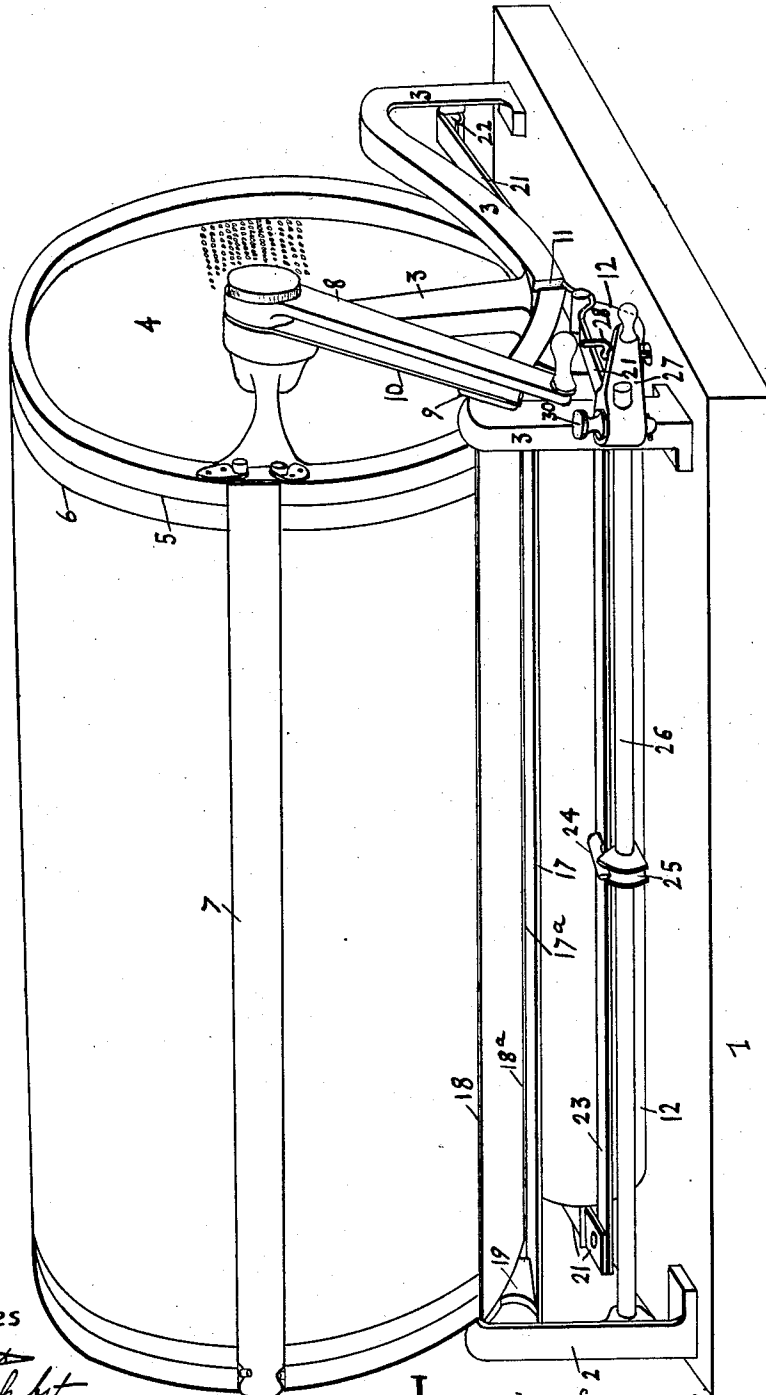


No. 828,556.

PATENTED AUG. 14, 1906.

