

W. E. EVANS.  
SPOOL.

APPLICATION FILED JULY 2, 1908.

936,526.

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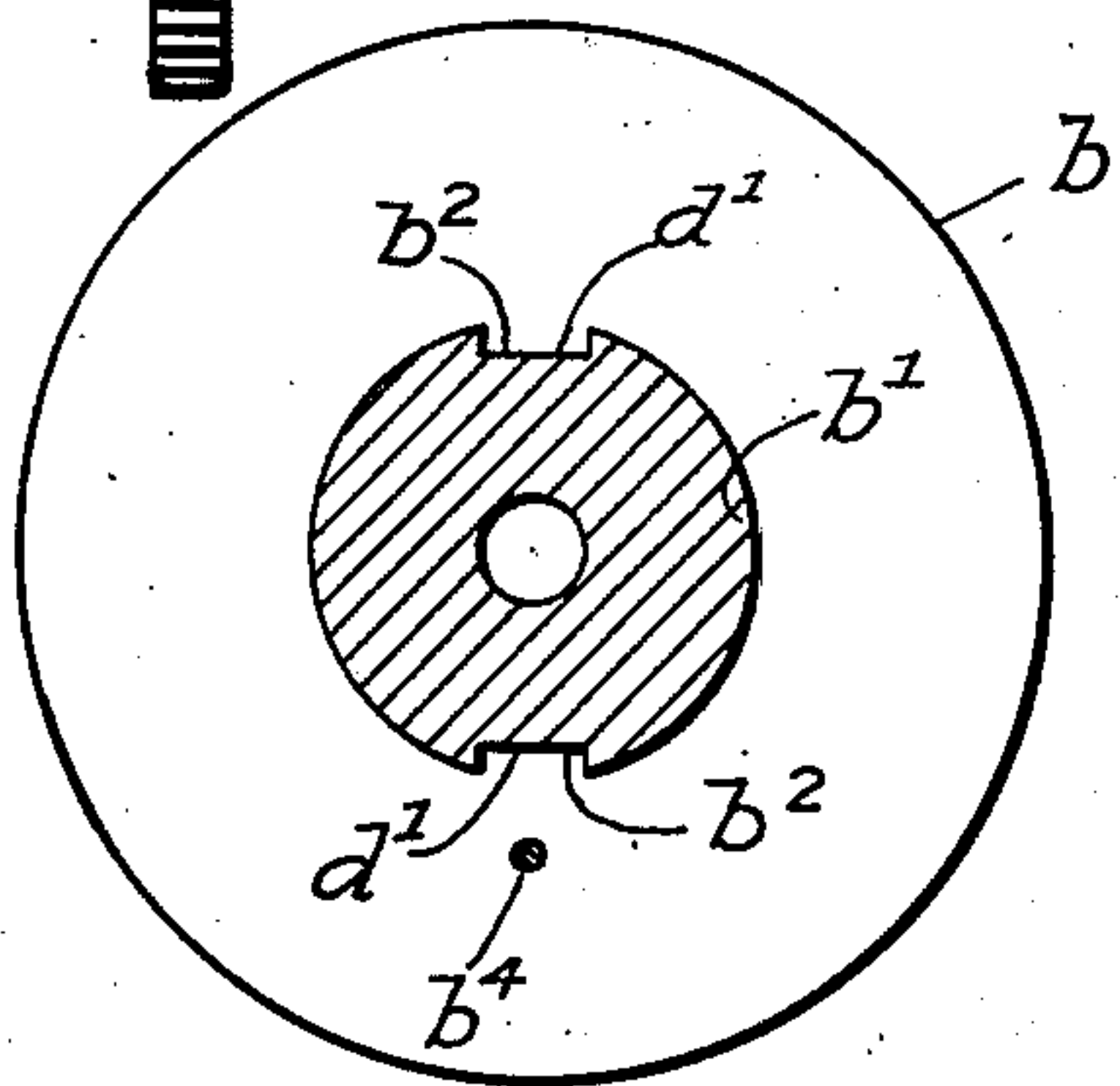
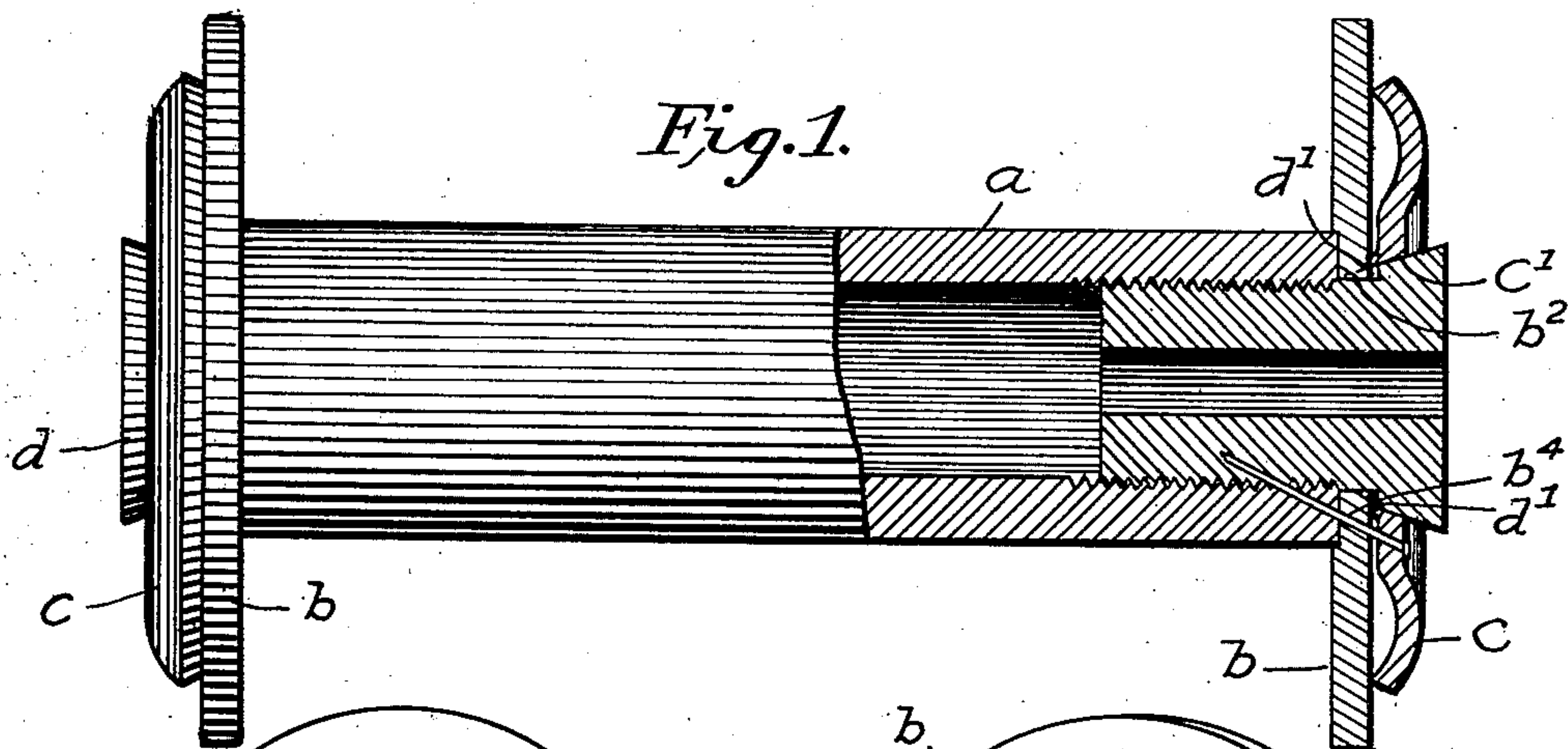


Fig. 2.

