

No. 682,412.

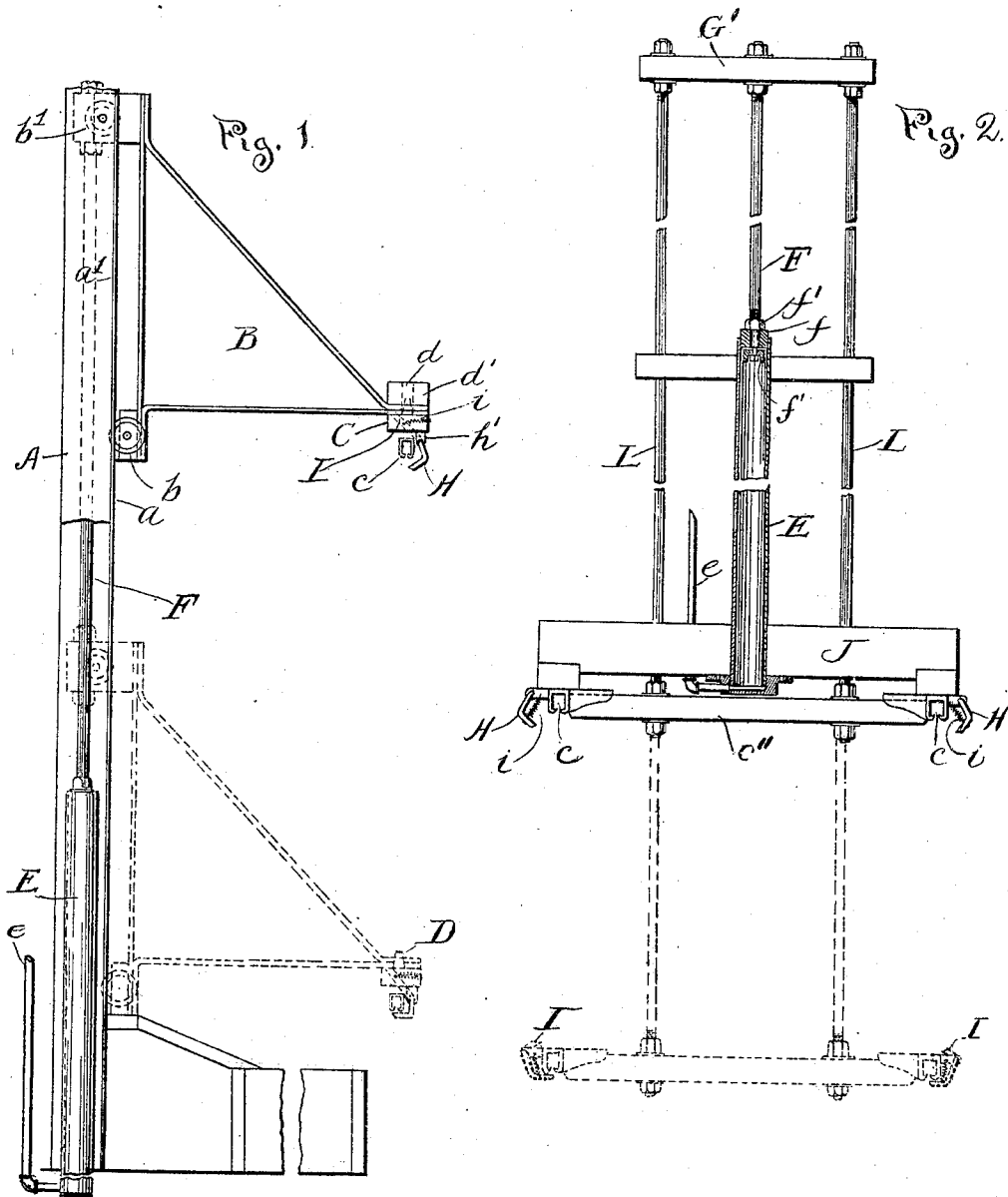
Patented Sept. 10, 1901.

W. P. HUNT.
DIP PAINTING APPARATUS.

(Application filed Sept. 29, 1899.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses:

Ira D. Perry
J. B. Weir

Inventor:

Wilson P. Hunt

W. M. Richards

By: [Signature] [Signature] [Signature]

No. 682,412.

