(No Model.) 2 Sheets—Sheet 1.

M. J. DOLPHIN.

INKING DEVICE.

No. 449,405. Patented Mar. 31, 1891.

Fig. 1.

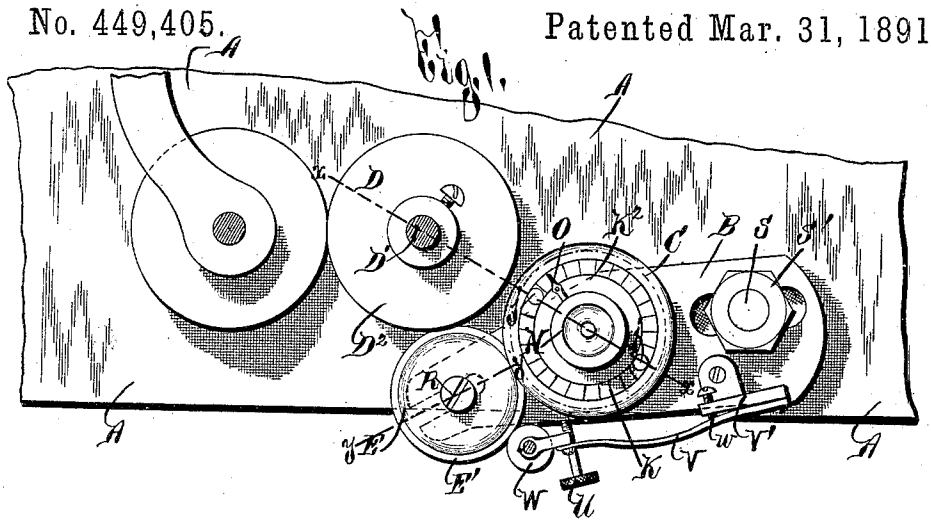
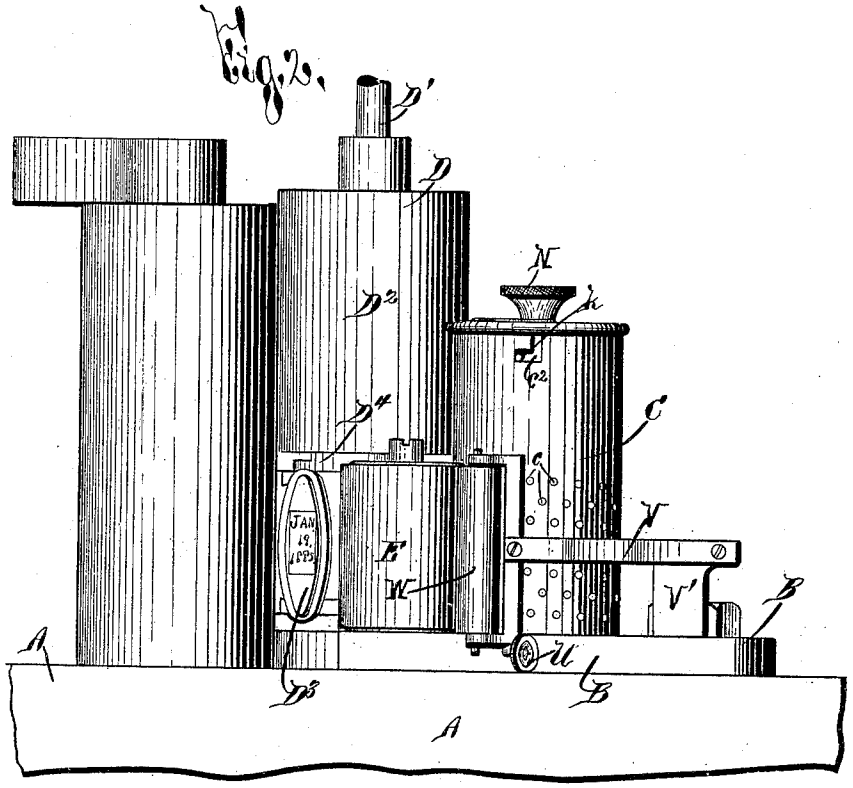


Fig. 2.



