Aug. 27, 1940. J. J. TEODONNO 2,212,576

MEANS FOR FINISHING MOTION PICTURE SCREENS

Filed July 5, 1938 4 Sheets-Sheet 1

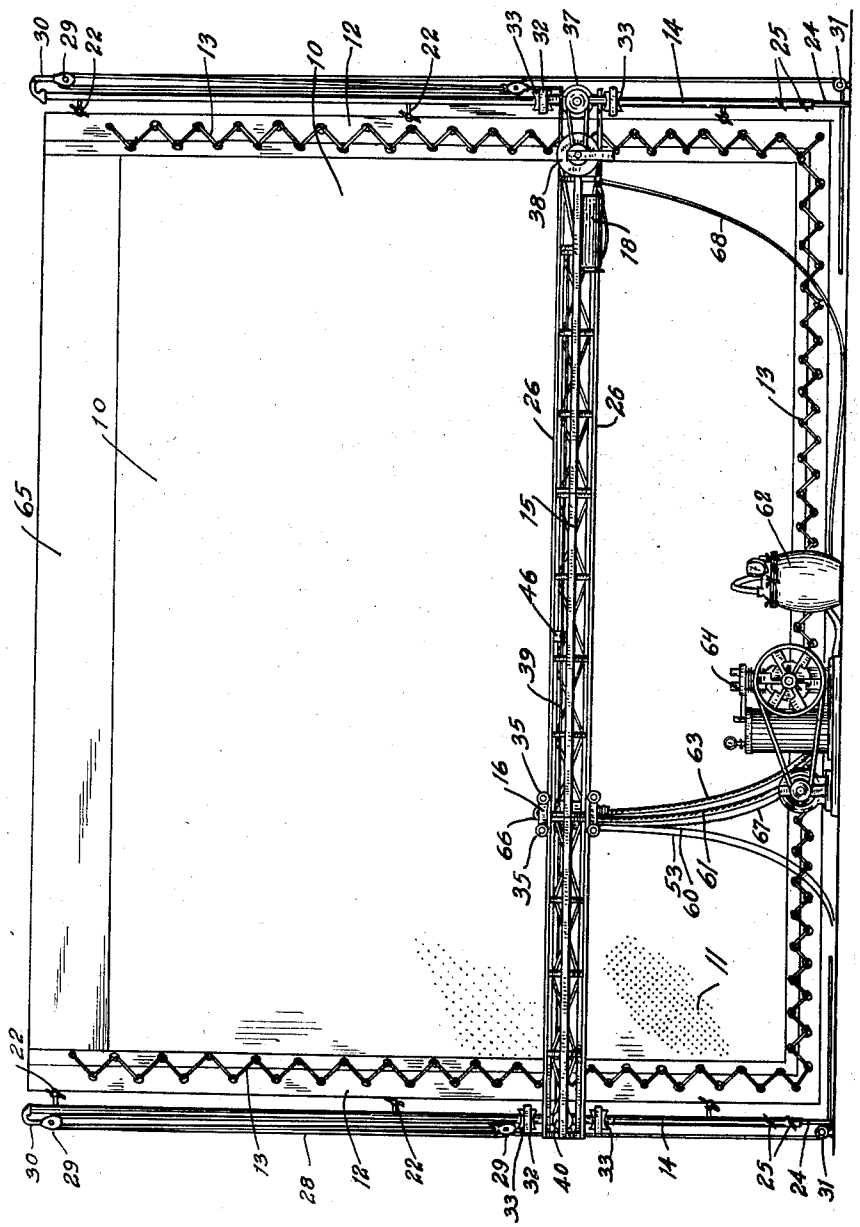


FIG. 1.

