

913,212.

Patented Feb. 23, 1909.

2 SHEETS—SHEET 1.

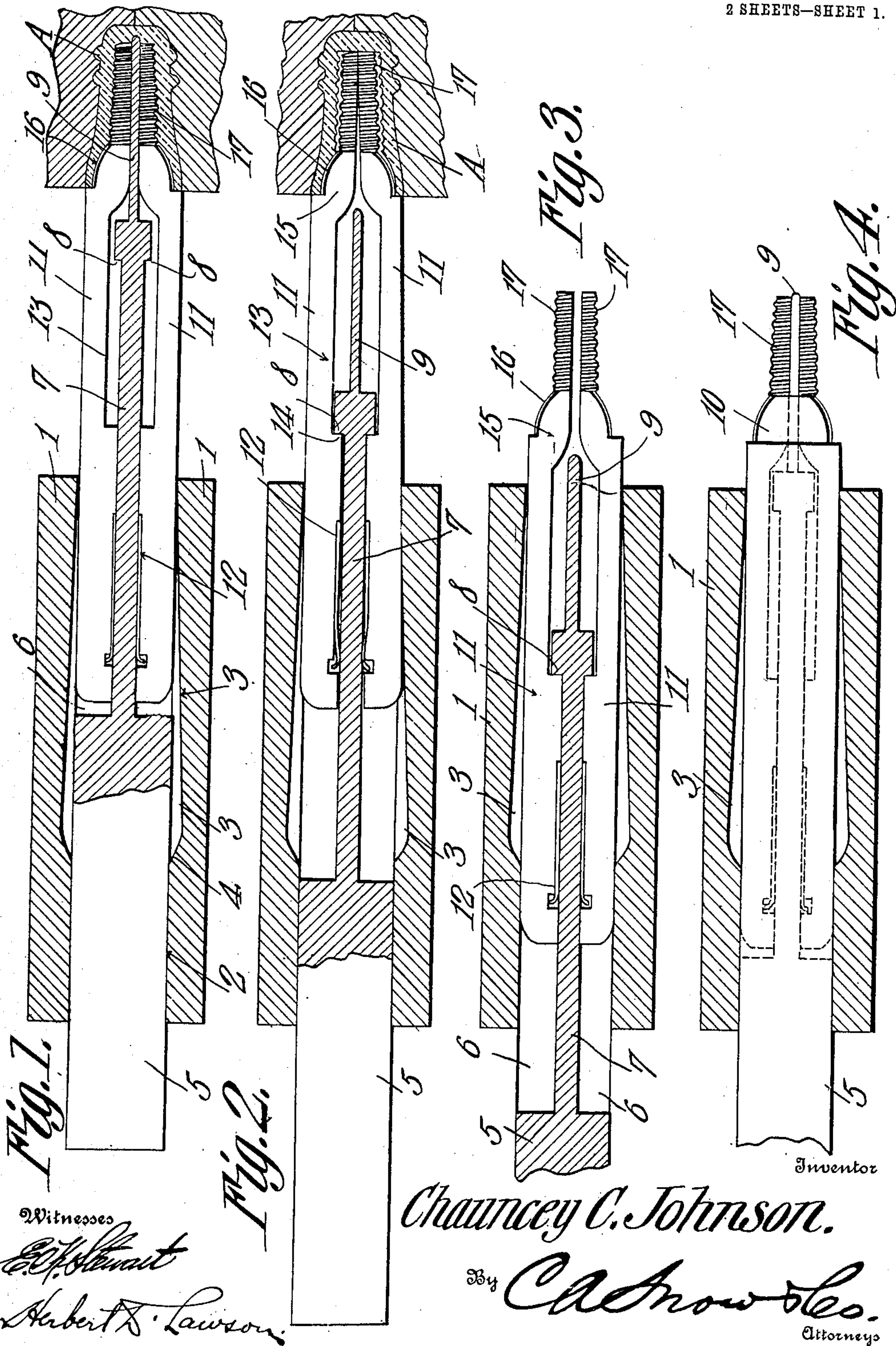


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Witnesses

*E. J. Stewart*  
*Robert A. Lawson*

Chauncey C. Johnson.