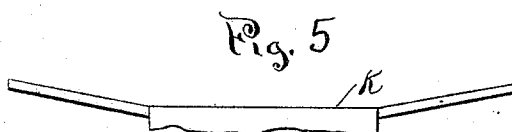
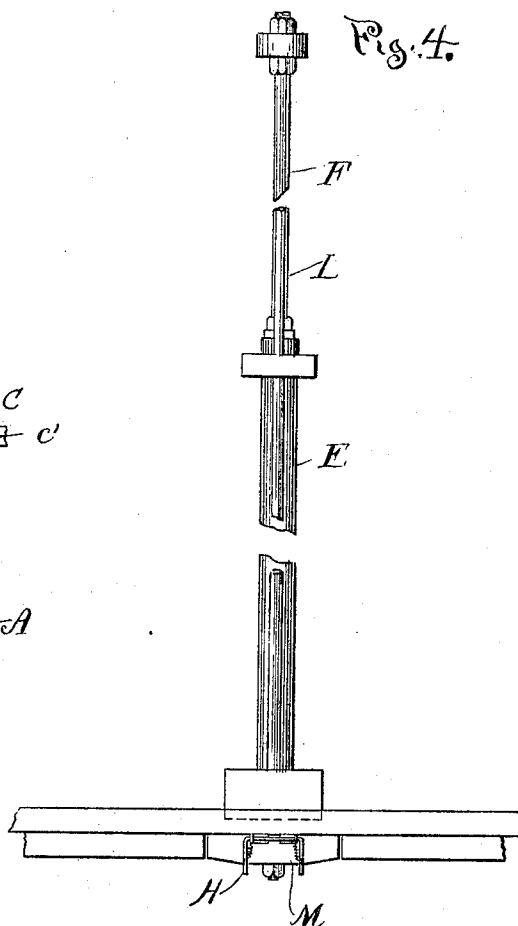
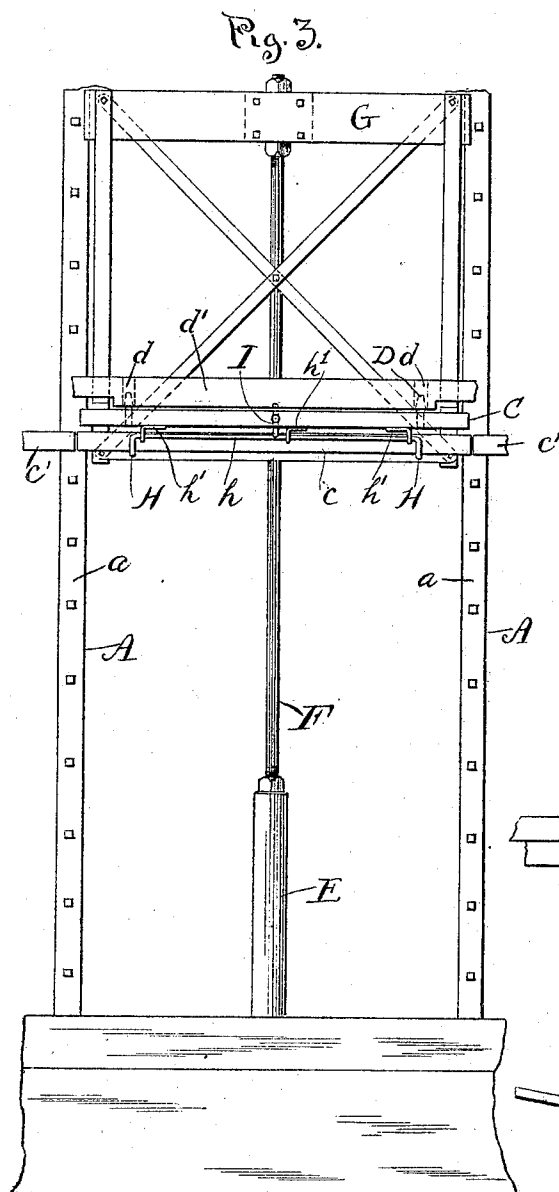
Patented Sept. 10, 1901.

W. P. HUNT.
DIP PAINTING APPARATUS.

(Application filed Sept. 29, 1899.)

(No Model.)

4 Sheets—Sheet 2.



Witnesses:

Ira D. Perry.
J. B. Weir.

Inventor:

Wilson P. Hunt
H. M. Richards
By Raymond C. O'Connell, Attys.

No. 682,412.

