J. P. BLAND.

APPARATUS FOR PREPARING STEREOTYPE MATRICES.

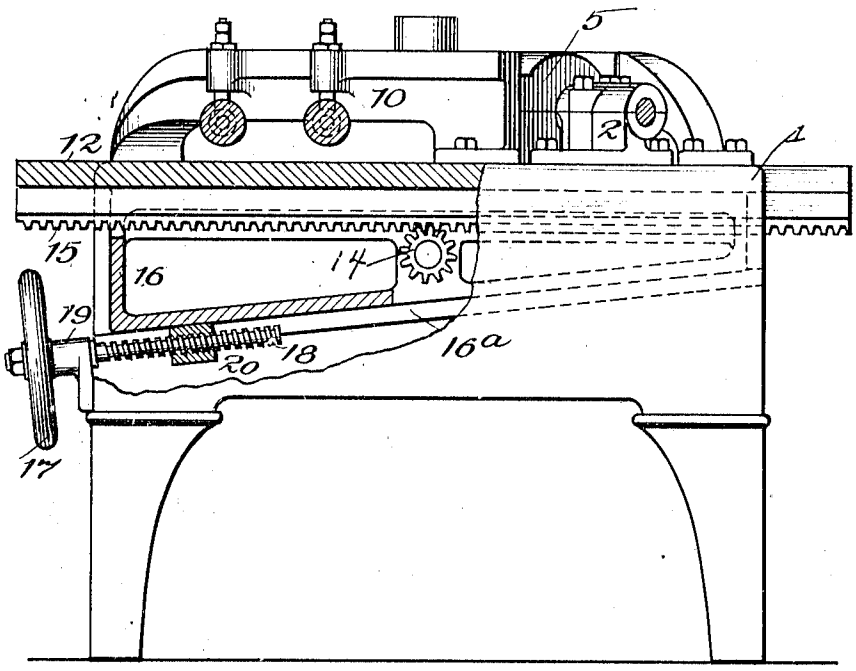
APPLICATION FILED JAN. 13, 1909.

1,040,861.

Patented Oct. 8, 1912.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

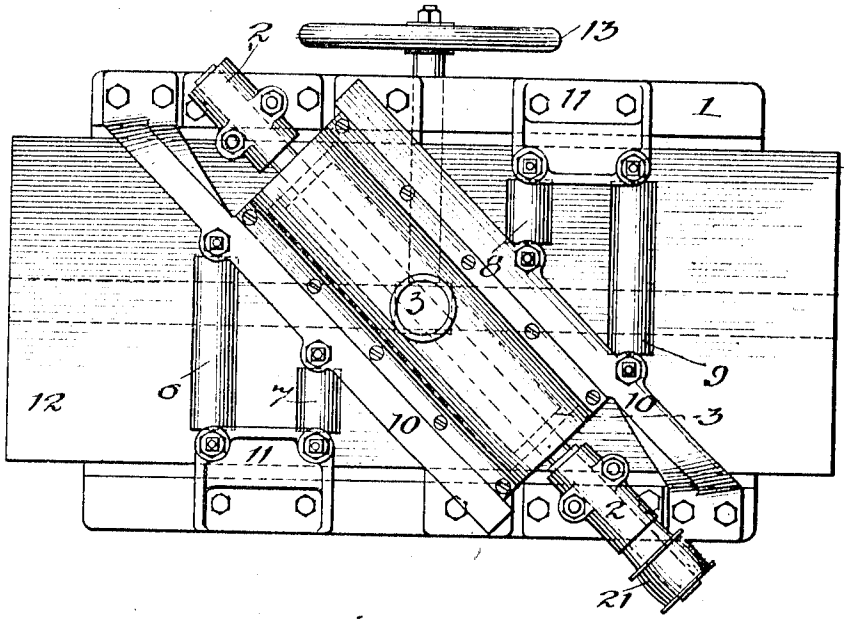
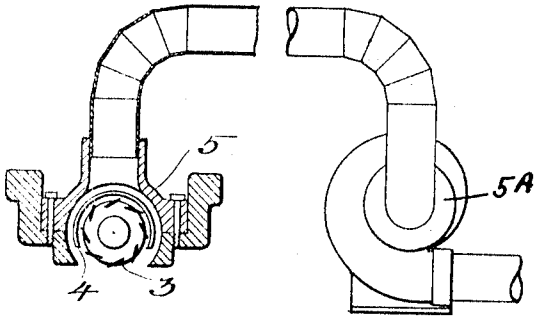


Fig. 3.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR PREPARING STEREOTYPE-MATRICES.