By

*C. A. Snow & Co.*  
Attorneys

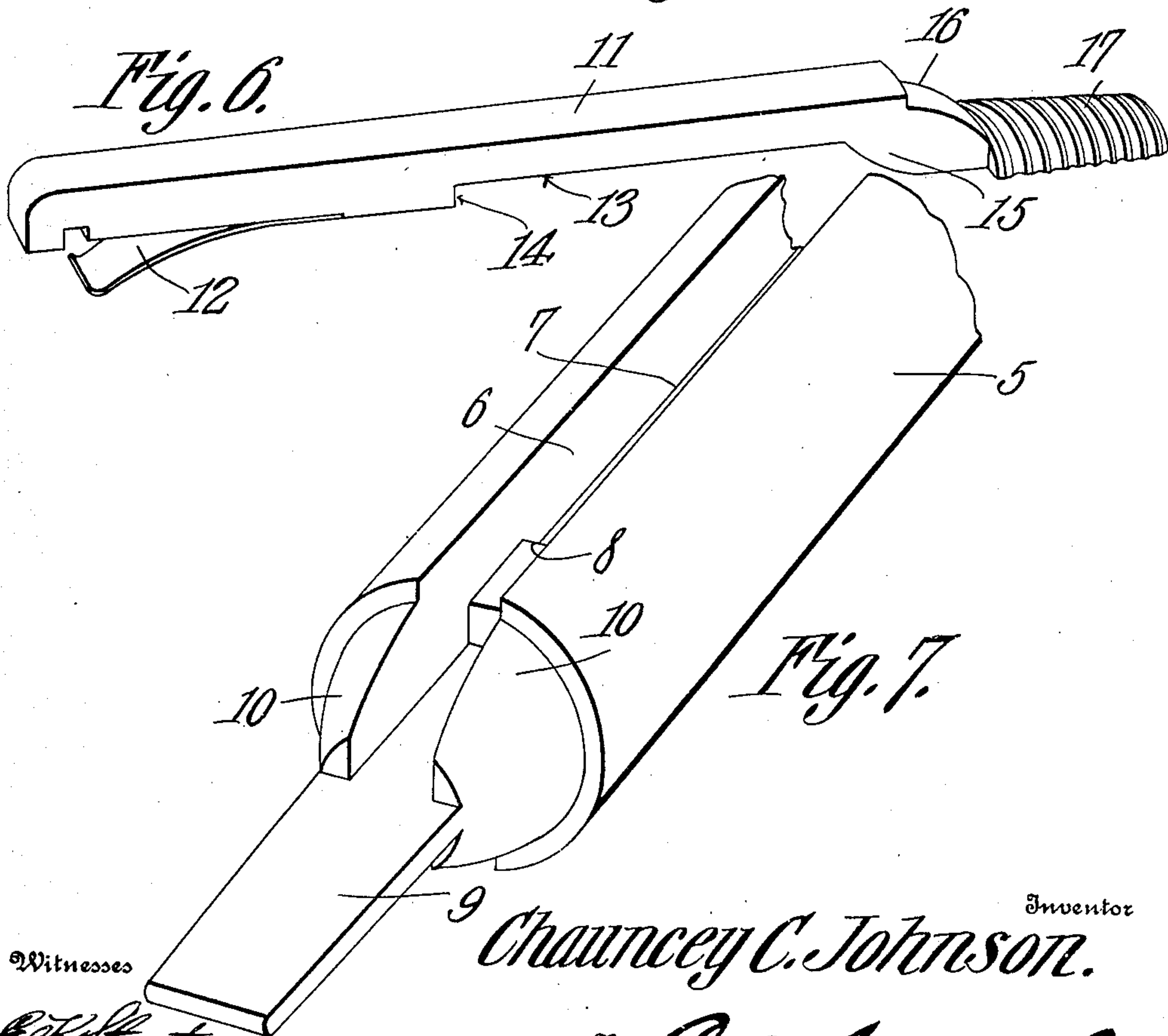
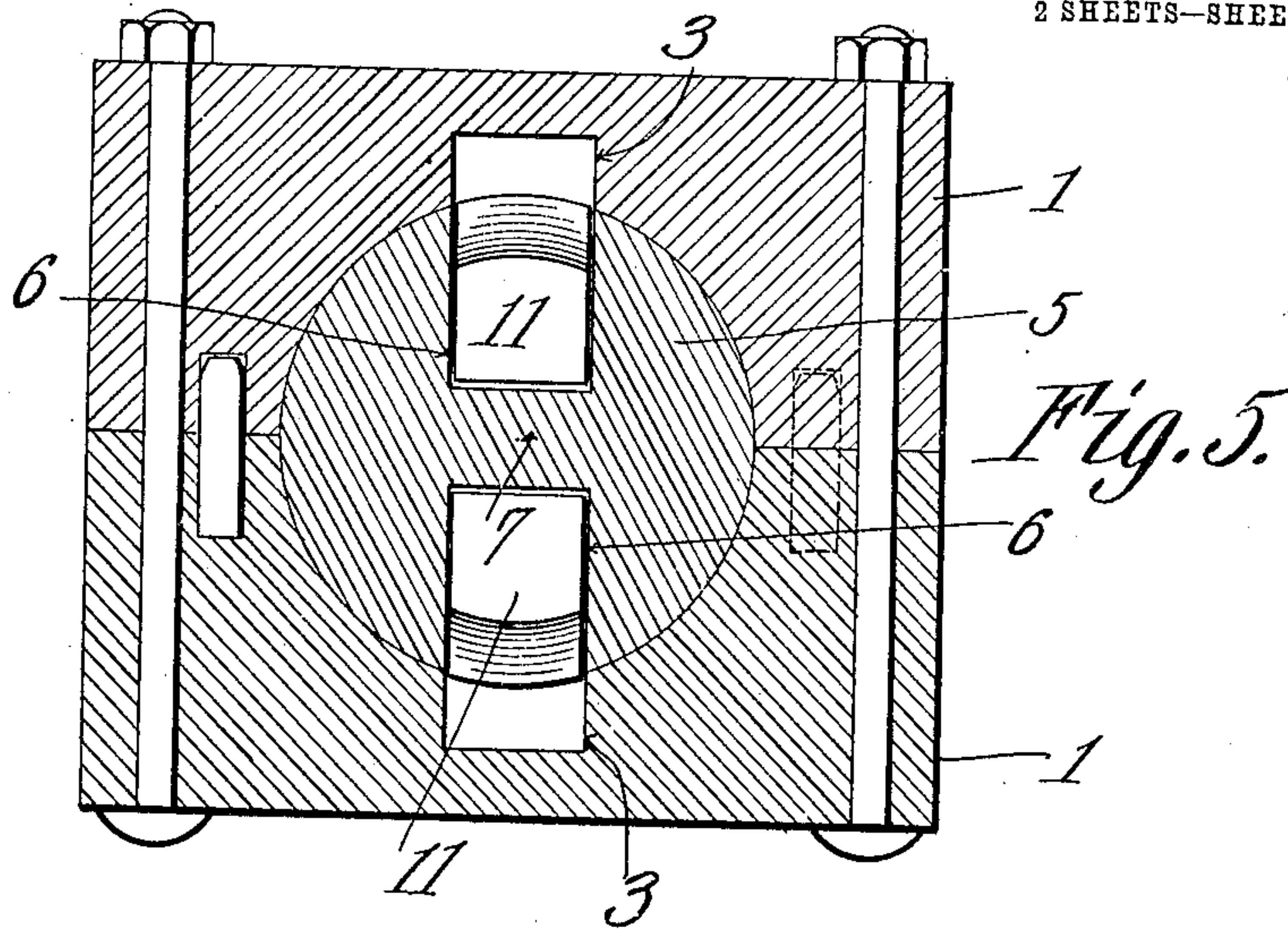
Inventor