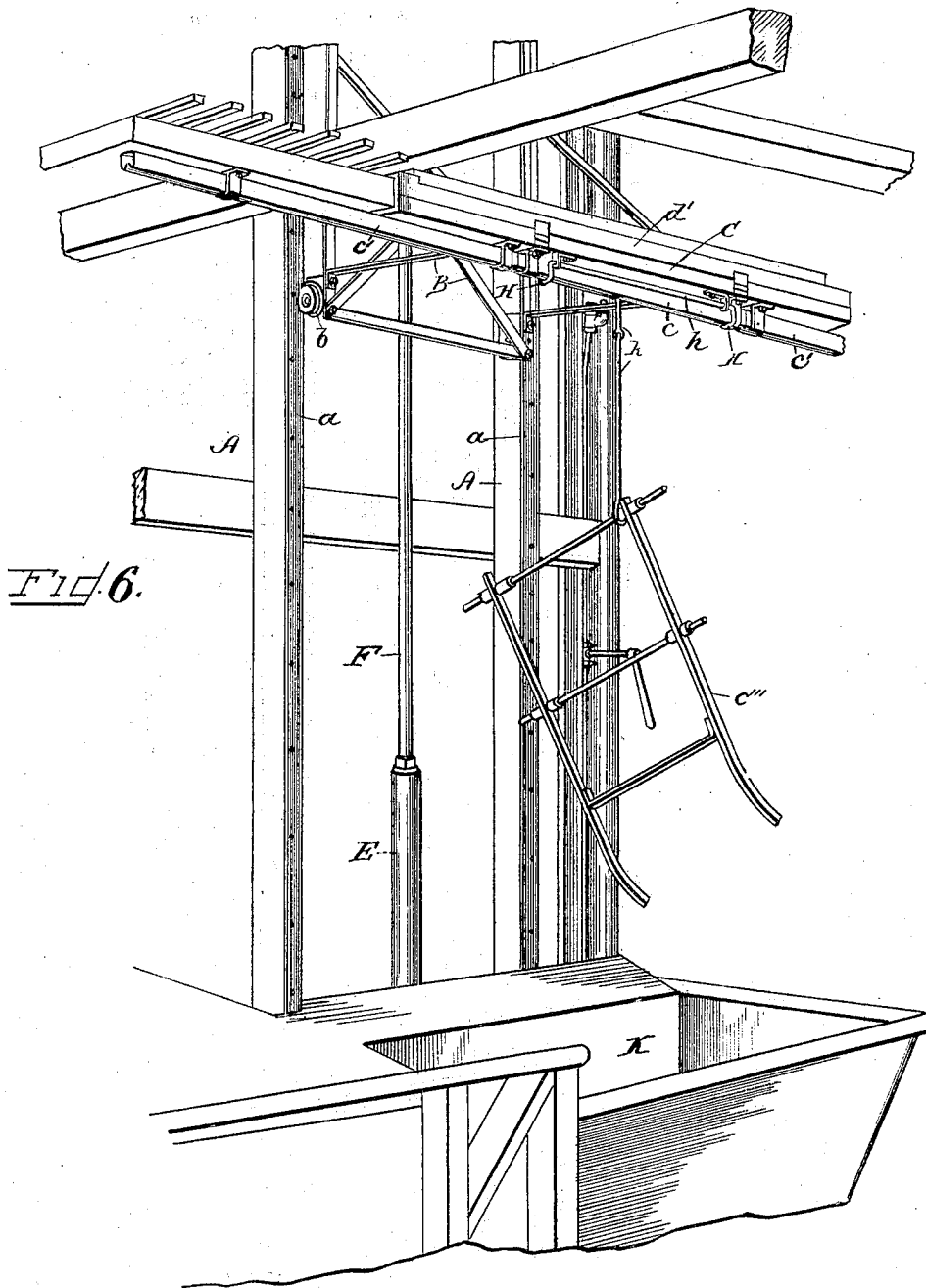
Patented Sept. 10, 1901.

W. P. HUNT.
DIP PAINTING APPARATUS.

(Application filed Sept. 29, 1899.)

(No Model.)

4 Sheets—Sheet 3.



WITNESSES

J. B. Weir
Ira D. Perry

INVENTOR

By, *Wilson P. Hunt*
H. M. Richards
Raymond & Cushman Attys

No. 682,412.

