

J. L. MARQUIS.
BLUE PRINT MACHINE.
APPLICATION FILED SEPT. 11, 1906.

1,013,033.

Patented Dec. 26, 1911.

2 SHEETS—SHEET 1.

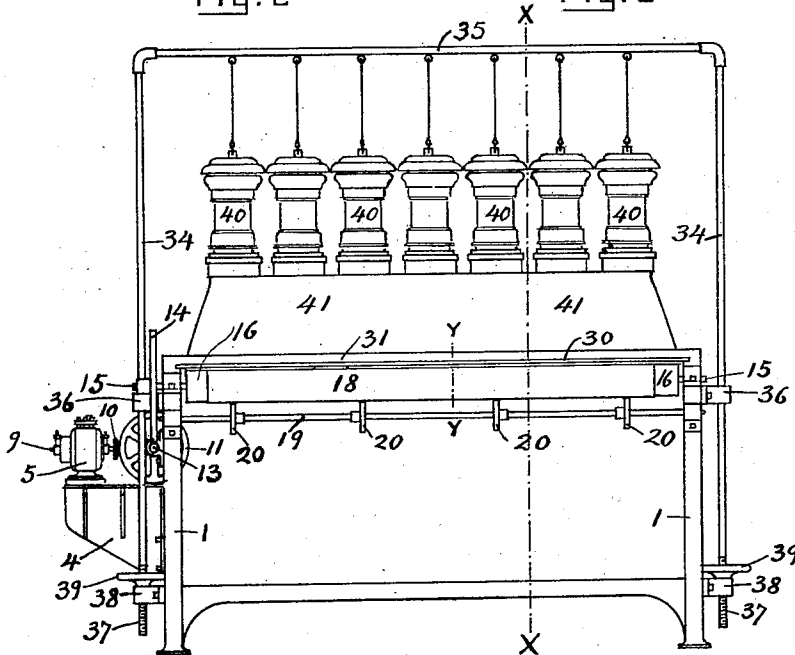
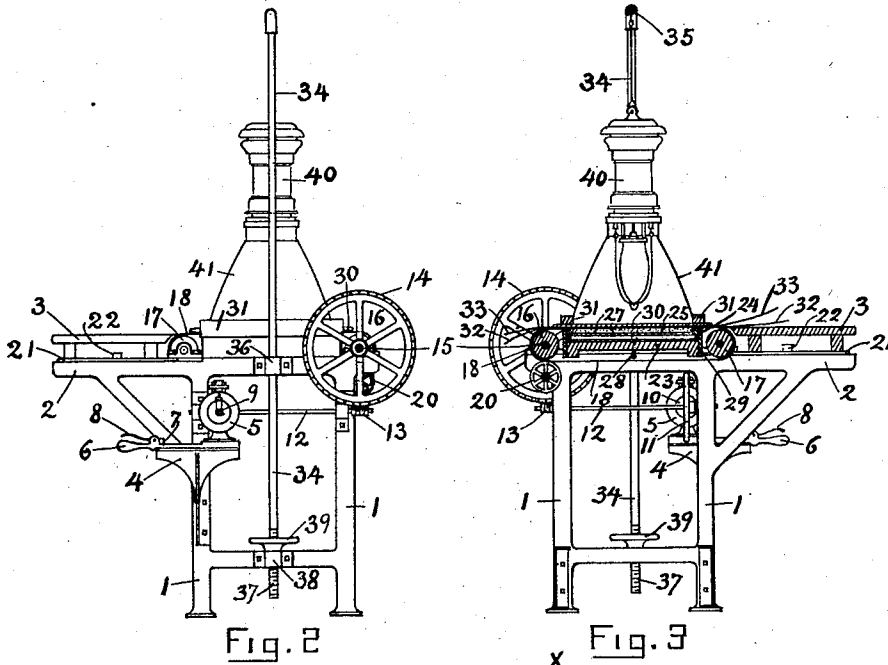


Fig. 1

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2 SHEETS-SHEET 2.

