Dec. 17, 1940. D. L. BOYD 2,225,295

METHOD OF APPLYING WAX CARBON TO PAPER

Filed Oct. 26, 1939 3 Sheets-Sheet 1

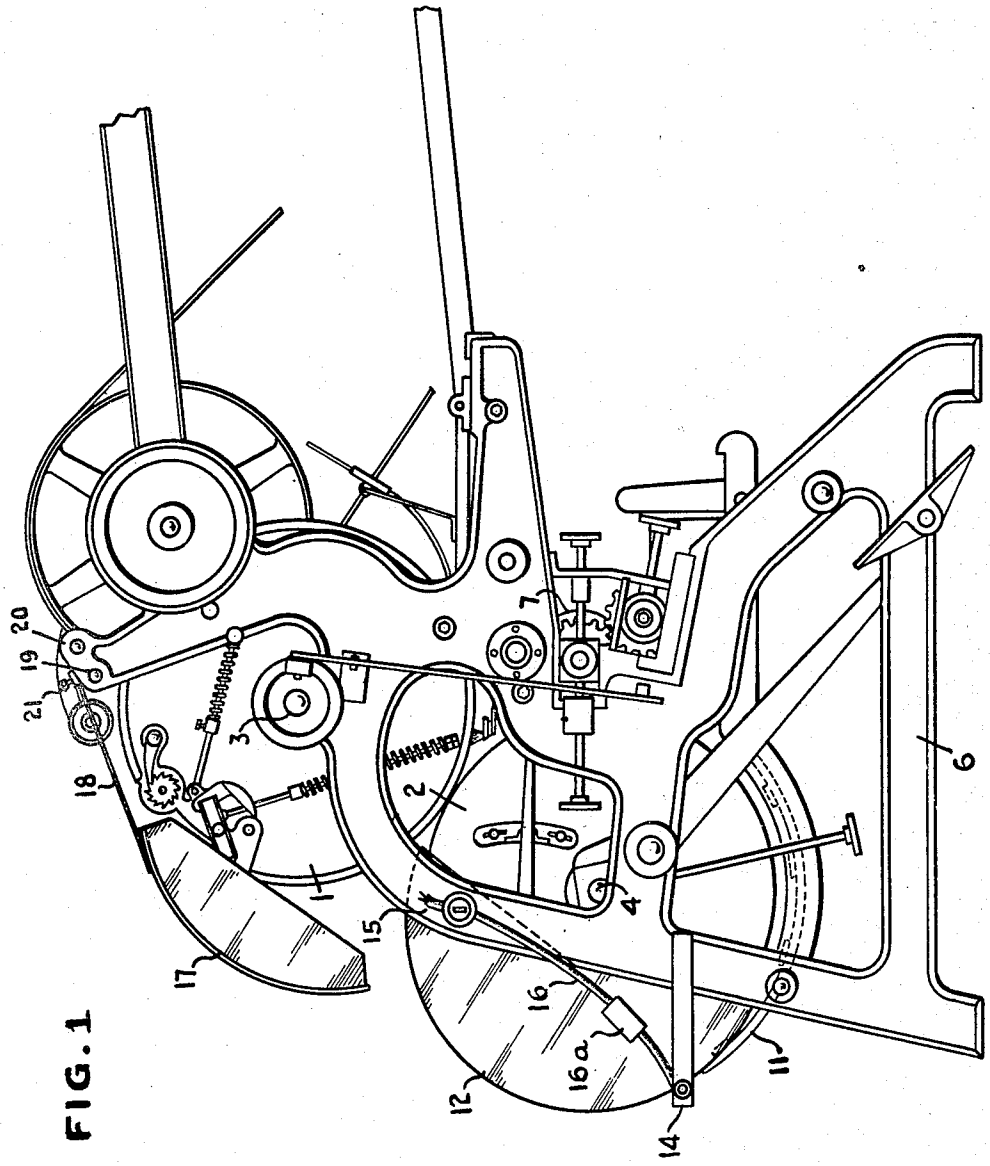


FIG. 1

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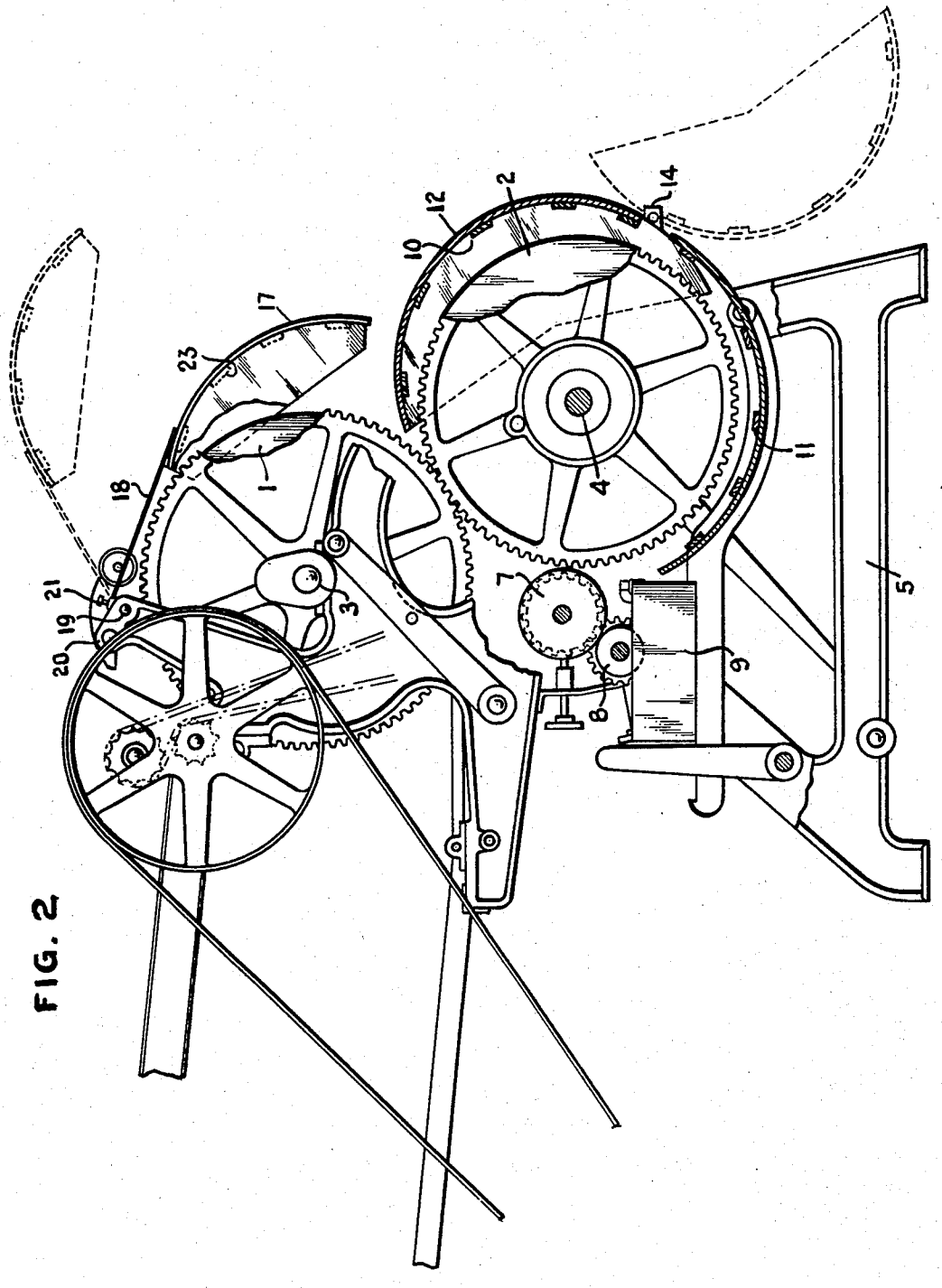


