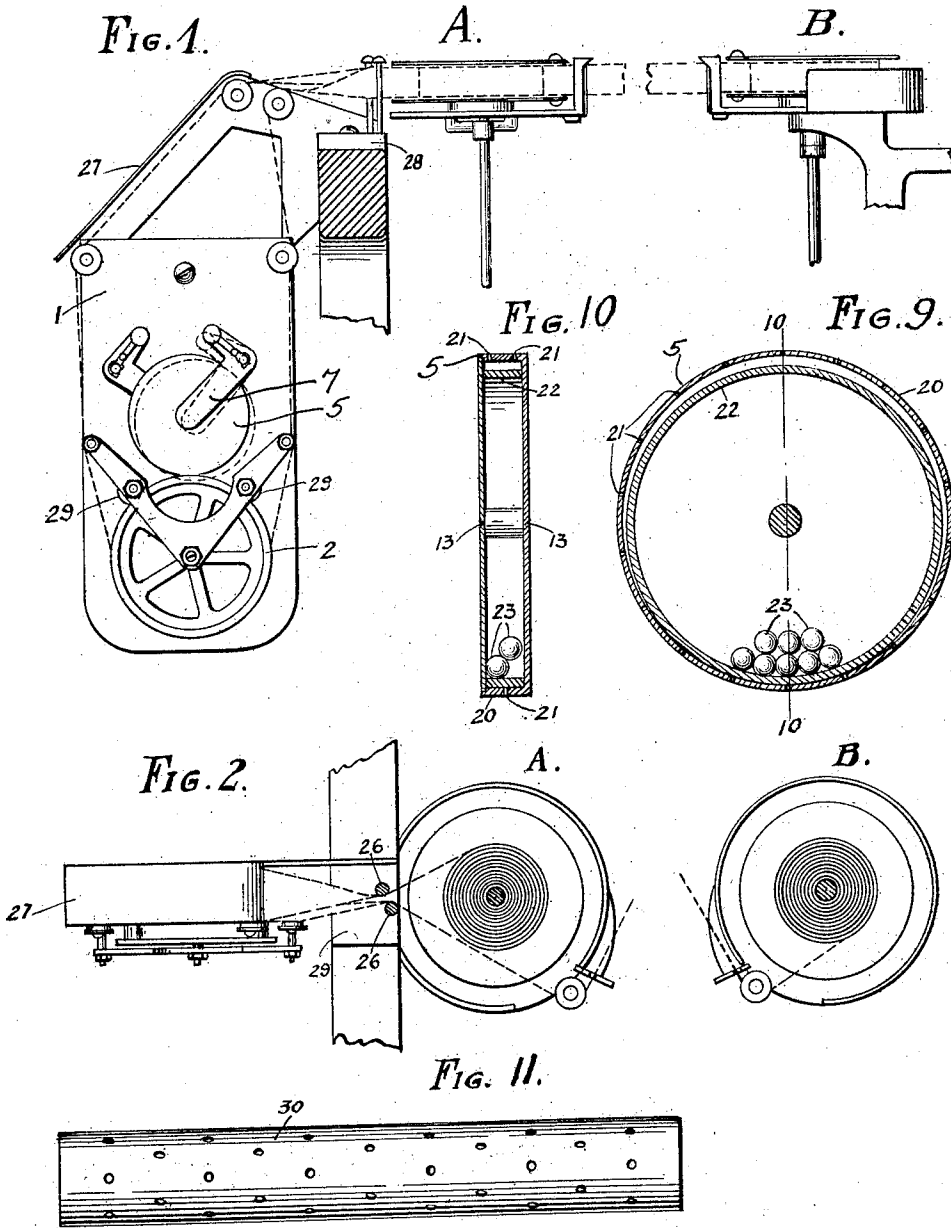


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COATING MACHINE.
APPLICATION FILED SEPT. 21, 1917.

1,393,637.

Patented Oct. 11, 1921.
2 SHEETS—SHEET 1.



