

# UNITED STATES PATENT OFFICE

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## BACKING COMPOUND FOR STEREOTYPE-MATRICES.

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*To all whom it may concern:*

Be it known that I, J. FREMONT FREY, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Backing Compound for Stereotype-Matrices, of which the following is a specification.

My invention relates to an improved filling or backing powder to be used in the preparation of matrices for stereotyping.

It is well known that in large newspaper houses the papers are printed from stereotype-plates, which are used on cylinder-presses and are made to fit the curved periphery of the type-cylinder.

The process of forming the stereotype-plates is substantially as follows: The type for a single page of the paper having been set up in the ordinary flat form, several sheets of a soft but tenacious paper, suitably moistened, are spread over the type-faces, and are then beaten down with a brush over the types and into all the interstices and spaces in and between them. Then the surface thus formed is covered with a backing material for the purpose of filling up the depressions and making a uniform level surface, and this backing material is then covered with another sheet of paper, which is cemented to the paper first applied either by means of the backing compound or by means of paste applied to the backing. The type-form and its covering are then put in a steam-press and dried under pressure. When dried, the paper matrix thus formed is removed from the type-form and placed in the casting-box, which has a convex interior surface to correspond to the curvature of the type-cylinder of the press on which the stereotype-plate is to be used and a corresponding concave surface of larger radius into which the matrix is bent, the back of the matrix resting against said concave surface and the face of the matrix forming a concave surface.

Various substances have been used for the filling material for the matrix. Formerly a mud, formed of clay or infusorial earth, was used, and later a compound of lime and flour formed into a cement with a suitable amount of moisture. These substances answered very well for flat matrices, but when used on

matrices which are to be bent after drying are found to be either so soft as to shift about in bending or flatten out under the pressure of the stereotype-metal when it is poured or so hard as to crack the matrix in bending.

The object of my improvement is to provide a backing compound for stereotype-matrices which may be applied in the form of a dry powder, which will rapidly absorb the moisture from the paper, and which will partially crystallize or set by said moisture in those parts of the matrix which represent large open spaces in the stereotype, so as to become in those parts stiffened sufficiently to sustain the weight of the stereotype-metal, but yielding enough to bend without breaking or wrinkling the surface of the matrix, and which will in the thinner parts, or those portions over the type-faces and around the margin of the type-form, make with the moisture absorbed from the soft paper a cement adapted to unite the backing-sheet with the front sheet when applied dry, all as hereinafter described.

I have discovered that the above-mentioned results may be accomplished by the use of a compound consisting of plaster-of-paris or hydraulic cement or other like quickly-setting material—lime, flour, and alum. Of these substances, all in a finely-pulverized state, I take of the plaster-of-paris, the lime, and the flour substantially equal parts, by measurement, and of the alum about one-sixteenth as much as of either of the other ingredients. These proportions need not be strictly adhered to, but may be considerably varied without departing from my invention, and in that class of work which is habitually set very close, as in book-work, the alum may be omitted. The several ingredients are intimately and thoroughly mixed together and are kept in a dry place. In use after the wet foundation-paper has been beaten into place on the type-form, as before described, a layer of the compound is spread over it and the surplus scraped off, so as to leave the margin and the high points exposed or slightly covered with a thin layer of the compound, which thin layer becomes at once saturated with moisture from the wet foundation. A sheet of dry paper is then put over all, and



the whole is immediately placed in a press, between steam-heated plates, where it remains until thoroughly dry. The compound rapidly absorbs the moisture from the wet foundation, which moisture operates to quickly crystallize or set the plaster-of-paris therein, but the particles of plaster are so separated by the slower-setting particles of lime and the non-crystallizable flour that they do not form a solid mass in those portions of the matrix where the compound lies thickly, but form with the flour and lime a crust which is sufficiently strong to hold up the type-metal, but which will bend without cracking. In those portions where the compound lies thinly it is quickly saturated with moisture and forms a cement which becomes solid in drying and causes the backing-sheet to adhere to the foundation without the use of paste. The alum operates to promote the hardening of the plaster, and is useful more particularly when there are large blank spaces in the type-form.

The saving of a few minutes time in the drying of the stereotype-matrices is of great importance in newspaper printing, and it has been found in practice that matrices containing this compound may be dried more quickly than heretofore and may be bent without cracking or wrinkling.

I claim as my invention—

1. As a new article of manufacture, a filling or backing compound for matrices, composed of plaster-of-paris, lime, flour, and alum, substantially as and for the purpose set forth.

2. As a new article of manufacture, a filling or backing compound for matrices, composed of finely-pulverized plaster-of-paris, lime, and flour, substantially as and for the purpose set forth.

J. FREMONT FREY.

Witnesses:

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V. M. HOOD.