Aug. 27, 1935. W. B. WHITMORE 2,012,526

STENCIL AND INKING DEVICE THEREFOR

Filed March 30, 1933

Fig. 1.

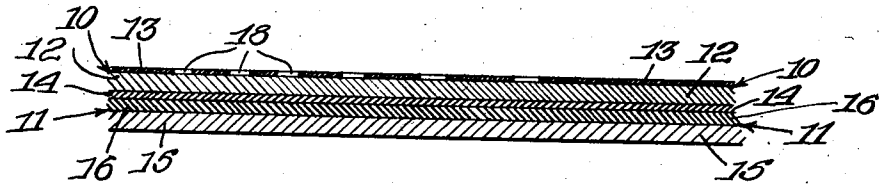


Fig. 2.

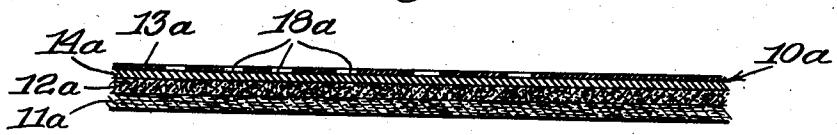


Fig. 3.

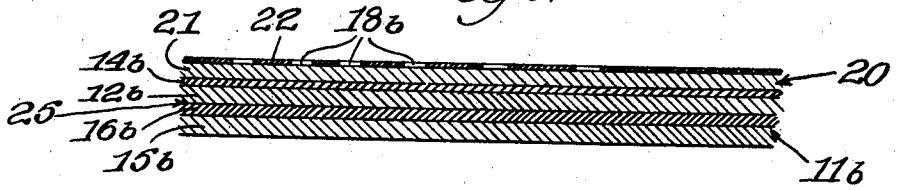


Fig. 4.

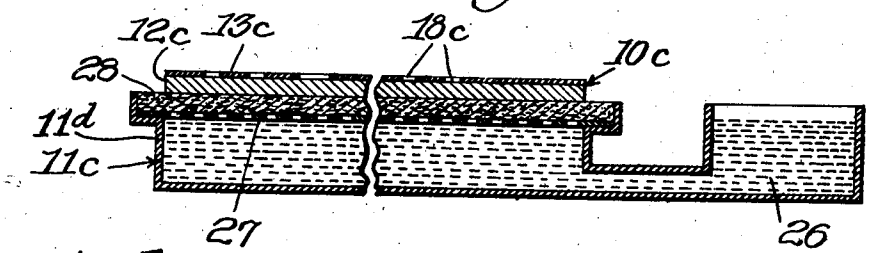
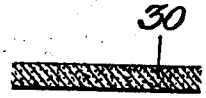


Fig. 5.



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STENCIL AND INKING DEVICE THEREFOR

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Application March 30, 1933, Serial No. 663,581

18 Claims. (Cl. 41—31.5)

The invention relates to stencils and inking devices therefor and is particularly adapted to be embodied in stencils of the type commonly employed in mimeographing machines.

A particular object of the invention is to provide an improved stencil comprising inking means.

Another particular object of the invention is to provide improved means for supplying ink to a stencil.

Other objects and advantages will become apparent as the following detailed description progresses, reference being had to the accompanying drawing wherein—

Fig. 1 is a fragmentary section taken through a stencil which embodies the invention, the stencil being shown in connection with means for supplying moisture thereto.

Fig. 2 is a fragmentary section taken through a stencil which embodies another form of the invention, the stencil being shown in connection with means for moistening it.

Fig. 3 is a fragmentary section taken through a moistening band, improved means for inking a stencil and a stencil embodying another form of the invention.

Fig. 4 is a section taken through a stencil which embodies another form of the invention, the stencil being shown in connection with means for moistening it, and

Fig. 5 is a section taken through improved means for supplying ink to a stencil.

Referring for the present to Fig. 1 which illustrates a preferred embodiment of the invention, the reference character 10 designates generally a stencil which embodies the invention, the stencil 10 being shown in connection with a band 11 adapted to supply water to the stencil 10.

The stencil 10 preferably comprises a sheet of paper 12, preferably yoshino paper. One side of the paper 12 is provided with the usual stencil coating 13 in which the letters or data to be duplicated are cut. This coating may be of any suitable material. Thus, it may comprise a lacquer having a cellulose base. The other side of the paper 12 is provided with a coating 14 which comprises a dye or ink preferably soluble in water although other dyes and inks may be used and subjected to suitable solvents during the duplicating operation. As a suitable ink, crystal violet or methyl violet may be employed, incorporated in a suitable vehicle. The requirements of the vehicle are that it will bind the dye or pigment to the paper, and will not prevent solution of the dye when the solvent is brought into contact with the dye. As an example of a suitable vehicle for use with water as the solvent, gum arabic and glycerine may be used.

