

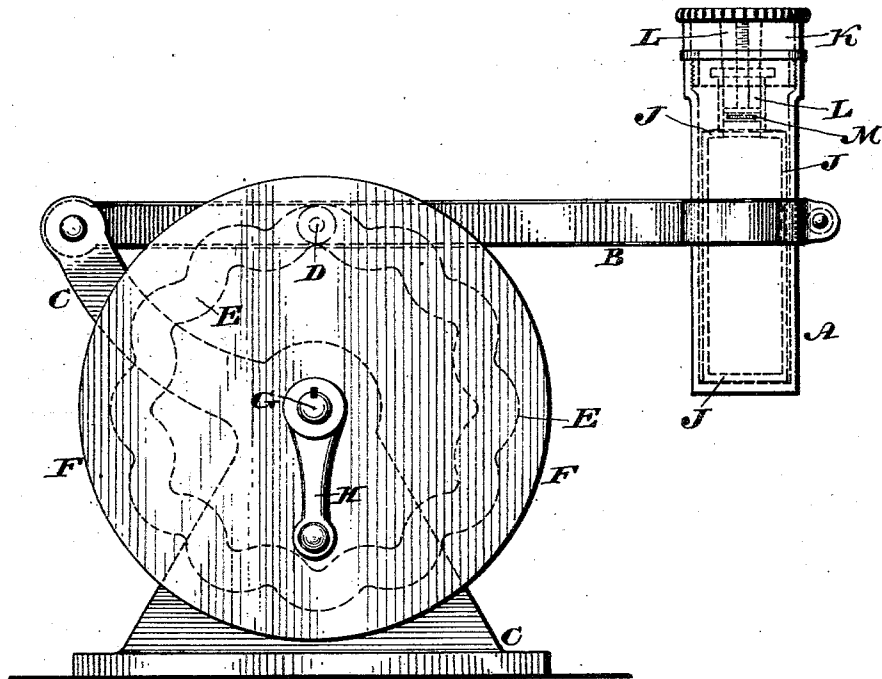
(No Model.)

J. R. WITZEL.

PREPARING GERM MATTER FOR MEDICINAL USE.

No. 531,889.

Patented Jan. 1, 1895.



WITNESSES:

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JOSEPH R. WITZEL, OF PHILADELPHIA, PENNSYLVANIA,

PREPARING GERM MATTER FOR MEDICINAL USE.

SPECIFICATION forming part of Letters Patent No. 531,889, dated January 1, 1895.

Application filed November 27, 1891. Serial No. 413,221. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH R. WITZEL, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Methods of Preparing Germ Matter for Medicinal Use, which improvement is fully set forth in the following specification and accompanying drawing.

My invention relates to improvements in methods of manufacturing germ medicinals, such as tubercular, typhoid or diphtheritic germs, and has for its object the reducing of the germ or germ material to a condition devoid of danger for medicinal use, by producing a lifeless mass, thereby preventing any infection therefrom without changing the elementary constituents of the said germ or germ material, and rendering it better fit for therapeutic purposes, and for this purpose it consists of the method hereinafter set forth, whereby the germ matter as taken from the corpse, said matter being in either a solid or a liquid condition, or partly solid and partly liquid, is placed *in vacuo* and subjected to a series of succussions and dilutions for the purpose described.

In the figure in the drawing, which represents a side view of a device or apparatus suitable for carrying out my process, A designates a box or other vessel suitably supported in or on one end of the lever B, the other end of said lever being pivoted to a standard or frame C.

Projecting from one side of the lever B is a pin D, which fits in a cam groove E in the side of the wheel F secured to the shaft G. The said shaft is mounted in the frame C, and is provided with a handle H for rotating it.

The vessel A is adapted to inclose a vial or other suitable vessel J, containing the germ matter *in vacuo*, and is provided with a cap K, which, when screwed on the body of the vessel A, bears against the cork L of the vial J, so as to keep the same in place. The vial J is provided with a valve M for opening or closing the mouth thereof.