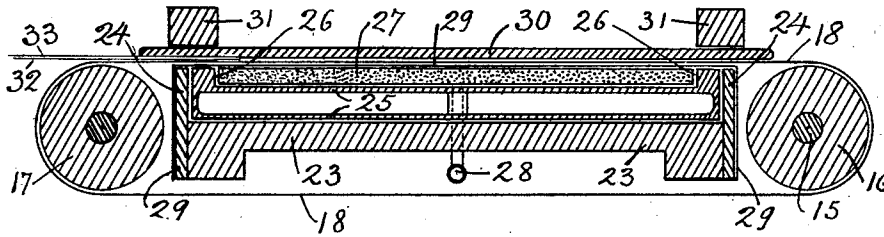


Fig. 4.

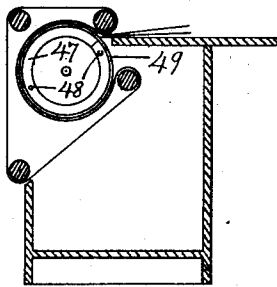


Fig. 7

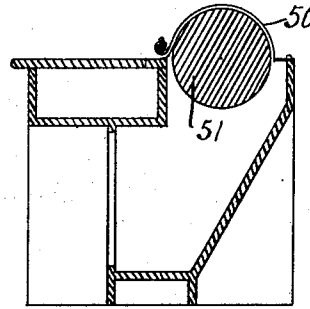


Fig. 10

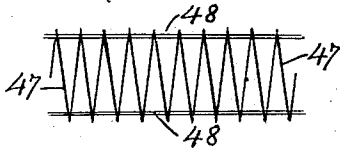


Fig. 6

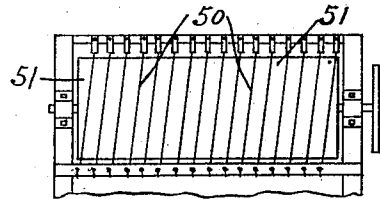


Fig. 9

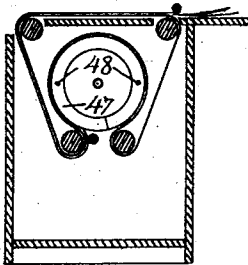


Fig. 8

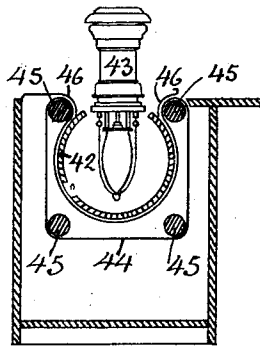


Fig. 5

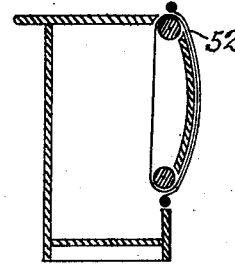


Fig. 11

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UNITED STATES PATENT OFFICE.

JOSEPH L. MARQUIS, OF BUFFALO, NEW YORK.

BLUE-PRINT MACHINE.

1,013,033.

Specification of Letters Patent.

Patented Dec. 26, 1911.

Application filed September 11, 1905. Serial No. 277,811.

To all whom it may concern:

Be it known that I, JOSEPH L. MARQUIS, a citizen of Switzerland, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Blue-Print Machines; 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

15 This invention relates to blue-print machines.

One object is to provide a machine of the nature stated embodying such characteristics that it may perform the functions for which it is designed while the work is being carried through the machine.

Another object of the invention resides in the provision of a machine of the nature stated wherein the work is carried through the machine between a fixed and moving contact surface with the meeting faces of the work in close contact to insure perfect production of the print.

A still further object is to provide a machine capable of automatically operating to carry through it suitable work for the production of blue prints.

With the above and other objects in view the present invention consists in the combination and arrangement of parts hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims.

In the drawings: Figure 1 is a front elevation of the machine; Fig. 2 is a side elevation of the same; Fig. 3 is a vertical transverse sectional view on the line $x-x$ of Fig. 1; Fig. 4 is an enlarged detail partial transverse section on the line $y-y$ of Fig. 1; Fig. 5 is a modified form, showing the fixed contact of a curved formation; Figs. 6 to 11, illustrate other modified forms of the invention as regards particularly the fixed and moving contact surfaces.

