

P. F. WILLIAMS.
 POT HEAD CONNECTOR.
 APPLICATION FILED OCT. 9, 1907.

1,154,823.

Patented Sept. 28, 1915.

Fig. 1.

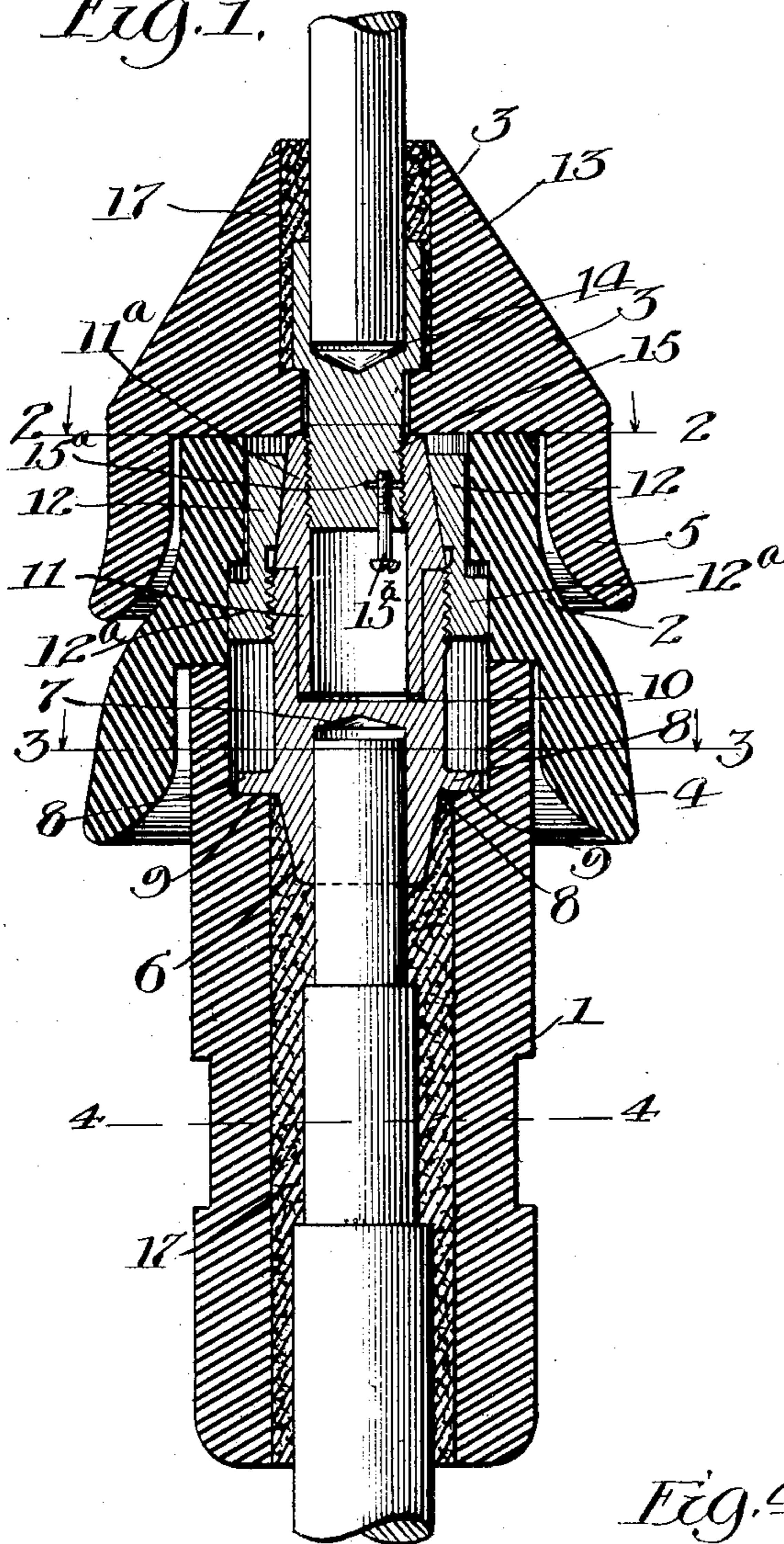


Fig. 2.

