Jan. 23, 1951 M. J. DOPPELT 2,538,864

INKING PAD FOR STENCIL DUPLICATING MACHINES

Filed July 26, 1947

Fig. 1.

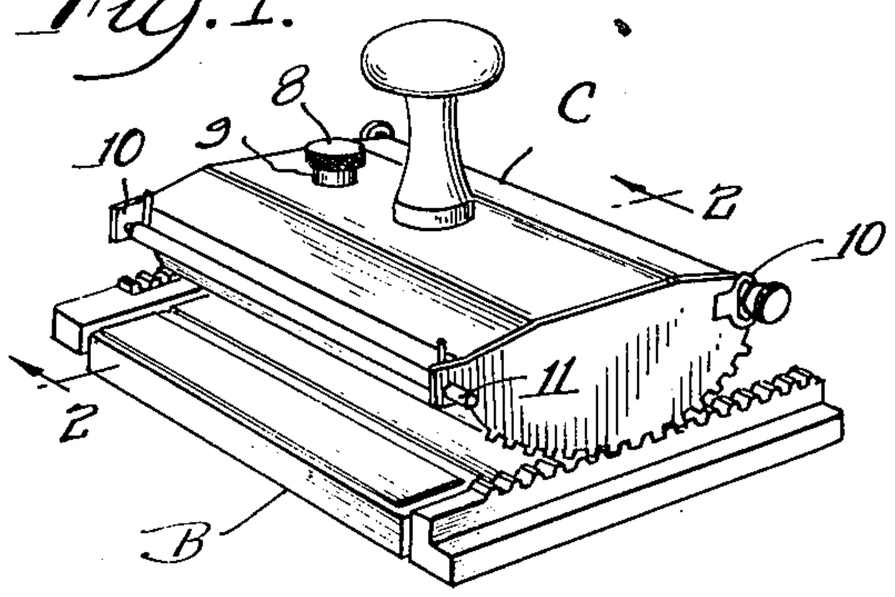


Fig. 2.

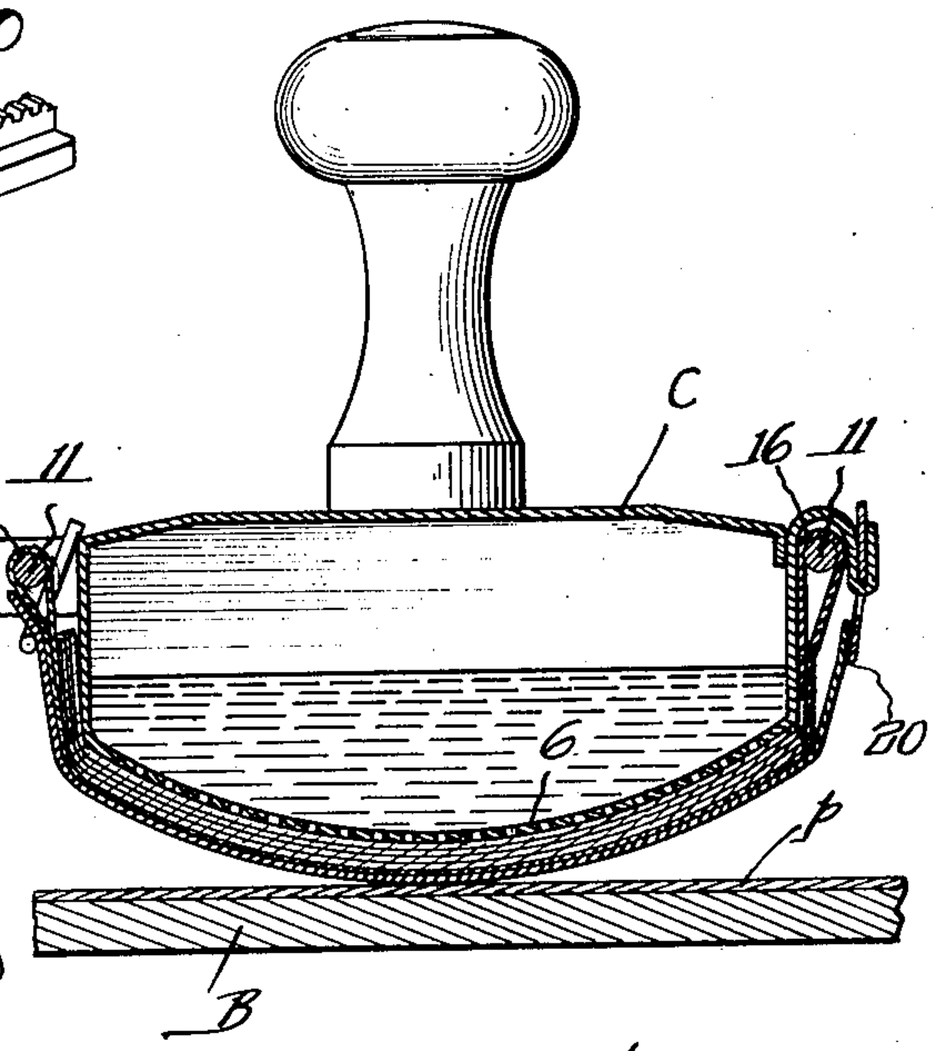


Fig. 3.

