

No. 736,580.

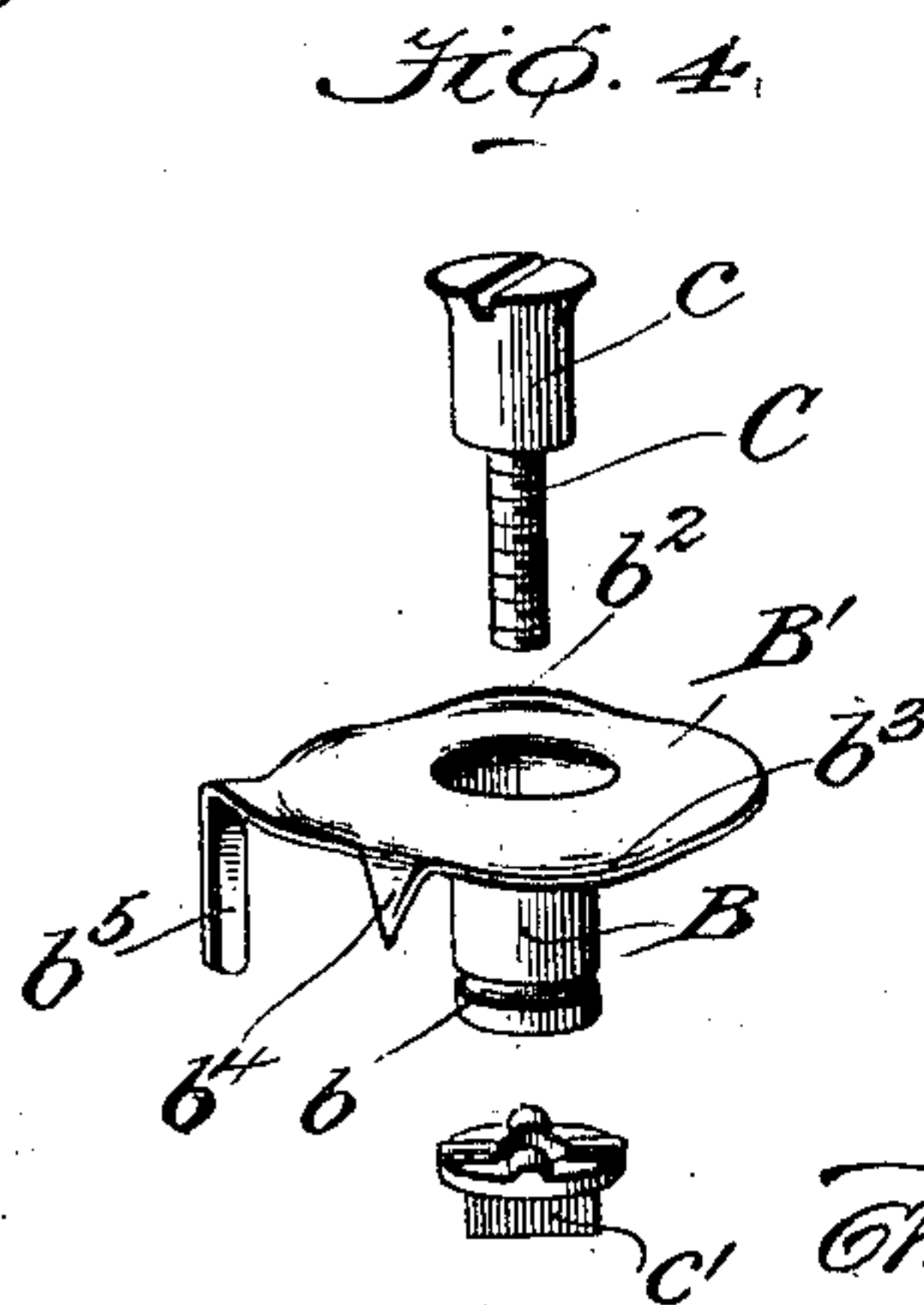
