

Oct. 27, 1936.

G. A. RUTKOSKIE

2,058,511

METHOD OF PRINTING WAX SPOTS OF CARBON ON SHEETS OF PAPER
WITH A PLATEN JOB PRESS OF THE REVOLVING DISK TYPE

Filed Dec. 16, 1933

7 Sheets-Sheet 1

FIG. 1.

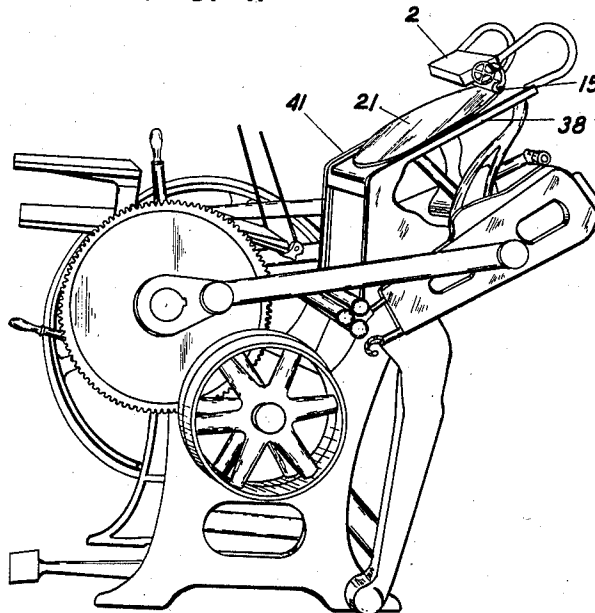
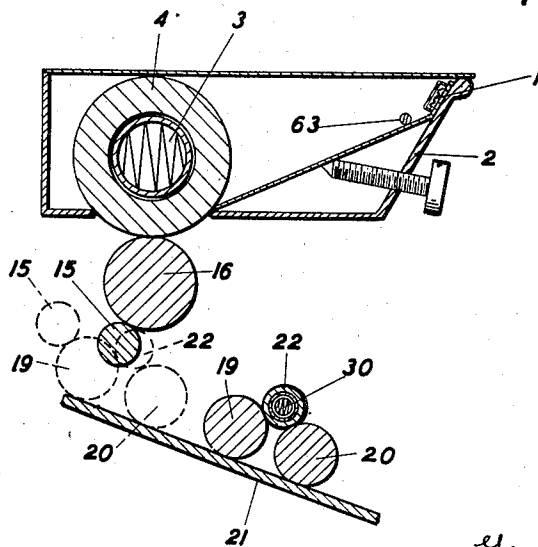


FIG. 2.