WITNESSES:

R. Parsons

August Botham

INVENTOR

Mathew J. Dolphin

BY

George W. Reed

ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

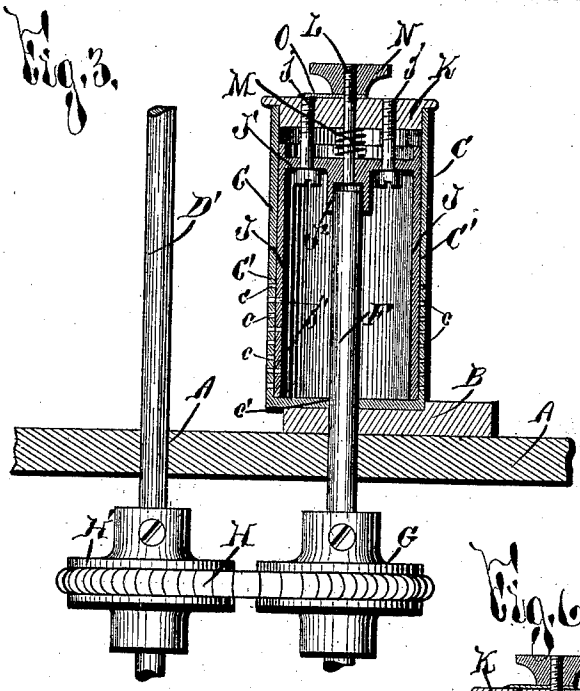


Fig. 6.

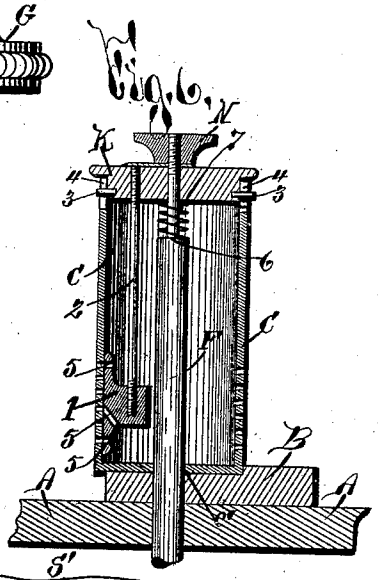


Fig. 4.

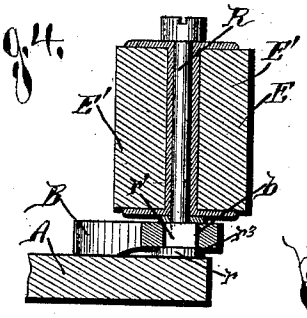
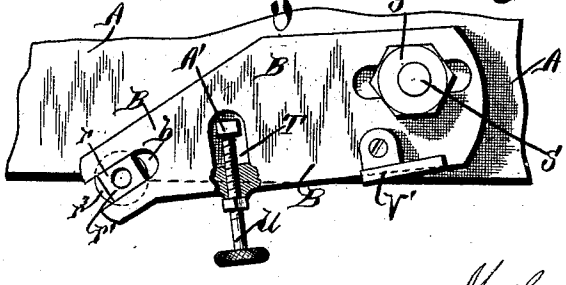


Fig. 5.



WITNESSES:

A. C. Parsons

August Bertram.

INVENTOR

Matthew J. Dolphin

BY

George W. Hey

ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

MATTHEW J. DOLPHIN, OF BROOKLYN, NEW YORK.

INKING DEVICE.

SPECIFICATION forming part of Letters Patent No. 449,405, dated March 31, 1891.

Application filed September 14, 1889. Serial No. 323,946. (No model.)

To all whom it may concern:

Be it known that I, MATTHEW J. DOLPHIN, of Brooklyn, in the county of Kings, in the State of New York, have invented new and useful Improvements in an Inking Device, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to an improved inker, and has for its object the production of a simple and effective device which will continuously and very evenly feed ink to the marker of a marking-machine; and to this end it consists, essentially, in a suitable ink reservoir or holder, a feeding-surface connected to said reservoir or holder, and a regulator for governing the flow of the ink from the holder or reservoir.

It also consists in an inking or distributing roller connected to the ink-feeding device and adjacent to the marker of the marking-machine for continuously inking said marker.

It furthermore consists in the detail construction and arrangement of the parts, all as hereinafter more particularly described, and pointed out in the claims.

In describing my invention, reference is had to the accompanying drawings, forming a part of this specification, in which like letters indicate corresponding parts in all the views.

