

A. J. KIER.
 APPARATUS FOR THE FILLING OF TUBES.
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1,026,956.

Patented May 21, 1912.

Fig 1

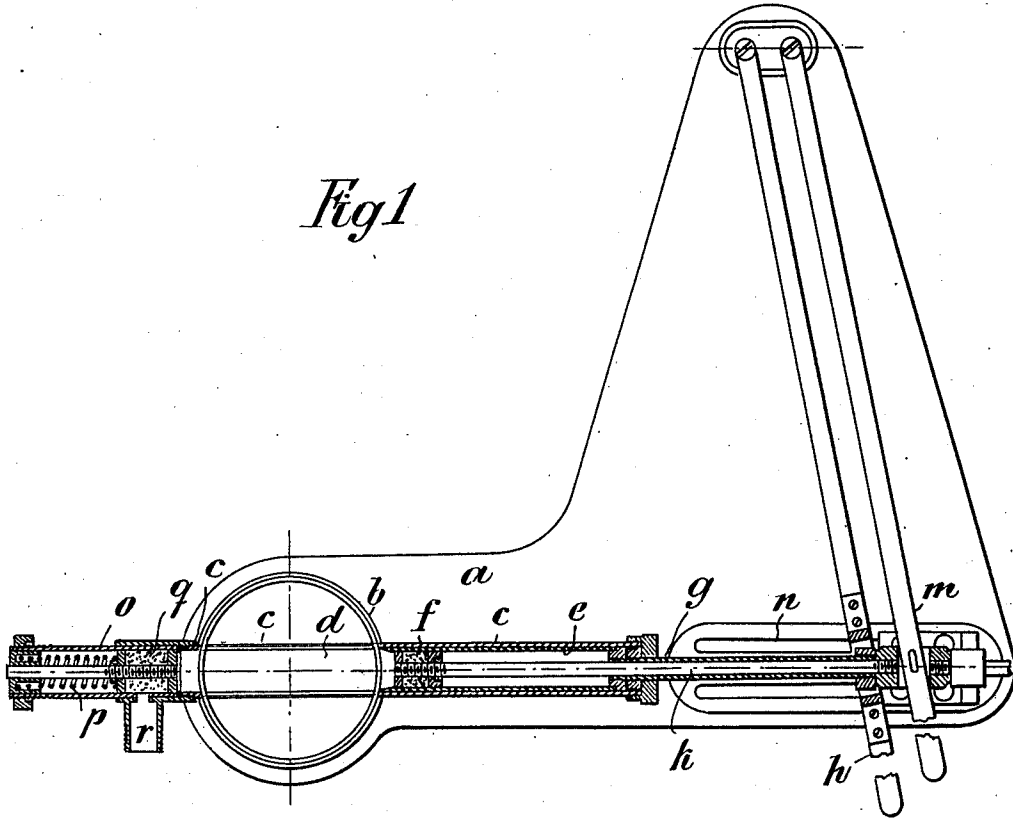
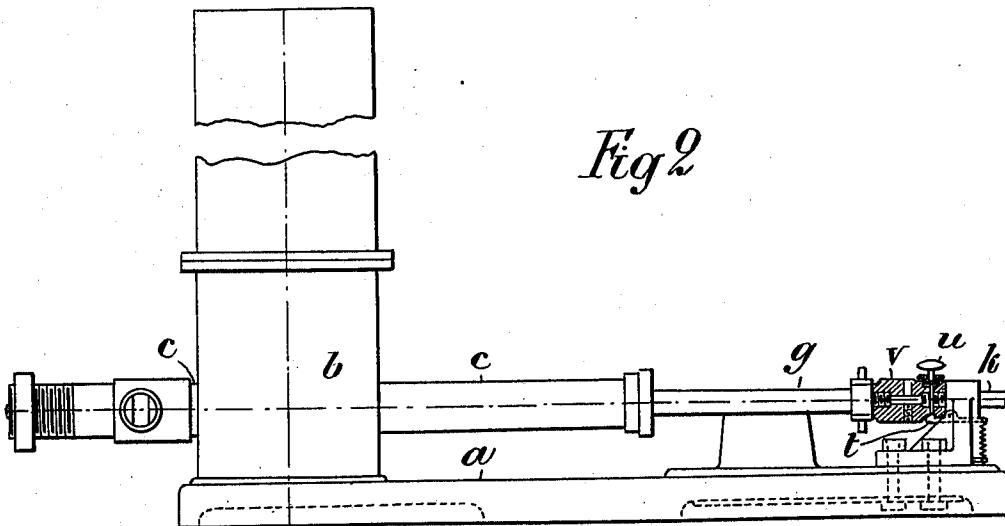


Fig 2



Witnesses

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APPARATUS FOR THE FILLING OF TUBES.

1,026,956.

Specification of Letters Patent.

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Application filed June 10, 1911. Serial No. 632,514.

To all whom it may concern:

Be it known that I, ALBERT JÖRGEN KIER, mechanical engineer, subject of the Kingdom of Denmark, residing at No. 8 Allee-gade, in the city of Copenhagen, Denmark, have invented new and useful Improvements in Apparatus for the Filling of Tubes, of which the following is a specification.

The invention has for its object an apparatus for filling tubes with pastes as tooth-paste, shoe-blackings and the like, by which apparatus is obtained that the tubes can be filled quickly and cleanly with exactly measured quantities.

Figure 1 shows the apparatus seen from above and Fig. 2 the apparatus in side view.

