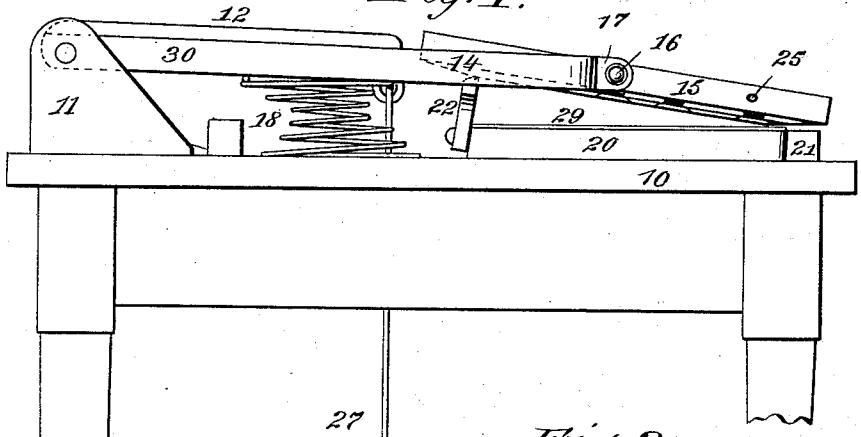
(No Model.) 2 Sheets—Sheet 1.

C. N. JONES.

STENCIL PRINTING MACHINE.

No. 370,947. Patented Oct. 4, 1887.

Fig. 1.



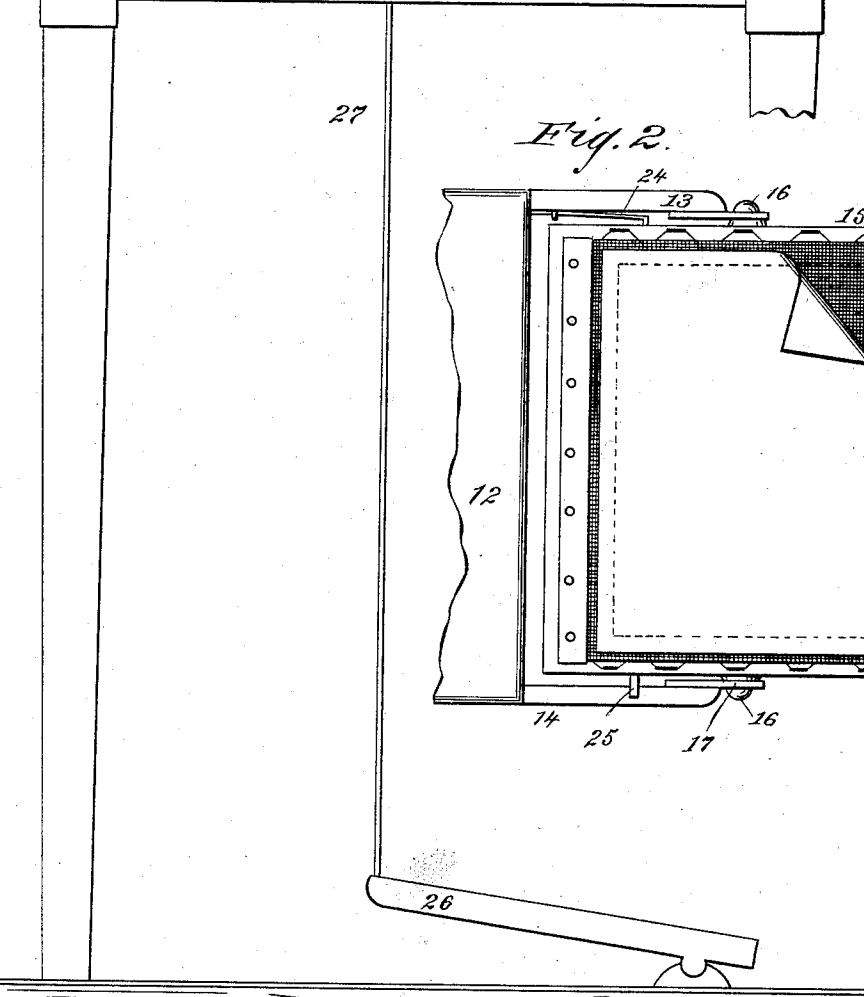
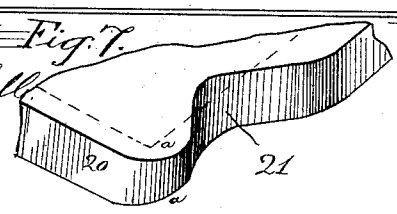


Fig. 2.