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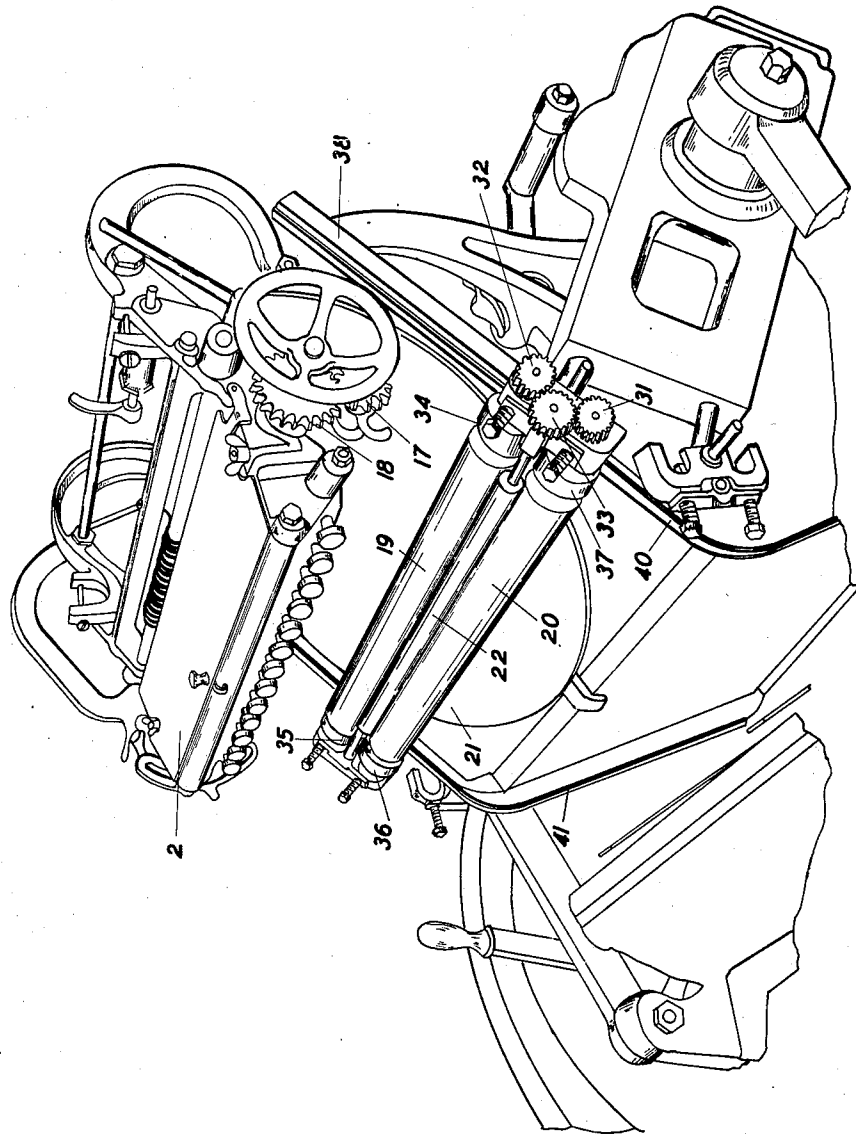
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FIG. 3.



