Aug. 21, 1923. 1,465,616

G. R. SCULTHORP

DUPLICATOR

Filed Sept. 12, 1921

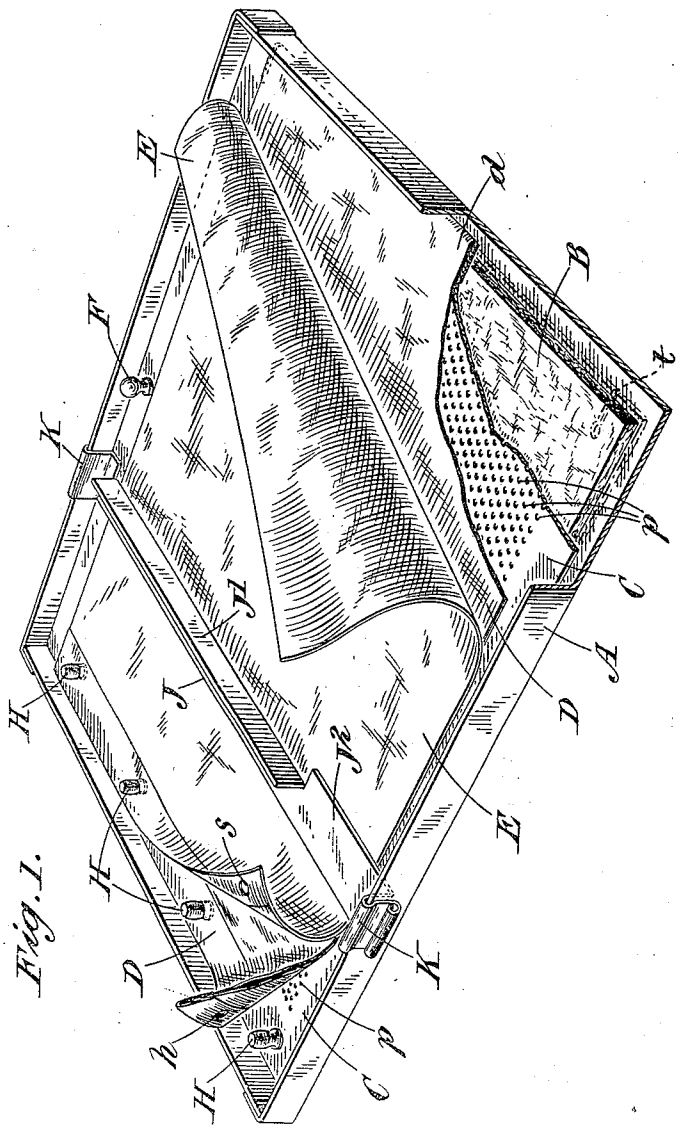


Fig. 1.

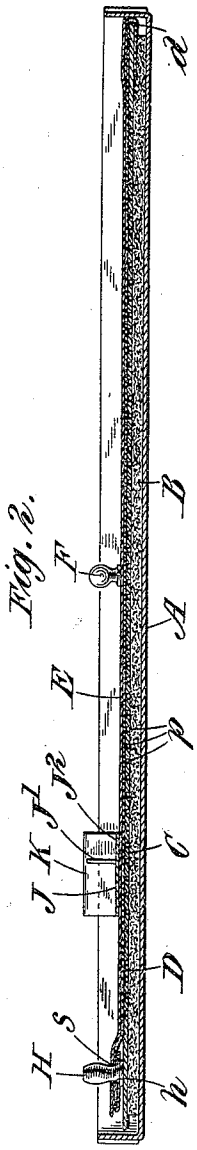


Fig. 2.

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UNITED STATES PATENT OFFICE.

GEORGE REGINALD SCULTHORP, OF LONDON, ENGLAND.

DUPLICATOR.

Application filed September 12, 1921. Serial No. 500,201.

To all whom it may concern:

Be it known that GEORGE REGINALD SCULTHORP, subject of the King of Great Britain and Ireland, residing at Balham, London, England, has invented new or Improved Duplicators, of which the following is a specification.

This invention consists of a new or improved duplicator of the kind comprising a stencil, a perforated plate and an absorbent sheet between the perforated plate and the stencil, the object of such duplicators being to produce facsimiles of letters, invoices, circulars, plans and so forth in any desired number. My present improvements aim at simplifying the construction of the apparatus, cheapening its production, and making it perhaps easier to manipulate. It is certainly no less efficient than previous apparatus of the kind and in some respects may be even more so. It is, moreover, very compact and handy requiring only a small space for storage or transport.

The accompanying drawing illustrates the invention, Fig. 1 being a perspective view and Fig. 2 a central vertical section.

Referring to the said drawing A represents a shallow rectangular tray, made of zinc or alloy or other suitable material, somewhat larger than the size of the stencil to be used, and in this is laid a sheet or pad of absorbent material B, such as thick felt, or instead of felt, a large flat pad made more or less after the fashion of an ink pad could be provided such as is commonly used for rubber stamp pads. This absorbent pad B covers practically the whole bottom of the tray A.