913,212.

C. C. JOHNSON.  
INSULATOR MOLD.  
APPLICATION FILED SEPT. 14, 1908.

Patented Feb. 23, 1909.

2 SHEETS—SHEET 2.



Witnesses

*H. C. Clumit*  
*Herbert D. Lawson*

*Chauncey C. Johnson.* Inventor

*By C. A. Snow & Co.* Attorneys



# UNITED STATES PATENT OFFICE.

CHAUNCEY C. JOHNSON, OF SCRANTON, PENNSYLVANIA, ASSIGNOR OF NINE-TWENTIETHS  
TO JOHN A. WATSON, OF PITTSBURGH, PENNSYLVANIA.

## INSULATOR-MOLD.

No. 913,212.

Specification of Letters Patent.

Patented Feb. 23, 1909.

Application filed September 14, 1908. Serial No. 453,032.

*To all whom it may concern:*

Be it known that I, CHAUNCEY C. JOHNSON, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented a new and useful Insulator-Mold, of which the following is a specification.

This invention relates to molding apparatus and more particularly to means for shaping the interior or threaded portions of insulators of the "pony" and "petticoat" types.

The object of the invention is to provide a collapsible core operating in connection with a plunger and whereby the threaded portions of the core will automatically shift out of engagement with the molded threads and be withdrawn from the insulator during the movement of the apparatus in one direction, the reversal of said apparatus serving to return the parts of the core to their initial positions.

