprocket wheels, a bar moving in vertical ways near said guides and engaging said molds, and pivoted levers connected to said bar and operated by said lower cams, substantially as described.

4. In a machine having a series of detached molds moving in succession over a fixed bed, chains moving beneath said bed, opposing lugs on said chains, curved guides and pockets near the end of said bed and a vertically movable bar adjacent to the same, engaging said molds, and mechanism to operate said bar, substantially as described.

5. The combination of side walls, and a bed shorter than said walls and between the same, and molds moving over said bed, and between said walls, having cogs, or reduced projections at each end, rolls arranged alternately above and below said molds, and projecting within the plane of the same, and strips on said walls engaging said projections on said molds, substantially as described.

6. In combination with a bed and side walls, and molds moving over said bed and between said walls and sprocket chains traversing the inner surface of said walls beneath said bed, arms pivoted to said walls and a bar pivoted

to the movable ends of said arms, and a counterbalancing spring attached to said arms, substantially as described.

7. In combination with a series of molds and mechanism to move the same in series over a bed plate, sprocket chains to carry said molds from one end to the other of the series, lugs arranged in opposite pairs on said chains, and a drag pivoted above said chains at one side, and engaging said molds at the other side, substantially as described.

8. In combination with a series of molds, and mechanism to carry said molds in succession from one end of the series to the other, mechanism for cleaning said molds in transit, consisting of perforated pipes at each side of the path of said molds, and mechanism for forcing liquid into said pipes, and brushes at each side of and engaging said molds, substantially as described.

9. In combination with sprocket chains, and a series of molds supported and carried by said chains, a tank beneath the same a pump connected to said tank, perforated pipes above and below the path of said molds and connected to said pump, rotative brushes above and below the path of said molds and contacting the same, and mechanism for operating said pump and brushes, substantially as described.

10. In combination parallel sprocket chains, and molds carried by said chains, a fixed brush engaging said molds and brushes to clean the same, substantially as described.

11. In combination with a fixed bed and detached molds to move over the same, a reciprocating ram at one end of said bed, movable chains beneath said bed, having opposing lugs engaging said molds, curved guides and pockets to receive said molds, a vertically reciprocating bar beneath said ram engaging and lifting said molds, perforated pipes and brushes above and below the path of said molds, a tank and pump connected with said pipes and mechanism for operating said ram, chains, reciprocating bar and pump, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

LUTHER V. MOULTON.

Witnesses:
DENNIS L. ROGERS,
LEWIS E. FLANDERS.