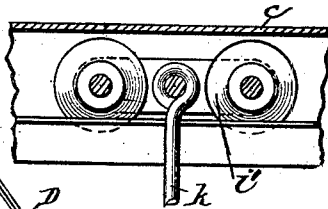
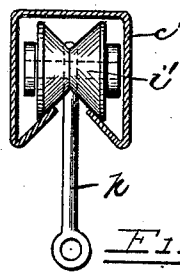
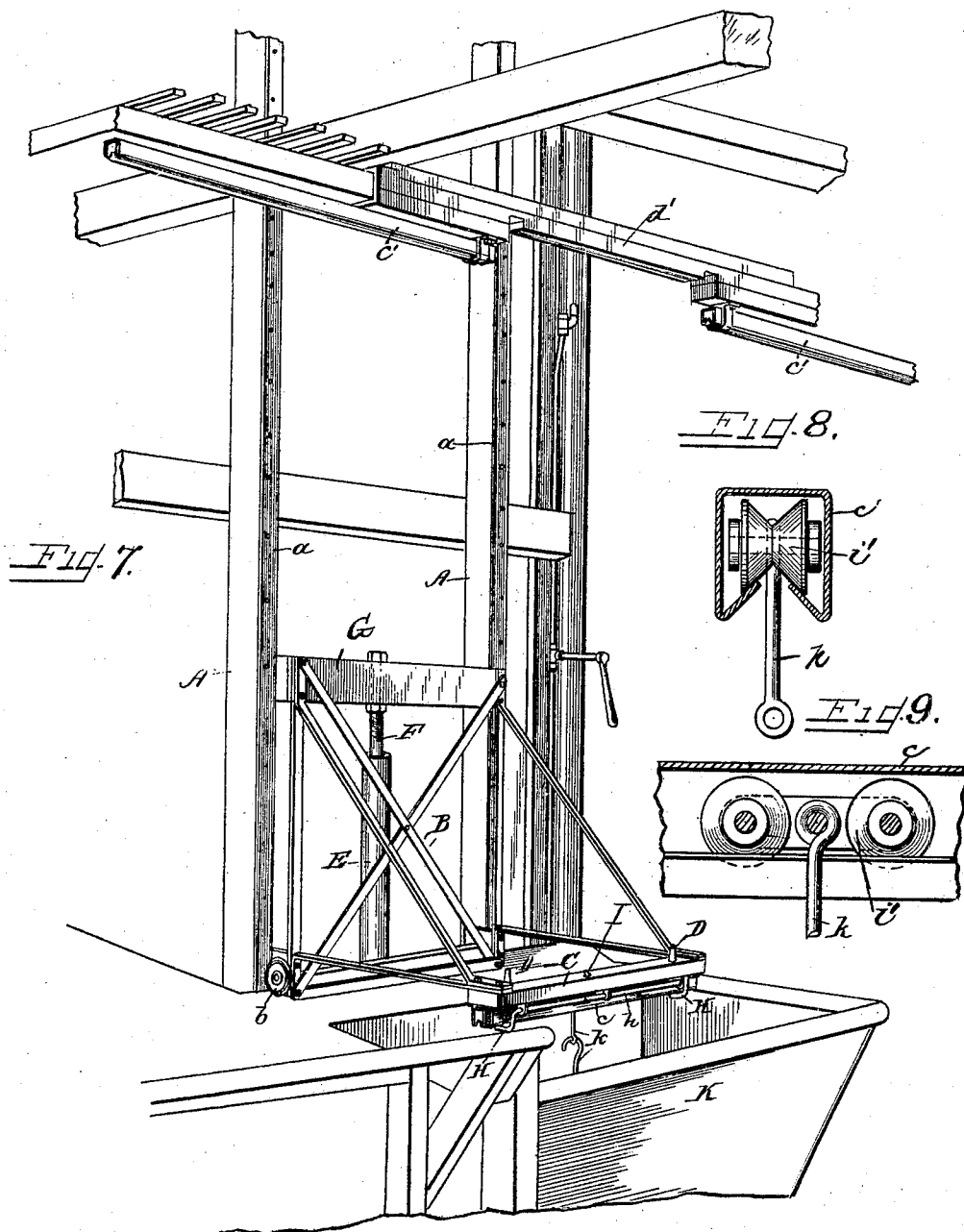
Patented Sept. 10, 1901.

W. P. HUNT.
DIP PAINTING APPARATUS.

(Application filed Sept. 29, 1899.)

