

[54] **PRESSURE RECORDING SHEET**
[75] Inventor: **Seth Wheeler**, Clark Summit, Pa.
[73] Assignee: **Litton Business Systems, Inc.**, New York, N.Y.
[22] Filed: **May 9, 1972**
[21] Appl. No.: **251,847**

Related U.S. Application Data

[63] Continuation of Ser. No. 27,915, April 13, 1970, abandoned.
[52] U.S. Cl. **161/6, 117/36.7, 161/406, 161/410**
[51] Int. Cl. **B41m 5/16, B32b 7/06**
[58] Field of Search **161/6, 410, 406; 117/36.7**

References Cited

UNITED STATES PATENTS

2,505,475	4/1950	Green	117/36.9
2,648,924	8/1953	Brewster	117/36.7
2,898,112	8/1959	Flower et al.	117/36.7

2,939,802	6/1960	Werle et al.	117/36.7
3,441,948	4/1969	Ondis	117/36.7

FOREIGN PATENTS OR APPLICATIONS

552,744	2/1958	Canada	117/36.7
---------	--------	--------------	----------

Primary Examiner—George F. Lesmes
Assistant Examiner—Charles E. Lipsey
Attorney—Arthur T. Groeninger

[57] **ABSTRACT**

Stock comprising a pressure recording sheet including a protective transparent overlay sheet, an opaque pressure clarifiable coating under said overlay sheet, and a base sheet adhesively secured to the blush coat. The adhesive for securing the base sheet to the overlay sheet is of a color contrasting with the color of opaque coat so that in response to localized pressure on the overlay sheet, the opaque coat transparentizes and reveals the contrastingly colored adhesive to produce a record.

1 Claim, 2 Drawing Figures

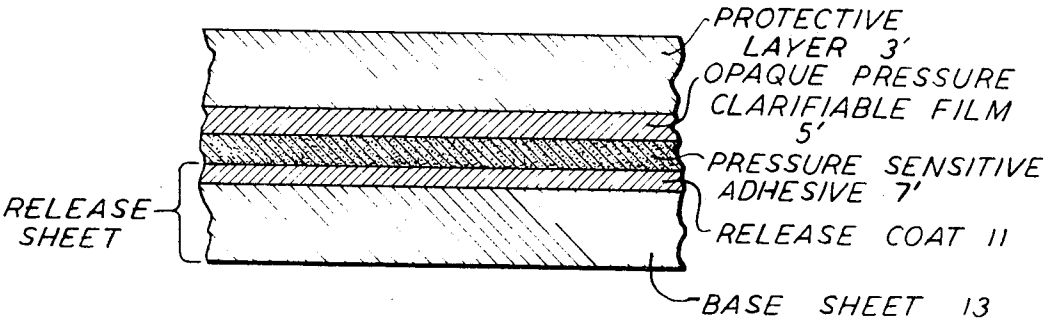


FIG. 1

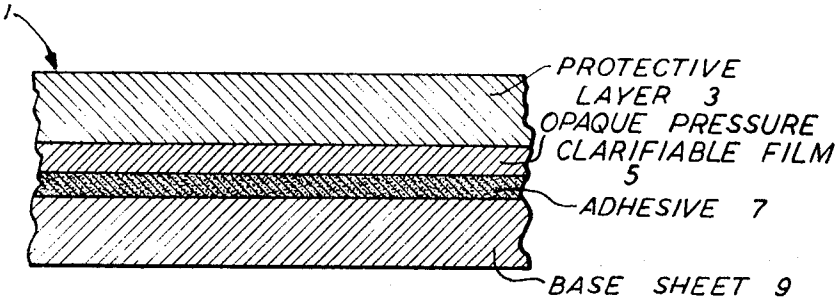
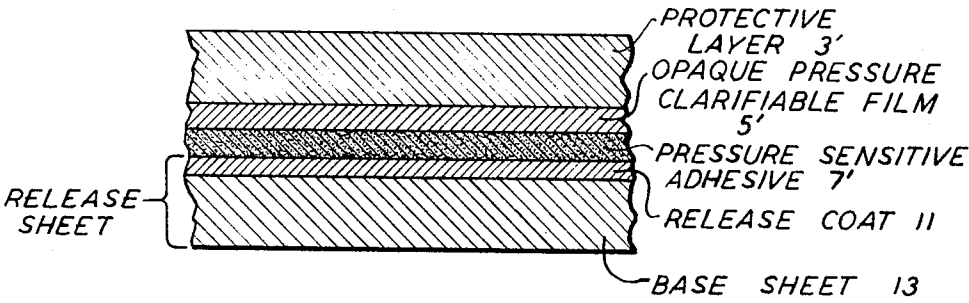


FIG. 2



INVENTOR
SETH WHEELER

BY
John T. Shumway
ATTORNEY

PRESSURE RECORDING SHEET

This is a continuation, of application Serial No. 27,915, filed Apr. 13, 1970, now abandoned.

BACKGROUND OF THE INVENTION

Recently introduced and find widespread application is a new continuous form label which is of a three ply sandwich construction consisting of a release sheet, a carbonless copy sheet and an overlay protective sheet. The carbonless copy sheet is of the "Action" brand carbonless paper such as described in U.S. Pat. Nos. 2,550,473 and 3,020,171.

Writing, typing or EDP print out creates and image on these labels that is sealed under a protective coating. This label construction protects label information from abrasion, weather, moisture, and unauthorized alteration and has use as nameplates, warranties, inventory control stickers, service and repair forms and numerous other applications.

To date, however, the system has not proved satisfactory. The "Action" paper is highly porous and the adhesive used to secure it to the overlay sheet and to the underlying release sheet has a tendency to migrate into the sheet thereby destroying its properties.

