

No. 708,267.

Patented Sept. 2, 1902.

M. A. SMITH.
COATING MACHINE.

(Application filed Apr. 12, 1901.)

(No Model.)

3 Sheets—Sheet 1.

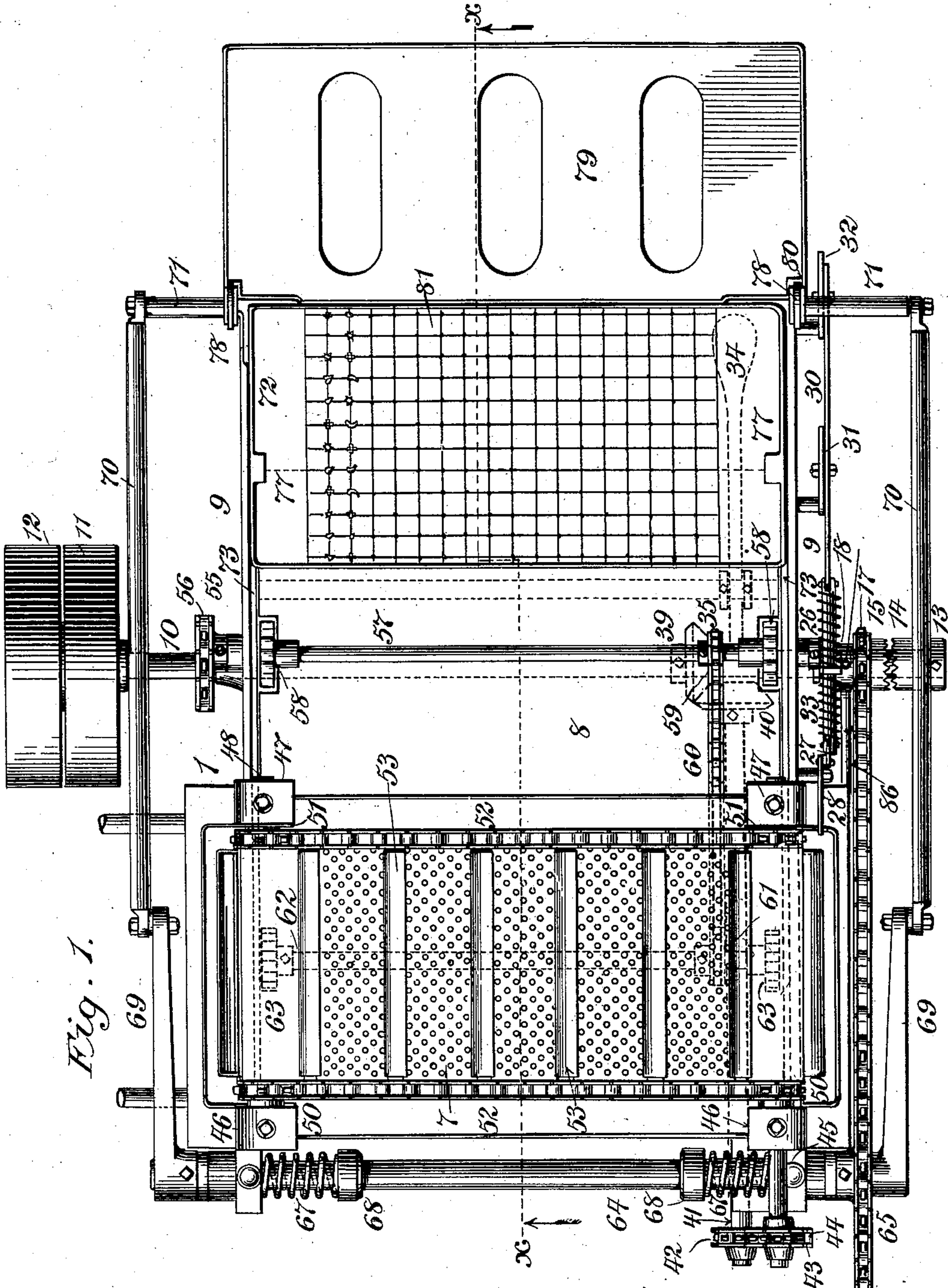


Fig. 1.

