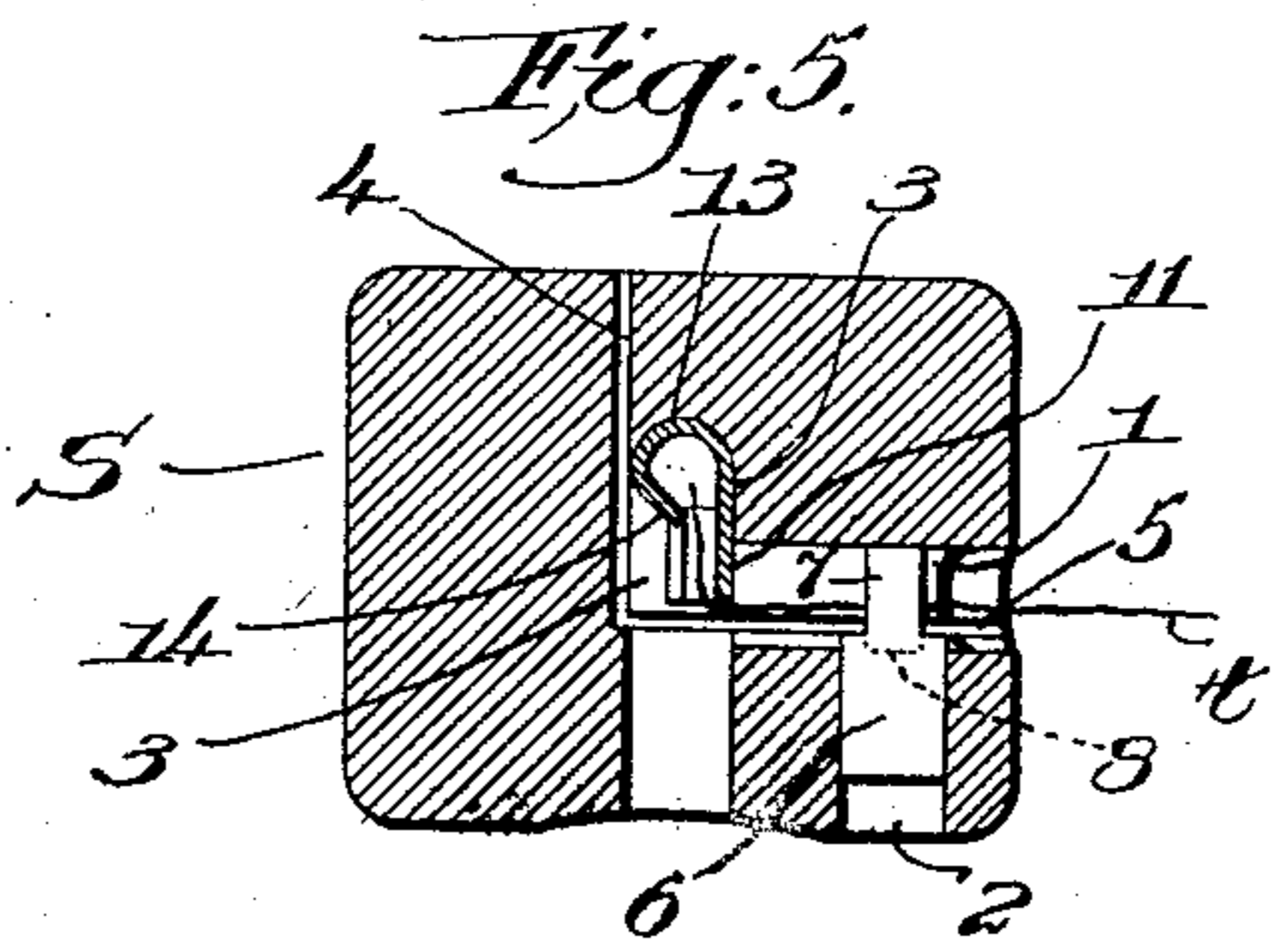
