

(No Model.)

W. H. BARNETT.  
SHUTTLE FOR SEWING MACHINES.

No. 560,292.

Patented May 19, 1896.

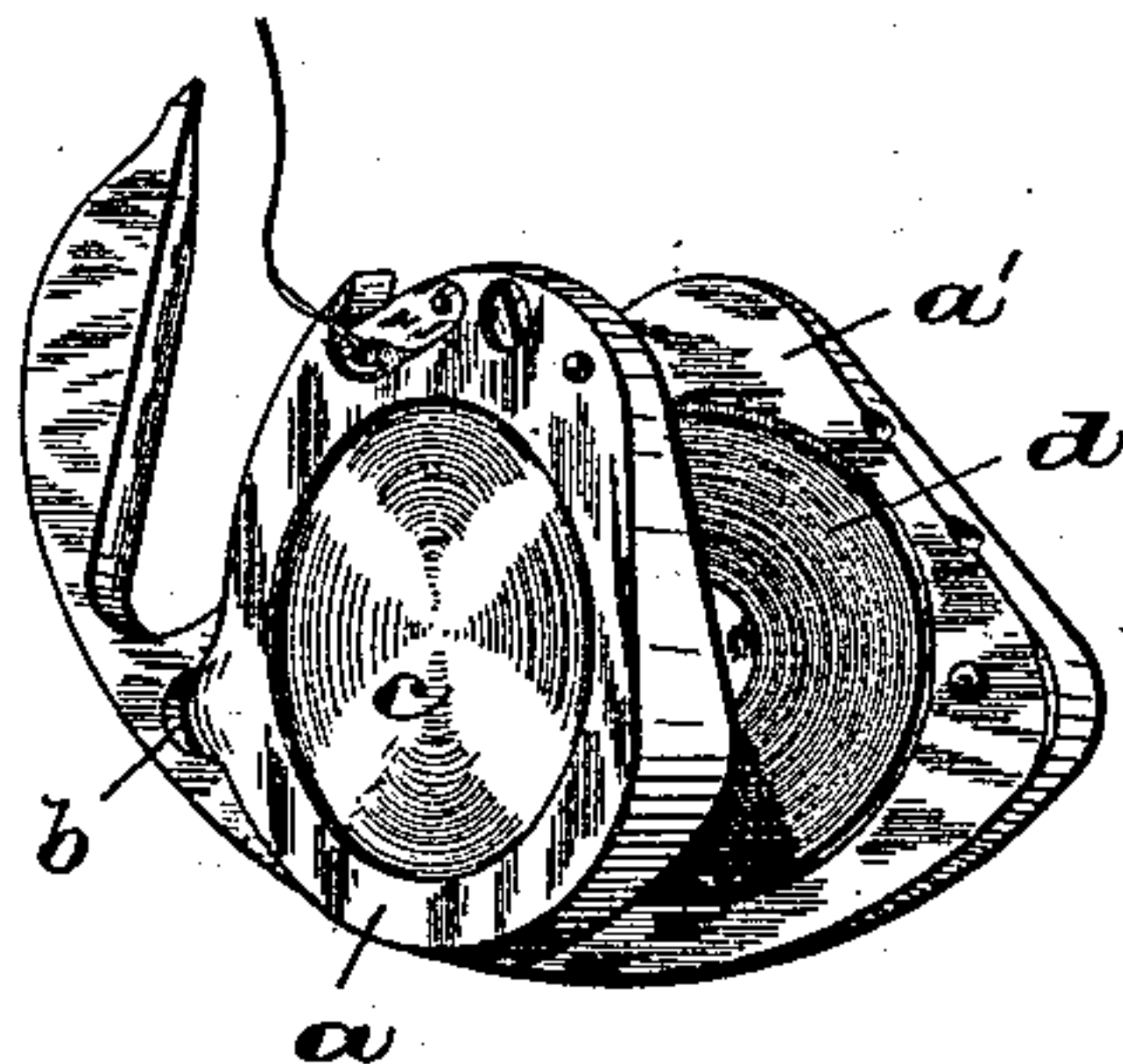