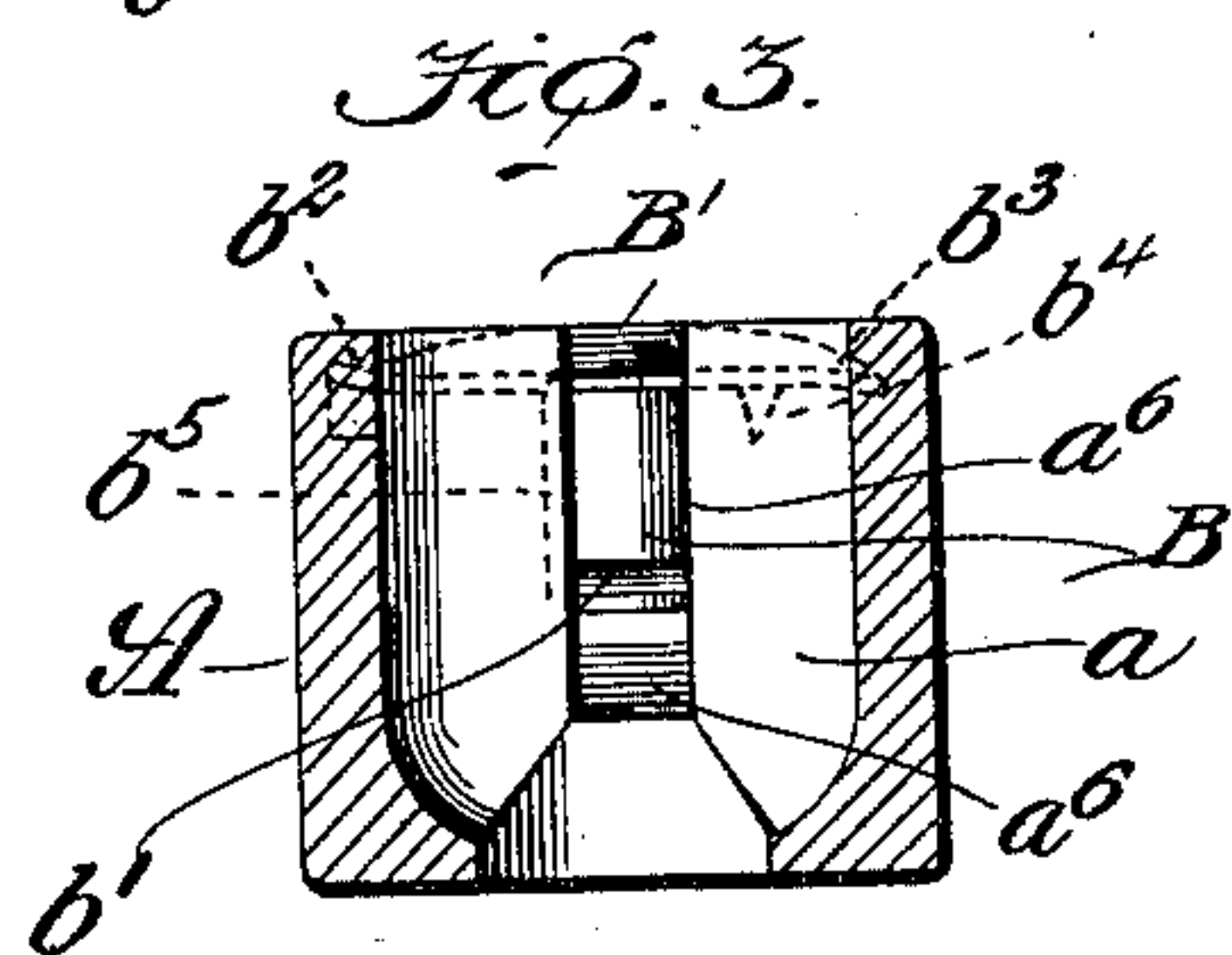
