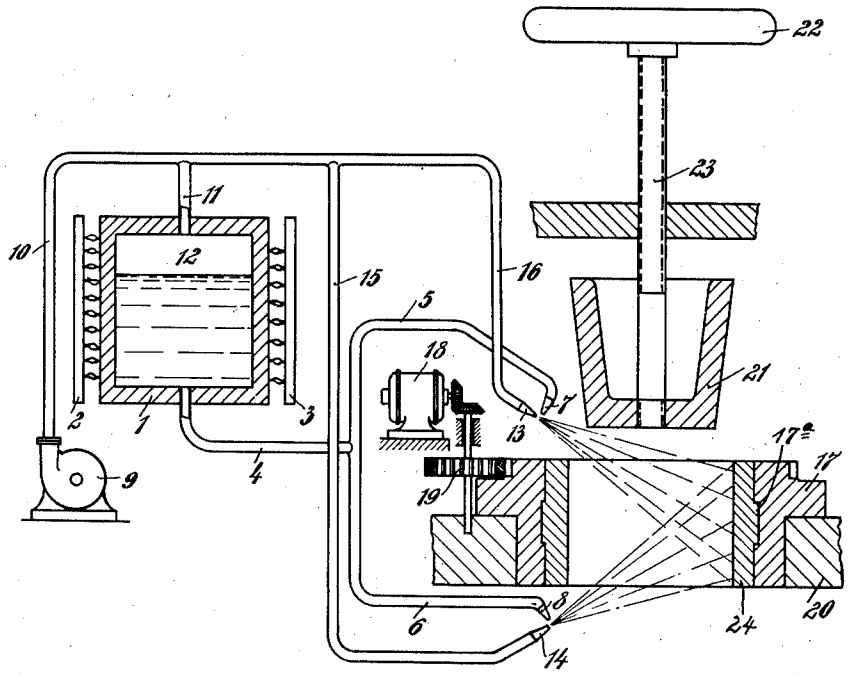
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METHOD OF PRODUCING TYPE OR TYPE BLOCKS

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METHOD OF PRODUCING TYPE OR TYPE BLOCKS.

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My invention relates to a method of producing type or type blocks, and more particularly type wheels and type cylinders with raised characters on their peripheries such as are used in calculating machines, typewriters, printing telegraphs and the like. Such type should be capable of producing a great number of impressions without showing any appreciable signs of wear. The manufacture of such type offers great difficulties in so far as it was up to now impossible to produce a sharp, clearly defined type of great strength. Die-casting and similar methods present means for reproducing all the fineness of the punch or die and the matrix produced from it in the finished block, but the type metal employed in these processes is comparatively soft, so that the type produced in this way does not comply with the requirement in regard to the life of the type.

The method according to my invention eliminates the disadvantages existing in the type blocks as manufactured by the hitherto known processes.

I attain this end in view by manufacturing the type as die-casting, by spraying the type metal cold (Schoop or Metalisator process) into the mold or by electrodepositing it in the mold and then subjecting it to pressure by rolling, compressing or similarly treating it, so that its structure becomes denser and its durability is increased thereby.

My invention is illustrated in the accompanying drawing which represents in diagrammatic fashion and in sectional elevation an example how my novel method may be carried out.

Referring to this drawing, 1 represents a container heated by the burners 2, 3 which contains the molten metal. The metal is conducted in liquid state by way of the conduits 4, 5 and 6 to the spraying nozzles 7 and 8. The pressure necessary for conveying the metal is furnished by an air pump 9, which delivers compressed air by way of conduit 10 and branch 11 into the portion 12 of container 1, so that pressure is exerted on the molten body of metal.

Adjacent to the nozzles 7 and 8 are placed respectively the atomizing nozzles 13 and 14, both of which are connected by way of conduits 16 and 15 to the air conduit 10. The liquid metal delivered from container 1 to nozzles 7 and 8 is highly atomized by the air jets emanating from atomizing nozzles 13 and 14. The mold consists of an annular die 17 resting on a base 20 on which it can rotate, and it is kept in rotation by means of a power supply 18 by way of gearing 19. The die 17 is kept in rotation during the spraying process and the two pairs of nozzles 17, 13 and 8, 14 are placed so that as the drawing indicates the metal is sprayed against the inner periphery of die 17 which contains the matrix 17^a on this periphery. When the type cylinder 24 has attained the desired thickness, the spraying is discontinued and the densifying or condensing of the metal occurs. For this purpose an operating means, such for instance as a hand wheel 22 mounted on a threaded spindle 23 is provided which carries at its lower end an expansion cone 21, whose largest diameter is greater than the inner diameter of the sprayed cylinder 24. This cone 21 is forced through the cylinder 24, whereby it tends to expand the latter, thereby compressing or densifying the metal of cylinder 24 to the desired degree.

To produce printing forms under application of pressure is already known, but in these processes the metal is either forced in the cold state into the mold or is cast into the mold and then subjected to pressure. Although these processes cause a certain strengthening of the structure of the type metal, not all the requirements can be complied with which must be expected of good type, because by either a compressing or a casting process alone it is not possible to bring out all the fine points of the die. Only the combination of the two processes viz the introduction of the material in a state of fine division into the mold and the subsequent application of pressure and condensation of the material produces a type which fulfills all requirements which can possibly be made upon it.

Various modifications and changes may be made without departing from the spirit and the scope of the invention, and I desire, therefore, that only such limitations shall be placed thereon as are imposed by the prior art.

I claim as my invention:—

1. The method of producing type blocks,

which consists in introducing the type material in a state of fine division into the mold and applying pressure to it, for the purpose of increasing the density of the structure of the type metal and thus the durability of the type.

2. The method of producing type cylinders with raised characters on the periphery, which consists in spraying the type metal into a mold to form a cylinder, and then forcing the metal from the cylinder interior towards the periphery to increase the density of the metal.

In testimony whereof I affix my signature.

EDUARD MAREK von MARCHTHAL.