Fig. 7.



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(No Model.) 2 Sheets—Sheet 2.

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STENCIL PRINTING MACHINE.

No. 370,947. Patented Oct. 4, 1887.

Fig. 3.

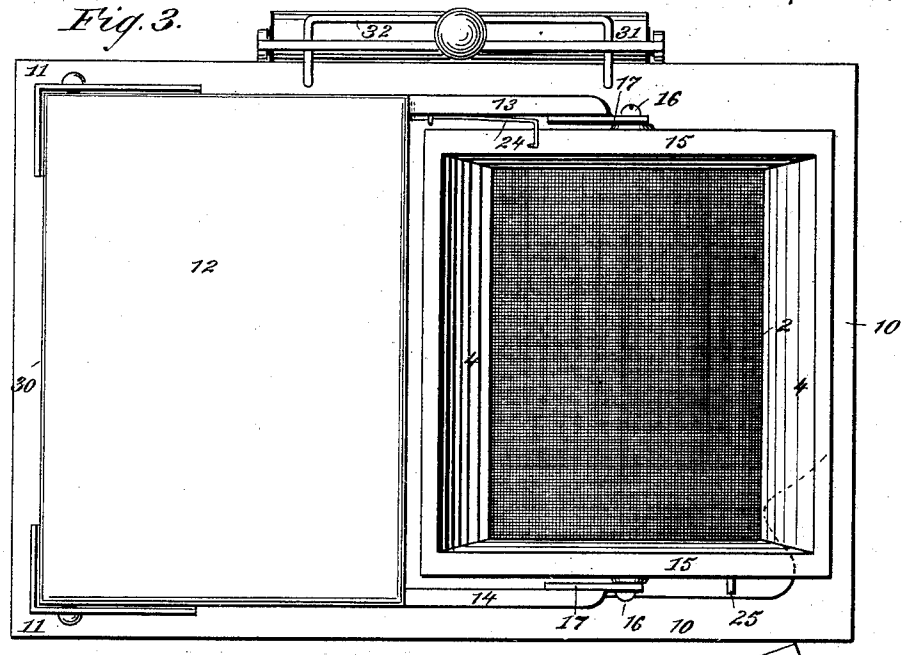


Fig. 4.

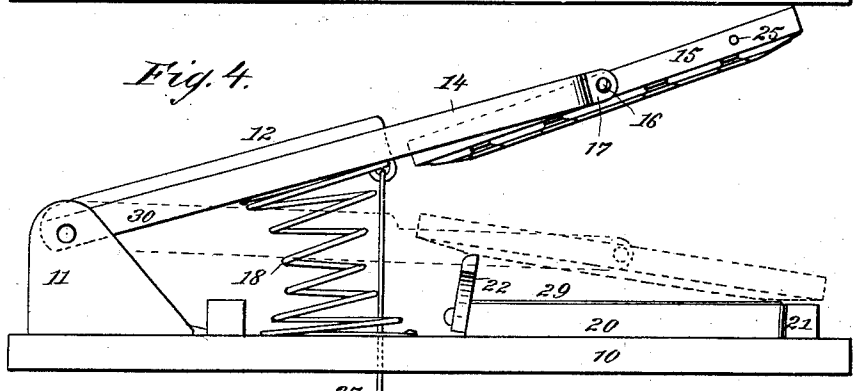


Fig. 5.