Figure 1 is a plan view of my improved inking device, the marker, and the support for the article marked. Fig. 2 is an elevation of the parts illustrated in plan view in Fig. 1. Fig. 3 is a longitudinal sectional view taken on line *x x*, Fig. 1, the marker being removed from its actuating-shaft. Fig. 4 is a sectional view taken on line *y y*, Fig. 1, illustrating the spreading or evening roller. Fig. 5 is a plan view of the supporting-bracket for the inking device; and Fig. 6 represents a modified form of my invention.

The table or other support A for the inking device may consist of the ordinary supporting-table for the marking-machine, or of any special construction. Mounted upon the table A is the bracket B, which carries the ink-feeding roller C of the inker. Supported adjacent to the feeding-roller and preferably a short distance therefrom is the marker D, which may be of any desirable form, size, or construction, but is here illustrated as the one described and claimed in the patent of August Bertram, No. 406,401, dated August 6, 1889. This marking-roller is mounted upon the shaft D′, and consists of the continuously-revolving portion or drum D^2 and the printing portion or marker D^3, normally at rest, until a clutch D^4 is operated to connect said marker to the drum D^2. The marker then makes a complete revolution and immediately the clutch disengages the same from the drum and the rotation of the marker ceases until the clutch is again operated by another letter.

In order to feed the ink from the ink-feeding roller C to the marker D^3, I use the spreading or distributing roller E, which is preferably supported upon the bracket B. The roller C is provided with an ink reservoir or receptacle, which preferably consists of a cavity or recess C′ formed in said roller. Passing from the interior to the outside of said roller C are a suitable number of openings or passages *c*. I firmly secure the roller C to its actuating-shaft F, and preferably by solder at the point *c′*. A wheel G is secured to the shaft F and connected by a chain or belt H to a like wheel H′, secured upon the shaft D′. It will thus be seen that the feeding-roller C is constantly revolved and the centrifugal force generated by the revolution of the ink-feeding roller compels the ink contained in the reservoir C′ to feed through the passages *c* to the outside feeding-surface of said roller.

The flow of the ink from the roller C′ is governed or regulated by the regulator J, which preferably consists of an inner sleeve guided rectilinearly within the cavity C′ of the roller C. Secured to said sleeve J, and preferably in the upper part thereof, is the shoulder or bar J′, provided with a hub J^2, in which the shaft F is guided.

Removably secured to the feeding-roller C, is the cap or filling piece K, provided with a pin *k*, which enters an angular slot c^2, provided in the upper part of said roller C, and thus secures said cap to the said roller and also prevents the cap from turning within the sleeve C.

Projecting upwardly from the shoulder J′ are the guides *j*, which pass through guideways in the cap K. A pin L is formed upon or secured to the plate J′ and projects up-

wardly through the cap K to a sufficient distance above the top face thereof.

Interposed between the underneath face of the filling-piece K and the plate or shoulder J′ is the spring M, which constantly forces said parts away from each other. The extremity of the pin L, extending beyond the filling-piece, is provided with screw-threads, with which is engaged a nut N, bearing upon the top face of the plate K and having an indicator-finger O secured thereto. The indicator-finger works around a dial K^2 upon the top face of the filling-piece K. As the nut N is turned downward, the pin L is drawn upward, elevating the sleeve J. Provided in the sleeve J are openings j', which are of less combined area than the openings c in the sleeve C, being preferably few in number and adapted to register with a like number of openings c. As the sleeve J is elevated, these holes j' are drawn out of registration with the openings c, and consequently the flow of the ink from the interior of the sleeve J is diminished. By screwing upward the nut N the screw will be forced downward, and its downward movement will be accelerated by means of the spring M. The guide-pins j serve to prevent the holes j' from being forced sidewise out of registration with the holes c, and insure a rectilinear movement of said sleeve J.

It will be understood that in order to govern the flow of the ink by moving the openings j' upward or downward and varying their registration with the feeding-opening c in the sleeve C, the sleeve J must fit the sleeve C very closely, and thus prevent the entrance of ink between the adjacent peripheries of said sleeves.

By means of the dial K^2, the turning of the nut N, having the indicator-finger secured thereto, can be gaged to the desired position and the desired flow of ink can be positively insured.

In inking devices previously constructed there has been great difficulty in causing an even flow of the ink; but by my construction of ink-feeding, when the sleeve J is filled with ink, it will be understood that the pressure of the ink at the top will force the ink out of the holes or passages J′ with considerable flow, and in this case it will be necessary to draw upward said sleeve J, and diminish the area of the passage, and as the ink becomes low the opening j' can be entirely registered with the opening c, thus increasing the flow of the ink.

