W. G. FUERTH.

STENCILING MATERIAL.

APPLICATION FILED JAN. 10, 1907.

1,092,768. Patented Apr. 7, 1914.

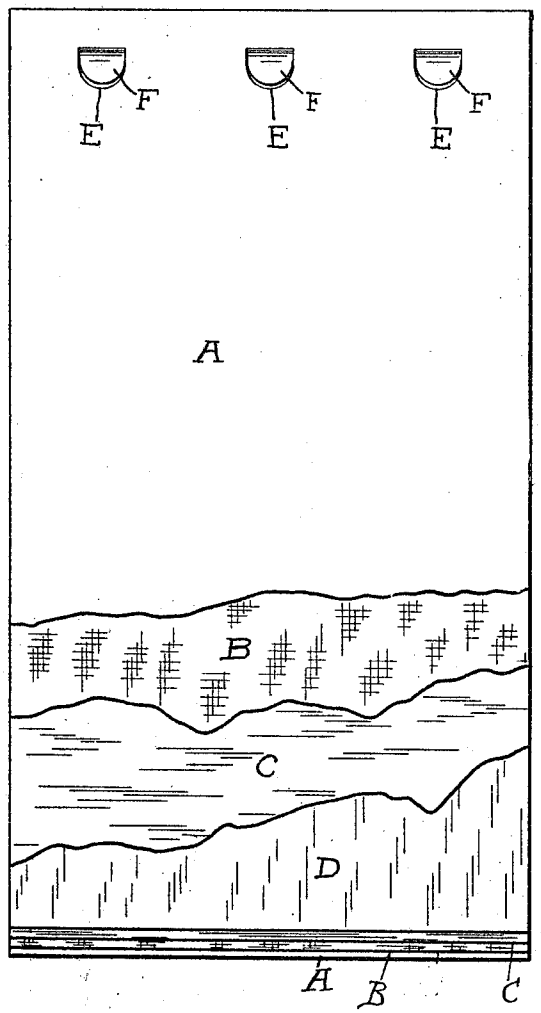


FIG. 1.

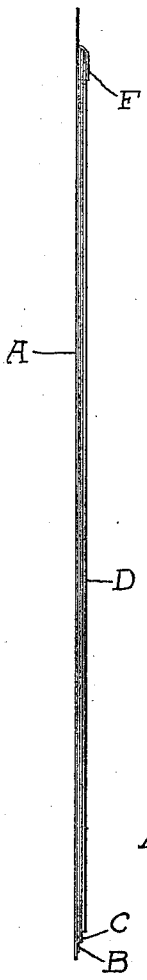


FIG. 2.

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WILLIAM G. FUERTH, OF NEWARK, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

STENCILING MATERIAL.

1,092,768. Specification of Letters Patent. Patented Apr. 7, 1914.

Application filed January 10, 1907. Serial No. 351,648.

To all whom it may concern:

Be it known that I, WILLIAM G. FUERTH, a citizen of the United States, residing in Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Stenciling Materials, of which the following is a specification.

This invention relates to the art of producing typewritten stencils, in which a wax sheet is laid upon a backing sheet and both introduced into a typewriting machine and written upon to form stencil characters in the wax sheet; a tissue sheet being usually placed over the wax sheet so that the types may not contact with the wax.

The wax sheet is extremely delicate, and if it is wrinkled in handling or in passing through the rolls of the typewriting machine, a crack is produced in the wax, thus marring or destroying the stencil; because in subsequent use the ink will work through the crack in the wax and deface the stenciled sheets. Many backing papers are often liable to wrinkle, so that the delicate stencil sheet does not have an even and uniform support, and becomes broken or cracked as it passes through the rolls; since any unevenness in the backing sheet imparts itself to the stencil sheet and injures it. Moreover it is found that in some cases the backing sheet is not sufficiently flexible to cling tightly and smoothly to the cylindrical platen of the writing machine, but bulges out therefrom, so that the alinement of the typewritten characters thereon is spoiled. Moreover the stencil sheet is sprung in and out at each type stroke, thereby tending to serious injury. Moreover the cylindrical rubber platens of typewriting machines are often permanently indented by the types, even to an extent of showing corrugations all over the platen; and it is found that stencils cannot be properly produced on such platens. It is also found that the usual backing sheet is easily embossed or punched by the types, and thereby immediately rendered rough and incapable of use in making subsequent stencils. Backing sheets have been also open to the complaint of being granular in construction and having spots or areas that are softer than others and more liable to indentation by the types, to the detriment of the backing sheet and as well of the stencil. It is further found there are differences in the clearness and excellence of the stencils, due to the difference in the evenness or softness of the rubber platens, the latter, as is well known, varying greatly in this respect in different machines even of the same manufacture.