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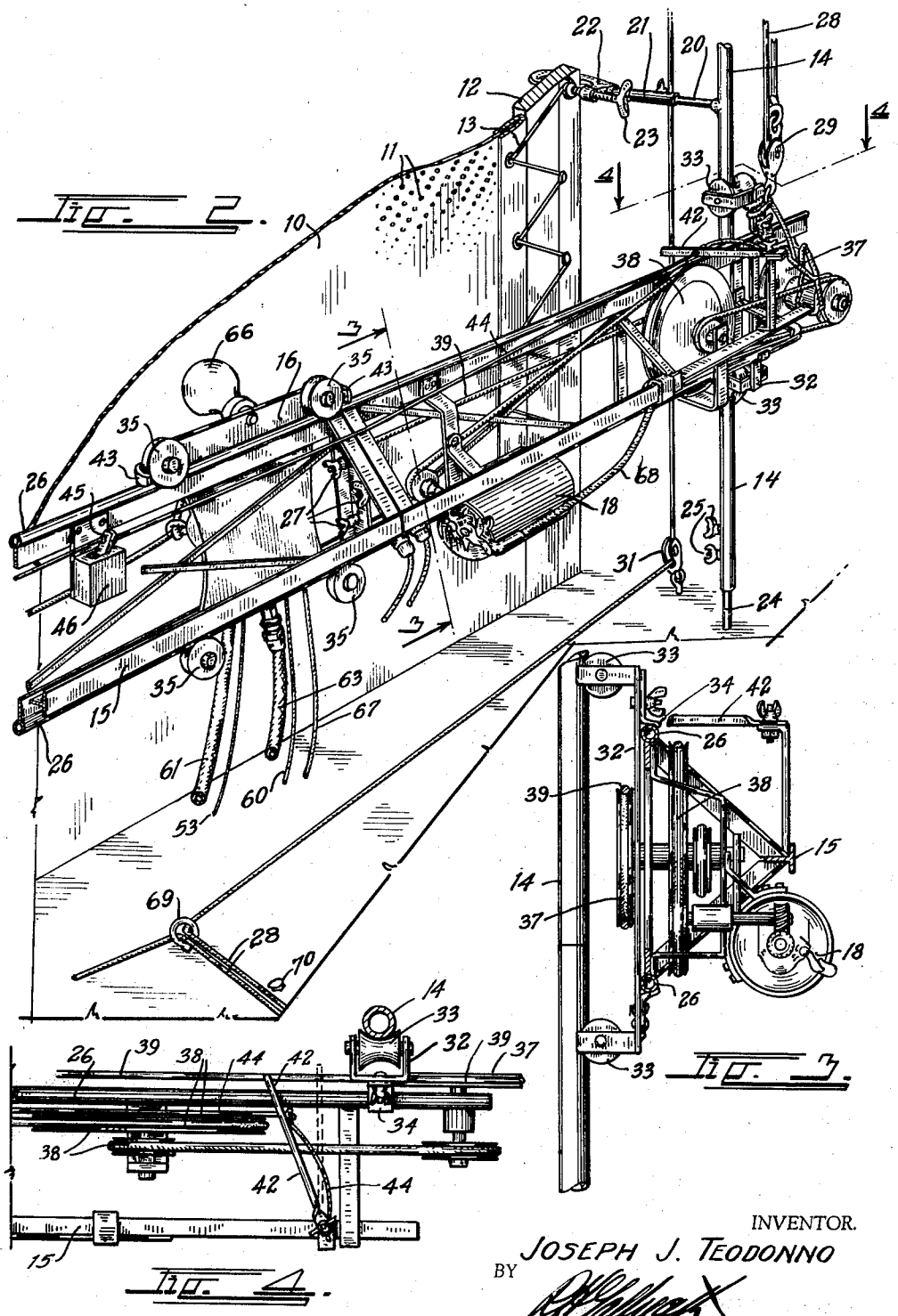
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MEANS FOR FINISHING MOTION PICTURE SCREENS

