

No. 707,620.

Patented Aug. 26, 1902.

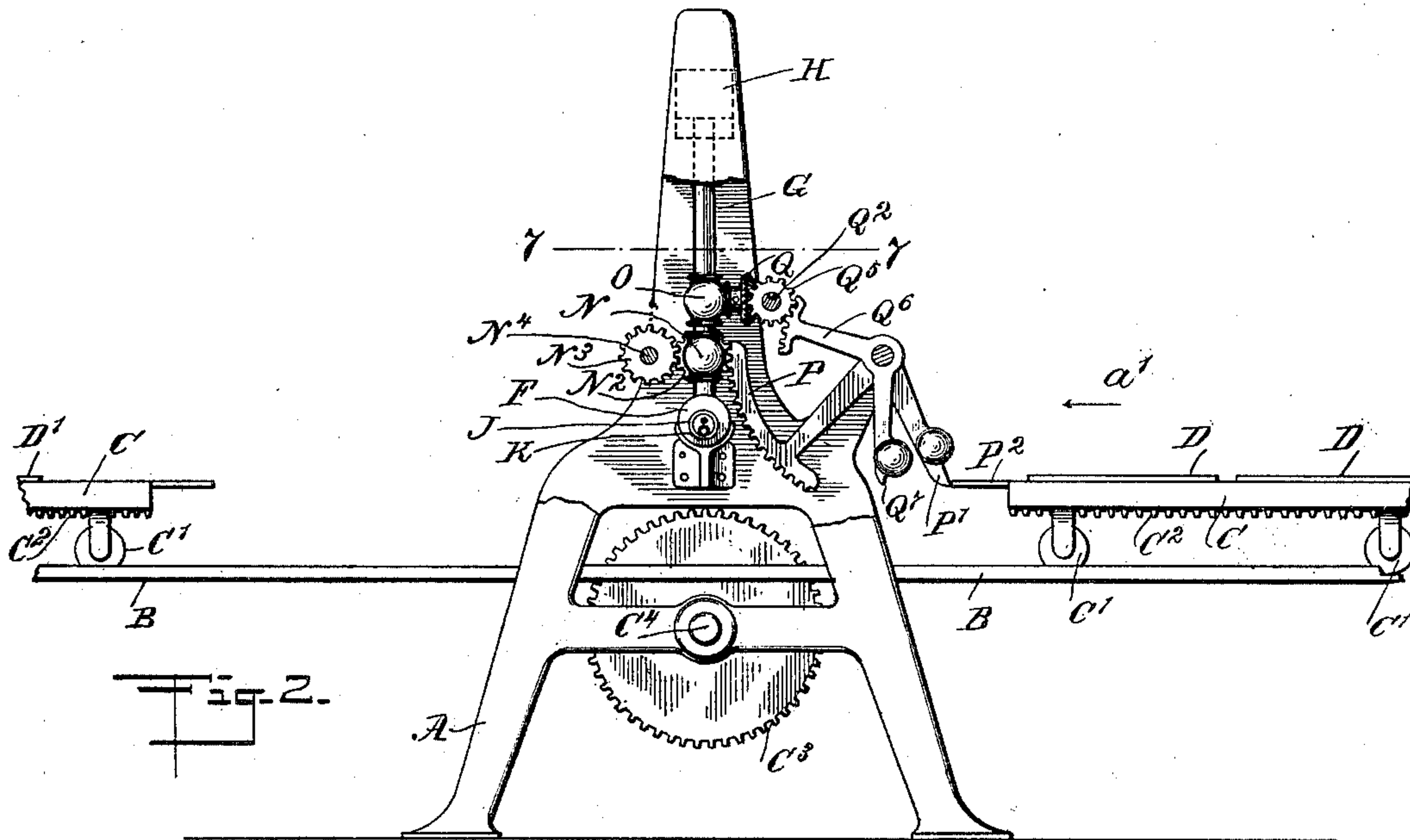