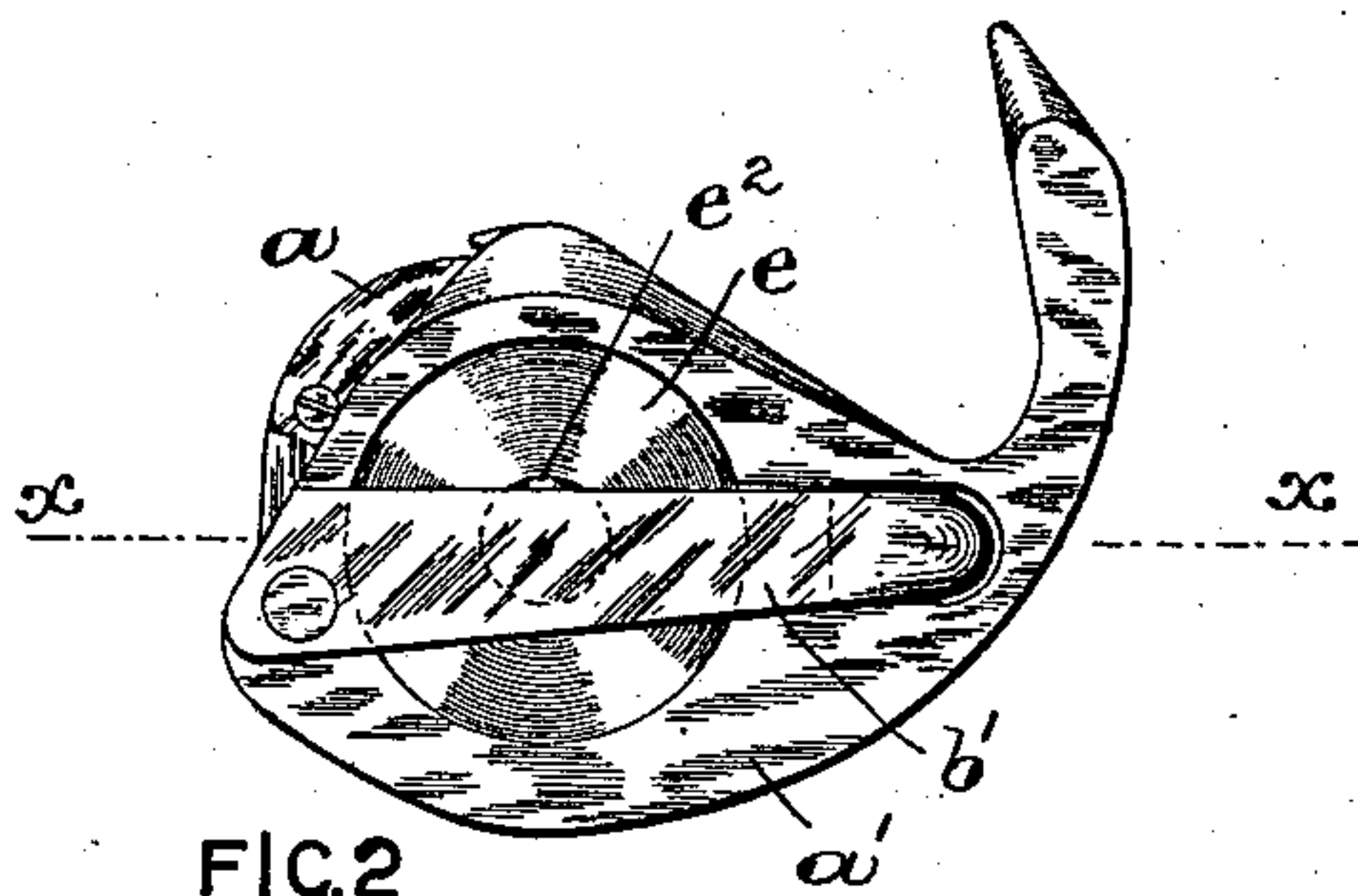
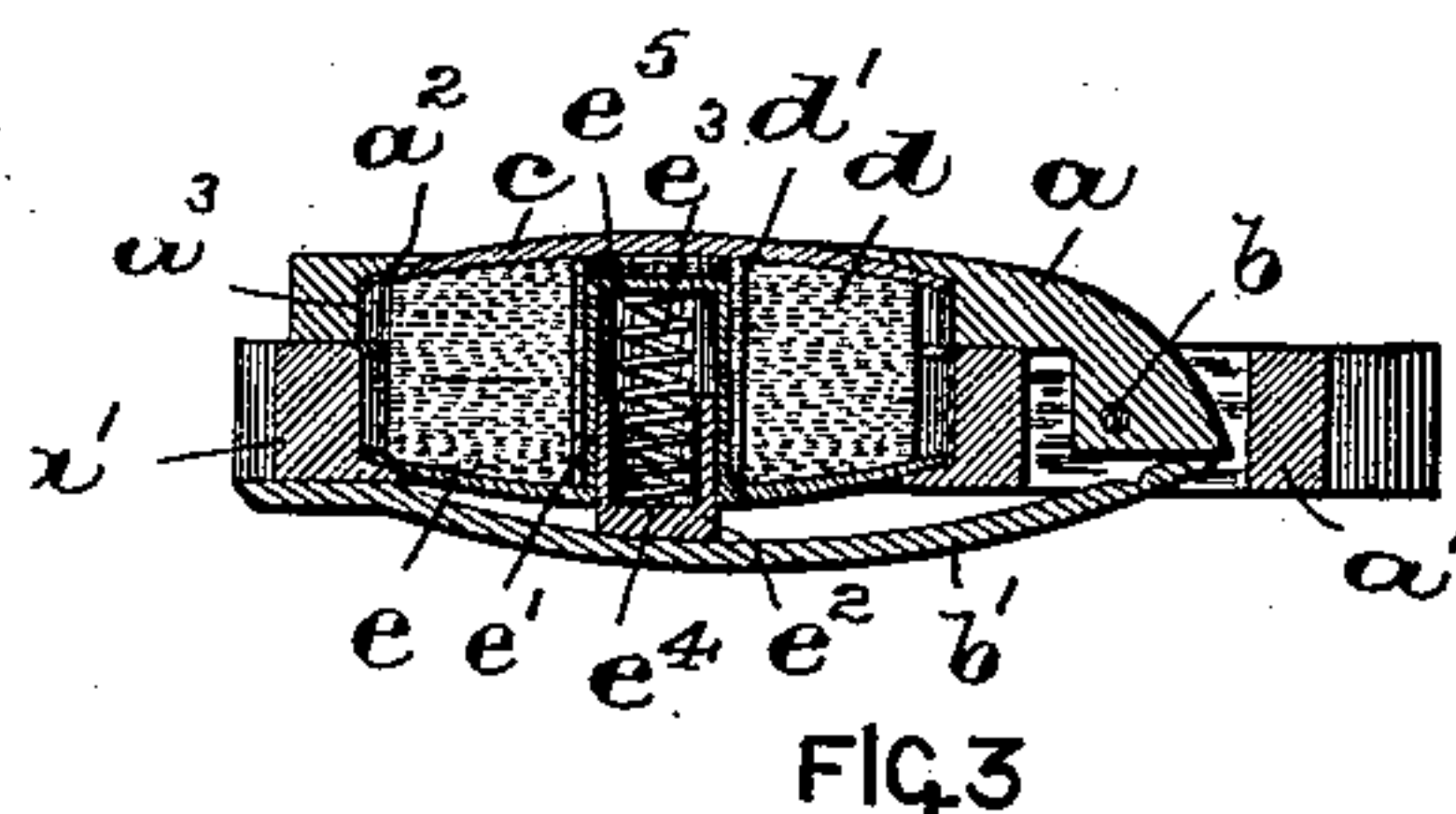


