Jan. 11, 1938. F. G. PRATT 2,105,226

GROUP TEST STRIP

Filed June 8, 1931

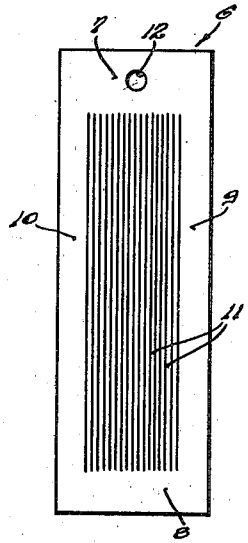


Fig. 2.

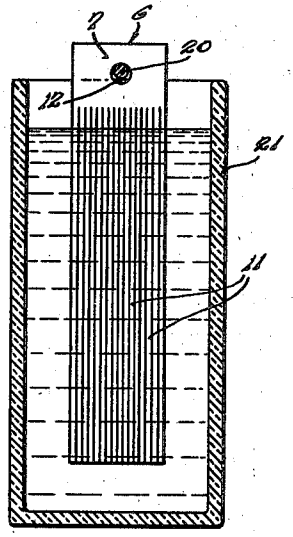


Fig. 3.

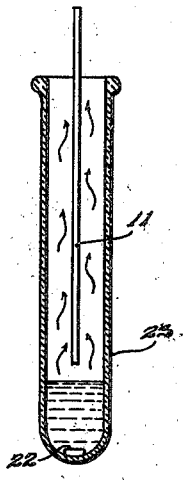


Fig. 4.

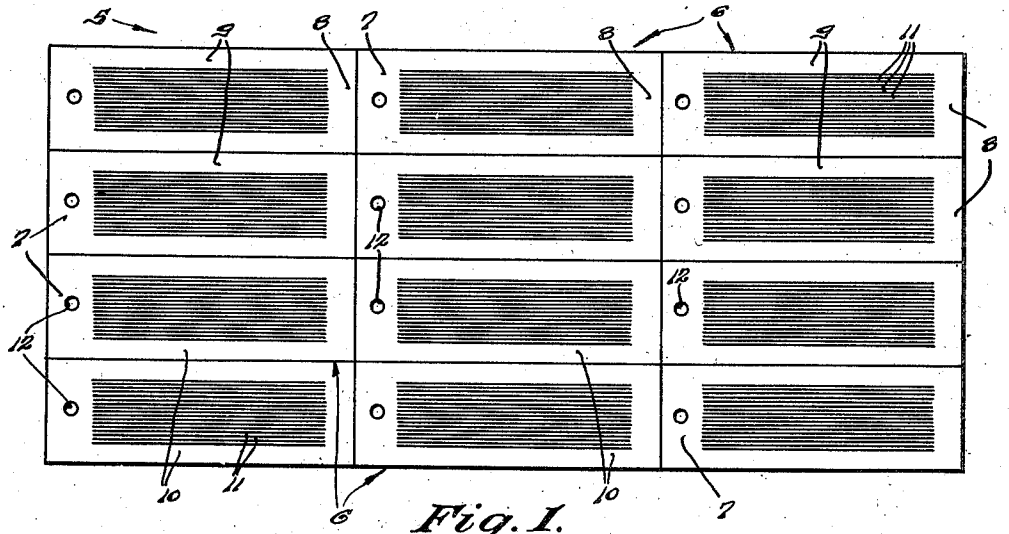


Fig. 1.

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GROUP TEST STRIP

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3 Claims. (Cl. 23—253)

This invention relates to test strips and the method of producing the same, and more particularly to that character of strip used to detect arsenic content in foods, known as the Gutzeit method.

In clarifying present objectives, attention is directed to the method heretofore produced in cutting test strips of this character, the producer shredding the sheets of absorbent paper from which the strips are obtained into a quantity of individual strips, such being more or less haphazardly packed and the subsequent user necessarily forced to select a number of strips for standard and actual test purposes which are generally of marked variation in weight, texture, and width with proportionate discrepancies between the resulting arsenic stains obtained on the standard and test strips.

More particularly, the paper, preferably heavy, cold-pressed, close-textured drafting paper similar to Whatman's No. 40 will normally vary in texture and thickness not only between various sheets, but also between various portions of each sheet. As is believed evident, failing an assurity that such strips as may be sensitized and tested by the chemist are taken from related portions of a sheet, the slight or sometimes marked variations in the plurality of strips used in the test will produce considerable differences in the length of the arsenic stain.

To such end, the present invention has for a primary object, the provision of an improved method of producing strips for arsenic test purposes which shall provide a group or groups of such test strips, within which group or groups the aforesaid variations in the material composing the strips shall be reduced to a minimum.