The ink is filled into the reservoir through an opening in the plate J′. However, by cutting a suitable slot in said pipe I might insert the end of an inlet-pipe which could be utilized to feed the ink continuously into the ink-reservoir, thus obviating the necessity of changing the regulator J. In this case the regulator could be set so that the ink would feed with the desired rapidity from the passages c and could then remain at said position. With my device the ink is used to almost the last drop, since the centrifugal force compels the ink to rise upward within the feeding-roller and causes its passage through the feeding-opening c when the level of the ink is much below said openings.

It will be understood that the openings c serve as a holder for the ink and that the same soon become filled with ink and cause an even distribution of the ink around the lower portion of said roller. While it will be understood that the ink might be applied directly to the marker D^3 from the feeding-roller C, the best results are obtained by using a distributing-roller E. This roller E may be of any desirable form or construction, and is preferably provided with a suitable yielding face or periphery E′, which is formed of felt or other like material and soaks up the ink. I loosely mount the roller E upon its supporting-spindle R in order that the rotation of the marker D^3 will rotate said roller and prevent an uneven wear thereupon. Bearing against the underneath surface of the bracket B is the shoulder r^3 of the washer r, which is provided with an upward extension r' guided in a groove b of said bracket. When the roller E is sufficiently approximated toward the feeding-face of the feeding-roller C, the pin R is screwed downward into the washer r, drawing said head r^3 tightly against the underneath surface of the bracket B and retaining said roller in its desired position by means of said friction of the shoulder r^3 against said bracket.

It will be understood that irrespective of the amount of ink in the ink-reservoir the ink-distributing roller feeds the ink to the marker in the same quantity as long as ink is fed from the feeding-passages c.

As previously stated, the printing portion or marker D^3 of the marking-roller is normally at rest and intermittently rotated by a clutch D^4, locking the same to the constantly-rotating drum D^2, secured to the shaft D′. Consequently the loosely-mounted distributing-roller E, which is in the path of the marker or die D^3, is rotated thereby, and as the rotation of the die is intermittent, therefore the rotation of the distributing-roller is also intermittent. In order to prevent the constant rotation of this distributing-roller by the ink-feeding roller C, the said distributing-roller, although sufficiently approximated to the feeding-roller C to remove or wipe the ink therefrom, is not sufficiently approximated to enable the friction of the constantly-rotating roller C to operate or rotate the said distributing-roller. In other words, although the roller E is sufficiently approximated to the roller C to enable the former to feed the ink from the latter, the friction between the two is insufficient to overcome the inertia of the roller E, and is also of less degree than the friction between the die D^3 and said roller E. It will be understood, however, that, if desired, this

roller E might constantly rotate and that the illustrated and described operation is only the preferable one.

In order to obtain the best results I prefer to make the roller E adjustable toward the printing device D^3, and consequently I pivot the bracket B in any desirable manner, and preferably upon a pin S. A nut S′ screws upon said pin S, and secures the bracket in its desired position. It is frequently necessary to obtain a fine adjustment of said bracket, and to effect this result I form the bracket with a recess T, in which is guided a projection A′, secured upon the support A for the inking device. Provided in the bracket B is the regulating-screw U, the inner end of which bears against the stud A′. By loosening the nut S′ and allowing a free movement of the bracket B, it will be understood that I then move the screw U either inward or outward, and thus approximate the roller E toward or away from the marker. It will be understood that by this adjustment of the distributing-roller E, the inking is rendered very positive and the wear thereupon is greatly overcome.

In order to further facilitate the evenness of inking, I provide the spreading or evening roller W, preferably mounted upon the spring V, secured to a support or projection V′, mounted upon the bracket B. In order to vary the pressure of said roller W against the inking-roller, I provide the screw *w*, which is secured in the projection V′, and, bearing against the spring V, forces the same away from said projection when the roller W presses too tightly against the distributing-roller E.