The oiled and polished backing sheets sometimes employed are objectionable because the stencil sheet is liable to shift thereon, owing to the smoothness of the backing sheet, so that the stencil often runs irregularly through the typewriting machine, which is an objection, since the lines do not appear in the proper position or with proper spacing. It is also difficult to introduce the leading edges of an assemblage, composed of stencil sheet, backing sheet, and protecting sheet, into the typewriting machine, since the sheets taken together make a wad which is hard to introduce between the rolls of a machine.

By my invention there is provided an assemblage of sheets to be introduced into a typewriting machine to prepare a typewritten stencil, comprising a waxed stencil-sheet, a hard backing, and an intervening soft sheet contiguous to the stencil-sheet; said backing consisting of high-grade, tough, cold-pressed, unsurfaced stout Fourdrinier paper, of medium rough surface and uniform hardness and uniform high elasticity, formed of finely ground Manila rope and substantially unadulterated, its fibers fully interlaced throughout, and sufficiently thick not to be embossed by the types during the making of the stencil.

The backing has a tough fiber, being made by grinding up Manila rope or cordage. It is of uniform hardness, that is, it has no soft spots. It is preferably water-finished, thereby conducing to its strength. It is cold-pressed, being passed through chilled calenders at the completion of the process of its manufacture in a Fourdrinier machine; and these calenders give it a medium smooth finish considering its coarse material. It contains little or no sizing, and has no sizing at all upon its surface; and it is not oiled. It contains no wood or sulfids. It is unpolished, and nearly impermeable to water. This backing is a great deal stronger than the paper which commonly passes for "Manila" paper, and which usually contains little or no Manila fiber. There is substantially nothing in this backing but the Manila rope fibers. It

should weigh about ninety pounds to a ream of sheets each 24x36 inches, which may be cut up into the proper size for stenciling purposes. The backing is difficult to split into sheets, of the same size as the original, as, if a split is started, the paper tends to flake off, this being due to the thorough interlacing of the fibers; and having said characteristic, it is enabled to resist the tendency of the types to indent it.

The backing paper has a characteristic hardness which enables it to resist the blows of the types. This resistance is uniform for all platens, that is, it makes no substantial difference whether the stencil is made on a very soft platen or a very hard platen, because the backing in neither case is embossed by the type blows; and it can be used for an indefinitely large number of stencils before its fiber will become injured or pulpy. It also prevents the platen from being punched full of indentations. No ordinary type-bar blow is strong enough to puncture the backing.

The backing can be used with the extracting or the melting out process. This backing is not granular nor uneven, nor does it have soft spots in it. It does not break nor crease in handling. It gets its toughness and its evenness from being rolled repeatedly in calenders. There is no unevenness in the backing to become imparted to the stencil-sheet to injure it, especially when passing through the usual paper rolls or in a typewriting machine.

This backing paper is very flexible and clings to the cylindrical platen without bulging, so that the alinement of the typewriter characters thereon is preserved, and the stencil-sheet is not sprung in and out at each type stroke, and hence injuring thereto is avoided. The stencil-sheet itself, which is very sensitive to injury, must lie close against the backing sheet or sheets as they are run through the machine. The flexibility of the backing assists this.

There is no shifting of the stencil-sheet on the backing. If the backing were smoothly calendered or sized, there would be a possibility of shifting of the material upon the backing, which is highly undesirable, tending to render the line-spacing of the stencil matter irregular and otherwise to injure it. The backing has a surface analogous to a nap, that gives it a grip upon the sheet, to hold it from shifting.

Generally soft platens are used, because they give finer typewritten work with the ordinary ink ribbon; but it has been found necessary to employ hard platens to get good results. This backing renders it immaterial whether a very soft or a very hard platen is used; in all cases, substantially the same quality of stencil will be produced.

The backing will not absorb the wax when the latter is struck by the types, so that a soft absorbent sheet is placed between the stencil sheet and the hard backing. The soft sheet not only takes the wax from the stencil sheet where the latter is written upon, but also serves to cushion the type-blows to a certain extent, to prevent them from indenting the hard backing, and hence permitting a thin backing to be employed, which has the advantage of being highly flexible and elastic and of clinging closely to the platen without break or wrinkle. Thus it will be seen that the backing board or paper is divided into two parts or sheets, one sheet hard and otherwise efficacious to coöperate with the types to remove the wax from the stencil sheet, and the other sheet soft and absorbent to take up the removed wax.

