

April 19, 1960

T. H. J. SPEROULEAS

2,933,431

MEDICATED TISSUE

Filed March 28, 1957

FIG. 1

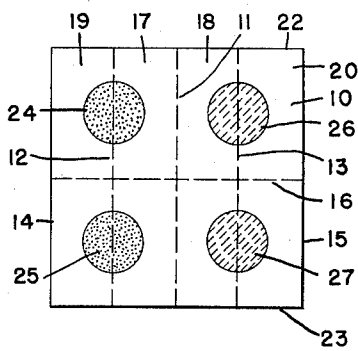


FIG. 2

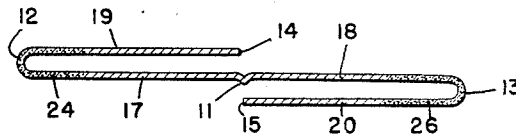


FIG. 3

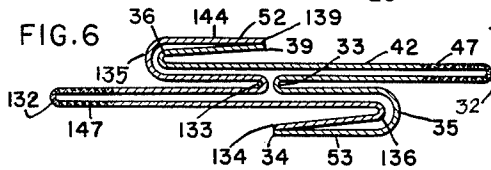
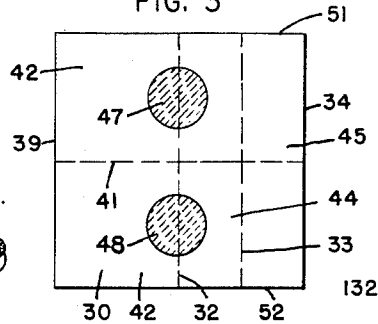


FIG. 7

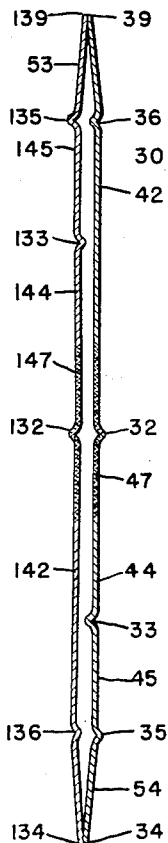


FIG. 4

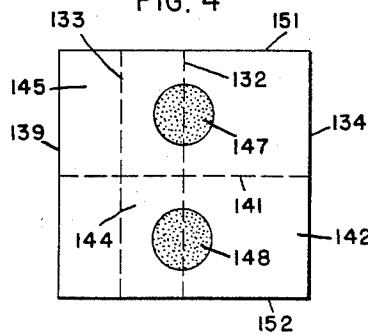
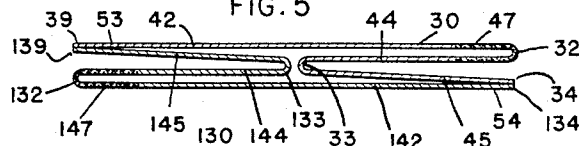


FIG. 5



INVENTOR

THEODORE H. J. SPEROULEAS

Caswell & Lagaard

ATTORNEYS

1

2,933,431

MEDICATED TISSUE

Theodore H. J. Sperouleas, Minneapolis, Minn.

Application March 28, 1957, Serial No. 649,126

18 Claims. (Cl. 167—84)

The herein disclosed invention relates to medicated tissue and has for its object to provide tissues which may be applied to the nose and which produces medicinal vapors for the alleviation of the distress occasioned by nasal, throat or bronchial ailments.

An object of the invention resides in utilizing two chemicals which when brought together produce medicinal vapors.

Another object of the invention resides in utilizing the chemicals in dry form and with which the tissue is impregnated.

A still further object of the invention resides in normally maintaining the two chemicals separated so as to prevent reaction therebetween and in subsequently, when the tissue is desired for use, bringing the chemicals into contact to produce the desired vapors.