At Fig. 6 I have shown a modified construction of my feeding-roller, in which I have dispensed with the inner sleeve C. On the inside of the feeding-roller C, I provide the regulator, which here consists of a plate or foot 1, connected to the filling-piece K by a rod 2. In this modification the filling-piece is provided with lugs or pins 3, which slide up and down slots 4, provided in the roller C, thus drawing upward the plate 1. The plate 1 is provided with apertures 5, which are registered with the apertures *c* of the feeding-cylinder in precisely the same manner in which the apertures of the regulator J were registered. In this modification the upper part of the actuating-shaft is provided with a shoulder 6, between which and the underneath face of the filling-piece K, I interpose the spring 7, which constantly forces upward said filling-piece. Provided at the top of the extremity of the marking-shaft is the nut N, having the indicator-finger secured thereto, which operates in precisely the same manner as previously described.

It will be understood that considerable change may be made in the detail, construction, and arrangement of the parts of my invention. Hence I do not limit myself to its precise form and construction.

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

1. The combination of an intermittently-operating marker, a continuously-operating ink-feeding roller, and connecting means, substantially as described, between said marker and ink-feeding roller, substantially as and for the purpose specified.

2. An ink-feeding roller consisting of a hollow sleeve having feeding-passages leading through its wall from the inside to the outside thereof, and a regulator for adjusting the feed of said passages, said regulator having a less number of openings than said sleeve, substantially as specified.

3. The herein-described ink-feeding roller, consisting of an outside feeding-sleeve, a number of openings through the wall of said outer sleeve, an inner ink-containing sleeve movable within the former sleeve, and feeding-passages through the wall of the latter sleeve, said latter openings being of less combined areas than the former openings, substantially as and for the purpose described.

4. An ink-feeding roller consisting of a hollow sleeve, feeding-passages leading from the interior to the outside thereof, a regulator for adjusting the amount of opening of said passages, and having a less number of openings than said sleeves, and a gage for setting the regulator at any desired point, substantially as and for the purpose set forth.

5. An ink-feeding roller consisting of an outer sleeve, an inner sleeve guided within said outer sleeve, feeding-passages provided in the separate sleeves, with a less number of openings in the inner sleeve than the other, guide-pins for guiding the inner sleeve within the outer sleeve, and a device for adjusting the inner sleeve to the desired position within the outer sleeve, substantially as and for the purpose described.

6. In an ink-feeding roller, the combination of an outer distributing-sleeve revolving in a vertical plane, feeding-passages provided in said sleeve, and an inner ink-containing sleeve detachably secured to the outer sleeve and having openings in the latter sleeve of less combined area than the openings in the former sleeve, substantially as set forth.

7. The combination of a marker, a hollow ink-feeding sleeve having feeding-passages and an inner ink-containing sleeve having a less number of openings than the former sleeve for governing the feed of the ink, and a distributing-roller for conveying the ink from the ink-feeding roller to the marker, substantially as described.

8. The combination of a continuously-operating ink-feeding roller, a marker normally at rest, mechanism, substantially as described, for intermittently operating said marker, two or more intermediary ink-distributing rollers between said marker and ink-feeding roller, one of which is loosely mounted and projects slightly into the path of the said marker, substantially as and for the purpose specified.

9. The combination, with a marker rotating in fixed bearings, of a supporting-bracket, an inker mounted upon said bracket, and an adjusting device for adjusting the bracket to the desired position in relation to the marker, and means, substantially as described, for retaining said bracket in its adjusted position, substantially as and for the purpose described.

10. The combination of a marking-roller rotating in fixed bearings, a swinging bracket, means, substantially as described, for retaining said bracket in its adjusted position, an ink-feeding roller mounted upon said bracket, a distributing-roller for feeding ink from the ink-feeding roller to the marker, said distributing-roller being adjustably mounted on said bracket for adjusting the same toward the ink-feeding roller, substantially as and for the purpose specified.

11. The combination of a marking-roller rotating in fixed bearings, a supporting-bracket, an ink-feeding roller mounted upon said bracket, a distributing-roller for feeding ink from the ink-feeding roller to the marker, said distributing-roller being adjustable toward the ink-feeding roller, an adjusting device for adjusting said bracket toward the marker, and means, substantially as described, for retaining said bracket in its adjusted position, substantially as and for the purpose described.

12. In an inking device, the combination of a supporting-bracket, an ink-feeding roller, a distributing-roller for feeding ink from the ink-feeding roller to the marker, and a yielding spreader or evener bearing against the distributing-roller, substantially as and for the purpose set forth.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at the city of New York, in the county of New York, in the State of New York, this 29th day of August, 1889.

MATTHEW J. DOLPHIN.

Witnesses:

AUGUST BERTRAM,

HARRY WOLFE.