FIG. 1



## FIC.2



### FIG. 3

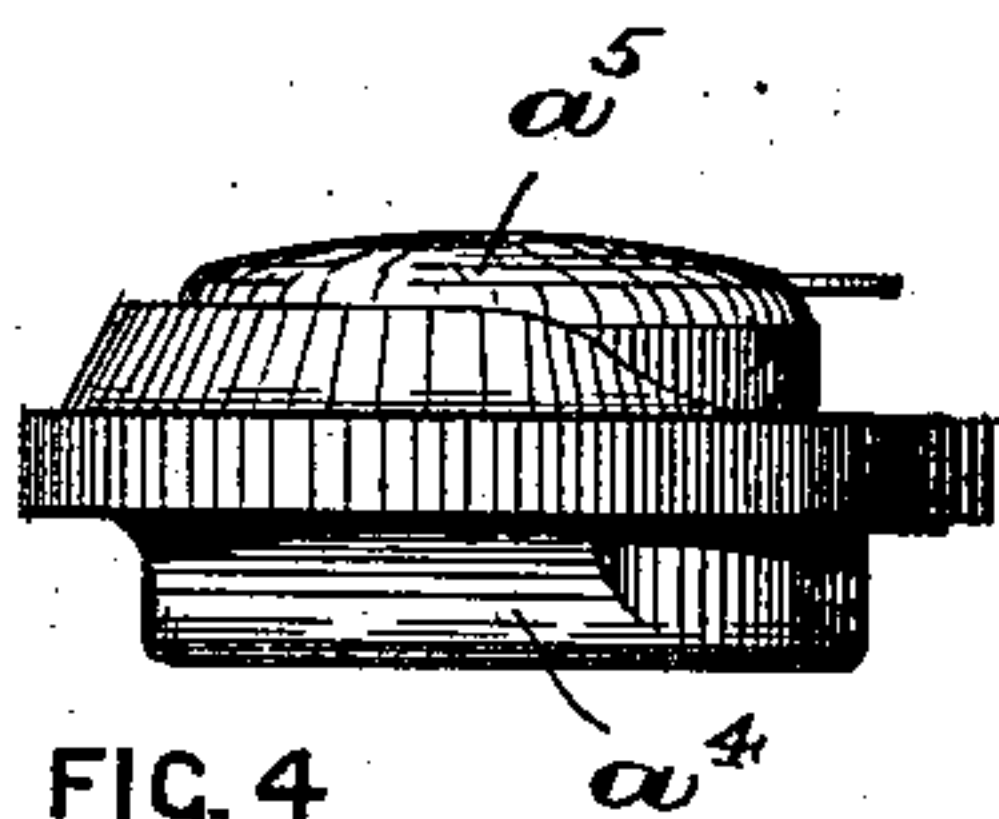
