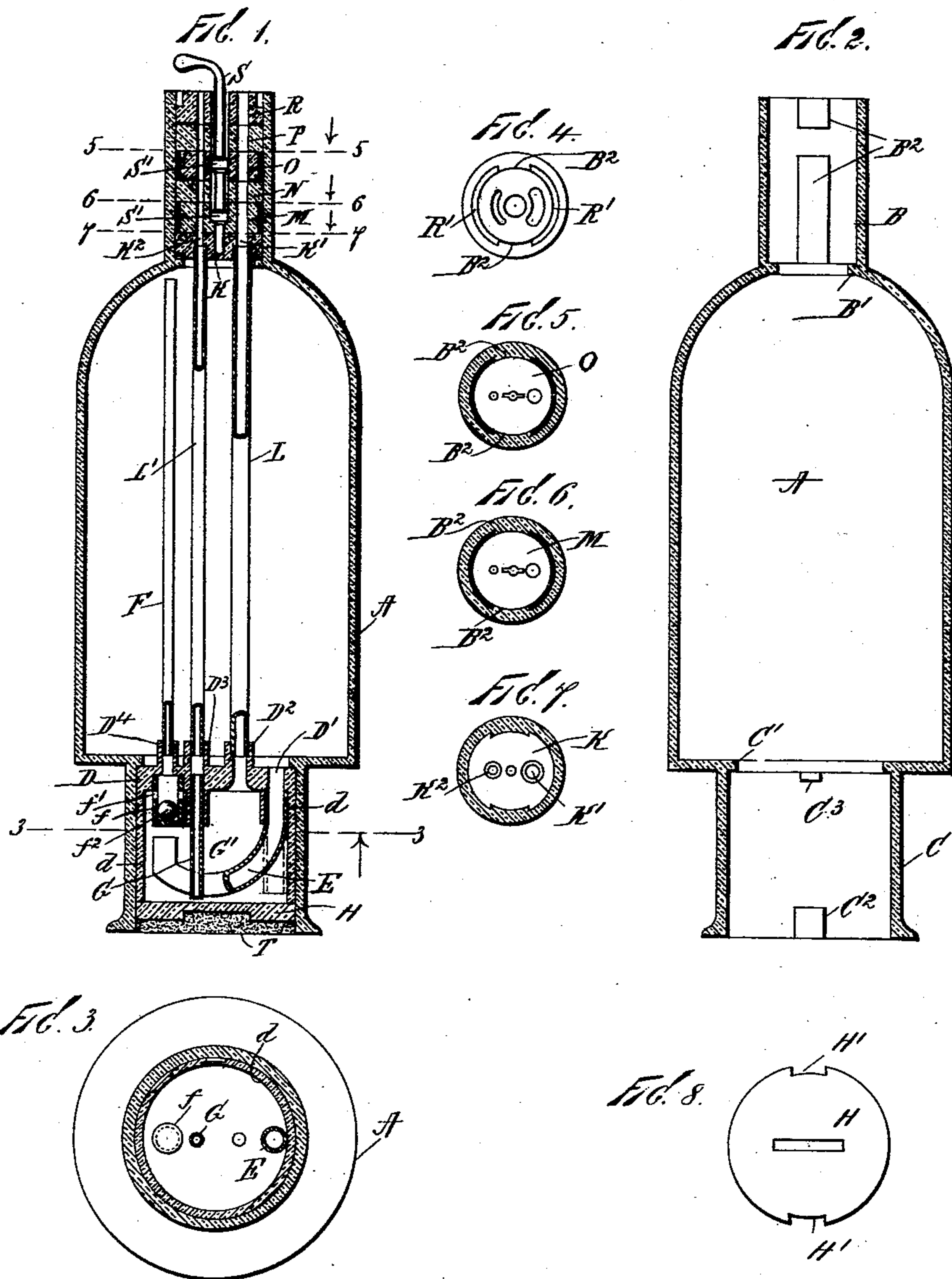


(No Model.)

J. PAULUS.
BOTTLE.

No. 572,179.

Patented Dec. 1, 1896.



WITNESSES:

John Buckler,
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UNITED STATES PATENT OFFICE.

JACOB PAULUS, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF TO
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BOTTLE.

SPECIFICATION forming part of Letters Patent No. 572,179, dated December 1, 1896.

Application filed May 28, 1895. Serial No. 550,914. (No model.)

