(No Model.)

A. SPEAR.

SEWING MACHINE TENSION.

No. 262,253. Patented Aug. 8, 1882.

Fig. 1.

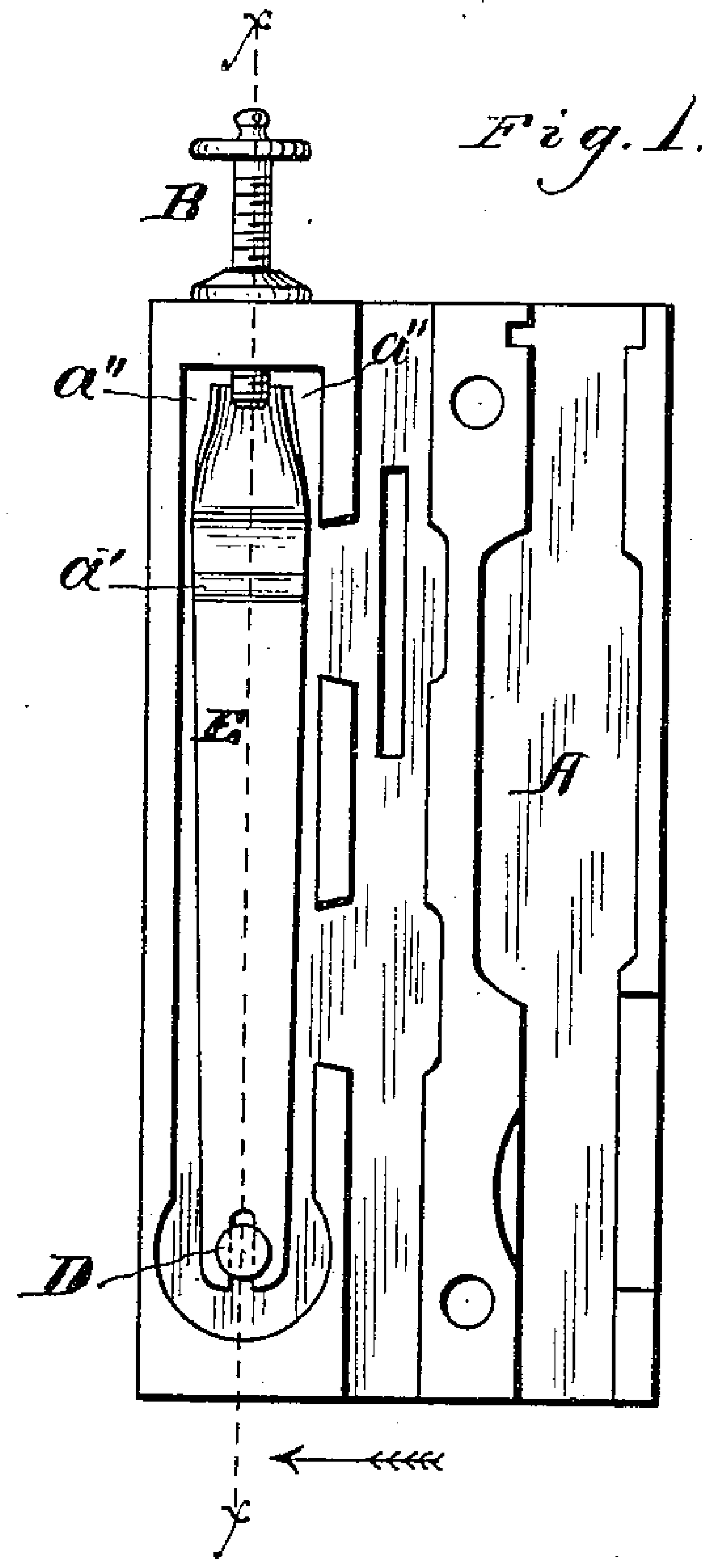


Fig. 2.