Referring now more particularly to the accompanying drawings the reference character 1 indicates a suitable supporting frame carrying a bracket 2 for the support of a table 3 from which the work; that is, the drawing, tracing or the like and the print paper may be fed into the machine. There

is a second bracket 4 carried by the frame for the pivotal support of an electric motor 5 which is moved upon its pivot by the hand lever 6. A pin 7 is hinged to one end of this lever 6 and operated by the handle 8 to engage and disengage the pin 7 with and from a series of sockets in the upper face of the bracket 4.

The electric motor 5 is provided with the driving shaft 9 and carries a friction-disk 10 to actuate the friction wheel 11 mounted on the shaft 12. By adjusting the position of the motor upon its pivot, the engagement of the friction-disk 10 with the friction wheel 11 is shifted to and from the center of the disk to change the speed of the wheel 11, as desired.

Mounted transversely of the frame 1 is a shaft 12 carrying a worm gear 13 at one end for engagement with the gear wheel 14 mounted fixedly upon the shaft 15 arranged longitudinally of the frame. This shaft 15 has a roller 16 fixed thereupon to cooperate with a similar roller 17 adjustably journaled upon the opposite side of the frame for regulating the tension of the endless feed belt 18 of porous or other suitable material designed to carry the work through the machine between said belt and the flat plate glass 30 hereinafter more particularly referred to as the fixed contact surface. This endless belt 18 may be termed a moving contact surface and is mounted upon or around the aforesaid rollers 16 and 17, as shown. Obviously, the belt may have a continuous or intermittent movement. It will be seen that the table 3 and the roller 17 are mounted upon a slide 21 which is adjustably mounted upon the aforesaid bracket 2 by the set screw 22.

An idler shaft is indicated at 19 and carries friction wheels 20, between which and the roller 16, the endless belt passes. These friction wheels 20 are designed to prevent accidental displacement of the belt.

Mounted within the supporting frame between the runs of the belt 18 is a fixed bed 23 provided at opposite sides with the vertical walls 24. An inflatable bag or pad 25 rests freely upon this bed 23 between the said side walls and has one face recessed, as at 26, to receive freely or loosely the flexible pad 27 composed preferably of felt or analogous material. Extending over the bed above the said pads is a cloth covering 29 which is secured to the said side walls 24 of

the bed. This cloth is composed preferably of porous material, and when the inflatable pad 25 is inflated in any well known manner it exerts the required upward pressure against the aforesaid flat or fixed contact surface to bring the surfaces of the drawing, tracing or the like and the print paper closely together, and as more or less air may remain between the walls of the recess of the inflatable pad and the fixed contact surface 30 and particularly between the drawing and print paper, preventing perfect meeting engagement of the latter when the inflatable pad is forced toward the fixed contact, I provide for a partial vacuum through the exhaust pipe 28, which extends through the inflatable pad 25 and opens into the recessed portion 26 thereof, and which effectually draws any air confined in the manner just stated downwardly through the porous belt 18 and the cloth cover 29 of porous material.

The fixed contact surface of transparent material, preferably glass, is fitted in the frame 31 in any suitable manner and from the foregoing it will be understood that the moving contact carries the drawing 33 and print paper 32 or any other work through the machine immediately beneath and in fact in contact with the fixed contact surface.

The work in its passage through the machine is subjected to light and in the accompanying drawings the desired light is shown as given to the work through the instrumentality of arc-lamps 40 arranged in series and suspended from the cross-piece 35 connecting the side members 34 of a frame which is supported by the aforesaid supporting frame with its side members 34 passed loosely through the sockets 36 of latter frame, each side member having its lower end screw-threaded and passed through the lower sockets 38. Working upon the screw-threads of the side members 34 of the second-mentioned frame are screw-threaded hand-wheels 39 designed to adjust the second-mentioned frame vertically with respect to the supporting frame.

