

(No Model.)

J. MULLALY & L. L. BULLOCK.
SURFACE PRINTING PLATE.

No. 476,759.

Patented June 7, 1892.

Fig. 1.

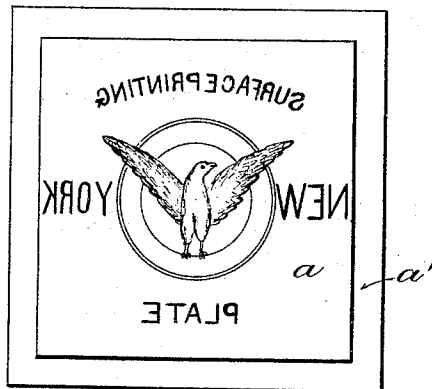


Fig. 2.

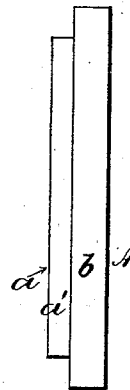


Fig. 3.

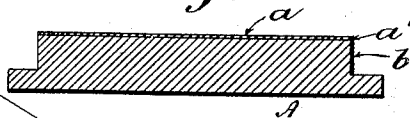


Fig. 6.

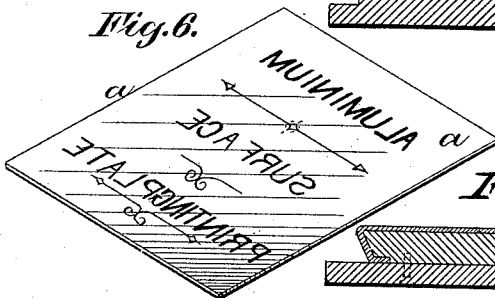


Fig. 4.

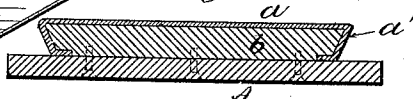
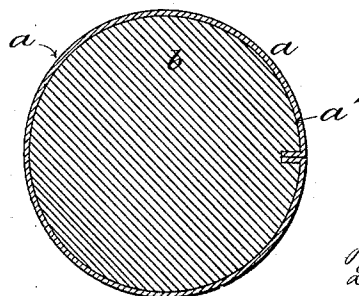


Fig. 5.



Witnesses:

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Inventors:

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By their attorney
George H. Malt

UNITED STATES PATENT OFFICE.

JOHN MULLALY AND LOTHROP L. BULLOCK, OF NEW YORK, N. Y.

SURFACE-PRINTING PLATE.

SPECIFICATION forming part of Letters Patent No. 476,759, dated June 7, 1892.

Application filed December 29, 1890. Serial No. 376,121. (No model.)

To all whom it may concern:

Be it known that we, JOHN MULLALY and LOTHROP L. BULLOCK, citizens of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Surface-Printing Plates, of which the following is a description sufficient to enable others skilled in the art to which the invention appertains to make and use the same.

Our invention relates to surface-printing plates having a surface of pure or substantially pure aluminium, as described and claimed by us in our patent, No. 459,239, dated September 8, 1891.

An important discovery which we have made, and one which distinguishes clearly the difference between our use of the aluminium plate and the use of the stone, is that we are enabled to regulate the density of the plate, and consequently its porosity, during its manufacture, with relation to the work to be performed on it. Thus a finer grade of work can be produced on a plate of comparatively greater density than that desirable for work of a coarser nature, and this feature of variable density, in a measure, may be considered independently of that of the preparation of the surface by graining. It is true that both the density of the plate and the coarseness or fineness of the graining imparted to the surface act in conjunction in affecting the quality or grade of the plates; but the variation in density is of paramount importance in regulating the actual degree of porosity upon which the absorbent quality of the plate mainly depends.

Our present invention consists, essentially, in adapting the absorbent quality or porosity of our aluminium surface-printing plates to the special character and requirements of the designs to be imposed thereon by regulating the density of said plates. This we accomplish by compressing the aluminium plate or surface, more or less, by mechanical means, as by rolling, &c. The comparatively light spongy nature of the metal readily admits of this treatment, and the closeness or texture of the plate and printing-surface can be thus varied or regulated with uniformity and precision.

In the accompanying drawings we illustrate

the embodiment of our invention in practical form, although we do not confine ourselves to any special form or construction of parts, since it is obvious that various modifications in detail may be introduced without departing from the essential spirit of our invention.

Figure 1 is a plan of a flat printing-plate with aluminium printing-surface upon which a design has been imposed; Fig. 2, an edge view of Fig. 1; Fig. 3, a sectional view indicating a plate of metal or other suitable material provided with a facing of aluminium deposited by electrolysis, the thickness of the aluminium being exaggerated for purpose of illustration; Fig. 4, a similar view showing a sheet of aluminium backed with metal or other suitable material; Fig. 5, a sectional view of a cylindrical printing-roller formed with a printing-surface of aluminium. Fig. 6 is an isometrical view of a comparatively thin sheet or printing-plate of aluminium unsupported by any backing, and therefore sufficiently flexible to adapt itself readily to pressure during printing.

The printing-plate A as a whole may be formed or built up in any suitable or well-known manner; provided it is formed with the facing *a* of aluminium. Thus the facing *a* may be afforded by the use of a comparatively thick plate *a'* of aluminium attached to a platen or base *b*, or a comparatively thin layer *a'*, Fig. 3, of aluminium may be applied to the base or platen *b* by electro-deposition. Again, a thin plate of aluminium may be secured to the base or platen *b* by any suitable mechanical means of attachment, as illustrated in Fig. 4, or to the surface of a rotary printing-roller *b'*, (indicated in Fig. 5,) or a simple thin sheet of the metal may be used for the printing-plate, which form is especially effective in some forms of printing—as, for instance, for use in the hand-press.

In all of the constructions indicated, as well as in the case of others that may be desirable to comply with the requirements of special use, the essential feature is the layer or plate *a'* of aluminium, affording a printing-surface *a* of that metal, and all questions of construction and application are secondary to that.

The density of the sheet or plate *a'* of aluminium, or in which aluminium predominates, is regulated mechanically by compress-

sion, as by rolling, hammering, &c., or by bur-
nishing the surface to decrease its porosity.

It is to be understood that, while we use
and claim substantially-pure aluminium for
5 our improved surface-printing process, we do
not limit ourselves to the pure article, as any
compound plate in which aluminium pre-
dominates may be used, if desirable, without
departing from the essential spirit of our in-
10 vention.

What we claim as our invention, and desire
to secure by Letters Patent, is—

1. The process of manufacturing aluminium
surface-printing plates of different prescribed
15 grades of porosity, consisting in regulating
the density of the aluminium plates mechani-

cally, according to the character of the designs
to be imposed thereon, substantially in the
manner described.

2. The herein-described plate for use in sur- 20
face printing, consisting of a plate in which
aluminium predominates, having a suitable
design imposed thereon, said plate being com-
pressed to a prescribed density, substantially
as described, for the purpose of adapting it 25
to the nature and requirements of the design
imposed thereon.

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Witnesses:

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