

(No Model.)

J. STARK, Jr.
MAINSRING WINDER.

No. 356,802.

Patented Feb. 1, 1887.

Fig:1.

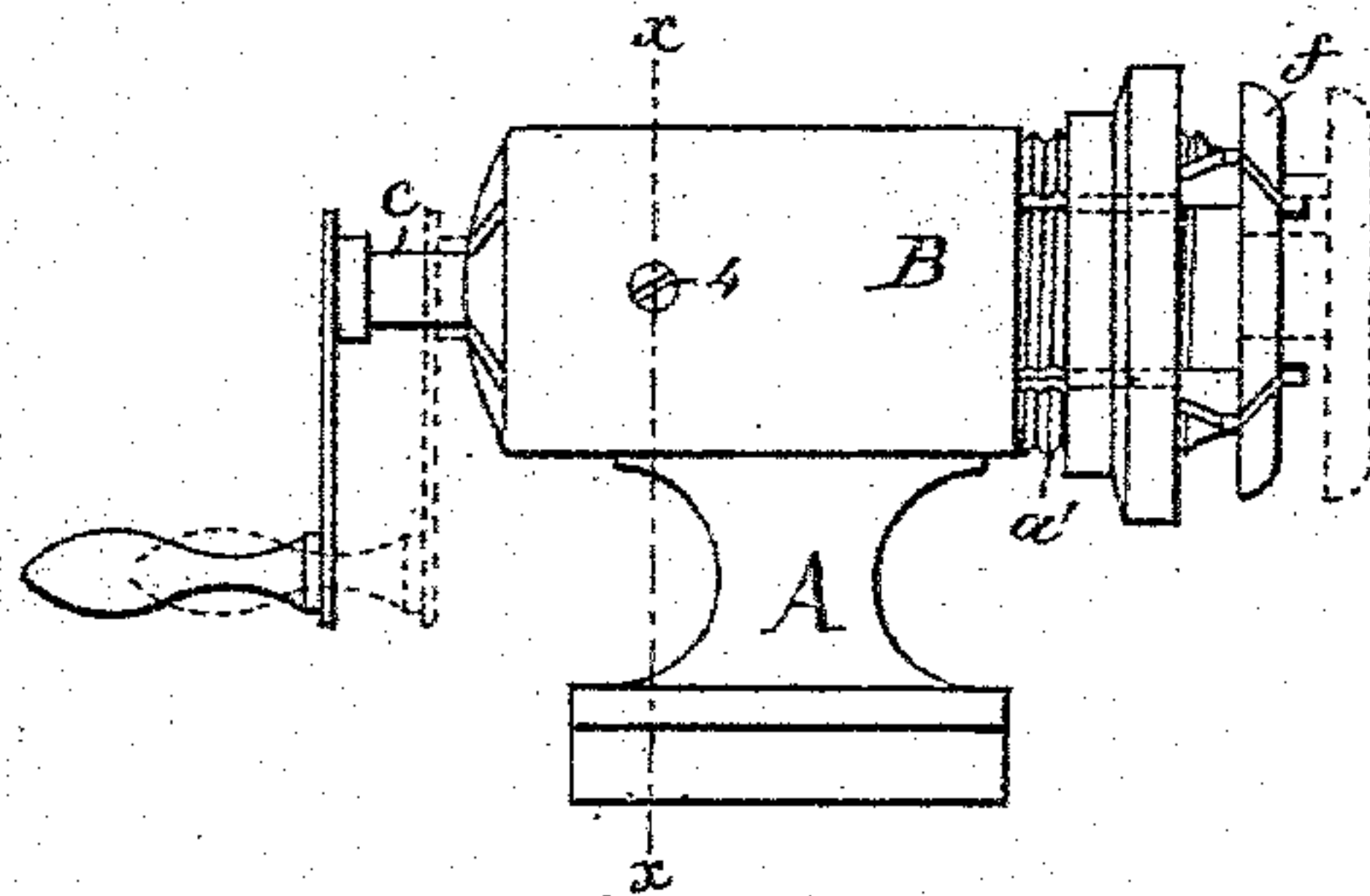


Fig:2.

