No. 832,217. PATENTED OCT. 2, 1906.

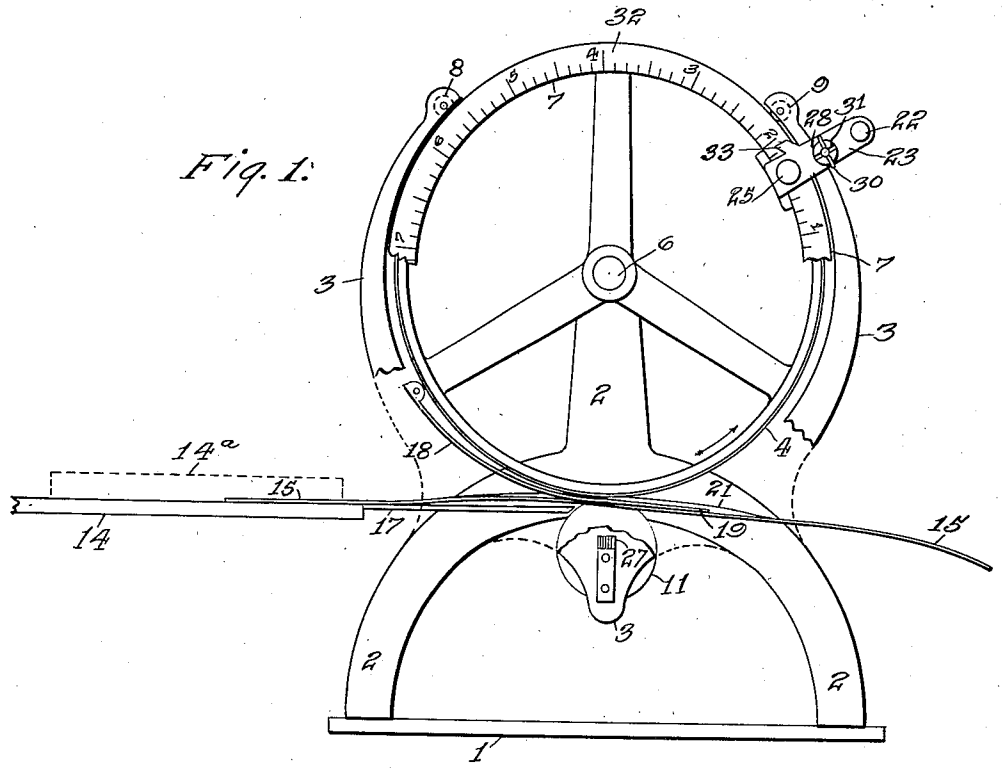
S. T. SMITH, JR.

STENCILING MACHINE.

APPLICATION FILED APR. 28, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



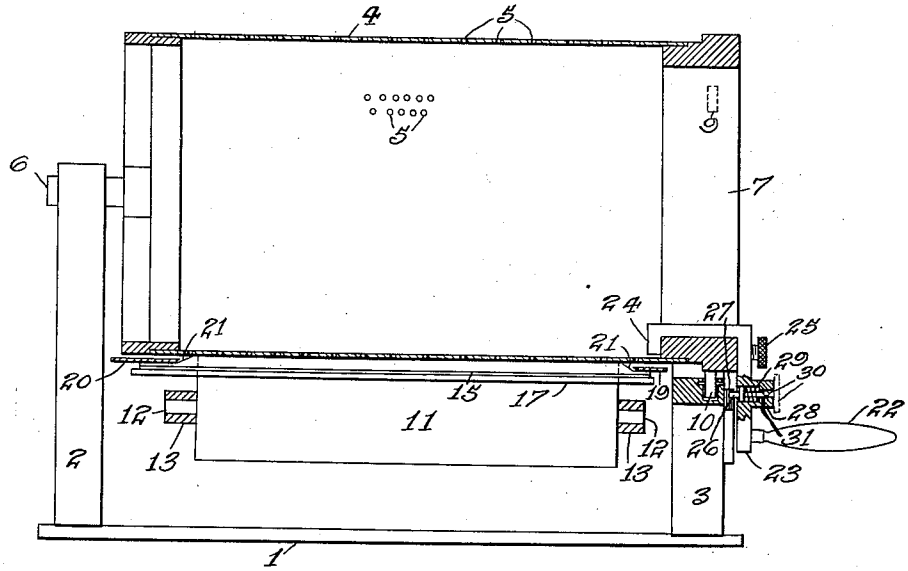


Fig. 2.