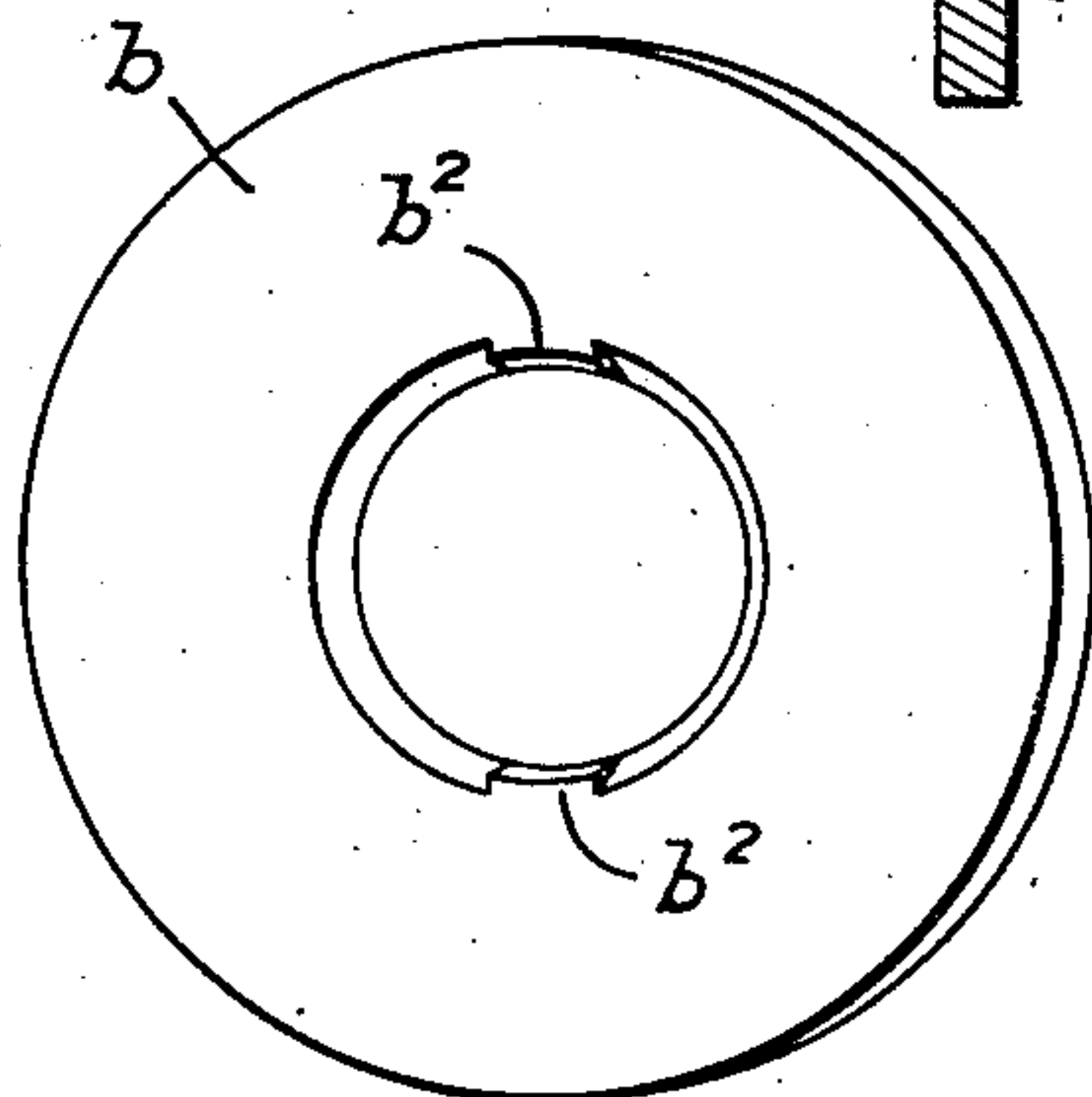


Fig. 3.