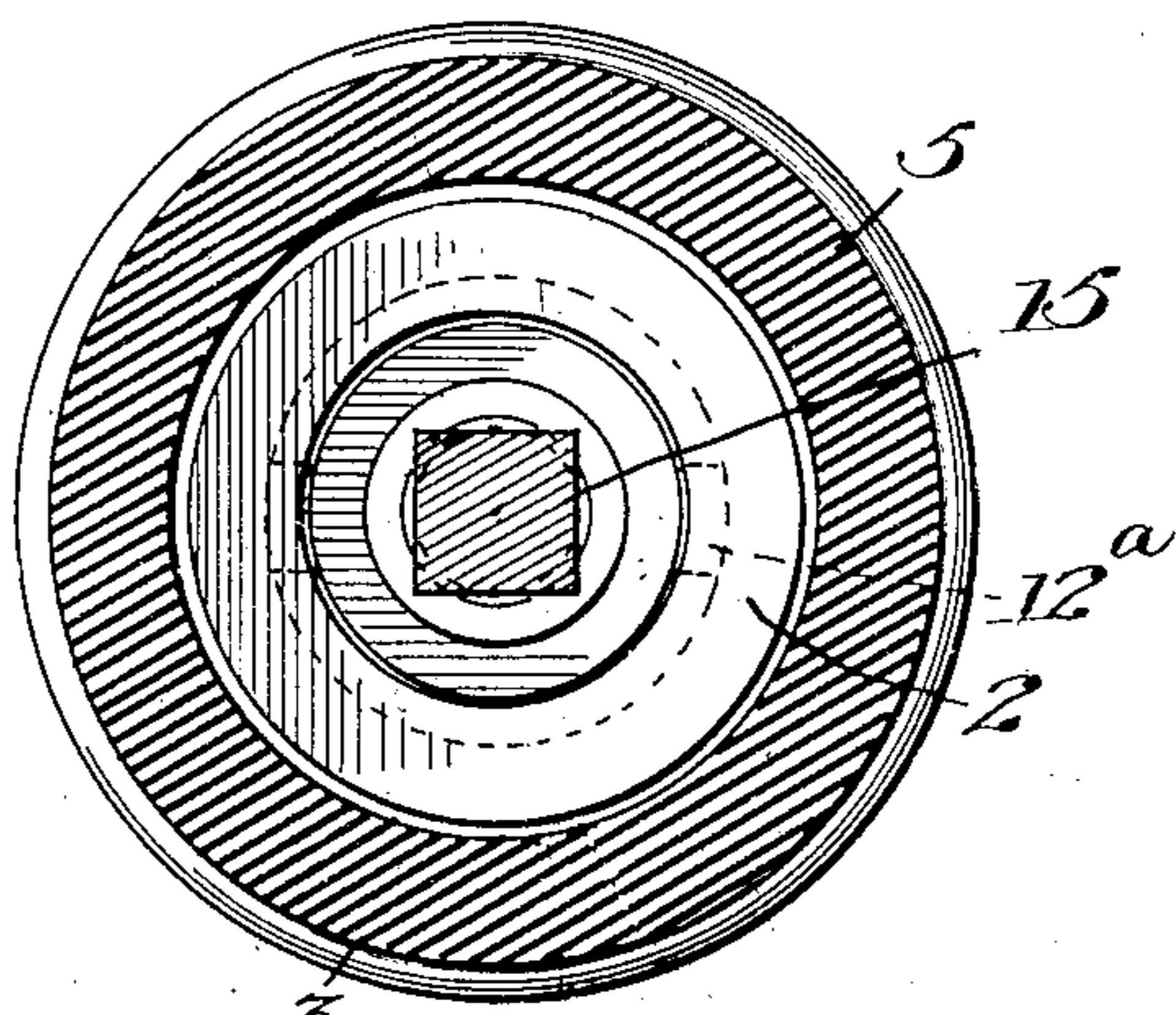


Fig. 3.