Another object of the invention resides in constructing the tissue with one or more sheets and in one case impregnating the sheets with the two different chemicals at different localities such that folding or crumpling of the sheet or sheets will bring the chemicals into juxtaposition for reaction, and in another case in impregnating certain of the sheets with one chemical and other of the sheets with the other chemical and in folding or otherwise maintaining the chemicals normally separated.

A feature of the invention resides in folding the sheets so that the chemicals are on opposite sides of the folds, in securing or placing the ends of the sheets in juxtaposition so that tabs are formed which when pulled apart bring the two chemicals into juxtaposition.

Another object of the invention resides in utilizing as the chemicals, camphor, thymol and menthol, and in using any two of these chemicals for the purpose.

Other objects of the invention reside in the novel combination and arrangement of parts and in the details of construction hereinafter illustrated and/or described.

In the drawings:

Fig. 1 is a developed view of a sheet of tissue impregnated with the chemicals and illustrating an embodiment of the invention.

Fig. 2 is a sectional view of the tissue shown in Fig. 1 and partly folded to illustrate the manner in which the chemicals are normally maintained separated.

Figs. 3 and 4 are views similar to Fig. 1 of two sheets of tissue each separately impregnated with one of the chemicals.

Fig. 5 is a sectional view similar to Fig. 2 and showing the sheets partly folded.

Fig. 6 is a view similar to Fig. 5 showing the sheets further folded to form inwardly facing tabs on the sheets.

Fig. 7 is a sectional view showing the sheets disposed with the impregnated areas of the sheets in juxtaposition.

In the form of the invention shown in Figs. 1 and 2, a sheet 10 of tissue has been shown. This tissue may be of any absorbent cellulose type such as is now in common use and particularly in use as handkerchiefs. For the sake of simplicity, a single sheet of tissue has been

2

shown, though it can readily be comprehended that one or more additional overlying sheets may be employed to increase the absorptive characteristics of the tissue and to hold more or less of the impregnation as desired. The

sheet 10 is formed with a center crease 11 and with quarter folds 12 and 13 situated halfway between the fold 11 and the edges 14 and 15 of the sheet. These folds are preferably parallel to one another and to said edges. In addition, a transverse fold 16 may be employed

for a purpose to be presently described. By means of the folds 11, 12 and 13, the sheet 10 is divided into inner quarter sections 17 and 18 and outer quarter sections 19 and 20. Between the transverse edges 22 and 23 and the fold 16 are formed areas 24 and 25 which occupy both of the sections 17 and 19 straddling the fold 12. These areas are preferably situated midway between the edge 22 and the fold 16 and between the edge 23 and said fold. These areas are impregnated with a chemical to be presently described in detail. In a similar manner, in the sections 18 and 20 are formed areas 26 and 27 and which are impregnated with a different chemical. These areas are preferably located midway between the edge 22 and the fold 16 and between the edge 23 and said fold and straddle the fold 13 being formed partly in the section 18 and partly in the section 20.

The sheet 10 is normally folded as shown in Fig. 2 with the section 19 overlying the section 17 and with the section 20 overlying the section 18. When so arranged, the areas 24 and 25 are remotely situated from the areas 26 and 27 and are thus kept out of contact with one another. The sheets so formed may be packaged as folded or, if desired, the sheets may be folded along the fold 16 to decrease the size of the package. In such case, the areas 24 and 25 overlie one another and similarly the areas 26 and 27. However, the areas containing the two different chemicals are kept separated.

It has been found that any two of three groups of chemicals may be used for the purpose of the invention. The first group consists of camphor represented by the formula $C_{10}H_{15}O_2NH$ and its homologues; the second group consists of thymol represented by the formula $CH_3(C_3H_7)C_6H_3OH$ and its homologues, and the third group consists of menthol represented by the formula $C_{10}H_{15}OH$ and its homologues. When one of the compounds of one of the groups is placed on the areas 24 and 25 and when one of the compounds from one of the other groups is placed on the areas 26 and 27, in dry form, and the areas 24 and 26 brought together and likewise the areas 25 and 27 brought together, a reaction occurs between the two different chemicals and a medicinal vapor is emitted which is extremely effective in alleviating the distress occasioned by nasal, throat or bronchial ailments. The most effective of these compounds is camphor for use as the first chemical, and menthol for use as the second chemical.

