

(No Model.)

2 Sheets—Sheet 1.

V. F. LAKE.

TYPE WRITING MACHINE INKING APPARATUS.

No. 581,236.

Patented Apr. 20, 1897.

FIG. 1.

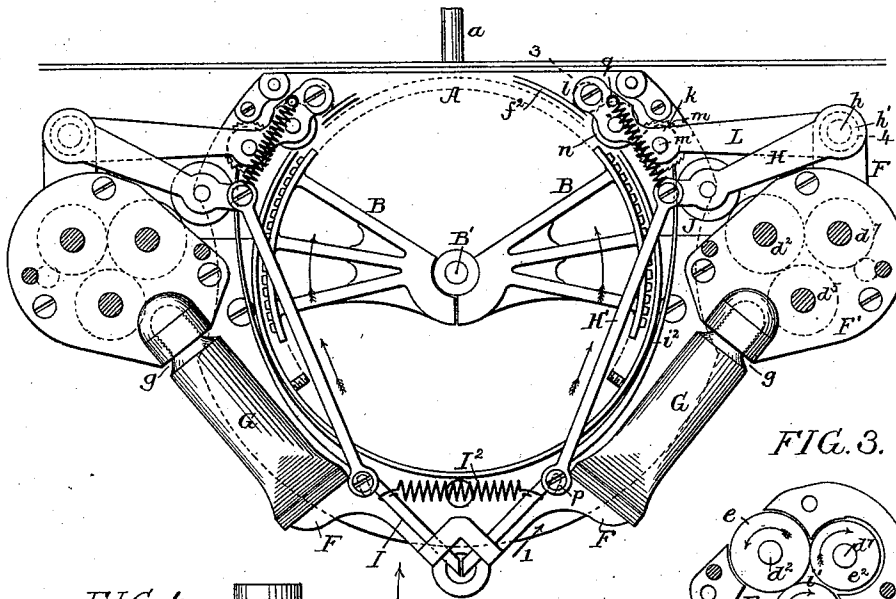


FIG. 3.

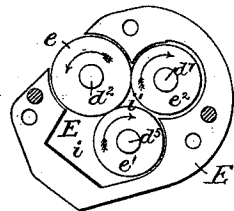


FIG. 4.

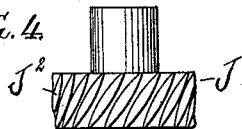


FIG. 2.

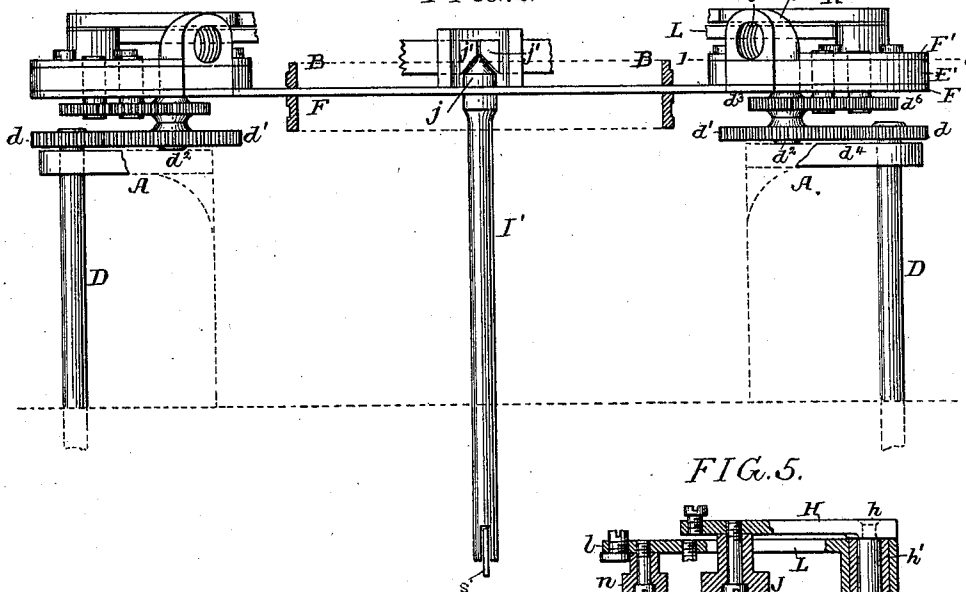
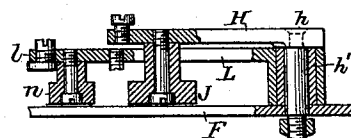


FIG. 5.



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FIG. 6.