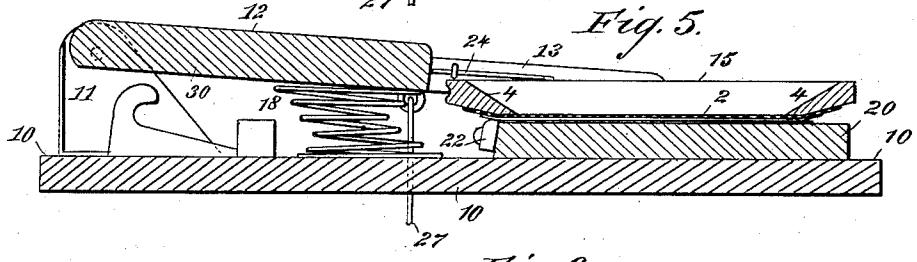
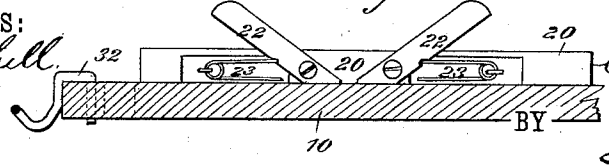


Fig. 6.



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UNITED STATES PATENT OFFICE.

CHARLES N. JONES, OF ANN ARBOR, MICHIGAN.

STENCIL PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 370,947, dated October 4, 1887.

Application filed April 26, 1886. Serial No. 200,138. (No model.)

To all whom it may concern:

Be it known that I, CHARLES N. JONES, of Ann Arbor, in the county of Washtenaw and State of Michigan, have invented a new and Improved Stencil Printing-Machine, of which the following is a full, clear, and exact description.

This invention relates to the construction of a stencil printing-machine, and although more particularly designed for use in connection with such a stencil as is produced by the instrument known as the "cyclostyle," the machine is applicable for use in connection with any other form of stencil.

The rapid production of copies and the protection of the stencil are the most important objects of the invention, and to attain the first of these objects I mount the printing-frame so that it is controlled by a proper arrangement of springs and a treadle, thereby leaving the operator's hands free for use in the actual printing and handling of the sheets, while the second object of the invention—namely, the protection of the stencil—I attain by interposing a diaphragm between the stencil and the ink or pressure roller.

The invention will now be described in detail, reference being had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the figures.

Figure 1 is a side view of the printing-machine, representing the same as mounted on a stand and ready for use, the parts being shown as they appear when the treadle is partially depressed. Fig. 2 is an inverted plan view of the printing-frame, one corner of the stencil being shown as turned back and away from its supporting-diaphragm. Fig. 3 is a plan view of the machine. Fig. 4 is a side view of the main portion of the machine, the printing-frame being shown in full lines in its elevated position, and in dotted lines as partially depressed. Fig. 5 is a longitudinal sectional view, the printing-frame being shown in its lowered position with the stencil resting on the paper upon which the copies are to be produced; and Fig. 6 is a view of the rear end of the printing-table, showing the arrangement of the spring-stops, the bed or base of the machine being shown in section. Fig. 7 is a perspective view of a portion of block 20, showing the recess 21 therein.

The general construction of the machine forming the subject-matter of this application is best illustrated in Fig. 1, wherein the machine is shown as set up and ready for use. In the other views the machine is represented as detached from the operating-treadle.

In constructing the machine I provide a bed-plate or base, 10, which may be the top of a stand, or it may be a simple frame or board that may be placed upon and secured to the top of a stand or table. To the rear upper face of the base 10 I secure two brackets, 11 11, which serve as the supports for a pivotally-mounted frame, 30, carrying the ink-distributing table 12, and provided with two forwardly-extending arms, 13 and 14, which serve as supports for the swinging printing-frame 15, said frame being pivotally connected by bolts 16 to plates 17, that are carried by the arms 13 and 14, or connection could be made directly to the said arms.

To the printing-frame 15 there is attached a diaphragm, 2, of any proper pervious material, but preferably made of silk or linen fabric wherein the threads are fine but the mesh is quite open, as indicated in Fig. 3, this diaphragm being stretched tightly upon the lower face of the printing-frame, so as to cover the central open space in said frame. Any proper means may be employed for attaching the diaphragm to the frame; but I have obtained very satisfactory results by gluing one edge of the diaphragm to the frame and lacing the other edges in the manner best shown in Fig. 2. The upper faces of the strips of which the frame 15 is composed flare outward and upward from the diaphragm toward the outer edges of the frame, as shown at 4 4.

