

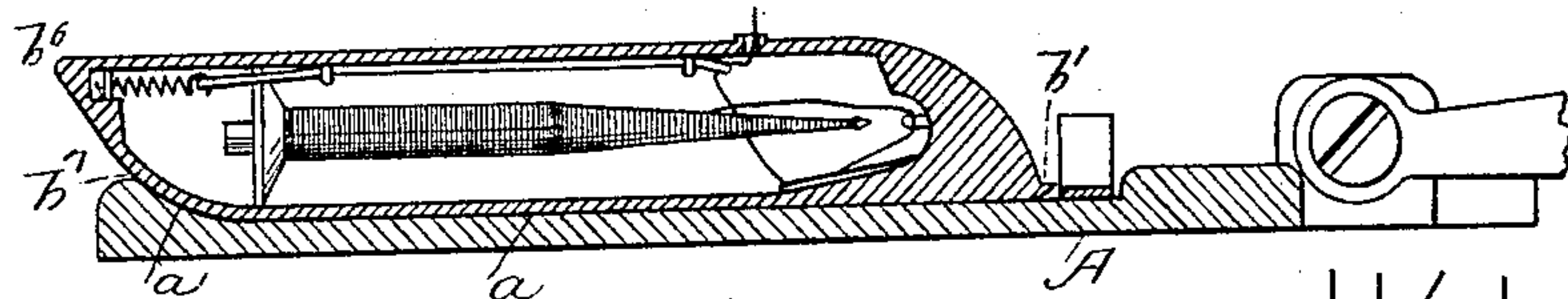
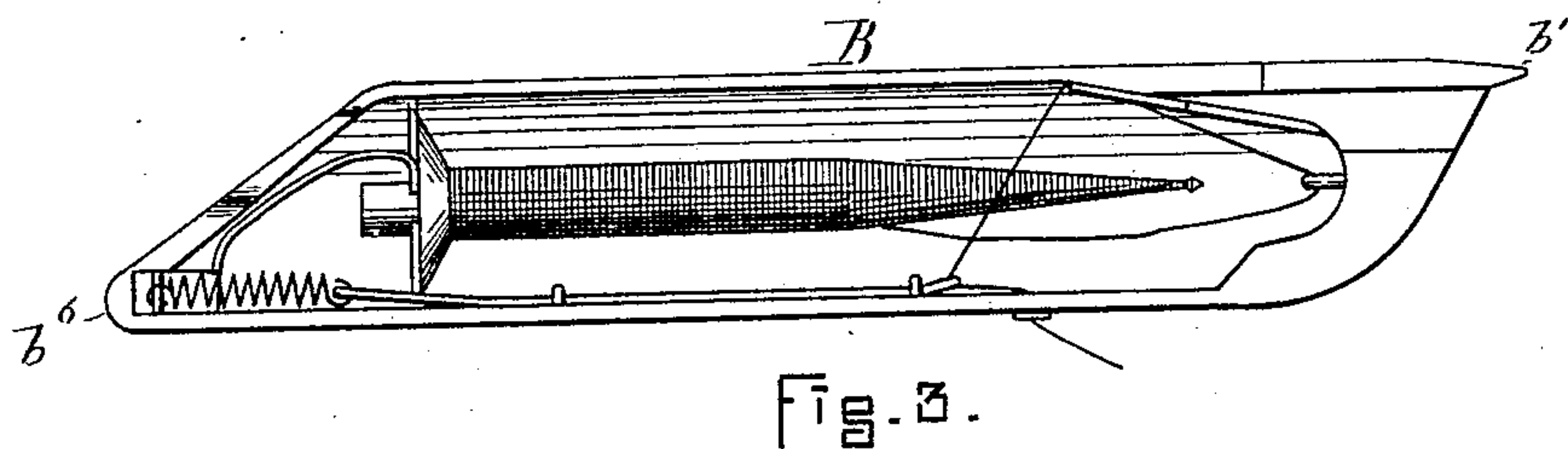
