(No Model.)

J. DUFFY.

SPINDLE.

No. 602,254. Patented Apr. 12, 1898.

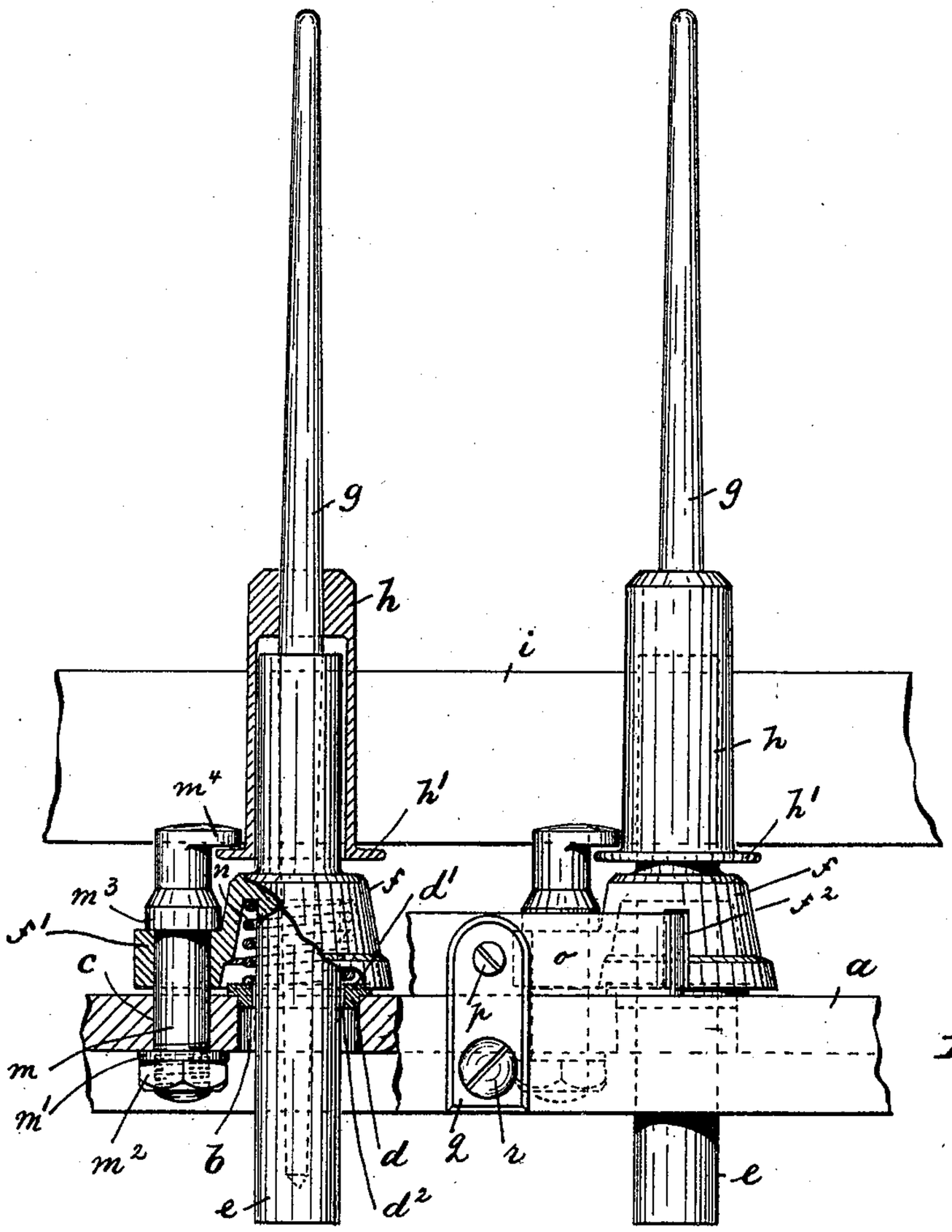

Fig. 1.