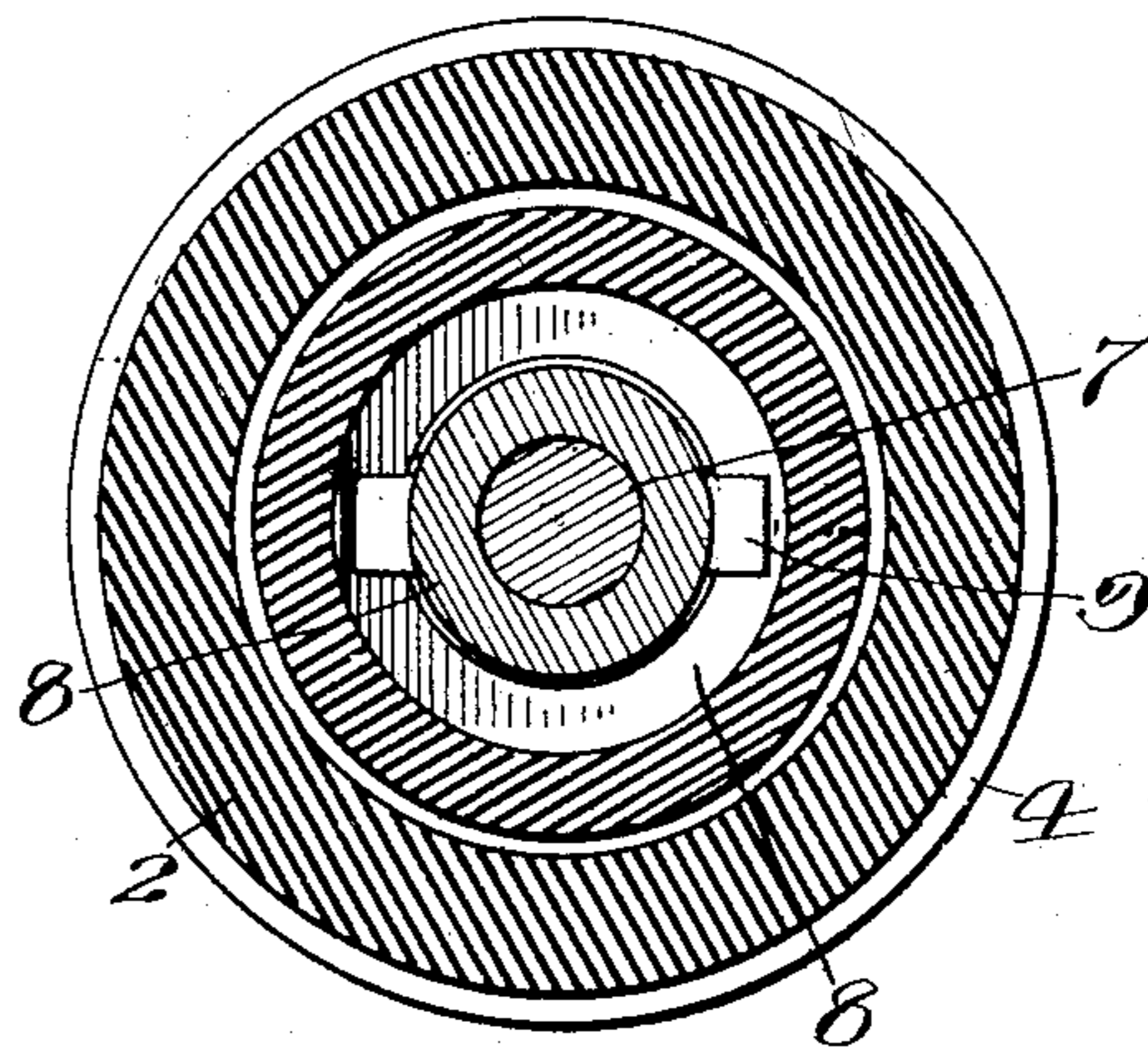