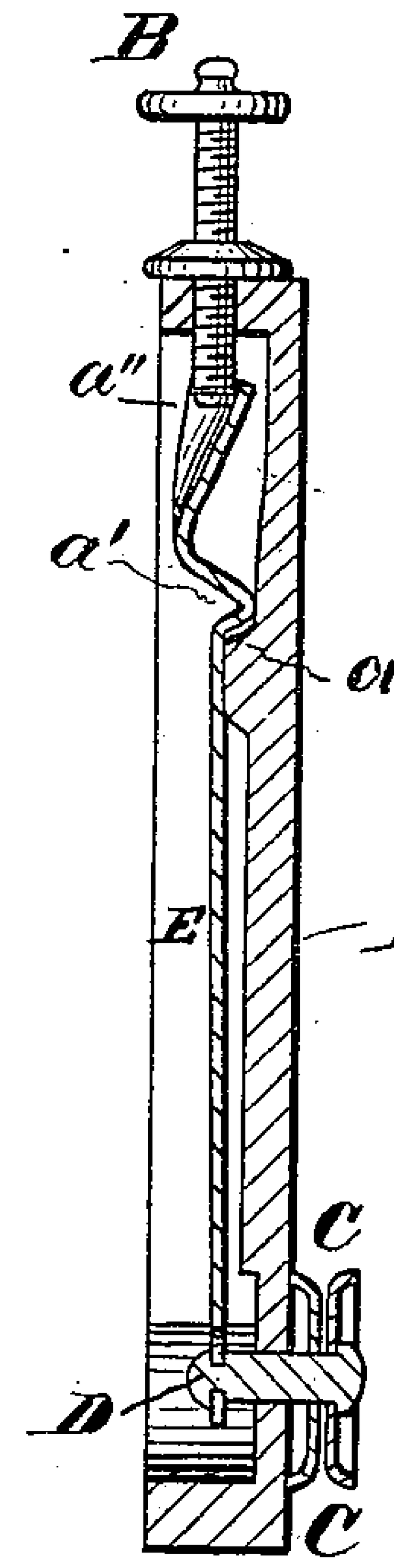


Fig. 3.