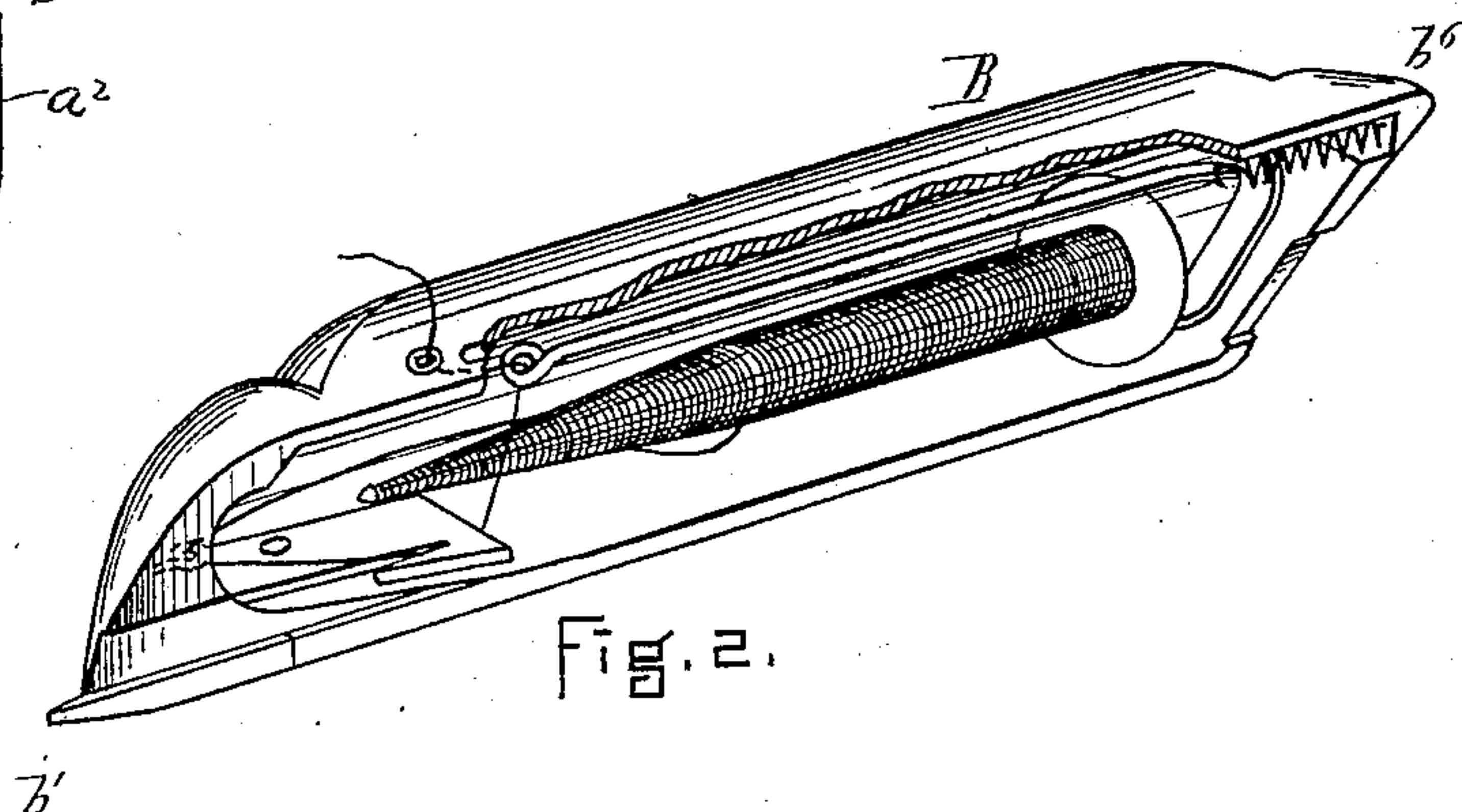
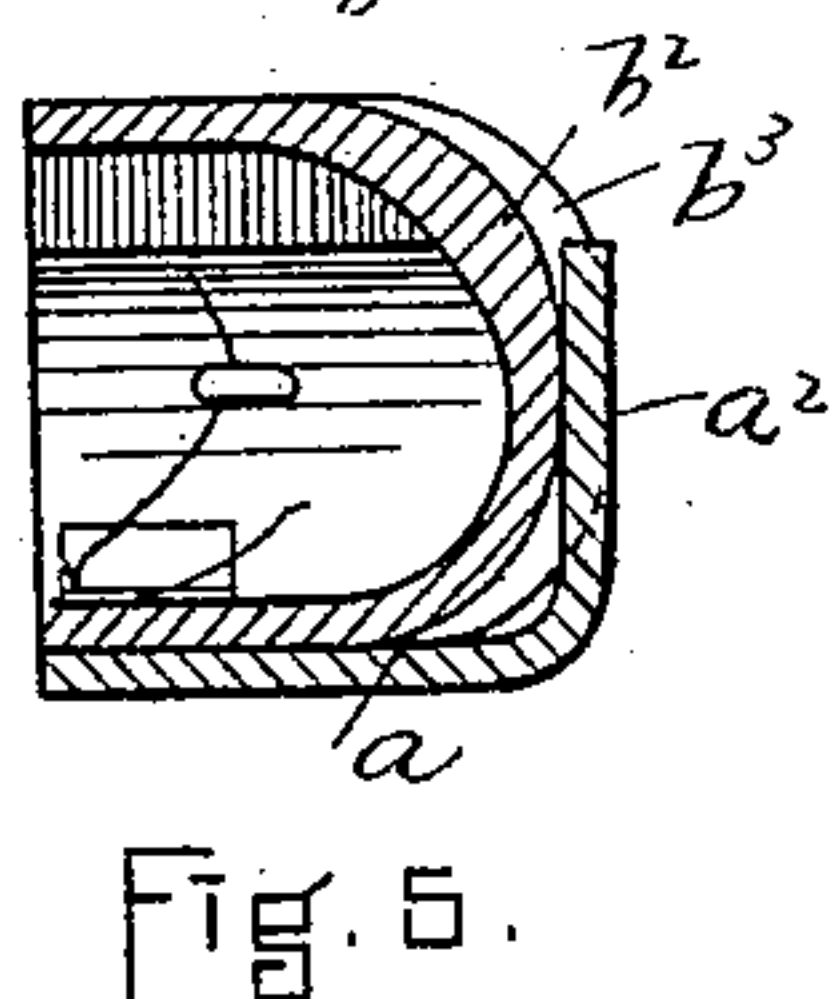