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Application filed January 13, 1909. Serial No. 472,025.

To all whom it may concern:

Be it known that I, JOHN PARKINSON BLAND, a citizen of the United States, residing at 32 Atherfold road, Clapham, in the county of Surrey, England, have invented a certain new and useful Improvement in Apparatus for Preparing Stereotype-Matrices, of which the following is a specification.

This invention relates to improvements in apparatus for preparing stereotype matrices, and has for its object to provide a new and improved apparatus of this description.

The invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation of a machine embodying the invention; Fig. 2 is a plan view of the machine shown in Fig. 1; Fig. 3 is a sectional view through the abrasing cylinder of the machine.

Like numerals refer to like parts throughout the several figures.

The usual method of making stereotype plates consists in laying a moist paper mat on the face of the type or blocks from which the plate is to be made and beating this paper mat down with a brush or by applying pressure upon it by rollers, or in any other desired manner. When the impressions are made, heat is applied and the moist paper mat is baked dry and becomes the matrix. It is of great importance that the impression of the type or blocks in the matrix be uniform in depth, as the uniformity of the printing surface depends upon this condition. The depth of the impressions produced by beating or rolling is not the same on broad faced type as on narrow faced type, and is not the same on line or half-tone blocks as on broad faced type. This is due to the fact that where the pressure from the brush or roller is opposed to a broad flat surface the resistance to the formation of the impression is much greater than where the same pressure is applied to a narrow face like small type and rolls, etc. It will therefore be seen that when the beating or rolling is completed the back or blank side of the matrix is not a true plane, but consists of irregular ridges and depressions due to the varying depth of the impressions produced by the type. When the matrix is put into the casting box and the metal is poured in, the weight of such metal forces the matrix back against the true surface of the casting box, and the depressed portions of the back of the matrix are also forced against the surface of the casting box making this back surface a true surface. The irregularities of the back or blank side of the matrix are also transferred to the type side, and the type side therefore becomes distorted and the impressions from the printing surface are distorted and irregular.

One of the objects of this invention is to remedy this evil.

Referring now to the drawings, which illustrate one form of apparatus for acting upon the matrices, there is mounted upon the frame 1 and in the bearings 2 thereon a cylindrical part or mandrel 3 with its axis at an angle to the longitudinal center line of the frame. The part or mandrel 3 is formed so as to act upon the plane surface of the matrices as by being provided with blades, or coated with some abrasive material such as glass, emery or the like. A cylindrical shield 4 partly surrounds the mandrel. A cover 5 forms a dust chamber through the opening in the top of which the dust is carried off by a suction fan 5A. A series of rollers 6, 7, 8 and 9 are supported by bridge supporting devices, 10, and the brackets or supports 11.

A sliding table 12 is mounted on the frame 1 and is arranged so as to be moved back and forth. Any suitable mechanism for this purpose may be used. As herein shown this movement is secured by the hand-wheel 13 on the shaft of which is the pinion 14 engaging a rack 15 connected with the table. The mandrel 3 is located above the table, and some suitable means is provided for varying the distance between the table and the mandrel. As herein shown the table is supported upon a wedge-shaped support or slide 16 which rests upon inclined guideways 16A on the frame. Some means is provided for moving the wedge-shaped support along these ways. The hand wheel 13, pinion 14 and shaft upon which it is carried are mounted upon the wedge-shaped slide 16. Any suitable means for this purpose may be used. As herein shown this movement is provided by means of a hand-wheel 17 connected with the screw 18 working in the bearing 19 and engaging the nut or screw-threaded lug 20 on the wedge-shaped slide 16. It will thus be seen that by moving the table back and forth the distance between it and the part 3 which acts upon the matrices may be varied, so as to permit matrices

of different thicknesses to be acted upon. The mandrel 3 may be rotated in any desired manner, as by means of the belt pulley 21 mounted on the shaft thereof.