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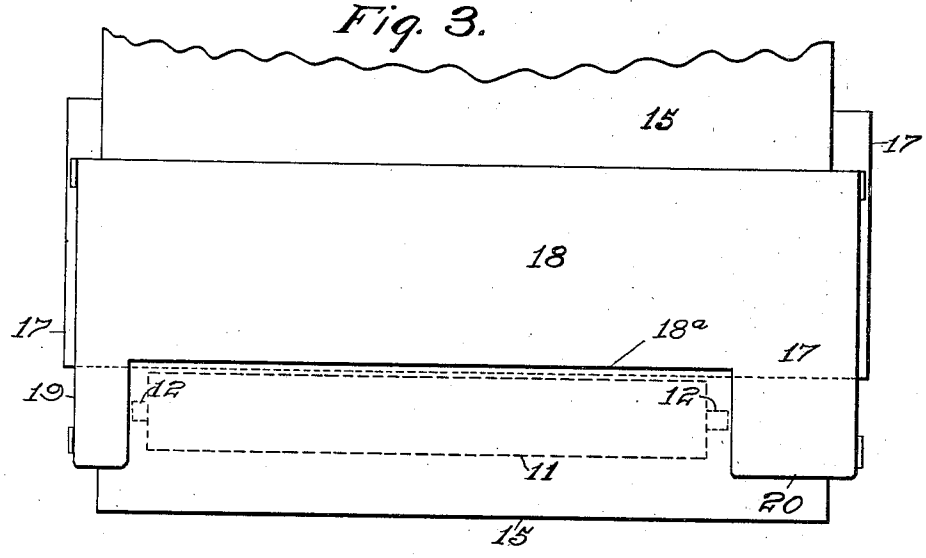
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STENCILING MACHINE.

APPLICATION FILED APR. 28, 1906.

2 SHEETS—SHEET 2.

Fig. 3.



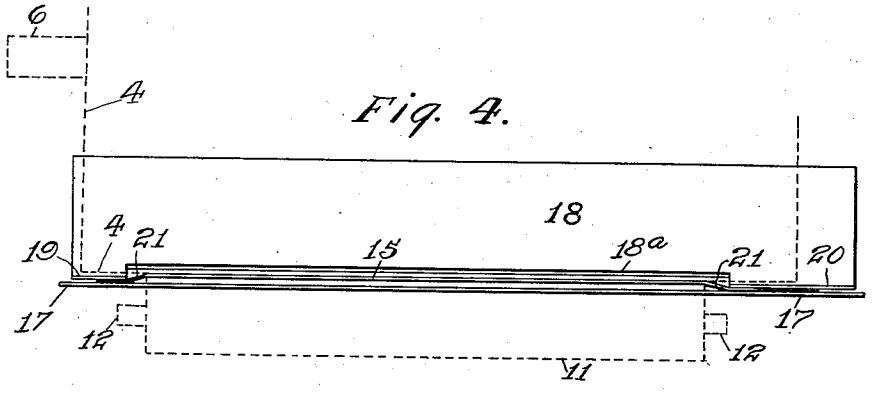


Fig. 4.