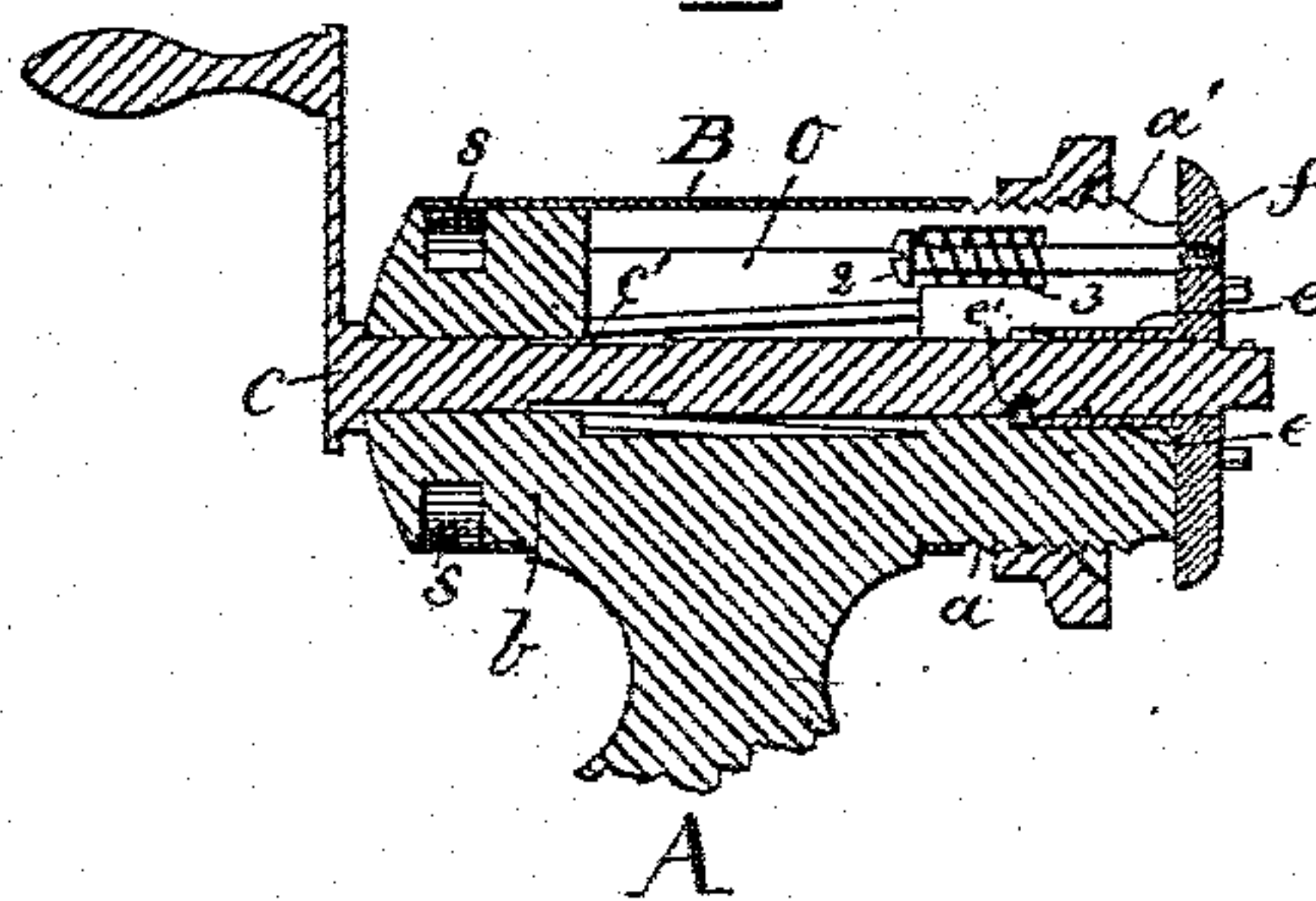


Fig:3.