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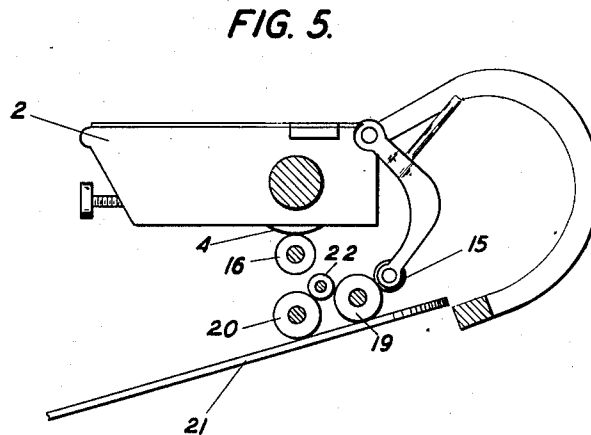
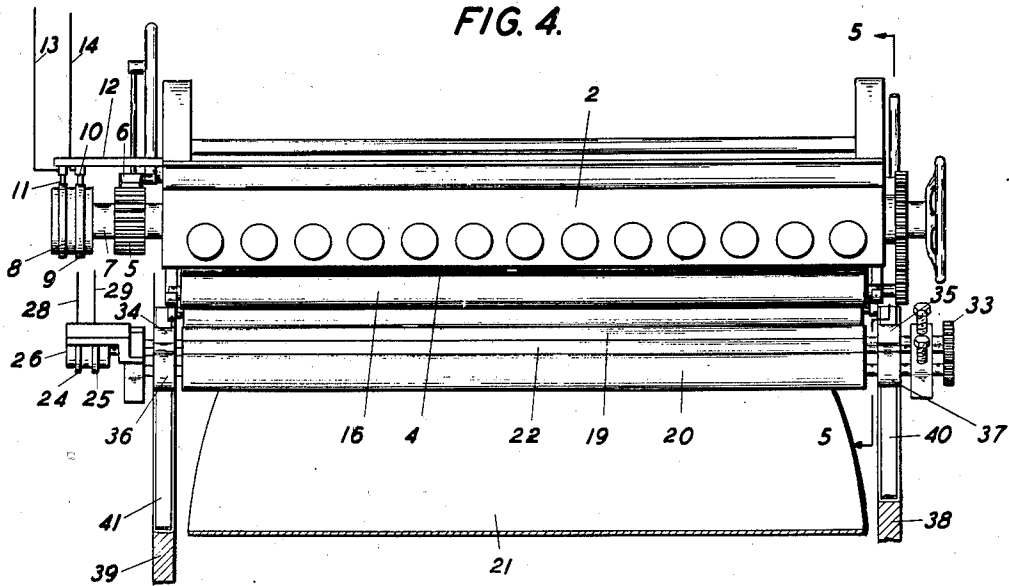
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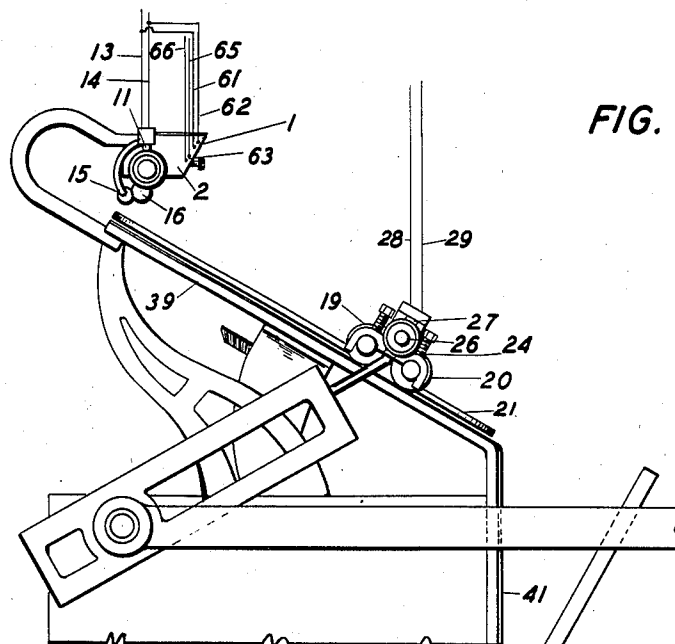


FIG. 6.

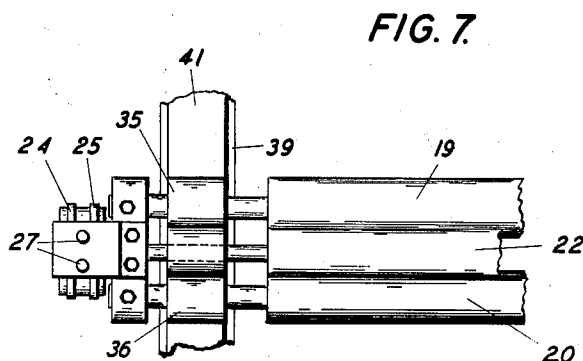


FIG. 7.

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FIG. 8.