BRIEF SUMMARY OF THE INVENTION

The present invention comprises a top protective layer of plastic, a first underlayer comprising an opaque pressure clarifiable coating, a second underlayer comprising a layer of adhesive having a color contrasting with the bluish coat and a fourth base layer. If the adhesive employed is a pressure sensitive adhesive, the base sheet can comprise a release sheet which can be removed thereby allowing the assembly to be secured to any desired surface.

A stylus bearing against the overlay sheet transparentizes the opaque layer so as to reveal the underlying contrastingly colored adhesive layer.

DETAILED DESCRIPTION

Referring to FIG. 1, the label assembly 1 of the present invention is seen to comprise a top protective layer 3, a opaque coating 5, an adhesive layer 7, and a base sheet 9.

The protective layer 3 may comprise any transparent plastic material having sufficient flexibility to permit stylus pressure bearing thereagainst to transparentize opaque coating 5. Suitable materials include plastic such as polyvinyl chloride, cellophane, polyethylene, etc. Generally, the film thickness should not exceed 20 mils in order to allow pressure to be transmitted there-through.

The opaque coating 5 is coated on plastic layer 3 and may be formed from conventional film forming material now used for pressure writing wherein opaque pressure clarifiable films overlie a layer of contrasting color. For example, it may comprise a bluish coat of the type described in U. S. Pat. No. 2,939,802 to Werle; and by this reference incorporated herein, comprising a film forming resin together with solvents which, on drying, bluish due to moisture condensing on the film. Another conventional opaque coating is of the type described in U. S. Pat. No. 3,020,172 to D. F. A. Mohnhaupt, and by this reference incorporated herein, wherein a resin is dissolved in a low boiling solvent and mixed with a high boiling solvent in which the resin is insoluble. On drying, the low boiling solvent goes off

thereby increasing the concentration of the high boiling at a given point precipitates the resin causing the film to opacify. Another conventional opaque coating is of the type described in U. S. Pat. No. 2,957,791 and U. S. Pat. No. 2,739,909 including microscopic voids which impart opacity.

The adhesive layer 7 may comprise any conventional adhesive such as those of the heat activated type, or water remoistenable type or pressure sensitive type. With regard to the latter, the second embodiment of the invention illustrated in FIG. 2 uses such adhesive and will hereinafter be more particularly described.

To the adhesive is added a pigment or dye so as to color the adhesive in contrast to the film. Colored pigments such as carbon black, iron oxide, chrome orange may be used. The amount of pigment added is not critical with the amount being adjusted to meet color requirements.

The base sheet 9 may comprise any grade of paper, plastic or cloth, the choice of which depends on the integrity desired in the final product.

The above assembly is formed by coating the opaque coating 5 on the protective plastic layer 3. The adhesive is then coated on the base sheet 9 and it is then laminated to the opaque coating layer 3.

The coatings are applied by any one of the well known methods, such as roll coatings, doctor blade coatings, knife coatings, etc. and dried in an oven at proper temperatures and lineal speed in accordance with conventional practice.

Referring to FIG. 2, a second embodiment of the present invention is shown which is identical to the embodiment illustrated in FIG. 1, except that a pressure sensitive adhesive layer 7' is used in conjunction with a release sheet to protect the adhesive. The release sheet comprises a release layer 11 and base sheet 13. The assembly illustrated in FIG. 2 allows the recording to be conveniently applied to any desired surface once the release sheet is removed.

The pressure sensitive layer 7' may be of any conventional type such as rubber based pressure sensitive adhesive containing conventional ingredients such as anti-oxidants and small quantities of tackifying resins and other adhesion promoters.

The release layer 11 which is in contact with the pressure sensitive adhesive, may comprise any conventional material used for release such as nitrocellulose, cellulose triacetate, silicone, etc.

The release layer 11 is coated on base sheet 13 by any conventional technique. The base sheet may be selected from any grade of paper, cloth, or plastic.

The following is an example of a recording sheet constructed in accordance with the present invention.

EXAMPLE I

A coating batch was prepared comprising (parts are by weight):

Cellulose acetate butyrate	10
Dioctyl phthalate (plasticizer)	1
Polyethylene glycol	1.5
Methanol	47.5
Acetone	40

The dioactyl phthalate, methanol and acetone are mixed together and then the cellulose acetate was added slowly with agitation until fully dissolved. Then the polyethylene glycol was added slowly until dissolved.

The above mix was coated, by wire wound rod, on a 3 mil film of cellulose acetate to a coating thickness of about 0.5 mils. The film was then subjected to forced air which caused the coating to partially dry and blush. The drying was then completed in an oven at 90° C.

A sheet of silicone coated release sheet was then coated on the silicone side with a blue colored pressure sensitive adhesive.

The adhesive coated release sheet was then laminated by use of a two roll laminator to the blush coated film with adhesive adhering to the blush coating.

The film was then typed on causing the blush coat to transparentize in typed areas thereby revealing the blue colored adhesive and producing a record.

The adhesive preferentially adhered to the blushed coating thereby allowing the release layer to be peeled off and the record adhered to a desired surface.

The foregoing is considered illustrative only of the principles of the invention. Since numerous modifica-

tions and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly, all suitable modifications and equivalents may be resorted to as falls within the scope of the appended claims.

What is claimed:

1. The combination comprising a transparent plastic layer, an opaque blush coat under said plastic layer capable of transparentizing in areas subject to writing pressure, an adhesive layer under and in contact with said opaque coat having a color contrasting with the color of said opaque coat, said adhesive comprising a pressure-sensitive adhesive capable of adhering to a surface solely by application of manual pressure, and a release sheet having a release coating thereon under and in contact with said adhesive layer.

* * * * *

20

25

30

35

40

45

50

55

60

65