E. F. KUNATH.
STENCILING MACHINE.
APPLICATION FILED JAN. 8, 1906.

2 SHEETS—SHEET 1.



Witnesses

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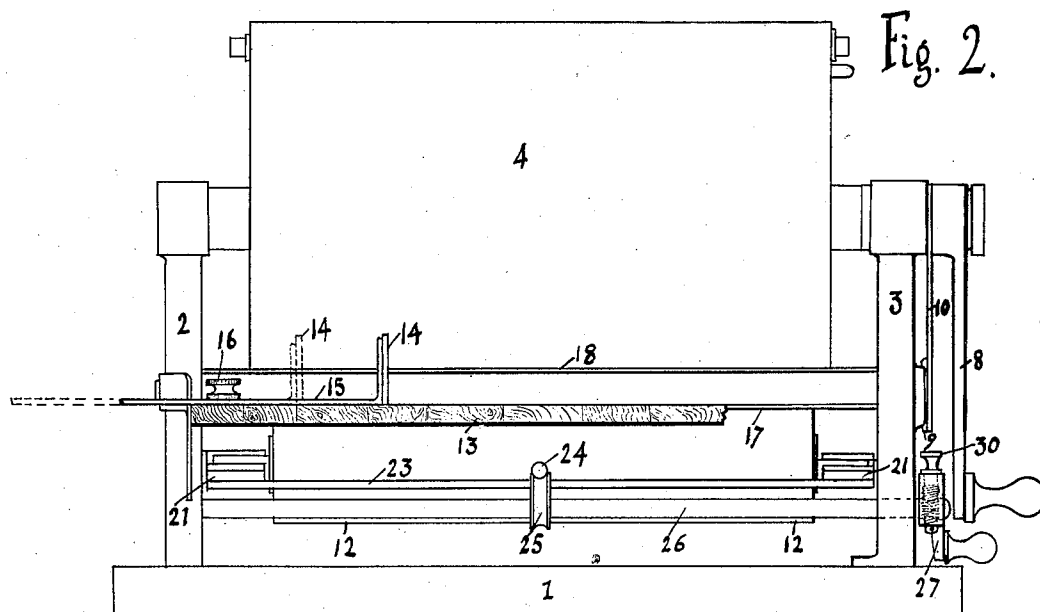


Fig. 2.

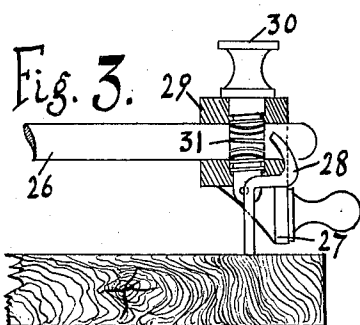


Fig. 3.

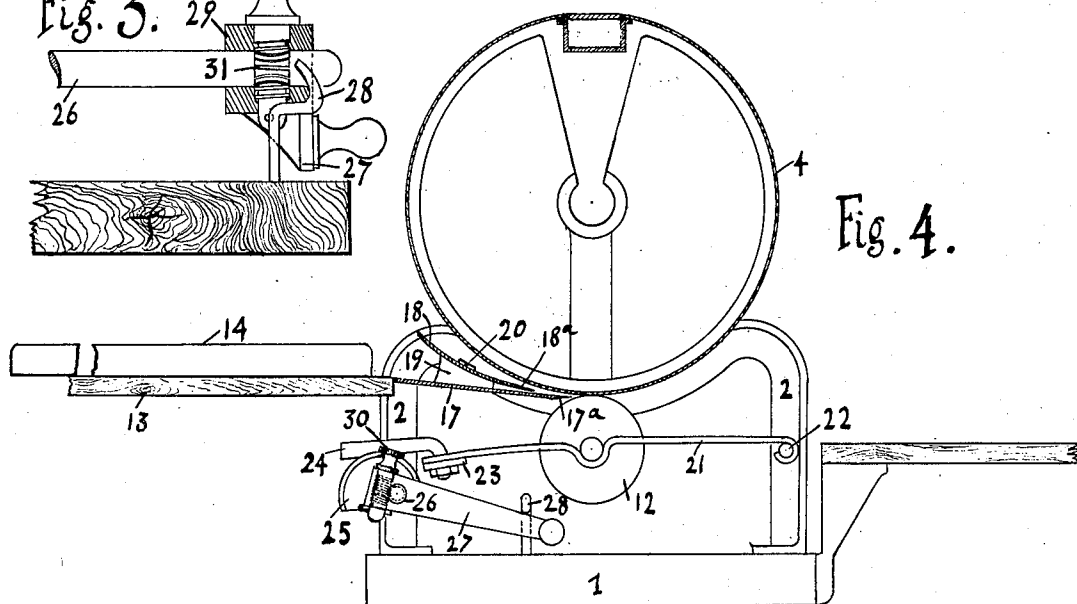


Fig. 4.