Menthol and thymol and their homologues have properties in common and may be classified under the broad group of phenols and their corresponding carbocyclic products of varying degrees of saturation.

The various chemicals used in the preparation of the tissues are normally in solid form and are dissolved in some suitable solvent. Isopropyl alcohol is one such solvent which is highly satisfactory. The sheets of tissue are then impregnated with this solution and caused to dry. This may be accomplished by the application of heat or the tissues may be left to dry solely by normal evaporation. The isopropyl alcohol evaporates very rapidly and only a short time is required in reducing the chemical to a dry form. While isopropyl alcohol is entirely satisfactory, other solvents may be employed such

as water where the chemical is soluble in water. However, a greater length of time will be required for reducing the chemicals to their dry form.

As previously stated, the impregnated tissues are packaged with the two chemicals remotely positioned. When desired for use, a tissue is removed from the pack and the same opened up flat. The tissue is then folded along the fold 11 bringing the area 24 in juxtaposition with the area 26 and the area 25 in juxtaposition with the area 27. In an extremely short time the chemicals react to produce a liquid and which gives off the desired vapors. The tissue may be held up to the nose and vapors inhaled to effect the desired relief.

In Figs. 3 to 7, a modification of the invention has been shown. In Figs. 3 and 4 two sheets 30 and 130 of tissue have been shown. Again it will be understood that several sheets may be arranged in overlying position, the single sheet having been shown merely to simplify the illustration of the invention. The sheet 30 is formed with a center fold 32 and a quarter fold 33 adjacent the edge 34 of the same. The opposite edge of the sheet 30 is designated by the reference numeral 39. A transverse fold 41, similar to the fold 16 in the other form of the invention, is also provided. By means of this construction, the sheet 30 is divided into a half section 42 and inner and outer quarter sections 44 and 45.

The sheet 30 is provided with two areas 47 and 48 which are impregnated with one of the compounds of one of the groups of chemicals previously listed. These areas occupy both the sections 44 and 45 straddling the fold 32 and being situated intermediate the edges 51 and 52 of the sheet and the transverse fold 41.

The sheet 130 is constructed similarly to the sheet 30 and the description of the various parts will not be repeated. However, the various folds and sections will be indicated by the same reference numerals preceded by the digit 1. It will be noted, however, that the fold 133 is disposed adjacent the edge 139, and that said fold lies to the left of the fold 132 instead of to the right as is the case with sheet 30. In this manner, the various sections of the sheet 130 are simply reversed as compared to those of the sheet 30. On the sheet 130, the areas 147 and 148 are located in the same manner as on the sheet 30 and differ only in that one of the compounds of one of the other groups is employed instead of the chemical used for the areas 47 and 48.

In the manufacture of the tissue from the sheets 30 and 130, the sheets are folded along the folds 32 and 33 and the folds 132 and 133. The sheets are then assembled so that the edges 39 and 139 register with one another and similarly the edges 34 and 134. These edges are preferably secured together by adhesive though the same may be unattached if desired. The parts then become arranged as shown in Fig. 5 in which the folds 33 and 133 lie adjacent one another and the folds 32 and 132 lie in spaced relation to one another. The tissue thus formed may, if desired, be packaged as illustrated or the same may be folded along the folds 41 and 141 to reduce the size of the package. The attached portions of the sheets form tabs indicated by the reference numerals 53 and 54. In use, the tissue is merely grasped by the tabs 53 and 54 and the same pulled outwardly in a direction normal to the plane of the folded sheets. This causes the sheets to assume the position shown in Fig. 7 in which the areas 47 and 48 are brought into proximity to the areas 147 and 148. Reaction can now occur between the respective chemicals producing the desired vapor.

