No. 862,514. PATENTED AUG. 6, 1907.

J. RONEY & J. C. RAE.

BOBBIN AND SPINDLE CONNECTOR.

APPLICATION FILED MAR. 7, 1907.

Fig. 1.

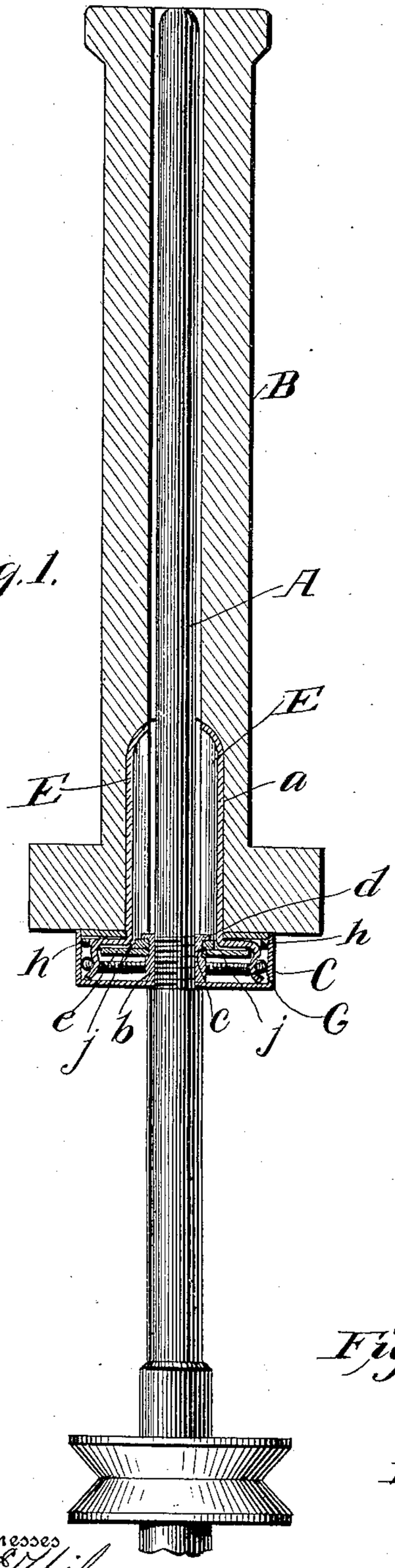


Fig. 2.

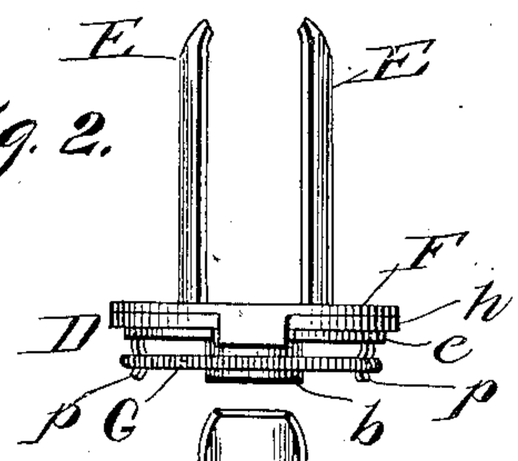


Fig. 3.

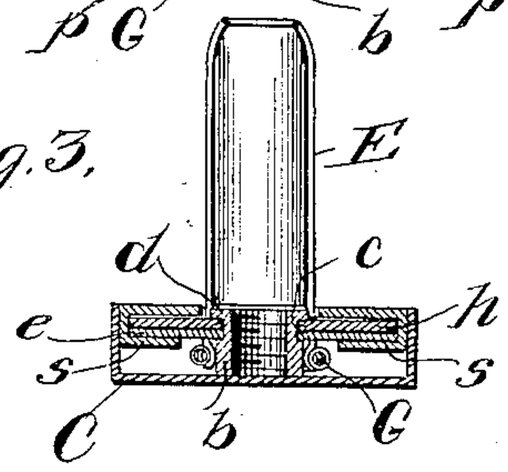


Fig. 4.