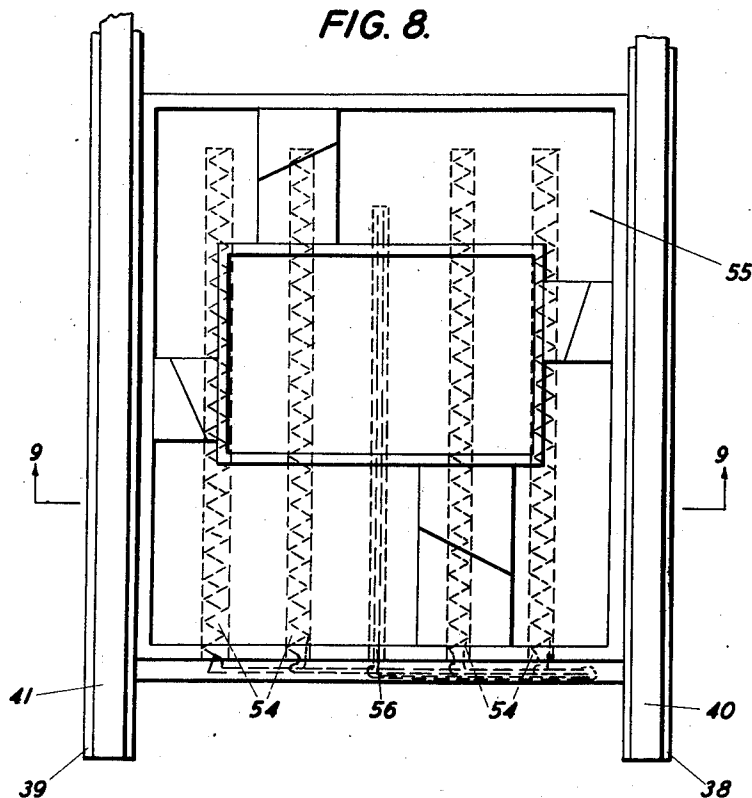


FIG. 9.

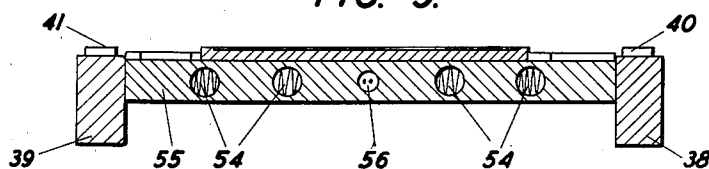
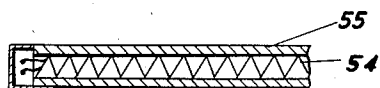


FIG. 10.



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FIG. 11.

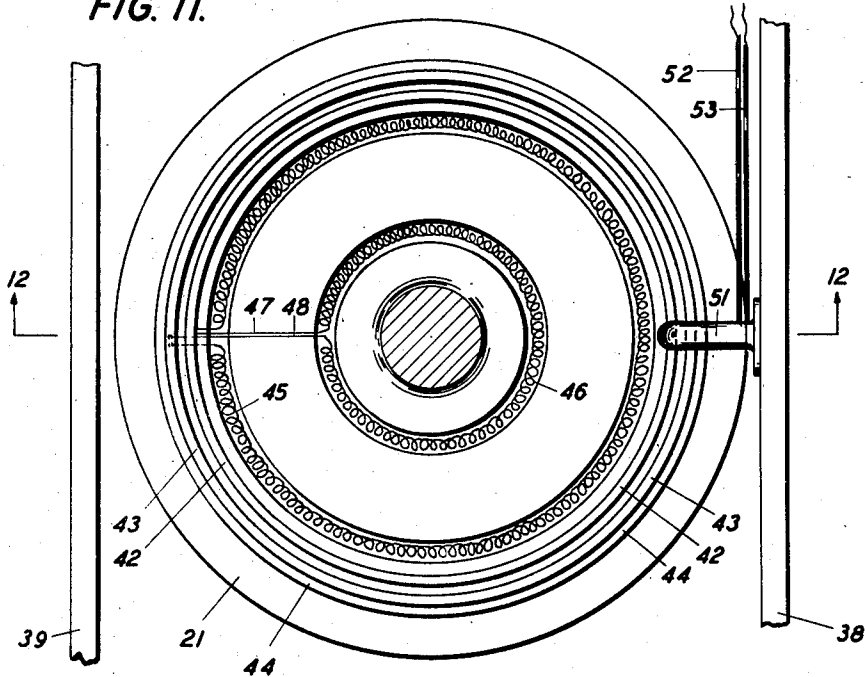


FIG. 12.

