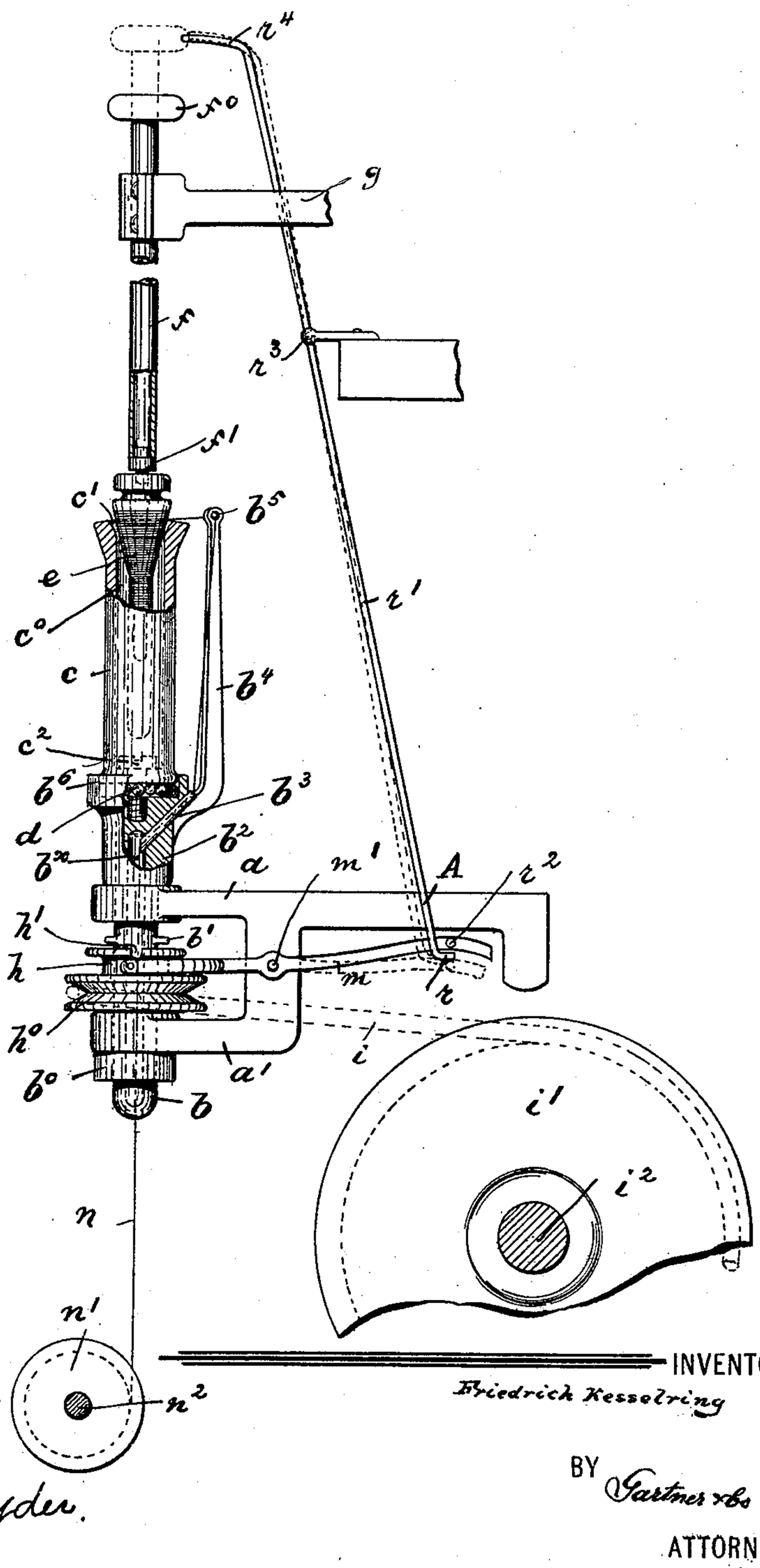
No. 606,890. Patented July 5, 1898.

F. KESSELRING.

SPINDLE FOR QUILLING MACHINES.

(Application filed Mar. 18, 1898.)

(No Model.)



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SPINDLE FOR QUILLING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 606,890, dated July 5, 1898.

Application filed March 18, 1898. Serial No. 674,314. (No model.)

To all whom it may concern:

Be it known that I, FRIEDRICH KESSELRING, a citizen of the United States, residing in Sterling, Morris county, and State of New Jersey, have invented certain new and useful Improvements in Spindles for Quilling-Machines; 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 drawing, and to letters of reference marked thereon, which forms a part of this specification.

The object of my present invention is to provide a simple and effective spindle for quilling-machines, by means of which the cops, quills, or bobbins can be readily and quickly wound.

The invention consists in the improved quilling-machine spindle and in the combination and arrangement of the various parts thereof, substantially as will be hereinafter more fully described, and finally embodied in the clauses of the claim.

In the accompanying drawing, which represents in side elevation my improved spindle and such parts of the quilling-machine that are necessary to illustrate the nature of my said invention, A is the spindle-rail, in which is revolubly mounted the spindle b, resting with its enlarged portion b^2 upon the top of the spindle-rail and provided at its lower portion with a nut or collar b^0 to prevent vertical movement of said spindle.

