No. 686,975. Patented Nov. 19, 1901.

H. KELLY.

SPINDLE PLUMB.

(Application filed Apr. 22, 1901.)

(No Model.)

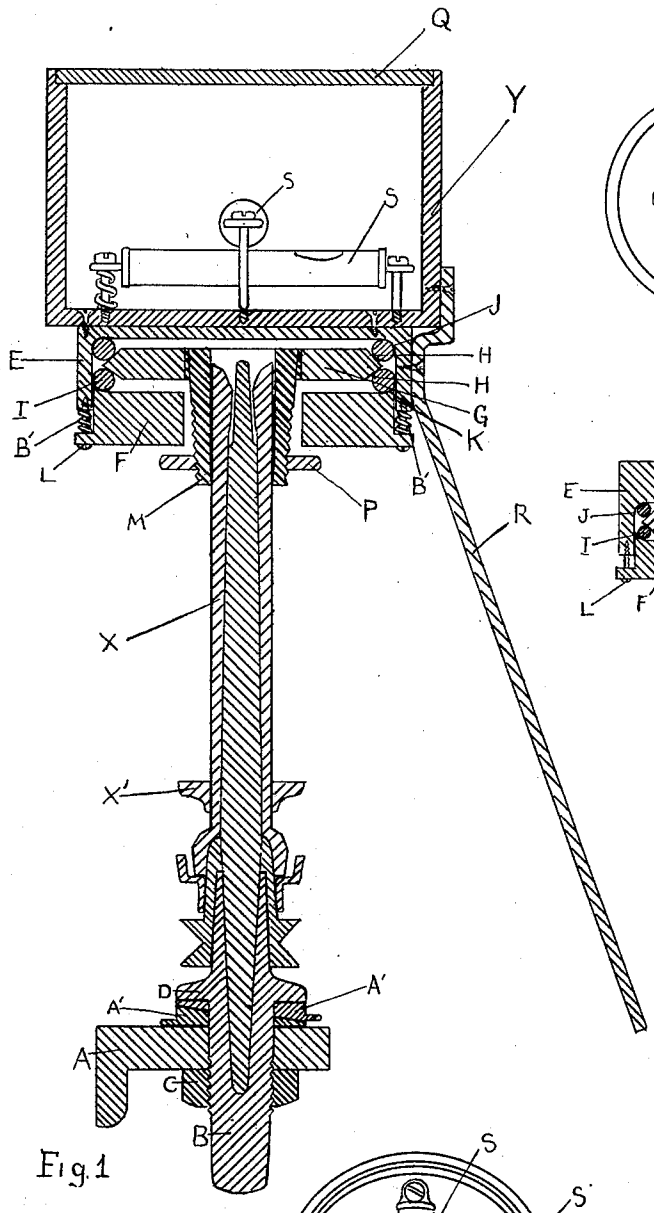


Fig. 1

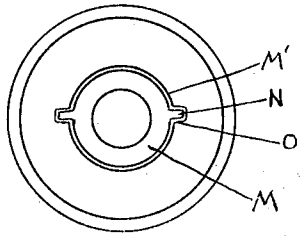


Fig. 2

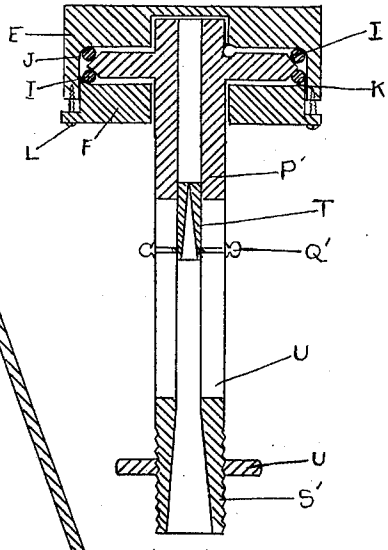


Fig. 4

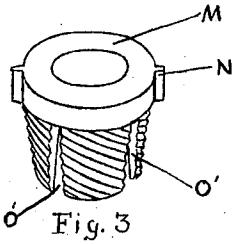


Fig. 3

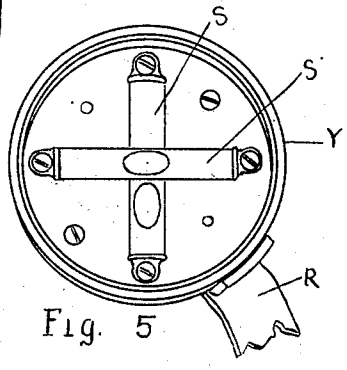


Fig. 5

Witnesses
Paul P. Goold
Marion Richards.

Inventor
Harold Kelly
by Orrilo & Clifford,
Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HAROLD KELLY, OF BIDDEFORD, MAINE.

SPINDLE-PLUMB.

SPECIFICATION forming part of Letters Patent No. 686,975, dated November 19, 1901.

Application filed April 22, 1901. Serial No. 56,872. (No model.)

To all whom it may concern:

Be it known that I, HAROLD KELLY, a citizen of the United States, residing at Biddeford, in the county of York and State of Maine, have invented certain new and useful Improvements in Spindle-Plumbs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in spindle-plumbs or instruments by which the perpendicularity of spinning-spindles may be determined.