FIG. 2

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FIG. 3

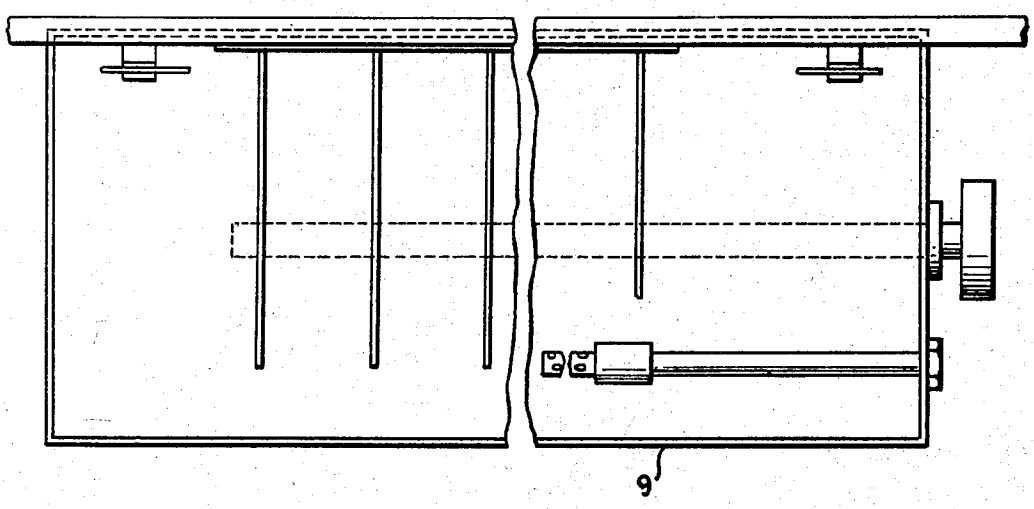


FIG. 4

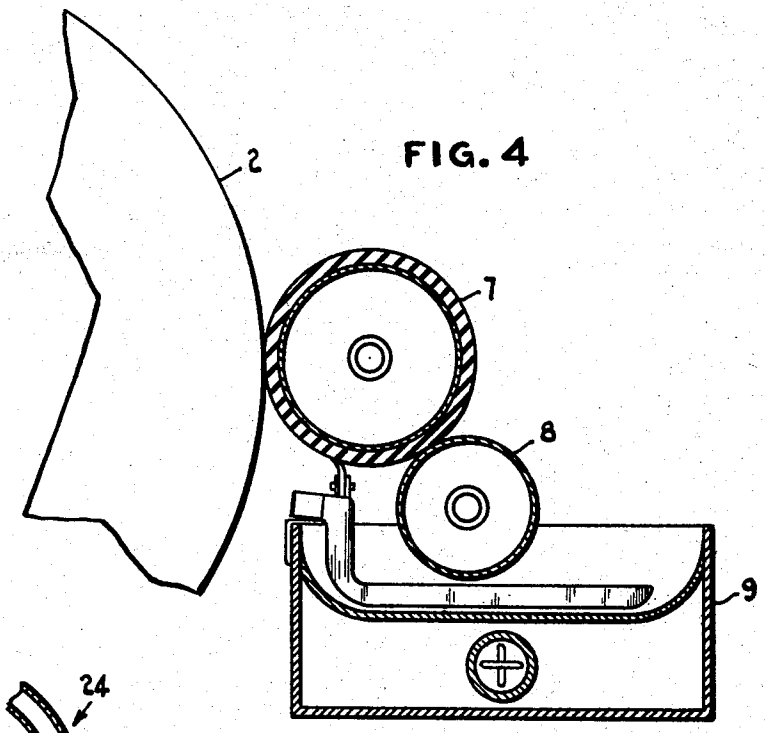
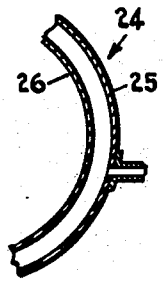


FIG. 5



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UNITED STATES PATENT OFFICE

2,225,295

METHOD OF APPLYING WAX CARBON TO PAPER

Donald L. Boyd, Huntington, W. Va., assignor to Carb-O-Spot Corporation, Athens, Ohio

Application October 26, 1939, Serial No. 301,383

4 Claims. (Cl. 91—70)

My invention relates to that class of presses designed to print spots of wax carbon on sheets of paper such as is described in Rutkoskie Patent No. Reissue 19,642.

As set forth in that patent and the others relating to the same art, it has been found in practice that wax carbon is very difficult to work, owing to the fact that all parts of the press with which the carbon comes in contact must be maintained at a predetermined temperature.

This is accompilshed in the Rutkoskie patent referred to by means of electric heating elements mounted in the rollers, type bed, ink plate, etc. Other patents provide for heating the rollers and the other parts of the press with a hot fluid.

In the first instance, there are many electrical connections, collector rings, etc. which must be maintained and serviced continually.

In the second instance referred to, it has been found impractical to form a tight joint where the heated fluid is transferred from a stationary conduit or pipe, which conducts it from the source of supply to the rotating parts of the press.

My invention has for its principal object to provide a method of heating the press which is entirely different from either of the methods followed in the manufacturing of wax spot carbon forms by the presses heretofore referred to in that it applies no heat of any kind to the rollers of the press except by radiation from an external source.

The various steps comprising my method may be more readily understood by having reference to the accompanying drawings which are hereunto annexed and are a part of this specification. These drawings are furnished solely to illustrate a press which will employ the various steps comprising my methods but it will be obvious to those skilled in the art that the method is not confined to any specific press, as numerous changes in the details of mechanical construction may be resorted to and still utilize the method.

I have shown in these drawings a press of the type described in my copending application, Serial No. 243,089, filed November 30, 1938. In the drawings:

Fig. 1 is a side elevation of my improvement on a press of the type described in my copending application, Serial No. 243,089;

Fig. 2 is the opposite side with the side frame omitted and some of the parts shown in section for the purpose of clearness;

Fig. 3 is a plan view of the ink fountain showing the heating means, and means for controlling the heating medium;

Fig. 4 is a sectional view of a portion of the ink fountain, ink fountain roller, form roller, and a fragment of the printing cylinder; and

Fig. 5 is an enlarged fragmentary detail view of a modified form of hood which is heated by fluid instead of by electricity.