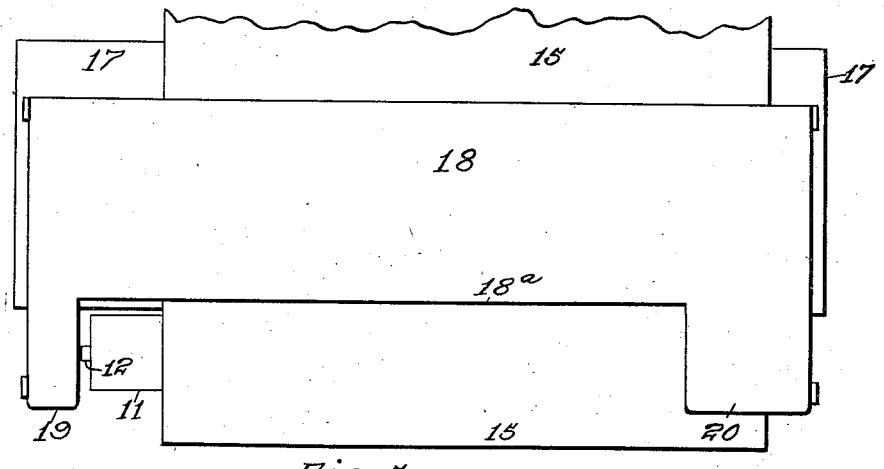


Fig. 5.

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UNITED STATES PATENT OFFICE.

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STENCILING-MACHINE.

No. 832,217. Specification of Letters Patent. Patented Oct. 2, 1906.

Application filed April 28, 1906. Serial No. 314,294.

To all whom it may concern:

Be it known that I, STEPHEN T. SMITH, Jr., a citizen of the United States, residing in Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Stenciling-Machines, of which the following is a specification.

This invention relates to that class of duplicating-machines in which a perforated stencil cylinder or drum is covered with an ink-blanket, the ink being usually supplied to the interior of the cylinder and passing through the perforations to the blanket and a stencil-sheet being laid upon the blanket, the paper to be stenciled being run between the stencil-sheet and a pressure-roll.

It often happens, especially where the paper sheets are thin, that they adhere to the stencil-sheet, and hence it becomes necessary to provide means for stripping the stenciled paper sheets from the cylinder.

One object of my invention is to provide simple, certain, and inexpensive means for stripping the paper sheets from the stencil-cylinder without liability of marring the stencil or smearing the ink. In carrying out this portion of my invention I provide a deflector close to the stencil-cylinder and adjacent to one end of the pressure-roll, so that it will overlie the side edge of the paper which is passing between the pressure-roll and the stencil-cylinder. The paper in passing through the machine is guided below said deflector, which although engaging only the edge of the paper effectually strips the entire sheet from the cylinder. I prefer to employ two strippers, one at each end of the pressure-roll, and these strippers are preferably in the form of tongues or fingers extending rearwardly from a plate which is employed to guide the paper into the bite of the pressure-roll and stencil-cylinder. This stripping device may be used upon other than stenciling-machines.

I illustrate my improvements in connection with a stencil-cylinder having one end open for convenience in manipulating the ink therewithin; and another feature of my improvements lies in providing a stop-arm upon the open end of said cylinder, which arm I make adjustable around the cylinder and preferably provide with a handle for rotating the cylinder. The stop upon said arm coöperates with a stop provided upon the framework for mechanically determining the position of the stencil-cylinder at the moment when a paper sheet is introduced into the bite of the cylinder and pressure-roll, whereby uniform top margins upon the paper sheets are secured. By adjusting the stop-arm around the cylinder any desired depth of top margin may be secured, and I provide a scale upon the cylinder and a suitable index upon the stop-arm or handle, so that by reference thereto the operator may set the stop-arm to the proper position to secure the desired top margin without the necessity of experimenting.

Other features and advantages will hereinafter appear.