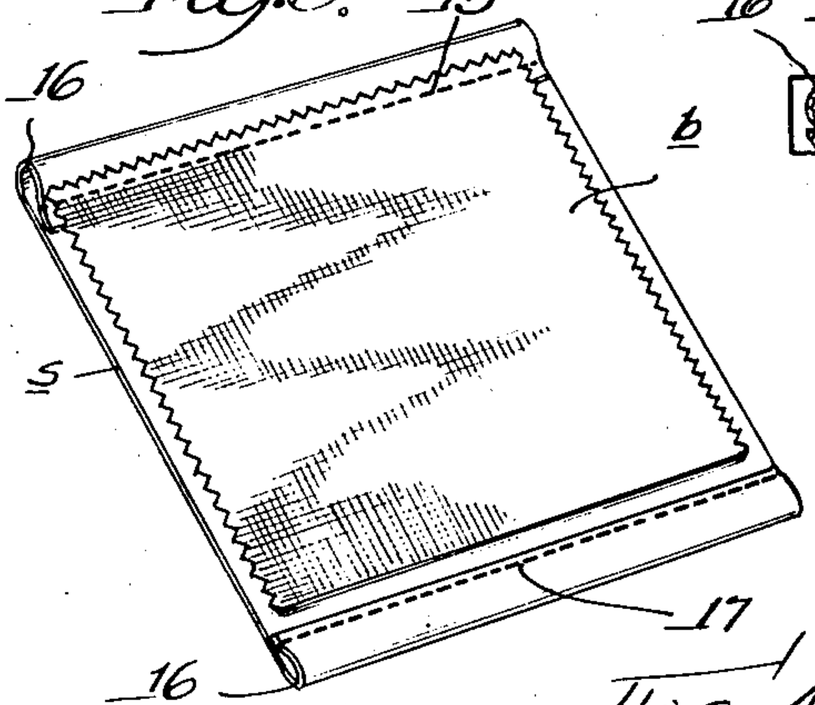


Fig. 4

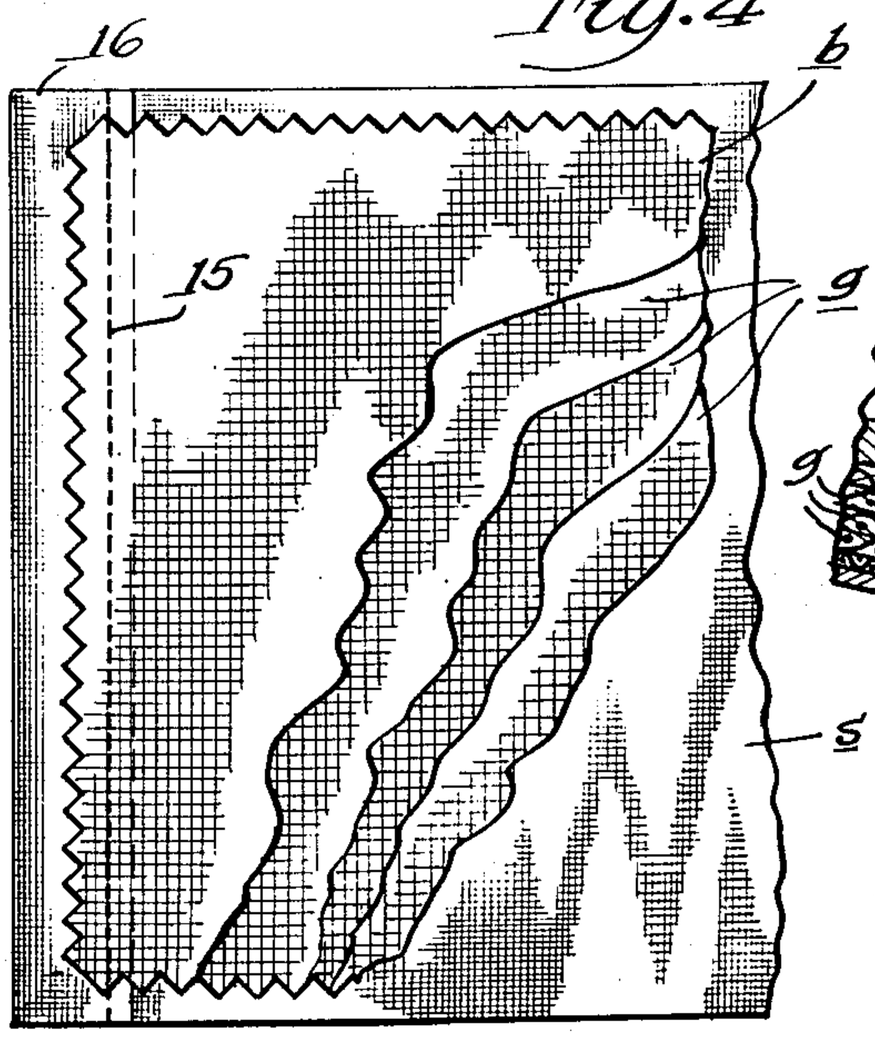
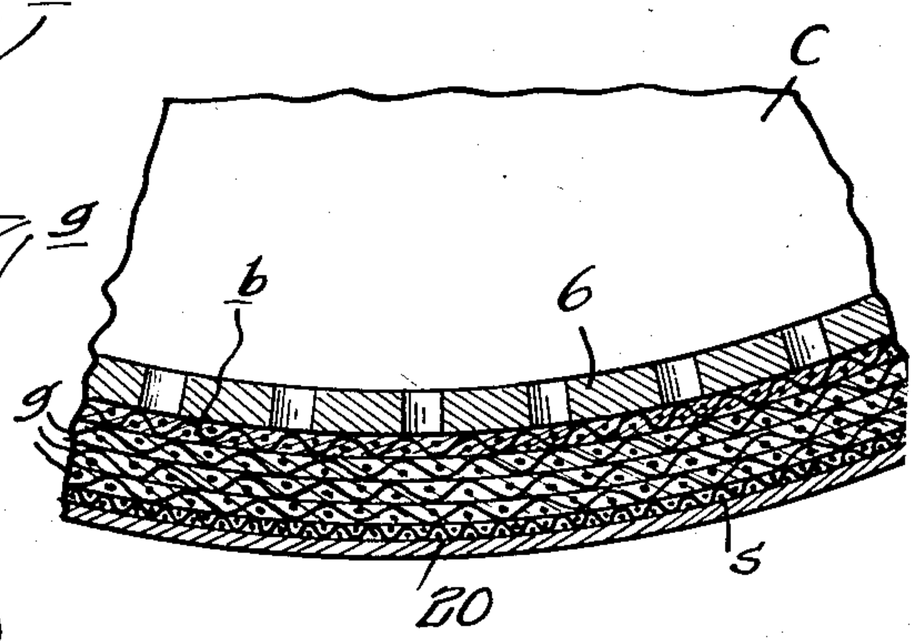


Fig. 5.



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UNITED STATES PATENT OFFICE

2,538,864

INKING PAD FOR STENCIL DUPLICATING MACHINES

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Application July 26, 1947, Serial No. 763,799

4 Claims. (Cl. 91—54.5)

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My invention relates to a laminated pad having in desirable proportions the properties of absorption, distribution, and transfer of ink to and through a stencil for delivering ink impressions to a sheet of paper or other material which is to receive predetermined markings. The pad of this invention is also simple and inexpensive to produce, and extremely effective for the purpose indicated. It comprises a plurality of plies of textile material that are marginally interconnected. One outermost ply which receives the ink is an open mesh fabric and relatively non-absorbent. The ink in passing therethrough is distributed laterally and uniformly. The intermediate plies are relatively absorbent and so promote the ink transfer through the laminated pad to the opposite outermost ply which controls the delivery of the ink therethrough onto the stencil surface which is utilized in effecting the desired ink impression.

An inking pad having these special characteristics is illustrated in the accompanying drawing wherein—

Figure 1 shows in perspective a conventional duplicating device equipped with the laminated inking pad of this invention;

Fig. 2 is a transverse section through the device, on an enlarged scale, taken on line 2—2 of Fig. 1;

Fig. 3 is a view in perspective of the laminated inking pad per se;

Fig. 4 is a fragmentary plan view of the inking pad with portions of the plies broken away to better exhibit its laminated construction; and

Fig. 5 is an enlarged fragmentary detail in section transversely through the platen of the duplicating device, showing the laminations of the present inking pad in operative association therewith.

The duplicating device which I have chosen for purposes of exemplification is substantially that set forth in my Patent No. 2,203,192 of June 4, 1940. It comprises a base B on which a casing C is rockably mounted, the casing being provided with a foraminous platen 6 which is bowed transversely of the casing to deliver pressure successively at every portion over a paper sheet *p* which is rested upon the base B. A cap 8 is fitted over a nipple 9 that upstands from the top of the casing to provide a filler opening for ink which is to be introduced therein. The casing is provided at each of its ends with opposed brackets 10 affording mountings for rods 11 one of which is extended lengthwise along each side of the casing.