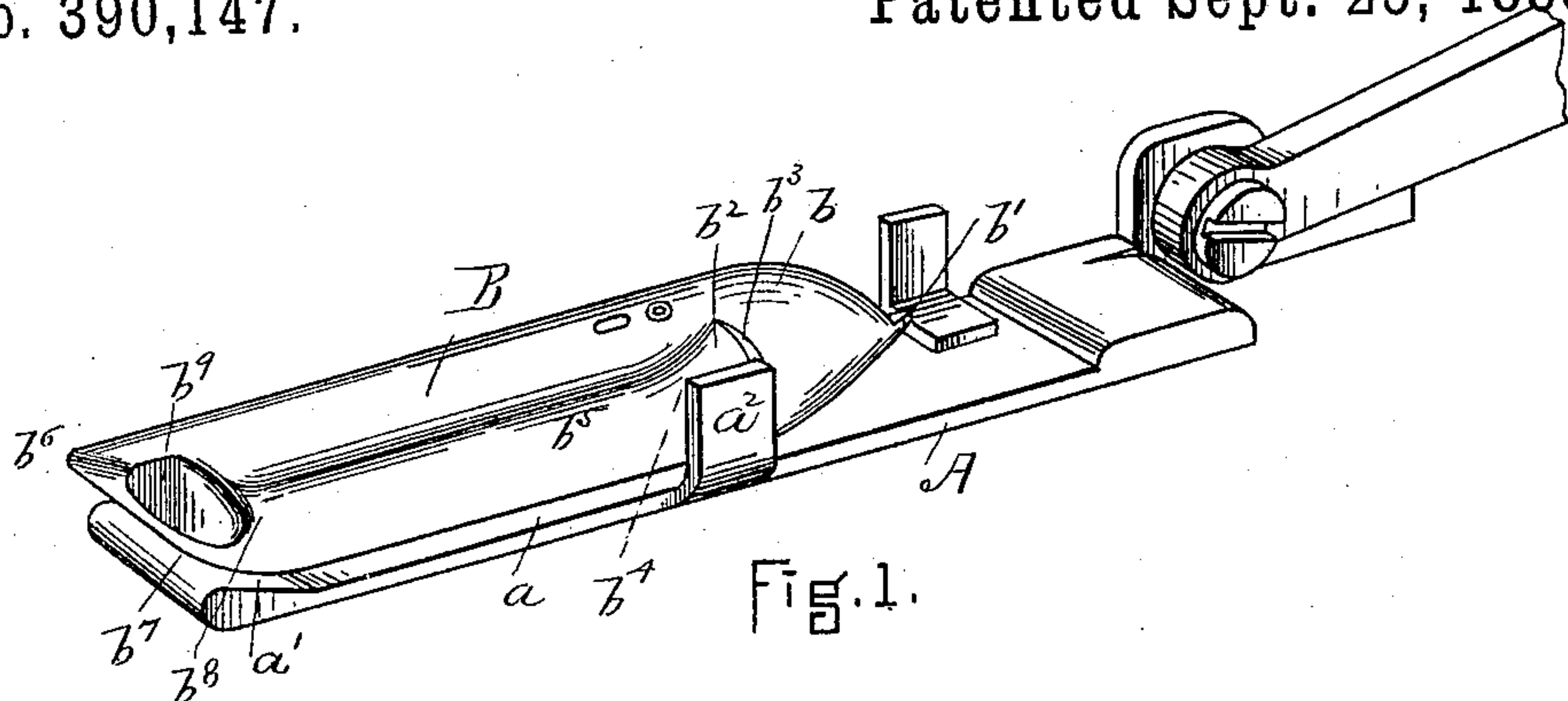
(No Model.)