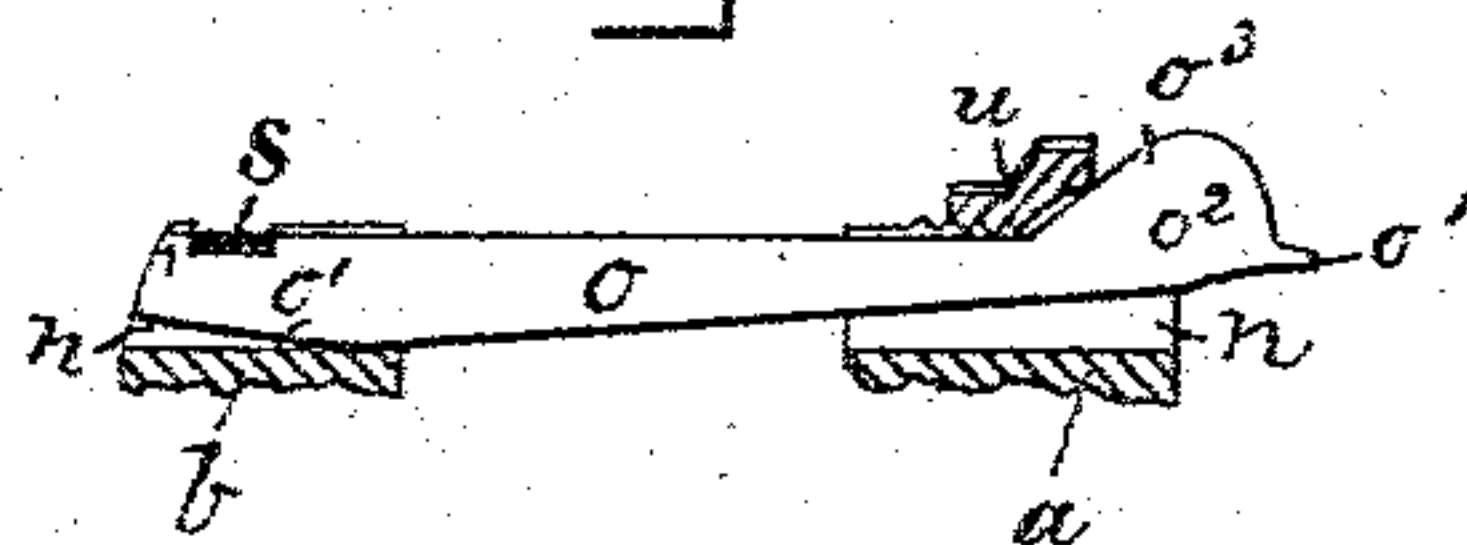


Fig:4.