In the accompanying drawings, Figure 1 is an end elevation of a stenciling-machine embodying my improvements, portions being being broken away to illustrate the operation. The stencil-cylinder is illustrated as rotating, and a paper sheet is shown passing through the machine. Fig. 2 shows a longitudinal sectional elevation of the machine, the stencil-cylinder being at about the starting position. Fig. 3 is a plan of the paper-guiding devices, a paper sheet being shown passing between the same. The pressure-roll is seen in dotted lines below the paper sheet. This figure shows a paper sheet of sufficient width to be engaged by the strippers at both its side edges. Fig. 4 is an elevation of the Fig. 3 devices looking at the rear of the machine—that is, in the direction of the arrow at Fig. 3. Fig. 5 shows passing through the machine a sheet so narrow that only one side edge thereof is engaged by a stripper.

Upon a base 1 are erected opposite standards or end frames 2 3. A stencil-cylinder 4, having the usual perforations 5, has at one end a shaft 6, journaled in the standard 2, and at the other end is provided with an open or annular head 7, running upon trundles 8 9 10, provided upon the frame 3. A soft-rubber roll 11 is pressed up against the under side of the cylinder in the usual manner, said roll usually having a shaft 12 mounted in suitable pressure-arms, (indicated at 13.)

The sheets of paper to be stenciled are laid upon a table 14 against the usual adjustable gage 14^a and advanced one at a time into the

bite of the cylinder and roll, one of said sheets being seen at 15. Leading from the table or shelf 14 almost to the line of contact or line of impression between said roll and cylinder, is a feed-plate 17, over which is mounted an inclined plate 18, which is preferably curved both plates extending longitudinally of the cylinder and preferably for the full length thereof. Said plates converge, so as to form a throat in which the sheets are introduced one by one. The inner edge of the plate 18 is almost in contact with the top surface of the plate 17, thus having a tendency to smooth out sheets of paper that are introduced therebetween and to maintain the leading edges of the paper sheets in flat condition until they strike the roll and cylinder.

The upper guide-plate 18 extends rearwardly well beyond the line of impression and is recessed to receive the pressure-roll 11, Figs. 3 and 5. In other words, tongues or fingers 19 20 extend rearwardly from the main part of the plate 18 past the ends of the roll 11 and close thereto, said tongues being very close to the under surface of the stencil-cylinder, Fig. 1, so as to overlie the side edges or margins of the sheets 15. It will be understood that neither of the side edges of a wide sheet ever contacts with the stencil-cylinder; but these edges are deflected downwardly by said tongues 19, as seen at 21, Figs. 1, 2, and 4, and since the tongues 19 20 extend horizontally for a considerable distance back of the impression-line the paper is prevented from rising during its advance, which it would tend to do by reason of the adhering quality of the ink causing it to stick to the stencil-cylinder. Thus the paper is effectively stripped from the cylinder without liability of marring the paper or injuring the stencil-sheet, while high speed of operation is practicable.

The stencil-cylinder is rotated by means of a handle 22, carried upon an arm 23, which is formed with a bracket 24 to catch over the inner edge of the annular head 7 of the stencil-cylinder. This bracket and arm may be adjusted to any position around said head and secured by a thumb-screw 25. Said arm carries a stop 26 to coöperate with a stop 27, provided upon the portion 3 of the framework. These stops coöperate to position the cylinder at the proper point for the insertion of the leading edge of the paper into the bite of the cylinder and pressure-roll. The stop 27 is beveled, so that stop 26 will ride thereover when the cylinder is advancing, as shown by the arrow, Fig. 1, said stop 26 being in the form of a pin mounted in a central perforation in a housing 28, formed in the arm 23, the stop being yieldingly held in operative position by means of a spring 29 in said housing. When it is desired to set the cylinder, it is simply turned in the reverse direction as far as permitted by said stops and there held during the introduction of a sheet into the bite of the cylinder and pressure-roll. When it is desired to rotate the cylinder reversely independently of the stops, a handle 30, provided upon the stop 26, is pulled out and the stop turned around, so that the handle is held out of the diametrical slot 31, provided in said housing 28 to receive said handle. I provide upon the outer face of the annular head 7 a scale 32, with which coöperates an index 33, formed upon the stop-arm 23. The scale preferably is graduated in inches, so that it is only necessary for the operator to set the index 33 to the graduation on said scale which corresponds with the desired depth of top margin upon the paper and then secure the arm by turning the thumb-screw 25, and thereafter when the cylinder is reversed as far as permitted by the stop the paper will be introduced in the proper relation to the cylinder to secure the desired margin.