In operation, the lights are turned on and the motor 5 started, its speed being properly regulated. The work is then placed together and fed by hand or otherwise between the fixed and the moving contact surfaces, the latter carrying the work through the machine in contact with the former by reason of the pressure resulting from the inflation of the inflatable pad. It will thus be understood that the work is subjected to light from the arc-lamps during its travel through the machine.

What is claimed is:

1. A blue-print machine comprising a fixed contact surface, a moving feed member adapted to carry the work through the machine between said feed member and the

said contact surface, and yieldable means to press the movable feed member and the work carried thereby into intimate moving contact with said contact surface.

2. A blue-print machine comprising a fixed contact surface, a movable feeding means adapted to carry the work through the machine in engagement with said contact surface, and means constructed and arranged to press the movable feeding means and the work carried thereby into intimate moving contact with said contact surface.

3. A blue-print machine comprising a contact surface, a moving feed surface, yieldable means adapted to press the feed surface into moving contact with the fixed surface, and means for creating a partial vacuum between said surfaces.

4. A blue print machine comprising a fixed contact surface, a moving feed surface, and pads arranged one upon the other to exert pressure upon the moving feed surface.

5. A blue-print machine comprising a contact surface, a moving feed surface, yieldable means adapted to press the feed surface into moving contact with the fixed surface, a covering over said yieldable means, and means for creating a partial vacuum between said surfaces.

6. A blue print machine comprising a fixed contact surface, a moving feed surface for carrying the work through the machine, and means for creating a partial vacuum between said surfaces.

7. A blue print machine comprising a fixed contact surface, a moving feed surface for carrying the work through the machine in engagement with the fixed contact surface, an inflatable pad arranged beneath the moving feed surface, and means for creating a partial vacuum between the inflatable pad and the fixed contact surface.

8. A blue print machine comprising a fixed contact surface, a moving feed surface for carrying the work through the machine, an inflatable pad beneath the moving feed surface, another pad interposed between the first-named pad and the moving feed surface, and means for creating a partial vacuum between the pads and the moving feed surface.

9. A blue print machine comprising a fixed contact surface, a moving feed surface, an inflatable pad beneath the moving feed surface, and another pad carried by the first-named pad.

10. A blue print machine comprising a fixed contact surface, a moving feed surface, an inflatable pad provided with a recess, another pad carried in the recess of the first-named pad, and means for creating a partial vacuum between the pads and the moving feed surface.

11. A blue print machine comprising a fixed contact surface, a moving feed surface,

an inflatable pad, a second pad mounted upon the first named pad, a covering over the pads, and means for creating a partial vacuum between the contact and feed surfaces.

5 12. A blue print machine comprising a flat contact surface, a moving contact surface for carrying the work through the machine with the work in flush engagement with the fixed contact surface throughout its entire area, and means for governing the speed of the moving contact surface.

10 13. A blue print machine comprising a fixed contact surface, a moving feed surface, means for governing the speed of the moving feed surface, and means for creating a partial vacuum between the contact and feed surfaces.

15 14. A blue print machine comprising a fixed contact surface, a moving feed surface, an inflatable pad beneath the feed surface, and means for regulating the speed of the moving feed surface.

20 15. A blue print machine comprising a fixed contact surface, a moving feed surface, an inflatable pad, and a yieldable pad between the first-named pad and the moving feed surface.

25 16. A blue print machine comprising a fixed contact surface and a movable, endless

feed surface for carrying the work through the machine in engagement with the fixed contact surface and yieldable means adapted to press the feed surface and the work carried thereby into contact with the contact surface.

35 17. A blue-print machine comprising a fixed, flat contact surface, a moving feed surface adapted to carry the work through the machine between said contact and feed surfaces and yieldable means bearing against the feed surface to press the same and the work carried thereby into intimate moving contact with the fixed contact surface.

40 18. A blue print machine comprising a flat contact surface and a movable contact surface adapted to carry the work through the machine between the contact surfaces in a flat shape during the entire passage of the work through the machine and means constructed and arranged to maintain the movable feed surface and the work carried thereby flush with the contact surface.

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

JOSEPH L. MARQUIS.

Witnesses:

PERCY E. TRINDER,

W. T. MILLER.