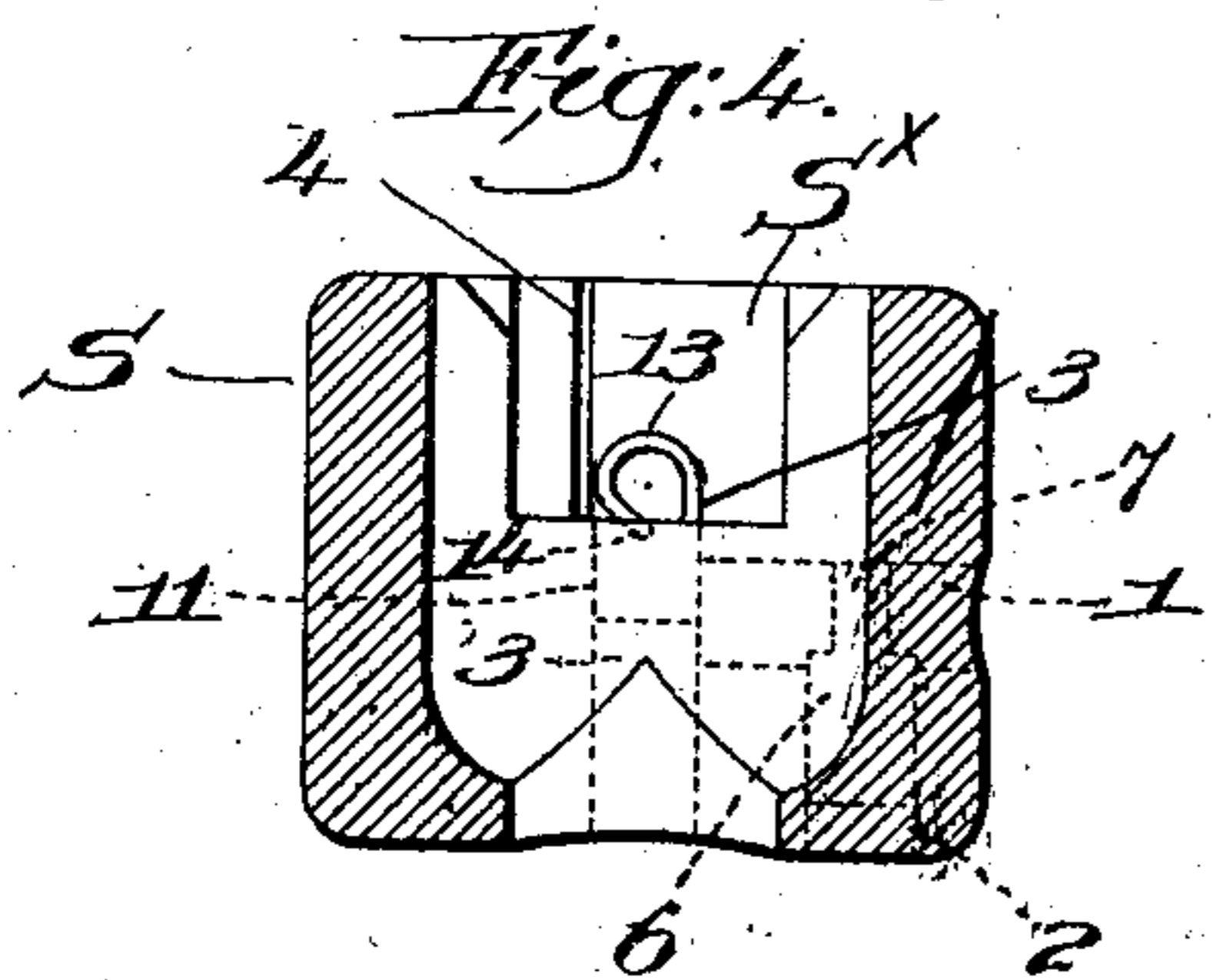
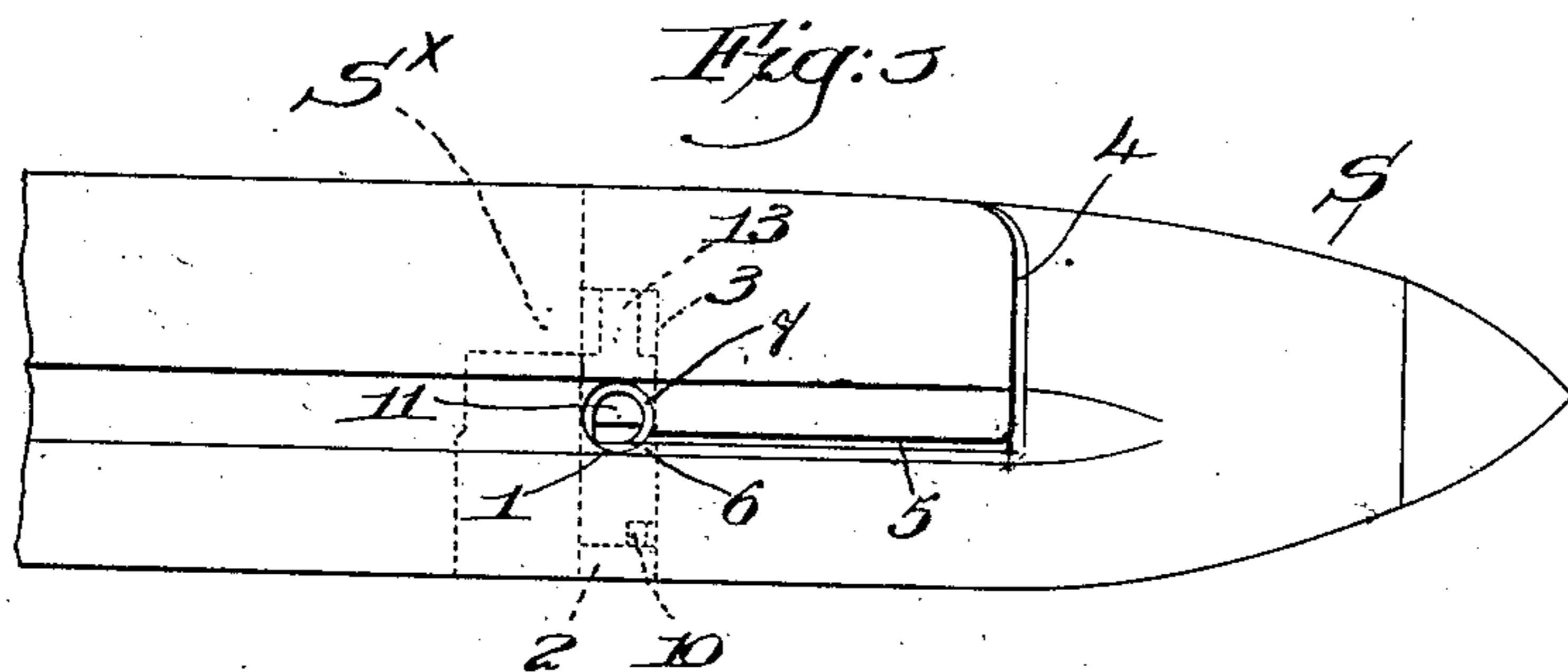