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MEANS FOR FINISHING MOTION PICTURE SCREENS

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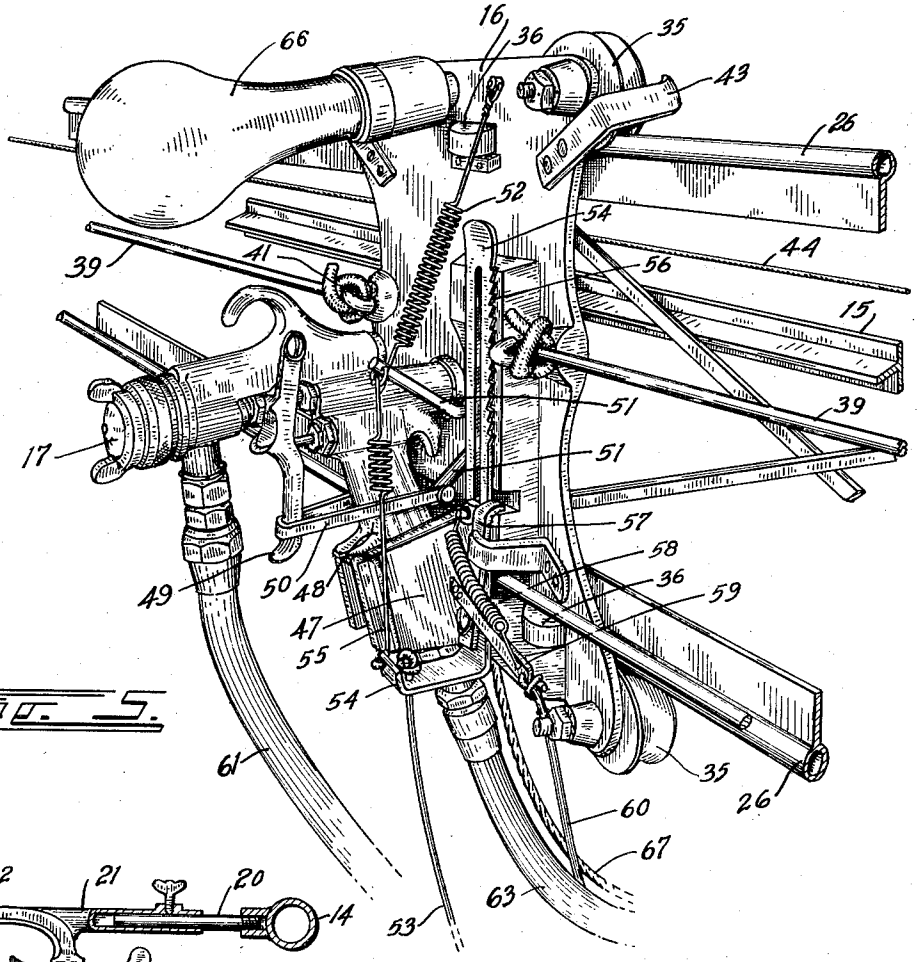


Fig. 5.

Fig. 6.

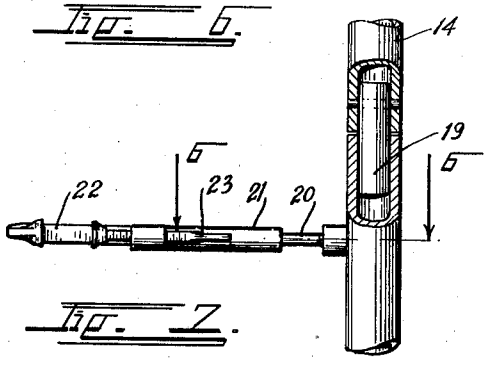


Fig. 7.

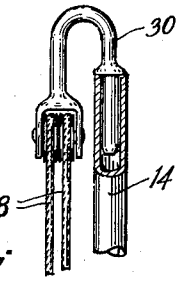


Fig. 12.

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MEANS FOR FINISHING MOTION PICTURE SCREENS

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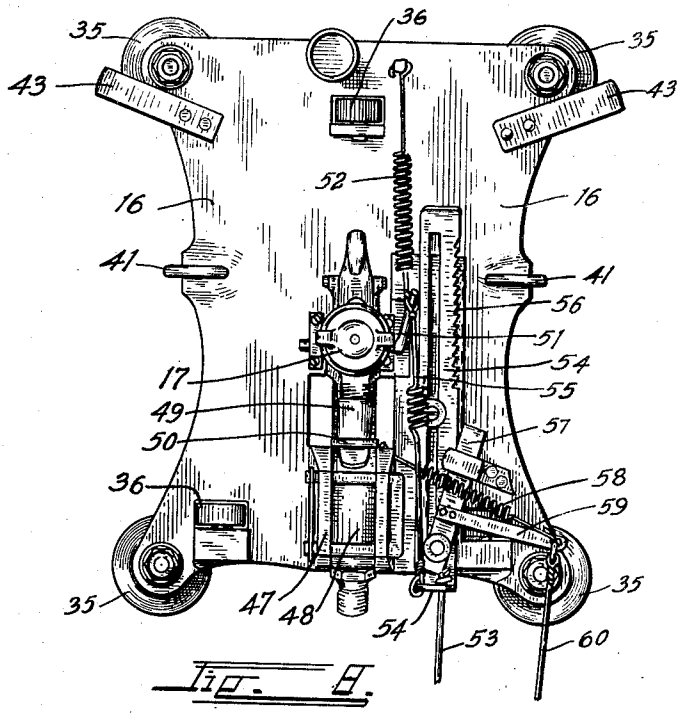


Fig. 8.