It will be understood that the surface of the stencil-sheet forms an unbroken round smooth cylinder, offering no depressions or recesses for the reception of means to strip the paper off from the stencil, and that the stencil-sheet is usually a thin filmy paper which cannot be touched by a stripper. It will also be understood that the paper if permitted to contact with the stencil for the entire width of the paper will be apt to adhere throughout to the stencil, so that it cannot conveniently be separated therefrom owing to liability of injury to the stencil. I avoid the necessityof inserting something between the stenciled sheet and the stencil itself by contriving to engage the side edge of the paper by the stripper before the paper enters the bite of the stencil-cylinder and the pressure-roll and to keep or fend said edge away from the stencil during the passage of the paper through the bite of the rolls, so that when it becomes necessary to strip the paper from the stencil the hold upon the paper for this purpose has already been secured. The strippers are placed sufficiently far from the axis of the stencil-cylinder 4 to clear the stencil entirely—that is, so as to lie outside of the cylindrical curvature of the stencil—the side edges of the paper being capable of yielding sufficiently downward to permit of its slight deflection away from the stencil-cylinder, as at 21, without damage to paper or stencil, whereby room is afforded for the insertion of the thin stripping-tongues between the stencil-surface and the paper, said tongues extending directly alongside the ends of the pressure-roll 11. By making the pressure-roll shorter than the cylinder room is gained for the placing of the tongues alongside thereof, while the roll is still long enough to cover the ink-field of the stencil-sheet, as will be understood.

Variations may be resorted to within the

scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim—

1. In a stenciling-machine, the combination with a stencil-cylinder and a roll to press sheets against the cylinder, of a stripping-tongue placed close to the cylinder and in position to engage the side edge of the sheet of paper before the latter is caught between the roll and cylinder, and extending directly alongside of the end of the roll at a sufficient distance from the axis of the cylinder to clear the stencil-sheet thereon.

2. In a stenciling-machine, the combination with a stencil-cylinder and a roll to press sheets against the cylinder, said roll shorter than the cylinder, of a stripping-tongue curving close to the cylinder and extending both forwardly and backwardly from the line of impression, and extending directly alongside of the end of the roll at a sufficient distance from the axis of the cylinder to clear the stencil-sheet thereon, and serving to prevent the side edge of the paper from contacting with the stencil and to strip the paper from the stencil.

3. In a stenciling-machine, the combination with a stencil-cylinder and a roll to press sheets against the cylinder, of a plate for directing sheets into the bite of the cylinder and roll, said plate extending close to the cylinder upon the receiving side thereof and reaching nearly to the line of impression between the cylinder and roll, and a stripping-tongue extending from said plate past said line of impression and directly alongside the end of said roll at a sufficient distance from the axis of the cylinder to clear the stencil-sheet thereon, and serving to keep the side edge of the paper out of contact with the stencil while passing between the cylinder and roll.

4. In a stenciling-machine, the combination with a stencil-cylinder and a roll to press sheets against the cylinder, of a plate extending close to the cylinder upon the receiving side thereof and reaching nearly to said roll, and two tongues extending from said plate past the line of impression and directly alongside the ends of said roll at a sufficient distance from the axis of the cylinder to clear the stencil-sheet thereon, and serving to keep the side edges of the paper out of contact with the stencil while passing between the cylinder and roll.

5. In a stenciling-machine, the combination with a stencil-cylinder and a roll to press sheets against the cylinder, of stripping-tongues placed close to the cylinder and in position to engage the side edges of the paper before the latter is caught between the roll and cylinder, and extending directly alongside of the ends of the rolls at a sufficient distance from the axis of the cylinder to clear the stencil thereon.