In the accompanying drawings: Figure 1 is a face view and Fig. 2 an edge view showing one manner of assembling stenciling sheets.

The backing sheet already described is marked A. Upon this is placed a soft, absorbent, thin backing B. Upon the latter is laid the waxed stencil sheet C; and the latter may be covered by a tissue sheet D.

The sheets have all preferably the same width, so that they may be readily lined up or accurately superposed, for introduction into the typewriting machine.

The backing sheet near one end is illustrated as provided with incisions E forming tongues F, which extend toward the body of the sheet. The leading edges of the other sheets may be slipped under these tongues, as seen at Fig. 2, as far as they will go, so that the tongues at their bases coöperate to form a gage for the leading edges of the inserted sheets. The tongues also retain the inserted sheets in proper relation as they pass through the rolls of the typewriter. It will be seen that when introducing the assemblage it is only necessary to insert a single thickness, namely, the top edge of the backing sheet, between the rolls of the typewriter; and the rolls will thereupon coöperate to pull the entire assemblage through the machine, without any liability of disarranging the sheets or of wrinkling the same. It will be further understood that the roughness of the backing sheet aids the tongues in retaining the contiguous sheet and the other sheets in proper relation as they pass through the machine.

It will be noted that the upper ends *i. e.*, the ends nearest the edge of the sheet of the tongues are in line so that they constitute an effective gage for the inserted sheet. It is to be noted also that owing to the hard, stiff nature of my backing sheet these tongues have a gripping or biting action upon the inserted wad of sheets and act as a clamp to hold such sheets in position. This action is

accentuated by several features. One is that the cuts being made straight through the hard backing sheet sharp edges both of the incision and of the tongue are provided, and these edges effectively grip or pinch the sheets. Another thing is that the tongues are of considerable width with respect to the sheet so that there is some give to them, and when the backing sheet with the wad clamped thereto is inserted into the machine the pressure of the platen will have a tendency to force the tongue down into the incision to some extent, thereby accentuating the gripping action. Another feature is the rounded shape of the lower part of the incisions and tongues. This helps toward the same end, that is the rounded shape gives a sort of draw or pinch to the wad of inserted sheets.

The types sink somewhat into the soft backing B, but do not indent or corrugate or emboss the hard backing A. The latter moreover serves to correct the roughness or corrugated condition of worn platens, so that a clear and satisfactory stencil is produced.

The sheets may with great facility be gathered and slipped in under the tongues, where they are given immediate register, without loss of time; and they cannot thereafter shift. The tongues will accommodate any number of sheets desired, as sometimes a carbon sheet is placed behind the stencil sheet in order to prove the stencil. All such sheets will be compactly held by the tongues and kept in register.

Having thus described my invention, I claim:

1. A backing sheet for use in a typewriting machine, said sheet formed of material which is practically unfoldable, and incised between its ends to form a set of tongues, said tongues near one end of the sheet and directed toward the body of the sheet, a margin being left between said tongues and the leading edge of the sheet, to form a thin portion for easy introduction between the rolls of the typewriter; said backing sheet formed of material sufficiently stiff and rough to prevent the sheets carried by said tongues from slipping on said backing sheet.

2. A backing sheet for use in a typewriting machine, said sheet formed of material which is hard, tough and practically unfoldable, and incised between its ends to form a set of tongues, said tongues near one end of the sheet and directed toward the body of the sheet, a margin being left between said tongues and the leading edge of the sheet, to form a thin portion for easy introduction between the rolls of the typewriter; said backing sheet formed of material sufficiently stiff and rough to prevent the sheets carried by said tongues from slipping on said backing sheet.

3. A backing sheet of heavy tough and rough material having near one end rounded end incisions and tongues correspondingly cut out so as to have sharp edges, the rounded ends pointing toward the body of the sheet, the upper ends of the tongues being in line to form a gage for sheets inserted between the tongues and the body of the sheet and the tongues being sufficiently elastic to exert a gripping action upon a wad of inserted sheets and carbons and also wide enough to yield somewhat under the pressure of the platen whereby their gripping action is accentuated, a margin on the backing sheet being left between the straight ends of the tongues and the leading edges of the sheet for easy introduction between the rolls of a typewriting machine.

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