(No Model.)

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BEARING FOR SPINDLES.

No. 285,461. Patented Sept. 25, 1883.

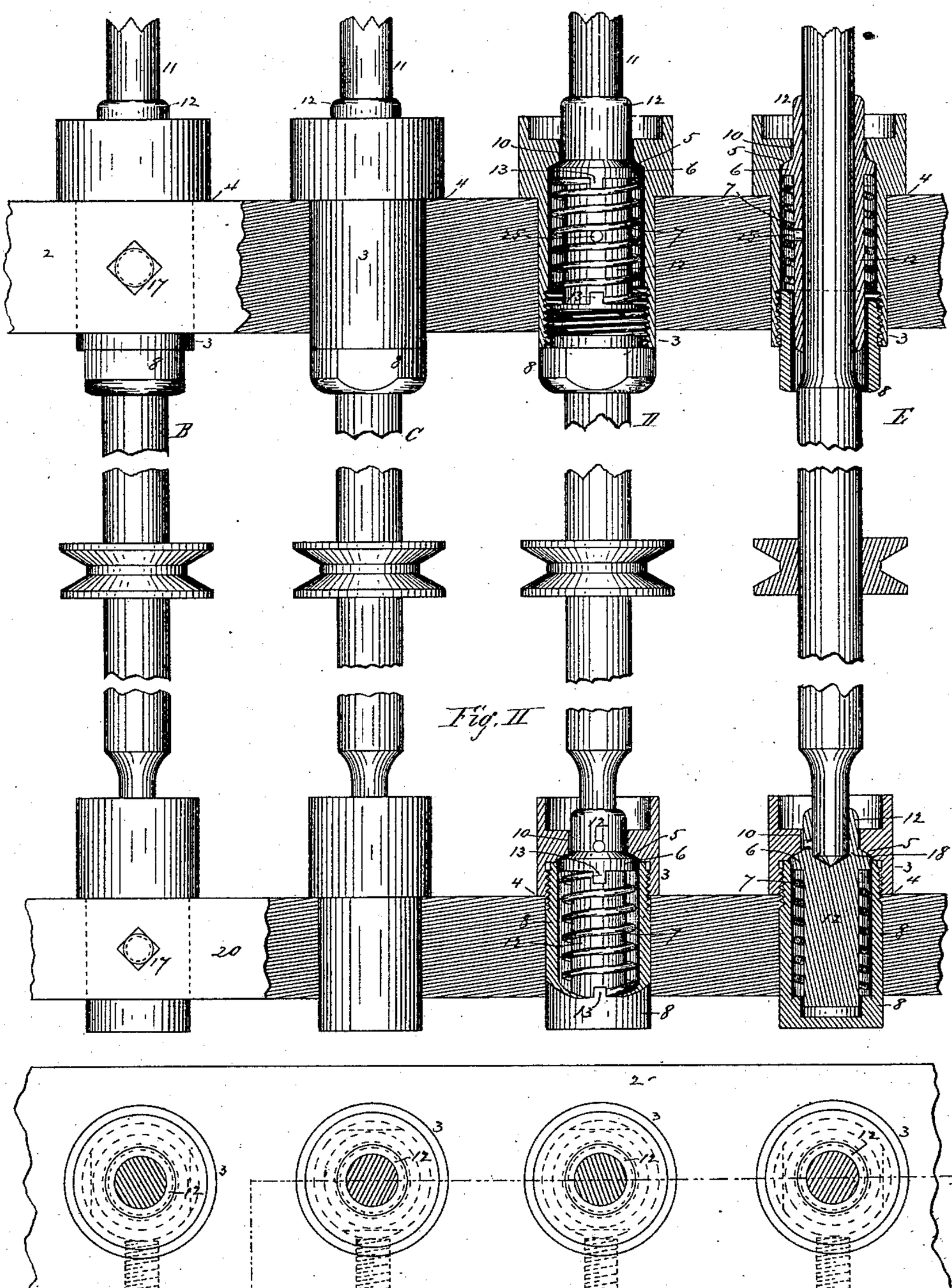

Fig. II

Fig. I

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UNITED STATES PATENT OFFICE.

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BEARING FOR SPINDLES.

SPECIFICATION forming part of Letters Patent No. 285,461, dated September 25, 1883.

Application filed March 9, 1883. (No model.)

To all whom it may concern:

Be it known that we, CHARLES G. BUTTRICK and TIMOTHY B. FLANDERS, both of Holyoke, in the county of Hampden and State of Massachusetts, have invented a new and useful Improvement in Bearings for Spindles, of which the following is a specification and description.

The object of our invention is to lock the bearing for the spindle, to prevent its turning in the same direction in which the spindle is turned in the operation of spinning, by the spring mechanism, which gives the bearings and their spindles their yielding or elastic support; and we accomplish this by the mechanism substantially as hereinafter described, and illustrated in the accompanying drawings, in which—

Figure I is a plan view of a portion of the rail of a spinning-frame having spindles arranged therein with our improved bearings, the spindles being in section; and Fig. II is a sectional side elevation of the parts shown in Fig. I, the section being taken on line A of that figure.

