(No Model.)

H. D. KLOTS.

SPINNING SPINDLE AND SUPPORT THEREFOR.

No. 501,792. Patented July 18, 1893.

Fig 1

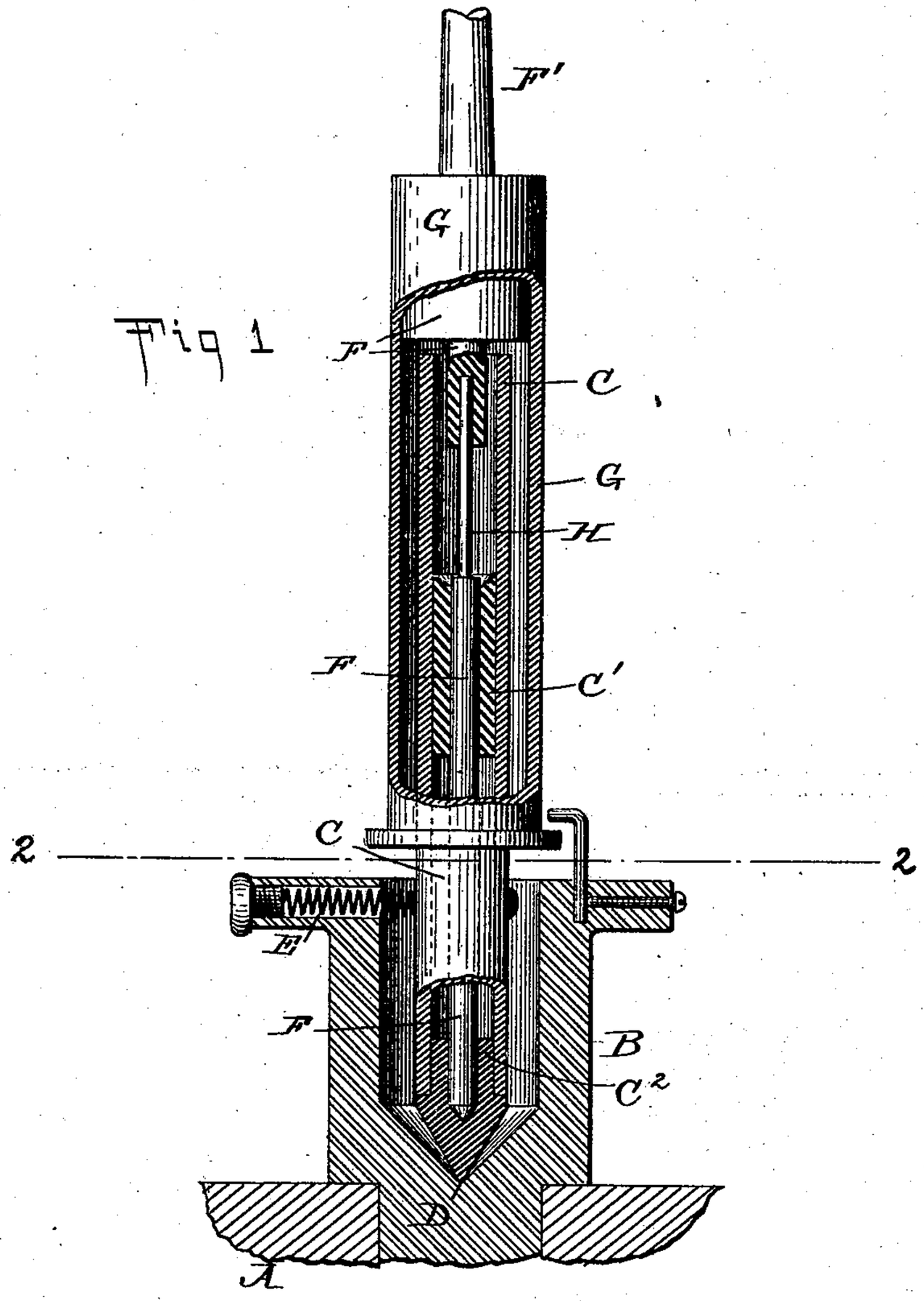
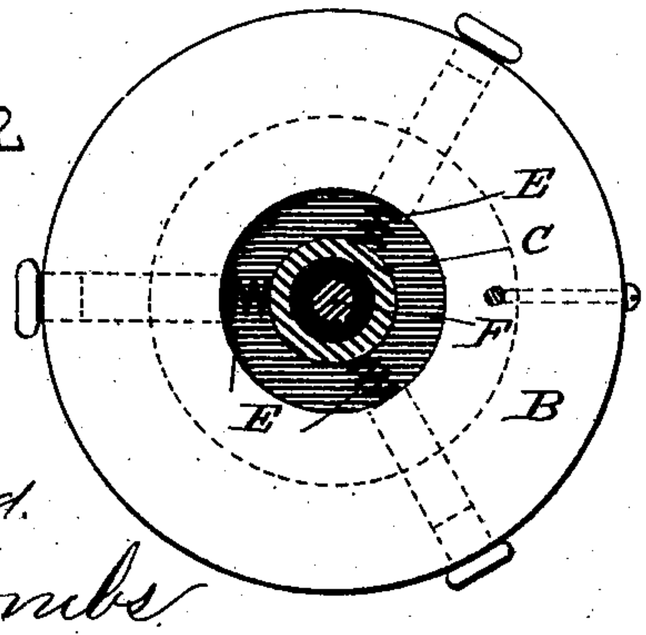


Fig 2



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SPINNING-SPINDLE AND SUPPORT THEREFOR.