The moistening band 11 may comprise a layer of cloth, felt, gelatinized material, or any other material capable of storing and delivering a supply of the solvent, or capable of transmitting the solvent from a reservoir to the stencil. In this instance I have shown a duplicating band 11 of the type employed in hectograph machines. The band comprises a backing 15 which is provided with a coating 16 of gelatin. Such bands are generally maintained in a moist condition.

When the stencil 10 is to be employed in a duplicating process, the data to be duplicated are first cut into the coating 13 in the usual manner. In Fig. 1, letters are shown cut in the coating 13 at 18. The stencil may then be placed upon the gelatinized band 11 in the manner illustrated in Fig. 1, the band being first moistened thoroughly. The water will dissolve sufficient dye or ink in the coating 14 and the ink or dye passes up through the paper 12 to the openings 18. Then if a sheet of paper is placed upon the coating 13 and pressure is applied thereto, the ink or dye will form the letters 18 on the paper. A relatively large number of sheets may be duplicated in this manner.

The invention is limited to use in connection with a moistening band only to the extent indicated in the appended claims as any suitable means may be provided to supply solvent thereto.

Another form of the invention is illustrated in Fig. 2. It consists of a stencil 10a which comprises a sheet of paper 12a and coatings 13a and 14a. The paper 12a is preferably of the same type as that employed in the stencil 10 described above. The coating 14a is interposed between the paper 12a and the coating 13a and is preferably formed from the same materials as the coating 14 described above. The coating 13a is preferably formed from the same materials as the coating 13 described above and has the same function. The data to be duplicated are cut into the coating 13a as indicated at 18a.

When the stencil 10a is to be employed in a duplicating operation, moisture is supplied to the bottom or uncoated surface of the paper 12a and it passes upwardly through the paper to dissolve the dye or ink in the coating 14a. Then when sheets of paper are placed upon the coating 13a and pressure is applied thereto, the sheets will be duplicated.

In Fig. 2 a layer 11a of cloth is shown beneath

the stencil. It may be moistened to supply water to the stencil.

Another form of the invention is illustrated in Fig. 3. The reference character 20 designates generally a stencil of the conventional type. The stencil 20 preferably comprises a sheet of paper 21 provided with the usual coating 22 which may be a lacquer having a cellulose base. The reference character 25 designates an inking device which embodies the invention. The inking device 25 preferably comprises a sheet 12b of paper which is preferably of the same type as the paper 12 described above. One surface of the paper 12b is provided with a coating 14b which is preferably formed from the same materials as the coating 14 described above. In Fig. 3, the inking device 25 is shown interposed between the stencil 20 and a gelatinized band 11b which is preferably of the same type as the gelatinized band 11 described above. The band 11b preferably comprises a paper backing 15b provided with a coating 16b of gelatin. The data to be duplicated are cut into the coating 22 as indicated at 18b.

When the inking device 25 is to be employed in a duplicating operation, the stencil 20 is placed upon the coating 14b and the inking device 25 is placed upon the gelatin coating 16b in the manner illustrated in Fig. 3, the gelatin coating 16b having first been thoroughly moistened. The water from the gelatin passes upwardly through the paper 12b and dissolves the ink or dye in the coating 14b so that it may pass up through the paper 21 into the openings made for the data 18b. The sheets to be duplicated are placed upon the coating 22 and sufficient pressure is applied to the sheets so that the data will be duplicated thereon.

Any other suitable means instead of the gelatin band 11b may be employed to supply water to the inking device 25.

In Fig. 4, another form of the invention is illustrated. The reference character 10c designates generally a stencil sheet which comprises a sheet 12c of paper provided with a stencil coating 13c, the paper 12c and the coating 13c being preferably formed of the same materials as the paper 12 and the coating 13 described above. The paper 12c is impregnated with a suitable ink or dye preferably of the type described above so that it is soluble in water. The data cut in the stencil coating 13c are shown at 18c.

The stencil 10c is illustrated in connection with a moistening device designated generally by the reference character 11c. The moistening device 11c comprises a reservoir or receptacle 11d adapted to hold a supply of water. The receptable 11d is provided with an extension 26 through which the receptacle may be filled with water. A perforate sheet metal member 27 is disposed in the upper end of the receptacle 11d and resting upon the perforate member 27 is a felt pad 28. The upper end of the extension 26 is preferably in a plane which passes through the felt pad 28 so that when the extension is entirely filled with water, the water tends to flow up into the felt pad 28 through the apertures in the member 27. The stencil 10c is placed upon the felt pad 28 and during the duplicating operations the water feeds upwardly by capillary attraction through the felt pad 28, the paper 12c and thence through the data 18c cut in the coating 13c. Of course, when pressure is applied to the sheets being duplicated, it tends to force the water upwardly through the felt pad 28 and the paper 10c.