The tabs 53 and 54, when disposed as shown in Fig. 5, may become somewhat difficult to separate from the sections 44 and 144 of the sheets 30 and 130. To make the tabs readily accessible, the same may be folded over folds 36 and 135 and other folds 35 and 136 formed in the sheets to bring the tabs in the position shown in Fig. 6. In this position, separation of the tabs from the folded

sheet may be readily accomplished and the folded sheet unfolded to bring the chemicals into reactive position.

While the invention has been illustrated as utilizing the spacing of the areas on the tissues as a means for separating the same, it can readily be comprehended that nonabsorbent spacers may be placed between the areas and the areas normally arranged in overlying position. In such case, removal of the spacers will bring the chemicals into reactive position. It will also be realized that different shapes and arrangements of the different areas may be utilized without departing from the spirit of the invention.

The advantages of the invention are manifest. The tissues treated and constructed in accordance with the invention are extremely convenient to carry about and to maintain in the home and are readily available for use when desired. After the reaction of the chemicals has ceased, the tissues may be used in the customary manner and discarded. With the instant invention, no special apparatus is required for the production of the desired vapors. The invention can be constructed at a nominal expense and by machinery and equipment readily available for the purpose.

Changes in the specific form of the invention, as herein described, may be made within the scope of what is claimed without departing from the spirit of the invention.

Having described the invention, what is claimed as new and desired to be protected by Letters Patent is:

1. A medicated flexible tissue including two parts each normally separated from one another and adapted to be brought together, one of said parts having a dry impregnation of one chemical and the other having a dry impregnation of another chemical, said chemicals being of such characteristics that when brought together in air a medical vapor is produced.

2. A medicated tissue including two parts each normally separated from one another and adapted to be brought together, one of said parts having a dry impregnation of camphor and the other having a dry impregnation of menthol.

3. A medicated tissue including two rectangular sheets of substantially the same size each having a center fold and a quarter fold on one side of said center fold to form a half section, an inner quarter section and an outer quarter section, a portion of the area at the center fold of one sheet being impregnated with one chemical and a portion of the other sheet at the center fold thereof being impregnated with another chemical such that the bringing of the areas together produces a medicinal vapor, said sheets being arranged so that the quarter fold of one sheet extends along and in proximity to the quarter fold of the other sheet and the center folds are spaced from one another and with the half section of each sheet overlying the quarter section of the other sheet.

4. A medicated tissue including two rectangular sheets of substantially the same size each having a center fold and a quarter fold on one side of said center fold to form a half section, an inner quarter section and an outer quarter section, a portion of the area at the center fold of one section being impregnated with one chemical and a portion of the other sheet at the center fold thereof being impregnated with another chemical such that the bringing of the areas together produces a medicinal vapor, said sheets being arranged so that the quarter fold of one sheet extends along and in proximity to the quarter fold of the other sheet and the center folds are spaced from one another and with the half section of each sheet overlying the quarter section of the other sheet, the overlying marginal portions of the sheets being secured together to form outwardly facing tabs which when pulled apart in a direction normal to the planes of the folded sheets bring the center portions of the sheets together and the impregnations in reacting position.

5. A medicated tissue including two rectangular sheets of substantially the same size each having a center fold

5

and a quarter fold on one side of said center fold to form a half section, an inner quarter section and an outer quarter section, a portion of the area at the center fold of one section being impregnated with one chemical and a portion of the other sheet at the center fold thereof being impregnated with another chemical such that the bringing of the areas together produces a medicinal vapor, said sheets being arranged so that the quarter fold of one sheet extends along and in proximity to the quarter fold of the other sheet and the center folds are spaced from one another and with the half section of each sheet overlying the quarter section of the other sheet, the overlying marginal portions of the sheets being secured together, said sheets having additional folds intermediate the quarter folds and the juxtaposed edges of the sheets to form inwardly facing tabs which when pulled apart in a direction normal to the planes of the folded sheets bring the center portions of the sheets together and the impregnations in reacting position.