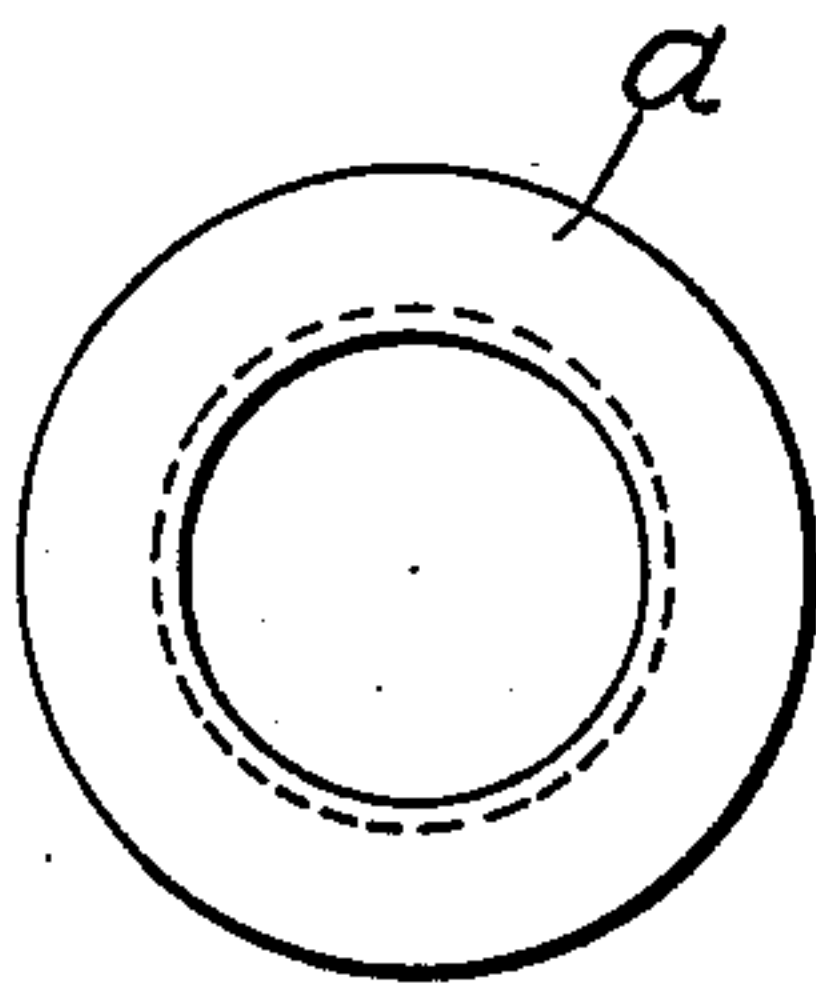


Fig. 4.