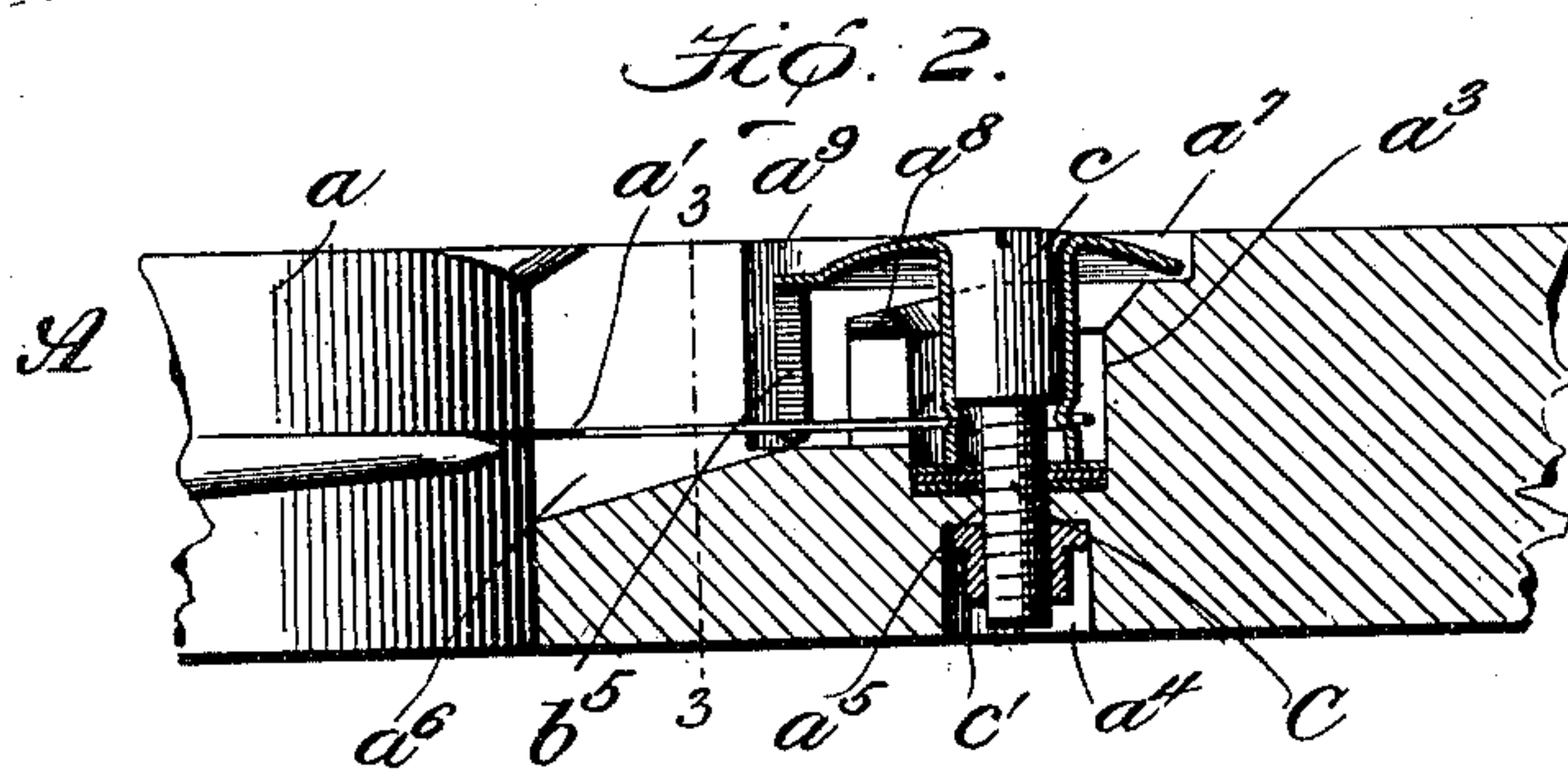
