

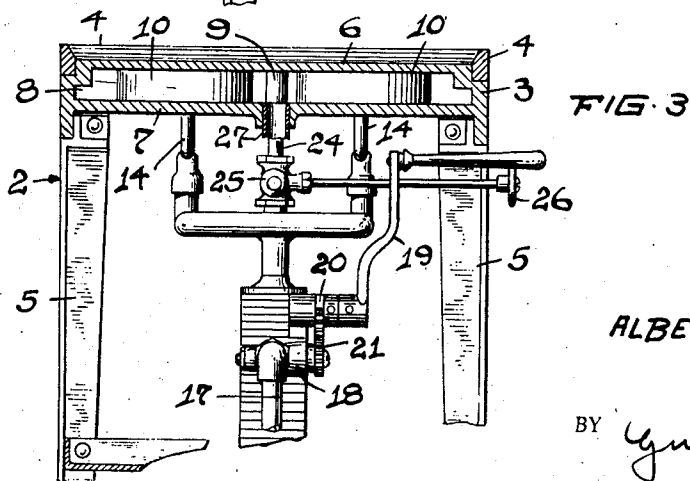
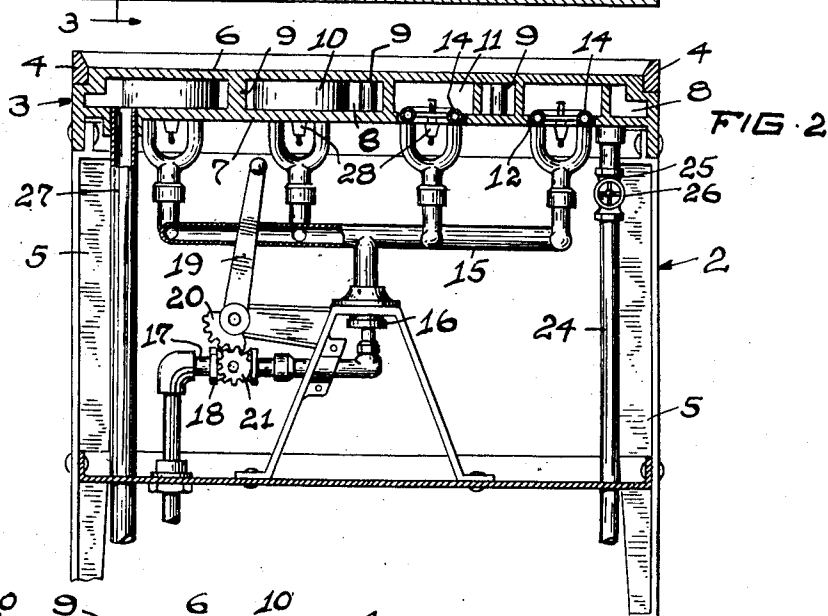
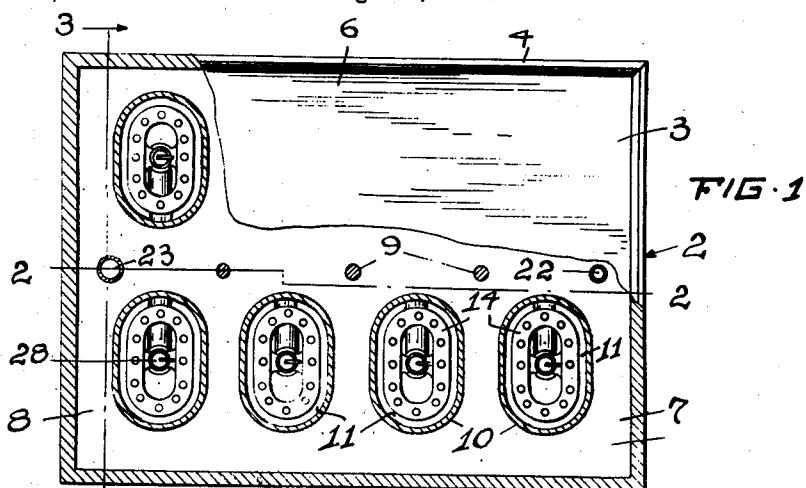
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BACK-UP STAND

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BACK-UP STAND

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3 Claims. (Cl. 22—58)

This invention relates to a device for backing electrotype plates by pouring molten backing metal upon the tinned back of the plates.

It is the general object of the present invention to provide a device of the character described which permits of obtaining a backing free from air holes and of homogeneous density and shrinkage, which device materially simplifies and shortens backing operations for an electrotype plate in a simple and economical manner.

Heretofore, an electrotype plate or shell, after being removed from the electrolytic bath and thoroughly cleaned of its adhering graphite, wax, etc., was placed upside down in a smooth pan and after application of ordinary soldering solution on its back evenly covered with tin foil which thereafter was fused to the shell by application of heat. The pan with the thus prepared shell was then placed upon a backing up stand and molten backing metal poured over the shell to the required depth, whereafter the backed shell was air cooled by a fan or blast blower preferably attached to the back up stand. In this procedure tin foil must be fused to the shell to insure rigid connection between shell and backing material which makes it necessary to transfer the heated pan and shell after fusing from the melting pot to the back up stand where the backing metal is to be poured on the shell. As well known, the transfer of the pan from the melting pot to the back up stand causes loss of time and is rather dangerous. In addition, air cooling by fans or blast blowers effects shrinkage of the cooling metal away from the pan and then causes irregularities on the printing surface and the density of the backing material.