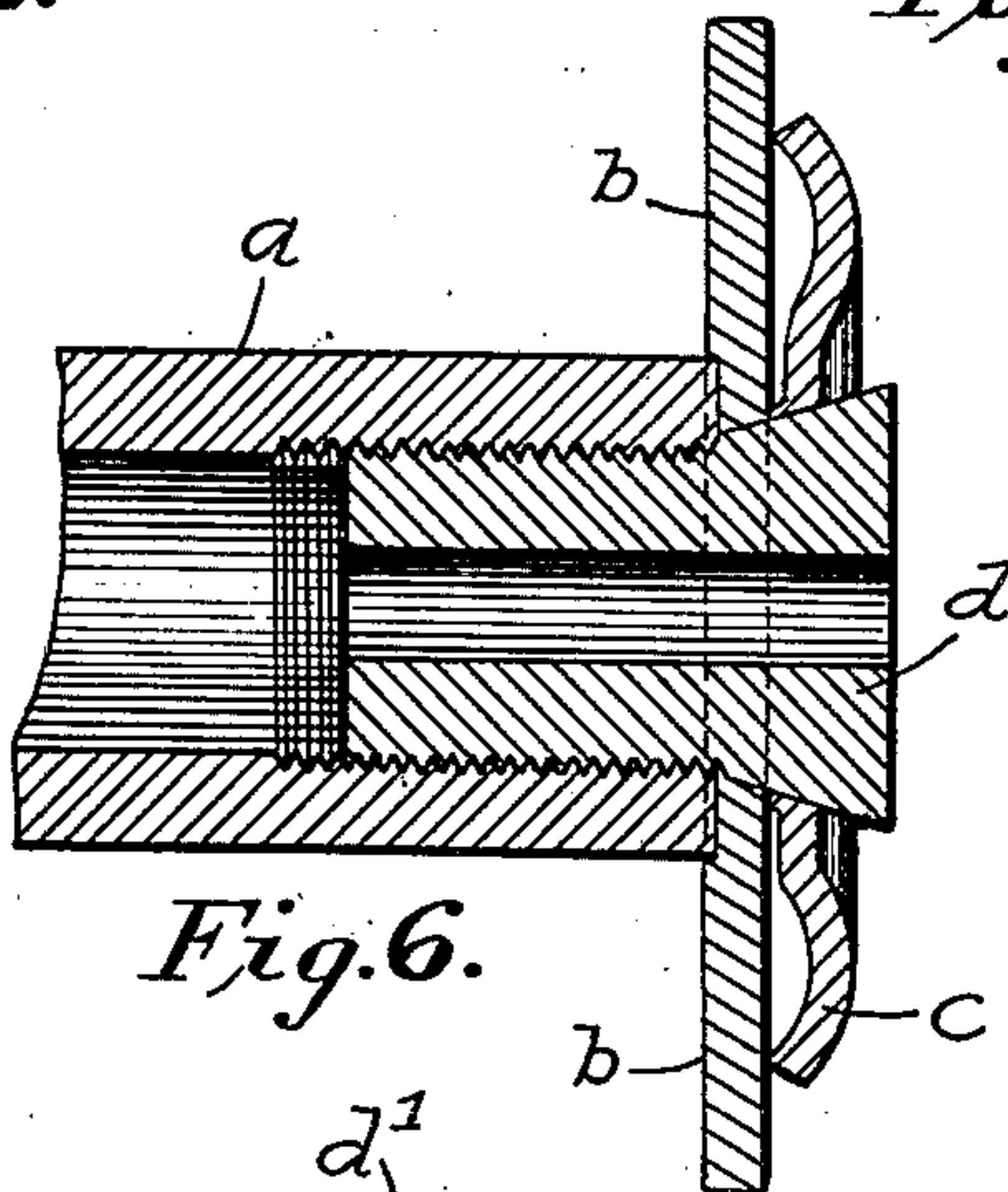


Fig. 6.