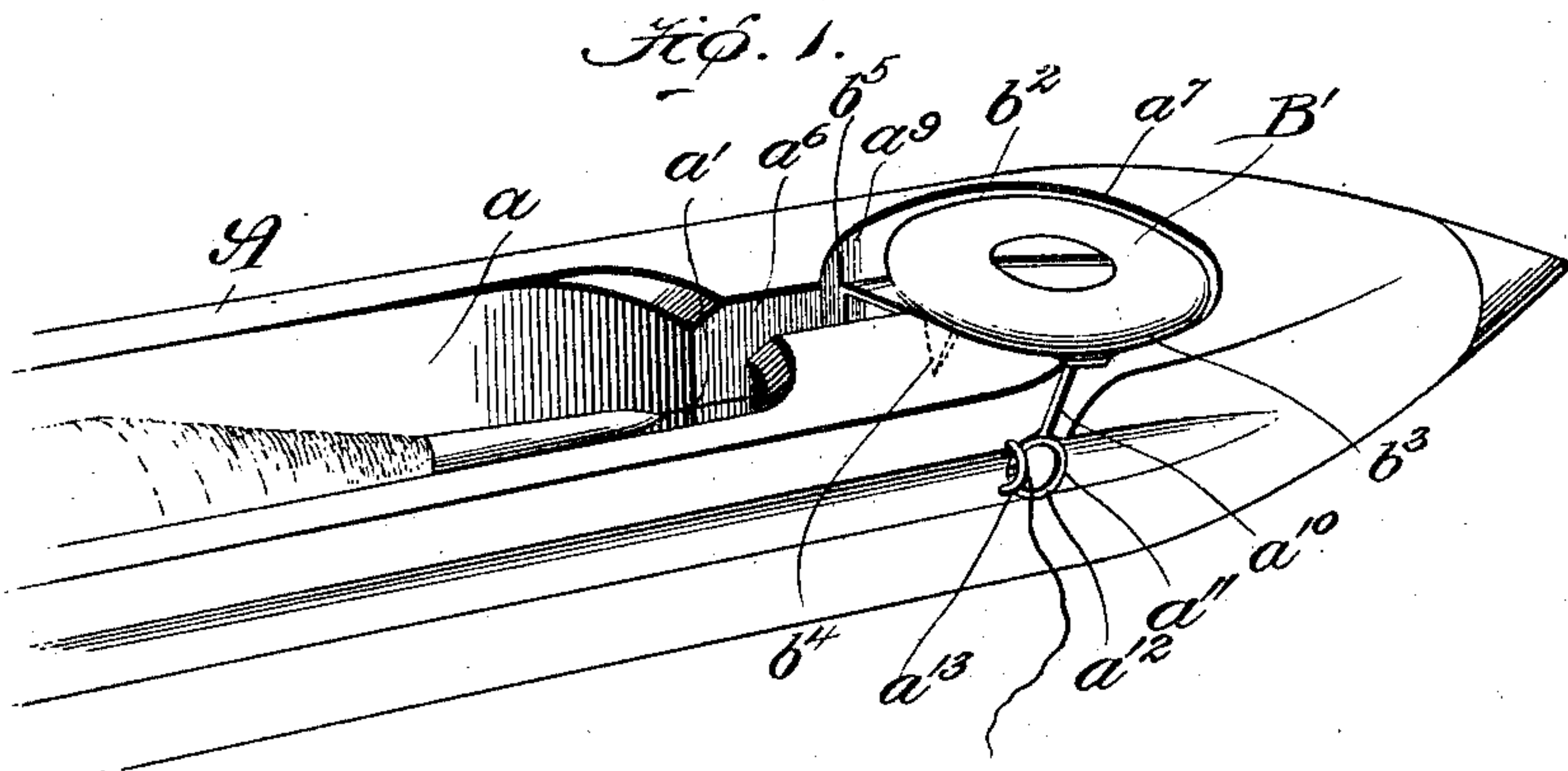
PATENTED AUG. 18, 1903.

