

[54] LUMINESCENT BACKING SHEET FOR WRITING IN THE DARK

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Related U.S. Application Data

[63] Continuation of Ser. No. 288,148, Sept. 11, 1972, abandoned.

[52] U.S. Cl. **250/462, 250/483**

[51] Int. Cl. **H01j 1/62**

[58] Field of Search 250/462, 483, 486; 35/36, 35/37

[56] **References Cited**

UNITED STATES PATENTS

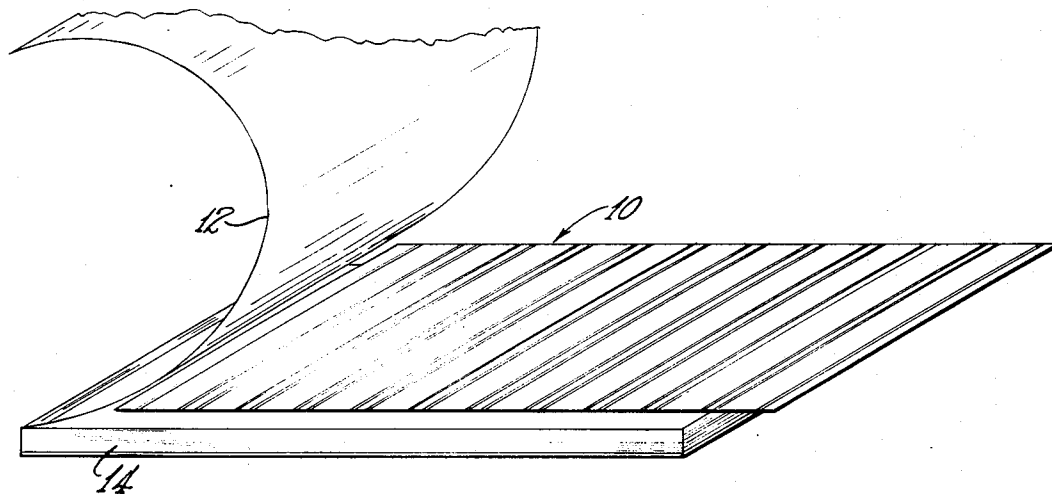
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|-----------|--------|-------------|-----------|
| 1,351,935 | 9/1920 | Willis..... | 250/462 |
| 2,883,770 | 4/1959 | Lieb..... | 250/462 X |
| 3,093,919 | 6/1963 | Holtz..... | 250/483 X |
| R22,769 | 7/1946 | Lynch..... | 250/486 |

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Attorney, Agent, or Firm—Charles F. Schroeder

[57] **ABSTRACT**

A lined phosphorescent backing sheet for use in underlying relation with writing paper permitting a writer to write in orderly lined form in the dark without need for external light.