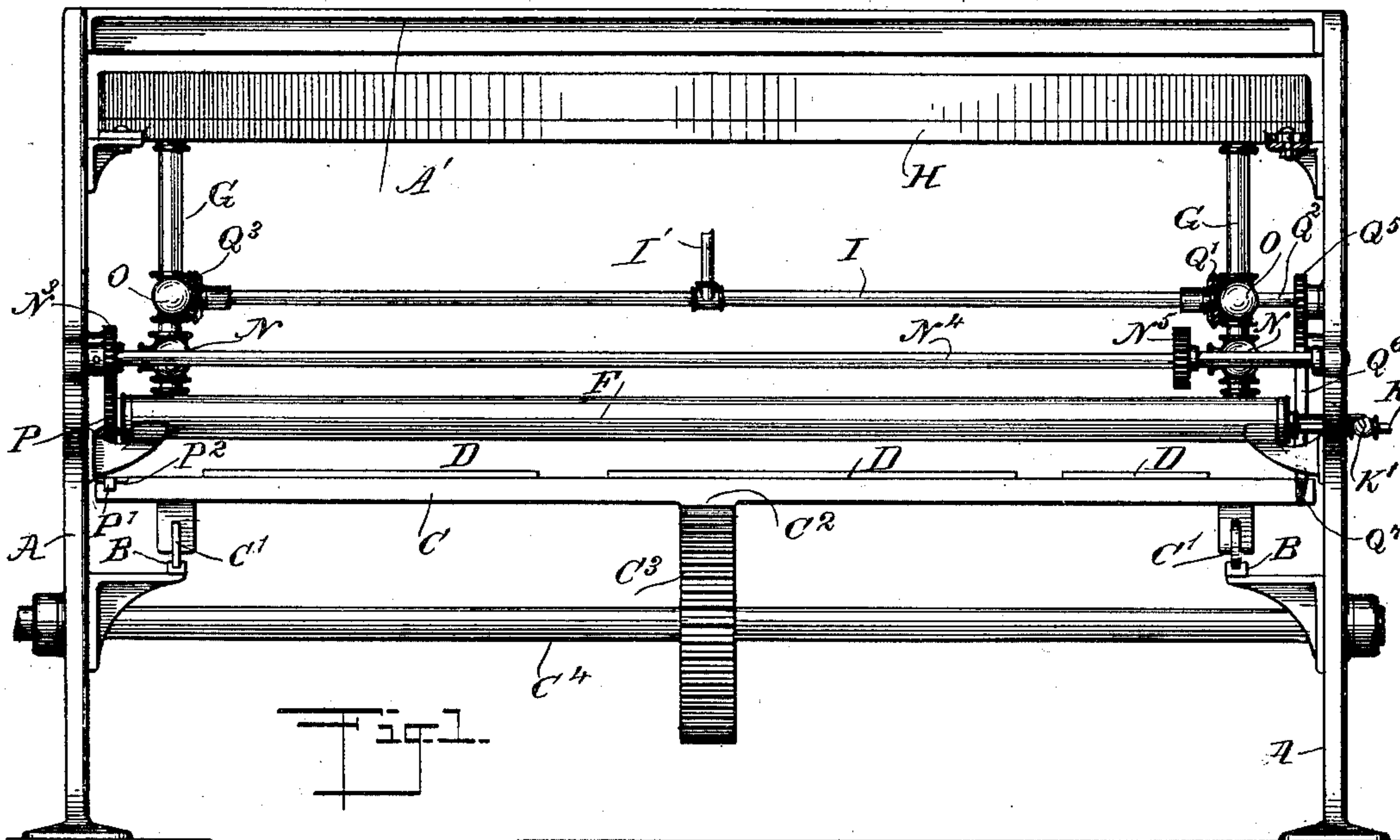
J. B. McKEOWN.