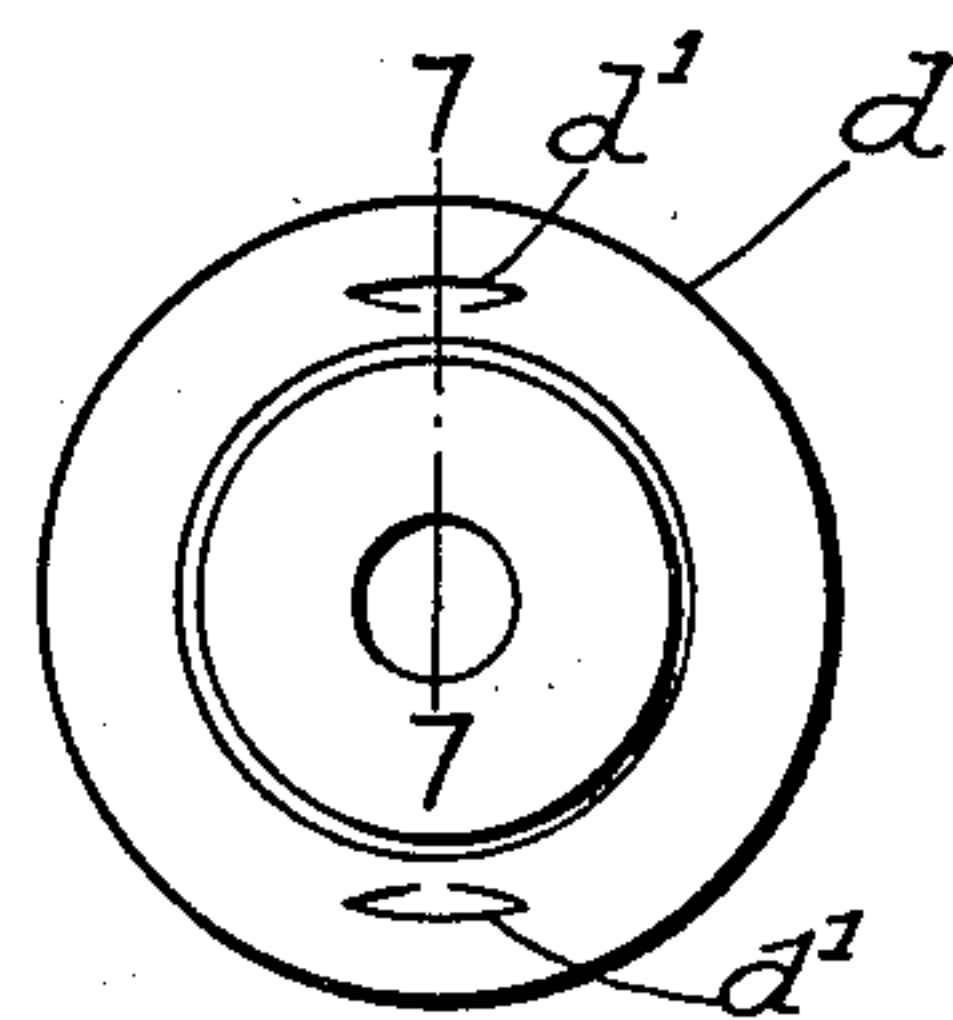


Fig. 5.

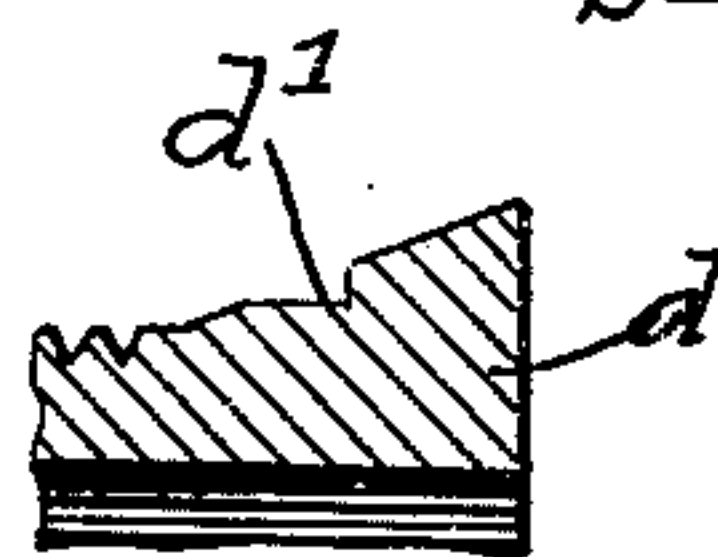


Fig. 7.

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# UNITED STATES PATENT OFFICE.

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SPOOL.

936,526.

Specification of Letters Patent.