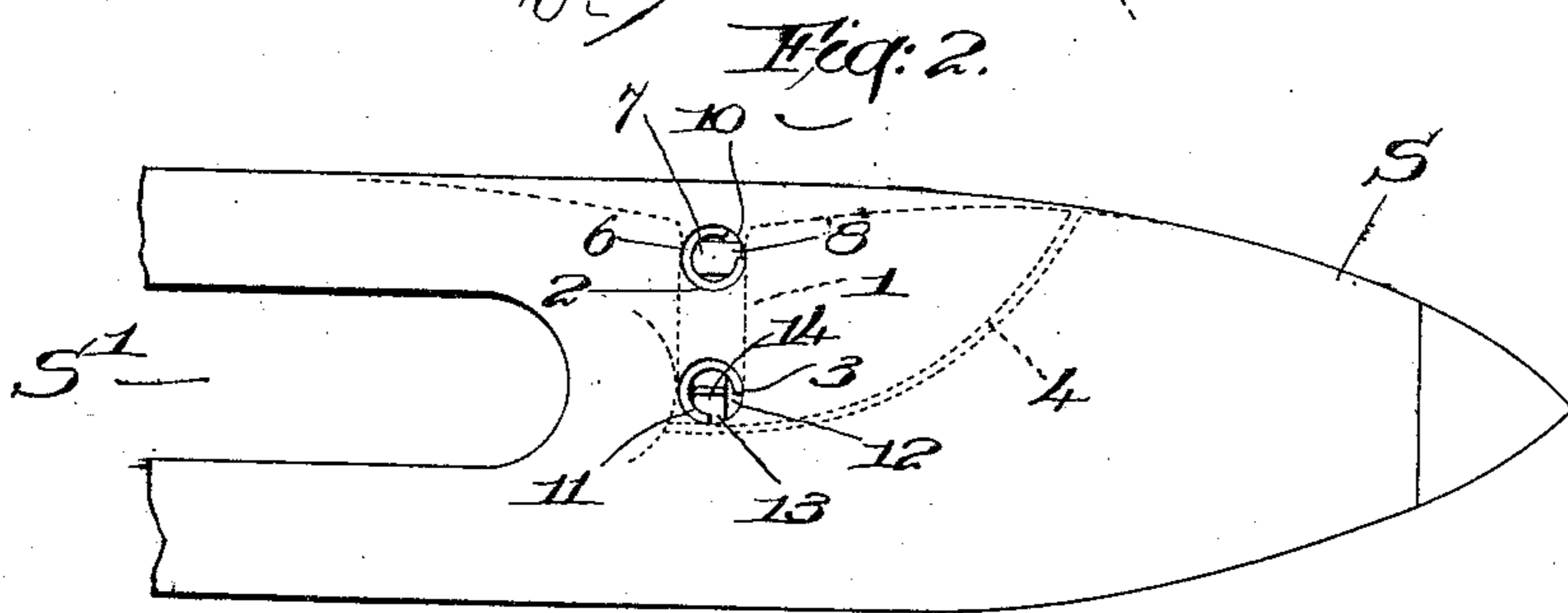