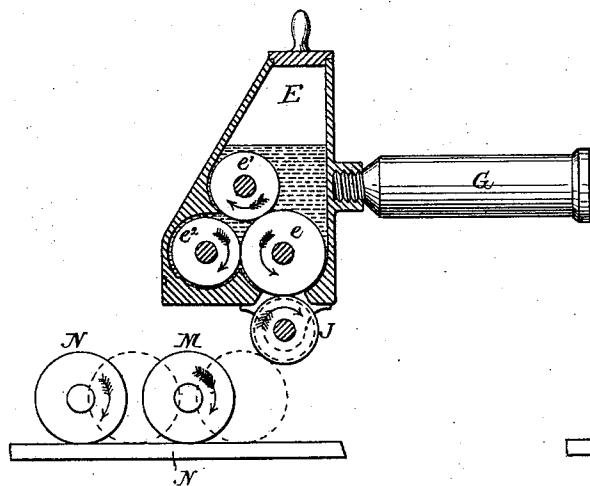


FIG. 7.

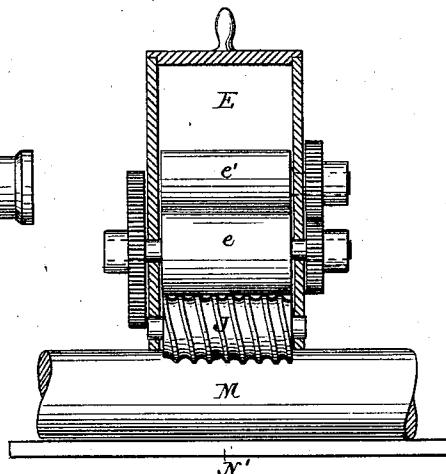
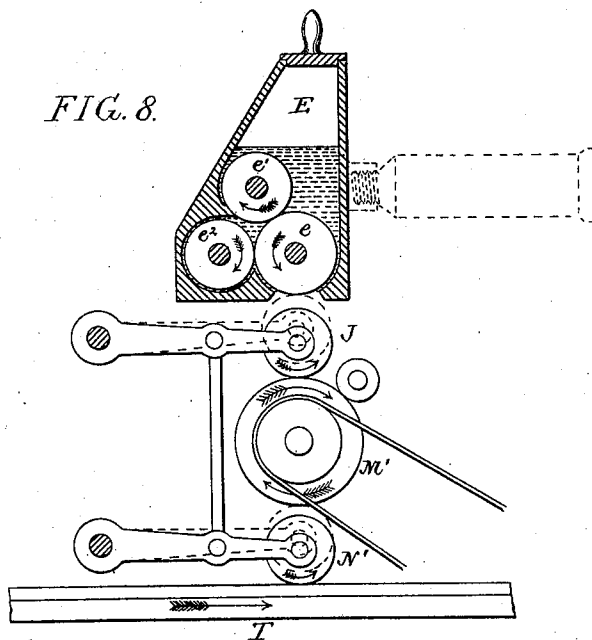


FIG. 8.



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UNITED STATES PATENT OFFICE.

VINCENT F. LAKE, OF PLEASANTVILLE, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO JOSEPH H. BORTON, TRUSTEE.

TYPE-WRITING-MACHINE INKING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 581,236, dated April 20, 1897.

Application filed March 29, 1893. Serial No. 468,178. (No model.)

To all whom it may concern:

Be it known that I, VINCENT F. LAKE, a citizen of the United States, and a resident of Pleasantville, Atlantic county, New Jersey, have invented certain Improvements in Inking Mechanism for Writing-Machines, of which the following is a specification.

The object of my invention is to construct an improved inking apparatus for type-writing machines, printing-presses, &c., the main object of my invention being to substitute an automatic inking apparatus in the place of the ribbon usually employed in type-writing machines.

It will be understood that in substituting inking-rollers for the ribbons usually employed clearer outlines can be obtained, which are capable of being transferred to a lithographic stone for duplicating purposes, and also by dispensing with the ribbon a bold-face type may be used, which is impracticable when inking-ribbons are employed; and still another object is to reduce the force of the blow to the rubber type and prevent damage thereto.

Referring to the drawings, Figure 1 is a plan view of a portion of a type-writing machine, illustrating my invention. Fig. 2 is a side view of Fig. 1, looking in the direction of the arrow. Fig. 3 is a section on the line 1 2, Fig. 2. Fig. 4 is a detached perspective view of one of the transmitting-rollers. Fig. 5 is a section on the line 3 4, Fig. 1; and Figs. 6, 7, and 8 are views of modifications of my invention as applied to printing-presses.

