The present invention relates to a method and device for administering pharmaceutical materials to persons or animals, the term pharmaceutical being herein used in a broad sense to include all materials administered to the body. By way of example, the invention is applicable to the administration of skin tests, such as the tuberculin test and other tests for allergies and the administration of vaccines and other medicines into or under the skin or into other organs of the body.

In accordance with the invention, the material to be administered is incorporated in a pellet formed of a hard, solid substance that is absorbable by the body. For easy introduction of the pellet into body tissues, it is of elongated form with a sharp forward end. The pellet is positioned with its sharp end toward the body to which the material is to be administered and pressure is applied to press the pellet into the body tissue, the pellet itself serving as a puncturing instrument to puncture and thereby enter the body tissue. This eliminates the need of hypodermic needles, syringes or other puncturing instruments.

In some instances the pharmaceutical material itself may be suitable for forming the pellet. Otherwise the material is incorporated in a suitable carrier comprising a solid non-allergic substance that is absorbable for the body. The preferred material for this purpose is hard gelatin. Examples of other materials that may be used at least in some instances are sugar, salt and cellulose. By varying the size and shape of the pellet, the exact depth of administration and exact dosage can readily be obtained.

To facilitate introduction of the pellet into the body, it is preferably held by a simple applicator or injector device for positioning it with the sharp end toward the body and applying pressure to press the pellet in. By reason of the small size of the pellet, the puncture made by it causes less discomfort than a hypodermic needle or similar instrument. The discomfort is further decreased by applying the pressure as an impact so that the pellet is pressed in quickly.

Preferably the pellet is sealed in a disposable single-use injector holder. This not only facilitates administration of the pellet but also maintains sterility to the time of administration and avoids the chance of cross infection. In addition to the advantages indicated above, the invention provides considerable economy particularly in mass testing or inoculation and also assures better stability of the materials administered because they are in dry form.

Other characteristics and advantages of the invention will appear from the following description and claims in conjunction with the accompanying drawings which illustrate by way of example preferred embodiments of the invention and in which—

FIG. 1 is an enlarged elevation with portions broken away showing one form of pellet and applicator.

FIGS. 2A and 2B are elevations illustrating the use of the applicator shown in FIG. 1.

In FIGS. 1, 2A and 2B there is illustrated a very simple form of pellet holder and applicator. The pellet is formed of a solid substance that is absorbable by the body and is sufficiently hard and strong to puncture the skin or other tissue so that the pellet can be pressed into the body without the use of any needle or other puncturing instrument thus acting as its own trocar. In some instances the pharmaceutical material being administered may itself be sufficiently hard and strong for this purpose, for example when the crystalline material is to be administered, in which case the pellet may be formed solely of the pharmaceutical material. If the material does not have the required physical characteristics, it is incorporated in a carrier which is sufficiently hard and strong and is absorbable by the body. The carrier is preferably non-allergenic and for this purpose hard gelatin is preferred. However, in some instances, other materials for example salt, sugar or cellulose may be used.

The pellet P2 is molded or otherwise formed to the desired size and shape. To facilitate its insertion into the body, it is preferably elongated and formed with a sharp forward end 41 and a round, square, rounded or otherwise blunt rear end 42. While the pellet has been shown enlarged in the drawings, it is actually quite small, being for example approximately 1/2 inch long. However, it will be understood that the size and shape of the pellet may be varied as desired in order to provide selected dosage and selected depth of penetration.

The holder and applicator H2 shown in FIG. 1 comprises merely a small stick or rod 43 of wood, plastic or other suitable material. At its forward end, the rod 43 is provided with a small axial recess or bore 44 of suitable size to receive the rear end portion of a pellet P2. Approximately at its midpoint, the pellet is preferably provided with a reduced or weakened portion 45 to provide a break line. The recess 44 in the rod 43 is of such depth that the reduced portion 45 of the pellet comes approximately at the end of the rod as shown. The pellet is held in place for example adhesively or by being a pressed fit. The forward end of the rod 43 is preferably beveled off on one side as indicated at 46 to provide a beveled face extending inwardly approximately to the pellet. To prevent contamination of the pellet by handling before it is to be administered, the pellet is preferably sealed in, for example by a small plastic or gelatin capsule 47 that is sealed onto the forward end of the rod and completely encloses the pellet.

The entire applicator is preferably quite small, being for example 1 inch long and 1/4 inch thick.

The applicator shown in FIG. 1 is used by gripping it between the thumb and finger and pressing or jabbing the projecting portion of the pellet into the body. The capsule 47 is either removed prior to use of the applicator or is thin and is punctured by the pellet. After the applicator has been moved forwardly as indicated in FIG. 2A to inject the projecting portion of the pellet, it is swung laterally as illustrated in FIG. 2B. This breaks the pellet off at the break line 45 leaving the forward portion of the pellet in the body. The beveled face 46 permits the holder to be swung over to break off the pellet without tending to withdraw it. If a deeper injection of the pellet is desired, the break line 45 may be positioned at a selected distance from the end of the rod 43.

From the foregoing description, it will be seen that the present invention provides an extremely simple, safe, rapid and inexpensive method and device for administering a pharmaceutical material to a person or animal. While the invention is particularly suitable for use in testing or treating large numbers of people, for example in making tuberculin tests, it is also advantageous for general use since the pellets are kept dry and hermetically sealed in individual single-use holders.

It will be understood that the embodiments of the
invention illustrated in the drawings are shown and described merely by way of example and that the invention is in no way limited to these embodiments.

What I claim and desire to secure by Letters Patent is:

1. An improved device for injecting a pharmaceutical material into body tissue comprising: a hard, sharp-pointed pellet means, having a blunt end opposite said sharp end, wholly sorbable in body tissue for penetrating said body tissue and dissolving therein, said pharmaceutical material being incorporated in said pellet means; and injector means including supporting means for holding said hard, sharp pellet means next to and directed toward the body tissue and injecting said pellet means therein by an application of force on said injector means, said injector means including supporting means comprising: an elongated rod shaped member having oppositely disposed ends with one said end recessed to receive and support the blunt end of a pellet means and said recessed end beveled from said recess radially outward on one side to permit lateral angular movement of said rod shaped member with its said one end pressed firmly against body tissue, a removable cover enclosing said recessed end and supported pellet for keeping said pellet means uncontaminated, whereby when said cover is removed pressure exerted axially on said rod shaped member in the direction of its recessed and beveled end injects said pellet means into said body tissue and lateral movement of said rod shaped member breaks the imbedded pellet means flush with the rod shaped member thereby severing it from the rod shaped member.

2. An improved device for injecting a pharmaceutical material into body tissue as described in claim 1 wherein the pellet means is scored to provide a break line flush with the recessed end of said rod-shaped member.

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