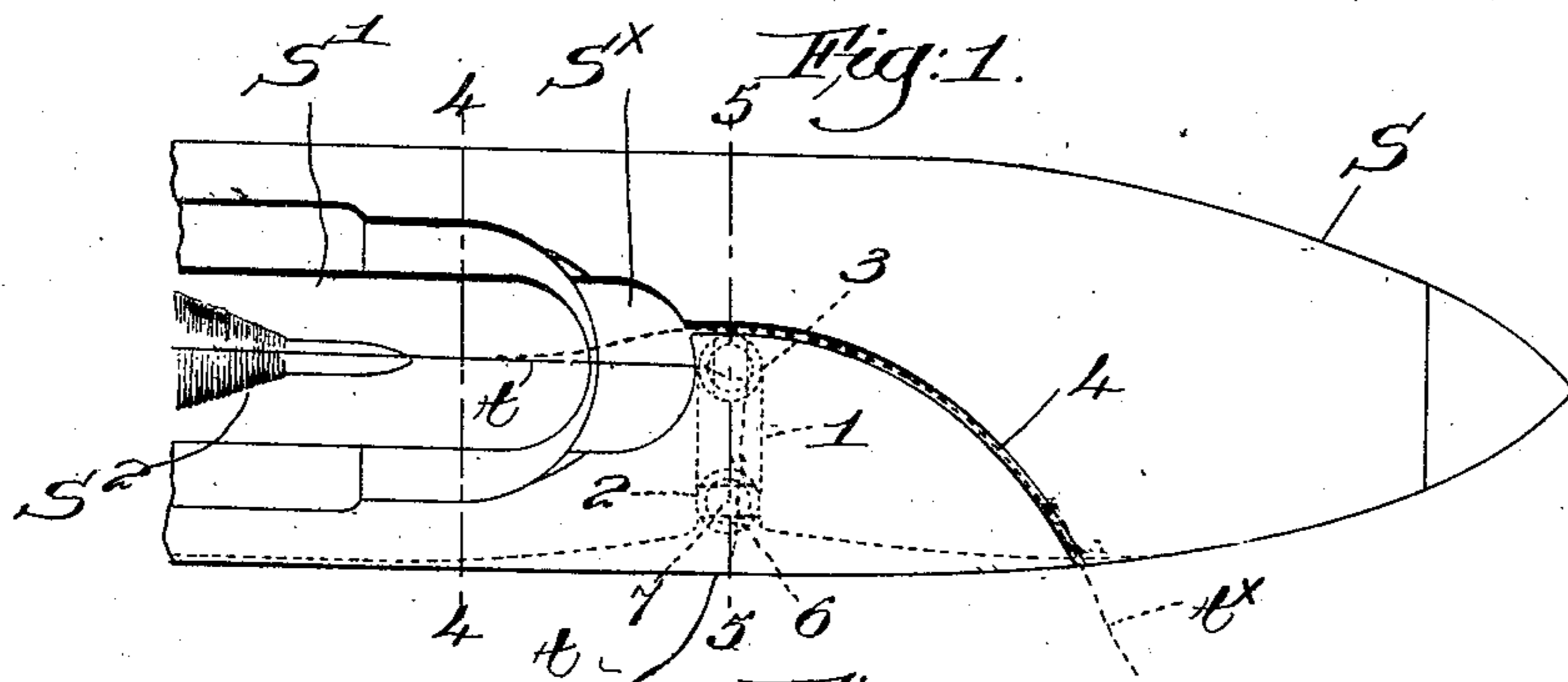