Witness
B. Schmuck

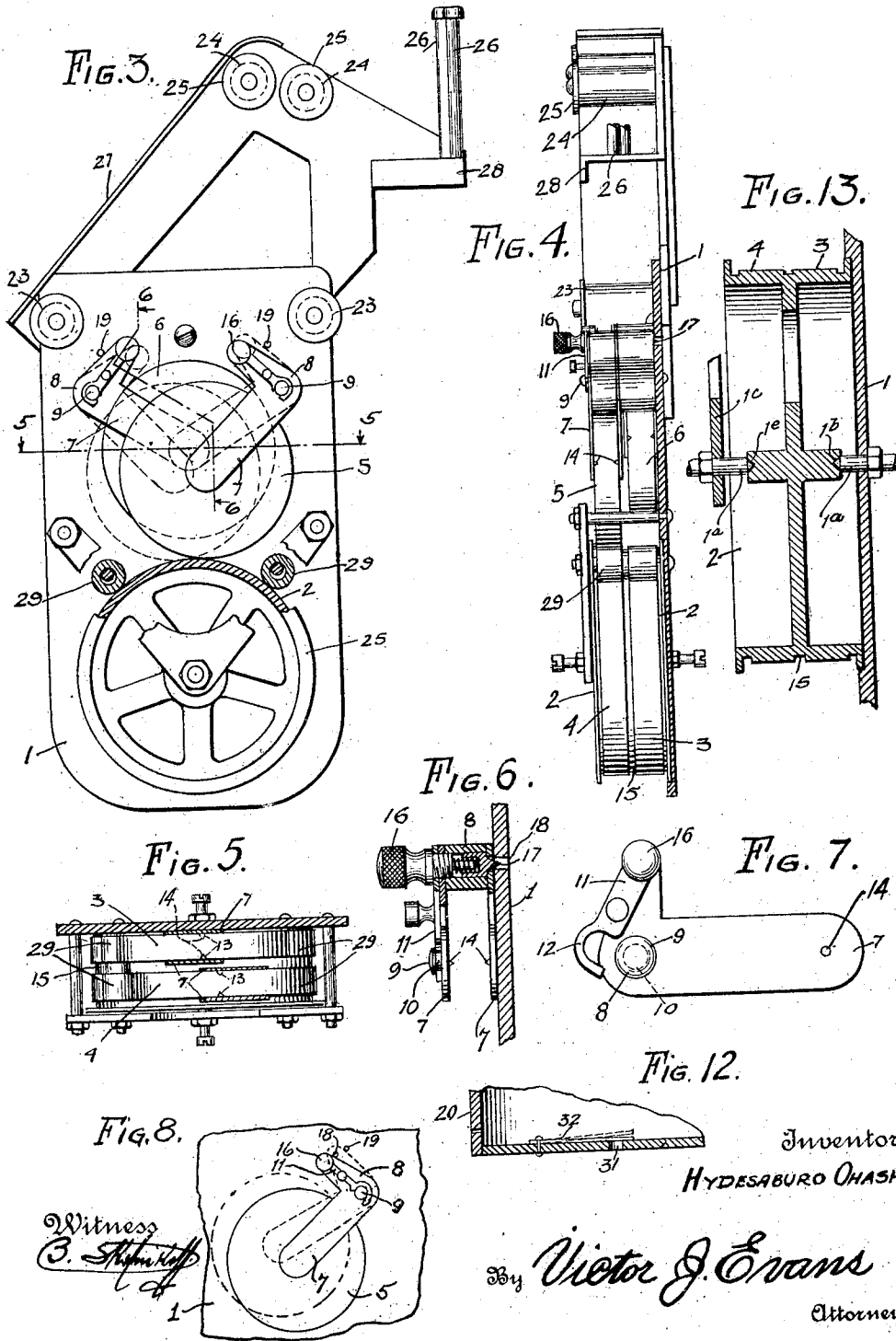
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2 SHEETS—SHEET 2.



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HYDESABURO OHASHI, OF NEW YORK, N. Y., ASSIGNOR TO HYDESABURO OHASHI & CO., INC., OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

COATING-MACHINE.

1,393,637.

Specification of Letters Patent.

Patented Oct. 11, 1921.

Application filed September 21, 1917. Serial No. 192,530.

To all whom it may concern:

Be it known that I, HYDESABURO OHASHI, a subject of the Emperor of Japan, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Coating-Machines, of which the following is a specification.

This invention relates to coating machines and particularly to the general type of machines for applying liquid substances to surfaces to be coated.

The invention is specifically designed and constructed as an improvement upon the device shown in my co-pending application Serial No. 135,866, filed December 8th, 1916.

One of the principal objects of the present improvement resides in the provision of a coating device in the form of a movable container having discharge orifices from which the liquid or coating substance is adapted to be discharged in the presence of the object to be coated, combining the said container with an automatically controlled valve which will operate to promptly prevent the discharge of the coating substance from the container when the latter is at rest, while operating secondly, to permit of a uniform discharge of the coating substance on to the surface or article to be treated when the container is in motion.

