

(No Model.)

E. S. BOYNTON.  
MEANS FOR SURFACE PRINTING.

No. 475,534.

Patented May 24, 1892.

FIG 1.

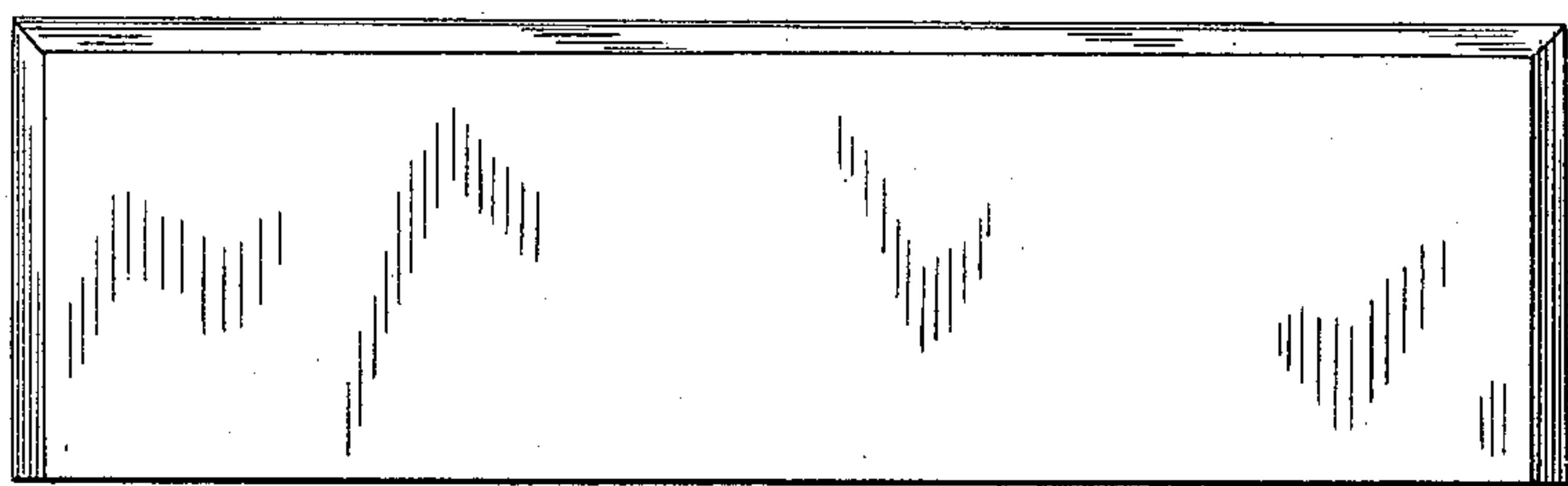
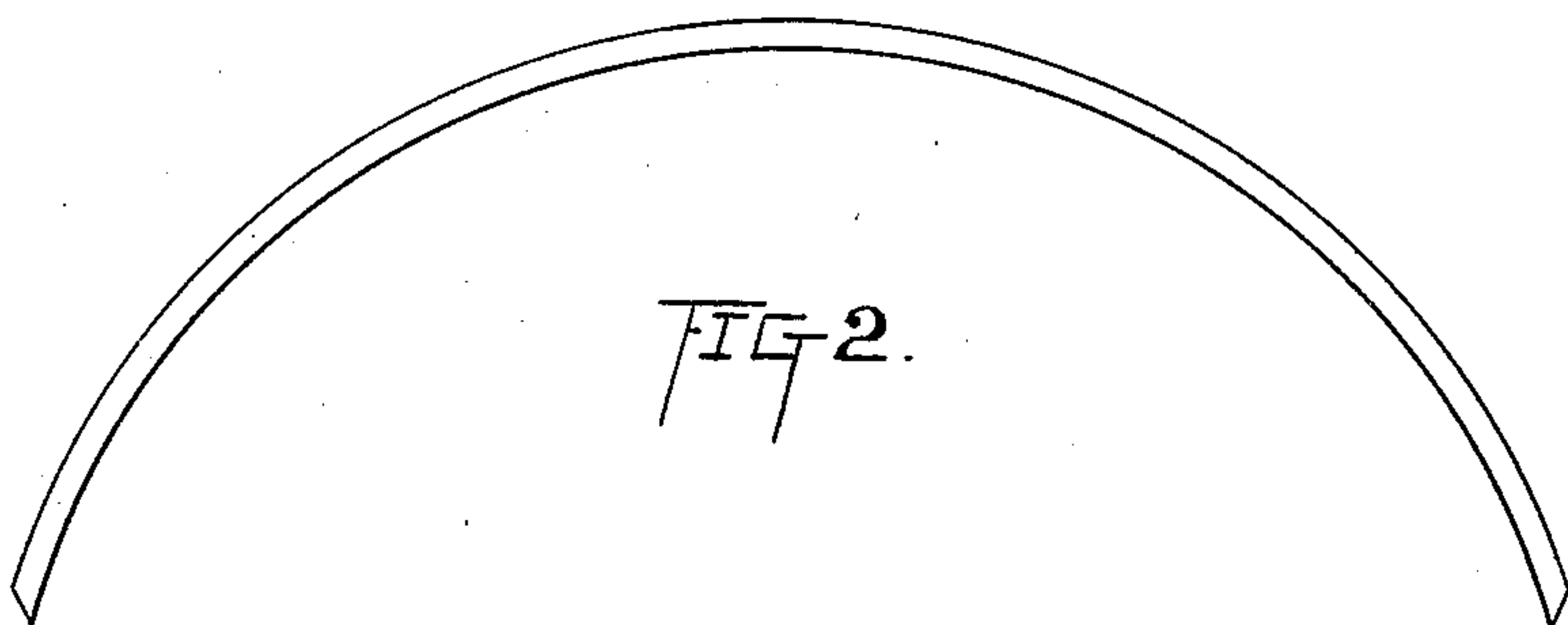