To all whom it may concern:

Be it known that I, JACOB PAULUS, a citizen of the United States, and a resident of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Bottles, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof, in which similar letters of reference indicate corresponding parts.

My invention relates to bottles; and the object thereof is to provide an improved bottle which having been once filled and emptied of its contents cannot be again filled or re-used, said bottle being also constructed so that a predetermined amount of the contents of the bottle may be discharged whenever desired, and this amount being always determined before the bottle is constructed, and the construction and arrangement being such that only such predetermined amount can be discharged at a single operation.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, and in which—

Figure 1 represents a central vertical section of my improvement; Fig. 2, a similar section of the bottle when first cast, independent of the attachments which are afterward connected therewith; Fig. 3, a transverse section on the line 3 3 of Fig. 1; Fig. 4, a plan view of the bottle-neck when filled and the attachments applied. Figs. 5 and 6 represent sections on the lines 5 and 6, respectively, of Fig. 1; Fig. 7, a similar section on the line 7 7 of Fig. 1, and Fig. 8, a plan view of the bottom plate, hereinafter described.

In the practice of my invention I first form a bottle of the general design shown in Fig. 2, in which the bottle A is provided with a neck B, having an inwardly-directed flange or shoulder B' at the bottom thereof, and on the opposite sides of the interior walls of the neck are formed vertical ribs B². (Clearly shown in Figs. 2 and 4 and also in Figs. 5, 6, and 7.)

The base or bottom of the bottle is provided with a tubular extension C, and an inwardly-directed flange or shoulder C' is formed at the top thereof, and in the opposite side walls at the lower end are formed inwardly-directed ribs or shoulders C², and at the junction be-

tween said tubular extension C at the bottom of the bottle are also formed on opposite sides of said extension shoulders or projections C³.

Secured within the tubular projection C is a plate D, having four passages or ports therein, (designated by the letters D¹, D², D³, and D⁴,) and the passages or ports D², D³, and D⁴ have upwardly-directed tubular extensions, as clearly shown in Fig. 1, and the port D¹ has a downwardly-directed tubular extension, to which is secured a tube E, which may be arranged vertically, as shown in dotted lines in said Fig. 1, or curved downwardly and upwardly, as shown in said figure.

Secured to the upper end of the tubular extension of port or passage D⁴ is a vent-tube F, which extends upwardly to near the top of the bottle and is open at its upper end.

Communicating with the lower end of the port or passage D⁴ is a tube *f*, the lower end of which is closed, and the upper end of which is provided with small ports or openings *f'*, and within said tube *f* is placed a ball-valve *f*². The lower end of the port or passage D³ is also provided with a tubular extension, to which is secured a short tube G, open at its lower end, as shown in Fig. 1, and which extends nearly to the bottom of the chamber G', formed by a tubular extension C. The plate D may also be provided with a tubular extension *d*, if desired, which extends downwardly, as shown, and against which is adapted to abut a plate H, (shown in Fig. 8,) provided with side recesses H', adapted to engage with the shoulders or projections C² on the inner walls of the tubular extension C, and the plate D is also provided with similar recesses adapted to engage with the corresponding lug or projection C³.

The tubes E G and F and *f* are all secured to or rigidly connected with the plate D and are placed in position with said plate, as will be readily understood.

Secured within the bottom of the neck of the bottle, as shown in Fig. 1, is a circular disk or plate K, said disk or plate being secured in position in any desired manner and having formed thereon side recesses adapted to engage with the vertical ribs or projections B² in the neck of the bottle, as shown in Fig. 7, and formed in said disk or plate are ports

or openings K' and K^2 , with which communicate tubes L and L' , which are rigidly secured to said disk or plate and which when said disk or plate is inserted into position connect at the lower ends with the tubular extensions of the passages or ports D^2 and D^3 of the plate D .

Above the disk or plate K in the neck of the bottle are arranged similar disks M , N , O , P , and R in the order named, each of which is provided with openings or passages corresponding with the passages or openings K' and K^2 in the disk or plate K , and of these plates or disks N , P , and R are rigidly secured in position and the disks or plates M and O are revoluble, being so formed as to revolve within the vertical ribs B^2 , as shown in Figs. 5 and 6, and having packing which fills the spaces between said ribs.