MACHINE FOR APPLYING COATINGS.

(Application filed Oct. 18, 1901.)

(No Model.)

2 Sheets—Sheet I.



WITNESSES:

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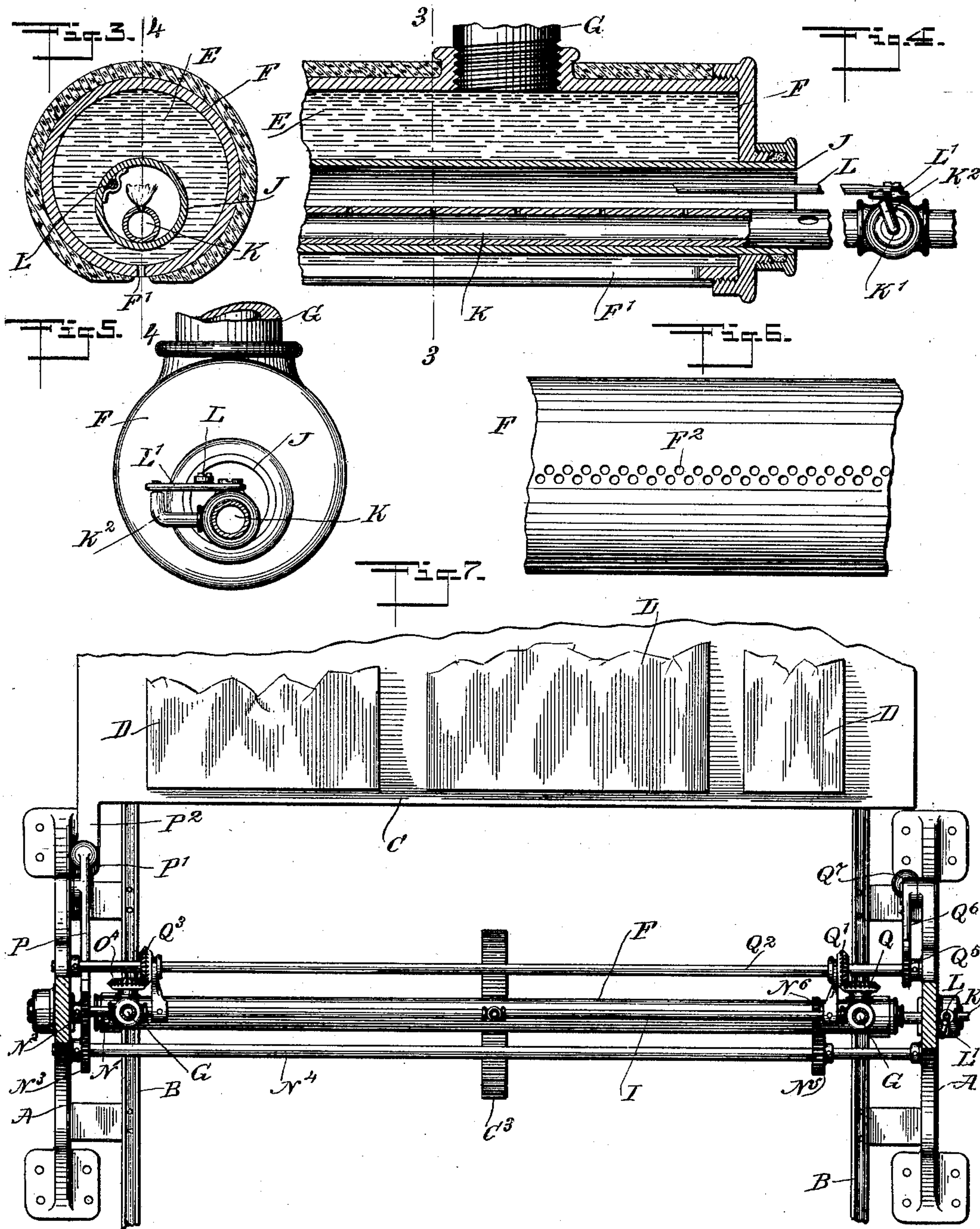
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

JOSEPH B. McKEOWN, OF UNION HILL, NEW JERSEY.

MACHINE FOR APPLYING COATINGS.

SPECIFICATION forming part of Letters Patent No. 707,620, dated August 26, 1902.

Application filed October 18, 1901. Serial No. 79,166. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH B. McKEOWN, a citizen of the United States, and a resident of Union Hill, in the county of Hudson and State of New Jersey, have invented a new and Improved Machine for Applying Coatings, of which the following is a full, clear, and exact description.

The invention relates to machines used in the manufacture of mirrors and other articles requiring a coating; and the object of the invention is to provide a new and improved machine for applying amalgam or other coating material to glass or other surfaces in a very simple, effective, and uniform manner and without the employment of skilled labor.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is an end elevation of the improvement. Fig. 2 is a side elevation of the same with parts in section. Fig. 3 is an enlarged cross-section of the distributor for the coating material, the section being on the line 3 3 of Fig. 4. Fig. 4 is a longitudinal sectional elevation of the same on the line 4 4 of Fig. 3. Fig. 5 is an end view of the same. Fig. 6 is an inverted plan view of a modified form of the distributor, and Fig. 7 is a sectional plan view of the improvement on the line 7 7 of Fig. 2.