FIG 2.



WITNESSES:

*E. H. Rowland*  
*Francis P. Reilly*

INVENTOR

*E. S. Boynton*

BY *P. M. Workman* ATT'Y

# UNITED STATES PATENT OFFICE.

EDWARD S. BOYNTON, OF BROOKLYN, NEW YORK, ASSIGNOR TO EDWARD  
T. WILKINSON, OF SAME PLACE.

## MEANS FOR SURFACE-PRINTING.

SPECIFICATION forming part of Letters Patent No. 475,534, dated May 24, 1892.

Application filed February 20, 1890. Serial No. 341,136. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD S. BOYNTON, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Means for Surface-Printing, which invention is fully set forth and illustrated in the following specification and accompanying drawings.

The object of this invention is to provide a metallic plate for surface-printing which shall combine certain qualities or advantages of the lithographic stone not possessed by the zinc plates used in zincographic printing, with all the advantages of the zinc plates in addition.

The invention will first be described in detail, and then particularly set forth in the claim.

In the accompanying drawings, Figure 1 shows a flat rectangular printing-plate, its edges being slightly beveled; and Fig. 2, a curved plate for printing-cylinders.

As this invention pertains to the art of lithography, it will be easily understood by those skilled in the art by a brief description of the mode found to be preferable in treating the printing-plates. Said plates can be rolled from an alloy of zinc and aluminum, the alloy, as I have discovered, being preferably in the proportion of, say, from four to six per cent. of aluminum or about one ounce of aluminum to one pound of zinc. The proportion may be somewhat varied, though keeping the object in view of obtaining a fine texture of porous metal, which, if immersed in boiling water, will soften and bend to any desired shape, but when allowed to cool will return to its original state of temper—that is, to a hard and sonorous condition. A plate of this metal may be cut to size from rolled metal, as if an ordinary zinc plate, care being observed to have its surface free from dross or metallic impurities. The smooth clean surface should then have imprinted upon it with lithographic ink the design or lettering required, and the remainder of the surface be coated with a preparation of gum-arabic or other suitable gum and an acid, preferably phosphoric. All these details will readily be understood, as they do not differ essentially from the meth-

ods employed in coating the grained zinc plates used in zinco-printing; but great and marked improved results are obtained by this method of printing over both lithographic or true stone printing and zinco-printing by means of grained plates.

In the use of grained plates the zinc is first given a grained or roughened surface by means of the sand-blast or otherwise. This is necessary for one reason and availed of for another reason for certain work. The roughened or grained surface is necessary in order that the zinc plate shall hold the gum-arabic which is coated upon the plate and hardened by phosphoric acid and also that it may hold the inks of the fatty or saponaceous character used. If the plate be intended to receive the crayon design of the artist made directly upon it, it must also be grained; but no grained plate can have imprinted upon it by transfer the impression taken from a grained plate.

The advantages of this invention in the use of this alloy-plate may therefore be summed up as follows: Owing to the fine hard porous surface of the plate, which under the microscope presents the appearance of a fine sponge, no sandblasting or other graining is required. The ink and the gum preparations are held with perfect satisfaction by the porous surface, and when a new design is required the ink and gum may be removed, with but an inappreciable amount of metal surface, by the same washing and polishing by pumice-stone, as is done in stone-printing, the alloy-plate, however, lasting a far longer time before being worn too thin for use; but with the ordinary zinc plate the fatty inks can be removed only by very strong alkali solutions, or all the grained surface must be destroyed or removed mechanically or by acid before preparing the plate, by regraining, for receiving a new design or impression. The surface of this alloy plate is also always ready to receive by transfer a picture or design taken from the original grained plate on which a crayon-drawing has been made. Of course, if a crayon drawing be desired on one of these porous alloy plates it may first be grained for the artist's pencil and the plate preserved as an original



or impression plate, and the transfers from it  
may then be made upon any number of the  
smooth ungrained alloy plates and these used  
as printing-plates until worn out, the original  
5 remaining practically perfect from which to  
take only transfers of the design or picture.

Having thus fully described my said inven-  
tion, I claim—

A porous printing block or plate for sur-  
face-printing, composed of an alloy of zinc and 10  
aluminum, substantially as and for the pur-  
poses set forth.

EDWARD S. BOYNTON.

Witnesses:

F. A. BROWER,  
H. H. MCGAIL.