J. COLDWELL & C. G. GILDARD.

LOOM SHUTTLE.

APPLICATION FILED JAN. 29, 1902.

NO MODEL.



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Witnesses:

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UNITED STATES PATENT OFFICE.

JOSEPH COLDWELL AND CHRISTOPHER GILES GILDARD, OF FALL RIVER,
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LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 736,580, dated August 18, 1903.

Application filed January 29, 1902. Serial No. 91,764. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH COLDWELL and CHRISTOPHER GILES GILDARD, citizens of the United States, residing at Fall River, 5 in the county of Bristol and State of Massachusetts, have invented new and useful Improvements in Loom-Shuttles, of which the following is a specification.

This invention relates to improvements in 10 loom-shuttles, and more particularly to that construction of shuttle forming the subject-matter of a companion application for Letters Patent filed September 20, 1901, Serial No. 75,774, and now pending.

15 It is a well-known fact that at the side of a loom where the shuttle enters the shuttle-box (thread end first) if said shuttle enters with too great force or if the shuttle-box is too loose, either or both of which is sometimes 20 the case, the shuttle will rebound, causing the filling-thread to form a loop that may be and often is thrown above the surface of the shuttle. The almost inevitable result of this is that on the next succeeding beat or pick of 25 the loom and as the shuttle is traveling toward the opposite shuttle-box the thus-exposed loop portion of the filling-thread comes in contact with the warp-threads of the loom and is caught thereby and drawn around the 30 threading or guide-disk of the shuttle, whereby the thread is broken and the shuttle unthreaded. This will occur also in shuttles of the old style—i. e., which are threaded by suction. More especially does this danger exist 35 in looms employed in fancy weaving in which the space for the passing of the shuttle between the warp-threads is essentially diminished over that in ordinary plain cloth-weaving. To overcome this objection or fault is 40 therefore the main object of our present invention, a further though minor object being to facilitate the threading of the shuttle.

With these several objects in view our invention consists in certain features of construction hereinafter detailed, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a perspective view of the threading end of a shuttle embodying our improvements. Fig. 2 is 50 a central longitudinal sectional view of the same. Fig. 3 is a vertical transverse sec-

tional view on the line 3 3 of Fig. 2. Fig. 4 is a detail in perspective of the thread-guide and its several parts separated.

Similar letters of reference indicate similar 55 parts throughout the several figures of the drawings.

The shuttle-body A is of the conventional form and contains the filling-opening *a*, from which leads the filling-thread *a'*. At the front 60 or threading end of the shuttle-body, a short distance beyond the filling-opening *a*, the said shuttle-body is bored vertically from opposite points, thus forming, in the present instance, upper and lower cylindrical cavities *a*³ *a*⁴, the 65 latter being of considerably smaller diameter and the two connected by a reduced bore or perforation *a*⁵. The upper cavity *a*³ communicates with the filling-opening *a* of the shuttle by means of a narrow throat *a*⁶, the 70 bottom of which declines, as shown, from near the bottom of said upper cavity, so as to not interfere with the free travel of the thread. The cavity *a*³ at its upper end merges into a depressed thread-race *a*⁷, the inner diameter 75 or edge of which is preferably beveled, as shown, and the entrance to which is inclined, as at *a*⁸, and terminates a little short of the throat *a*⁶ in a vertical recess *a*⁹, of a depth substantially agreeing with the throat and 80 immediately at one side and therefore out of line therewith.

From a point transversely opposite the upper end of the inclined entrance *a*⁸ there is formed an inclined guide-slot *a*¹⁰, which is in 85 transverse communication with the upper cavity *a*³, from which it radiates, and at its lower end terminates in a thread-eye *a*¹¹, which may be provided with any desired means for preventing the escape of the thread 90 laterally therefrom—as, for instance, a slotted bushing *a*¹² and a guard *a*¹³. Within the upper cavity *a*³ is seated in this instance a hollow post B, annularly grooved, as at *b*, near its lower end, to form a thread-guide. 95 Preferably formed integral with the upper end of the post B may be a disk-like guide B', but very slightly less in diameter than the thread-race *a*⁷, above the bottom of which, at a proper distance, it may be supported by any 100 suitable means—as, for instance, a plurality of washers *b'*, located between the bottom of

the cavity and the lower end of the hollow post B.