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STENCILING-MACHINE.

No. 828,556.

Specification of Letters Patent.

Patented Aug. 14, 1906.

Application filed January 8, 1906. Serial No. 295,074.

To all whom it may concern:

Be it known that I, EDWARD F. KUNATH, a citizen of the United States, residing in Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Stenciling-Machines, of which the following is a specification.

This invention relates to stenciling-machines, particularly those in which the stencil is secured upon a hollow revolving cylinder, the ink being usually applied to the inside of the cylinder and passing through pores therein and being absorbed by a blanket thereon, the stencil being placed upon the ink-blanket. In machines of this character it has been found impracticable to secure accurate registry of the type-written or printed matter upon the stenciled sheet. Frequently the sheets to be stenciled are printed with headings, ruled lines, blanks, &c., intended to be filled in by stenciling; but owing to the defects in the stenciling-machine it is found that matter stenciled upon the blanks falls sometimes above and sometimes below the proper position. It is also found in some cases that difference in the speed at which the machine is operated produces a difference in the registry of the stenciled matter on the sheet.

One object of my invention is to avoid this difficulty and secure exact register of the stenciled matter upon the duplicate sheets. In this class of machines it is usual to provide a roll beneath the stencil-cylinder to press the paper up against the same, and I have found that if the leading edge of the paper is slightly crimped or bent it does not, when introduced, pass so far into the bite of the cylinder as when the leading edge is straight or smooth. This is one of the principal reasons for discrepancy in a register of the stenciled matter upon the sheets. I have contrived means to overcome this difficulty, so that all sheets, whether their leading edges are crimped or not, are fed the same distance into the bite of the roll and cylinder, and hence accurate register is secured at all speeds of operation.

Another object of my invention is to secure any desired degree of pressure of said roll against the cylinder and at the same time make it convenient to release or throw off the roll without disturbing the pressure-

adjusting means, so that when the roll is again thrown up against the cylinder it will bear thereagainst with the same pressure as before it was released.

Other objects will hereinafter appear.

In the accompanying drawings, Figure 1 is a perspective view of a rotary-cylinder stenciling machine, showing my improvements applied thereto, although it will be understood that the invention may be applied to other forms of stenciling-machines. Fig. 2 is a front elevation of the machine. Fig. 3 is a detail of the device for regulating the pressure of the paper-pressing roll. Fig. 4 is a sectional transverse elevation of the machine.

Upon a base 1 are erected end frames 2 3, in which is journaled a hollow stenciling-cylinder 4, which is made of perforated sheet metal to permit outward flow of the ink to a blanket 5, which is wrapped around the cylinder. A stencil-sheet is also shown held thereon by a clamping-bar 7. A handle or crank 8 is provided for rotating the cylinder. A tooth 9 is formed upon the end of a spring-arm 10, which rotates with the handle, the tooth 9 springing into a notch 11, formed in the framework 3, thus determining the normal rotative position of the stencil-cylinder. Pressing up against the bottom of the cylinder is a roll 12, the axis of the latter being preferably parallel and in the same vertical plane with the axis of the cylinder 4. After the blanket and stenciled sheet have been secured upon the cylinder 4 and the ink spread upon the inside of the latter and the machine is ready to start the sheets are laid upon a table 13 against a side gage 14, which is of considerable length and is adjustable transversely, as indicated in dotted lines at Fig. 2, said gage being mounted upon an L-shaped arm 15, which is secured by thumb-screws 16. Thus perfect side register of the sheets is secured.