The invention is used principally in connection with typewriter machines, multi-graphing machines or other printing devices employing an inked ribbon by means of which type impressions can be conveyed upon paper sheets or the like. In such machines, the texture of the ribbon is generally such that it is never fully utilized before the absorption or obliteration of the coating substance therefrom and in view thereof, the device as designed herein, is particularly equipped with such instrumentalities which will enable the operator of the machine to instantly subject the ribbon to the action of the coating device for the purpose of transferring the coating substance from the latter to the former in fixed or uniform quantities, automatically while the ribbon is in motion and a clean manner and with-

out the necessity of removing the ribbon from the machine.

Another object of the invention resides in the provision of a coating machine which will include a valved container, for the coating substance in which all possibility of a gravitational discharge of such substance will be eliminated while the machine is at rest and at the same time effectually operate to cause said substance to be ejected under slight pressure for uniform and positive distribution when the machine is in motion. Through this arrangement, it is found that the surface to be coated can be consistently subjected to the action of the coating substance at all times.

Another object of the invention resides in an arrangement of coöperating elements which can be actively correlated without the use of springs or other mechanical contrivances which would otherwise cause undue friction to be set up in said parts during the coating operation.

A further object of the invention resides in the provision of a coating machine in which the container for the coating substance is in the form of a cartridge adapted to contain a fixed measure of coating substance; supporting the same normally in the presence of the object to be treated whereby it may be quickly associated therewith or dis-associated therefrom, while further constructing said cartridge whereby its effectiveness as a distributor of the coating substance will be of maximum character.

Figure 1 is a front view of the machine showing the same associated with the ribbon spools of an ordinary typewriting machine, and illustrating such portions of the machine as are necessary for a clear understanding of the invention.

Fig. 2 is a plan view thereof.

Fig. 3 is a front view of the machine with parts in section.

Fig. 4 is an end view thereof.

Fig. 5 is a section taken on line 5-5, of Fig. 3.

Fig. 6 is a fragmentary sectional view on the line 6-6 of Fig. 3 looking in the direction of the arrows.

Fig. 7 is a side view thereof.

Fig. 8 is a conventional face view of a portion of the main supporting frame showing one of the swinging brackets and the latch means thereof.

Fig. 9 is a section taken through the container for the coating substance.

Fig. 10 is a section therethrough on the line 10—10 of Fig. 9.

Fig. 11 is a plan view of a modified form of the invention.

Fig. 12 is a sectional view of a further modified form of the invention.

Fig. 13 is a vertical section through the ink applicator.

In the specific application of the invention to a typewriter as shown in part in Fig. 1, a frame 1, is mounted at the side of the machine at a point adjacent to the ribbon spool A, the latter being of the usual form and designed to co-act with a mating spool B, at the opposite side of the machine.

The frame 1, is provided with a revolving applicator 2, of cylindrical form having surfaces 3 and 4, arranged side by side and each designed to receive a coating substance or a particular character or color. Above said applicator are movably mounted containers 5 and 6, of substantially identical construction. Each of said containers is suspended for rotary movement between the side arms 7—7, of a swinging bracket or support 8, which is mounted upon a rigid pin 9, the latter extending from said frame 1, as clearly illustrated. The said pin 9, is provided with an annular groove 10, and as illustrated, each of said brackets or supports 8, carries a swinging keeper 11, having a hooked shaped end 12, which is adapted to engage in the groove 10, whereby to hold the swinging bracket in operative position. This arrangement also enables the operator to quickly remove said swinging bracket when it is desired to provide the same with a new container for the coating substance.

In order that the ink container can be removed with facility from between the arms 7—7, the sides of said container are provided at their central points with bearing depressions 13—13, which are adapted to receive the short bearing pins 14—14, which extend from said arms 7—7. These arms are slightly springy and under their inherent action, the bearing pins 14—14, are uniformly retained in said bearing depressions. This construction is such that said container for the coating substance can be freely revolved in the presence of the applicator 2.

The surfaces 3 and 4, of the applicator, are preferably separated from each other by an intervening groove 15, and as illustrated, in Fig. 13, the containers 5 and 6, are proportioned in width whereby to respectively conform with those portions 3 and 4, of the applicator at the sides of said

groove 15. In this manner, the containers are adapted for uniform rolling contact with said portions 3 and 4. The frame 1 carries a pin 1^a, which is received in a bearing recess 13 in the applicator 2. A bracket 1^c on the frame 1 carries a similar pin 1^a which is received in a corresponding recess 1^e in the applicator. This construction permits the applicator to be freely revolved.