The use and operation of my invention are as follows: Before the matrix is placed in the machine the table is adjusted by means of the hand-wheel 17 so as to provide the proper distance between the part 3 and the table, then the form with the matrix still upon it is placed upon the table with the back of the matrix up. The abrasing device or mandrel 3 is rotated at a high rate of speed. The table is then moved by means of the hand-wheel 13 and the matrix passed under the abrasing device, such abrasing device smoothing up the back of the matrix and making it a true plane so that when placed in the mold there will be no irregularities or errors in the stereotype formed from it. The oblique disposition of the cutting or abrasing part 3 permits a very favorable disposition of the holding-down rolls 6, 7, 8 and 9 and also facilitates the truing up of the matrix as the resistance offered is diminished while the risk of tearing the material of which the matrix is composed is avoided.

I claim:

1. A machine for truing up matrices comprising a movable table upon which the matrices are supported, a part which acts upon the matrices, said part supported in an oblique position above the matrices, oblique bridge supports, means for moving said movable table so as to move the matrices past said part, and a roller at each side of said part and adapted to engage the matrices, said rollers supported at one end by said oblique bridge supports.

2. A machine for truing up matrices comprising a reciprocating table upon which the matrices are supported, a part which acts upon the matrices, said part supported in an oblique position above the matrices, a series of separated independent rollers of different lengths supported above said table, means for moving said reciprocating table so as to move the matrices past said part, and means for varying the distance between said part and said table.

3. A machine for truing up matrices comprising a frame, a sliding table mounted thereon, an abrasing device mounted on said frame above said table and set at an angle with the line of direction of travel of the table, a series of separated rollers of different lengths mounted above said table and set at an angle to said abrasing device, means for moving said table to and from said abrasing device so as to vary the distance between them, and means for moving said table longitudinally.

4. A machine for truing up matrices comprising a frame, a sliding table mounted thereon, an abrasing device mounted on said frame above said table and set at an angle with the line of direction of travel of the table, a wedge-shaped support upon which said table is slidably carried, inclined guide-ways for said support, an actuating part mounted upon said wedge-shaped support and operatively connected with said sliding table so as to move it longitudinally, and means for moving the support along said guide-ways to raise and lower the table.

5. A machine for truing up matrices comprising a frame, a wedge-shaped support extending across said frame, a sliding table mounted thereon, an actuating part mounted upon said wedge-shaped support and operatively connected with said sliding table so as to move it longitudinally, an abrasing device mounted on said frame above said table and set at an angle with the line of direction of travel of the table, a casing for said abrasing device arranged so as to form a dust chamber, and a dust-withdrawing device connected with the dust chamber.

6. A machine for truing up matrices comprising a frame, a sliding table carried thereon, an abrasing cylinder supported in an oblique position across said table and above the same, oblique bridge supports at each side of said abrasing cylinder, a roller on each side of said abrasing cylinder, one end of the roller supported upon said bridge supports.

7. A machine for truing up matrices comprising a frame, a sliding table carried thereon, an abrasing cylinder supported in an oblique position across said table and above the same, oblique bridge supports at each side of said abrasing cylinder, a plurality of rollers extending part way across the table and having their inner ends connected with the bridge supports.

8. A machine for truing up matrices, comprising a movable table upon which the matrices are supported, a supporting frame, a wedge-shaped supporting device interposed between the frame and the table and adapted when moved to raise and lower the table, an actuating device mounted on the wedge-shaped part and operatively connected with said table so as to move it longitudinally, and an abrasing device mounted on said frame above said table.

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