A reservoir *b* containing the paste to be filled in tubes is fixed to a base-plate *a*. A supply tube *c* passing across the reservoir near the bottom of the same is fixed to said reservoir. Inside the reservoir the upper part of said supply tube is cut away to form a large opening *d* (Fig. 1) through which the paste can be supplied to the interior of the supply tube *c*. A measuring tube *e* having a sharp edge fits into the supply tube *c*. The measuring tube *e* can be moved in the supply tube *c* thereby cutting off a cylindrical piece of the paste. The measuring tube *e* is provided with an ejector piston *f* and is carried by a hollow rod *g*, which can be reciprocated by means of a lever *h*. The rod *h* of the ejector piston *f* passes through said hollow rod and can be moved by means of the lever *m*. A suitable guide *n* causes the rods *h* and *g* to move in a straight line. The opposite end of the supply tube *c* is connected to a cylinder *o* provided with a piston *q*, which is acted upon by a spring *p*. In the side of said cylinder *o* is an opening corresponding with a mouth-piece *r* inserted upon the cylinder. The tubes which are to be filled are inserted upon said mouth-piece which can be changed in order to correspond with different shapes and sizes of the tubes. The movements of the levers *h* and *m* are such, that the lever *h* can be moved to the left independent of the lever *m*, while the latter, when both levers have been moved to the left, is returned by the lever *h*, when said lever is moved to the right. The lever *m* can be locked in its outermost right position by a suitable spring-lock *t*, which can be released by a pressure upon the button *u* (Fig. 2). The levers *h* and *m* are not shown in Fig.

2, in which figure the crosshead *v* of the piston-rod *k* is shown in section.

The operation of the apparatus shall now be described.

It is assumed that the reservoir *b* is filled with paste which also through the opening *d* fills that part of the supply tube *c*, which is inside said reservoir. An empty tube is inserted upon the mouth-piece *r*. Then the measuring tube *e* is moved to the left by means of the lever *h*, while the ejector piston *f* remains in the position shown; its piston-rod *k* being locked by the spring-lock *t*. By this movement the measuring tube *e* cuts off a cylindrical piece of the paste of such a quantity to exactly fill a tube, and when the edge of the measuring tube *e* has passed the left end of the opening *d*, the measuring tube *e* closes said opening toward the interior of the reservoir *b*. Then the spring-lock *t* is released by pressing down the button *u*, and by means of the lever *m* the ejector piston *f* is moved to the left thereby pressing the paste inclosed in the measuring tube *e* against the piston *q*, which latter yields and opens the port leading to the mouth-piece *r*. Of course the paste will be forced out through the mouth-piece and fill the tube inserted upon it. When the tube is filled the lever *h* is moved to the right thereby returning lever *m*, measuring tube *e* and ejector piston *f* to initial position, while the spring *p* and the pressure of the atmosphere will return the piston *q* to the position in which it closes the port leading to the mouth piece *r*. When the measuring tube *e* is returned to its initial position it leaves a vacuum in the supply tube *c* which causes the paste in the reservoir *b* which is under atmospheric pressure to be pressed down through the opening *d*. When levers *h* and *m* have been returned to initial position the piston-rod *k* is again locked and a fresh tube is inserted upon the mouth-piece *r* whereupon the operations can be repeated in the same order.

The constructional form of the apparatus shown in the drawing may be altered without departing from the principle of the invention.

Claims:

1. In apparatus for filling tubes with a measured quantity of paste or the like, the combination of a paste reservoir, a supply tube passing across the reservoir near the bottom of and through opposite walls of the

same, a supply opening being provided in the upper part of said supply tube and a port being provided at one end of the supply tube, a movable measuring tube fitting into
5 said supply tube, an ejector piston in the measuring tube, a delivery mouth-piece connected with said port at one end of the supply tube, movable means for normally closing the port leading to said mouth piece,
10 means for independently moving said measuring tube through said supply tube and means for independently moving said ejector piston toward the port closing means, substantially as described.
15 2. In apparatus for filling tubes with a measured quantity of paste or the like, the combination of a paste reservoir, a supply tube passing across the reservoir near the bottom of and through opposite walls of the
20 same, said supply tube being provided with a supply opening in the upper part thereof, a movable measuring tube fitting into said supply tube, an ejector piston in the measuring tube, a cylinder connected with one
25 end of said supply tube and provided with a port, a delivery mouth-piece provided on said cylinder for said port, a spring controlled piston arranged in said cylinder and normally closing the port leading to said
30 mouth-piece, means for independently moving said measuring tube through said sup-

ply tube, and means for independently moving said ejector piston toward said spring controlled piston, substantially as described.

3. In apparatus for filling tubes with a
35 measured quantity of paste or the like, the combination of a paste reservoir, a supply tube provided at one end with a port and passing across the reservoir near the bottom of and through opposite walls of the same,
40 said supply tube being provided with a supply opening in the upper part thereof, a movable measuring tube provided with an ejector piston and fitting into said supply tube, a delivery mouth piece connected with
45 said port at one end of said supply tube, movable means, which normally close said port, levers for moving the supply tube and the ejector piston respectively toward the port leading to the mouth piece and means
50 for locking the lever, which operates the ejector piston, in its initial position.

In testimony whereof, I ALBERT JÖRGEN KIER have signed my name to this specification in the presence of two subscribing witnesses, this 30th day of May 1911.

ALBERT JÖRGEN KIER.

Witnesses:

MARCUS MÖLLER,

CONSTANTIN EBERTS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."