In carrying out my process of preparing the germ matter for medicinal use, the said matter is placed in the vial J, which may be of any shape, so as to occupy about one-third

of the space within the same. The air is now withdrawn from the vial by means of an air-exhaust pump, and the valve M in the mouth of the vial closed. The vial J is now placed in the box A, and the cap K screwed thereon, so as to bear against the cork L, which had been inserted in the mouth of the vial J, and thereby hold the latter in position within the box A, while the shaft G is rotated by means of the handle H, so as to rotate the wheel F, and thereby raise and lower the lever B, thus imparting a series of succussions to the germ matter held *in vacuo* in the vial J. After the germ matter has been subjected to the succussions for about five minutes heat is applied to the same, and the germ matter kept at boiling point until all vitality therein is destroyed. It is then set aside in a dark and cool room. If, after cooling, it is discovered by microscopic examination or otherwise, that the germs still have vitality, the material is again placed *in vacuo*, and a quantity of nitrogen gas is introduced in any suitable manner, so as to fill the germ material. After being kept in this condition for about nine hours and being subjected to a number of succussions so as to bring the germ mass in contact with the nitrogen, the latter is removed from the germs which occupy about one-third of the vial, and the air withdrawn from the same, and the germs again subjected to a series of succussions. Air is now allowed to enter the vial and the germ material is diluted with distilled water, alcohol or any other suitable fluid, to any desired proportion, preferably one part of germ matter to nine parts of alcohol, when it is poured into a suitable vessel or jar provided with a valve for attachment of an air pump thereto. The said vessel being about one-third full of germ matter, has the air withdrawn from it, and the material therein is subjected to a number of succussions. Air is now allowed to enter the vessel and fill the vacuum. The germ material is again diluted with alcohol or any other suitable fluids, and is treated in like manner, as at the preceding dilution. By thus diluting and succussing, the germ matter becomes attenuated until it is of the desired strength for administration without producing the bad effects heretofore observed. The

germ material is now filtered and sealed in glass stoppered bottles, which are varnished to protect the contents from the rays of light.

5 The process herein described is equally applicable for preparing medicines in which the molecules are separated by succussion, the succussion *in vacuo* depriving the germ material of air and separating the molecules so as to aid capillary absorption by the blood vessels. 10 The germ or germ material prepared as described, may be used internally or externally, by vaccination, injection, or as a spray.

By having the germ matter placed in *vacuo* before succussion, the air cells are dilated, 15 and are more easily broken or severed. The air and its impurities are removed, thus affording the best condition for succussing or agitating as the liquid strikes the vessel without a cushion. Particles held in solution or 20 suspension are more finely divided and subdivided, and thereby increase and aid capillary absorption by the blood vessels. It makes a more uniform mixture and improves the keeping qualities of articles *in vacuo*. In 25 many cases it requires less material or medicine to produce the desired therapeutic effects, as the absorption is more readily accomplished by the capillary vessels when cells or particles are finely divided and sub-divided.

30 Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The process of preparing medicinal substances, consisting in first placing the said substance *in vacuo*, and then subjecting it 35 when in the same to a number of succussions, substantially as described.

2. The process of preparing germ matter for medicinal use, consisting in first placing the same *in vacuo*, and while therein sub- 40 jecting the same to succussions, then removing and diluting it, and again subjecting it in *vacuo* to succussion, substantially as described.

3. The process of preparing germ matter 45 for medicinal use, consisting in first placing the same *in vacuo*, and while therein subjecting it to succussions, then admitting air and diluting the said matter, heating it and subjecting it to further succussions, substantially 50 as described.

4. The process of preparing germ matter for medicinal use, consisting in first placing the same *in vacuo*, then subjecting it to a series of succussions, then repeatedly diluting 55 it in air and subjecting it to succussions in *vacuo*, next introducing a vitality-destroying gas or substance into the mass so treated, and then subjecting it to succussions as before, substantially as described.

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Witnesses:

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