I have shown my invention as adapted to a type-writing machine of what might be termed a "Hammond," although it will be understood that my invention can be applied to other machines having a movable type-wheel.

I have shown an outline of a portion of the machine in dotted lines. In this instance I use the same type-segment and the same shafts that heretofore fed the ribbon across the face of the type. The construction of machine to which my invention is applied is fully set forth in the patent granted to J. B. Hammond, No. 290,419, dated December 18, 1883.

A is the frame of the machine.

B B are the type-segments pivoted to the central shaft B', which are moved to their proper positions in front of the hammer by depressing one or other of the keys on the key-board, which are connected through intervening mechanism with the type-segments.

On each side of the machine are the vertical shafts D D, which are moved at each movement of a character-key and are connected to the character-key, as fully shown in the above mentioned patent. Each of these shafts is provided with a gear-wheel d , meshing with a gear-wheel d' on a shaft d^2 , carrying the inking-roller e , Fig. 3. This inking-roller rests in an inking chamber or reservoir E in the plate E' and delivers ink from the said reservoir to an outside roller, as described hereinafter.

On the shaft d^2 is a gear-wheel d^3 , meshing with a gear-wheel d^4 on a vertical shaft d^5 , carrying at its upper end the first ink-working roller e' , and also meshing with the gear-wheel d^3 is a wheel d^6 on a vertical shaft d^7 , carrying the second working roller e^2 .

The three rollers e e' e^2 are mounted in the reservoir E, which is covered by a suitable plate F'.

In a raised portion f of the plate is a screw-threaded orifice f' , which communicates with the reservoir E. Adapted to this screw-threaded orifice is an ink-tube G, made flexible and preferably in a manner similar to the flexible metallic tubes used for fine oil-colors.

The neck of the tube is screw-threaded to fit the screw-threaded orifice f' , so that all that is necessary is to unscrew the cap of the tube, which has been previously filled with ink, and screw the tube into the orifice. Thus by simply squeezing the tube ink will be forced into the chamber i of the reservoir E, and as I prefer to use comparatively stiff ink in order to gain the best results I break up the ink before placing it upon the type.

Other forms of ink-tubes may be used, as, for instance, a tube, instead of being made out of pliable metal, such as lead or a composition thereof, may be made of rubber or similar material which will yield to pressure, and the form of the tube may be varied as the character of the machine varies.

By the arrangement shown in Fig. 3 the ink

is first passed between the rollers e e' from the chamber i to the chamber i' and then passes from the chamber i' between the rollers e e^2 , and these rollers are so adjusted in respect to each other that only a thin film of ink is retained by each of them. The film of ink upon the roller e is partly transferred to the distributing-rolls, and the balance is carried into the chamber i , while the entire film of ink upon the roller e^2 is carried into the chamber i' . The object of the roller e' is chiefly to carry more ink into the chamber i' than is used by the roller e . To accomplish this, the wall between e' and e^2 should be close to e' .

Mounted on a pivot h is an arm II, connected to a sliding bar I by a link II'. (Shown in Fig. 1.)

The sliding bar I is adapted to bearings on the carrying-plate F and is given a short forward feed by the vertical movement of a rod I', acted upon by the space-lever s , the rod I' having a conical end j , working against the inclined portion j' of the bars I I, as it will be remembered that the mechanism above described is duplicated on the opposite side of the machine. A spring I² tends to return the bars I to their normal position.

Carried by the arm II is the first distributing-roller J, having its surface preferably corrugated J² at an incline, as shown in Fig. 4. This roller receives ink from the roller e , the quantity being varied according to the amount of surface of the rollers J in contact with the roller e , as it will be remembered that the surface between the series of corrugations J² on the roller is the only surface that will receive the ink, and by reducing this surface by either making a number of corrugations or making the grooves wide the surface therein of the roll capable of receiving the ink will be reduced, and by having a number of these corrugations or grooved rolls differing in surface area more or less ink can be supplied to the inking-rolls m and n without resorting to the usual method of increasing or diminishing the quantity of ink upon the fountain-roller e .

Mounted on an arm L, which is pivoted upon the hollow stud h' and made adjustable at the other end to the frame F by an eccentric-pin l , are the rollers m and n , the roller n being the roller which distributes the ink to the type, and the roller m is an intermediate between the roller J and the distributing-roller n . The roller n is moved toward or from the line of type by means of the eccentric-pin l , which will move the arm L on its pivots h .