G. M. CHENEY.
HAND THREADING SHUTTLE.
APPLICATION FILED SEPT. 13, 1909.

985,143.

Patented Feb. 28, 1911.

2 SHEETS—SHEET 1.



Witnesses,
Edward H. Allen
Joseph M. Ward.

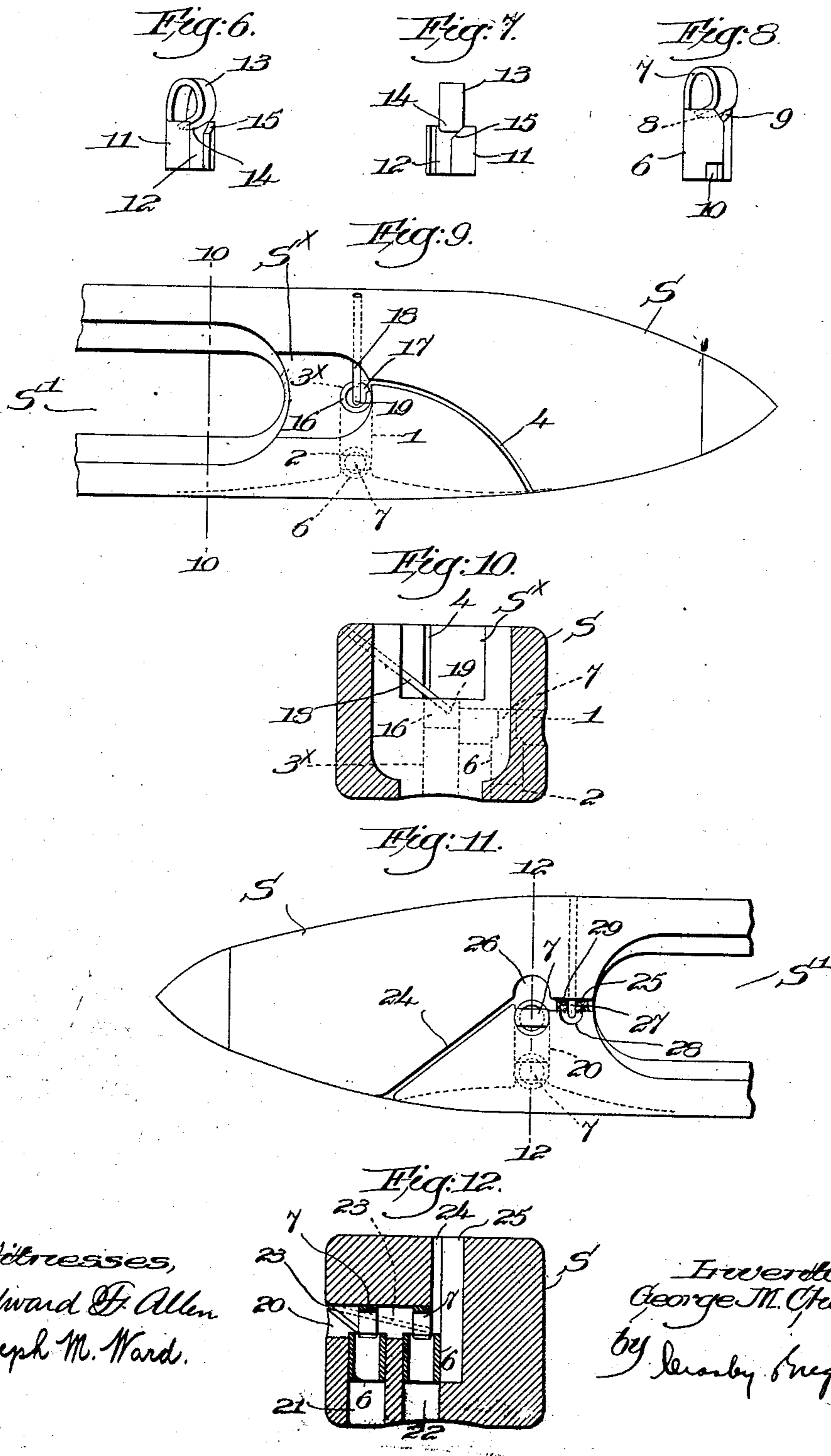
Inwitness,
George M. Cheney,
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attys.