(No Model.)

4 Sheets—Sheet 4.



WITNESSES:
J. B. Weir
Ira D. Perry

INVENTOR:
W. P. Hunt
By H. M. Richards
Reginald & Co. Attys

UNITED STATES PATENT OFFICE.

WILSON P. HUNT, OF MOLINE, ILLINOIS, ASSIGNOR TO THE DEERE & MANSUR COMPANY, OF SAME PLACE.

DIP PAINTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 682,412, dated September 10, 1901.

Application filed September 29, 1899. Serial No. 732,030. (No model.)

To all whom it may concern:

Be it known that I, WILSON P. HUNT, a citizen of the United States, residing at Moline, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Apparatus for Dip-Painting, of which the following is a specification.

My invention relates to certain new and useful improvements in apparatus for dip-painting; and its primary object is to provide for facilitating the operation so that it can be accomplished easily and rapidly and without requiring the handling of the parts to be dipped.

A further object of the invention is to provide an apparatus of this character to be operated automatically by approved mechanism and devices so that the parts to be dipped may be easily and quickly lowered into the dip-tank and withdrawn therefrom and carried away without requiring any handling or adjustment or moving of the parts.

Another object of the invention is to provide an overhead track, on which the parts to be dipped are carried, with a movable section located above the dip-tank, so that when the parts have reached the movable section they may be lowered, together with the section, until the parts to be dipped are immersed in the paint in the tank and then withdrawn and raised to continue onto the drying-room; and a further object of the invention is to provide for locking the parts to be dipped on the movable section, so that in the vertical movement of said section they will not run off at the ends and for automatically releasing the locking device, so that the parts to be dipped may be carried off the movable section onto the main track as soon as said section reaches its normally-elevated position.

My invention has other objects in view, which will be clearly and fully pointed out hereinafter in the detailed description and in the claims, reference being made to the accompanying drawings, in which—

Figure 1 is a side elevation of an apparatus embodying my invention and having a single track. Fig. 2 is a side view of an ap-

paratus embodying my invention and having a double track, the cylinder being shown in section. Fig. 3 is a front elevation of the apparatus illustrated in Fig. 1. Fig. 4 is a front elevation of the apparatus shown in Fig. 2. Fig. 5 is a side elevation of the dipping-tank broken away. Fig. 6 is a perspective view of the apparatus embodying my invention, showing the movable track-section raised and a piece to be dipped suspended therefrom. Fig. 7 is a view similar to Fig. 6, but showing the movable track-section lowered. Figs. 8 and 9 are transverse and longitudinal sections, respectively, through the track, showing the trolley for carrying the article to be dipped. Fig. 10 is a horizontal section through the standards, showing the guide-tracks for the movable track-section.

My invention may be embodied in an apparatus of many different varieties and the general construction of the parts may be changed in many ways; but in the drawings I have shown two simple embodiments of the invention, which are sufficient to indicate its general character and enable those skilled in the art to construct and adapt the same to different conditions which may prevail. As a matter of fact the apparatus will generally be located in the paint-shop, where it will receive the parts to be dipped from an overhead track leading from the various construction-shops and to a drying-room or shipping-room.

It will be found convenient to provide two standards A, suitably supported at the bottom and fastened at the top in a stationary position. These standards may be made of angle-iron or of any other character and each provided with a metal strip *a* upon its face, forming a track upon its front side, and by projecting over the standard A also forming a track upon its rear side, as shown at *a'*, upon which tracks the vertically-movable hoist of the apparatus travels, as shown in detail in Fig. 10.

In that embodiment of my invention shown in Figs. 1, 3, 6, and 7 and comprising a single track the hoist consists of a triangular frame B, provided at its bottom with rollers *b*, which