In the drawings, 2 represents the upper rail, and 20 the lower rail, of a spinning-frame having the usual vertical holes made therein to receive the ordinary spindle-bolster and step. Into these holes in the upper rail we insert the bearing-case 3, with, preferably, an exterior shoulder, 4, thereon resting upon the rail, and this case has a vertical hole extending through it, which is of smaller diameter at 10, with an interior shoulder, 5, located horizontally near one end, and whose opposite end has an interior screw-thread made therein, adapted to receive a threaded nut, 8, having a vertical hole therein, and a vertical shoulder or lug, 13, made on its extreme upper end. The bearing 12 for the upper rail is substantially a tube, provided near one end with an exterior shoulder, 6, also located horizontally to fit well against the interior shoulder, 5, of the case, and the upper end of this bearing is made to fit the hole in the case above the shoulder 5 somewhat loosely, and the lower end of the bearing is made to fit the hole in the nut 8 somewhat loosely also, as shown in Fig. II. The bore of the case 3, below the interior shoulder, 5, is of sufficient size to receive a spiral spring, 7, placed around the exterior of the bearing 12, which spring is of sufficient length that when the nut 8 is turned into place in the end of the case the spring will be compressed somewhat between the horizontal shoulder 6 on the bearing and the end of the nut, and when the spring is in place within the case 3 and around the bearing 12 the upper extreme end of the spring abuts laterally against the vertical shoulder 13, made, on the lower side of the horizontal shoulder 6 of the bearing, and the lower extreme end of the spring abuts laterally in the opposite direction against the lower vertical shoulder, 13, made on the upper end of the nut 8, as shown clearly at D in Fig. II. This bearing also serves the purpose of a step for a spindle, as well as an upper bearing, by leaving the nut 8 whole at the lower end, as shown clearly in the lower part of Fig. II at D and E. For the step we preferably make the case quite short, with its lower end to rest upon the lower rail, 20, and make the nut sufficiently long to extend up through the rail and turn into the lower end of the case, and make the hole in the nut from the upper end sufficiently large and deep to receive the bearing 12 and spring 7, with a horizontal shoulder near the bottom of the hole in the nut for the spring 7 to bear down upon, and also a vertical shoulder or lug, 13, projecting up from this horizontal shoulder, against which the extreme lower end of the spring may impinge laterally to prevent the latter from revolving in one direction. The nut is bored out, of smaller diameter in the bottom, to provide a space therein below the lower end of the bearing 12 when used for a step, so that the bearing may have a free movement in the nut.

The hole in the bearing 12, when used for the step, instead of extending entirely through the bearing, may only extend in from the top sufficiently to receive the lower end of the spindle, as shown clearly in the lower part of Fig. II, at 18, in E.

To insert the bearings and spindles in place, the nut 8 being turned out of the case, the bearing 12 is inserted into the case, with the shoulder 6 of the bearing against the shoulder 5 of the case. The spiral spring 7 is placed upon the bearing 12, and the nut is turned into place in the end of the case. When the de-

vice is in place in the rail it is held secure therein and made stationary by any convenient means, preferably by a set-screw, 17, turned into the rail and against the case. The spiral spring 7 is wound in an opposite direction from that in which the spindle revolves, so that if the bearing 12 is inclined to revolve by the friction of the spindle revolving therein, the upper vertical shoulder 13 impinges against the extreme upper end of the spring 7, and as the extreme lower end of the spring impinges against the lower vertical shoulder 13 of the nut, and as the case is held stationary in the rail, the bearing 12 is thereby prevented from revolving. If the spindle is to be used for twisting, or is to revolve in the opposite direction, the spring 7 should be wound the other way, so that its extreme ends will abut against the opposite sides of the vertical shoulders 13.

It will be seen that when constructed as above described the spindle and its bearing will have all the advantages of an elastic or yielding support in all directions, and yet the bearing will always be held stationary by an elastic force applied to the bearing, so that the latter may not revolve with the spindle in the operation of spinning.

Lubricating-oil may be applied to the spindle above the bearing 12, and, if desired, an oil-hole may be made through the bearing 12 and inside the case, as at 25, to permit the oil as it works down the spindle to pass outward into the spring, and as the coils are somewhat close together, the oil collects in the spring, especially while the spindle is not running, and when the spindle begins to get warm again by its friction in running, the oil is again drawn out of the coils of the spring, so that the latter serves to hold the oil as a reservoir, from which a supply is occasionally drawn.

It is evident that instead of a projecting vertical shoulder or lug, 13, made on the bearing and on the top of the nut 8, a notch having a vertical side may be made in the horizontal shoulder 6, and another in the top of the nut to receive the lateral thrust of the end of the spring, and serve the same purpose; but we prefer the lugs cast thereon as being more easily made.

This bearing is cheaply made, is effective, and for some purposes—as, for example, a spinning-frame with a single rail—it may be reversed in its position, so that the nut 8 may be uppermost and operate in precisely the same manner and without departing from the invention in the least.

Having thus described our invention, what we claim as new is—

The combination of a case, 3, having an internal shoulder, 5, a bearing, 12, provided with an external shoulder, 6, and a vertical shoulder, 13, a nut, 8, adapted to be secured in the end of said case, and provided with a similar vertical shoulder, 13, and a spiral spring, 7, to be inserted within said case and around said bearing, whereby the said bearing is rendered movable and yielding in its position, and is also held from revolving with the spindle by the pressure of said spring against said shoulders, substantially as described.

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