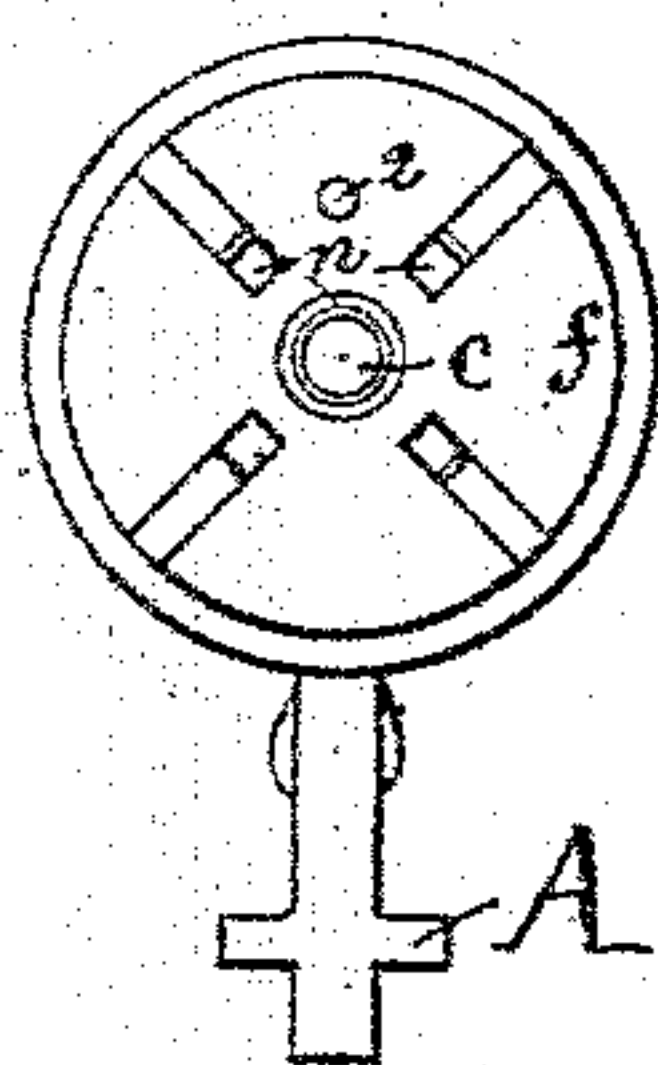
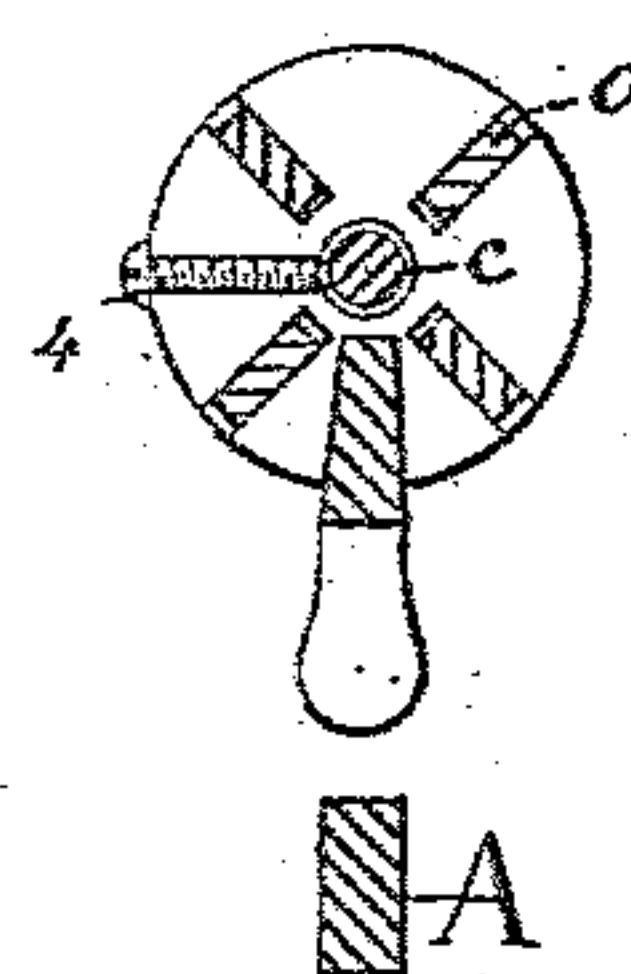


Fig:5.



Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN STARK, JR., OF WALTHAM, MASSACHUSETTS.

MAINSRING-WINDER.

SPECIFICATION forming part of Letters Patent No. 356,802, dated February 1, 1887.

Application filed April 5, 1886. Serial No. 197,844. (No model.)

To all whom it may concern:

Be it known that I, JOHN STARK, Jr., of Waltham, county of Middlesex, and State of Massachusetts, have invented an Improvement in Mainspring-Winders, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention is an improvement upon Letters Patent No. 333,251, granted December 29, 1885, to H. H. Pulver, and has for its object to both simplify the construction and to produce a more efficient device and one less liable to get out of order.

To this end my invention consists, essentially, of a support, having head and tail pieces attached thereto and bored axially to receive a rotating spindle, combined with two or more spring-controlled jaws mounted in the tail-piece and adapted to hold the mainspring, the engaging end of the said jaws moving in radial slots cut in the periphery of the head-piece, adjustment of the said jaws determining the diameter of the mainspring to be wound.

My invention also includes other improvements, which will be hereinafter described and specified in the claims.

The tail-piece is slotted radially to correspond with the slots in the head-piece, and the jaws to hold the spring are curved or beveled at their rear or pivotal ends to form curved bearing-surfaces, upon which the said jaws rock, a flat coiled spring fitting in an annular groove cut in the tail-piece pressing upon the extreme ends of the said jaws beyond their curved bearing-surfaces, the spring normally acting to force the engaging ends of the said jaws outwardly from each other for the reception between them of the mainspring. An external cylinder or case, slotted to pass the support, is slipped over the operating parts to protect the same from harm.

Figure 1 shows in side elevation an apparatus for winding mainsprings embodying this invention; Fig. 2, a longitudinal section of Fig. 1; Fig. 3, a detail of one of the jaws for holding the mainspring to be wound; Fig. 4, a right-hand side view of Fig. 1; and Fig. 5, a cross-section of Fig. 1, taken on the dotted line *x x*.