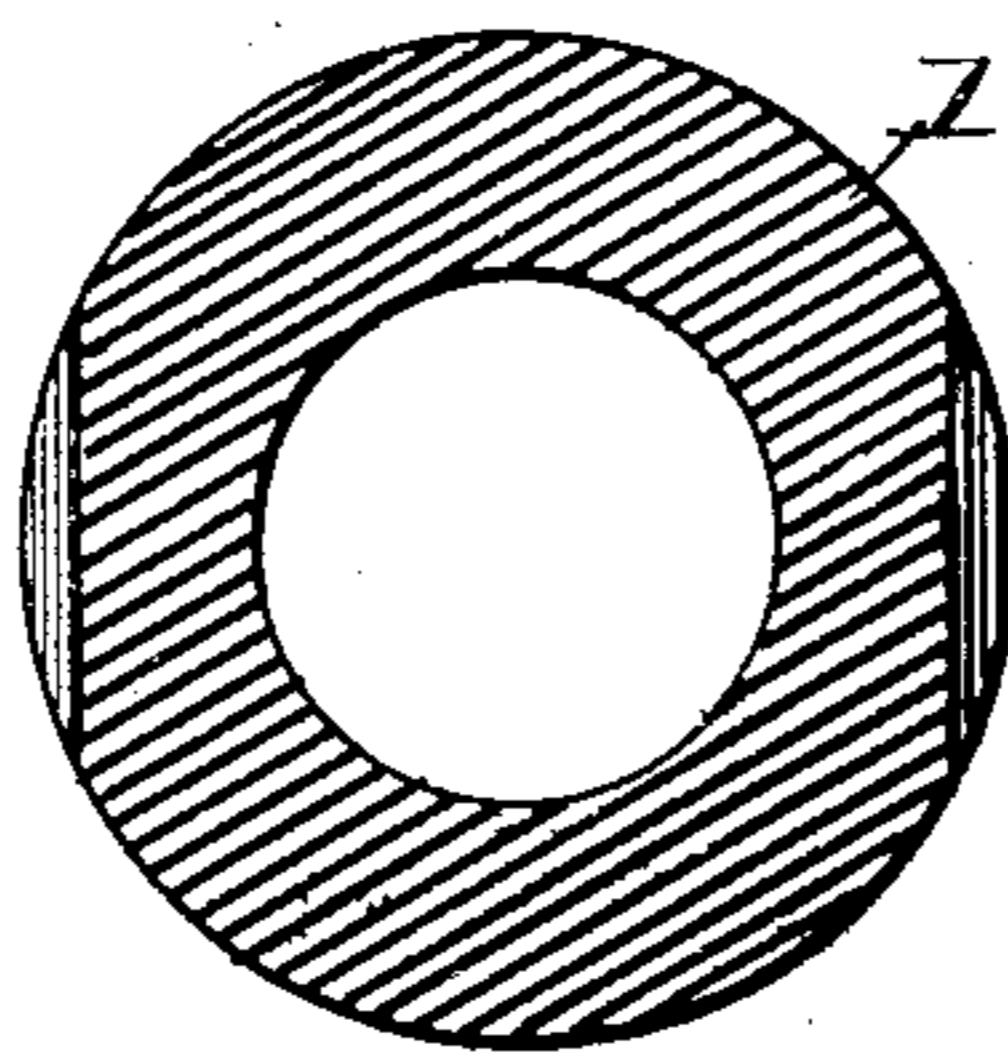