The frame carrying the ink-distributing table and the swinging printing-frame is normally held in the position shown in full lines in Fig. 4, by a spring, 18, which spring may be arranged in any manner desired, in so long as it will normally hold the parts in the position in which they are shown in Fig. 4, but will permit of the moving of the parts to the position in which they are shown in Fig. 5.

Directly beneath the swinging printing-frame I mount a printing-block, 20, formed

with a forward recess, 21, and provided with spring-stops 22, which said stops are pivotally connected to the rear edge of the block and normally held in the position in which they are shown in Fig. 6 by springs 23.

The arm 13 carries a light spring, 24, which projects outward over the upper edge of the printing-frame 15, and the printing-frame proper is provided with a pin, 25, located as best shown in Figs. 3 and 4.

The swinging frame 30 is connected to a treadle, 26, by means of a connecting rod or wire, 27, and when the treadle is depressed the frame 30 will be lowered until the rear portion of the under side of the printing-frame strikes against the upper curved ends of the stops 22, and as the springs which uphold the stops 22 are stiffer than the spring 24 the rear of the printing-frame will be tilted up, so that the forward under edge of said frame will strike the forward upper edge of the printing-table 20, or upon the upper one of the sheets of paper, 29, that are piled on said table, and any continued movement of the treadle will depress the printing-frame to the position in which it is shown in Fig. 5, the idea of imparting this peculiar movement to the printing-frame being to exclude the air-bubbles from beneath the frame as it is thrown to printing position upon the top of the pile 29.

In operation I take any form of properly-prepared stencil and place it upon the under side of the diaphragm of the printing-frame, which frame at this time is placed in the position in which it is shown in Fig. 2—that is, inverted—and held by its pin 25, which strikes upon the arm 14, and as the diaphragm is normally saturated with ink the stencil will adhere thereto. After the stencil has been placed in the position described, the printing-frame is returned to the position in which it is shown in Fig. 4, and the sheets of paper upon which the copies are to be made having been placed upon the printing-table 20 against the stops 22, the frame 30 is depressed through the medium of the treadle until the printing-frame is moved to the position shown in Fig. 5—that is, so that the stencil will rest directly upon the upper sheet of the pile 29. When the parts are in this position, the operator passes the inking-roller, as 31, over the upper face of the diaphragm, and, relaxing the pressure upon the treadle, allows the swinging portion of the machine to return to the position shown in full lines in Fig. 4, after which the sheet upon which the copy has been made may be removed from the pile and the operation repeated.

When not in use, the inking-roller 31 may be hung upon a looped hook, 32, that is fixed to one side of the base or bed-plate 10, and when it is desired to distribute the ink upon the roller the roller is passed over the surface of the inking-table 12.

By the use of such a machine as has been described six or eight hundred copies may be taken during an hour, and this, too, without danger of injury to the stencil, for any strain to which the stencil would likely be subjected if it were unsupported by the diaphragm will fall upon the diaphragm, and the stencil will thus be relieved of any undue strain. Then, too, in the ordinary process of producing copies by means of a stencil, any cut or tear in the stencil is likely to be increased by reason of the continual passage and repassage of the inking-roller; but in this case the difficulty named is entirely avoided.

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

1. In a stencil printing-machine, the combination, with a printing-frame, of a pervious diaphragm, substantially as described.

2. In a stencil printing-machine, the combination, with a printing-frame, of a pervious woven diaphragm, substantially as described.

3. In a stencil printing-machine, the combination, with a spring-supported swinging frame, of a printing-frame pivotally connected thereto, a spring, 24, arranged in connection with the printing-frame, and a printing-block, 20, carrying spring-supported stops 22, substantially as described.

4. In a stencil printing-machine, the combination, with a spring-supported swinging frame, of a printing-frame pivotally connected thereto, a spring, 24, stops 22, pivotally connected to the printing-table, springs 23, arranged in connection with said stops, and operative mechanism 27, substantially as described.

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Witnesses:
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JAMES B. ANGELL.