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

As shown in the drawings, the press comprises an impression cylinder 1, a printing plate cylinder 2. These cylinders are carried by suitable shafts 3 and 4 journalled in the side frames 5 and 6 of the press. The plate cylinder is contacted by a form roller 7 which in turn contacts the ink fountain roller 8, which is partially immersed in the ink fountain 9.

The ink fountain is perferably jacketed for the reception of a heating fluid. In Fig. 3 I have shown an electrical heating element mounted in the jacket, for the purpose of heating the fluid. I also show a thermostat which may be used to control the heat of the heating medium. Obviously, any form of heating for the ink fountain, which will serve to melt the wax carbon, may be employed. Neither of the rollers 7 nor 8 is heated internally.

Radiant heat is supplied to the plate cylinder 2 by means of strip heaters 10 mounted on the inside of a hood. This hood may be formed in two parts 11 and 12 and the strip heaters 10 are preferably disposed at suitable intervals around the hood on the inside thereof.

The hood, when in position, as shown in full lines in Fig. 1, encloses the plate cylinder 2 as completely as is possible, and yet permit of its operation.

The section 12 of the hood is carried by a support 14 to which it is pivotally secured. This support 14 is attached to the frame in any suitable or convenient manner. This construction permits section 12 of the hood to be swung on its pivots when it is desired to gain access to the printing cylinder 2.

Suitable electrical connections 15 and 16 connect the strip heaters 10 to a source of electrical current supply (not shown). A standard thermostat 16a is mounted in the line to control and maintain the temperature of the strip heaters at the desired degree.

I have found in some cases that it is desirable to provide a supplementary hood 17 which is carried by an arm 18 secured to a shaft 19 mounted in a support 20 which is formed on the side frame.

A set screw 21 provides means to hold the hood 17 in an elevated position when it is desired to get at the impression cylinder 1. Normally it occupies the position shown in full lines in Fig. 1.

This hood 17 may also be provided with a plurality of electrical strip heaters 23 and thus serve the double purpose of retaining the heat which is furnished by the heaters on the hood which encloses the printing cylinders and also by radiant heat sent out by the different parts of the press below it.

In some cases it may be found desirable to use other forms of heating medium for the hoods. One form is shown in Fig. 5 in which the hood 24 is formed with a double wall 25 and 26. The space intermediate the two walls being filled with steam or equivalent fluid heating means such as hot water or hot oil circulating through coils.

It will thus be seen that I have been able in this manner to entirely avoid the necessity of a connection between a rotating and non-rotating part thereof which must be used for the heating fluid. In practice this has been accompanied by highly satisfactory results. Instead of the floor adjacent the press being always surrounded with a mass of liquid caused by the condensation of the steam or leakage of the hot oil or hot water, it can be kept perfectly dry and clean, thus enabling the production of a higher grade of work.

The steps of the method followed in the operation of the press are as follows. The wax carbon is placed in the heated ink fountain and melted until it is the proper consistency, it is then transferred by means of an unheated roller to a printing cylinder which preferably but not necessarily is almost entirely enclosed, heat is then applied to the printing cylinder by radiation. The heating elements which supply the same may conveniently be mounted in the enclosing means. By this method I have been able to produce very satisfactory commercial jobs.

It will also be apparent to persons skilled in the art that many changes can be made in the construction adopted to utilize my method. For example, it may in some cases be found possible to utilize a sun ray lamp or strip heaters might be mounted on a skeleton frame instead of a hood. For these reasons, therefore, I do not wish to be understood as limiting myself to the precise form of press or enclosing hood illustrated.

Having described my method, what I regard as new and desire to secure by Letters Patent is:

1. The method of applying wax carbon to paper comprising the following steps: heating the carbon to a predetermined temperature, transferring the hot wax carbon to a printing mechanism, applying radiant heat from an external source to the said printing mechanism, the heat which originally melts the wax carbon and said radiant heat constituting the sole heat used in the process.

2. The method of applying wax carbon to paper comprising the following steps: heating the carbon to a predetermined temperature, transferring the hot wax carbon to a printing cylinder, applying radiant heat from an external source to said printing cylinder, the heat which originally melts the wax carbon and said radiant heat constituting the sole heat used in the process.

3. The method of applying wax carbon to paper comprising the following steps: heating the carbon to a predetermined temperature, transferring the hot wax carbon to a printing mechanism, applying radiant heat from an external source to the said printing mechanism, the heat which originally melts the wax carbon and said radiant heat constituting the sole heat used in the process and at least partially enclosing the printing mechanism.

4. The method of applying wax carbon to paper comprising the following steps: heating the carbon to a predetermined temperature, transferring the hot wax carbon to a printing cylinder, applying radiant heat from an external source to the said printing cylinder, the heat which originally melts the wax carbon and said radiant heat constituting the sole heat used in the process and at least partially enclosing the printing cylinder.

DONALD L. BOYD.