At that side of the guide-disk B' immediately above the inclined entrance a^6 to the upper cavity the disk tends slightly upward, as at b^2 , (see Fig. 4 and dotted lines, Fig. 3,) thus offering inducement for thread to enter in the act of threading. From that point of its edge adjacent the point of the shuttle to a point opposite the inclined slot a^{10} thereof the guide-disk is slightly depressed, as at b^3 , thus following the formation of the bottom of the thread-race a^7 . The guide-disk may, furthermore, be provided at its perimeter with a depending spur b^4 , designed to take into the shuttle-body and thus aid in positioning and retaining the guide-disk in proper relative position with the thread-race. At a point above the recess a^9 , and therefore out of line of the throat a^6 and of longitudinal alinement with the hollow post B, the perimeter of the guide-head is formed in the present instance with a depending tangential safety-finger b^5 , the same being located in the recess a^9 and depending to within a short distance of the bottom of the same. The bottom or lower end of the finger b^5 is preferably rounded, and, in fact, all of its edges should be smooth to prevent any tendency toward chafing the filling-thread.

Any desired means may be provided for securing the guide-disk in position within the shuttle-body. For instance, the thread-groove b may appear on the interior of the hollow post as a bead, as in the present instance, against which may be seated the lower end of an annular boss c of a screw C, the lower threaded end of the screw being either screwed into the wood of the shuttle-body or depending through the aperture a^5 into the cavity a^4 when it is provided with any ordinary nut, preferably a lock-nut c' , as shown.

To thread the shuttle, (the latter may be moving or stationary,) the thread is caught and carried through the throat a^6 , around the outside of the depending retaining-finger b^5 , up the incline or entrance a^8 , around the disk, down into the inclined slot a^{10} , and out through the discharge-eye. When thus conducted, which may be accomplished with practically one continuous movement, the thread is by the disposition of the thread-race and groove a^{10} directed to the bottom of the upper cavity a^3 , being immediately engaged by the thread-groove b . This positioning of the thread causes that portion of the same heretofore outside of the retaining-finger b^5 to fall and pass laterally thereunder to the opposite or inner side thereof. This finger being adjacent the hollow post B serves to destroy the heretofore-existing length of

slack thread between the filling and guide mechanism, and hence it is impossible, first, to form a loop by a rebound of the shuttle, and, second, even if perchance such loop were formed the presence of the retaining-finger would prevent it leaving the shuttle-body, as no unthreading could occur without the thread passing to the opposite side of the finger, and this would be practically an impossibility.

Having thus described the invention, what we claim is—

1. A shuttle provided in advance of its filling-opening with a cavity, merging into an upper thread-race a^7 having an inclined entrance a^8 at one side and at its opposite side provided with a thread-slot terminating in a discharge-eye and communicating with the cavity, a post seated in the cavity and provided at its upper end with a disk-like guide-head having that side above the inclined entrance elevated, as at b^2 , and its opposite side or that leading to and above the inclined slot depressed, as at b^3 .

2. A shuttle provided in advance of its filling-opening with a cavity, merging into an upper thread-race and having a communicating throat, said cavity having at one side an inclined entrance and at its opposite side an inclined thread-slot terminating in a discharge-eye and communicating with the cavity, a hollow post having an annular guide-groove forming an internal bead mounted in said cavity and terminating at its upper end in a guide-head extending into the thread-race, and a screw secured in the shuttle-body and at its upper end provided with an annular boss fitting in said hollow post, and at its lower end seated on the bead, and washers on a screw on which the post is seated.

3. A shuttle provided in advance of its filling-opening with a cavity, a communicating throat, a thread-race a^7 at the upper end of said cavity and having an inclined entrance a^8 , and in advance of the same having the recess a^9 , the hollow post having a guide-groove and an internal bead and terminating at its upper end in a guide-head provided with a depending retaining-finger b^5 seated in the recess a^9 , and the screw C provided with the enlarged boss c seated in the post and resting on said bead, and means for retaining said screw in position.

In testimony whereof we affix our signatures in presence of two witnesses.

JOSEPH COLDWELL.
CHRISTOPHER GILES GILDARD.

Witnesses:

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HENRY H. EARL.