The said swinging supports or brackets 8, are each provided with a fixed manipulating knob 16, which is operatively connected with a spring pressed latch 17, designed to engage in a keeper opening 18, in the bracket, 1, whereby the position of the container can be shifted relatively of the applicator 2, by merely turning said bracket or support 8, as is illustrated in the position of the container 6, in Fig. 3, of the drawings. The spring pressed latch normally bears against the adjacent face of the bracket 1, and as shown in Fig. 8, the keeper opening 18 is disposed in the path of swinging movement of the latch to receive the same when the support contacts with the adjacent stop pin 19.

The stop pins 19, extend from the bracket 1, and are disposed in the direct path of movement of the swinging brackets or supports 8, so as to limit their movements in one direction. Their movements in an opposite direction are limited through the contact of the containers 5 and 6, gravitationally with the revolving applicator 2.

Each of said containers 5 and 6, is provided with a peripheral wall 20, having relatively small perforations 21, therein by means of which the coating substance can be actively discharged as will be understood from a further description. One of the principal features of the present improvement over the form of my invention shown in my co-pending application Serial No. 135,866, filed December 8, 1916, resides in the provision of a positively actuated valved means within the container for the coating substance for closing the discharge perforations when the typewriter ribbon or object to be coated is at rest relatively of the applicator. The improvement is therefore designed for the purpose primarily of furnishing the ribbon or object to be coated with consistent amounts of coating substance at all times, while when the machine is at rest, the improvement contemplates a means for eliminating casual seepage of the coating substance from its container which would otherwise cause the peripheral surface of the applicator to be supplied with too large a quantity of coating substance when the machine is at rest. This would result in an inconsistent application of the coating substance to the ribbon or object to be treated or in other words, an over inking or coating thereof. From experience, I have

found the best means to provide for a consistent application of the coating substance to the ribbon or object to be treated, consists in providing the ink container with a loosely mounted ring 22, which is substantially of ring form arranged within the container and eccentric with the peripheral wall thereof, as shown in Fig. 8. Within the ring are small weights 23, which actively operate against the ring to always keep the lower portion of the ring against the perforations at the base of the container. The coating substance is arranged in the container and the latter proportioned relatively of the ring 22, so as to positively check the discharge of substance from the container when the latter is at rest. However, when the container is in action, through its mating contact with the applicator 2, the ring valve 22, is actuated so as to cause relative movements to be set up between the same and the perforated walls of the container. This causes the ink or coating substance in the container to be uniformly scattered in a lateral direction, and through the small perforations 21. The gravitational action of the ring 22, and eccentric arrangement thereof with respect to the container, and the movement of the latter assures a better delivery of the ink at all times during rotation of the container, while when the latter is at rest and incident to the heavy consistency of the ink, no discharge thereof is made. Care is exercised in proportioning the ring 22, relatively of the inside diameter of the container so that sufficient space is formed between the ring and the walls of said container above the axis of the latter. With the motion set up in the valve ring as the container revolves, most uniform quantities of coating substance are discharged on to the peripheral surface of the container to be transferred to the applicator when the latter is in contact with the said container.

The bracket 1, is provided with rolls 23—23, and rolls 24—24, over which the leads of the ribbon pass. In addition to these rolls which operate to position the ribbon against the applicator and between the flanges 25—25, thereof, use is made of vertical pins 26—26, which are positioned adjacent to the ribbon spool (A), so that the ribbon, as it leaves said spool, can be passed over one of the pins and then finally over the other on its return from the inking attachment as clearly shown in Fig. 2, of the drawings. The bracket 1, is provided with a guard plate 27, which operates to prevent the hand of the operator from coming in contact with the attachment when the carriage of the typewriter is returned. The bracket 1, is provided with a suitable attaching extension 28, by means of which it can be quickly secured to a suitable part of

the machine with which the invention is adapted to form a part.

Small rolls 29—29, are mounted to rest upon the applicator 2, and revolve against the surfaces 3 and 4 thereof, so as to act as crushers for the ink as it leaves the perforations in the containers 5 and 6, causing the same to be spread upon said surfaces 3 and 4, in a manner which will insure its uniform absorption by the ribbon.

The ink containers 5 and 6, may be so constructed that the flow of ink therefrom can be nicely regulated. This may be accomplished by determining the distance of the valve ring 22, from the walls of the container, increasing or diminishing as the occasion necessitates the thickness of the perforated walls of the container and determining the exact size of the perforations therein. When properly proportioned, the parts as mechanically described, operate to cause a consistent discharge of ink from the container at all times during movement of the ribbon through the machine.