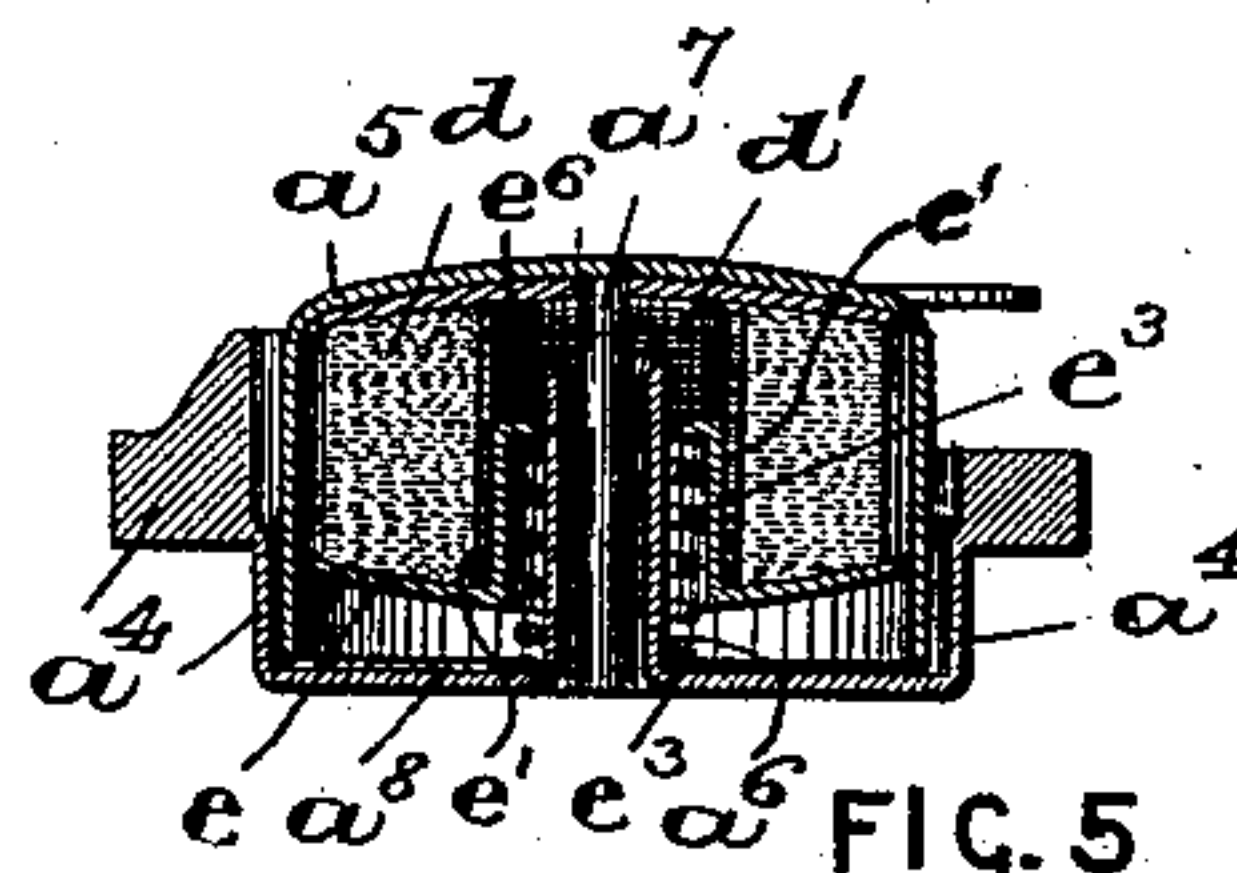
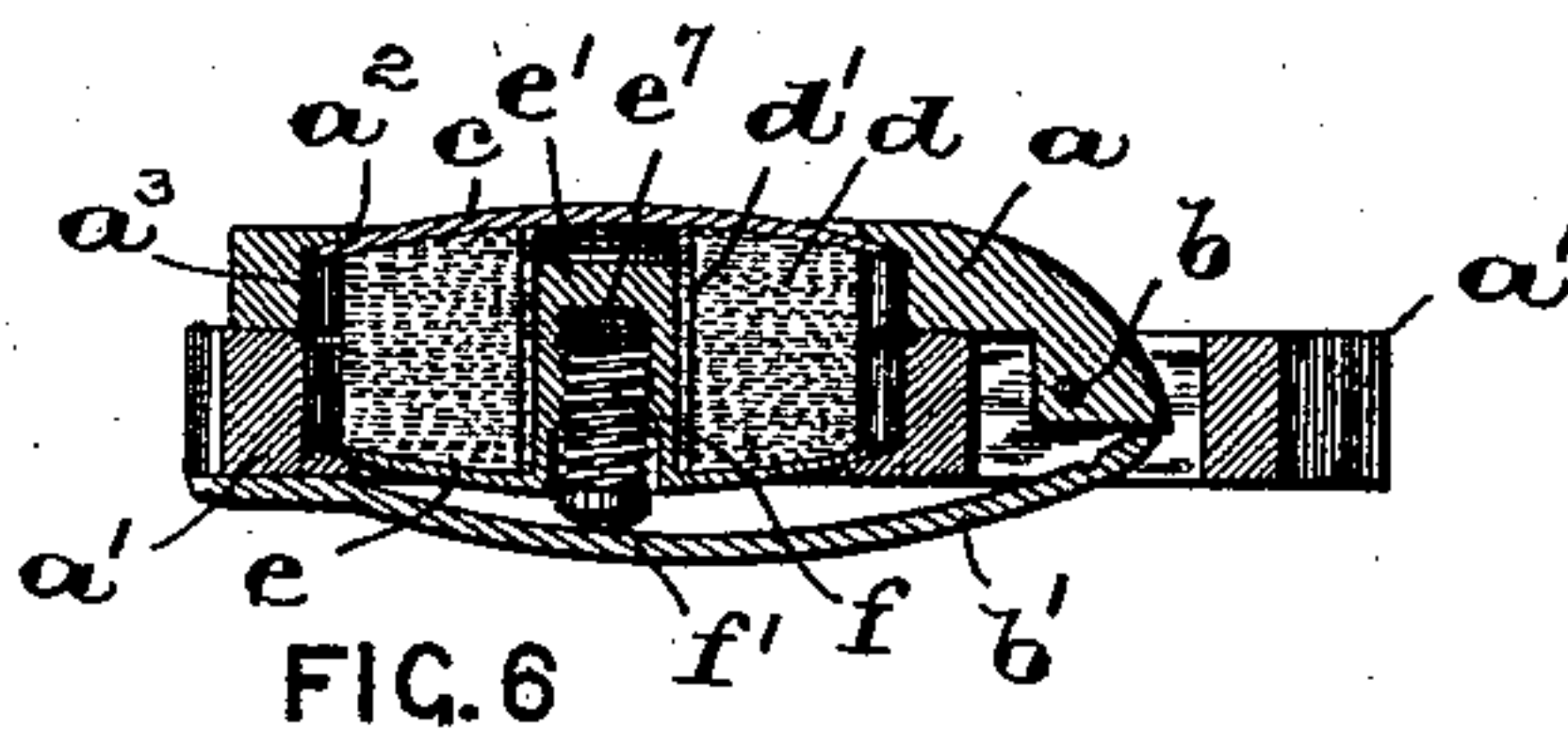