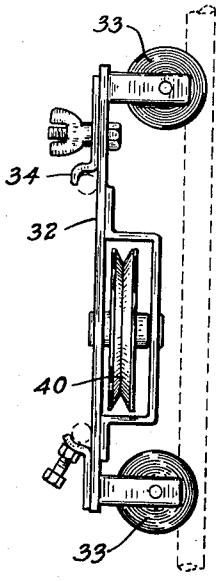


Fig. 10.

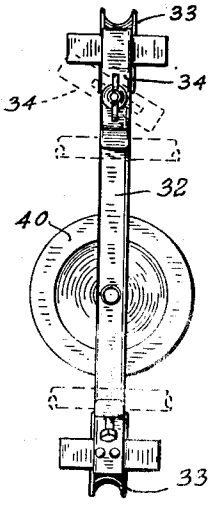


Fig. 11.

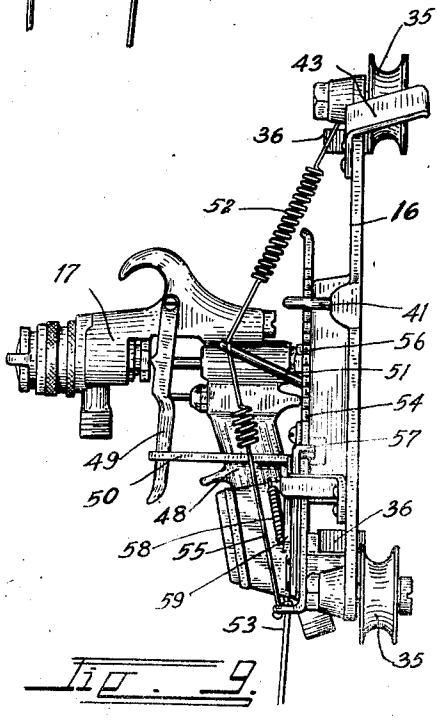


Fig. 9.

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UNITED STATES PATENT OFFICE

2,212,576

MEANS FOR FINISHING MOTION PICTURE SCREENS

Joseph J. Teodonno, Denver, Colo.

Application July 5, 1938, Serial No. 217,458

6 Claims. (Cl. 91—45)

This invention relates to an apparatus for painting large surfaces and more particularly for painting and refinishing motion picture screens. The modern motion picture screen consists of a large, tightly stretched sheet of rubberized fabric with its entire surface perforated with small holes for the passage of the sound from the loud speaker system through the screen. These screens become soiled with use and attempts have been made to repaint them by hand. Such attempts have never been successful. If the painting is done with a brush it is impossible for the most experienced painter to avoid brush marks, over-lapping strokes, etc. which result in blotches upon the screen when the latter is illuminated by the projector. The sweeping of the brush across the screen causes the paint to be wiped into the perforations to clog the latter and cause then drips or run marks on the screen.

Attempts have been made to use an air brush for this purpose but the same objection applies to the air brush since it is impossible for an operator to always over-lap his strokes the same amount and to always hold his air brush the same distance from the screen so that blotches and streaks appear. If the air brush is not held at an exact vertical angle from the screen, it will blow paint into the holes in the screen and clog them similarly to the ordinary brush.

The principal object of this invention is to provide an apparatus more particularly for use upon motion picture screen which can be quickly and easily set up in relation to any desired screen; which will apply an absolutely perfect, uniform coating of paint to the entire screen without forming streaks, blotches and other imperfections; and which will blow a stream of air through each perforation to prevent it from being sealed or clogged with paint.

Another object of the invention is to so construct the device that it may be quickly and easily assembled to accommodate a screen of any desired size or shape and which can be quickly and easily disassembled for transportation.

Since motion picture theatres are in constant daily operation and since only a few hours are available for refinishing the projector screens, it is essential that the apparatus be so constructed that it may be quickly and easily erected, used and removed so as to not interfere with the regular screen performances.

