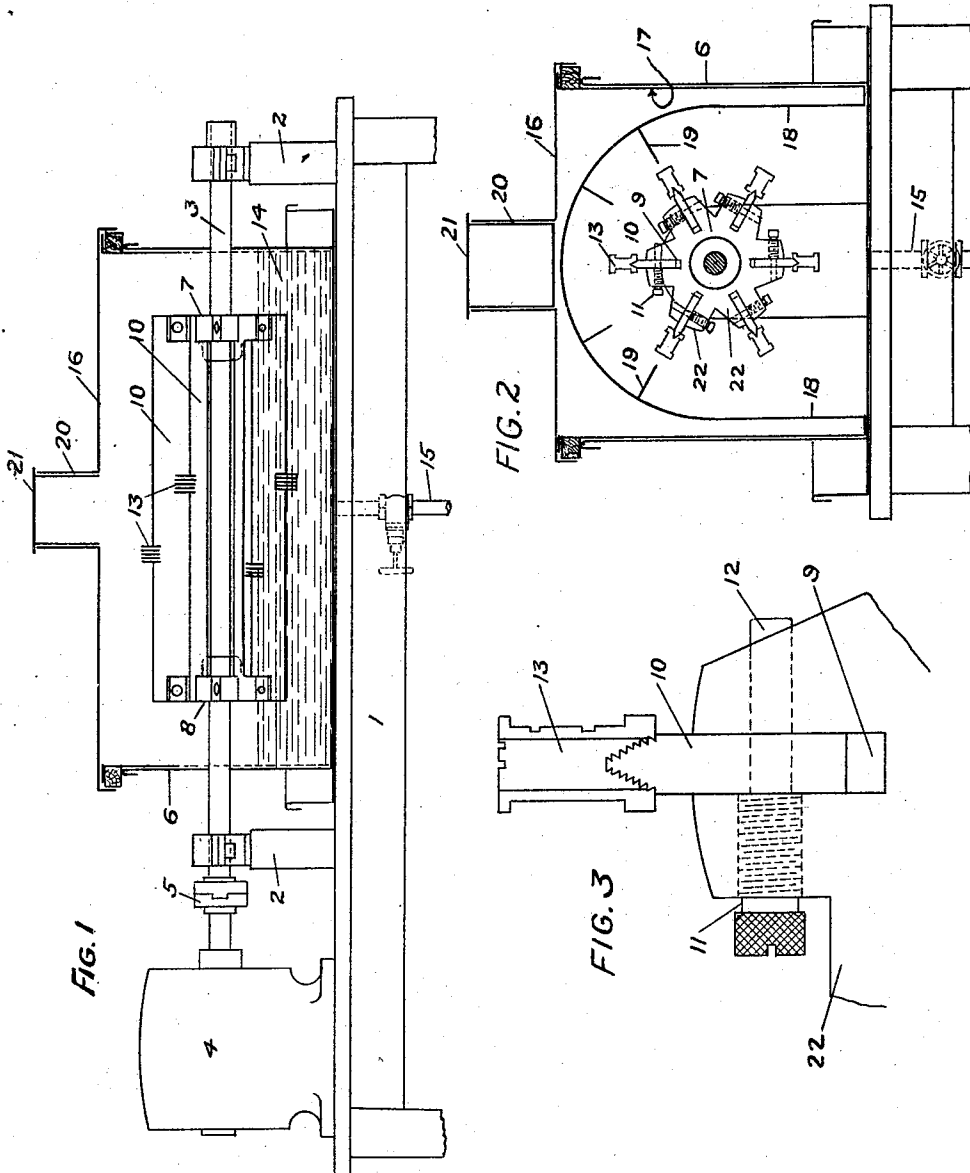


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D. L. LIDDLE
MATRIX CLEANING MACHINE

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MATRIX-CLEANING MACHINE

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The purpose of my invention is to provide a machine which will readily, economically and thoroughly clean matrices of the character employed in linotype and intertype typesetting machines. The matrices of these machines in ordinary use become covered with dust, dirt and grease incident to their passage through the machine and to handling. In use, these matrices are associated with space bands which are inserted between the matrices to produce the necessary spacing in the finished cast line of type. These space bands customarily are lubricated with dry graphite, substantially powdered graphite, which has been prepared by grinding in oil. Some of this graphite adheres to the sides, ears and toes of the matrices. In order to properly pass through the typesetting machines, especially the magazines, it is essential that the matrices be clean and substantially free from adhering foreign matter. In order to insure the matrices in use being in this state, it is customary to clean them occasionally or at stated periods. It is the purpose of the present invention to provide an improved means for accomplishing this cleaning.