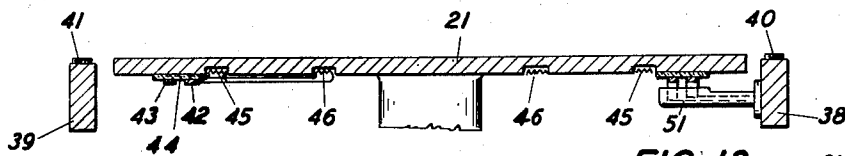


FIG. 13.

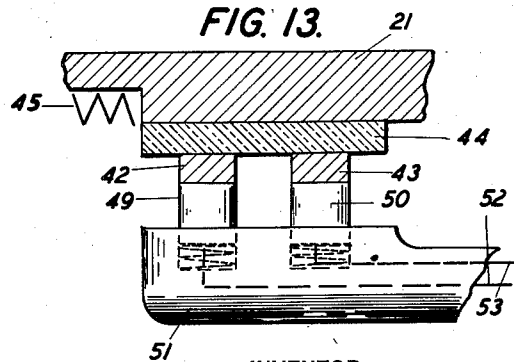
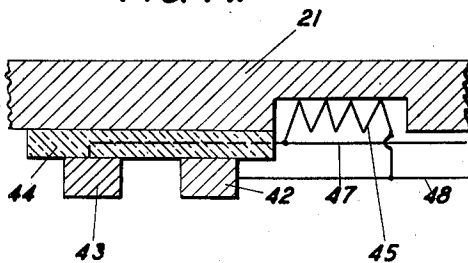


FIG. 14.



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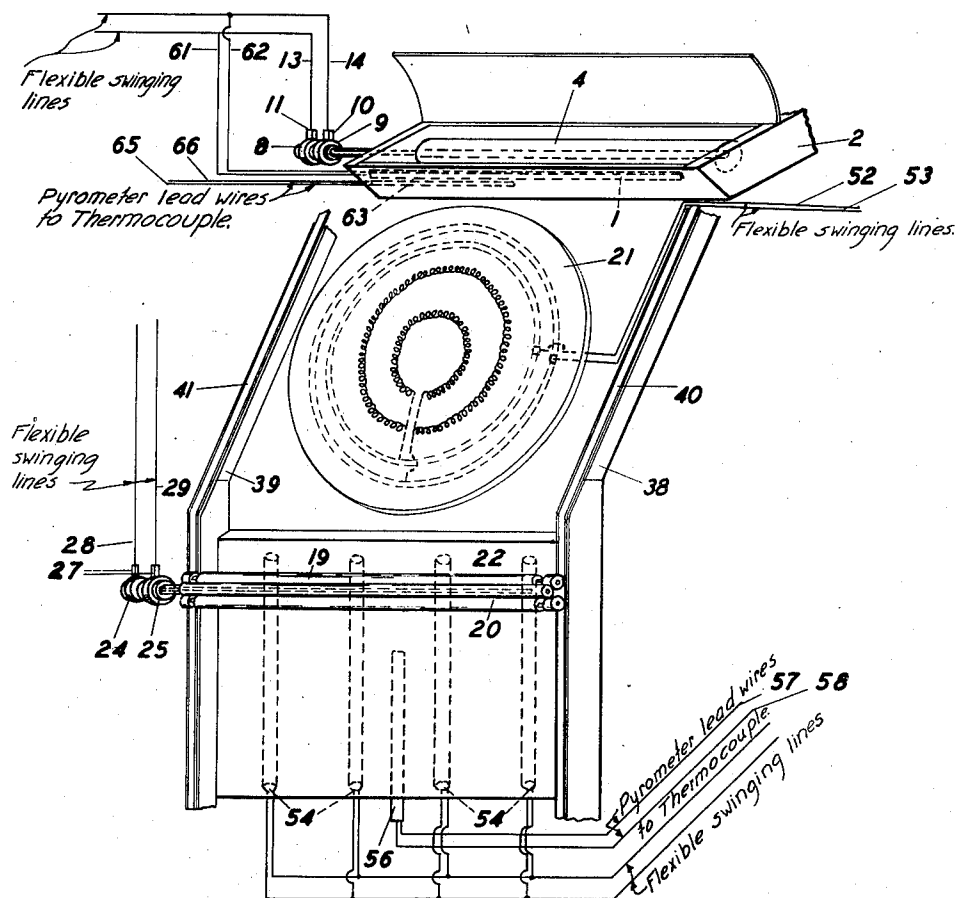
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FIG. 15.