In the art of spinning as at present practiced the spindles are mounted upon a rail, above which is a second rail bearing the spinning-rings, said second rail having vertical movement relative to the first-named rail. The spindle is removably mounted in a spindle-case which extends down through the lower rail and is clamped thereto by a nut impinging against the bottom of the rail. In practice it is not feasible to stop the spindles while they are being plumbed, and the problem to be solved is to plumb the spindle quickly and easily while the spindle is running. This is easily and quickly done by means of the improved plumbing device shown in Letters Patent No. 519,716, granted to John P. Kelly May 15, 1894, the operation of which is clearly described in said Letters Patent. While this furnishes a ready means of plumbing the spindle, it affords no means of determining when the spindle is plumb; and the object of the present invention is to provide a device which may be readily applied to a running spindle, so as to show when the spindle is plumb. It is not intended to limit its use to any particular means for plumbing spindles, and it is applicable whether the said Kelly plumbing-disks or other means for plumbing the spindle are used. It also obviates the necessity of moving the second rail up and down.

In the drawings herewith accompanying and making a part of this application, Figure 1 is a central sectional view of my improved spindle-plumb, the leveling instrument being shown in elevation. Fig. 2 is a detail plan view showing means for clamping the bobbin to the rotating disk. Fig. 3 is a detail perspective showing the means of adjusting the clamping device to fit bobbins of different sizes. Fig. 4 is a central sectional view of my device in an embodiment adapted to be applied directly to the spindle, thus obviating the use of the bobbin, the level-containing box being omitted. Fig. 5 is a top plan view showing the plumbing device.

Same letters of reference refer to like parts.

Referring now to said drawings, A represents the spindle-supporting rail, B the spindle-case, set in the rail and being clamped thereto by a nut C, adapted to turn against the bottom of the rail in the usual manner, and D the extended base of the spindle-case, adapted to rest upon the top of the rail. It is customary to plumb the spindle-case, and thereby the spindle, by inserting thin disks A′, of paper or other material, between the said rail and the base of the spindle-case.

In the embodiment of my invention shown in Fig. 1, E shows a box having for convenience a removable bottom F, in which is a revolubly-mounted disk G, and in order that the same may rotate with as little friction as possible the disk is mounted upon ball-bearings, which may be arranged in any suitable manner. As shown, both edges of the disk are beveled, as seen at H H, and the ball-bearings I travel upon ways formed in the top of the box and in the inner face of the bottom, as seen at J and K, respectively; but I do not thereby intend to limit myself to any particular way of mounting said revoluble disk. The bottom may be secured to the box by means of threaded screws L, extending through the bottom into the walls of the box, and in order that the bottom may have a yielding and adjustable fit with respect to the ball-bearings said screws may be surrounded with coil-springs B′, whereby the bottom may be adjusted relative to the box by means of said screws. The bobbin X, which fits over the spindle, has the usual disk X′, the diameter of which should be slightly less than the inside diameter of a spinning-ring (not shown) and serves to show when the spindle is in the center of the ring, as is the usual practice at the present time. It is rigidly secured to the revoluble disk in any convenient manner. Inasmuch as the diameters of bobbins vary somewhat I have provided means for securing an adjustable

fit, which consists of a tapering chuck M, adapted to enter a circular hole M′ in said revoluble disk and be locked thereto against rotation by means of ears N, fitting into recesses O in the disk, adapted to receive them. The chuck has a series of vertical cuts O′ extending into it from the bottom and is adapted to be compressed to bind against the body of the bobbin by means of a threaded nut P.

On top of the box is mounted the plumbing instrument, which in the case shown in Fig. 1 consists of two spirit-levels S S, extending at right angles to each other. The plumbing instrument may be set in a box Y, made integral with or secured to the top of the box E and protected by a transparent cover Q, if desired. Secured to the outside of the box is an arm R, adapted to bear against some stationary part of the spinning-frame and adapted to hold the box against rotation.

The operation of my device as thus embodied is as follows: The bobbin carrying the plumb is placed upon the running spindle. The nut is then loosened. The spindle-case, which contains the bearings for the spindle, is then tipped or adjusted in any convenient manner until the plumbing instrument shows that the spindle is plumb. The case is then set finally in its adjusted position by tightening up the nut C. The bobbin and plumbing instrument are then removed to the next spindle needing plumbing, and so on through the whole frame, thus rendering it unnecessary to stop the operation of the frame or the running of any of the spindles therein.

Instead of using the separate bobbin upon which to mount my improved plumb a hollow case P′ may be permanently secured directly to the revoluble disk C, adapted to receive the top of the spindle and to rotate with the spindle and with the disk, as seen in Fig. 4. The case P′ may have vertical slots U therein, and adapted to register up and down in said case is an interiorly-tapering hollow sleeve T, which fits the head of the spindle. This sleeve can be adjusted vertically and can be held in any desired place by means of set-screws Q′, passing through said slots and engaging said sleeve. The lower extremity of said case is externally screw-threaded, as seen at S′, and has a threaded nut U′ thereon, which serves the same purpose as the disk X′ in the former case. The construction of the other parts of the device when embodied in this form may be substantially the same as that hitherto described. Its operation is substantially the same as in the former case.

Having thus described my invention and its use, I claim—

1. In a spindle-plumb, two members revolubly connected together, one adapted to be mounted upon and rotate with a running spindle and the other carrying a plumbing instrument and adapted to remain stationary.

2. In a spindle-plumb, two members revolubly connected together, one adapted to be mounted upon and rotate with the spindle, the other adapted to carry a plumbing instrument and means for preventing its rotation with the first member.

3. In a spindle-plumb, a suitable inclosing box carrying on top thereof the plumbing instrument, a disk mounted therein and adapted to rotate independently thereof, on anti-friction-bearings interposed between said disk and said box, a bobbin, means for rigidly securing said bobbin to said disk and means for preventing the rotation of said box.

In testimony whereof I affix my signature, in presence of two witnesses, this 15th day of April, 1901.

HAROLD KELLY.

Witnesses:
NATHAN CLIFFORD,
MARION RICHARDS.