6. A medicated tissue comprising a rectangular sheet having a center crease dividing the sheet in halves and quarter folds parallel with the center crease and spaced therefrom, an impregnation of one chemical at one quarter fold and an impregnation of another chemical at the other quarter fold, said chemicals being such that when brought together produce a vapor, said sheet being normally folded back upon itself along the quarter folds, and open at the center crease, said sheet upon being opened along the quarter folds and folded back upon itself along the center crease bringing the two chemicals into reactive position.

7. In combination a flexible foldable porous carrier having two integral parts normally separated from one another and adapted to be brought together, one of said parts having an impregnation of one dry chemical and the other having an impregnation of another dry chemical, said chemicals being of such characteristics that when brought together in air a medical vapor is product.

8. A medicated tissue including two rectangular sheets of substantially the same size each having a center fold and a quarter fold on one side of said center fold to form a half section, an inner quarter section and an outer quarter section, a portion of the area at the center fold of one sheet having an impregnation of a chemical selected from the group comprising camphor and a homologue of camphor and a portion of the other sheet at the center fold thereof having an impregnation of a chemical selected from the group consisting of menthol, a homologue of menthol, thymol and a homologue of thymol, said sheets being normally arranged so that the quarter fold of one sheet extends along and in proximity to the quarter fold of the other sheet and the center folds are spaced from one another and with the half section of each sheet overlying the quarter section of the other sheet.

9. A tissue for use with two different chemicals, each normally inactive in air when spaced from one another, and which when brought together in air react with one another, said tissue comprising a rectangular sheet having a center crease dividing the sheet in halves and quarter folds parallel with the center crease and spaced therefrom, said sheet being normally folded back upon itself along the quarter folds and open at the center crease, said sheet having an area at one quarter fold for an impregnation of one of the chemicals and an area at the other quarter fold for an impregnation of the other chemical, said areas being so disposed on the sheet that when the sheet is normally folded said areas are spaced from one another and when said sheet is opened along the quarter folds and folded back upon itself along the center crease the two areas are brought together.

10. A tissue for use with two different chemicals, each normally inactive in air when spaced from one another, and which when brought together in air react with one another, said tissue comprising two rectangular sheets of substantially the same size each having a center fold

6

and a quarter fold on one side of said center fold to form a half section, an inner quarter section and an outer quarter section, said sheets being normally arranged so that the quarter fold of one sheet extends along and in proximity to the quarter fold of the other sheet and the center folds are spaced from one another and with the half section of each sheet overlying the quarter section of the other sheet, said sheet having an area at one center fold for an impregnation of one of the chemicals and an area at the other center fold for an impregnation of the other chemical, said areas being so disposed on the sheets that when said sheets are normally folded said areas are spaced from one another and when said sheets are opened along the quarter folds and folded back upon themselves along the center crease the two areas are brought together.

11. A flexible foldable sheet-like carrier for use with two different chemicals each normally inactive when spaced from one another and which when brought together react with one another, a fold in said carrier dividing the same into two parts one of said parts having an area for the reception of one of said chemicals and the other of said parts having an area for the reception of the other of said chemicals, said parts when folded in one manner separating said areas and when folded in another manner bringing said areas into juxtaposition.

12. A medicated tissue including two parts each normally separated from one another and adapted to be brought together, one of said parts having a dry impregnation with a member of the group consisting of camphor, thymol and menthol and the other having a dry impregnation of another of the members of said group.

13. A medicated tissue including two parts each normally separated from one another and adapted to be brought together, one of said parts having a dry impregnation of a chemical selected from the group consisting of camphor and a homologue of camphor and the other having a dry impregnation of a chemical selected from the group consisting of phenols and corresponding carbocyclic products of varying degrees of saturation.