Fig. 4.



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UNITED STATES PATENT OFFICE.

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POT-HEAD CONNECTOR.

1,154,823.

Specification of Letters Patent.

Patented Sept. 28, 1915.

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To all whom it may concern:

Be it known that I, PAUL F. WILLIAMS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Pot-Head Connectors, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to connectors for electrical service, and particularly to a form of connector adapted for use in connecting cables with overhead wires or conductors, or with other cables.

Prominent objects of my invention are to provide a simple, practical and inexpensive form of connector; to adapt the same particularly for use with overhead wires and cables, and especially for connection of such members in a vertical position, as for instance, upon electric light or telegraph poles, to make a perfect electrical connection between the two conductors, wires or cables; to permit the ready installation of the device and disconnection of the same when in use to permit testing and changes, etc., to prevent injury to the device by arcing upon the breaking of the circuit at the same; and to secure the foregoing and other desirable ends in a simple and expeditious manner.

In the accompanying drawings, Figure 1 is a longitudinal vertical section of a pot head connector embodying my present invention; Figs. 2, 3 and 4 are sections taken respectively on lines 2—2, 3—3, 4—4 in Fig. 1.

The connector shown herein for carrying out my invention, comprises a base member 1, an intermediate member 2, and a top or head 3. The base 1, is conveniently tubular in form, and the intermediate member 2 is in the shape of a ring having an annular overhang 4, extending below the upper edge of the member 1, and serving as a water shed therefor. The top 3 is conveniently conical in general form and provided with an annular overhanging or water shed 5, partly covering the upper portion of the intermediate member 2. The lower member or base 1, is to receive the cable, and the upper member 3 is to receive the overhead wire to be connected to the cable or to receive another cable. Connecting devices are provided within the members 1, 2 and 3 for connect-

ing said cable and wire. Insulating compound 17 separates member 1 from the cable.

In the arrangement shown, the base 1 is provided with a metallic terminal 6, having a socket 7, into which the cable conductor is to be fitted and soldered. This terminal 6 has side projections 8—8 resting upon shoulders 9—9 formed near the upper end of the base 1, and is constructed with a socket 10 at this upper end.

The intermediate member contains coupling devices conveniently consisting of a plug 11 and a ring 12 having its lower end interiorly threaded and provided with outwardly projecting lugs 12^a—12^a. The lower end of the plug 11 is adapted to fit into the socket 10 of the terminal 6, and the threaded end of the ring 12 engages threads on the upper end of the terminal 6, and the upper end of this ring 12 is interiorly beveled or cone shaped and adapted to fit upon the inclined or conical upper end 11^a of the plug 11. The lugs 12^a—12^a are fitted in recesses in the members 2 so as to be turned thereby, and are free to move longitudinally in said recesses. The head 3 is provided with a metallic terminal 13, having a socket 14, adapted to receive the wire or conductor to be secured to said cable and also having a threaded lower end 15 adapted to fit into a threaded socket formed at the upper end of the plug coupling member 11. Thus by turning the intermediate member 2, the coupling members are adapted to operate and draw the terminals 6 and 13 toward each other to make a perfect electrical connection between the same, the ring 12 making tight contact with the conical end of the plug 11 and also with the terminal 6 through the threaded connection therewith, and also causing the shoulder on plug 11 and top of member 6 to make tight contact with each other. The hole through the lower end of the cap 3, and the portion of the end 15 which fits therein, are square, to prevent turning of the terminal 13 when the device is being screwed together. The lower end of the terminal 13 has a cross-cut or slot 15^a and a screw 15^b to close the same and thereby bind or lock the threaded end of said terminal in the socket of the plug 11.