The top plate R may be secured in position in any desired manner. I prefer, however, to extend the side openings therein, which correspond with the openings K' and K^2 in the disk or plate K , as shown, and to form the bottom portion so that it will entirely close the neck of the bottle, as shown in Fig. 1, the upper portion thereof being cut away annularly, so as to form the circular or segmental spaces R' .

Each of the disks or plates M , N , O , P , and R are provided with central openings through which is passed a rod S , the lower end of which is pivoted in the disk or plate K , and the upper end of which is formed into a handle, as shown, and also formed at suitable distances apart upon said rod S are wings or projections S' , forming keys by means of which the disks or plates M and O may be turned when desired, so that the ports or passages therethrough will not communicate with the ports or passages in the other disks or plates, and, as will be readily understood, the key-rod S may be inserted and employed to revolve said disks at any desired time and removed therefrom until it is again desired to apply the same and revolve said disks M and O , which is done whenever it is desired to discharge a portion of the contents of the bottle.

In this class of devices the bottle, as will be understood, is always filled before the closing devices are applied, and with this fact in view the operation will be readily understood from the following statements thereof when taken in connection with the foregoing description and the accompanying drawings.

The disk or plate D , with its various attached tubes, is first secured in position and the plate H inserted and secured in place, after which the spaces below said plate H may be filled with any desired form of cement, as shown at T .

The bottle is now filled with its desired contents, after which the disk or plate K , with the tubes L and L' secured thereto, is placed in position, when the tubes L and L' will connect with the tubular extensions of the pas-

sages D^2 and D^3 , as shown in Fig. 1. The disks or plates M , N , O , P , and R are then placed in position in such manner that the passages formed therein will communicate, as shown in Fig. 1, the disks or plates N , P , and R being rigidly secured in place when inserted. The key-rod S is then passed through the central opening in said plates, as shown in Fig. 1, and turned so as to revolve the plates M and O in such manner that the passages therein will not communicate with the passages in the adjacent plates or disks, when the bottle will be sealed or closed, as will be readily understood.

Whenever it is desired to discharge a portion of the contents of the bottle, the key-rod is inserted and the plates M and O revolved until the passages therein communicate with the passages K' and K^2 and the disk K and with the corresponding passages in the disks N , P , and R . The bottle is then inverted or tilted in the usual manner, when all that portion of the contents thereof contained within the chamber G' of the tubular extension C will flow out through the tube L and the connected passages in the disks or plates within the neck of the bottle, and during this operation air enters the chamber G' through the tube L' and the tube G at the lower end thereof, and when the bottle is again held in the upward position the air in the chamber G' will pass through the tube F into the top of the bottle above the liquid therein, and this operation may be repeated as often as it is desired to discharge a portion of the contents of the bottle, it being understood that the amount discharged at each operation will always depend on the size of the chamber G' , which may of course be regulated as desired, and each time that the bottle is inverted in order to discharge the contents of the chamber G' the valve f^2 will close the lower end of the plug f , as will be readily understood, and prevent the contents of the chamber G' from flowing back into the bottles.

It will thus appear that I accomplish the object of my invention by means of a device which is simple in construction and operation and which is perfectly adapted to produce the result for which it is intended.

It is evident that changes in and modifications of the construction shown and described may be made without departing from the spirit of my invention, and I therefore reserve the right to make such alterations and changes therein as fairly fall within the scope thereof.

Having fully described my invention, its construction and operation, I claim and desire to secure by Letters Patent—

1. The combination with a bottle, having the usual neck, and a tubular extension at the bottom thereof, of a disk or plate secured in said tubular extension, and having ports or passages therethrough, and means for closing said tubular extension and forming a chamber therein, a disk or plate secured in the neck of the bottle, and having ports or

passages formed therein, tubes forming a connection between the ports or passages in the disk secured in the neck and those formed in the disk or plate secured in the tubular extension, and means for admitting the contents of the bottle into the chamber formed in the tubular extension, and discharging the same through one of said tubes, the other of said tubes being adapted to admit air to said chamber, substantially as shown and described.