FIG. 4



### FIG. 5



**FIG. 6**

**WITNESSES:**

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## SHUTTLE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 560,292, dated May 19, 1896.

Application filed January 2, 1895. Serial No. 533,560. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. BARNETT, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Shuttles for Sewing-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 drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention has reference to improvements in shuttles for sewing-machines, and relates more especially to a novel form of attachment or device to be used in connection with a sewing-machine shuttle, whereby a ready-wound cop of thread can be made use of in the shuttle. The bobbins as heretofore made consisted of a metallic tube and thin metallic plates, forming heads, between which the thread is wound, or the thread was wound on a paper tube which was placed in the shuttle. In sewing-machine shuttles where a metal bobbin is used the metal soon becomes worn and the bobbin will turn faster than desired when the thread is being unwound, thereby causing the thread to be partially rewound in the opposite direction on the bobbin and often rendering the device inoperative. In the case where a paper tube is employed on which the thread has been wound there is danger of the "spilling" of the thread, which causes the entanglement thereof with the axis or pin supporting the bobbin in the shuttle. Furthermore, in such constructions, where the bobbin rotates loosely on the pin in the shuttle, when the bobbin continues to revolve by its momentum in consequence of the fast speed of the bobbin immediately after the operator ceases to work the sewing-machine the thread continues to unwind itself and is liable to become entangled with the several parts of the shuttle.

To overcome these difficulties is the object of my invention. It is especially designed to adapt the ordinary shuttle of any of the well-known forms of construction of sewing-machines to the reception of a cop of thread wound on a paper tube, and to employ in com-

bination with such cop of thread certain heads, one of which is adjustable by pressure being applied against the face of the said head, whereby the latter acts against the side of the cop of thread by friction and prevents the thread from spilling or becoming slack and entangling itself around the pin or spindle that supports the paper tube of the cop of thread.

The invention therefore consists in the novel arrangements and combinations of parts, to be hereinafter fully described, and finally embodied in the clauses of the claim.

In order that the object of my invention may be fully understood, I have shown the attachment embodying the principles of my invention as used in connection with the shuttle of a Singer sewing-machine and also with the shuttle of a Standard sewing-machine; but it will be evident that my invention is applicable to the shuttles of sewing-machines of the different styles of manufacture.

The invention is illustrated in the accompanying sheet of drawings, in which—

Figure 1 is a perspective view of the Singer sewing-machine shuttle partly open, illustrating a cop of thread in position therein; and Fig. 2 is a side elevation of the shuttle containing my present improvements. Fig. 3 is a vertical section of the shuttle and attachment, taken on line *x* in Fig. 2. Fig. 4 is an edge view of the Standard sewing-machine shuttle; and Fig. 5 is a vertical section of the same, illustrating in connection therewith the improvements embodying the principles of my invention. Fig. 6 is a vertical section of the shuttle illustrated in Figs. 1 to 3, inclusive, with means of a modified form of construction for exerting pressure against the face of one of the disks embracing the cop of thread.