The sheets are advanced one by one into the bite of the roll 12 and cylinder 4. Leading from the shelf 13 almost to the line of contact 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 into 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, so that the crevice 18^a between said plates is only sufficiently capacious to permit the passage of a sheet of paper. The plates are secured at their ends to intervening blocks 19 by means of screws 20. It will be seen that smooth sheets of paper will pass through without difficulty and that if the leading edge of the sheet is crumpled or crimped or bent it will become gradually smooth by passing through the converging plates 17 18 and also that the inner thinned edges 17^a and 18^b of said plates are so close to the line of contact between the roll 12 and the stencil-cylinder 4 that the leading edge of the sheet is maintained in a perfectly flat condition until it strikes the roll and cylinder. The latter having a fixed normal position, as already explained, it results that the sheets always advance the same distance before being arrested by coming to the bottom of the crevice or interstices between the roll and cylinder, or, in other words, the cylinder and roll coöperate to form a gage for the leading edges of the sheets of paper, so that the stenciled matter falls in a predetermined position upon the sheet, and perfect registry of the stenciled matter upon the blank sheet is insured. Thus the guides 17 and 18 feed the blank paper into the point where the roll and cylinder come into contact. It is unnecessary to stop and straighten out the leading edge of the paper, as it can be forced right in between said guides without giving it other attention, providing only that it lies against the side gage 14. It is only necessary to force a sheet in as far as it will go, the bite of the cylinder and roll being the stop or gage for the sheet. The machine can be fed faster and made to accomplish considerably more work than heretofore, largely because the paper is presented so readily, quickly, and accurately to the bite of the roll and cylinder. The registry of the stenciled matter upon the blank sheets is always the same at all speeds of operation. Since the plates extend for substantially the entire length of the cylinder, or at least of the printing-field thereof or of the bite of roll and cylinder, both wide and narrow sheets may be straightened and fed to the gage.

The pressure-roll 12 is journaled in a pair of spring-arms 21, which are hinged at their rear ends at 22 and joined at their forward ends by a cross-bar 23. Midway of its length the latter has a projection 24, which is engaged by a cam 25, fixed upon a rock-shaft 26, so that by turning the shaft the projection or finger 24 is lifted, together with the pressure-roll frame, so that the roll is pressed up against the cylinder. When it is desired to release the roll, as for the purpose of removing or inserting new stencil-sheets or wax sheets, it is only necessary to turn the rock-shaft 26 back. For rocking said shaft an

arm or crank 27 is provided, and it is normally held in spring-tensioning position by a yielding latch 28. For effecting fine variations in the degree of pressure of the roll I mount in the hub portion 29 of the arm 27 a thumb-screw 30, which can turn freely in said arm, but does not move endwise therein. Upon the shaft is formed a set of teeth 31, like the teeth of a worm-wheel and engaged by the threads of the screw 30. By turning said screw upon its own axis the shaft can be rotated, while the arm 27 remains stationary, so that exactly the required pressure may be brought upon the trunnions of the roll 12, such pressure being even throughout the length of the roll, owing to the construction of its spring-frame and to the pressure brought to bear by the cam 25 upon the middle portion of said frame. When it is desired to cast the roll off, the latch 28 is sprung out of the way and the arm 27 flies up and the roll 12 drops, but the rotative adjustment of the screw 30 is not changed, so that in order to cause the roll to bear again with exactly the same pressure as before it is only necessary to press down the handle 27 until it is caught by the latch 28.

Variations may be resorted to within the scope of my invention, and portions of my improvements may be used without others. Having thus described my invention, I claim—

1. In a stenciling-machine, the combination of a stencil-cylinder which is stopped before each impression, to permit the introduction into the machine of a fresh sheet, a roll to press sheets against the cylinder and to coöperate with said cylinder to form a gage for the leading edges of the sheets, means for determining the initial rotative position of the cylinder, and means extending close to the line of contact between the cylinder and roll, for smoothing out the leading edges of the sheets, including a plate extending along the cylinder and having one edge close to said line of contact, and a second plate between the first and the cylinder and also extending along the latter, said plates relatively inclined so as to form a throat extending substantially the entire length of the roll.

2. In a stenciling-machine, the combination of a stencil-cylinder, which is stopped before each impression, to permit the introduction into the machine of a fresh sheet, a roll to press sheets against the cylinder and to coöperate with said cylinder to form a gage for the leading edges of the sheets, means for determining mechanically the initial rotative position of the cylinder, and means extending close to the line of contact between the cylinder and roll, for smoothing out the leading edges of the sheets, including a plate extending along the cylinder and having one edge close to said line of contact, and a second plate between the first and the cyl-

inder and also extending along the latter, 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.