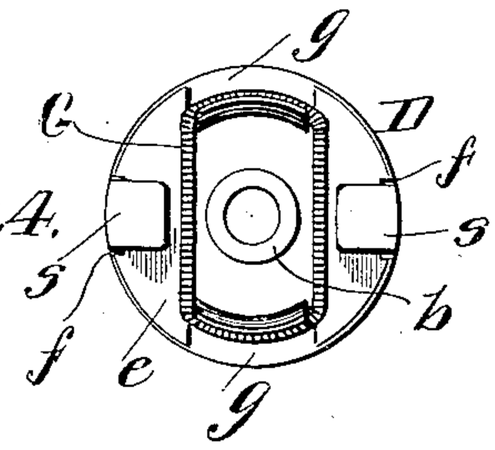


Fig. 5.

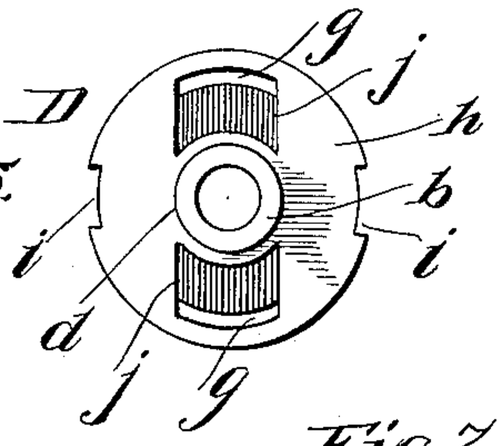


Fig. 6.

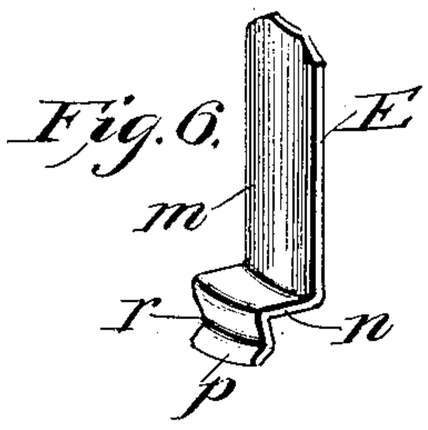
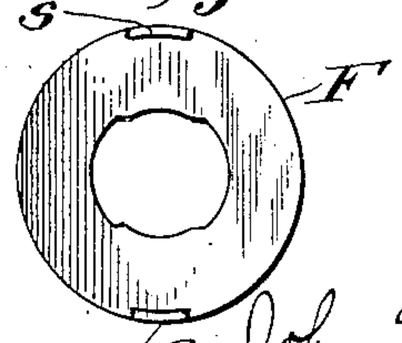


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN RONEY AND JOHN C. RAE, OF WOONSOCKET, RHODE ISLAND.

BOBBIN AND SPINDLE CONNECTOR.

No. 862,514. Specification of Letters Patent. Patented Aug. 6, 1907.

Application filed March 7, 1907. Serial No. 361,031.

To all whom it may concern:

Be it known that we, JOHN RONEY and JOHN C. RAE, citizens of the United States, residing at Woonsocket, in the county of Providence and State of Rhode Island, have invented new and useful Improvements in Bobbin and Spindle Connectors, of which the following is a specification.

Our invention relates to bobbin and spindle connectors, and contemplates the provision of a simple, strong and efficient connector designed more particularly for holding worsted bobbins to their spindles.

The invention will be fully understood from the following description and claims when the same are read in connection with the accompanying drawings, forming part of this specification, in which:

Figure 1 is a view showing a spindle in elevation, and our novel connector and a worsted bobbin in vertical section as properly arranged relative to the spindle. Fig. 2 is a side elevation of the connector as the same appears when its cup is removed. Fig. 3 is a diametrical section of the connector, taken in a plane at right angles to Fig. 1 and showing the cup in proper position relative to the remainder of the connector. Fig. 4 is an inverted plan view of the connector, with the cup removed. Fig. 5 is a detail view of the body of the connector. Fig. 6 is a perspective view of one of the bobbin holding members of the connector, removed. Fig. 7 is a detail view of the plate for retaining said members in proper position on the body as said plate appears precedent to the bending of its ears.

