F. W. HEUER.

MACHINES FOR PRINTING ON GLASS, PORCELAIN, &c.

No. 194,350. Patented Aug. 21, 1877.

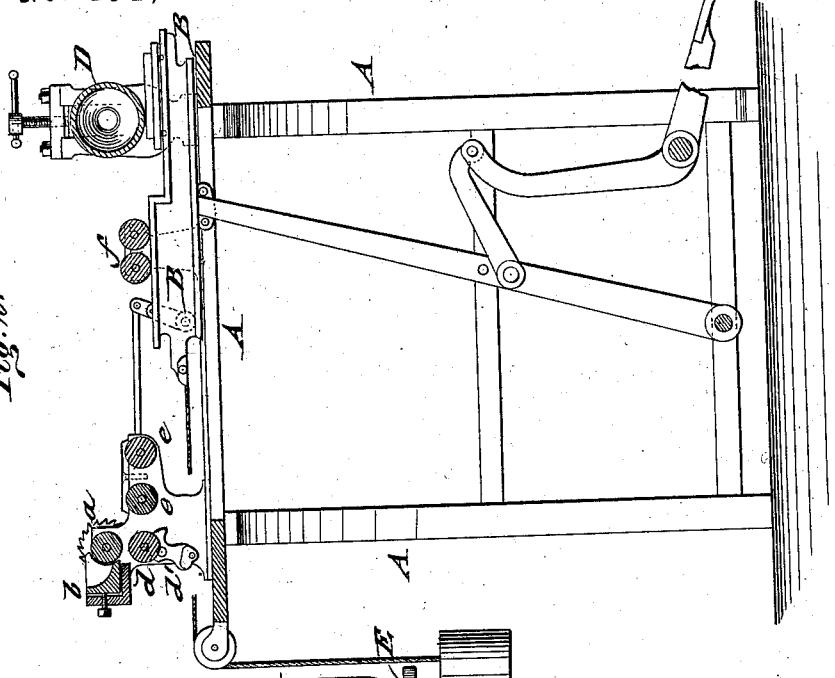

Fig: 2.

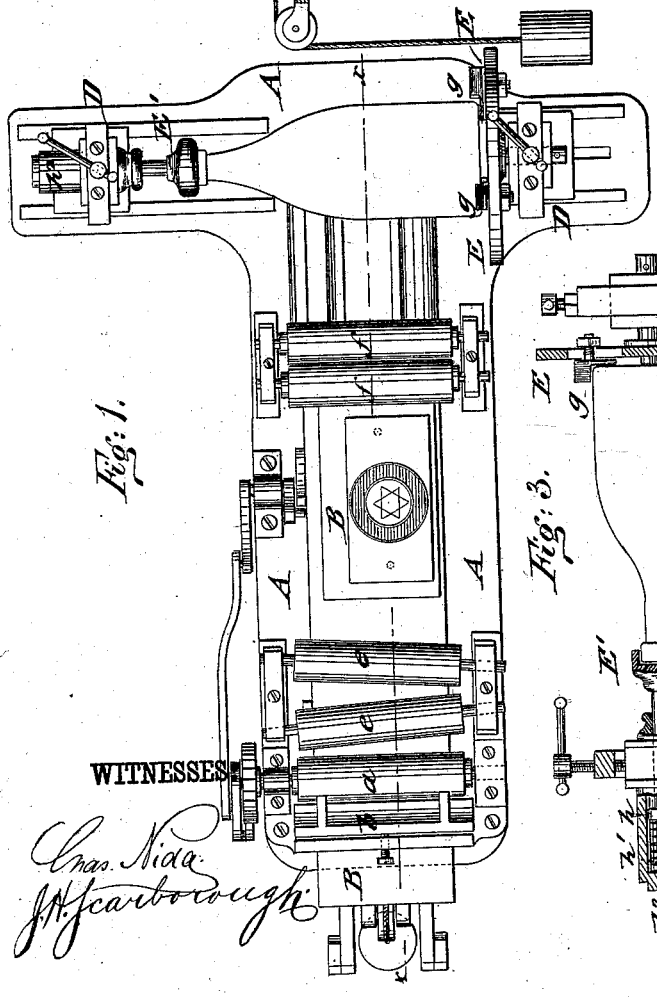

Fig: 1.

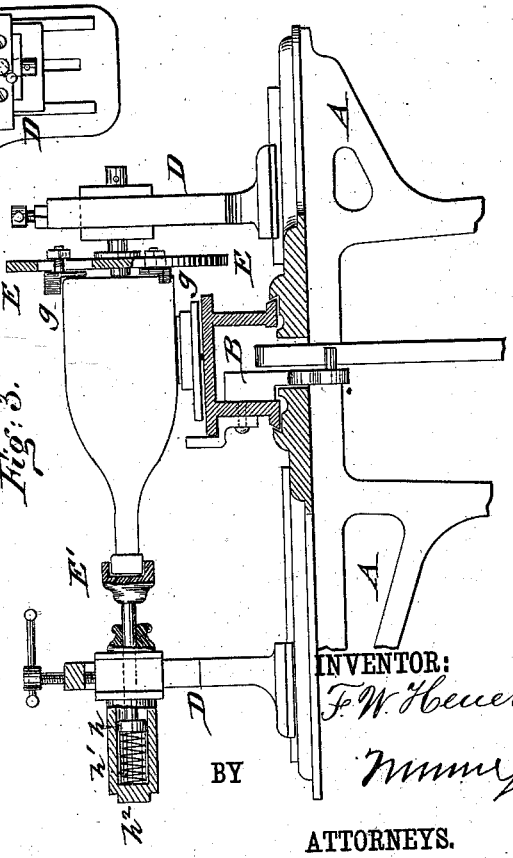

Fig: 3.