Patented Oct. 12, 1909.

Application filed July 2, 1908. Serial No. 441,670.

*To all whom it may concern:*

Be it known that I, WILLIAM E. EVANS, a citizen of the United States, residing at Manton, in the town of Johnston, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Spools, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to spools, and has for its object to construct a spool in such manner that its component parts may be separately packed for shipment, so as to occupy but little space, and subsequently assembled; that its component parts are interchangeable, and when manufactured in many different sizes, may be assembled so that a very large number of sizes of spools may be economically produced; that no special tools are required in the construction of the parts or in the assembling thereof, such as are ordinarily required in the manufacture of spools; and that in case of breakage of any of the component parts a new part may be easily supplied, so that the spools may be easily repaired and kept in good condition at small expense.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings: Figure 1— is a side elevation and partial longitudinal vertical section of a spool embodying this elevation. Fig. 2— is a transverse section of the spool shown in Fig. 1, taken on the dotted line 2—2. Fig. 3— is a detail of the head in perspective showing the center-hole and key. Fig. 4— is an end view of the barrel. Fig. 5— is an end view of the plug showing the key-ways formed therein. Fig. 6— is a central longitudinal section of one end of the spool taken between the key-ways. Fig. 7— shows a portion of the plug sectioned on line 7—7 of Fig. 5 through one of the indentations or key-ways in its tapering head.

The barrel *a* is usually made of wood. It is cylindrical in form and preferably tubular, and it has at each end an internally screw-threaded bore to receive an externally screw-threaded retaining-plug. Its ends are made flat to provide seats of large area to engage the heads. It may be made of any required length without necessitating the

employment of special tools such as are required in the construction of metallic barrels.

One of the heads is represented at *b* and is composed of compressed fiber or other suitable material of a hard or tough nature. It is circular in form and is made as a flat plate. It has a center hole *b'* through it, which is preferably made tapering from one face to the other. The smaller diameter of the center hole is substantially the same as the diameter of the internally screw-threaded bore in the end of the barrel. It is preferably recessed on its inner face to receive the end of the barrel.

The reinforcing plate *c* is adapted to engage the head when the parts are assembled. This plate is also composed of compressed fiber or other suitable material. It is circular in form, has a center hole *c'* through it which is also made tapering from one face to the other and the diameter of the center-hole is somewhat larger than the diameter of the center-hole in the head. It is preferably dished in such manner that when placed upon the head its outer edge and central part only will engage it, but it may be curved or dished to otherwise engage or support the head in any suitable manner.

*d* represents the retaining-plug which is preferably made of wood. It has a cylindrical externally screw-threaded body portion of a diameter to enter the internally screw-threaded bore in the barrel, and it has a tapering head, which head is made long enough to extend through the center-holes of both the reinforcing plate and the head, and large enough in diameter to snugly fit said center-holes, and its taper corresponds to the taper of said center-holes, so as to engage the walls thereof from one face to the other. When assembling the parts the screw-threaded portion of the retaining-plug is projected through the center-holes of both the reinforcing-plate and head and is screwed into the bore in the end of the barrel and is turned therein until it tightly holds the parts assembled.

For the purpose of turning the screw-threaded retaining-plug without the necessity of providing special tools, for accomplishing this result the head of said plug may be formed with one or more key-ways *d'* in the side of its tapering head, two being herein shown, and the head *b* may be provided with corresponding keys *b<sup>2</sup>* at the edge of its center hole which enter said key-ways,



and thereby connects the plug and head in such manner as to prevent independent rotation of either with respect to the other, and then said head *b* may be grasped by the hand and employed as a means for turning the plug.