The present invention satisfies all of these requirements and provides an apparatus which can be quickly erected; which will refinish the largest screen in from 10 to 20 minutes; and which can quickly be removed from the screen so that the show may go on.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention reference is had to the accompanying drawings which form a part hereof. Like numerals refer to like parts in all views of the drawings and throughout the description.

In the drawings:

Fig. 1 is a face view of a typical motion picture screen with the invention in place thereon.

Fig. 2 is a perspective view of one extremity of the cross beam employed for supporting the brush carriage.

Fig. 3 is an end view of the cross beam.

Fig. 4 is a plan view of one extremity thereof.

Fig. 5 is a perspective view of the brush carriage.

Fig. 6 is a detail view of one of the vertical standard clamps.

Fig. 7 is a side view of a joint in the vertical standard.

Fig. 8 is a front view of the brush carriage.

Fig. 9 is a side view thereof.

Fig. 10 is a side view of a hanger member for the cross beam.

Fig. 11 is a front view of the hanger member.

Fig. 12 is a detail view of the top of one of the standards.

The usual motion screen consists of a perforated flexible sheet 10, usually formed of rubberized fabric, filled with minute sound perforations such as indicated at 11.

The screens are supported in a rectangular screen frame 12 upon which they are stretched and attached by means of suitable lacings 13.

Briefly, the improved painting apparatus consists of two vertical standards 14, one being erected at each side of the screen 10, to support a vertically-traveling horizontal cross beam 15 upon which a carriage 16 travels and supports an air brush 17.

The carriage is continuously reciprocated back and forth along the beam 15 by means of an electric motor 18. The beam 15 is uniformly lowered in front of the screen while the carriage reciprocates back and forth across the screen. The lowering operation and the reciprocating operation are in absolute synchronism with each other so that the coating of paint which is applied is uniform at all points.

The air brush is perpendicular with the face of the screen so that it will blow directly through the perforations in the screen to blow any paint therefrom and prevent clogging. The brush held spaced at a uniform distance from the screen by means of the standards 14 therefor a uniform efficient coating of paint is automatically applied to the screen independent of any human element.

The vertical standards 14 are sectional, each section carrying a dowel 19 which is insertable into the adjacent section to form a continuous standard. Each section carries a projecting stud 20 which is received in a sleeve 21 on a clamp member 22. The clamp members may be firmly clamped to the frame 12 by means of suitable clamp screws 23.

A supporting foot rod 24 telescopically projects from the lowermost standard 14 and can be locked in any place thereon by means of suitable set screws 25. This construction enables the sections of the standards to be assembled to accommodate screens of any desired height. Fractional heights are accommodated by the extension foot rods 24.

The beam 15 may have any desired shape, it being preferred to form it with a triangular shape, as illustrated in Fig. 2, with its forward face carrying two, spaced-apart track tubes 26. The beam is in convenient sections which are bolted together by means of clamp bolts 27 to accommodate screens of any desired width. The track tubes 26 are aligned with each other in the assembly by means of dowels similar to the dowels employed in the standards 14.

The beam 15 is supported at each of its extremities by means of a flexible rope 28 which passes over sheave wheels 29. The upper sheave wheels are supported from hooked bracket arms 30 which slip into the open upper extremities of the standards 14. The two ropes 28 are carried downwardly about guide pulleys 31 thence inwardly through a screw eye 69 at the middle of the stage so that they may be operated in unison to raise or lower the beam.

The beam is guided along the standards by means of hangers 32, shown in Figs. 10 and 11. Each hanger carries a pair of grooved rollers 33 which ride against the standard. The hangers are removably attached to the horizontal track tubes 26 by means of clamping members 34, so that they may be positioned at any desired point thereon as determined by the spacing of the standards 14.

The brush carriage 16 is provided with four grooved guide rollers 35 which ride along the track tubes of the beam. Side rollers 36 are also mounted on the carriage 16 to contact the track tubes to prevent lateral movement of the carriage. The carriage is reciprocated back and forth along the beam by the motor 18 which is of a reversible type. The motor 18 drives a drive pulley 37 at one extremity of the beam through the medium of a system of belts, and counterpulleys 38.

A flexible tension member 39, which is preferably formed from a long, round leather belt, is attached at one of its extremities to the carriage 16 and extends from the carriage around the drive pulley 37 thence returns along the entire length of the beam through the carriage and about a return pulley 40 which is carried by one of the hangers 32 thence returns to an attachment with the opposite side of the carriage. Suitable attachment rings 41 are provided in the carriage to which the flexible member may be tied.