Any suitable cleansing fluid which will remove the dirt may be employed in order to insure removal of the graphite and cutting grease or oil which may be present on the matrices, but I prefer to employ a liquid including tri-sodium phosphate and sodium cyanide, although this is not essential. I have found particularly useful a mixture of about ten gallons of water with about one pound of tri-sodium phosphate and approximately a half ounce of sodium cyanide.

After the matrices are cleaned they may be removed from the machine and thoroughly rinsed with water which preferably is heated to remove the cleansing fluid, after which they may be dried in any suitable manner and returned to the type-setting machines for use.

In the accompanying drawings I have shown one form of machine embodying my invention.

Fig. 1 is a longitudinal, vertical section; Fig. 2 is a transverse, vertical section; and Fig. 3 is an enlarged detail view of a portion of the mechanism.

Mounted on a suitable base 1, by means of suitable supports 2, is a shaft 3. In the drawing there is indicated a motor 4 for revolving this shaft 3 through a coupling 5. The shaft 3 passes through a tank 6, and mounted on the shaft within the tank are spiders 7 and 8. As illustrated, the spiders each have six arms 22 and in each arm is a slot 9, into which fits a bar 10. One end of each bar engages a slot 9 in an arm of the spider 7 and a corresponding slot 9 in an arm of the spider 8 is engaged by the other end of the bar. Screws 11 may pass through the arms of the spiders 7 and 8 to hold the bars 10 rigidly in place. As indicated more clearly in Fig. 3, the screws 11 may have plain reduced portions 12, which pass through apertures in the bars 10 so as to more securely hold them in place. The outer edges of the bars 10 are preferably shaped in cross section substantially like that portion of the ordinary matrix elevator bar of a type-setting machine in which no teeth are cut away for distribution, so that when matrices are assembled on bars 10 they will not separate therefrom in a radial direction. I have illustrated in Fig. 3 a matrix 13, arranged on the bar 10. In operation there may be a single matrix 13 on each bar or there may be groups of them as illustrated in Fig. 1. The machine, of course, may be more economically used and I prefer so to use it, if a number of matrices are placed on each bar so that the bar is substantially filled from end to end, the matrices being placed close together, but leaving sufficient space between them for the entrance of the cleaning fluid. The bars 10 being removable, permit easy assembly of the matrices thereon. A bar may be removed and a row of matrices assembled thereon by hand. However, for convenience, I find it better to assemble a row of matrices in a suitable elongated container or holder and then slide a bar into the combination or keyways of the matrices. In the tank 6 a cleaning fluid 14 may be placed, preferably rising, as indicated in Fig. 1, so that the distance between the surface of the fluid and the axis of the shaft 3 is approximately the distance between the axis of the shaft 3 and the screws 11 in the spiders 7 and 8.

With this arrangement it will be understood that when the shaft is rotated the entire body of all the matrices carried by the bars 10 may be caused to pass in and through the cleansing fluid 14, or a similarly disposed rinsing fluid.

Any suitable draining mechanism, diagrammatically shown in Fig. 2, such as the downwardly extending pipe 15, may be employed for removing the fluid when it has served its purpose.

A cover for the tank 6 preferably will be employed. In the drawings I have shown such a cover 16 having downwardly extending sides 17 fitting within the tank 6 and connected at their lower ends to the sides of an arched inner lining 18, which is provided with baffles 19 overlying the spiders 7 and 8. These baffles 19 are clearly indicated in Fig. 2 and they preferably extend from end to end of the device. So as not to complicate the drawing they have been omitted from Fig. 1, and indeed they are not essential to my invention. For the purposes of inspection and filling, I prefer to provide at about the center of the cover 16 an upwardly extending tube 20 provided with cap or cover 21.

Various changes in details of the mechanism may be made.

I claim as my invention:

1. In a matrix cleaning machine, a rotatable shaft, a spider on the shaft, bars on the spider, screws removably holding the bars in place, means for holding matrices on the bars, a tank for holding a fluid below the shaft, and means for rapidly rotating the shaft.

2. In combination, a tank, a bar having the shape of a matrix elevating bar, means mounting the bar so that it will move in a path through the tank, and means for moving the bar.

3. In combination, a tank, a bar having the shape of a matrix elevating bar, means removably mounting the bar so that it will move in a path through the tank, and means for moving the bar.

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