Another and very practical way of keying the head plate to the plug is as follows: As the plate is made preferably of hard tough fiber and the screw plug is formed of wood, or much softer material, it is found only necessary to form one or more keys or slightly projecting members *b*<sup>2</sup> around the outer face of the central hole through said plate, and then as the plug is screwed into position in the barrel these projections or key members are forced to embed themselves into the softer tapering face of the plug head thereby forming natural key-ways therein, and then said head *b* may be grasped by the hand, to produce a greater leverage, to assist in turning the plug tightly into position in the barrel, locking the same therein by means of friction. By this manner of forcing or pressing the projections into the head to form recesses therein as the head and plug are screwed into position together, it is found that said heads may be assembled very much quicker, as it is not necessary to place the keys in any particular position to fit into previously prepared key-ways, it being only necessary to place the members in position at the end of the barrel when by setting up the plug in the manner above described the whole is locked firmly together.

It is sometimes necessary and usually desirable to secure the parts when assembled in such manner as to prevent loosening by ordinary usage and in the form shown in Fig. 1, this result is accomplished by applying to the engaging surfaces a coating of glue or other adhesive material. As the heads are the particular parts which it is desired shall be held securely in place, they may be held from rotation by means of pins *b*<sup>4</sup> which are driven through the reinforcing-plates and heads and into the ends of the barrel. Both the adhesive material and the pins may be employed if desired. I do not, however, desire to limit my invention to any particular means or provision for turning the retaining plug, or to any particular means or provision for securing the parts in assembled position.

The spool thus constructed possesses many important advantage, as for instance, it may be shipped "knocked-down", that is to say, its component parts may be packed for shipment and nested so as to occupy but little space, being subsequently assembled by the receiver without the aid of any special tools. Different sizes of heads and reinforcing plates may be made and also different sizes and lengths of barrels, and the several component parts are made interchangeable, so

that a purchaser may select the particular sizes of any of the component parts to make up a spool suitable to meet his particular requirements. As the invention is susceptible of a wide variation in sizes of the component parts a large variety of sizes of spools may be economically produced. In case of breakage of any particular part of the spool a new part may be easily supplied.

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

1. A spool consisting of a cylindrical barrel having an internally screw-threaded bore at each end, a head at each end of said barrel formed of comparatively thin material each provided with a central bore, a reinforcing plate having a central bore for supporting each head, and screw threaded retaining plugs adapted to enter the threaded barrel bores, each of said plugs being provided with a tapering head which is adapted to engage the center hole of said plate and head for the purpose of firmly securing them to the barrel.

2. A spool consisting of a cylindrical barrel having an internally screw-threaded bore at each end, a head at each end of said barrel formed of comparatively thin material each provided with a central bore, a reinforcing plate having a central bore for supporting each head, and screw threaded retaining plugs adapted to enter the threaded barrel bores, each of said plugs being provided with a tapering head which is adapted to engage the center hole of said plate and head for the purpose of firmly securing them to the barrel, and locking means in the spool head for engaging the plug whereby said plug may be turned into the barrel bore by said head.

3. A spool consisting of a cylindrical barrel having an internally screw-threaded bore at each end, spool heads each having a tapering center hole through it formed with a key, retaining plugs each comprising an externally screw-threaded cylindrical portion adapted to enter the bore in each end of the barrel and a tapering head on each plug adapted to extend through the center hole in each of said spool heads, said plugs being provided with key-ways to receive the keys in said spool heads, substantially as described.

4. A spool consisting of a cylindrical barrel having an internally screw-threaded bore at each end, a head at each end of said barrel formed of comparatively thin material each provided with a tapering central bore, a key or projection formed in said bore, a reinforcing plate having a central bore for supporting each head, and screw threaded retaining plugs adapted to enter the threaded barrel bores, each of said plugs being provided with a tapering



head which is adapted to engage the center hole of said plate and head for the purpose of firmly securing them to the barrel, said plug being provided with keyways to receive the keys in said spool head whereby said plug may be turned into the barrel bore by said head.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM E. EVANS.

Witnesses:

HOWARD E. BARLOW,  
E. I. OGDEN.