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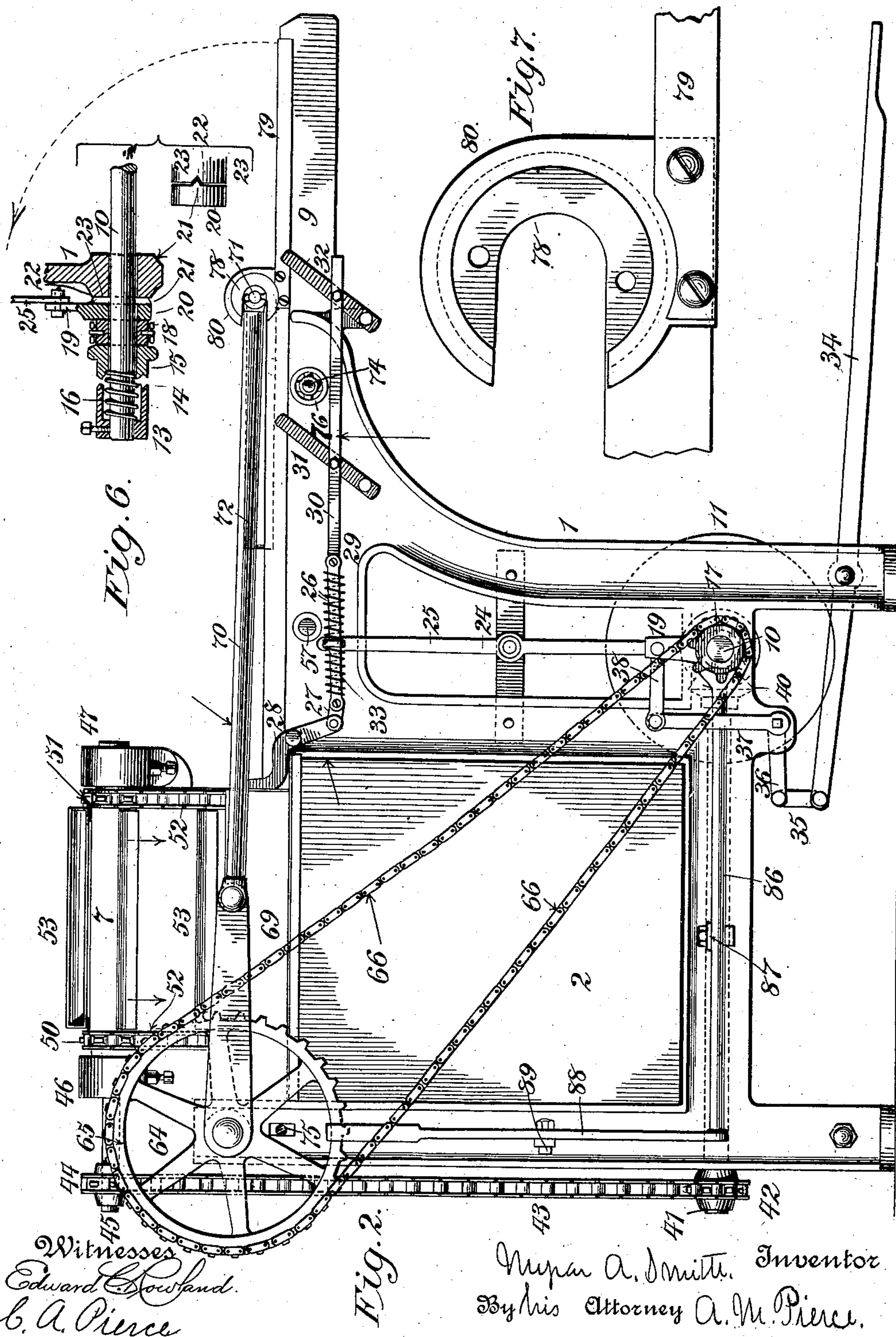
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3 Sheets—Sheet 2.