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FRIEDRICH W. HEUER, OF VIENNA, AUSTRIA, ASSIGNOR TO EMIL H. NEYMANN, OF NEW YORK, N. Y.

IMPROVEMENT IN MACHINES FOR PRINTING ON GLASS, PORCELAIN, &c.

Specification forming part of Letters Patent No. **194,350**, dated August 21, 1877; application filed June 4, 1877.

To all whom it may concern:

Be it known that I, FRIEDRICH WILHELM HEUER, of Vienna, in the Empire of Austria, have invented a new and Improved Machine for Printing on Glass, Porcelain, &c., of which the following is a specification:

The object of my invention is to produce an effective machine for printing in quick and cheap manner labels, pictures, ornamental designs, &c., in one or more colors, on glass, porcelain, earthenware, and other rigid bodies of cylindrical surface, the colors being fixed thereon, so that the prints resist the influence of moisture, and dispense thereby with the paper labels or pictures applied or painted thereon by hand or in other manner.

The invention consists of a machine in the nature of a printing-machine, with adjustable revolving supports for the bottles or other objects to which the colors are to be transmitted.

The accompanying drawing illustrates my improved machine for printing on objects of glass or other rigid material, the same representing, in—

Figure 1, a plan view; Fig. 2, a vertical longitudinal section on line *x x*, Fig. 1; and in Fig. 3, a vertical transverse section of the same.

Similar letters of reference indicate corresponding parts.

The machine is similar to the ordinary printing-press in its general construction, having many parts—such as the ink-fountain, color-table, and feed and distributing rollers—in common with the same.

It consists of a suitable supporting-frame, A, on which a box-shaped carriage, B, is reciprocated in dovetailed guides, the same being moved in one direction by a treadle arrangement or by a driving-shaft, and in the opposite or return direction by a suitable cord, pulley, and balance-weight.

The dovetail guides prevent the lifting of the carriage, and secure the even and steady motion of the same.

At the rear part of the carriage B is arranged the color-table, and at the front part the elastic printing-block, which latter is secured between angle-irons, adjustable by set-screws or otherwise.

The color-table may be made either of wood, sheet-iron, stone, or other material, and serves for the purpose of distributing the color.

On suitable supports at the rear part of frame A is arranged a roller, *a*, that takes up the color from the adjustable fountain *b*. The roller *a* receives intermittent rotary motion by means of a gear-wheel and crank-rod connection with push-pins of the reciprocating carriage B. A second roller, *d*, of elastic material, is moved up and down by cam-levers *d'*, being thereby first pressed against the color-roller *a*, and then on the color-table of the carriage, to which it feeds the color. Elastic distributing-rollers *e* are arranged in front of the feed-rollers, preferably at an oblique angle to each other, for distributing the color uniformly on the table. At some distance from the distributing-rollers *e* is another set of rollers, *f*, that take the color from the color-table and transmit it to the printing-block as the same passes below the rollers.

The front part of frame A is arranged with lateral guide-slots and adjustable standards D, which carry in vertical guide-slots the adjustable bearings of a revolving face-plate, E, at one side, and of a revolving head, E', at the other side. The face-plate E is provided with radial slots, in which seats or rests *g*, of rubber or other elastic material, are adjustable to any suitable distance from the center shaft by means of clamping-screws, as shown in Figs. 1 and 3. The seats *g* may be readily adjusted in the slots for the different diameters of the bottles or other round objects, for which the seats form an elastic cushion.

The revolving head E' is made of cup shape, and lined at the inner surface with leather, rubber, or other soft material, to receive the head of the bottle or other object. The shaft of the head E' passes through the bearing of the standard D, and presses by an end disk or piston, *h*, against a spiral cushioning-spring, h^1, placed into a cylindrical casing, h^2, so as to keep the bottle continually pressed against the face-plate, while allowing also the ready inserting and removing of the bottles.

As the supporting-standards are laterally adjustable, the bearings of the shafts of face-plate and head vertically adjustable, and the

seats of the face-plate radially adjustable, a bottle or other round vessel of any suitable size may be supported by the head and face-plate at the proper distance from the printing-block, and thereby the machine quickly be prepared for printing.

When the machine is set in operation the bottle receives a rotary motion by the friction between the same and the printing-block of the carriage B, which friction is augmented by the adhesiveness of the color employed.

The printing-block is made of elastic matetial, and placed on a stiff wooden or other base-plate, which is cushioned in suitable manner, so as to provide for the slight variations in the diameters of the bottles, and secure a uniform transfer of the color to the surface to be printed.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

In a machine for printing in colors on cylindrical bodies of glass, porcelain, &c., the combination, with ink-distributing devices and elastic printing-plate, of the laterally-adjustable standards D, with the vertically-adjustable and revolving face-plate E, having radially-movable cushioning-seats or rests, and with the vertically-adjustable revolving and spring-cushioned head E′, substantially in the manner set forth.

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Witnesses:
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