2. The combination with a bottle, having the usual neck, and a tubular extension at the bottom thereof, of a disk or plate secured in said tubular extension, and having ports or passages therethrough, and means for closing said tubular extension and forming a chamber therein, a disk or plate secured in the neck of the bottle, and having ports or passages formed therein, tubes forming a connection between the ports or passages in the disk secured in the neck and those formed in the disk or plate secured in the tubular extension, and means for admitting the contents of the bottle into the chamber formed in the tubular extension, and discharging the same through one of said tubes, the other of said tubes being adapted to admit air to said chamber, said disk or plate within the neck of the tubular extension being also provided with a port or opening with which communicates a tube secured thereto, which extends upwardly to near the top of the bottle, and a tubular extension below said port or opening provided with perforations, and a valve located therein, substantially as shown and described.

3. The combination with a bottle, provided with the usual neck, and a tubular extension at the bottom thereof, of a disk or plate secured in the upper part of said tubular extension, said disk or plate being provided with ports or openings with which communicate tubes, which also communicate with similar ports or openings formed in the disk or plate secured in the neck of the bottle, a series of similar disks or plates arranged within the neck of the bottle, above the first-named plate, which are provided with ports or openings which correspond, and are adapted to register with those in the first-named disk or plate, one or more of the said disks or plates being revoluble within the neck therein, one of said tubes being adapted to admit of the discharge of the contents of the bottle, and the other to supply air thereto, and means for turning the revoluble disks or plates within the neck of the bottle, substantially as shown and described.

4. The combination with a bottle, provided with the usual neck, and a tubular extension at the bottom thereof, of a disk or plate secured in the upper part of said tubular extension, said disk or plate being provided with ports or openings with which communicate tubes, which also communicate with similar ports or openings formed in the disk or plate secured in the neck of the bottle, a series of

similar disks or plates arranged within the neck of the bottle, above the first-named plate, each of which is provided with ports or openings which correspond, and are adapted to register with those in the first-named disk or plate, one or more of the said disks or plates being revoluble within the neck therein, one of said tubes being adapted to admit of the discharge of the contents of the bottle, and the other to supply air thereto, and means for turning the revoluble disks or plates within the neck of the bottle, the disk or plate secured within the tubular extension at the bottom of the bottle, being also provided with a port or opening with which communicates a tube which extends upward through the bottle near to the top thereof, and with another port or opening with which is connected a tube which communicates with a chamber formed in the tubular extension, substantially as shown and described.

5. The combination with a bottle provided with the usual neck and with a tubular extension at the bottom thereof, which is closed by a plate secured at its lower end, of a disk or plate secured in the upper end of said tubular extension forming a chamber therein, said disk or plate being provided with a plurality of ports or openings with two of which communicate tubes which extend upwardly and communicate with similar ports or openings formed in a disk secured in the bottom of the neck of the bottle, a plurality of similar disks or plates arranged within the neck of the bottle above the first-named disk or plate, each of which is provided with ports or openings which correspond with those formed in the first-named disk or plate, and one or more of said last-named disks or plates being revoluble and the others rigidly secured within the neck, one of said ports or openings in the disk or plate secured in the tubular extension, being also provided with a tube which extends upward into the bottle and a valve to control the entrance thereto, and another of said ports or openings within the disk or plate secured within the tubular extension, being also provided with a tube which extends downwardly into the chamber within said tubular extension, and means for turning the revoluble disks or plates within the neck of the bottle, substantially as shown and described.

6. The combination with a bottle provided with the usual neck and with a tubular extension at the bottom thereof, which is closed by a plate secured at its lower end, of a disk or plate secured in the upper end of said tubular extension forming a chamber therein, said disk or plate being provided with a plurality of ports or openings with two of which communicate tubes which extend upwardly and communicate with similar ports or openings formed in a disk secured in the bottom of the neck of the bottle, a plurality of similar disks or plates arranged within the neck of the bottle above the first-named disk or plate each of which is provided with ports or open-

ings which correspond with those formed in the first-named disk or plate, and one or more of said last-named disks or plates being revoluble and the others rigidly secured within the neck, one of said ports or openings in the disk or plate secured in the tubular extension, being also provided with a tube which extends upward into the bottle and a valve to control the entrance thereto, and another of said ports or openings within the disk or plate secured within the tubular extension, being also provided with a tube which extends downwardly into the chamber within said tubular extension, and means for turning the revoluble disks or plates within the

neck of the bottle, consisting of a key-rod adapted to be inserted through central openings formed in each of the disks or plates above the last, and provided with wings or extensions by which the revoluble plates are turned, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 27th day of May, 1895.

JACOB PAULUS.

Witnesses:

L. M. MULLER,

M. A. KNOWLES.