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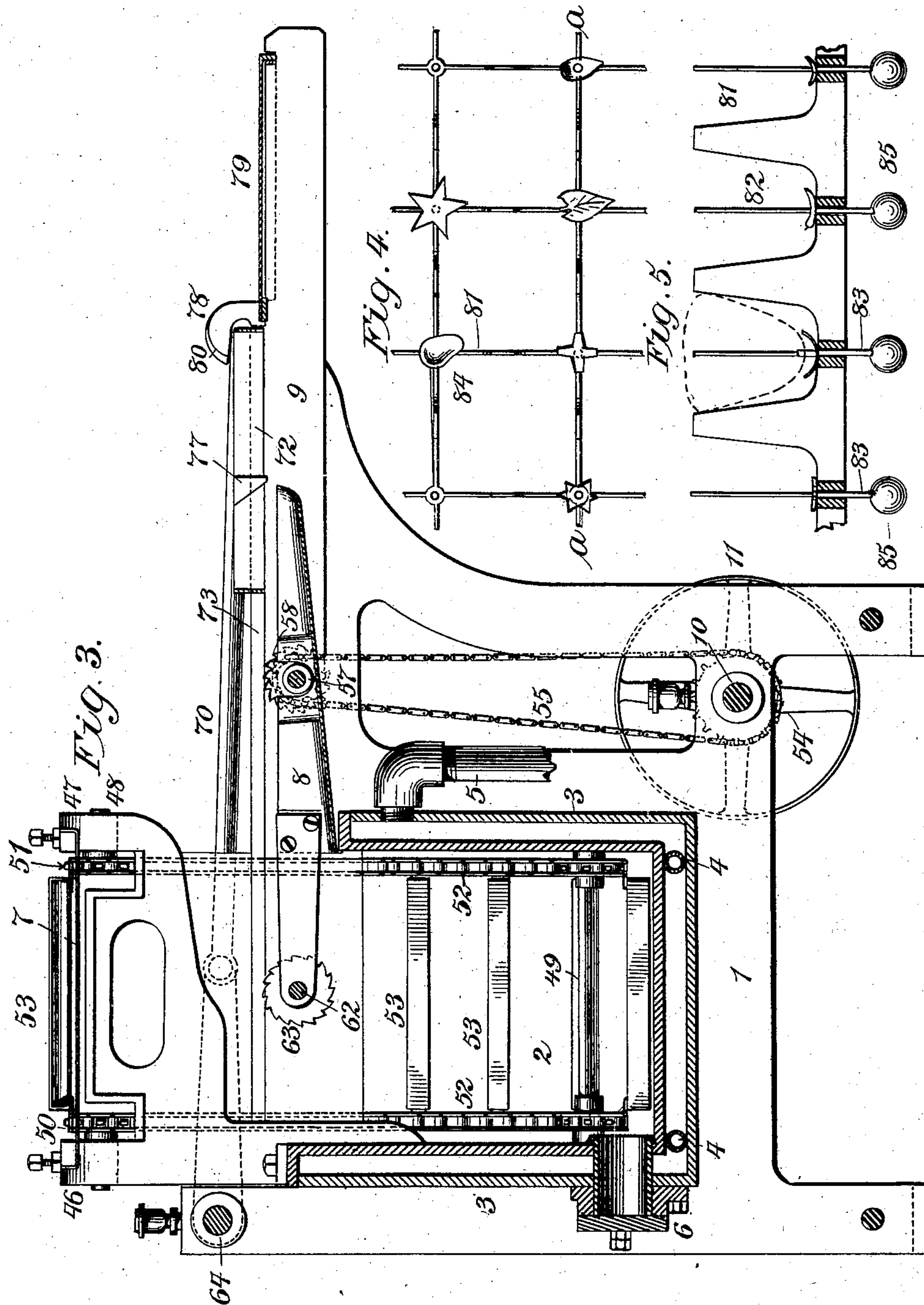
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

MYRON A. SMITH, OF NEW YORK, N. Y., ASSIGNOR TO INTERNATIONAL MACHINE CO., OF NEW YORK, N. Y.

COATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 708,267, dated September 2, 1902.

Application filed April 12, 1901. Serial No. 55,453. (No model.)

To all whom it may concern:

Be it known that I, MYRON A. SMITH, a citizen of the United States, residing in the city, county, and State of New York, have invented a new and useful Improvement in Coating-Machines, of which the following is a specification.