In using the device, the aerial wire or conductor is fitted and sealed in the head 3 and then this head and the member 2 with the parts 11 and 12 therein, are put together,

and the end 15 of the terminal 13 screwed into the plug 11 and locked by the screw 15^b, and the members 2 and 3 are thus held together with the terminal 13 and plug secured to one another and the ring 12 fitted loosely in the member 2 but held against removal therefrom by the plug 11. The cable is sealed in member 1 and then plug 11 slipped into socket 10, and member 2 turned so as to cause ring 12 to engage the threaded end of terminal 6 and make a tight contact as above specified.

It will be seen that the construction makes both a sliding and a screw connection, the sliding connection being between the terminal 6 and plug 11, and the screw connection between the ring 12 and terminal 6. In this way the tight firm grip of the screw connection is secured while at the same time a sliding contact or connection is provided which persists after the screw connection is undone when the device is taken apart. In this way no harm can result from arcing for the final break will occur between the parts of the sliding connection and a knot between the screw threads of the screw contact. It will also be seen that the connecting parts and terminals are entirely and completely closed in an insulated sheath which fully envelops them and that the connection and disconnection can be done by the manipulation of the sheath; that is to say, the coupling or connecting members need not be handled to connect the parts of the device together, but such connection and disconnection is done from the outside of the sheath with the connecting members inside and completely incased. It will also be seen that the members 2 and 3 after the terminal 13 is connected to the plug 11, are fastened together so that should the device be opened up upon a pole top, these parts will not become separated, permitting one or the other to fall to the ground.

It will be understood that changes and modifications can be made without departing from the spirit of the invention.

What I claim is:—

1. A pot head connector comprising base, top and intermediate insulating members, mating terminals carried by the top and the base members, and coupling devices interlocking with the intermediate member and adapted to connect the terminals carried by said top and base members.

2. A pot head connector comprising top and base members made of insulating material, mating terminals adapted to be connected together carried by said top and base members, an intermediate member also made of insulating material and located between the top and base members, said intermediate member being adapted for rotation relatively to said top and base member,

metallic coupling devices carried by the intermediate member and adapted to connect said terminals upon the rotation of said intermediate member.

3. A pot head connector comprising top and base members, an intermediate member between the same, metallic terminals for the top and base members, one of said terminals having a threaded projecting end, and the other having a socket, and coupling devices carried and controlled by the intermediate member, said coupling devices comprising a ring 12 threaded to engage one of said terminals and a plug member 11 adapted to fit into the socketed terminal and having a threaded socket capable of receiving the threaded end of said other terminal, whereby said terminals are firmly connected together by turning said intermediate member.

4. A pot head connector comprising a tubular base member 1, a conical top 3 having an overhang 5, an intermediate member 2 having an overhang 4, a metallic terminal 6 arranged within the upper end of the base 1, and having its lower end socketed to receive the cable conductor and also having a socket formed in its upper end, a coupling member 11 fitted into the socket at the upper end of said terminal 6, said coupling member having its upper end inclined or conical shape, and provided with a threaded socket, a ring 12 fitted over the conical end of member 11, and its lower end interiorly threaded and engaging the upper threaded end of the terminal 6, said ring 12 being carried by, and arranged to rotate with the intermediate member 2, and a metallic terminal 13 carried by the head 3, and having a socket 14 adapted to receive the overhead wire and also having its lower end 15 threaded so as to fit the threaded socket at the upper end of the member 11.

5. A device of the class specified, comprising a tubular member 1, a relatively movable member at the upper end of said tubular member, and a cover or top member above said relatively movable member, terminals carried by the tubular and top members, and connecting devices carried and actuated by the relatively movable member and adapted to connect said terminals.

6. A connector comprising end and intermediate insulating members, mating terminals carried by the end members, and connecting devices for detachably connecting said terminals, carried and actuated by the intermediate member, which latter is rotatable relatively to the end members.

7. A casing for the pot head connector comprising an insulating tubular base insulating member 1, an intermediate member 2 having an overhang 4 extending down from the upper edge of said base insulating member, and a conically shaped member

3 fitted above the intermediate member 2 and having an overhang 5.