On a suitably-constructed frame A is arranged a longitudinally-extending track B, on which is mounted to travel the wheels C' of a table C, adapted to support the glass or other surfaces D to be coated with amalgam or other suitable coating material E, contained in a distributor F, preferably in the form of a pipe extending transversely and supported by suitable brackets in the main frame A. The distributor or pipe F is provided on its under side with a slot F' or with rows of apertures F² (see Figs. 3 and 6) to allow the amalgam or other coating material E to pass from the distributor F onto the surfaces D as the table C is moved along on the

track B in the direction of the arrow a'. The table C is first pushed along the track B by hand until a rack C² on the under side of the table engages a gear-wheel C³, secured on a shaft C⁴, journaled in suitable bearings on the main frame A and connected by pulleys and belt with other machinery (not shown) for continuously rotating the shaft C⁴ and its gear-wheel C³. The gear-wheel C³ is located below the distributor F, so that during the time the table C and the surfaces D thereon pass under the distributor it is evident that the surfaces are moved at a uniform rate of speed below the distributor, so that the amalgam or other coating material is uniformly discharged and deposited on the surfaces D. The distributor F is connected at its ends by vertically-disposed branch pipes G with a reservoir H, containing the amalgam or other coating material, and the said branch pipes G are also connected with a pressure-supply pipe I, connected by a pipe I' with a pressure-supply, such as compressed air or other fluid under pressure, to force the amalgam or other coating material under pressure through the slot F' or the openings F² out of the distributor onto the surfaces D. The distributor F is filled from the reservoir H at the time the table C is in an inactive position—that is, located at one side of the main frame, as shown in Fig. 2—and when the table C moves into an active position the pipes G are cut off from the reservoir H, and the pipe I is connected with the supply-pipes G to allow of forcing amalgam or other coating material out of the distributor under pressure.

In order to keep the amalgam in the distributor F always in a proper fluid condition, I provide the distributor F with a heating-pipe J, into which extends a burner K, connected with a suitable gas or other heat supply and arranged to burn a number of flames within the pipe J, so as to uniformly heat the same and also the coating material contained in the distributor F. (See Figs. 3, 4, and 5.) The burner K is provided on its outer end with a regulating-valve K' to regulate the amount of gas or heat passing to the burner, and the valve-stem K² of the said valve K' is connected with a lever L', controlled by an expansion and contraction rod L, extending in the pipe J and secured thereto at the in-

ner end. The rod L is of a different metal than the pipe J, so that when the pipe J is heated above a normal temperature the expansion of the rod L causes a corresponding closing of the supply-valve K' to decrease the supply of gas to the burner. When the pipe J cools, the rod L is correspondingly contracted to again open the valve K' and supply more gas to the burner for heating the pipe J to a normal temperature. The main frame A is preferably constructed of two standards connected with each other at the top by a cross-bar A'.

The pipes G are provided with a two-way valve N and a three-way valve O, located one above the other and automatically controlled from the table C. The valves N in the pipes G are connected with each other, so as to be opened and closed simultaneously, and for this purpose a valve-stem N' of one of the valves N carries a gear-wheel N² (see Fig. 7) in mesh with a gear-wheel N³, attached to a shaft N⁴, journaled in the main frame A and carrying a gear-wheel N⁵ in mesh with a gear-wheel N⁶, attached to the valve-stem of the other valve N. The gear-wheel N², above mentioned, is also in mesh with a segmental rack P, (see Figs. 2 and 7,) and this segmental rack P is fulcrumed on one side of the main frame and is provided with a weighted angular arm P', adapted to be engaged by a projection P², carried on the forward end of the table C. Thus when the table C is moved in the direction of the arrow a' to bring the surfaces D under the distributor F the projection P² engages the arm P' and imparts a swinging motion to the same and the segmental rack P to rotate the gear-wheel N², so that the amalgam or other coating material can flow from the reservoir H through the pipes G and the open valves O and N into the distributor F to fill the same. The three-way valves O are opened and closed simultaneously, and for this purpose one of the valves O carries on its valve-stem a bevel gear-wheel Q in mesh with a bevel gear-wheel Q', secured on a shaft Q², extending transversely and journaled in suitable bearings on the main frame A, and the said shaft Q² carries a bevel gear-wheel Q³ in mesh with a bevel gear-wheel O⁴, attached to the stem of the other valve O. Thus when the shaft Q² is rotated both valves O are simultaneously opened or closed, according to the direction in which the shaft Q² is rotated. On the shaft Q² is secured a gear-wheel Q⁵ in mesh with a segmental rack Q⁶, fulcrumed on the side of the frame A opposite the one on which the segmental rack P is fulcrumed, and this segmental rack Q⁶ is provided with a weighted angular arm Q⁷, adapted to be engaged by the forward end of the table C—that is, after the segmental rack P and the valves N have been actuated, as above described. Thus when the table C actuates the arm Q⁷ and imparts a swinging motion thereto and to the segmental rack Q⁶ the gear-wheel Q⁵ and the shaft Q² are rotated to simultane-