My invention relates especially to devices employed for applying a coating of material, such as chocolate, to cream or other centers, and has for its object the provision of a simple, compact, cleanly, and light-running machine for applying such coating.

To attain the desired end, my invention consists in certain novel and useful combinations or arrangements of parts and peculiarities of construction and operation, all of which will be hereinafter first fully described and then pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of a machine embodying my invention. Fig. 2 is a side elevation thereof. Fig. 3 is a vertical longitudinal sectional view at line *xx* of Fig. 1. Fig. 4 is an enlarged plan view of a fragment of the center-holder. Fig. 5 is a vertical sectional view at line *aa* of Fig. 4. Fig. 6 is a detail view of the clutch mechanism. Fig. 7 is an enlarged side elevation of the separable hinge shown in Fig. 2.

Like numerals of reference wherever they occur indicate corresponding parts in all the figures.

1 is the main frame of the machine, provided with a material-holding tank 2, having an outer wall 3.

4 represents steam-pipes for applying heat to the tank.

5 is an overflow-pipe from the space between the walls of the tank.

6 is a draw-off valve.

7 is a perforated material-distributing plate mounted over the tank 2.

8 is an inclined drip-pan open at the side next to the tank 2.

9 represents horizontal bars extending from the front of the main frame.

Journalled to the main frame is a driving-shaft 10, having at one extremity fast and loose pulleys 11 and 12. Mounted on the shaft 10 at the end opposite to the pulleys is a clutch consisting of a part 13, secured to

the shaft and having teeth 14, and a movable part 15, also having teeth 14, the two parts being normally held apart by spring 16, Fig. 6.

17 is a sprocket upon the part 15 of the clutch.

18 is a collar loosely mounted upon the shaft 10, the uses whereof will be explained hereinafter.

19 is a crank upon a hub 20, through which the shaft 10 loosely passes, said hub being provided with a rib 21, arranged to enter a groove 22 in a boss 23, projecting from the main frame 1. Pivoted at 24 is a rod 25, engaging at its lower end with the crank 19 and near its upper end with a transverse rod 26. The rod 26 is connected at 27 with a stop-arm 28, pivoted on the main frame, and at 29 with an extension-rod 30, to which are pivoted stop-arms 31 and 32, having their lower ends pivoted to the main frame.

33 is a spring coiled around the rod 26, engaging with the upper extremity of the rod 25.

34 is a treadle pivoted to the main frame and connected to the crank 19 through the medium of bars 35, 36, 37, and 38.

39 is a bevel-gear upon the driving-shaft 10, the teeth of which mesh with a corresponding gear 40, fixed upon a shaft 41, journaled in the main frame at right angles to the shaft 10. The shaft 41 bears a sprocket 42 at its outer extremity.

43 is a driving-chain passing from the sprocket 42 to a sprocket 44 upon a shaft 45, journaled in supports 46 and 47 at each side of the distributor 7.

48 is a shaft journaled in supports 46 and 47 at the end of the distributor opposite to shaft 45.

49 represents shafts journaled in the tank 2 near the bottom thereof.

50 and 51 are sprockets fixed upon shafts 45, 48, and 49, and 52 represents chains which pass around the sprockets 50 and 51.

53 represents elevator-buckets secured to the chains 52.

Upon the shaft 10 is a sprocket 54, from which a chain 55 passes to a sprocket 56 upon a shaft 57, journaled in the frame above the drip-pan 8. This shaft bears ratchets 58 near each end. Upon the shaft 57 is a sprocket

59, from which a chain 60 passes to a sprocket 61 on a shaft 62, journaled near the top of the tank 2 and bearing ratchets 63.

64 is a shaft journaled in the main frame 5 at the rear of the tank. This shaft is provided with a driving-sprocket 65, from which a chain 66 passes to the sprocket 17 upon the clutch mechanism of the shaft 10.