Similar letters of reference are employed in each of the above-described views to indicate like parts.

As has been stated, the shuttle may be of any one of the well-known constructions, that illustrated in Figs. 1, 2, and 3 being known as the "Singer shuttle." This shuttle is made of two chambered parts *a* and *a'*, which are hinged together, as at *b*, and the spring *b'* retains said parts *a* and *a'* in their closed or open relation to one another, as will be



clearly understood from an inspection of Figs. 1 and 3. Into the opening  $a^3$  in the part  $a$  of the shuttle is forced a thin metal disk  $c$ , the edges of which bind firmly against the annular edges of a shoulder  $a^2$  in said opening.

In Fig. 3 of the drawings,  $d$  represents the cop of thread on a suitable paper tube  $d'$ , which is slipped over a hollow spindle  $e'$ , formed on the bobbin plate or head  $e$ , and within said hollow spindle  $e'$  is snugly and adjustably fitted a cap  $e^2$ , provided with a coiled spring  $e^3$ , the opposite ends of which bear against the inner surface  $e^4$  of the head of the cap  $e^2$  and against a suitable shoulder  $e^5$  in the end of the spindle  $e'$ . Now when the cop of thread is placed in the chamber formed by the two parts  $a$  and  $a'$  of the shuttle and said parts are closed, then the spring plate or bar  $b'$  presses firmly against the head of said cap  $e^2$ . At the same time the spring  $e^3$  exerts its force against the shoulder  $e^5$  of the spindle  $e'$ , and the result is that the plate or head  $e$  is firmly forced against the side of the cop of thread  $d$  and the thread thereon can be unwound without any danger of its spilling and becoming entangled in the parts of the shuttle. As has been stated in the above, the cap  $e^2$  is adjustably fitted on the end of the coiled spring  $e^3$ . This is accomplished by fitting the end of the spring snugly in the cap, so that it is in frictional holding contact with the inner cylindrical surface of said cap, which permits the cap to be pulled farther out or pushed onto the end of the spring, and when thus adjusted, owing to the spring fitting snugly in the cap, the latter does not change its position under the slight pressure applied when the parts of the device are operatively connected. From an inspection of said Fig. 3 it will be seen that as the thread is being unwound and the width of the cop of thread  $d$  is in consequence narrowed down the action of the spring  $e^3$  will always be the cause of said plate  $e$  maintaining its close frictional contact with the side of the cop of thread. The said plates or metal disks  $c$  and  $e$  have their circumferential edges curved slightly inwardly and to embrace the sides of the cop of thread, as shown, from which it will be evident that no matter how fast the thread is being unwound it cannot spill over the edges of said plates and wind itself around the cap  $e^2$  and thereby render the device inoperative.

In Figs. 4 and 5 I have illustrated the application of the attachment embodying the principles of my invention to a "Standard shuttle." In this construction  $a^4$  and  $a^5$  represent the two parts of the shuttle-case, the part  $a^4$  being provided with a hollow post or spindle  $a^6$  and the part  $a^5$  having a post  $a^7$  thereon, which extends into said hollow spindle or post  $a^6$ , as clearly shown in Fig. 5. When the cop of thread is to be used in this form of shuttle, the hollow spindle  $e'$  on the plate  $e$  is provided in the end with a perforation  $e^6$ , through which the posts  $a^6$  and  $a^7$  are

passed, in the manner shown, and the coiled spring  $e^3$ , instead of being placed in the cap  $e^2$ , fits in said hollow spindle  $e'$  and is made to encircle the hollow post or spindle  $a^6$ , said spring bearing against the shoulder  $e^5$  in said spindle  $e'$  and against the inner surface of the head  $a^8$  of the part  $a^5$ , as shown. The action of the said spring  $e^3$  will be to keep the plate  $e$  in constant frictional engagement with the side of the cop of thread as the thread is being unwound and used, and the thread cannot spill over the sides of the roll of thread and become entangled in the spring or the posts in the shuttle-casing.