ously open the valves O and connect the lower portion of the pipes G with the pipe I, thereby cutting off the reservoir H and allowing the air or other fluid pressure to pass through the pipe onto the amalgam or other coating material contained in the distributor F to force the said material through the discharge-slot F' or openings F² down onto the surfaces D, now traveling directly under the distributor F. The amalgam passes in even layers onto the surfaces D and also on that portion of the table C not covered by the surfaces. During the passage of the table C under the distributor F the arms P' and Q⁷ finally drop off the rear end of the table C, and as the said arms are weighted they will return automatically to their former normal positions, so as to change the positions of the valves O and N successively to first cut off the fluid-pressure supply and then disconnect the reservoir from the distributor F. It is understood that when the next table opens the valve N then the amount of amalgam standing in the pipes G between the valves N and O serves to refill the distributor. This portion of the pipes G may be enlarged to supply the amount of amalgam necessary to refill the distributor F. It is further understood that when the valves N are closed the amalgam remaining in the distributor F is held therein by atmospheric pressure.

I do not limit myself to the particular arrangement described for keeping the amalgam hot in the distributor, as other means may be employed for the purpose. It will also be seen that the pipes G and valves N and O may be heated, if found necessary, to keep the amalgam in the proper condition.

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

1. A machine for applying coatings, provided with a distributor for the coating material, a coating-material supply for the said distributor, a fluid-pressure supply connected with the said distributor for forcing the coating material under pressure out of the distributor onto the surface to be coated, and means for alternately connecting the said coating-material supply and the said fluid-pressure supply with the said distributor, as set forth.

2. A machine for applying coatings, provided with a distributor for the coating material, a coating-material supply for the said distributor, a fluid-pressure supply connected with the said distributor, for forcing the coating material under pressure out of the distributor onto the surface to be coated, means for alternately connecting the said coating-material supply and the said fluid-pressure supply with the said distributor, a table for carrying the surfaces to be coated, and means for moving the table past the said distributor at a uniform rate of speed, as set forth.

3. A machine for applying coatings, com-

prising a table mounted to travel and adapted to carry the surfaces to be coated, means for moving the table, a distributor extending over the table at an angle to the line of movement of the table, the distributor having discharge-openings for the coating material to pass from the distributor onto the surfaces to be coated, a coating-material supply connected with the said distributor, and a pressure-supply for forcing the material out of the distributor by pressure, as set forth.

4. A machine for applying coatings, comprising a table mounted to travel and adapted to carry the surfaces to be coated, means for moving the table, a distributor extending over the table at an angle to the line of movement of the table, the distributor having discharge openings for the coating material to pass from the distributor onto the surfaces to be coated, a coating-material supply connected with the said distributor, a pressure-supply for forcing the material out of the distributor by pressure, and heating means in the said distributor, as set forth.

5. A machine for applying coatings, comprising a table mounted to travel and adapted to carry the surfaces to be coated, means for moving the table, a distributor extending over the table at an angle to the line of movement of the table, the distributor having discharge-openings for the coating material to pass from the distributor onto the surfaces to be coated, a coating-material supply connected with the said distributor, a pressure-supply for forcing the material out of the distributor by pressure, and means for alternately connecting the said coating-material supply and the said pressure-supply with the said distributor, as set forth.

charge-openings for the coating material to pass from the distributor onto the surfaces to be coated, a coating-material supply connected with the said distributor, a pressure-supply for forcing the material out of the distributor by pressure, and means for controlling the coating-material supply and the said pressure-supply, as set forth.

6. A machine for applying coatings, comprising a table mounted to travel and adapted to carry the surfaces to be coated, means for moving the table, a distributor extending over the table at an angle to the line of movement of the table, the distributor having discharge-openings for the coating material to pass from the distributor onto the surfaces to be coated, a coating-material supply connected with the said distributor, a pressure-supply for forcing the material out of the distributor by pressure, and means for alternately connecting the said coating-material supply and the said pressure-supply with the said distributor, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH B. McKEOWN.

Witnesses:

THEO. G. HOSTER,

EVERARD BOLTON MARSHALL.