The support A, of suitable shape to be held by a vise, has attached to it, at each end or

cast integral with it, cylindrical head and tail pieces, *a b*, the former of which is externally screw-threaded, as at *a'*, to thus form a frame to support the operating parts.

Both head and tail pieces *a b* are bored axially to receive a rotating spindle, *c*, while the forward end of the head-piece *a* is reamed out to also receive a tubular portion, *e*, of a circular discharge-plunger, *f*, the end of the said tubular portion *e* being cut way internally to co-operate with a spring-controlled pin, *e'*, seated in a socket of the rotating spindle *c*, all substantially as in the patent referred to.

Herein the discharge-plunger *f* is held in position by a screw, 2, passing longitudinally through the head-piece *a*, that portion of the screw within the head-piece being devoid of threads and for a portion of its length encircled by a spiral spring, 3, so that the said discharge-plunger *f* may be moved longitudinally to discharge a coiled mainspring by moving the rotating spindle *c* longitudinally, as in the patent referred to, the pin *e'* striking against the end of the tubular portion of the said discharge-plunger *f*. The rotating spindle *c* is prevented from being withdrawn by a screw, 4, the end of which enters a reduced portion, *c'*, of the said spindle.

The tail-piece *b*, head-piece *a*, and discharge-plunger *f* are all correspondingly slotted radially, as at *n*, to receive the jaws *o*, (see detail, Fig. 3,) which receive between their outer ends and hold the mainspring to be wound, there being, as herein shown, four such jaws. The said jaws *o* consist of flat pieces of metal curved or beveled on their under side, as at *o'*, within the tail-piece *b* to form a curved bearing-surface upon which the said jaws rock.

A flat spring, *s*, encircles the tail-piece *b*, the said spring fitting in an annular groove cut in the exterior thereof, which spring continually bears upon the extreme ends of the spring-holding jaws *o* beyond the curved bearing-surfaces *o'*, thus normally keeping the outer opposite ends of the said jaws spread apart.

The outer or spring-engaging ends, *o''*, of the jaws *o* are provided with inclined surfaces *o'''*, which are acted upon by the inclined interior of an adjusting-nut, *u*, turning on the screw-threads *a'* of the head-piece *a*, so that as the said adjusting-nut is moved to and fro the

engaging end of each of the said jaws is caused to approach and recede from the spindle *c*. The engaging ends of the jaws *o* are also provided with small projections *o'*, with-
5 in which the mainspring is wound, to thereby limit or determine its external diameter when wound, and over which the mainspring-barrel is placed to gage the diameter of the main-spring to be wound.

10 A cylindrical shell or case, *B*, slotted at its under side to pass the support *A*, is slipped over and so as to conceal the main portion of the apparatus, it being held in position by the screw *4* passing therethrough.

15 It will be seen that the jaws *o*, being free to rock upon the curved bearing-surface *o'*, and being continually under the control of the springs, the engaging ends *o''* thereof are caused to normally recede from each other, such move-
20 ment being, however, limited by the adjusting-nut *u*, which, upon being turned, may position the said engaging ends at any desired distance apart.

The operation of the apparatus is similar to
25 that described in the patent referred to, with the exceptions above noted, and therefore further description is deemed unnecessary.

By providing head and tail pieces, as described, much time and labor in constructing
30 the device is saved, as well as expense reduced.

Herein the inclined parts *o''* of the jaws, and against which the nut *u* acts to close the jaws

upon the spring, are placed close to the holding ends of the jaws, thus enabling the jaws to more firmly grasp and hold the said spring. 35

I claim—

1. In an apparatus for winding mainsprings, the combination, substantially as described, of the support and head and tail pieces fixed thereto, bored axially and slotted radially, the
40 independent and rotating spindle turning in the central bore, and the adjustable spring-controlled jaws *o*, having curved bearing-surfaces *o'*, said jaws being located and arranged to move radially only in the slot cut in the
45 head and tail pieces, and means, substantially as described, for rocking said jaws on their curved bearing-surfaces, an outer shell or case, *B*, and a spring-controlled longitudinally-movable discharge-plunger *f*. 50

2. In an apparatus for winding mainsprings, the support and head and tail pieces attached thereto and the longitudinally-movable rotating spindle, combined with the spring-controlled discharge-plunger *f*, substantially as
55 described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN STARK, JR.

Witnesses:

G. W. GREGORY,
C. M. CONE.