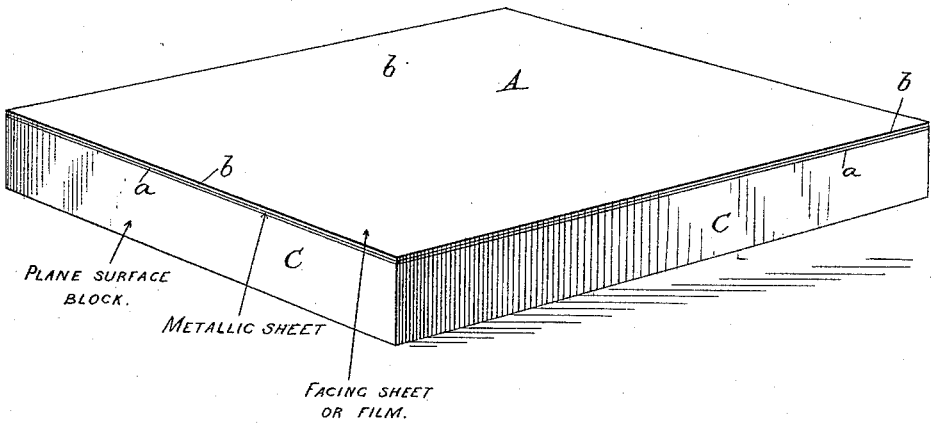
(No Model.)

R. MERIMAN.

PRINTING FORM OR SHEET.

No. 417,737. Patented Dec. 24, 1889.



Attest:

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Inventor:

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UNITED STATES PATENT OFFICE.

RALPH MERIMAN, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-FOURTH TO EDWIN E. WISE, OF SAME PLACE.

PRINTING FORM OR SHEET.

SPECIFICATION forming part of Letters Patent No. 417,737, dated December 24, 1889.

Application filed October 22, 1888. Serial No. 288,756. (No model.)

To all whom it may concern:

Be it known that I, RALPH MERIMAN, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Printing Forms or Sheets, of which the following is a specification.

This invention relates to printing from sheets of material which are impervious to ink, but which have designs formed in them in pervious lines, as by perforations, incisions, or otherwise; and the invention consists in such a prepared sheet made of metal foil of any desired kind.

The drawing illustrates the construction of the sheet and the mode of producing the design in or through it.

Printing from perforated sheets has been practiced to a greater or less extent for some time past, the practical use having been, however, on a comparatively small scale, and generally confined to the manual operation of printing by means of an inked roller carried over the back or face of the perforated sheet, the latter serving as a stencil. Such an application of the plan fails to develop its greatest usefulness, and the repeated passage of the ink-roller over the sheet soon destroys or greatly impairs the accuracy of the prints, the small points and the projecting fiber of the material at the boundaries of the lines of the design being lifted up by the roller, causing the sheet to tear and the design to be injured or destroyed. My purpose is to produce a design-sheet without such fiber and which shall not be readily taken up by the roller, if used in the ordinary way of such sheets, or which, in whatever manner it may be used, shall possess far greater durability than the variously-prepared paper sheets heretofore used. Metallic foil or very thin sheet metal possesses peculiar fitness for the purpose indicated; but no plan has been known heretofore by which such material could be prepared for use as a design-sheet. To be reasonably cheap, easily perforated, capable of perfectly adapting itself to uneven surfaces, and to prevent the formation of a burr around the perforations, as is necessary in a design-sheet of this character, the metal must be very thin, so thin that it has been found entirely impracticable to perforate without tearing it by means of the perforating implements used with paper and like materials. After various attempts to utilize such foil I have discovered that if the foil or metal be faced or covered with paper or like material, or with a soluble film, the design may be readily drawn upon such facing, and subsequently carried through the same and through the foil or metal; or the designing may be done in the act of perforating the composite sheet, the facing being subsequently removed or not, as desired. The foil or metal admits of being perforated without any tendency to tear, and without leaving ragged or fibrous boundary lines; hence the print will be far sharper and clearer than can be produced from any of the prepared paper sheets hitherto employed. The ink also holds more lightly to the foil than to paper and danger of injury to the sheet is proportionately lessened even when the ordinary method of using the sheet is followed.

Any suitable implement may be employed to produce the design in the prepared sheet.

In practice I find it advantageous to make the design as a "direct" or "positive" on or from the side to which the facing is applied, and to apply the composite sheet so prepared to the ink pad or reservoir, the facing in contact therewith and the foil turned outward. In this way the benefit of the sharp clean-cut edges of the perforations will be secured, the foil coming into contact with the surface to be printed, and the ink coming through the perforations or the lines making up the design from the other side. I may, however, and in some cases do, perforate the composite sheet with a design in reverse, as the design is produced upon an engraved printing-block, then apply the foil face of the sheet to an ink pad or reservoir, to which it will adhere with sufficient tenacity to hold it in place thereon, though I may further clamp or bind it, if desired. After the sheet is duly perforated or prepared and applied to the ink-reservoir the facing or strengthening sheet or film is removed or not, which may be done with the aid of water or other solvent of the adhesive used to secure the facing to the foil, or of the film applied to the foil.

In the drawing, A indicates the composite

sheet, consisting of a sheet of metallic foil *a* and a facing sheet or film *b*, which may be of paper, gelatine, plaster-of-paris, or other substance or substances in such proportions as will produce a film of due tenacity, but which may be readily cut through or perforated.

C indicates a block of steel or other hard material having a plane face and serving to support the sheet while being perforated, cut, or prepared. The composite sheet may also be rendered pervious to ink by placing it upon a roughened surface, as fine emery-paper, a fine file surface, or the like, and drawing upon the facing with a stylus; or it may be placed in a type-writer, a printing-press, or the like, and printed upon, a roughened backing being used in connection with it, as such backing is now used with certain other prepared sheets.

As mentioned above, I have ascertained that a sheet of metallic foil cannot be prepared for use as a printing-sheet in its normal condition, and I have invented or discovered a way of overcoming the difficulties thus existing, so that this desirable material, not suggested for this use hitherto, so far as I know, may be readily utilized for the purpose.

I do not in this application make claim to any method of perforating the sheet or producing the design therein.

Having thus described my invention, what I claim is—

A composite sheet consisting of a facing sheet or layer and a sheet of metallic foil or thin metal placed face to face and in intimate contact.

In witness whereof I hereunto set my hand in the presence of two witnesses.

RALPH MERIMAN.

Witnesses:
CHAS. R. CALKINS,
EDWARD SWEENEY.