A further object resides in the provision of an arrangement of interconnected strips by means of which interconnection the identity and integrity of any one group or groups of strips are preserved throughout the several procedures of sensitizing, drying, straightening, and aging, thereby assuring that precise uniformity of treatment of the individual strips composing the group which conduces to the accuracy of the tests.

A further object resides in the provision of a novel arrangement of interconnected strips facilitating the handling of the same prior to the actual tests.

A still further object is the provision of an arrangement of test strips wherein possibility of contamination by the fingers on the test strips proper during the sensitizing and prior to actual use is eliminated.

The foregoing, together with further and more particular objects and advantages, will become apparent in the course of the following detailed description and claims, the invention consisting in the novel construction, adaptation and arrangement, as hereinafter described and claimed.

I represent in the accompanying drawing, the steps practiced in the production and use of the strips.

In said drawing,—

Figure 1 is a plan development of a sheet of suitable absorbent paper as used to produce the represented forms of strip arrangements.

Fig. 2 is an enlarged plan view of one of such arrangements.

Fig. 3 is a transverse vertical section indicating the sensitizing step in the use of the strips; and

Fig. 4 is a transverse vertical section, illustrative only, of the final test step.

Reference being had thereto, a sheet designated as 5 of suitable absorbent characteristics and of generally uniform weight, texture and thickness, is cut to produce a plurality of individual sheets 6, each of which provides borders 7, 8 and 9, 10 along transverse and lateral edges, respectively, of a plurality of ribbon-like strips 11 provided by longitudinally spaced fissures stamped or otherwise suitably produced in the same, said borders protecting and interconnecting the associated strips, one with another, in the individual sheets 6.

The disclosure further represents apertures 12 which may be simultaneously stamped centrically through the transverse head borders 7 to serve as a supporting medium for suspending one or a plurality of the sheets in a sensitizing solution.

In the preferred use of the sheets, the transverse and lateral borders 8, 9 and 10 are clipped from the sheets 6, the latter being strung on glass rods such as 20 and immersed in a jar, as 21, containing a 3 to 6 per cent solution of mercuric bromide in 95 per cent alcohol, the strength determined by the quantity, character and activity of the zinc used in the subsequent arsenic tests. The strips should be kept in the bromide solution for an approximate one hour period. A drying of the same by a grasping of the head border 7 and waving in the air eliminates possibility of conglomeration on the strips. If desired, the strips, when nearly dry, may be placed between clean sheets of paper and subjected to pressure in removing bends or curls.

The general procedure in using the strips is to cut off the head border and an approximate half

inch from the opposite strip ends, the chemist preparing samples of known but varying arsenic content for preliminarily testing a number of the strips, one for each sample, to determine standards by which subsequent arsenic stains may be calculated.

Subsequent tests are made by depositing zinc, represented as 22, within a wash from the food to be tested, said wash contained by a test tube or the like 23, the intensity of the resulting gas thrown off determining the length of stain as the same reacts with the mercuric bromide.

Fig. 4 of the disclosure does not portend to show the conventional and more or less standardized apparatus used in an arsenic test of this character, such generally comprising a large mouth bottle containing the fruit was and adapted to act as a generator upon reception of the zinc. The bottle feeds through a perforated stopper and communicates, through a glass tube containing a moist roll of cotton, with a narrow tube containing the strip of mercuric bromide paper.

The preferred embodiment of the invention should be apparent from the foregoing. However, it is not my intention to in any way confine the same except as may be limited by the scope of the hereto annexed claims.

What I claim, is,—

1. An article for chemical test purposes comprising a sheet of absorbent paper such, for example, as Whatman's No. 40, the texture and thickness of which affords relatively like absorbency throughout slit longitudinally to adjacent the extreme upper and lower edges to provide a plurality of ribbon-like strips, said slitting operating to retain borders along the upper and lower edges of the strips to maintain the strips in group formation, the relativity which exists between the adjacent strips of the connected group providing like strips of substantial uniform absorbency to accommodate sensitizing and subsequent accuracy in a test by comparison between strips used with solutions of the chemical of known and unknown strengths.

2. An article for chemical test purposes comprising a sheet of paper the texture and thickness of which is relatively the same throughout, thereby obtaining uniform absorbency slit to provide a plurality of ribbon-like strips of which the strip-forming cuts terminate in spaced relation to an end of the sheet to maintain a border along the same common to each of the strips, said border serving to retain the strips in group formation to maintain the natural relativity which obtains in strips lying immediately adjacent one another in the sheet.

3. The group arrangement of connected test strips as defined in claim 2 wherein the border is formed with an opening through which a rod may be passed to collectively support the several strips in the group while sensitizing the same in a mercuric bromide solution, said sensitizing of the strips acting to produce a stain thereon in the presence of arsenic gas produced by the introduction of zinc to an arsenic-containing solution.

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