E. WOODWARD.

SHUTTLE AND SHUTTLE DRIVER FOR SEWING MACHINES.

No. 390,147.

Patented Sept. 25, 1888.



WITNESSES.

J. M. Dolan

Fred. B. Dolan

Fig. 4.

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UNITED STATES PATENT OFFICE.

ERASTUS WOODWARD, OF SOMERVILLE, MASSACHUSETTS, ASSIGNOR TO THE
MORLEY BUTTON SEWING MACHINE COMPANY, OF PORTLAND, MAINE.

SHUTTLE AND SHUTTLE-DRIVER FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 390,147, dated September 25, 1888.

Application filed September 13, 1886. Serial No. 213,375. (No model.)

To all whom it may concern:

Be it known that I, ERASTUS WOODWARD, of Somerville, in the county of Middlesex and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Sewing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention is an improvement upon that described in patent dated June 15, 1886, No. 343,949, and it relates especially to the shuttle and shuttle-carrier and means for actuating it. In sewing-machines having the stitch-forming mechanism described in said patent, as well as in my application, Serial No. 213,376, of even date herewith, it is essential that the shuttle be supported in the shuttle-carrier, so that it may take the loop and pass through it without causing any friction or drawing action upon the thread while the central and rear parts of the shuttle are passing it. To accomplish this purpose it is necessary that the rear and back parts of the shuttle should be substantially free—that is, they should not furnish bearings for the driving or holding posts of the shuttle-carrier. I have therefore organized my shuttle and shuttle-carrier so that it is driven by its head. This result is obtained by forming immediately back of the head a depressed section or recess upon the outer side of the shuttle so shaped as to form a shoulder, and by forming a shuttle-carrier with driving-post arranged to enter this recess and bear against the shoulder and unprovided with any other projection or part bearing against the shuttle for the purpose of driving.

In the drawings, Figure 1 is a view in perspective of my improved shuttle-carrier and shuttle. Fig. 2 is a view, enlarged, of the shuttle to expose the bobbin and interior tension devices. Fig. 3 is a view in elevation thereof. Fig. 4 is a horizontal section through the shuttle and shuttle-carrier. Fig. 5 is a view in cross-section of the shuttle and shuttle-carrier, taken through the driving-post of the latter.

A is the shuttle-carrier. It is reciprocated in the raceway of the machine by any suitable

mechanism. It has the flat surface *a*, the thickened end or pillow *a'*, and driving-post *a''*. The driving-post extends upward from the front edge of the carrier, substantially as represented in Fig. 1. The shuttle B has the head *b*, which is provided with the loop-engaging point *b'* and the recess *b''*, immediately back of the head, which forms a shoulder, *b'''*, and which has the inclined or tapering surface *b''''*, extending from the inner edge of the shoulder outward to the casing or shell *b'''''* of the shuttle, as represented in Fig. 1. This recess is of sufficient size to receive the driving-post of the shuttle-carrier, which, when the shuttle is in position, extends therein, as represented in Fig. 1. The shuttle is also provided with the pointed end *b''''''*, formed by the tapering under surface, *b'''''''*, and by the rounded corner *b''''''''* and corner recess or notch, *b'''''''''*.

In operation the shuttle is driven by its head, the driving-post coming in contact with the shoulder *b'''* thereon. This permits the shuttle to enter the loop and the thread to pass by the driving-post before it is sufficiently drawn to cause any especial tension upon the loop, and it also permits the remainder of the shuttle to then pass through the loop, even though it be drawn to a considerable tension, without biting or clamping the thread or drawing the loop, as there is no part of the shuttle-carrier that bears against the shuttle to cause such action, and as the shuttle itself is formed to leave the loop with as little friction as possible.

Of course I do not confine my invention to use in connection with the machine which I have above referred to, as it may be used in connection with any sewing-machine where it is desired to relieve strain upon the loop by driving the shuttle by its head and where the loop is drawn and tightened by the shuttle.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination, with the reciprocating shuttle B, provided near its head or forward end with the recess *b''*, having the rearwardly-tapering portion *b''''*, the front side of said recess forming the shoulder *b'''*, of the flat-surfaced horizontal reciprocating shuttle-carrier A, which supports said shuttle and which is pro-

vided with the vertical driving-post a^2 , received in said recess to engage said shoulder, substantially as set forth.

2. The combination, with the reciprocating shuttle B, provided near its head or forward end with the rearwardly-tapering recess b^2 , the front side of which is substantially rectangular to form the shoulder b^3 , said shuttle having at its rear end the tapering under surface or portion, b^1 , of the reciprocating shuttle-

carrier A, having the flat surface a , on which said shuttle rests, the driving-post a^2 , to enter the said recess b^2 and engage the said shoulder b^3 , and the thickened portion or pillow a' , against which the said tapering under portion, b^1 , rests, substantially as set forth. 15

ERASTUS WOODWARD.

In presence of—

F. F. RAYMOND, 2d,

FRED. B. DOLAN.