Upon this absorbent pad B a foraminous metal plate C is superposed, which for convenience may be made of the same material as the tray, and the perforations *p* are closely distributed through its thickness, leaving a plain margin around its outer edges. A sheet of linen D or equivalent porous fabric or material is applied upon the perforated plate C being fastened thereto in some suitable fashion. For example, four (or any other convenient number of) studs H are fixed in upright position close to the top end of the plate C and the porous sheet D will then be provided with holes or eyelets *h* for passing over such studs H and thereby preventing displacement of such sheet D.

Before using the apparatus, the pad B must be well inked with an inky brush or other means by which the inky fluid (or paint, etc.) is well spread over the pad (or so much of it as is required for the particular stencilled area), until the pad is thoroughly soaked with it from front to back, constituting a kind of ink reservoir. The pad B may have cells or perforations in it, for the purpose of assisting in the distribution, reception or expression of the ink or fluid.

The perforated plate C and absorbent sheet D having then been laid on the pad B thus prepared, pressure is applied by an ordinary hand roller or otherwise, which causes the fluid to be forced up through the perforations *p* in the plate C and to soak into the absorbent sheet D. It is advisable to ink the sheet D independently beforehand or at least to moisten it, so as to render it more susceptible to complete saturation by the ink. If this is done effectually, it may not always be necessary to apply preliminary pressure to the said sheet and plate before applying the waxed stencil E, (prepared by a typewriter or stylo in the usual manner) inasmuch as pressure is in any case transmitted by the operation of printing from the apparatus as follows. The stencil E contains a row of holes *s* near the top edge for passing over the studs H.

The paper to be printed upon is laid face downwards on the prepared stencil E and a roller passed over the back of the paper whilst in this position, or any other sort of pressure distributed evenly may be applied. It can be done by the hand in some cases. A roller, however, is preferable. The impression is produced on the paper owing to the printing fluid being forced through the stencil E from the porous absorbent sheet D, and the latter is continually replenished by the pad B from which the fluid is squeezed and can only escape through the holes *p* in the plate C into the said absorbent sheet D.

When it is desired to fasten the bottom end of the sheet D also, this may be done by forming a pocket in this end of the sheet by doubling the bottom of the sheet, as at *d*, and closing the two ends of such pocket by stitching. In fixing the sheet D in position, the pocket *d* (which will then be on the under side of the sheet) is first pulled on to the bottom end of the plate C, and the length of the sheet D is such that it has to be stretched tightly in order for its holes *h* at the opposite end to be passed over the

studs H. The wetting of the sheet D will cause it to contract and ensure its remaining taut when in use. The sheet D is usually narrower than the plate C, in which case a couple of slots *t* are provided in its bottom edge to accommodate the closed ends of the pocket *d* as will easily be understood.

A small finger knob F is conveniently provided upon the top face of the perforated plate C close against one edge so that the plate may be easily lifted. The body of the stencil E will adhere to the sheet D by reason of the viscosity of the ink or such like substance and it is neither necessary nor advisable to fasten the stencil by its bottom end also. It is held at its top end by the same studs H which hold the porous sheet D as already stated. The free end of the stencil sheet E allows of unavoidable slight extension when rolled, this freedom preventing it from rucking up. An adjustable slide may be provided upon the sides of the tray A for indicating the proper position of the paper to be printed upon.

A suitable position indicator is shown in the drawing in the form of a thin metal strip J extending from side to side of the tray A. The ends of this strip J each bear a spring clamp or saddle K adapted to grip upon the upstanding edges of the tray A at any distance from the ends. The bar J throughout the greater portion of its length and for about half of its width is preferably bent up at a right angle, forming a stop J^1 for the top of the paper, whilst the remainder of the bar forms a flat plate J^2. The object of the flat portion J^2 is, first, to present a small non-sticky surface of metal for the corner of the paper to rest upon, thus greatly facilitating the lifting off of the paper sheet with the finger and avoiding injury to the stencil which is unavoidable when repeatedly picking off sheets of paper by their corners when they lie direct on the stencil. A further object of the flat portion J^2 is to contain a name number trade mark or advertisement of the apparatus or its manufacturers.

The apparatus can be packed neatly and compactly in a case or box, in which may also be housed the ink, brush, and any other appurtenances.

Having thus described my said invention, what I claim and desire to secure by Letters Patent of the United States is:—

1. In combination in a duplicator, a perforated plate having slots in one edge, a reservoir pad supporting the same and adapted to be charged with printing fluid, an absorbent pad supported by said plate and provided with a pocket to receive that portion of said plate between the slots therein, and assist in retaining said pad on said plate and means for securing said pad on said plate in stretched relation thereto.

2. In combination in a duplicator, a tray, a reservoir pad therein, a perforated plate on said pad, an absorbent pad on said perforated plate, and an indicator carried by said tray and cooperating with said absorbent pad and comprising an adjustable strip having one portion turned to form a guide for the top of the paper and the other left flat to facilitate lifting of the paper from the stencil.

3. In combination in a duplicator, a tray, a compressible reservoir pad therein adapted to be charged with a suitable printing fluid, a perforated plate on said pad and freely movable within said tray to compress said pad between said plate and said tray and thereby force printing fluid through said plate, and an absorbent pad on the side of said plate opposite said reservoir pad and adapted to receive printing fluid from said reservoir pad through said plate.

GEORGE REGINALD SCULTHORP.