A still further object is to provide a core which can be used in connection with a reciprocating element so as to automatically move into the flask, collapse therein and withdraw therefrom without requiring the attention of an operator.

With these and other objects in view the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims.

In the accompanying drawings, the preferred form of the invention has been shown.

In said drawings Figure 1 is a longitudinal section through the apparatus and showing the core in extended position within an insulator. Fig. 2 is a similar view showing the first position of the core during the withdrawal thereof from the molded insulator, said core being shown collapsed or contracted so as to clear the threads formed within the insulator. Fig. 3 is a similar view showing the core withdrawn from the insulator and at the limits of its movement in one direction, the position of the core at an intermediate point being indicated by dotted lines. Fig. 4 is an elevation of the core and plunger but showing the guide housing in section, the parts being shown in the positions assumed by them during the forward movement. Fig. 5 is a section on the line A—B of Fig. 2. Fig. 6 is a detail

view of one of the members of the core. Fig. 7 is a perspective view of the inner face of one of the guide members.

Referring to the figures by characters of reference 1, 1 designates the oppositely disposed similar guide members secured together in any preferred manner and having longitudinal semi-cylindrical grooves in their inner or adjoining faces which cooperate to form a cylindrical passage 2. Formed within the wall of this passage at diametrically opposite points are longitudinal grooves 3—3 each of which gradually increases in depth from one end of the passage 2 to a point between the ends thereof, the inner end wall of each groove being abruptly inclined as indicated at 4.

A plunger 5 is mounted to reciprocate within the passage 2 and is provided at one end with oppositely disposed longitudinally extending grooves 6 separated by a central longitudinal web 7. This web terminates between the ends of the groove 6 and is enlarged at its outer end to form shoulders 8 one of which is located within each of the grooves 6. The grooves 6 are of the same width as the grooves 3 and are designed to register therewith when the plunger 5 is retracted a predetermined distance. A flat elongated spacing or spreading tongue 9 extends longitudinally from the outer end of the web 7 and in alignment with the longitudinal center of said web. This tongue projects beyond the ends of grooves 6 and those portions of the plunger extending beyond the web 7 are reduced and rounded as indicated at 10 for the purpose hereinafter set forth.

The collapsible portion of the core consists of two oppositely disposed similar strips 11. Each of the strips is designed to fit loosely within one of the grooves 6 and has a leaf spring 12 secured to its inner face at one end while its other end is rounded and bears upon the adjoining face of the web 7, thus serving to hold the outer face of the strip 11 constantly in contact with the wall of the passage formed by the grooves 2 and with the wall of the groove 3. An elongated recess 13 is also formed in the inner face of each strip 11 and projecting into this recess is the adjoining shoulder or enlargement 8 of the web. A shoulder 14 is formed at one end of the recess 13 and this



shoulder and the shoulder 8 are designed to cooperate for the purpose of limiting the movement of the strips 11 outwardly relatively to the plunger 5. The outer ends 5 of the two members 11 converge as indicated at 15, the inner or adjoining faces of the converging portions being rounded and designed to rest upon the opposite faces of the tongue 9 or to rest in the path of said 10 tongue as shown in Figs. 1 and 2 respectively. The outer faces of the outer ends of these members 11 are rounded as indicated at 16 so as to conform with the contour of the corresponding rounded portion 10 of the 15 plunger 5, and those portions of the members extending beyond these rounded portions are screw threaded as indicated at 17 so that when said threaded portions are positioned upon opposite sides of the tongue 9, 20 as shown in Fig. 1, a tapered screw-threaded core is formed, the threads being intersected by the edge portions of the tongue. The rounded portions 16 and 10 of the strips 11 and of the plunger serve to 25 produce the flared open end portion of the insulator.

In using the apparatus herein described the material to be shaped is placed within a flask and the plunger moved forward 30 from the position indicated in full lines in Fig. 3. When the parts are thus positioned the rear or inner ends of the members 11 are held firmly in contact with opposite portions of the wall of the passage 2 by the 35 springs 12 and as the plunger 5 is moved longitudinally the web 7 will travel between the members 11 and tongue 9 will assume a position between the threaded terminal portions 7 of said members 11. In 40 other words the spring pressed members will remain stationary by reason of their frictional engagement with the guide 1 until the plunger 5 has moved a sufficient distance to bring the end walls of the grooves 45 6 into contact with the inner ends of the members 11. Further longitudinal movement of the plunger will force the members 11 longitudinally from the guide 1 so as to project the threaded portions 17 and the 50 tongue 9 into the material contained within the flask. The parts will thus assume the position indicated in Fig. 1, the molded insulator being designated by the letter A. As soon as the molding has been effected the 55 plunger is moved in the opposite direction and inasmuch as the threads 17 engage the threads molded within the insulator it will be apparent that during the first part of the return movement of the plunger the 60 members 11 will be held against movement until the tongue 9 is withdrawn from the insulator. As soon as this operation is effected the spring 12 will press the inner ends of the members 11 in opposite direc- 65 tions and into the grooves 3, the shoulders