ride against the outer faces of tracks *a* and at its top with rollers *b'*, which ride against the inner faces of tracks *a*, so that said frame can be raised and lowered in a vertical plane on the standards, as indicated in Fig. 1. This hoist carries at its outer end and on the lower face thereof a beam *C*, to which a section *c* of track is secured, this section forming a continuation of the main track *c'* when the hoist is in its elevated position, as shown in Figs. 3 and 6. The beam *C* is provided on its upper face with vertical guide-pins *D*, which are adapted to enter openings *d* in the stationary cross-piece *d'*, suitably fastened in a rigid position above the outer end of the hoist to limit the upward movement of the hoist, and thereby bring the movable track thereon into a line with the main track and also by reason of the guide-pins *D* and openings *d* guide the hoist into its proper position. The hoist is raised and lowered by some suitable means, and I have preferred to use pneumatic apparatus for this purpose, many different forms of which may be employed without departing from my invention. In the drawings I have shown an air-cylinder *E*, located at the base of the single-track apparatus and provided with a pipe *e*, to which the controller-valve (not shown) is attached. The cylinder is provided with a piston-rod *F*, carrying a piston *f* and held in place by a lock-nut *f'* and a follower *f''*, the upper end of said piston-rod being fastened to a cross-piece *G* on the hoist, so that when the cylinder is full of air the piston will be carried up and the hoist will be in its normally-elevated position, and when the air is allowed to escape from the cylinder the hoist will descend with the piston. As before stated, the section *c* of the track carried by the hoist forms a continuation of the main track *c'*, and the parts to be dipped *c''* (see Fig. 6) are usually hung from pulleys running on this track. It is therefore desirable to provide some means for preventing the parts to be dipped from slipping off the movable section of track while the hoist is being lowered, and for this purpose I provide a locking device comprising the arms *H*, carried on the ends of a horizontal bar *h*, supported in hangers *h'* on the under face of the beam *C*, these arms being adapted to be thrown across the track *c* in the path of the pulleys carrying the parts to be dipped and at each end of the movable section of track, so that the pulleys cannot run off in front or behind. I have provided automatic means for operating this locking device, which comprises a finger *I*, fastened to the rod *h* and projecting upward at an angle, so that it will engage the under face of the stationary cross-piece *d'* and rock the rod *h* to throw the arms *H* down and outward into unlocked position, as shown in full lines in Fig. 1, the spring *i*, fastened to said finger *I* and to the beam *C*, being adapted to pull the finger *I* and rock the rod *h* as soon as said fin-

ger is released from engagement with the cross-piece *d'*, thereby throwing the arms *H* across the track, as shown in dotted lines in Fig. 1.

In the construction shown in Figs. 2 and 4, in which I have shown my invention embodied in a double-track apparatus, the framework is slightly changed, the cylinder *E* being shown mounted on a platform *J*, located above the paint dip-tank *K* and fixed rigidly in this position, the hoist comprising a frame somewhat different in construction from that shown in Fig. 1 and having the beam *c''* attached to guide-rods *L*, which operate through the cylinder-platform *J* and are connected at the top to the cross-piece *G'*, to which the piston-rod *F* is also connected. The operation of this embodiment of my invention is in every respect similar to that of the single-track apparatus, the hoist having two tracks *c* and corresponding locking devices being raised and lowered by the piston *f* through the medium of the guide-rods *L*.

In order to center the part to be dipped at the proper place on the movable section, so that it will enter the dip-tank *K* properly, I prefer to provide the section of track with a fall *M*, which will bring the central portion of the movable section in a lower plane than the main track, and thereby cause the pulleys carrying the work to stop at the proper place, so that the part to be dipped will enter the dip-tank properly.

In the operation of my improved apparatus the hoist is elevated by admitting air to the cylinder through the controller-valve, the latter being manipulated so that the hoist will be maintained in its elevated position until it is desired to lower the same. The work or parts to be dipped *c''* are brought along on the main track, being supported thereon from trolley *i'*, running on the track, by hanging-hooks *k*, as clearly shown in Figs. 6 to 9, and one or more parts may be run upon the movable section of track *c* to be dipped. The air is then allowed to escape from the cylinder *E* and the piston and piston-rod descend, and with them the hoist. As the hoist leaves the stationary cross-piece *d'* the spring *i* pulls on the finger *I*, rocking the rod *h* and throwing the arms *H* across the track in front of and behind the pulley and work supported therefrom, so that the pulley cannot run off of the ends of the track. As a further means for preventing the work from running off of the movable section of track and in order to center the work in the proper position for entering the dip-tank the movable section of track may be provided with a fall, so that when the pulley carrying the part to be dipped runs onto the movable section of track it will run downhill into the fall, and to pass from this fall onto the main track again it will have to run uphill. The hoist is allowed to descend until the work is dipped into the tank *K*, which is shown diagrammatically in front

elevation in Fig. 5, with sloping drip-boards at either side thereof, after which the hoist is elevated again and the work run off onto the main track.