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2,058,511

METHOD OF PRINTING WAX SPOTS OF
CARBON ON SHEETS OF PAPER WITH A
PLATEN JOB PRESS OF THE REVOLVING
DISK TYPEGeorge A. Rutkoskie, Athens, Ohio, assignor to
The McBee Company, Athens, Ohio, a corpo-
ration of Ohio

Application December 16, 1933, Serial No. 702,678

1 Claim. (Cl. 91—68)

My invention relates to that class of presses which are commonly used for job work in printing plants and which are provided with a revolving disk, an ink fountain, a ductor roller, form or inking rollers and a vibrator roller, a vertical type bed and a platen to press the sheet of paper against the type bed when the platen, sheet of paper, and type bed are parallel to each other.

It has been found in practice there are a number of ways of carrying out my method without employing any specific type of apparatus. I have discovered that it is absolutely essential that the revolving disk be heated to a certain predetermined temperature and this heat must be continuously applied whether the disk is revolving or stationary as a slight variation in the temperature either above or below the predetermined point will effectually prevent a successful operation of the press and consequently proper carrying out the method.

I have further discovered that it is possible to accomplish this result in a number of ways.

I have also discovered, that it is absolutely essential that the form rollers and vibrator roller be rotated continuously from the time of their contact with the ductor roller until they have passed over the face of the type on the type bed.

In carrying out this step of my method, it has been discovered in practice that, there are other and different forms of apparatus for accomplishing this result which will carry out the step of the method equally well.

I have also discovered that it is necessary to have these rollers heated and to have the vibrator roller heated, yet the specific means for accomplishing this is not essential to the successful carrying out of this step of my method.

It is therefore to be understood that the principal object of my method is to provide a series of steps which, if followed out, for example, with the standard type of job press having a revolving disk, it will be possible to produce successfully wax carbon spots on sheets of paper located at predetermined positions on the sheet of paper without reference to the specific form of apparatus employed. These steps consist in providing means to heat the revolving disk continuously whether it is revolving or not during the operation of the press, providing means to heat the ink fountain roller, and the vibrator roller, to heat the type bed and to positively rotate the vibrator and form rollers continuously during the operation of the press and to bring a sheet of paper against the stationary type bed while main-

taining the paper, platen, and type bed parallel to each other.

In order to enable one to carry out my method, I have shown in the accompanying drawings a form of press for that purpose. It is to be understood that these drawings are furnished solely for the purpose of showing a concrete embodiment of an apparatus which will employ the various steps of my method but that the said method is not limited to any specific type of apparatus as many changes in the means or forms employed will suggest themselves to persons skilled in the art but which will in order to be successful have to employ the steps of my method.