SPECIFICATION forming part of Letters Patent No. 501,792, dated July 18, 1893.

Application filed March 22, 1893. Serial No. 467,161. (No model.)

To all whom it may concern:

Be it known that I, HENRY D. KLOTS, a citizen of the United States, residing in the city, county, and State of New York, have invented a certain new and useful Improvement in Spinning-Spindles and Supports Therefor, of which the following is a specification.

My invention relates to means for enabling a spinning spindle to accommodate itself in its rotation to an unbalanced load, and thereby to prevent vibration and its resulting disadvantages. Among the many devices heretofore contrived for this purpose have been a universally yielding mounting for the bolster-bearing of the spindle, for the step-bearing, or for both. A spindle has also been proposed having a flexible portion intermediate the bolster-bearing and bobbin-holding portions. But none of these devices have been wholly successful in preventing the injurious vibration of the spindle. I have discovered however that by mounting a spindle-blade constructed with a spring intermediate the bobbin-holding and bolster-bearing portions, in a bearing yieldingly connected to the rail, the flexibility of said spring and yielding connections of the said bearing act in a novel manner to take up and remove both the local and bodily vibration of the spindle due to an unbalanced load. I have achieved the best results by using a combined bolster and step-bearing tube mounted on a universal spring pivot joint of the character described in Letters Patent No. 493,034, issued to me March 7, 1893, for a spindle support.

I shall first describe in detail the mode in which my invention is carried into practice and then distinctly claim the same.

Reference is to be had to the accompanying drawings forming part of this specification in which—

Figure 1 is a sectional elevation of a spinning spindle and its support embodying my invention. Fig. 2 is a sectional plan view of the same on the line 2—2, Fig. 1.

Corresponding parts are designated by like letters of reference in both figures.

A designates the spindle rail, B an attachable portion thereof, and C a rigidly combined bolster and step-bearing tube for the spindle-blade F. I mount the bearing tube C, by preference as before stated, in the rail-portion B, on a universal spring pivot-joint D, of the general character described in my aforesaid Letters Patent issued March 7, 1893, so that every point of the spindle bearing tube will move in a circle described about the center of said universal pivot-joint D. The bearing tube C is here shown upheld by several radially arranged springs E bearing laterally against the tube. The lower portion of the spindle-blade F is mounted in the bolster-bearing C′ and step-bearing C^2 of the tube C, but above the bolster-bearing C′ the spindle-blade, with the whirl G, is free to play laterally in all directions, the spindle-blade being constituted thereat and below the bobbin-holding portion F′, with a spring H, which may be rigidly attached to the ends of the bolster-bearing and bobbin-holding portions of the blade, or formed by reducing the diameter of the spindle blade to one-eighth or three-sixteenths of an inch according to the previously determined temper of the metal. The spring H accommodates and takes up what I term the "local" vibration in the spindle due to an unbalanced load and transforms the same into what may be called a "bodily" vibration, which it transmits to the bolster-bearing portion of the spindle and thence to the bolster-bearing tube where it is finally and fully taken up by the described yielding connection of the said tube to the rail. In other words, the spring H transmits the average or resultant of the "local," that is, waves of vibration in the spindle in the form of a "bodily" vibration to the yielding connection of the spindle bearing.

Continued use by me of this self-springing spindle in combination with the yieldingly mounted combined bearing tube C, has demonstrated that it can be run at speeds three times as great as can ordinarily be employed without appreciable vibration.

I claim—

1. The combination, with a spindle bearing, its support and its yielding connection thereto, of a spindle blade composed of an upper bobbin-carrying portion, a lower bearing portion and of a spring intermediate said bobbin-holding and bearing portions to cooperate with the yielding connection of the bearing, substantially as described.

2. The combination, with a rigidly combined

bolster and step-bearing tube, its support and its yielding connection thereto, of a spindle-blade composed of an upper bobbin-carrying portion, a lower bolster-bearing portion and a spring intermediate said bobbin-holding and bolster-bearing portions to cooperate with the yielding connection of the bearing tube, substantially as described.

3. The combination, with a rigidly combined bolster and step-bearing tube mounted on a universal spring pivot-joint of the character described, of a spindle-blade composed of an upper bobbin-carrying portion, a lower bolster-bearing portion and a spring intermediate said bobbin-holding and bolster-bearing portions to cooperate with the universal spring pivot joint of the bearing tube, substantially as set forth.

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