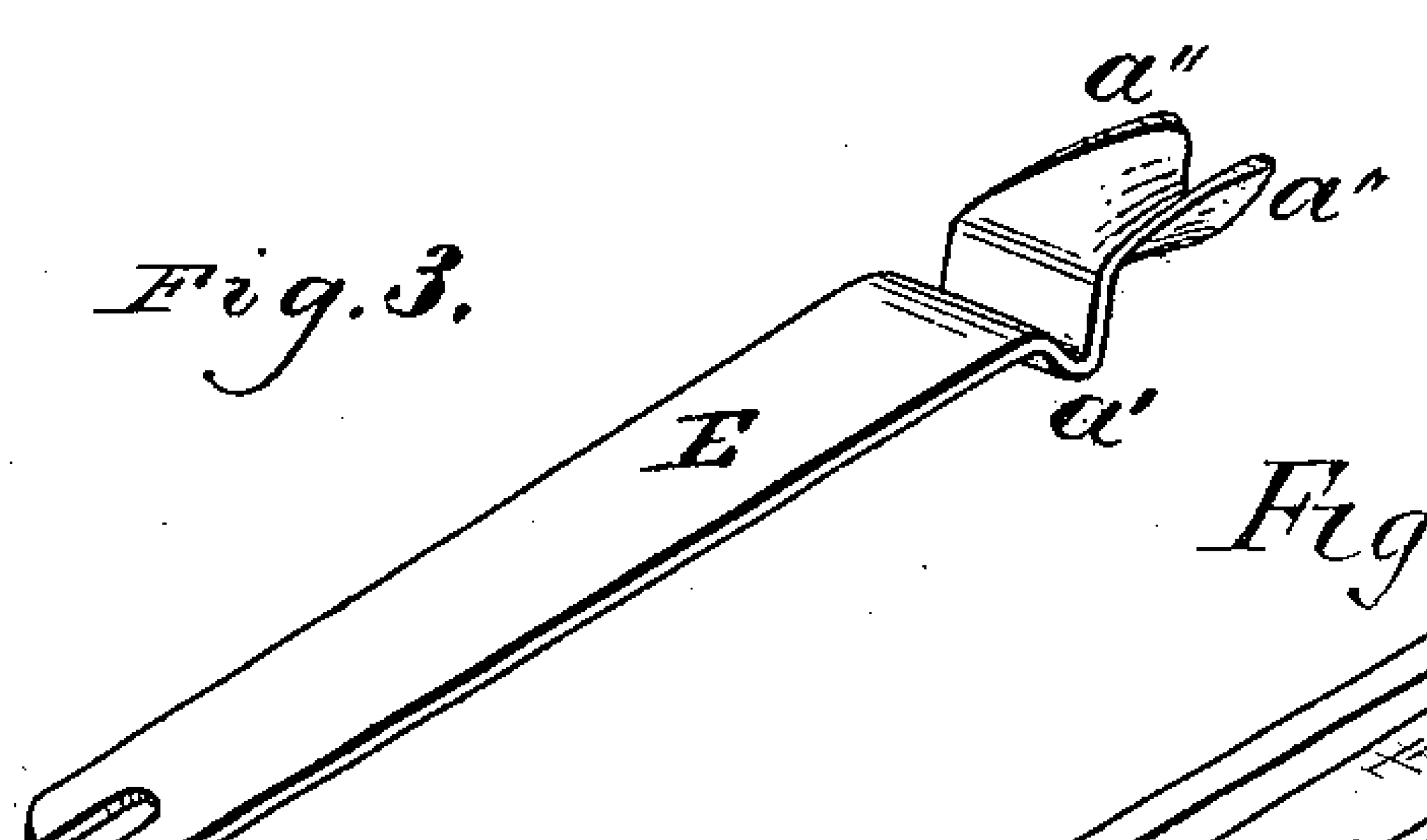
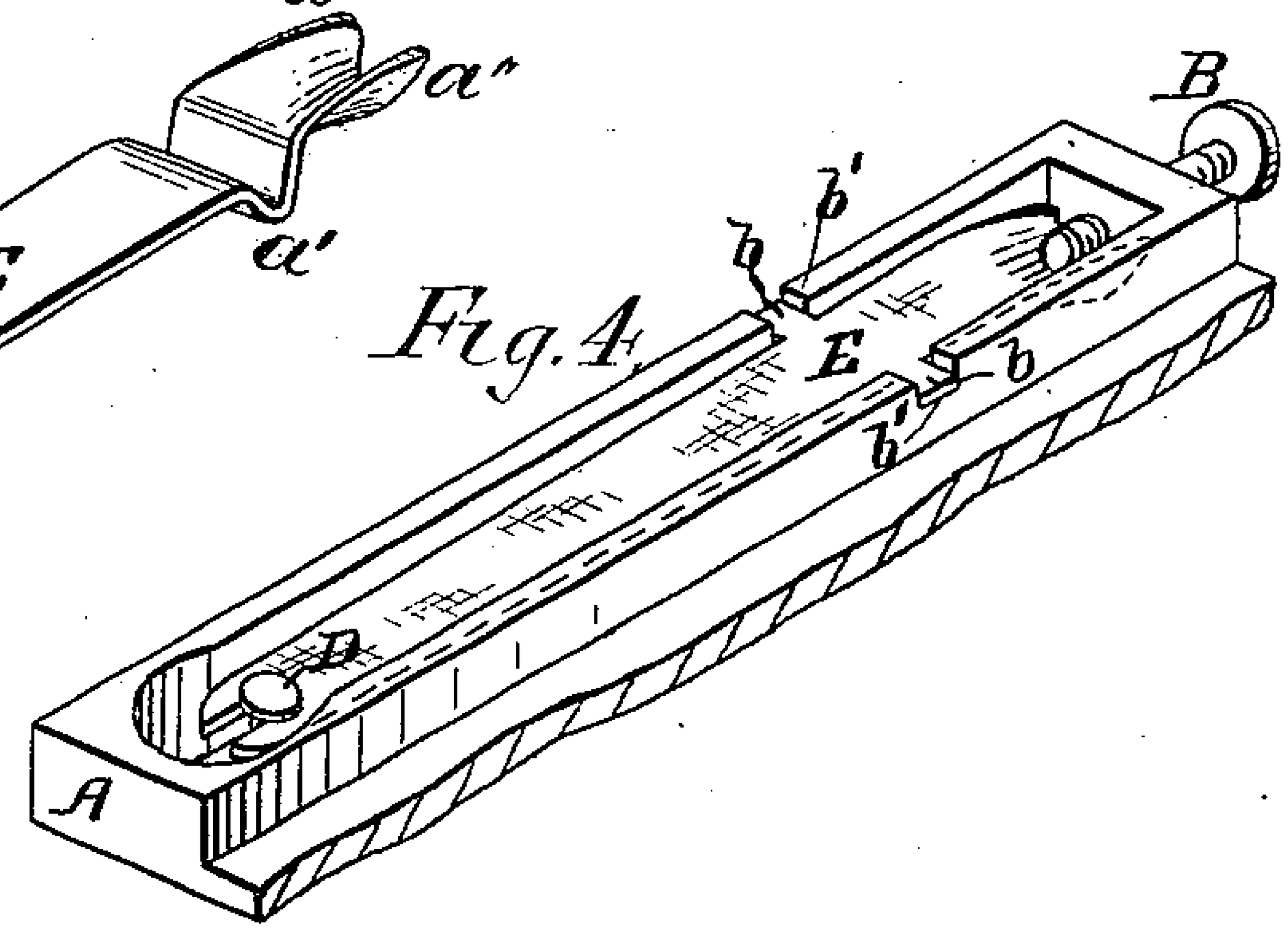


Fig. 4.