In Fig. 6 I have shown still another modified form of construction for causing a pressure against the face of the plate  $e$ . Whereas in the two constructions and arrangements of the parts illustrated in Figs. 3 and 5 the operation of the parts is automatic, in this instance the plate  $e$  against the side of the cop of thread must be adjusted by the operator of the sewing-machine. This construction is illustrated in connection with the Singer shuttle. As will be clearly seen from an inspection of said Fig. 6, the spindle  $e'$  of the bobbin-plate  $e$  is provided with a screw-threaded recess  $e^7$ , into which is screwed a screw  $f$ , which can be adjusted by the operator so that its head  $f'$  comes in contact with the inner surface of the spring-plate  $b'$  when the parts of the shuttle are closed, thereby causing the bobbin-plate  $e$  to be firmly forced against the side of the cop of thread.

Of course it will be evident that certain changes may be made in the arrangement and combinations of the several parts herein shown and described without departing from the scope of my invention, and hence I do not limit myself to the exact construction and arrangement of the parts as shown herein.

The essential feature of my invention is the arrangement of an attachment or device to be used in connection with a sewing-machine shuttle, forming a sectional cop-holder adapted to receive and embrace the sides of the cop of thread, said holder comprising a disk movably arranged against one side of the cop and means coöperating with said disk to constantly and yieldingly force it against the side of the cop, and this I claim broadly.

Having thus described my invention, what I claim is—

1. The combination, with a sewing-machine shuttle, of a sectional cop-holder, located within the chamber of said shuttle and adapted to receive and embrace the sides of a cop of thread, said holder comprising a disk movably arranged in said chamber and adapted to bear against one side of the cop, a hollow spindle on said movable disk, on which the cop of thread is placed, and means in said hollow spindle to constantly and yieldingly force said disk into the chamber and against the side of the cop, substantially as and for the purposes set forth.

2. The combination, with a sewing-machine



shuttle, of a sectional cop-holder, located within the chamber of said shuttle and adapted to receive and embrace the sides of a cop of thread, said holder comprising a disk movably arranged in said chamber and adapted to bear against one side of the cop, a hollow spindle on said movable disk having a closed end, and a coiled spring in said spindle, adapted to constantly and yieldingly force said disk into the chamber and against the side of the cop, substantially as and for the purposes set forth.

3. The combination, with a sewing-machine shuttle, of a sectional cop-holder, located within the chamber of said shuttle and adapted to receive and embrace the sides of a cop of thread, said holder comprising a disk movably arranged in said chamber and adapted to bear against one side of the cop, a hollow spindle on said movable disk having a closed end, a coiled spring in said spindle, and a cap adjustable on the one end of said spring, adapted to constantly and yieldingly force said disk into the chamber and against the side of the cop, substantially as and for the purposes set forth.

4. The combination, with a sewing-machine shuttle, of a sectional cop-holder, located within the chamber of said shuttle and adapted to receive and embrace the sides of a cop of thread, of a disk or head *c* adapted to be inserted in the shuttle and held therein by friction, a disk movably arranged in said chamber

and adapted to bear against one side of the cop, said disk being provided with a hollow spindle formed integral therewith, on which the cop of thread is placed, and a spring cooperating with said movable disk to constantly and yieldingly force it into the chamber and against the side of the cop, substantially as and for the purposes set forth.

5. The combination, with a sewing-machine shuttle, of a sectional cop-holder, located within the chamber of said shuttle and adapted to receive and embrace the sides of a cop of thread, of a disk or head *c* adapted to be inserted in the shuttle and held therein by friction, a disk movably arranged in said chamber and adapted to bear against one side of the cop, said disk being provided with a hollow spindle formed integral therewith, and said spindle being closed at its free end, a cap adjustably and movably arranged in said spindle, and a spring between said cap and the closed end of said spindle, adapted to constantly and yieldingly force said movable disk into the chamber and against the side of the cop, substantially as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 31st day of December, 1894.

WILLIAM H. BARNETT.

Witnesses:

FREDK. C. FRAENTZEL,  
WM. H. CAMFIELD, Jr.