Similar letters designate corresponding parts in all of the views of the drawings, referring to which:

A is a spindle which is preferably shouldered and threaded at an intermediate point of its length as shown in Fig. 1.

B is a bobbin, arranged on the spindle and having the lower portion of its bore enlarged as indicated by *a*.

C is the cup of our novel connector which is provided in its bottom with an aperture of a diameter to loosely receive the upper reduced portion of the spindle, and D is the body of the connector. The said body comprises a central annular portion *b*, preferably of brass, interiorly threaded to engage the thread of the spindle and having its upper portion reduced as indicated by *c* in Figs. 1 and 3, and also having a flange *d* at the upper end of said reduced portion, a disk *e*, of suitable metal, mounted on the reduced upper end of the annular portion *b* and resting on the shoulder thereof and having diametrically opposite notches *f* and also having comparatively long notches *g* arranged midway between the notches *f*, and a disk *h* which is comparatively thick and is superposed on the disk *e* and is provided in its periphery with notches *i* registered with the notches *f* of disk *e*, and is also provided at points between the notches *i* with curvilinear openings *j*, the outer portions of which rest over and communicate with the comparatively long notches *g* of the lower disk *e* as shown in Fig. 5. The disks *e* and *h* are positioned as stated on the upper end of the central annular portion *b* precedent to the formation of the flange *d*, and then the said flange is turned outward and down against the upper side of the disk *h* so as to securely fix the said disk with respect to the disk *e* and the central portion *b*. It will be apparent that in this way a stiff and strong body is produced, but we do not desire to be understood as confining ourselves to the specific means described of fixing the disks *e* and *h* on the central portion *b* inasmuch as the disks may be fixed together and to the portion *b* in any approved manner consonant with the purpose of our invention without involving departure from the scope of the invention as claimed.

In addition to the cup C which is preferably spun of sheet-metal, and the body D, our novel connector comprises two bobbin-engaging members E, a plate F for retaining said members E in proper position relative to the body D, and a spring G for drawing the lower arms of the members inward or toward each other and in that way yieldingly pressing the upper arms outwardly so as to enable said upper arms to better clamp and hold a bobbin after the manner illustrated in Fig. 1. The bobbin-engaging members E are identical in construction, and therefore a detailed description of the one shown in Fig. 6 will suffice to impart a definite understanding of both. The said member E, Fig. 6, is pressed or otherwise suitably formed of sheet-metal, and is made up of an upper or clamping arm *m*, of concavo-convex form in cross-section, tapered at its upper end to facilitate its entry into the bore of the bobbin, a horizontal intermediate portion *n*, and a lower arm *p* depending from the portion *n* and channeled at *r* for the better engagement of the spring G. The bobbin-engaging members E are arranged as best shown in Fig. 1 relative to the connector body D—that is to say, the horizontal portions *n* of the members are arranged in the openings *j* in the body disk *h* and on the body disk *e*, while the arms *p* extend downward and rest loosely in the outer portions of the openings *j* of disk *h* and the comparatively long notches *g* of the disk *e*. After the bobbin-engaging members E are arranged as just stated relative to the body D, the plate F, shown in detail in Fig. 7, is arranged on the body plate *h* and over the horizontal portions of the members E, and ears *s* on the said plate are extended through the registered notches *i* and *f* in the body disks *h* and *e*, respectively, and are bent inward against the under side of the lower disk *e*. With this done the spring G is applied as best shown in Fig. 4, when it will be apparent that while the intermediate and approximately horizontal portions of the members E are strongly held in and connected to the body D, the said members E are free to rock within certain limits in the body D so as to enable the upper or clamp-

ing arms of the members to move inward against the action of the spring G and outward under the pull of the said spring so as to exert outward pressure against the bobbin and in that way frictionally and securely hold the bobbin to the spindle so as to assure the two turning together.