67 represents friction-springs upon the shaft 10 64, compressed between collars 68 and the bearings of the shaft. Secured to each extremity of the shaft 64 are cranks 69, to which are pivoted connecting-rods 70, passing to arms 71 upon a frame 72, which rests upon 15 supporting-bars 73, held in the main frame by means of bolts 74 and 75, the said bolts passing through vertical slots in the main frame and being provided with hand-wheels 76, this arrangement providing vertical adjustment 20 of the bars 73. The bolt 74 is shown in Fig. 2 of the drawings as bearing a hand-wheel 76, and in the same figure the hand-wheel is removed from the bolt 75, said bolt being shown in cross-section, so as to leave the slot in the 25 main frame which permits the vertical adjustment of the bar 73 uncovered. The frame 72 is provided at each side with projections 77, designed to come in contact with the ratchets 58 and 63, as will be hereinafter explained.

30 Secured to the bars 9 are circular slotted plates 78, into which the arms 71 pass when the mechanism is in the position shown in the drawings.

79 is a fly which normally rests upon the 35 outer portions of the bars 9, being provided with slotted plates 80 at each side, which embrace the fixed plates 78, allowing the fly to be turned thereon, as upon a hinge, inwardly one-half of a revolution, the center of the 40 axis of movement being the arms 71, permitting the fly and the frame 72 to be turned in unison or separately.

81 is a holder for receiving the centers to be coated, said holder consisting of a series of 45 connected receptacles 82, each having a movable rod 83 mounted in its apex, the inner end of the rod bearing a device, such as 84, to be imprinted upon the surface of the coating after its application to the center, and the 50 outer end of the rod 83 bearing a weight 85.

Connected to the collar 18 is a rod 86, pivoted to the main frame at 87 and engaging with a vertical bar 88, also pivoted to the main frame at 89, its upper extremity being arranged to engage with a notch in the rim of the wheel 65 when the parts of the mechanism are in the position shown, insuring the stopping and retention of the frame 72 within the slotted plates 78.

60 The operation of my coating-machine is as follows: Material to be applied being placed within the tank 2 and kept at the proper consistency, the centers to be coated are placed within the receptacles of the holder 81, being 65 supported by the walls of the receptacles and kept out of contact with the printing devices. The machine being started with the parts of

the clutch in the position shown in Fig. 1, the coating-material elevators at once commence to operate, carrying the material up to the 70 perforated distributor 7, the buckets spreading the material upon the distributor as they pass thereover, insuring an even escape thereof through the perforations. By pressing the foot upon the treadle the clutch is caused to 75 engage, and the frame 72 is caused to move inward until the stop-arm 28 is reached by the arm 71, when the movement of said stop throws the clutch out of engagement, stopping the movement of the carrier-frame and supported parts directly beneath the flow of coating material. This material is allowed to 80 shower over the centers as long as is required to completely coat the same, and during such flow the ratchets 63 strike upon the projections 77 on the frame 72, jarring said frame and the center-carrier, insuring an even distribution of the coating material over the centers and also shaking off the surplus. The amount of jarring may be readily and accurately 90 regulated by setting the bars 73, supporting the frame 72, in the proper position in relation to the ratchet-wheels, making it very light or violent, as required. By now again pressing the foot upon the treadle, bringing 95 the parts of the clutch into engagement, the continued movement of the cranks 69 carries the goods and their support from beneath the flowing coating material over the drip-pan 8, and when the arm 71 comes in contact with 100 the stop 31 it throws out the clutch, bringing the frame 72 and supported parts to rest over the pan. The spring 33 permits the bar 30 to move inwardly when the arm 71 strikes the stop 31 without releasing the clutch; but in 105 its outward movement the spring does not prevent the throwing of the clutch, the stop 31 moving with the arm 71, drawing upon the bar 30 and releasing the clutch. When the frame 72 comes to a rest over the pan 8, the 110 ratchets 58 have contact with the pieces 77, jarring or shaking the goods until all of the surplus coating material has dropped into the pan, from which it flows back to the tank 2, when the treadle is again pressed, and the 115 frame 72 moves to its outermost position, the actuating mechanism being brought to a standstill by the stop 32 when the arms 71 are within the slotted plates 78, the rod 88 engaging with a notch in the rim of the wheel 65, 120 holding the parts in the position shown in the drawings. A suitable plaque or other receiver is placed upon the fly 79, which is then turned over onto the coated goods. The frame 72 and fly 79 are now turned together to the position normally occupied by the fly, and then 125 the frame and center-holder are turned back to their initial position, leaving the goods upon the receiver upon the fly, where they may be readily removed. 130

It will be noted that the printing devices 84 are not brought in contact with the goods until the coating material has been applied; but when the holder is reversed in position

to deposit the goods upon the plaque the printing devices move until they reach the surface of the coating, impressing their character thereon.