The sheets to be duplicated are placed one by one on the coating 13c and pressure is applied thereto by means of a roller or any other suitable device. The water dissolves the ink or dye in the paper 10c and it passes upwardly through the openings 18c to the paper being duplicated.

In the form of the invention illustrated in Fig. 4, the sheet 12c of paper may be impregnated throughout with the ink or dye or it may be impregnated only part way therethrough. In some instances, it is contemplated that the stencil 12c will also be provided with a coating on one or both sides thereof, which coating will comprise the ingredients of the coating 14, described above, or the equivalent for the purpose.

Fig. 5 illustrates a form of the invention which may be utilized in the same manner as the inking device 25 shown in Fig. 3. In Fig. 5, the reference character 30 designates a sheet of paper impregnated with an ink. It may be substituted for the inking device 25 and subjected to a solvent for the ink so that copies may be made of the stencil.

It should be understood that the substances forming the inking and stencil coatings described above penetrate the paper to which they adhere. The extent of this penetration depends upon the materials in the coatings. In some instances, the materials from which stencil coatings are formed, penetrate entirely through the paper so that the uncoated surface of the paper appears to have a thin coating thereon.

While I have shown and described certain embodiments of my invention, it is to be understood that it is capable of many modifications. Changes, therefore in the construction and arrangement may be made without departing from the spirit and scope of the invention as disclosed in the appended claims, in which it is my intention to claim all novelty inherent in my invention as broadly as possible, in view of the prior art.

I claim:

1. A stencil comprising a paper holding a supply of ink, and a stencil coating on said paper, said ink being distributed coextensively with the area of the coating in which the data to be duplicated are formed.

2. A stencil comprising a paper impregnated with substantially dry ink, and a stencil coating on said paper, said ink being distributed coextensively with the area of the coating in which the data to be duplicated are formed.

3. A stencil comprising a paper having a supply of ink thereon, and a stencil coating on said paper, said ink being distributed coextensively with the area of the coating in which the data to be duplicated are formed.

4. A stencil comprising a paper having a supply of substantially dry ink therein, and a stencil coating on said paper, said ink being distributed coextensively with the area of the coating in which the data to be duplicated are formed.

5. A stencil comprising a paper, a coating on said paper for receiving data to be duplicated, and a second coating on said paper, said second coating comprising an inking substance and being substantially coextensive in area with that area of the first mentioned coating which receives data to be duplicated.

6. A stencil comprising a paper, a coating on said paper for receiving data to be duplicated, a second coating on said paper, said second coating comprising an inking substance and being substantially coextensive in area with that area of

the first mentioned coating which receives data to be duplicated, and a vehicle for said ink.

7. A stencil comprising a paper, a coating on said paper for receiving data to be duplicated, a second coating on said paper, said second coating comprising an inking substance soluble in water and being substantially coextensive in area with that area of the first mentioned coating which receives data to be duplicated.

8. A stencil comprising a paper, a coating on said paper for receiving data to be duplicated, a second coating on said paper, said second coating comprising an inking substance and being substantially coextensive in area with that area of the first mentioned coating which receives data to be duplicated, and a binder for said ink.

9. A stencil comprising a paper, a coating on said paper for receiving data to be duplicated, a second coating on said paper, said second coating comprising an inking substance, a gum, and glycerine.

10. A stencil comprising a paper, a coating on said paper for receiving data to be duplicated, a second coating on said paper, said second coating comprising an inking substance, a gum, and a hygroscopic agent.

11. A stencil comprising a paper, a coating on one side of said paper for receiving data to be duplicated, and a second coating on the other side of said paper, said second coating comprising an inking substance and being substantially coextensive in area with that area of the first mentioned coating which receives data to be duplicated.

12. A stencil comprising a paper, a coating including an inking substance applied to a surface of said paper, and a second coating applied to the outer side of the first mentioned coating, said second coating having data to be duplicated marked thereon.

13. In combination with a gelatinized band, a stencil comprising a paper, a coating on said paper in which data to be duplicated are cut, and a second coating including an inking substance.

14. A method of duplicating with a stencil having a coating which is perforated with the data to be duplicated, which method comprises associating a layer impregnated with inking material with said stencil, and then subjecting said inking substance to a solvent therefor.

15. The method of inking a stencil having a coating which is perforated with the data to be duplicated, which method comprises associating a quantity of relatively dry ink with said stencil, and then subjecting said ink to a solvent.

16. The method of inking a stencil, which method comprises associating a quantity of substantially dry coloring matter with said stencil, and then subjecting said coloring matter to a solvent during the duplicating operation.

17. As an article of manufacture, a stencil having a coating in which the data to be duplicated are cut, said stencil holding a supply of substantially dry coloring matter distributed so as to be coextensive with the area in which the data are cut.

18. A stencil sheet comprising a coating which holds an inking substance, and a second coating in which the data to be duplicated are cut, the first mentioned coating being substantially coextensive in area with that area of the second coating in which the data to be duplicated are cut.

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