8. Connecting devices for a connector, comprising terminals and a coupling device 5 comprising two members having threaded engagement respectively with said terminals and having a clamping engagement with each other.

9. Connecting devices for a connector 10 comprising terminals 6 and 13, the terminal 6 having its upper end provided with a socket and being exteriorly threaded, and a terminal 13 having a projecting threaded end 15, a coupling member 11 having one 15 end adapted to fit into the socket 10 at the upper end of the member 6, and having its other end provided with a threaded socket adapted to receive the threaded end 15 of the terminal 13, and a ring 12 having its 20 lower end interiorly threaded to engage the upper threaded end of the terminal 6, and having its upper end inclined to engage the conical sides of the member 11.

10. A device of the class described, having 25 terminals for the ends of the cable or wire to be connected, and a clamping member to hold the terminals together, having a screw-threaded connection with one terminal and a clamping connection with the other.

11. A device of the class specified, comprising terminals for the ends of the wires or cables to be connected, and clamping 30 members to hold the terminals together, and one of the terminals being in the form of a plug, and the other in the form of a socket, and the clamping members being one in the form of a hollow plug, one of whose ends is 35 adapted to receive the plug terminal, and the other of whose ends is adapted to fit into the socket of the other terminal, said hollow plug member having conical sides and a 40 shoulder to engage the socket terminal below said conical sides, and the other clamping member being screw-threaded to the socket terminal and having a conical bore to 45 receive the conical sides of said plug member, whereby the rotation of said last mentioned clamping member clamps the socket terminal and the hollow plug member 50 tightly together.

12. Connecting devices comprising a pair of terminals, one of which has a threaded end with a cross slot and locking screw, and the other of which has a socket and an exteriorly threaded end, a plug coupling member 55 having a threaded socket to receive the threaded end of said first mentioned terminal and having a conical end portion, and having its other end fitted into the socket of said other terminal, and a collar fitted over 60 said conical end portion and having its other end interiorly threaded to engage the threaded end of said last mentioned termi-

nal, the latter having laterally projecting side lugs, and being adapted to fit against 65 a shoulder on said plug member and the threaded joint between said collar and terminal being of less length than the plug and socket engagement, whereby the former will be broken before the latter and coupling en- 70 gagement with one another.

13. A casing for a connecting device, comprising an insulating tubular base member 1, an intermediate insulating member 2, having an over-hang 4, extending down over 75 and covering the upper portion of the base member 1, a conically shaped insulating member 3 fitted above the intermediate member 2, and having an over-hang 5 covering the upper portion of the member 2, connecting devices confined in said members 80 and arranged so that the relative turning of the intermediate member clamps the connecting devices together, and insulating material hermetically sealing the upper and 85 lower insulating members 1 and 3.

14. A pot-head connector comprising base, top and intermediate members, whereof the base and top are provided with mating terminals for conductors or cables, and coupling devices operated by the intermediate 90 member and adapted to force said terminals together by the movement of said intermediate member relatively to the top and base members. 95

15. A connector comprising insulating end members and a movable intermediate insulating member, terminals carried by the end members, and connecting devices for detachably connecting said terminals, carried 100 and actuated by the intermediate member which by its movement operates the connecting devices.

16. A connector comprising end and intermediate insulating members, terminals 105 carried by the end members, and connecting devices for detachably connecting said terminals, carried and actuated by the intermediate member, and hermetically sealing means for the conductors in the end members. 110

17. A pothead connector comprising base, top, and intermediate insulating members, terminals carried by said top and base members, and a coupling device surrounded by 115 said intermediate member and in operative engagement therewith, said device being adapted to connect the terminals carried by said top and base members.

In witness whereof, I hereunto subscribe 120 my name this 5th day of October A. D., 1907.

PAUL F. WILLIAMS.

Witnesses:

A. MILLER BELFIELD,
IDA E. KLIPSTEIN.