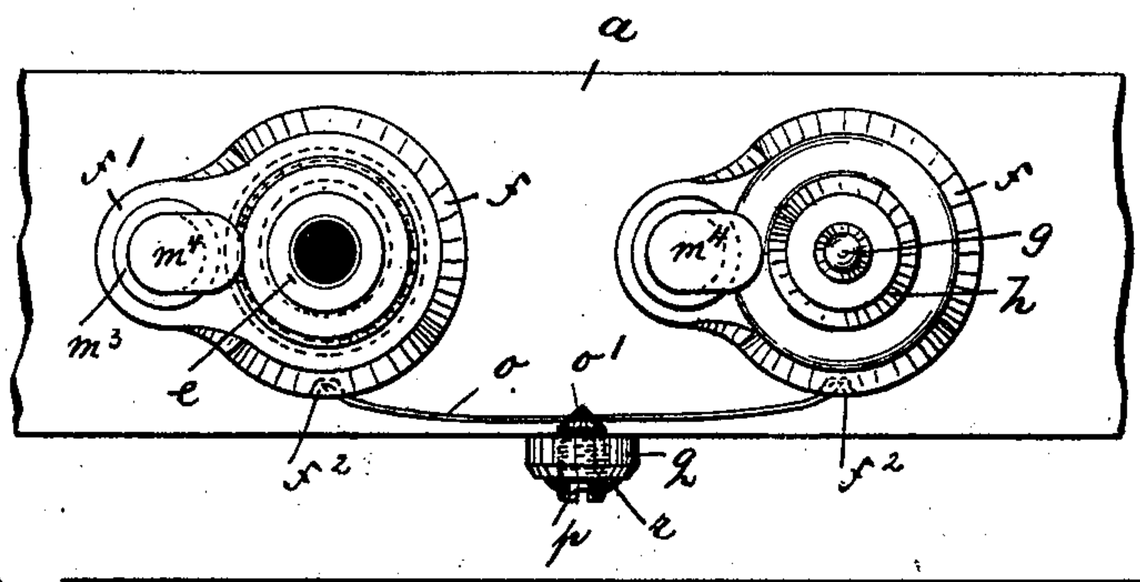

Fig. 2.

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JOSEPH DUFFY, OF PATERSON, NEW JERSEY.

SPINDLE.

SPECIFICATION forming part of Letters Patent No. 602,254, dated April 12, 1898.

Application filed November 12, 1897. Serial No. 658,228. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH DUFFY, a citizen of the United States, residing in Paterson, county of Passaic, and State of New Jersey, have invented certain new and useful Improvements in Spindles; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of my invention is to provide a support for spindles, especially applicable for duplex spindles, having the bolsters capable of a slight lateral movement toward and from the driving means and also of a slight vertical movement with regard to the spindle-rail for the purpose of producing a uniform frictional contact between the whirl and the driving means and of allowing each spindle sufficient yielding motion to adjust itself to an unbalanced load.

The invention consists in the improved spindle-supports, in the means for controlling the lateral movement of the spindle-supporting bolsters, and in the combination and arrangements of the various parts, substantially as will be hereinafter more fully described, and finally embodied in the clauses of the claim.

In the accompanying drawings, Figure 1 is a front elevation of my improved duplex spindles and of their supporting means, certain portions being broken away and others shown in sections to better illustrate the nature of my said invention; and Fig. 2, a top plan view of Fig. 1, one of the spindles and the driving means being removed.

In said drawings, *a* represents the spindle-rail, provided at certain intervals with vertical openings *c*, each of which is penetrated by a bolt *m*, having on its lower screw-threaded portion a nut m^2 and intermediate washer m', bearing against the under side of the rail, while its upper portion is provided with a projection m^4 and an annular collar m^3 for purposes hereinafter described.

On the bolt *m* is loosely mounted a lug f', projecting from the lower portion of a shell or chamber *f*, secured to or made integral with the bolster *e*, which latter contains step and bolster bearings for the spindle *g*, having mounted thereon the sleeve *h* with annular flange h', the latter adapted to be engaged by the projection m^4 of the bolt *m*, as clearly illustrated in the drawings.

The lower portion of the bolster *e* penetrates a vertical hole d^2 in a washer *d* and also the vertical hole *b* in the spindle-rail *a*.

The washer *d* is provided at its upper portion with an annular flange d', resting upon the top of the spindle-rail and serves for a seat or bearing for the lower end of the spiral spring *n*, surrounding the bolster *e* and bearing with its upper portion against the inner top portion of the shell or chamber *f*.