14 rocking upon the web 7. The threaded ends 17 will thus be drawn together and out of engagement with the molded threads so that as soon as the plunger 5 has been moved a sufficient distance to bring the 70 shoulders 8 into contact with the shoulders 14, the members 11 will also be shifted longitudinally so as to withdraw the contracted threaded portion of the core from the 75 molded insulator A. During this movement the inner ends of the members 11 travel within the grooves 3 until they strike the inclined walls 4, which walls then operate to deflect the ends of the members 11 80 inwardly so as to permit the parts to assume the position indicated in Fig. 3. The operation hereinbefore described can then be repeated.

It will be seen that a mold such as herein described is particularly adapted for shaping 85 interior threads and while especially used for forming insulators it can, obviously, also be employed for shaping the interior faces of other objects. It will be seen that the mechanism requires little attention inas- 90 much as all of the movements thereof are produced automatically and if desired a large number of plungers can be connected so as to operate simultaneously in a single 95 machine.

Various changes may be made of the construction and arrangement of the parts without departing from the spirit or sacrificing any advantages of the invention.

What is claimed is:—

1. In molding apparatus the combination with a guide; of a plunger mounted to reciprocate therein, strips tiltably mounted upon the plunger and within the guide, said plunger and strips having cooperating means 105 for transmitting motion to the strips from the plunger during the completion of the movement of the plunger in each direction, means interposed between the plunger and the inner ends of the tiltably strips for holding the outer ends of said strips normally in contact, and means upon the plunger for spreading said outer ends apart during the movement of the plunger in one direction, said outer ends being screw-threaded. 110

2. In molding apparatus, a tubular guide, a plunger mounted to reciprocate therein, strips tiltably mounted upon the plunger and within the guide, means integral with the strips and plunger and cooperating to 120 transmit longitudinal movement to the strips from the plunger during the last portions only of the movement of the plunger in either direction, yielding means for holding the outer ends of the strips normally in contact, and means upon the plunger for shifting said ends apart during the movement of the plunger in one direction, said ends being screw-threaded. 125

3. In molding apparatus the combination 130



with a guide; of a plunger mounted to reciprocate therein, strips tiltably and slidably mounted at intermediate points upon the plunger and within the guide, means interposed between the inner ends of the strips and the plunger for holding the outer ends of said strips normally in contact, said outer ends being screw-threaded, and means upon the plunger and movable between the outer ends to spread them apart, there being integral cooperating means upon the strips and plunger for transmitting motion to the strips from the plunger during the last portions of the movement of the plunger in either direction.

4. In molding apparatus the combination with a guide having oppositely disposed interior grooves, and a plunger mounted within the guide, having oppositely disposed longitudinal grooves; of core sections slidably mounted within the grooves in the plunger and projecting beyond one end of said grooves, yielding means for automatically projecting the inner end of the sections into the interior grooves in the guide and to shift the outer ends of the sections into contact, and separate means carried by the plunger for shifting the sections into the grooves within the guide when the plunger is moved in one direction and for spreading apart the contacting ends of the sections

when the plunger is moved in the opposite direction.

5. In molding apparatus the combination with a guide having longitudinal interior grooves, and a plunger mounted within the guides having oppositely disposed longitudinal grooves and a spacing tongue projecting beyond the grooves, there being a stop shoulder within each groove; of oppositely disposed core sections slidably mounted within the grooves, each section having a shoulder cooperating with the shoulders in the grooves, the sections being movably mounted at one end within the guide, elastic means for holding said inner ends of the core sections normally pressed against the wall of the guide or against the wall of the interior grooves therein, the outer ends of the core sections being disposed to contact when the inner ends of said sections are positioned in the guide grooves, said contacting ends being disposed in the path of, and disposed to be shifted by the tongue.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

CHAUNCEY C. JOHNSON.

Witnesses:

JAS. M. WALKER,  
J. ROSS COLHOUN.