A pivoted reversing arm 42 is mounted at each extremity of the beam in the path of the carriage 16 and the latter carries suitable bumper plates 43 for contacting the reversing arms. Each reversing arm is connected by means of a cord 44 with a switch lever 45 of a motor reversing switch 46. The switch 46 is mounted on the beam intermediate its extremities and electrically connected to the motor 18 to reverse the direction of rotation of the latter.

It can be seen that when the carriage moves to the extreme left, it will push the left hand reversing lever 42 outwardly, causing it to pull on the cord 44 to snap the switch lever 45 over to the reversing position. This immediately reverses the motor 18 and starts the carriage moving toward the right until it contacts the right hand reversing lever 42 to snap the reversing switch lever 45 over to again reverse the direction. Thus, as long as the electric current is on, the carriage will reciprocate back and forth at a uniform speed.

The brush 17 may be any of the usual varieties available on the market. The one preferably employed is the typical hand operated air brush provided with a pistol grip 48 and a finger trigger 49. The pistol grip 48 is slipped into a socket 47 on the carriage. The socket is designed so as to rigidly support the air brush perpendicular to the plane of the carriage. A loop member 50 is slipped over the finger trigger 49. The loop member is secured to one extremity of a bell crank lever 51 which is pivotally mounted on the carriage. The other extremity of the lever 51 extends upwardly and outwardly to a connection with a tension spring 52 which continually urges the lever upwardly and the loop 50 outwardly to allow the trigger to move to the closed position.

The trigger is pulled to the open position by means of a pull cord 53 which is connected to a ratchet slide member 54 mounted to slide vertically on the carriage. The slide member 54 is connected by means of a flexible tie wire 55 with the bell crank lever 51 so that, when the slide is pulled downwardly, the lever will also be pulled downwardly to draw upon the loop 50 and pull the trigger to the open position.

The trigger may be held at any desired degree of opening by means of a series of ratchet teeth 56 formed on the slide member 54 which engage a ratchet pawl 57. The ratchet is constantly held against the side of the slide member by means of a tension spring 58. A releasing lever 59 projects from the ratchet pawl and is connected to a second pull cord 60 which, when pulled upon, releases the ratchet 57 and allows the spring 52 to snap the trigger to the closed position.

Thus, the two cords 53 and 60 give the operator complete control at all times. By drawing on the cord 53, he can open the air brush any desired amount and, by drawing on the cord 60, he can close the air brush.

Paint is supplied to the air brush through a paint hose 61 from a pressure pot 62. Air is supplied to the air brush through an air hose 63 from a compressor 64 as is usual in air brush practice.

In use, the beam 15 is hoisted to the extreme top of the screen or above, the carriage is run to one extremity of the beam. A marking tack 70 is placed in the floor of the stage in the path of the ropes 28 a fixed distance from the screen eye 69. It has also been found advisable to place a strip of paper 65 across the top of the screen

for the first trial of the air brush. The brush is started by drawing upon the cord 53 and the motor 18 is started. The brush is adjusted to throw a strip of the desired width and density. The operator then grasps the two ropes 28 at the marker 70 on the stage floor and, when the carriage reaches its extreme right position, he moves the two ropes simultaneously to the screw eye 69, the previously marked distance which corresponds to the width of the paint strip being applied by the air brush. He continues this at each reciprocation of the carriage until the beam reaches the bottom of the screen. The intervals of movement of the beam are such as to allow the thin edges of the air brush strokes to overlap each other sufficiently before the last stroke dries to bring the thickness of the coating to a uniform thickness over the entire screen. In actual use of this apparatus a screen 12 by 18 feet can be completely and perfectly coated in twelve minutes.

To assist the operator in judging the condition of the paint spray from his position below the carriage, an electric lamp 66 is mounted upon the carriage immediately above the air brush which remains illuminated during the entire operation. Current is carried to the lamp through a flexible cord 67. Current is fed to the motor by means of similar flexible motor cord 68.

While the invention has been described as particularly useful for motion picture screens, it would, of course, be very useful for painting any larger surface where complete uniformity of coating and extreme speed in application was desirable.