As shown in the drawings:

Fig. 1 is a perspective view of one side of the press;

Fig. 2 is an enlarged vertical sectional view of the ink fountain and the inking rollers, the operating mechanism for the rollers being omitted for the sake of clearness;

Fig. 3 is a fragmentary perspective view of the upper part of the press showing my improvement;

Fig. 4 is a detail view taken from the front of the fountain;

Fig. 5 is a fragmentary detail view showing the movement of the ductor roller;

Fig. 6 is a fragmentary detail view on the left hand side of the press showing the upper part of the press and the revolving disk and inking rollers;

Fig. 7 is an enlarged fragmentary detail view of the inking rollers showing the means for conveying current thereto;

Fig. 8 is a front view of the type bed plate and a portion of the tracks for the inking rollers;

Fig. 9 is a cross section taken on the line 9—9 in Fig. 8;

Fig. 10 is a fragmentary detail view of one of the heating elements;

Fig. 11 is a rear view of the revolving inking disk;

Fig. 12 is a cross section taken on the line 12—12 in Fig. 11;

Fig. 13 is an enlarged fragmentary view;

Fig. 14 is an enlarged fragmentary detail view showing the manner of connecting the current to the heating elements on the revolving inking disk; and

Fig. 15 is a diagrammatic view showing the wiring diagram.

Similar reference numerals refer to similar parts throughout the entire description.

As shown in the drawings, my improvement is

shown as stated, on the well known Chandler and Price press, the details of which are so well understood in the trade that I shall not describe them but shall confine my description to such parts as I have added to adapt the press to produce wax carbon spots on sheets of paper.

It is well known that in order to successfully print spots of wax carbon on sheets of paper it is not only necessary to melt the wax carbon in the ink fountain and to maintain it at a predetermined temperature, but all of the parts of the press which come in contact with the wax carbon must also be maintained at the correct temperature.

It has been found in practice that if this temperature varies either up or down beyond a certain predetermined degree the press will be inoperative in so far as producing wax carbon spots which will transfer properly.

In order to accomplish this result, I provide an electric heater 1 for the ink fountain bed 2 which contains the melted wax carbon.

A heating element 3 is located in the ink fountain roller 4 so as to keep it at the desired temperature. As is well understood this roller 4 is intermittently rotated by means of a ratchet 5 and pawls 6 which are standard construction on the press. I extend the shaft 7 of this roller out beyond the ratchet wheel 5 on which I mount slip rings 8 and 9. These slip rings are connected to the heating elements 3 mounted in the ink fountain and the roller and are engaged by brushes 10 and 11 carried by an arm 12 fastened to one side of the press. The brushes 10 and 11 are connected by means of electrical conductors 13 and 14 by a suitable source of electric current supply (not shown). These conductors 13 and 14 are preferably swinging lines.

The melted carbon is carried to the steel ductor roller 15 by means of an intermediate rubber roller 16 which rides the ink fountain roller 4 continually. This roller 16 is driven by means of a gear 17 mounted on the end of its shaft. This gear 17 meshes with a gear 18 mounted on the shaft of the fountain roller 4. Friction gears may, if desired, be substituted for the spur gears illustrated.

The melted carbon is delivered to the ductor roller by means of an intermediate roller 16. The steel ductor roller 15 swings back and forth between the roller 16 shown as in Fig. 2 and the position indicated in the dotted lines in the same figure. While in the position shown in dotted lines in Fig. 2, the ductor roller 15 is brought in contact with the upper one of the two form rollers 19 and 20 which at this time is nearing its extreme upward stroke.

The rubber roller 19 takes its supply of melted carbon from the ductor roller 15 and on its downward stroke deposits this carbon on the revolving inking disk 21 where the carbon is evenly distributed by the intermittent revolutions of the inking disk 21. As is understood by persons skilled in the art the movement of the inking plates 21 is brought about by beveled gears (not shown) in the well understood manner.

In order to further facilitate the distribution and to insure that the carbon transferred is kept in a melted condition and at the proper temperature at all times, the rubber form rollers 19 and 20 are heated by a steel vibrator 22 which contains an electric heating element 30 mounted inside of the vibrator 22 which gets its supply of current by the means of slip rings 24 and 25 carried on the end 26 of the vibrator shaft,

These slip rings are arranged to contact with brushes 27 which receive their supply of electric current through conductors 28 and 29 which are flexible swinging lines and lead to a source of electric current supply (not shown).

