March 15, 1932. F. FUCHS 1,849,452

PRINTING FORM

Filed Aug. 22, 1929

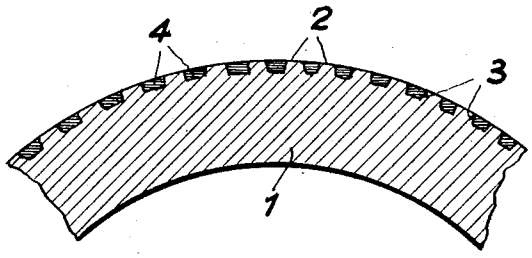


FIG. 1

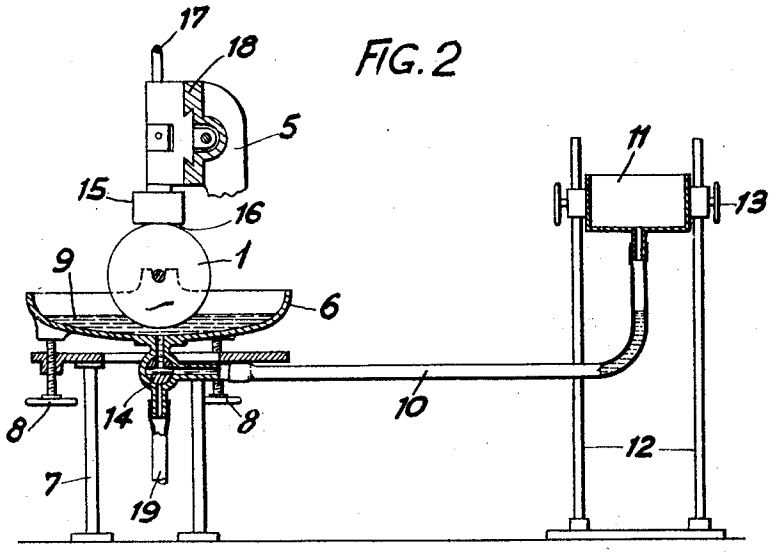


FIG. 2

INVENTOR:

Friedrich Fuchs,

By Kenny Orth Jr.

Atty.

Patented Mar. 15, 1932 1,849,452

UNITED STATES PATENT OFFICE

FRIEDRICH FUCHS, OF ZOFINGEN, SWITZERLAND, ASSIGNOR TO THE FIRM RINGIER & CO., VERLAGSANSTALT UND VEREINIGTE BUCH- & STEINDRUCKEREIEN, OF ZOFINGEN, SWITZERLAND

PRINTING FORM

Application filed August 22, 1929, Serial No. 387,708, and in Switzerland September 4, 1928.

This invention relates to cylindrical or plate shaped printing forms and particularly to a process for removing the etchings thereon by grinding. With metal printing forms of this type it is customary after their use to grind the etched surfaces thereof by means of a grinding stone of natural or artificial material, in presence of water, in order to make them ready to be etched again. This procedure is slow and accompanied by a considerable wear of the grinding stone.

The object of the invention is to reduce the time of the grinding process and to economize grinding material.

The process according to the invention consists in coating the metal printing form with a protective material which resists the liquid to be used for attacking the metal. Thereupon, the said protective layer is scraped off to the extent that only the recessed portions of the metal printing form remain filled out with the protective material. Then, the blank raised portions of the metal printing form are exposed to the liquid attacking the metal, and are ground off together with the protective material deposited in the recessed portions.

The process according to the invention will be more fully described, by way of example, with reference to the accompaying drawings, in which

Fig. 1 shows a cross-section of a fragment of a cylindrical printing form, and

Fig. 2 a vertical section, on a smaller scale, of a device for carrying the process of the invention into effect.

The cylindrical copper printing form 1, to be ground, is primarily cleaned and the remnants of printing ink removed from its exterior surface, whereupon, it is coated with a protective asphalt varnish indicated at 4. In mounting the cylinder 1 horizontally on a turning device, for instance a lathe, the exterior surface of the cylinder is scraped off until the metal of the raised portions 2 are layed bare. The recessed portions 3, obtained by etching and situated between the raised portions 2, are then still filled with asphalt varnish 4. Suitably, the front faces and the axial portions of the cylinder are also coated with asphalt varnish. Then, the cylinder 1 is put in a grinding machine 5 (see Fig. 2) in horizontal position so that its lower part enters an acid-proof tray 6 mounted on a table 7 on screw supports 8, for its vertical adjustment, and containing a solution 9 of perchloride of iron. The tray 6, by means of a tube 10 of Para rubber, communicates with a reservoir 11 which is slidably arranged on upstanding bars 12 and adapted to be fixed at different levels by set screws 13. At the beginning of the grinding process the reservoir 11 is raised so that the liquid 9 is enabled to flow into the tray 6, when the two-way cock 14 is adjusted into the position illustrated, and the lower part of the cylinder 1 is immersed in the liquid 9.

This liquid acts on the unprotected portions 2 of the metal, so as to permit it to be ground off quicker. The grinding machine 5 is provided with a rotatable grinding stone 15, the front face 16 of which is horizontally displaceable to and fro over the exterior surface of the cylinder 1, in that the spindle 17 of the grinding stone is mounted to be laterally slidable in the guide 18.

Alternatively, the rotatable grinding stone 15 may be secured against axial displacement and instead, the cylinder 1 may be axially reciprocated.

At the end of each traverse of the grinding stone 15 the cylinder 1 is slightly turned about its axis and in this manner the grinding stone 15, gradually, removes all the raised portions 2 and the protective material 4 in the recesses 3 together with it, until on the exterior surface of the cylinder neither etched portions 3 nor remnants of protective material 4 are perceivable. Then the reservoir 11 is shifted to a lower level than the bottom of the tray 6 so that the liquid flows back into the reservoir and the tray is emptied. Finally, the two-way cock 14 is turned anti-clockwise through an angle of 90° to permit the water with which the cylinder 1 is then cleaned to escape through the discharge pipe 19. Now, the cylinder is adapted to be etched anew. It has been found by practical experiments that the duration of the grinding process can be reduced from 120 minutes to 15 minutes and the wear of the grinding

stone from 25 millimeters to 1 millimeter provided the working conditions remain, otherwise, unchanged.

I claim:

1. The method herein described which comprises filling the etched recesses of a metallic printing form with a protective material which resists a liquid to be used for attacking the metal of the form, subjecting the raised portions of the form to the action of said liquid, and grinding off the attacked raised portions and by degrees also the protective material deposited in the recessed portions.

2. The herein described process of removing the etchings on metal printing forms by grinding, which consists in coating the metal printing form with a protective material which resists a liquid to be used for attacking the metal, scraping off the said protective layer to the extent that only the recessed portions of the metal printing form remain filled with protective material, exposing the blank raised portions of the metal printing form to the liquid attacking the metal, and grinding off the attacked metal portion together with the protective material deposited in the recessed portions.

In testimony whereof I have signed my name to this specification.

FRIEDRICH FUCHS.