14. A medicated tissue including two parts each normally separated from one another and adapted to be brought together, one of said parts having a dry impregnation of a chemical selected from the group consisting of camphor and a homologue of camphor and the other having a dry impregnation of a chemical selected from the group consisting of menthol, a homologue of menthol, thymol and a homologue of thymol.

15. A medicated tissue comprising a rectangular sheet having a center crease dividing the sheet in halves and quarter folds parallel with the center crease and spaced therefrom, an impregnation of one chemical from the group comprising camphor and a homologue of camphor at one quarter fold and an impregnation of another chemical from the group comprising menthol, a homologue of menthol, thymol and a homologue of thymol at the other quarter fold, said chemicals being such that when brought together produce a vapor, said sheet being normally folded back upon itself along the quarter folds, and open at the center crease, said sheet upon being opened along the quarter folds and folded back upon itself along the center crease bringing the two chemicals into reactive position.

16. A medicated tissue including two rectangular sheets of substantially the same size each having a center fold and a quarter fold on one side of said center fold to form a half section, an inner quarter section and an outer quarter section, a portion of the area at the center fold of one sheet being impregnated with one chemical from the group comprising camphor and a homologue of camphor and a portion of the other sheet at the center fold thereof being impregnated with another chemical from the group comprising menthol, a homologue of menthol, thymol and a homologue of thymol such that the bringing of the areas together produces a medic-

7

inal vapor, said sheets being arranged so that the quarter fold of one sheet extends along and in proximity to the quarter fold of the other sheet and the center folds are spaced from one another and with the half section of each sheet overlying the quarter section of the other sheet.

17. A medicated tissue including two rectangular sheets of substantially the same size each having a center fold and a quarter fold on one side of said center fold to form a half section, an inner quarter section and an outer quarter section, a portion of the area at the center fold of one section being impregnated with one chemical from the group comprising camphor and a homologue of camphor, and a portion of the other sheet at the center fold thereof being impregnated with another chemical from the group comprising menthol, a homologue of menthol, thymol and a homologue of thymol, such that the bringing of the areas together produces a medicinal vapor, said sheets being arranged so that the quarter fold of one sheet extends along and in proximity to the quarter fold of the other sheet and the center folds are spaced from one another and with the half section of each sheet overlying the quarter section of the other sheet, the overlying marginal portions of the sheets being secured together to form outwardly facing tabs which when pulled apart in a direction normal to the planes of the folded sheets bring the center portions of the sheets together and the impregnations in reacting position.

18. A medicated tissue including two rectangular sheets of substantially the same size each having a center fold and a quarter fold on one side of said center fold to form a half section, an inner quarter section and an outer quarter section, a portion of the area at the center fold of

8

one section being impregnated with one chemical from the group comprising camphor and a homologue of camphor, and a portion of the other sheet at the center fold thereof being impregnated with another chemical from the group comprising menthol, a homologue of menthol, thymol and a homologue of thymol, such that the bringing of the areas together produces a medicinal vapor, said sheets being arranged so that the quarter fold of one sheet extends along and in proximity to the quarter fold of the other sheet and the center folds are spaced from one another and with the half section of each sheet overlying the quarter section of the other sheet, the overlying marginal portions of the sheets being secured together, said sheets having additional folds intermediate the quarter folds and the juxtaposed edges of the sheets to form inwardly facing tabs which when pulled apart in a direction normal to the planes of the folded sheets bring the center portions of the sheets together and the impregnations in reacting position.

References Cited in the file of this patent

UNITED STATES PATENTS

78,112	Mariner	May 19, 1868
426,933	Grossich	Apr. 29, 1890
2,001,046	Welch	May 14, 1935
2,129,754	Yagoda	Sept. 13, 1938
2,167,304	Klog	July 25, 1939
2,185,954	Ryner	Jan. 2, 1940
2,408,345	Shelton et al.	Sept. 24, 1946
2,598,823	O'Grady	June 3, 1952

FOREIGN PATENTS

720,930	Great Britain	Dec. 29, 1954
---------	---------------	---------------