It has been found that there is not sufficient tack in the melted wax carbon to insure the rotation of the steel vibrator 22 solely by frictional contact with the rubber rollers 19 and 20. Therefore, in order to make this rotation positive, I place a gear 31 on the end of the shaft of the roller 20 and a similar gear 32 on the shaft of the roller 19. These gears 31 and 32 mesh with a spur gear 33 put on the end of the shaft of the vibrator 22. It will be apparent from this that it is impossible for the rollers 19 and 20 to revolve without bringing about a revolution of the vibrator 22.

However, these rollers 21 and 22 are designed to be rotated by means of roller trucks 34 and 35 placed adjacent the ends of the roller 19 and corresponding roller trucks 36 and 37 placed adjacent the ends of the roller 20. This does not necessarily insure positive rotation and there is considerable danger of there being a slippage of the trucks which, while not greatly objectionable in ordinary printing, would be absolutely fatal to the production of successful wax spot carboning. I have found in practice that this danger can be completely obviated by mounting on the face of each of the side frames 38 and 39 strips of leather 40 and 41 which are secured to the edge of the frames in any suitable or convenient manner, and are adapted to contact the roller trucks 34, 35, 36 and 37 with the result that I am able to obtain a positive turning of the rubber rollers 19 and 20.

Practice has shown that unless the ink plate is heated the moment that the carbon is delivered to it from the form roller 19, it will crystallize. I avoid this by providing a construction which permits me to maintain the revolving disk ink plate at any predetermined temperature. I accomplish this in the manner clearly shown in Figs. 11 to 14 inclusive and in the wiring diagram; as shown in these views I provide two rings 42 and 43 which are preferably formed of brass or other suitable conducting material. These rings are mounted upon an annular strip of insulator 44 which is secured to the back of the revolving disk ink plate 21. These rings 42 and 43 are connected to annular electrical heating elements 45 and 46 by means of electrical conductors 47 and 48 in the conventional manner. Current is conveyed to the rings 42 and 43 by means of brushes 49 and 50 of standard construction. These brushes are mounted in a support 51 which may be bolted or otherwise secured to the side frame 38 of the press. The brushes are connected to electrical conductors 52 and 53 which lead to a source of electric current supply (not shown).

The result of this construction is obvious. The rotation of the revolving disk plate 21 has no effect whatever on the electrical connections. It is thus possible to convey the requisite amount of current to the heating elements 45 and 46 to maintain the revolving disk at any required temperature.

It is also essential that the type bed be heated to a predetermined temperature or it will have the effect of crystallizing the wax carbon when it is sought to deliver it from the rollers 19 and 20. My means of accomplishing this is clearly seen in Figs. 8 to 10 inclusive and in the wiring diagram. I attain this result by mounting a plurality of heating elements 54 in the type bed 55 and I also mount a thermocouple 56 between the elements

54. This thermocouple is connected to pyrometer lead wires 57 and 58 which lead to a pyrometer of standard construction (not shown) for controlling the current supply (not shown).

Having thus fully and for illustrative purposes described a concrete embodiment of an apparatus which will employ the various steps of my method what I regard as new and desire to secure by Letters Patent is:

In the process of producing spots of wax carbon upon sheets of paper with a platen press of the revolving inking disk type having an ink fountain, an ink fountain roller, a vibrator roller, a ductor roller, a stationary type bed and form rollers; maintaining at a predetermined temperature the inking fountain and vibrator rollers

while they rotate, positively rotating the form rollers and vibrator roller from the time the ductor roller contacts the form roller until the form rollers deliver the melted wax carbon compound to the type, transferring the heated wax carbon from the fountain to the type by said rollers, applying the melted wax carbon to a sheet of paper from said stationary type bed, maintaining the paper, platen and type parallel to each other, maintaining the platen, type bed and revolving inking disk plate at a predetermined temperature, the heated elements being maintained at a temperature which will produce wax carbon spots which will transfer properly.

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