While a specific form of the improvement has been described and illustrated herein, it is desired to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:

1. In a painting device having an air brush mounted on a carriage that reciprocates horizontally between two vertical standards, a means for remotely actuating and setting the trigger of said brush to control the flow of air and paint therethrough comprising: a bell crank lever pivotally mounted on said carriage; a looped member attached to one arm of said crank lever and designed to slip over the trigger of said brush; a resilient means attached to the other arm of said lever to continually urge said trigger to the closed position; a ratchet member slidably mounted on said carriage adjacent said crank lever; means for connecting said latter arm and said ratchet member so that they will actuate together; a ratchet pawl mounted adjacent said ratchet member and positioned so as to engage the same, means for continually urging the engagement of said pawl with said ratchet member; means depending from the ratchet member for actuating the trigger of said brush to any desired opening; and means for remotely disengaging and engaging said pawl and said ratchet member so as to set the amount of air and paint flowing through said brush.

2. An apparatus for painting a motion picture screen comprising vertical standards for disposition at opposite sides of the screen, a beam extending between said standards and shiftable vertically thereon, clamps carried by said standards in spaced relation to each other longitudinally thereof and extending forwardly from the standards for gripping side portions of the screen and detachably securing the standards and the beam in spaced and substantially parallel relation to the screen, a carriage carried by said beam and movable along the same, an air brush carried by said carriage for discharging paint upon the screen, and means for imparting reciprocating movement to said carriage back and forth along the beam.

3. An apparatus for painting a motion picture screen comprising vertical standards for disposition at opposite sides of the screen, a beam extending horizontally between said standards and shiftable vertically along the standards to adjusted positions, arms extending forwardly from said standards in spaced relation to each other longitudinally of the standards, clamps carried by said arms and adjustable longitudinally thereon and adapted to grip side portions of the screen and secure the standards and the beam in predetermined spaced relation to the screen, a carriage carried by said beam and movable along the same, an air brush carried by said carriage for discharging paint upon the screen, and means for imparting reciprocating movement to said carriage back and forth along the beam.

4. An apparatus for painting a motion picture screen comprising vertical standards for disposition at opposite sides of the screen, a beam extending horizontally between said standards and shiftable vertically along the standards to adjusted positions, clamps extending forwardly from said standards in spaced relation to each other longitudinally thereof, said clamps being adjustable longitudinally and adapted to grip the screen at opposite sides thereof and detachably secure the standards and the beam in predetermined spaced and substantially parallel relation to the screen, a carriage carried by said beam and movable along the same transversely across the front of the screen, an air brush carried by said carriage and directed forwardly therefrom for discharging paint upon the screen as the carriage moves along the beam, and means for imparting reciprocating motion to said carriage back and forth along said beam.

5. An apparatus for painting a motion picture screen comprising vertical standards for disposition at opposite sides of the screen, a beam extending horizontally between said standards and shiftable vertically along the standards to adjusted positions, clamps extending forwardly from said standards in spaced relation to each other longitudinally thereof, said clamps being adjustable longitudinally and adapted to grip the screen at opposite sides thereof and detachably secure the standards and the beam in predetermined spaced and substantially parallel relation to the screen, a carriage carried by said beam and movable along the same transversely across the front of the screen, an air brush carried by said carriage and directed forwardly therefrom for discharging paint upon the screen as the carriage moves along the beam, and means for imparting reciprocating motion to said carriage including a motor carried by the beam, a reversing switch for said motor carried by said beam and having a switch lever, actuating levers carried by said beams adjacent ends thereof in position for engagement by said carriage, and flexible members extending from opposite sides of the switch lever longitudinally of the beam and secured to said actuating levers for operatively connecting the actuating levers with the latch lever and adjusting the reversing switch to

reverse the motor directional movement of the carriage along the beam.

6. In a painting device having an air brush mounted on a carriage that reciprocates horizontally across the surface to be painted; means for remotely actuating the trigger of said brush to control flow of paint and air therethrough, said means comprising a bell crank lever pivotally mounted on said carriage adjacent said brush, a looped member attached to one arm of said lever and positioned to slip over the trigger of said brush, spring means attached to the other arm of said lever to continuously urge the trigger to a closed position, a flexible means depending from the latter arm to remotely actuate said trigger to an open position, a slidably mounted rack having said flexible means connected therewith, a pawl for engaging said rack and securing the rack in a set position with the trigger in its open position, and a flexible means for moving said latch to a position for releasing said rack and permitting return of the trigger to a normal position.

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