On the spindle b and between the two arms a and a', constituting the rail A, is slidingly arranged a grooved pulley h^0, having integral therewith a grooved collar h, provided in its upper flange with recesses h', adapted to engage lugs b', projecting from the spindle b. The grooved pulley h^0 receives its motion through the endless belt i, (shown in dotted lines,) passing over a grooved wheel i', securely mounted on the driving-shaft i^2 of the quilling-machine. The grooved collar h of said pulley h^0 is engaged by the forked portion of a lever m, suitably fulcrumed, as at m', on the spindle-rail, as clearly shown in the drawing.

The extreme upper portion of the enlargement b^2 of the spindle b is provided with an annular flange b^6 and contains a series of antifriction-balls d, which form a roller-bearing for the auxiliary spindle c. Said spindle is provided with a central vertical chamber c^0 and is connected to the enlarged portion b^2 of the spindle b by means of a headed screw c^2, on which it is revolubly mounted. The chamber c^0 and its upper flaring mouth c' are adapted to receive the cop or quill e, which latter is provided in its upper portion with a central socket in engagement with a pin or pintle f', arranged in the lower end of the vertical reciprocating rod f. Said rod is carried by the reciprocator g, (only a portion of the latter being shown,) but moves gradually upward in said reciprocator while the cop or quill is being built up in a manner hereinafter described.

The enlarged portion b^2 of the spindle b is provided with an upwardly-extending arm b^4, having at its free end an eye b^5 in alinement with the top portion of the auxiliary spindle c. The spindle b is provided with a vertical hole $b^\times$ and with a channel b^3, extending from about the upper end of said hole $b^\times$ to the foot of the arm b^4. The thread n is passed from the bobbin or spool n' (on the axle or shaft n^2) through the hole $b^\times$, channel b^3, and eye b^5 onto the cop or quill e, upon which it is wound in conical layers. After the cop or quill has been placed into the chamber of the auxiliary spindle c the grooved pulley h^0 is moved upward until the recesses h' in the flange of the grooved collar h engage the projecting lugs b' on the spindle. To retain said grooved collar in engagement with the respective lugs on the spindle, the substantially horizontal bent portion r of a rod or wire r' is placed upon a pin r^2, projecting from the free end of the fulcrumed lever m. Said rod or wire r' is fulcrumed, as at r^3, to a bracket projecting from the quiller-frame, while its upper portion is curved or bent, as at r^4, and is adapted to be engaged by the curved head f^0 of the reciprocating rod f. The motion of said grooved pulley is thus transmitted to the spindle b, and while the latter is rotating the thread n, passing from the eye b^5, is wound in conical layers upon the cop or quill e, which latter is simultaneously reciprocated by means of the vertical rod f. Whenever one layer is completed and the quill or cop has been again moved down-

ward into the annular chamber c^0, its circumference has naturally increased, and accordingly the rod f will be slightly moved upward in the reciprocator g independent of the latter, as will be manifest. When the cop or quill is filled, the head f^0 forces the curved upper portion r^4 of the rod or wire r' over into the position shown in dotted lines, whereby the fulcrumed lever m is released and the grooved pulley h^0 allowed to fall or drop out of engagement with the lugs b' on the spindle b. Said spindle b is accordingly stopped, and an empty quill or cop can be quickly and readily substituted for the one just filled.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a quilling-machine, the combination with the spindle-rail, of a spindle revolubly mounted in said rail and provided with a vertical central hole and connecting-channel, an eye-carrying arm upwardly projecting from said spindle, an auxiliary spindle revolubly mounted on the top portion of the spindle and having an annular central chamber with a flaring mouth, a vertical reciprocating rod above the auxiliary spindle and in the center line thereof, and means for rotating the spindle, substantially as and for the purposes described.

2. In a quilling-machine, the combination with the spindle-rail, of a spindle revolubly mounted in said rail and provided with a central vertical hole and connecting-channel, the upper portion of said spindle being enlarged and provided with an annular flange, an auxiliary spindle revolubly mounted on the enlarged portion of the spindle and provided with a central vertical chamber having a flaring mouth, a series of antifriction-balls interposed between said auxiliary spindle and the enlarged portion of the revolving spindle, a vertical reciprocating rod above the auxiliary spindle and in the center line thereof, an eye-carrying arm upwardly projecting from the enlarged portion of the spindle, and means for rotating the spindle, substantially as and for the purposes described.

3. In a quilling-machine, the combination with the spindle-rail, of a spindle revolubly mounted in said rail and provided with a vertical central hole and connecting-channel, an eye-carrying arm upwardly projecting from said spindle, an auxiliary spindle revolubly mounted on the top portion of the spindle and having an annular central chamber with a flaring mouth, a vertical reciprocating rod above the auxiliary spindle and in the center line thereof, a driving-pulley revolubly mounted upon the spindle, means for securely connecting said driving-pulley with the spindle, and means operated from the reciprocating rod for automatically disengaging said grooved pulley from its firm connection with the spindle, substantially as and for the purposes described.

In testimony that I claim the foregoing I have hereunto set my hand this 14th day of February, 1898.

FRIEDRICH KESSELRING.

Witnesses:
ALFRED GARTNER,
WM. D. BELL.