As shown best in Figs. 3 and 4, the laminated pad comprises a plurality of plies of textile material which are interconnected by a line of stitching 15 near one end thereof. The plies of material so interconnected comprise at the top (as shown in Figs. 3 and 4) a piece of buckram *b* which overlies several plies *g* of gauze or cheesecloth. The base ply *s* against which the intermediate gauze plies are rested is a fabric made of sea island cotton. Opposite ends of the bottom ply may be turned to form loops 16 one of which is secured by the stitching line 15. The other loop is held by a line of stitching 17. With the exception of the single line of stitching 15 all the plies may be free of each other to adjust themselves flatwise in accordance with the conditions that are encountered.

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The buckram ply *b* is relatively non-absorbent. This may be due to the sizing or other treatment which is a common characteristic of such a fabric. When the laminated pad is to be applied to the platen, the rods 11 are inserted through the loops 16 of the base ply *s* and then mounted in their supporting brackets 10. The pad is thereby held closely against the platen with the buckram ply *b* in engagement therewith. This ply acts primarily to check the flow of the ink coming through the platen openings and conduct the ink laterally to effect a wide distribution thereof over the receiving face of the pad before encountering the intermediate plies *g* of gauze or the like.

These intermediate plies *g* have a high value of absorption and capillarity. The ink is absorbed through the threads of these plies and transferred from one ply to another so as to be distributed uniformly from edge to edge. These plies of gauze rest freely against each other with capacity for working one with respect to those adjacent whenever the inking pad is subjected to pressure in the operation of impressing ink on to a paper surface through the medium of the usual stencil sheet 20 that is carried by the casing in overlying relation to the pad. The threads which define the meshes of the gauze plies are haphazardly positioned relative to each other, so that their positions are subject to constant change in use of the pad. The number of intermediate plies *g* of gauze or like absorptive material may be varied according to conditions, depending in part upon the amount of ink retention and distribution that is desired. Four such intermediate plies have, in actual service, proven very satisfactory.

The outermost base ply *s* which is in contact with the stencil is the one that is relied upon to control the delivery of ink from the pad. I have found for this purpose that sea island cot-

ton is very satisfactory. This fabric is made from the finest cotton fibers, noted for their fineness and long staple. The weave is close and the ink absorption is small so that it acts to transfer to the stencil only the limited amount of ink that is required when an impression is to be made. A smooth and clean impression is thereby assured.

The production of a laminated inking pad according to this invention is attended with but relatively small expense. The buckram and gauze may both be made from cotton having an open mesh but low thread count and substantially high capillarities; however, gauze is highly absorbent of the ink, whereas buckram is not. The delivery ply for which sea island cotton is chosen has a high thread count, a low absorptive capacity for ink, but an excellent power of distribution. Several plies having the characteristics noted, when combined together in the manner described, provide a pad which serves effectively as a medium for the controlled transfer of ink from the face of the foraminous platen to the paper sheet on which the ink impression is to be made.

I claim:

1. A laminated inking pad for stencil duplicating machines comprising multiple plies of woven textile fabric composed of ink absorptive and ink conducting material, all marginally interconnected, the ink-delivery ply being of sea island cotton and the remaining plies of coarse cotton fabric having a low thread count and a substantially high capillarity.

2. A laminated inking pad for a stencil duplicating machine comprising multiple plies of woven textile fabric marginally interconnected, the ink receiving ply being of relatively non-absorbent buckram, the ink-delivery ply being of sea island cotton, and the intermediate plies being of relatively absorbent open mesh, low thread count, cotton with the threads and meshes of one

arranged haphazardly with respect to those adjacent.

3. A laminated inking pad for a stencil duplicating machine comprising an ink-receiving ply of relatively non-absorbent buckram, other plies adjacent one face thereof of relatively absorbent cotton gauze having their meshes arranged haphazardly with respect to each other, and a delivery ply of sea island cotton arranged upon the outermost face of the gauze plies adapted to transfer therefrom the absorbed ink contained therein to a surface whereon the ink is to be impressed.

4. A laminated inking pad for a stencil duplicating machine comprising a plurality of marginally interconnected plies of woven textile fabric having high capillarities, the outermost ply which receives the ink being of relatively non-absorbent buckram having an open mesh, low thread count, the other outermost ply which delivers the ink having a high count of threads containing relatively long soft cotton fibers, and the intermediate plies being of relatively absorbent cotton gauze having an open mesh, low thread count with the threads and meshes of one arranged haphazardly with respect to those adjacent, and each gauze ply being free to shift laterally with respect to the adjacent plies while remaining in extended contact therewith.

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