Each shell or chamber is provided on the side diametrically opposite the driving-belt *i* with a vertical groove or recess f^2, adapted, in connection with the recess f^2 in the shell *f* of the adjoining spindle-bolster, to receive the ends of a flat spring *o*, provided in its central portion with a depression o', in engagement with the pointed end of a set-screw *p*. Said set-screw is adjustably arranged in the bracket *q*, which latter by preference is secured to the spindle-rail *a* by a screw *r* or in any desired manner.

It must be remarked that the diameter of the bolster *e* is smaller than the internal diameter of the opening d^2 in the washer *d*, so that said bolster is allowed a certain amount of lateral movement. The bolster, by means of its shell or chamber *f* and projecting lug f', is loosely mounted upon the bolt *m*, as heretofore stated, and is allowed a certain amount of vertical movement, which latter is controlled by the spiral spring *m*, as will be manifest. By this arrangement each spindle is independent of the other, and yet two adjoining spindles are controlled by one flat spring, and thus furnish a duplex spindle. Said flat spring *o* tends to keep the sleeve *h* in uniform contact with the driving-belt *i*, and its tension can easily be regulated by adjusting the set-screw *p*.

I do not intend to limit myself to the precise construction shown and described, as various alterations can be made without changing the scope of my invention; but

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination with the driving means and with the rail provided with a vertical hole, of a bolt penetrating said rail and adjacent to said hole, a shell or chamber loosely mounted on the bolt, a bolster penetrating said shell or chamber and carried thereby and extending into and through the hole in the rail, a washer removably arranged in said hole and carried by the rail and penetrated by the bolster, a spiral spring surrounding said bolster and bearing against said washer and the shell or chamber respectively, a sleeve-whirl spindle mounted in said bolster, and means carried by the rail for normally holding said sleeve-whirl spindle in frictional contact with the driving means, substantially as and for the purposes described.

2. The combination with the driving means and with the spindle-rail provided with a vertical hole, of a bolt penetrating said rail and adjacent to said hole and bearing with its nut against the under side of the rail, a collar at or near the upper portion of said bolt, a bolster penetrating the hole in the rail, an annular shell or chamber surrounding said bolster, a lug projecting from said shell or chamber and loosely mounted on the bolt and adapted to bear against the under side of the collar thereon, a washer removably arranged in said hole and penetrated by the bolster, a spiral spring surrounding said bolster and bearing against said washer and the inner upper portion of the shell or chamber respectively, a sleeve-whirl spindle in the bolster, and means for normally holding said sleeve-whirl spindle in frictional contact with the driving means, substantially as and for the purposes described.

3. The combination with the driving means and with the spindle-rail provided with a vertical hole, of a bolt penetrating the rail and adjacent to said hole and provided at its upper portion with a projection, a shell or chamber loosely mounted on said bolt, a bolster penetrating said shell or chamber and carried thereby and extending into and through the hole in the rail, a spiral spring surrounding the bolster and within said shell or chamber, a spindle in said bolster, a sleeve-whirl mounted on said spindle and provided with an annular flange adapted to be engaged by the projection on the bolt, and a spring carried by the rail and adapted to normally hold said sleeve-whirl spindle in frictional contact with the driving means, substantially as and for the purposes described.

4. The combination with the driving means and with the spindle-rail provided at certain intervals with vertical holes, a bolt penetrating said rail and adjacent to its respective hole, a shell or chamber above each hole and loosely mounted on its respective bolt, a bolster carried by each shell or chamber, a sleeve-whirl spindle in each bolster, a spiral spring within each shell or chamber and surrounding its respective bolster, a bracket between adjoining holes and projecting from the spindle-rail, a set-screw adjustably arranged in said bracket, and a flat spring centrally engaged by said set-screw and bearing with its free ends against the shells or chambers of adjoining spindles, substantially as and for the purposes described.

In testimony that I claim the foregoing I have hereunto set my hand this 5th day of November, 1897.

JOSEPH DUFFY.

Witnesses:
ALFRED GARTNER,
LOUISE SNYDER.