As will be noted by reference to the drawings, the body D of the connector is arranged and held by frictional contact in the cup C, and from this it follows that the said cup C may be readily removed from the remainder of the connector when it is necessary to gain access to certain interior parts of the connector for repairs or other purposes. It will also be apparent that the connector as a whole is simple, susceptible of being cheaply produced, and is efficient in operation and well adapted to withstand the usage to which bobbin and spindle connectors are ordinarily subjected. It will further be apparent that when the body D of the connector is arranged in the cup C, the interior parts of the connector, viz: the lower arms of the members E and the spring G, are inclosed by the plate *h* in combination with the cup C, and in this way dirt, lint and the like are effectually prevented from gaining access to and interfering with the proper operation of the interior parts of the connector. We would have it understood, however, that our novel connector is complete without the cup C, and that therefore the said cup may be used or omitted in the discretion of the manufacturer and user of the connector without involving departure from the scope of our invention as claimed.

Having described our invention, what we claim and desire to secure by Letters-Patent, is:

1. A bobbin and spindle connector comprising a body arranged to be secured on a spindle and having openings at opposite points, swinging bobbin-engaging members having upper or clamping arms and also having intermediate portions disposed on the said body and lower arms extending through the openings in the body to points below the same, means engaging the lower arms of the said members for yieldingly pressing the upper arms thereof outward, and means arranged on and connected with the body for retaining the bobbin-engaging members in working position relative to the body.

2. A bobbin and spindle connector comprising a body arranged to be secured on a spindle and having openings at opposite points, swinging bobbin-engaging members having upper or clamping arms and also having intermediate portions disposed on the said body and lower arms extending through the openings in the body to points below the same, a plate surrounding the upper or clamping arms of the bobbin-engaging members and resting on the intermediate portions of said members and connected with the body to retain the members in proper position relative thereto, and means engaging the lower arms of the said members for yieldingly pressing the upper arms thereof outward.

3. In a bobbin and spindle connector, the combination with a body comprising a central annular portion arranged to be mounted on a spindle, a disk fixed on the said central portion and having notches in its periphery at diametrically opposite points and also having comparatively long notches in its periphery at points midway between the first mentioned notches, and a second disk superposed on the first mentioned disk and fixed to the central annular portion and having notches registered with the short notches of the lower disk and also having opening midway between the said notches, the outer portions of which openings are registered with the long notches in the lower disk; of swinging bobbin-engaging members having upper or clamping arms and also having intermediate portions disposed in the openings in the upper body disk and lower arms extending through said openings and the long notches in the lower body disk to points below the body, a spring engaging the said lower arms of the members, and a plate surrounding the upper or clamping arms of the members and resting above the intermediate portions thereof and having ears extending through the registered notches of the body disks and bent inward against the under side of the lower disk.

4. A bobbin and spindle connector comprising a body arranged to be secured on a spindle and having openings at opposite points and also having depressions in its upper side in communication with said openings, swinging bobbin-engaging members having upper or clamping arms and also having intermediate portions disposed on the said body and in the depressions thereof and lower arms extending through the openings in the body to points below the same, a plate arranged on and connected to the body and resting above the intermediate portions of the bobbin-engaging members, and means engaging the lower arms of the said members for yieldingly pressing the upper arms thereof outward.

5. A bobbin and spindle connector comprising a cup having an aperture in its bottom to receive a spindle, a body positioned in the cup and arranged to be secured on a spindle and having openings at opposite points and also having depressions in its upper side in communication with said openings, swinging bobbin-engaging members having upper or clamping arms and also having intermediate portions disposed on the said body and in the depressions thereof and lower arms extending through the openings in the body to points below the same, means engaging the lower arms of the said members for yieldingly pressing the upper arms thereof outward, and a plate closing the upper side of the cup; the said plate being arranged on and connected to the body and resting above the intermediate portions of the bobbin-engaging members.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

JOHN RONEY.
JOHN C. RAE.

Witnesses:
EDGAR L. SPAULDING,
ISABELLE SMITH.