Witnesses.
Henry Frankfurter,
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Inventor.
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his Attorney.

UNITED STATES PATENT OFFICE.

ARTHUR SPEAR, OF CHICAGO, ILLINOIS.

SEWING-MACHINE TENSION.

SPECIFICATION forming part of Letters Patent No. 262,253, dated August 8, 1882.

Application filed November 23, 1881. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR SPEAR, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sewing-Machine Tensions, of which the following, in connection with the accompanying drawings, is a specification.

In the drawings, Figure 1 is a side view of the inner side of the detachable part or plate of a sewing-machine head. Fig. 2 is a section in the plane of the line *x x*. Fig. 3 is a detail in perspective of the tension-lever, and Fig. 4 represents a modification of construction.

Like letters of reference indicate like parts.

A is the removable part or plate of a sewing-machine head, and B is the tension-regulating screw entering the said part. C C are the tension-disks, and D is the bolt upon which they are mounted. E is the tension-lever. The upper end of this lever is inclined, as shown, to receive the lower end of the screw B, which impinges upon this inclined part, so that the position or tension of the lever may be altered by turning the screw in and out of the head in the usual manner, it being understood that the lever E is made of spring metal, is fulcrumed on the part A, and engages the bolt D. In the plate A is a shoulder, *a*, and *a'* is a corresponding shoulder bent in the lever E and engaging the shoulder *a*, as shown. By this means the lever E is prevented from being pushed downward by the screw B, and at the same time has such a bearing on the plate A as to be capable of a tilting movement, which will act with greater or less force on the bolt D, and consequently on the disks C C, as the screw B is turned. I thus avoid the necessity of using a screw for connecting the lever E to the plate A and of making a corresponding screw-hole in the said plate. To prevent a lateral movement of the upper end of the lever E, it should be there wide enough to fill or nearly fill the recess which receives it, as shown. The lower part of the lever may then be made tapering, as the lower end is held in place by the bolt D. This form of lever results in good spring action; but I do not regard a wide upper end and a tapering lower part as absolutely essential features of my invention.

Heretofore, so far as I am aware, the screw B has been made beveled, rounded, or tapering at its lower end to avoid the liability of its striking the upper edge of the lever E. I avoid this liability, when a screw with a square edge is used, by curling up the edges of the upper part of the lever, as shown at *a'' a''*, so that these edges will meet the fixed part of the head of the machine when the tension is very loose or when the screw B is drawn away from the lever, and thus prevent the upper edge of the lever from moving underneath the lower end of the screw. These curled-up parts also aid in keeping the upper end of the lever in its proper place.

In Fig. 4 I have shown a modification in the construction of the spring-lever E. This modification consists of the lateral extensions *b b*, which serve, in lieu of the shoulder *a'*, for supporting the lever E, the part A being notched, as shown at *b' b'*, to receive the extensions *b b* and support the lever E, so that the screw B will act upon it as before. It is obvious that either the shoulder *a'* or the extensions *b b* serve as a bearing on which the lever may be tilted by the screw B. When the extensions or bearing-arms *b b* are employed the shoulder *a* will not be essential. The extensions *b b* also perform the functions of shoulders in preventing the lever from slipping longitudinally, and may therefore also be termed "shoulders," which rest against the lower shoulders formed by the notches *b' b'*, and thus prevent the lever E from being pushed downward by the regulating-screw B. It is not absolutely necessary that the lever E should be fulcrumed on its shoulders.

I am aware that tilting tension springs or levers have heretofore been employed in connection with a regulating-screw and the disks C C in the class of sewing-machine tensions to which that herein described belongs; but so far as I am aware those springs or levers have heretofore been pierced to receive a screw entering the plate A, thereby preventing the spring from slipping longitudinally, and I do not here intend to claim such; but,

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

1. The combination, in a sewing-machine tension, of the shouldered face-plate A, the

shouldered tilting spring-lever E, the regulating-screw B, the bolt D, and the disks C C, the said shoulders being located to engage each other, and thereby prevent the said lever from slipping longitudinally when acted on by the said screw, substantially as and for the purposes specified.

2. The combination, in a sewing-machine tension, of the face-plate A, the screw B, the disks C C, the bolt D, and the lever E, having curled-up edges a'' a'', substantially as and for the purposes specified.

ARTHUR SPEAR.

Witnesses:
F. F. WARNER,
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