5 Having now fully described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. The combination with a coating-material-holding tank and a perforated distributor mounted thereover, of elevator-buckets arranged to raise coating material from the tank, empty it upon one end of the distributor and spread it over the entire surface thereof, substantially as shown and described.

15 2. The combination with a coating-material-holding tank and a perforated distributor mounted thereover, of elevator-buckets arranged to raise the coating material from the tank, empty it upon one end of the distributor and spread it over the surface thereof, and a reciprocable center-carrying device, substantially as shown and described.

20 3. The combination with a coating-material-holding tank and a perforated distributor mounted thereover, of elevator-buckets arranged to raise the coating material from the tank, empty it upon one end of the distributor and spread it over the surface thereof, a reciprocable center-carrying device, and means for jarring or shaking the same when beneath the coating-material distributor, substantially as shown and described.

30 4. The combination with the material-holding tank, applying mechanism, and horizontally-reciprocable center-carrying device, of a drip-pan at the front of the tank, means for automatically moving the center-carrier over the drip-pan, and means for automatically jarring or shaking the center-carrying device when over said pan, substantially as shown and described.

40 5. The combination with the main driving-shaft carrying a clutch, of driving mechanism connected with the free portion of the clutch and the mechanism for reciprocating the center-carrier, the center-carrier, and means for automatically stopping the center-carrier over the coating-tank, and over the drip-pan, substantially as shown and described.

50 6. The combination with the main driving-shaft carrying a clutch, of driving mechanism connected with the free portion of the clutch and the mechanism for reciprocating the center-carrier, the center-carrier, and means for automatically stopping the center-carrier over the coating-tank, over the drip-pan, and at the outer end of the stroke, substantially as shown and described.

60 7. The combination with the main driving-shaft carrying a clutch, of driving mechanism

ism connected with the free portion of the clutch and the mechanism for reciprocating the center-carrier, the center-carrier, and means for automatically stopping the center-carrier over the coating-tank, over the drip-pan and at the outer end of the stroke, and for locking the same at the end of such stroke, substantially as shown and described. 65

8. The combination with the main driving-shaft provided with a clutch, and with the reciprocable center-carrier, of a treadle for throwing the clutch into operation, and automatic means for throwing it out of operation at three points in the reciprocation of the center-carrier, substantially as shown and described. 70 75

9. The combination with a loose collar upon the driving-shaft, a clutch mechanism also on said shaft for controlling the same, of connections between the collar and a stop upon the main frame arranged to engage the driving-wheel of the center-carrying mechanism, substantially as shown and described. 80

10. The combination with the center-carrying frame provided with projections at each side, of the adjustable supporting-bars upon which said frame rests and moves, and ratchet-wheels arranged to come in contact with said projections, substantially as shown and described. 85 90

11. The combination with the reciprocable center-carrying frame and means for reciprocating the same, of arms thereon, slotted plates at the end of the outward stroke adapted to receive said arms, substantially as and for the uses and purposes shown and described. 95

12. The combination with the reciprocable center-carrying frame and means for reciprocating the same, of arms thereon, slotted plates fixed to the main frame at the end of the outward stroke adapted to receive said arms, and a fly hinged upon said slotted plates adapted and arranged to turn independently or in unison with the center-carrying frame, substantially as shown and described. 100 105

13. The combination with the center-carrying frame of a center-holder the receptacles wherein are provided with imprinting devices adapted and arranged to be held out of contact with the centers while they are being coated and brought in contact with the coated surface when the center-holder is reversed for depositing the coated goods, substantially as shown and described. 110 115

Signed by me at New York this 26th day of March, 1901.

MYRON A. SMITH.

Witnesses:

JAMES RIDGWAY,
A. M. PIERCE.