It is another object of this invention to provide a device for backing electrotype plates which embodies heating and cooling means and permits of a shell properly prepared for fusing tin foil to its back, to be completely finished in the back up stand, that is to be heated for fusing the tin foil to the back of the shell and to permit of pouring of the backing metal on the shell and artificially cooling the thus finished electrotype plate.

In addition, the invention has certain other marked superiorities which radically distinguish it from presently known structures. The improvements or superior characteristics embodying certain novel features of construction are clearly set forth in the following specification and the appended claims; and a preferred form of embodiment of the invention is hereinafter shown

with reference to the accompanying drawing forming part of the specification.

In the drawing:

Fig. 1 shows the plan view, partly in section of a back up stand embodying heating and cooling means in accordance with the invention.

Fig. 2 is a longitudinal sectional view through the back up stand shown in Fig. 1, the section being taken on line 2—2 of said Fig. 1; and

Fig. 3 is a cross sectional view through the back up stand shown in Fig. 1, the section being taken on line 3—3 of said Fig. 1.

Referring now more particularly to the drawing, reference numeral 2 represents a back up stand for backing operations on electrotype shells, which stand embodies a chambered shallow tray-like structure 3 having upwardly extending flanges 4. Structure 3 which is supported on legs 5 is preferably a steel casting including substantially parallel integral top and bottom plates 6 and 7 enclosing a cooling chamber 8. These plates 6 and 7 are spaced from each other by integral posts 9 and a plurality of oblongly shaped integral, circumferential walls 10, each of which forms an oblong heating chamber 11. Chambers 11 are open at their bottom as at 12 and have slightly extended thereto oblongly shaped gas burners 14. These burners are fed with a gas and air mixture from a main header pipe 15 in communication with a gas and air mixing chamber 16 into which gas is fed from a valve controlled gas supply pipe 17. A valve 18 in supply pipe 17 controls the gas supply to the gas mixing chamber 16 and therewith the supply of the gas and air mixture to burners 14. Valve 18, preferably a cock valve, is actuated by a lever 19 carrying a gear segment 20 which co-operates with a second gear segment 21 on valve 18, which lever effects opening and closing of valve 18 when the lever 19 is shifted in one or the other direction.

The shallow tray-like structure 3, which forms between its top and bottom plates 6 and 7 chamber 8, is utilized to circulate a cooling fluid there-through to effect cooling of the top portion of the back up stand. For such purpose chamber 8 is provided with an inlet opening 22 and an outlet opening 23. Inlet opening 22 has extended thereto and fluid-tightly connected with its circumferential wall a valve controlled inlet pipe 24, the valve 25 of which is manually operated by a hand wheel 26, which pipe 24 supplies the necessary cooling fluid to chamber 8 and is preferably connected with the water main. Outlet opening 23, which is substantially larger in cross section

than inlet opening 22, has secured therein and fluid-tightly connected with its wall a waste pipe 27 which effects proper discharge of used cooling fluid from chamber 8 and also drainage of all cooling liquid from said chamber prior or during heating operation by the burners 14, which latter are automatically ignited by spark plugs 28 mounted on burners 14 and electrically connected to a proper source of electric current (not shown). Any other practical ignition device may of course be used for igniting burners 14.

The described back up stand permits of complete backing operations for an electrotype plate being made without transfer of the plate to the melting pot as now generally practiced, and, in addition, insures rapid and economical cooling of the finished plate without effecting inequalities in the backing by shrinkage of the backing away from the electrotype plate.

Cooling operations with a fluid such as water are more effective than the presently used air cooling methods. Thus, when cooling water is forced into the chamber 8 of the upper portion of the backing up stand, such water at the beginning of the cooling operations will rapidly be vaporized and thereby prevent too sudden chilling of shell and backing by the described cooling operations. In that respect attention should be called to the fact that direct contact of fluid stream or air stream with highly heated objects effects undesirable tensional stresses in the object to be cooled, which stresses often effect deforming of the object. The described indirect water cooling by means of a jacketed supporting table or back up stand avoids all undesirable tensional stresses in backed shells and thus effects economical manufacturing of proper electrotype plates.

Having thus described my invention:

What I claim is:

1. A back up stand adapted to be used in the

manufacture of electrotype plates embodying a chambered, shallow tray-like top portion having inlet and outlet passages for circulating liquid through the chamber, a plurality of independent heating chambers within said first chamber fluid-tightly separated therefrom and heating means in said heating chambers, said independent chambers freely communicating at their bottoms with the open atmosphere.

2. A back up stand adapted to be used in the manufacture of electrotype plates comprising a shallow tray-like top portion having spaced, integral parallel top and bottom walls arranged in spaced relation to provide a single chamber, a valved inlet means for said chamber, drain means for said chamber, circumferential integral walls interconnecting the top and bottom plates of said top portion and forming individual chambers in said first chamber fluid-tightly separated therefrom, and heating means in each of said individual chambers, said independent chambers freely communicating at their bottoms with the open atmosphere.

3. A back up stand adapted to be used in the manufacture of electrotype plates comprising a shallow, tray-like top portion having spaced, integral, parallel top and bottom walls arranged in spaced relation to provide a chamber, valved inlet means for said chamber, drain means for said chamber of substantial larger cross section than said inlet means, circumferential, integral walls interconnecting in symmetrical arrangement the top and bottom plates of said top portion, said circumferential integral walls forming individual chambers in said first chamber fluid-tightly separated therefrom and being at their bottom in free communication with the open air, and heating means extended into said individual chambers through the open bottom thereof.

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