5 I am aware that changes in the form and proportion of parts and in the details of construction of my invention may be made without departing from the spirit or sacrificing the advantages thereof, and I therefore re-
 10 serve the right to make all such changes as fairly fall within the spirit and scope of the invention.

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

1. An apparatus for dip-painting comprising a main track, a movable section in said track adapted to receive the work to be dipped, a dip-tank and means for lowering the said
 20 movable section of track to immerse the work to be dipped in the tank, substantially as described.

2. An apparatus for dip-painting comprising a movable section of track forming a part
 25 of the main overhead track, adapted to receive the work to be dipped, a dip-tank located beneath said movable track-section, means for lowering and raising said section of the track and the work thereon, and an
 30 automatic lock device operated by the movements of the movable track-section, to project across the ends of the movable track-section and prevent the work thereon from running off when the track is lowered, and oper-
 35 ated to withdraw from across the ends of the movable track-section when the latter is in line with the main track, substantially as described.

3. An apparatus for dip-painting comprising a movable section of track forming part
 40 of a main overhead track and adapted to receive the work to be dipped, a dip-tank located beneath said movable section, means for lowering and raising said section of track
 45 and the work thereon and means for preventing the work from running off at the ends of said movable section of track while on its vertical movement, substantially as described.

4. An apparatus for dip-painting comprising a movable section of track forming part
 50 of a main overhead track and adapted to receive the work to be dipped, a dip-tank located beneath said movable section of track, means for lowering and raising said section
 55 of track and a locking device adjacent to each end of said section of track adapted to be projected across the track to prevent the work thereon from running off at the ends of said
 60 section during its vertical movement, substantially as described.

5. An apparatus for dip-painting comprising a movable section of track forming part
 65 of a main track and adapted to receive the work to be dipped, a dip-tank located beneath said movable section of track, arms lo-

cated adjacent to the ends of said movable section of track and means for automatically projecting said arms across the section of track to prevent the work thereon from run-
 70 ning off at the ends of said section of track, substantially as described.

6. An apparatus for dip-painting comprising a movable section of track forming a part
 75 of a main track and adapted to receive the work to be dipped, a dip-tank located beneath said movable section of track, arms located adjacent to the ends of said section of track, a finger connected with said arms and
 80 a spring operating on said finger to throw the arms across the track, substantially as and for the purpose described.

7. An apparatus for dip-painting, comprising a movable section of track forming part
 85 of a main track and adapted to receive the work to be dipped, a dip-tank located beneath said movable section of track, arms located adjacent to the ends of said section of track, a stationary cross-piece above said section of
 90 track and a finger connected with said arms and adapted to engage said stationary cross-piece to throw the arms back from their locked position into their normal unlocked
 position, substantially as described.

8. An apparatus for dip-painting comprising a movable section of track forming part
 95 of a main track and adapted to receive the work to be dipped, a dip-tank located beneath said movable section of track, and arms located adjacent to the ends of said section of
 100 track, a finger connected with said arms, a cross-piece arranged above the section of track and adapted to be engaged by said finger to hold the arms in unlocked position, and a spring connected with said finger and
 105 adapted to throw the arms into locked position when the finger is released from engagement with the cross-piece, substantially as described.

9. An apparatus for dip-painting comprising a movable section of track forming part
 110 of a main track and adapted to receive the work to be dipped, a stationary cross-piece located above the movable section and provided with openings therein, and guide-pins
 115 carried with the movable section of track and adapted to enter the openings in the stationary cross-piece, substantially as and for the purpose described.

10. In a painting apparatus, the combina-
 120 tion with a dipping-tank and an overhead track or way having carriers traveling thereon and adapted to have the articles to be painted suspended therefrom, of an elevator comprising a separable portion of the track
 125 or way and provided with an automatic latch mechanism for locking the carrier in position thereon, substantially as described.

11. In a painting apparatus, the combina-
 130 tion with a dipping-tank, an overhead track or way and carriers traveling thereon, and adapted to have suspended from them the

articles to be painted, of an elevator comprising a separable section of the track or way, adapted to receive a carrier, automatic latching mechanism for locking the carrier in
5 position on said section during the vertical movement of the elevator and an automatic tripping mechanism for releasing said latch

at the end of the return movement of the elevator, substantially as described.

WILSON P. HUNT.

Witnesses:

BAILEY W. AVERY,

H. M. OLDEFEST.