3. In a stenciling-machine, the combination of a stencil-cylinder which is stopped before each impression, to permit the introduction into the machine of a fresh sheet, a roll beneath the same to press sheets against the cylinder and to cooperate with the same to form a gage for the leading edges of the sheets, means for mechanically determining the initial rotative position of the cylinder, a plate beneath the cylinder and having one edge portion close to the line of contact between the roll and cylinder, and a second plate curving around the cylinder and converging to the first plate, the inner edge of the curved plate being almost in contact with the top surface of the first plate and extending beneath the cylinder nearly to the edge of the first plate, and both plates extending along substantially the entire printing-field of the cylinder.

4. In a stenciling-machine, the combination of a stencil-cylinder which is stopped before each impression, to permit the introduction into the machine of a fresh sheet, a roll beneath the same to press the sheets against the cylinder and to cooperate with the same to form a gage for the leading edges of the sheets, means for mechanically determining the initial rotative position of the cylinder, a plate beneath the cylinder and having one edge portion close to the line of contact between the roll and cylinder, and a second plate curving around the cylinder and converging to the first plate, the inner edge of the curved plate being almost in contact with the top surface of the first plate and extending beneath the cylinder nearly to the edge of the first plate, and a paper-shelf; said first plate extending from said paper-shelf nearly to the line of contact between the roll and cylinder, and both plates extending along the cylinder for substantially the entire length of said line of contact.

5. In a stenciling-machine, the combination with a stencil-cylinder, which is stopped before each impression, to permit the introduction into the machine of a fresh sheet, of means for pressing sheets against the cylinder and for determining mechanically the initial position of the cylinder, and affixed paper-straightening directrix controlling both top and bottom surfaces of the leading edge of the sheet and mounted close to the line of contact between the roll and the cylinder and extending along the cylinder for substantially the entire length of said line of contact.

6. In a stenciling-machine, the combination with a stencil-cylinder and a pressure-roll, of a pair of spring-arms whereon said

pressure-roll is mounted, a releasable device for putting said spring-arms under tension, and a member carried by said releasable device but adjustable independently thereof, for varying the tension of said spring-arms that is produced by said releasable device.

7. In a stenciling-machine, the combination with a stencil-cylinder, a pressure-roll and a manually-operable throw-off device for putting said roll under and releasing it from pressure, of means between said roll and said manually-operable device and adjustable independently of the latter, for effecting fine variations in the pressure of the roll.

8. In a stenciling-machine, the combination with a stencil-cylinder and a pressure-roll, of means whereon said roll is supported so that one end may yield independently of the other, a releasable device or throw-off for causing said roll to press against the platen, and means adjustable independently of said releasable device, for effecting fine variations in the pressure of the roll against the cylinder.

9. In a stenciling-machine, the combination with a stencil-cylinder and a roll, of means for pressing the roll against the cylinder, a cam for putting said pressing means under tension, a handle for operating said cam, a screw device between said handle and cam for varying their relation, and releasable means for detaining said handle in position to press the roll against the cylinder.

10. In a stenciling-machine, the combination with a stencil-cylinder and a roll, of yielding means for holding the roll against the cylinder, a device for putting said yielding means under tension, said tensioning device including a shaft, a handle upon said shaft, a screw rotatable in said handle, a worm upon said shaft engaged by said screw, and releasable means for holding said handle in roll-pressing position.

11. In a stenciling-machine, the combination with a stencil-cylinder and a roll, of a pair of spring-arms for pressing the roll against the cylinder, a cam for putting said spring-arms under tension, a handle for operating said cam, a screw device between said handle and cam for varying their relation, and releasable means for detaining said handle in spring-tensioning position.

12. In a stenciling-machine, the combination with a stencil-cylinder and a roll, of a pair of spring-arms, yielding devices for holding the roll against the cylinder, a cam for putting said yielding devices under tension, a shaft upon which said cam is mounted, a handle upon said shaft, a screw rotatable in said handle, a worm upon said shaft engaged by said screw, and releasable means for holding said handle in spring-tensioning position.

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