6. In a stenciling-machine, the combination with a stencil-cylinder and a roll to press sheets against the cylinder, of a plate extending along the cylinder and having one edge close to the line of contact between the cylinder and the roll, and a second plate between the first and the cylinder, said plates relatively inclined so as to form a throat for guiding sheets into the bite of the cylinder and roll; the second plate being prolonged at one side past the end of said roll, so as to strip the side edge of the sheet from the cylinder.

7. In a stenciling-machine, the combination with a stencil-cylinder and a roll to press sheets against the cylinder, of a plate extending along the cylinder, and having one edge close to the line of contact between the cylinder and the roll, and a second plate between the first and the cylinder, said plates being relatively inclined so as to form a throat for guiding sheets into the bite of the cylinder and roll; the inner edge of the second plate being almost contiguous to the surface of the first plate so as to coöperate therewith to smooth the leading edges of the sheets when crimped or bent; the second plate being prolonged at each side past the ends of the roll, so as to overlie the side edges of the paper, and strip the same from the cylinder.

8. In a stenciling-machine, the combination with a stencil-cylinder, of a pressure-roll beneath the same, a pair of converging plates extending along the cylinder and beneath the same, one of said plates having an edge close to the line of contact between the roll and the cylinder and the other of said plates having an edge close to the first plate, said edges being so near together and so close to the cylinder and roll that sheets are smoothed in passing through the crevice between the plates and maintained in a flat condition until passed into the bite of the roll and cylinder; means being provided extending from the side of the plate nearest the cylinder, and past the end of said roll, for overlying the side edge of the paper to strip the same from the cylinder.

9. In a stenciling-machine, the combination with a stenciling-cylinder, of a roll for pressing paper against the cylinder, means including a pair of stops whereof one is adjusted around the cylinder, for determining mechanically the position of the leading edge of the paper upon the periphery of the cylinder, and a fixed directrix controlling both top and bottom surfaces of the leading edge of the paper and mounted close to the line of contact between the roll and the cylinder.

10. In a stenciling-machine, the combination with a stencil-cylinder, of a fixed stop upon the framework, and an arm adjustable around the cylinder and having a yielding

stop to engage said fixed stop, said yielding stop mounted to ride over the fixed stop when the cylinder is rotated forwardly.

11. In a stenciling-machine, the combination with a stencil-cylinder, of a fixed stop upon the framework, and an arm adjustable around the cylinder and having a yielding stop to engage said fixed stop, said yielding stop mounted to ride over the fixed stop when the cylinder is rotated forwardly, and means for silencing one of said stops.

12. In a stenciling-machine, the combination with a stencil-cylinder, having one end open and supported upon its periphery, of a handle adjustable around the open end of the cylinder and provided with a stop, and a cooperative stop upon the framework.

13. In a stenciling-machine, the combination with a stencil-cylinder, having one end open and supported upon its periphery, of a handle adjustable around the open end of the cylinder and provided with a stop, and a cooperative stop upon the framework; a scale being provided upon said cylinder, and an index upon said handle for setting the latter.

14. In a stenciling-machine, the combination with a stencil-cylinder open at one end and having an interior flange and supported upon its periphery, of a handle having claws to catch hold of the edges of the flange, means for securing the handle at different points around the cylinder, and coöperative stops one upon the handle, and the other upon the framework.

15. In a stenciling-machine, the combination with a stencil-cylinder, of a handle adjustable around the cylinder, coöperative stops one upon the handle, and the other upon the framework, and means for silencing one of said stops.

16. In a stenciling-machine, the combination with a stencil-cylinder supported at one end upon a central journal, and open at the other end, and provided at its open end with an annular head and trundles upon which said annular head turns, of an arm secured to said annular head and having a stop, and a coöperating stop upon the framework.

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