10 Claims, 4 Drawing Figures



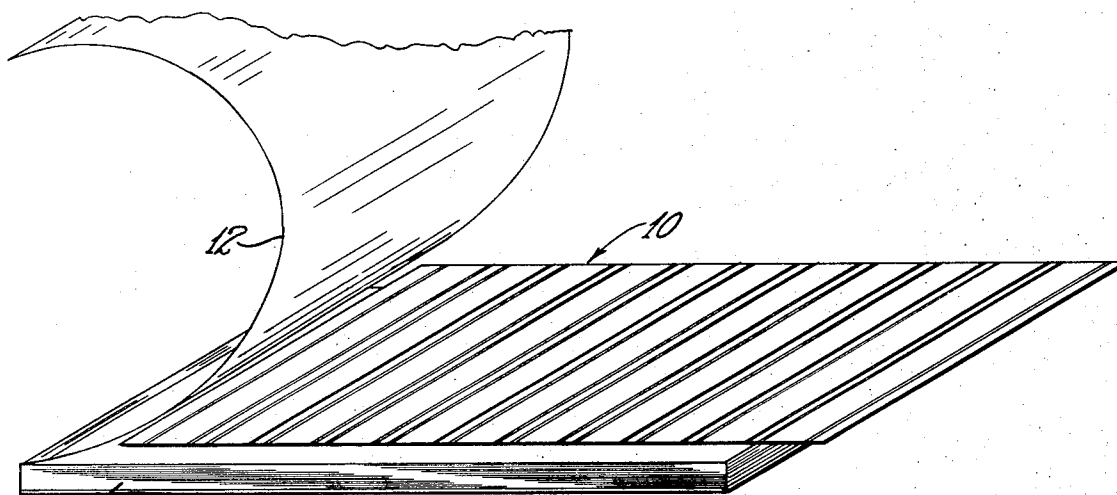


Fig. 1

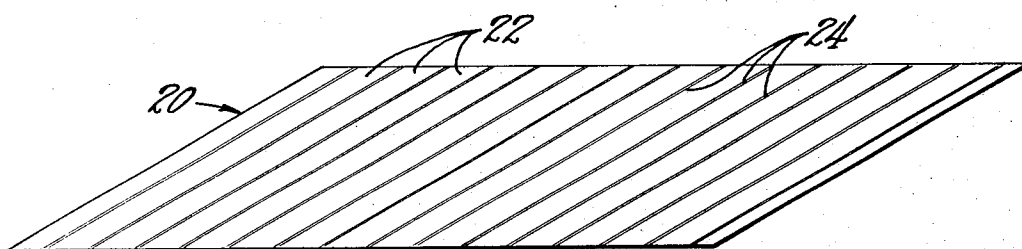


Fig. 2

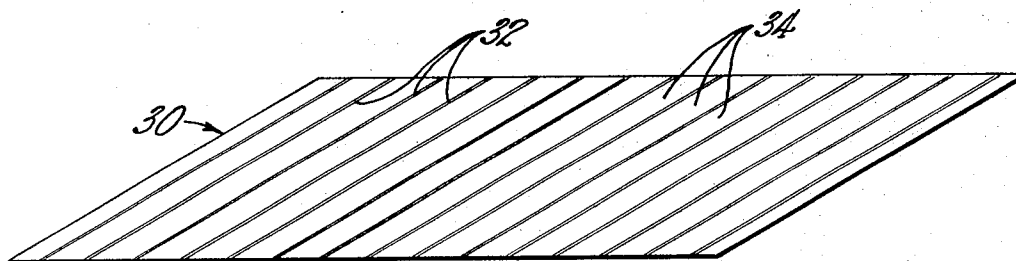


Fig. 3

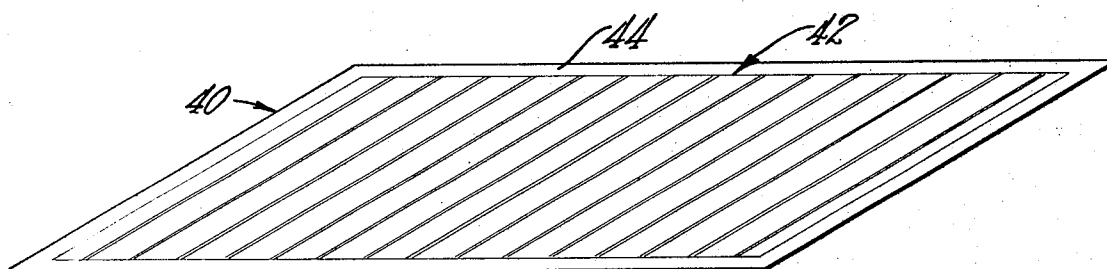


Fig. 4

LUMINESCENT BACKING SHEET FOR WRITING IN THE DARK

This is a continuation of my co-pending application Ser. No. 288,148, filed Sept. 11, 1972, now abandoned.

This invention relates to an auxiliary or backing sheet for use with writing paper to permit a writer to write legibly by hand in orderly straight line form in the dark.

If one attempts to write in the dark, I have found that although the mechanics of writing can be accomplished with little more than usual effort, writing in straight lines with uniform spacing between lines and without overlap is difficult in the absence of some guide means. According to my present invention I have found that guide lines for material written in the dark can be provided with very little light, and that as little light as is given off by a backing sheet having phosphorescent lines applied thereto is all that is necessary to enable one to write with a pencil or pen in orderly and neat form in the dark.

Furthermore, I have found that when a sheet, to which lines of commercially available phosphorescent paint is applied, is charged by even a brief exposure to light, may be seen clearly in the dark through one or more sheets of ordinary writing paper. For example, I have found that a one minute charge of light from an ordinary light bulb will provide visible phosphorescent lines which can be seen through ordinary writing paper in the dark for periods of 15 minutes or more.

In this regard, the invention becomes useful in laboratory work where observations are to be conducted in the dark. The invention can be used also in outer space travels where, as in recent travels of astronauts, the electrical systems of the spacecraft were required to be shut down for planned periods to permit recharging of equipment. Still further, the invention has practical value in writing in automobiles after dark without need for internal lighting which has a tendency to distract and disturb the driver.

In view of the foregoing it is an object of the present invention to provide means in the form of a luminescent backing sheet for writing paper which will provide visible guide lines in the dark, permitting a writer to write in straight lines without additional light.

In general according to my invention the backing sheet which is to be inserted under the writing paper can be provided with guide lines in two different forms. In one form, the lines can be provided by phosphorescent lines themselves, while in the other form the sheet is made phosphorescent with lines being non-phosphorescent.

A feature of the invention lies in its low cost and ease of use without need for special appliances.

Other objects and structural features which are believed to be characteristic of my invention are set forth with particularity in the appended claims. My invention, however, both in organization and manner of construction, together with further objects and features thereof may be best understood by reference to the following description taken in connection with the accompanying drawing in which:

FIG. 1 is a perspective view of a writing tablet with a backing sheet of this invention in partially inserted position under the first paper sheet of the tablet.