When the inking attachment is used in connection with multigraph machines, a roll container 30, as shown in Fig. 1, is employed. It may be actuated relatively of the ribbon so that as the same is fed from one point to another, it may be consistently saturated with ink without necessitating the removal of same from the machine.

It is of course understood that in multigraph machines, no means are provided for intermittently moving the ribbon during the printing operation but as concerns the efficiency of the present attachment to a multigraph machine it obviously follows that the roll or cylinder as shown in Fig. 11, will be associated with an applicator of the same relative width as the multigraph ribbon whereby the entire surface of the latter may be uniformly treated. When the invention is used in connection with multigraph machines, the ribbon is of course wound from one of the rolls to the other to carry the same directly across the applicator.

By leading the ribbon first from the spool (A), and then over one of the rolls 24, and then over the roll 23, at the left of Fig. 1, and then under the applicator 2, and over the roll 23, at the right, and thence finally over the roller 24, at the right and one of the next adjacent pins 26, it is found that the ribbon is held under perfect tension at all times and its operation through the usual guide at the center of the machine is not interfered with. The tension of the ribbon against the applicator is set up by the passage of the ribbon over the rolls and parts above described and then through the usual ribbon guide and finally to the spool (B) at the right of the machine.

In the form of the invention shown in

Fig. 12, the ink container is provided with an opening 31, and a movable closure 32, the latter being in the form of a flat leaf spring which bears against the opening under its inherent action. This construction is preferred in order that the container may be supplied with a quantity of coating substance from time to time. It will be understood that the nozzle of a filling vessel may be readily inserted in the opening and brought to bear against the spring to properly uncover the opening during the filling operation.

What is claimed as new is:—

1. A coating machine comprising a movably mounted container for a coating substance, the said container having perforations therein for the discharge of said substance therefrom and an automatically controlled ring directly operating relatively of the discharge perforations to cause a discharge of the substance from said container when the latter is in motion, the said ring through its eccentric relation to the walls of the container serving to close the perforations at the base of the container as and for the purpose set forth and means bearing against the ring for holding the base thereof against the walls of the container at a point below the horizontal axis of the latter.

2. Mechanism for applying ink to the ribbon of a printing machine, comprising, a movable ink distributor over which the ribbon is adapted to pass, a revolving ink container co-acting therewith and provided with delivery passages and means operable gravitationally to close said passages to prevent the distribution of ink to said distributor when the latter is at rest, said means being freely movable relatively of the passages and serving to cause the ink to be forced through the passages when the distributor and said container are in motion, and a weight arranged in rolling contact with said means.

3. A coating machine comprising a revolving liquid container having peripherally located perforations therein, and a free ring located in said container and adapted to be moved with immediate respect to the walls of the container when the latter is rotated and thereby cause the liquid to be forced through the perforations by direct pressure of the ring against the liquid and a free weight bearing against the base of the ring.

4. A coating machine comprising a revolving ink distributor, a cylindrical ink container arranged in free revolving contact therewith and provided with peripheral perforations, a ring located in the container, the distributor acting when in motion to change the relative positions of the ring and the inner walls of the container and operating also to permit rotary motion to the container and thereby cause the ink to be forced from the perforations by pressure of the ring thereagainst, and a free weight bearing against said ring to hold the base thereof in rolling engagement with the walls of the container below the horizontal axis of the latter.

5. In a ribbon coating machine, the combination with a revolubly mounted ink distributor over which the ribbon to be treated is adapted to pass, said distributor adapted to be revolved by the passing of the ribbon thereover, of a perforated revolubly mounted ink container superposed relatively of the distributor and adapted to revolve through contact therewith when the distributor is in motion, and a free ring located in the container and operable through the revolving action of the container to cause the ink to be forced through the perforations and onto the distributor and means freely bearing against said ring in line with the vertical axis thereof.

6. Mechanism of the class described comprising an ink distributing cylinder, a cylindrical ink container supported to revolve thereagainst and provided with peripheral perforations, and means freely mounted in the container and operable to close certain of said perforations when the container is at rest and serving when the container is in motion to cause the ink to be discharged from the perforations of the container automatically and by the direct revolving action of the cylinder against the container, and a weight freely bearing against said means, as and for the purpose set forth.

7. As a new article of manufacture, a perforated revoluble ink container, an ink pressing ring located in the container and movable gravitationally with relation to the perforations, and weighted means bounded by the ring and bearing thereagainst at the bottom thereof.

In testimony whereof I affix my signature.
HYDESABURO OHASHI.