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2 SHEETS—SHEET 2.



Witnesses,
Edward G. Allen
Joseph M. Ward.

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UNITED STATES PATENT OFFICE

GEORGE M. CHENEY, OF SOUTHBRIDGE, MASSACHUSETTS.

HAND-THREADING SHUTTLE.

985,143.

Specification of Letters Patent.

Patented Feb. 28, 1911.

Application filed September 13, 1909. Serial No. 517,395.

To all whom it may concern:

Be it known that I, GEORGE M. CHENEY, a citizen of the United States, and resident of Southbridge, county of Worcester, State of Massachusetts, have invented an Improvement in Hand-Threading Shuttles, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to loom shuttles, and more particularly to that class, technically termed "hand-threading shuttles", wherein the thread of filling is guided or directed to the delivery-eye of the shuttle by the hand of the weaver, and the invention has for its object the production of novel and efficient means for guiding and controlling the thread after the shuttle has been threaded; for facilitating the threading operation, and for simplifying and cheapening the construction of the device as a whole.

In the present embodiment of my invention the thread is led from the cop or bobbin, in the usual bobbin-recess of the shuttle, to the point of delivery at the shuttle side by means of communicating thread passages, one of which receives the thread from the bobbin-passage, while from the other the thread is delivered.

The thread is introduced into the passages in the threading operation by means of an open threading-slot, which comprises a vertical slot leading from the top of the shuttle, and an intersecting horizontal slot, and I have provided a novel form of thread-retainer to permit the ready entrance of the thread to the passages while thereafter preventing its escape therefrom.

The various novel features of my invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

I have herein illustrated several forms of my invention, varying in certain features of construction and arrangement, as will be referred to and explained in detail hereinafter.

Figure 1 is a top plan view of the thread-delivering or forward end of a shuttle embodying one form of my invention; Fig. 2 is a bottom plan view thereof; Fig. 3 is a front side elevation, showing the outer end of the transverse or thread-delivering passage in full lines, with the thread-retaining device therein which also serves as the de-

livery-eye; Fig. 4 is a transverse section on the line 4—4, Fig. 1, looking toward the right; Fig. 5 is a similar sectional view, on the line 5—5, Fig. 1, also looking toward the right, but with the thread-retainer in elevation; Figs. 6 and 7 are enlarged details in elevation of the retaining device which I use in connection with the thread passage which receives the thread from the bobbin-recess; Fig. 8 is a similar view of the retaining device used in connection with the delivering or transverse thread passage; Fig. 9 is a top plan view of the forward end of a shuttle embodying a modified form of my invention; Fig. 10 is a transverse section thereof on the line 10—10, Fig. 9, looking toward the right; Fig. 11 is a top plan view of the forward end of a shuttle embodying yet another modification, to be described; Fig. 12 is a transverse section thereof on the line 12—12, Fig. 11, looking toward the left.