Carried by the spindle m' of the roller m is a ratchet-wheel k , which is acted upon by the spring-finger i^2 of the bar I, so that when the bar is moved by the space-key, as described above, it will turn the roller m a certain distance, so that it will be seen that when a space-key is struck the bars I move in the direction of the arrow 1, Fig. 1, permitting the

roller J by the action of a spring q to come in contact with the roller m , and the spring-pawl i^2 will turn the roller m a certain distance, together with the rollers n and J, and owing to the lost motion at the joint p between the rod I and the connecting-rod II' the roller J remains in contact with the roller m a limited time, sufficient to place upon the roller m the amount of ink required.

The spring q , in addition to its action upon the roller J when the bar I is advanced by the space-key, as above described, keeps the inking-roller n always up to its work, the eccentric-pin l bearing against the flange f^2 of the frame F. By turning this pin, as above described, the inking-roll can be moved from or toward the path of the type.

I prefer to make the inking-rollers m and n of composition or of soft rubber and the roll J of hard rubber and the rollers e e' e^2 of metal.

When the fluted roller J is used to supply ink to a single row of type, as in the machine of the Hammond type, I prefer to have the surfaces between the flutes or grooves tapering both up and down, as shown in Fig. 4, whereby a greater body of ink is distributed to the body of the characters and but little for the upper and lower portions of the same.

It will be understood that the mechanism from the roller J to the roller n may be varied, according to the character of machine to which my improvements are applied, and the construction of the operating mechanism will be varied accordingly.

Figs. 6 and 7 illustrate my invention as applied to a job-printing press. N' is the ink-slab of the press, and N and M are the distributing-rollers. The reservoir E is so placed in respect to the movement of these rollers that as the frame carrying the rollers N and M reciprocates they come in contact with the roller J, which in this instance is fixed in respect to the reservoir, although it may be movable, as in Fig. 1. As will be seen on referring to Fig. 7, the roller J is corrugated for the same purpose as that described above, the ink being transferred from the roller e to the roller M by the roller J.

In Fig. 8 I have shown the application of my invention to a larger press. The roller J in this case oscillates between the roller e and a continuously-revolving composition roller M', and the roller N' oscillates between the roller M' and the type mounted on the platen T.

Other forms of mechanism will readily suggest themselves to supply ink to the type-form or type from the fluted roller, and this part of my invention may be modified accordingly.

I claim as my invention—

1. An ink-distributing roller having a series of grooves in its surface, the surface between the grooves being tapered, substantially as described.

2. The combination of the closed reservoir E, the ink-delivery roller e , the first working

roller *e'* and the second working roller *e*², the first and second rollers being independent of each other, but acting in conjunction with the delivery-roller *e*, the whole being arranged within the reservoir, substantially as and for the purpose set forth.

3. The combination of the reservoir, the pivoted arm, a roll *J* carried thereby, a type-inking roll adapted to receive ink from the roll *J*, a rod *I'*, a bar *I* and a connecting-rod *H'*, substantially as described.

4. The combination in an inking mechanism for type-writing machines, of the ink-reservoir, its roller, pivoted arm *H* carrying roller *J*, rollers *m* and *n*, ratchet-wheel *k* connected to said roller *m*, a bar *I* having a pawl acting upon said ratchet-wheel, and a connecting-rod *H'* connecting the arm *H* with the bar *I*, substantially as described.

5. In an inking apparatus for type-writing machines, the combination of an ink-fountain, a roller therein, mechanism for operating said roller, a type-inking roller, an ink-distributing roller between the fountain-roller and the type-inking roller, mechanism carrying said ink-distributing roller, said mechanism being operated to give said ink-distributing roller an independent movement from the fountain-roller to the delivery-roller, substantially as described.

6. The combination in inking mechanism for type-writing machines, of the tube *G*, the

reservoir *E*, ink-working rollers therein, a pivoted arm *H*, a roller *J* carried thereby, an arm *L*, ink-distributing rollers *m n* carried by said arm, said lever being adjustable in respect to the path of the type, a sliding bar *I*, mechanism for operating the bar, a ratchet-wheel on the roller *m*, a pawl engaging with said ratchet-wheel, a connecting-rod *H'* connecting the said sliding bar with the pivoted arm *H*, substantially as described.

7. The combination in a type-writing machine, of the two segmental type-carriers, each adapted to reciprocate in a path substantially as described on each side of the machine, two independent ink-fountains, working rollers therein, and two sets of inking-rollers and distributing-rollers, one set arranged on one side of the machine, and the other set on the opposite side, to ink the type on the segments as they pass the rollers to the impression position, driving-shafts connected to the working rollers and operating mechanism for the distributing-rollers, substantially as described.

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

VINCENT F. LAKE.

Witnesses:

HENRY HOWSON,
JOSEPH H. KLEIN.