FIG. 2 is a perspective view of a phosphorescent backing sheet of this invention in which the guide lines are non-phosphorescent.

FIG. 3 is a perspective view of another embodiment of my invention in which the guide lines are of phosphorescent material.

FIG. 4 is a perspective view of another form of my invention in which the phosphorescent portions are embodied in a plastic sheet.

Referring to the drawing in greater detail, FIG. 1 illustrates a tablet of writing paper 14 having a top sheet 12 lifted and turned back for insertion of a phosphorescent backing sheet 10 of my invention. As may be seen, the backing sheet can be provided with double lines or extra thick lines if desired.

FIG. 2 illustrates a phosphorescent sheet 20 for use with the writing tablet 14 wherein the phosphorescent portions extend over the major portion of the sheet with lines 24 being non-phosphorescent. This sheet can be formed by applying phosphorescent matter in the form of paint or ink over the entire sheet with the non-phosphorescent lines being formed by the absence of phosphorescent material or by an overlay of non-phosphorescent material such as ink or narrow strips of tape. This embodiment is a preferred form of the invention in that when viewed through the writing paper, written material above the lines is visible against the phosphorescent backing.

Whether or not the writing paper backed by the luminescent sheet of the present invention is lined or unlined, the guide lines enable orderly writing in the dark where ordinarily marked lines are ineffective. Where the writing paper is unlined, sharply marked dark lines on the backing sheet over a phosphorescent base provide guides for orderly handwriting both in the presence of light or in darkness.

FIG. 3 illustrates another embodiment of the invention wherein the backing sheet 30 is provided with parallel phosphorescent lines 32 while the in between portions 34 are non-phosphorescent. This form of the invention has the advantage of needing only a minimum of phosphorescent material and is accordingly inexpensive.

While the phosphorescent backing sheets illustrated in FIGS. 1 to 3 may be any of a number of sheet materials such as ordinary paper, vellum, or even cloth, FIG. 4 is illustrative of a plastic sheet which may be phosphorescent material itself. It might be translucent or transparent and thermoplastic, enabling encasement of non-phosphorescent line portions, or might be of non-phosphorescent plastic with phosphorescent portions embodied therein. It is preferably smooth and might be thicker and less flexible than the writing paper itself to facilitate easier writing thereon for greater legibility. The horizontal and marginal lines for the written material might be black or a dark color and non-phosphorescent while the remaining portions of the sheet might be of phosphorescent plastic so that the backing sheet might be utilized either day or night for guidance of handwritten material when the writing paper is placed in overlying relation thereto. That is, by making the guide lines of the plastic sheet contrastingly visible through the writing paper, the sheet can be used for guide purposes under ordinary light as well as in darkness.

To activate the phosphorescent material as a guide for writing in the dark, it is exposed to a light for a pe-

riod dependent upon intensity of the light. It is found that a period of only a moment is necessary to provide an adequate charge in ordinary incandescant light or daylight to provide adequate phosphorescence for writing a period of a quarter of an hour or more.

In view of the foregoing it will be understood that many variations of the arrangement of my invention can be provided within the broad scope of principles embodied therein. Thus, while particular preferred embodiments of my invention have been shown and described, it is intended by the appended claims to cover all such modifications which fall within the true spirit and scope of the invention.

I claim:

- 1. A luminescent backing sheet for guidance of handwriting on writing paper in darkness comprising, a thin sheet having equally spaced parallel straight lined regions of phosphorescence extending transversely thereto with non-phosphorescent regions therebetween which combination in the dark visibly defines equispaced lines for application of handwritten material.
- 2. A backing sheet according to claim 1, wherein the non-phosphorescent regions are relatively narrow and act as guide lines for written material over the phosphorescent regions.
- 3. A backing sheet according to claim 1, wherein the phosphorescent regions are relatively narrow and act as guide lines for written material over the non-

phosphorescent portions.

- 4. A backing sheet for writing paper according to claim 1, wherein the phosphorescent regions also define marginal regions for the writing paper.
- 5. A backing sheet for writing paper according to claim 1, wherein the non-phosphorescent regions are provided by the absence of phosphorescent material between the regions of phosphorescence.
- 6. A backing sheet for writing paper according to claim 1, wherein the non-phosphorescent regions are formed by strips of non-phosphorescent material applied over phosphorescent material.
- 7. A backing sheet for writing paper according to claim 1, wherein the phosphorescent and non-phosphorescent regions are embodied in a light transmitting plastic sheet.
- 8. A backing sheet according to claim 7, wherein the plastic sheet is translucent.
- 9. A backing sheet according to claim 1, in combination with a pad of writing paper with the sheets secured together at one edge which acts as a guide stop for insertion of said backing sheet under sheets to be written upon.
- 10. A backing sheet according to claim 1, in combination with a clip board on which said backing sheet is supported for placement of writing paper thereover for ease of writing in darkness.

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