My invention is applicable to any usual form of shuttle, as herein illustrated, the shuttle-body S having the usual recess S', Figs. 1, 2, 9 and 11, for the cop or bobbin S², Fig. 1.

In the present embodiment of my invention, see Figs. 1 to 5, and Figs. 9 and 10, a transverse and preferably horizontal thread-guiding passage 1 leads from the front side wall of the shuttle inward to a point somewhat beyond the longitudinal axis of the shuttle, said passage being formed by a suitable boring tool, and as the thread is delivered from the outer end of said passage I term it the delivering passage. Near its outer end said passage is intersected by a vertical hole 2, bored into the shuttle wood from the bottom, and clearly shown in Figs. 2 and 5. A second thread-guiding passage 3 is formed in the shuttle body, by boring a vertical hole therein intersecting the inner end of the passage 1, and in the embodiment of the invention illustrated in Figs. 1 to 5 the passage 3 is carried upward above the delivering passage, but cutting through the front wall of the reduced forward end S³ of the bobbin-recess, see Fig. 4. As this thread passage 3 leads from the bobbin-recess and receives the thread from the bobbin therein I term it the receiving passage, the two thread passages 1 and 3 communicating at their inner ends, so that the thread can pass from one to the other.

So far as described the operations upon

the shuttle involve the use of a simple boring tool, and can be performed readily and cheaply.

In order to guide or lead the thread quickly and easily to the thread passages in the manual threading operation I provide an open threading-slot leading thereto, and comprising a vertical arcuate slot 4 cut in the top of the shuttle-body and extending from a point in the wall of the part S* of the bobbin-recess forward and laterally to the shuttle side, while a horizontal slot 5 is made in the shuttle, from its side inward. The slot 4 connects at its bottom with the horizontal slot 5, and the latter intersects the thread passage 1 at a slight distance above its bottom, Figs. 3 and 5. The slot 4 intersects the vertical thread passage 3, as best shown in Fig. 5, so that communication therewith is effected.

In the threading operation the weaver grasps the end of the filling thread *t*, Fig. 1, extending from the bobbin, and pulls it forward and downward into the vertical slot 4 and then rearwardly into the horizontal slot 5. A pull on the thread draws it downward into the vertical receiving passage 3 and at the same time the thread passes therefrom and from the horizontal slot 5 into the transverse thread passage 1, and the threading of the shuttle will be completed. As a matter of fact, however, the thread could escape from the thread passages almost as easily as it entered them, were not some retaining means provided to hold the thread in the passages.

I have provided novel, simple and effective means for retaining the thread in the thread passages after it has been introduced thereinto, while not interfering in any way with such introduction nor impeding the proper draft of the thread as it is delivered from the shuttle when the latter is picked.

The thread-retaining device for use in the transverse passage is shown separately in Fig. 8, and it comprises a tubular, cylindrical body 6, preferably made of sheet or plate metal bent or pressed into shape, and surmounted by an overturned, hook-like head 7 of less width than the diameter of the body, with its free end or extremity 8 incurved or turned back and extended downward into the open upper end of the body below its annular edge. This head is practically a narrow tongue-like extension from the metal forming the body, and when bent over as shown it forms an eye having an entrance between the lower face of the extremity 8 and the adjacent edge of the body, which is preferably provided with a V-shaped notch 9 to facilitate the entrance of the thread into the head. The body 6 is of such external diameter that it enters with a driving fit the vertical hole 2 in the shuttle, and it is forced thereinto head first until the head 7 enters

and is substantially concentric to the thread passage 1, see Fig. 5, the proper positioning of the head across the passage being facilitated by making a notch 10 in the lower end of the body, by means of which a suitable tool can insert the device in the hole 2 and turn it to bring the head into exactly the right position. When so positioned the entrance to the head 7 is toward and adjacent the intersection of slot 5 with the passage 1, the upper edge of the body being flush with the bottom of said slot, so that when the thread is drawn back through the slot it is carried under the tip or extremity 8 of the head and into the eye formed thereby, the notch 9 facilitating such entrance. Once the thread is within the eye or hook-like head 7 it cannot escape therefrom for the upper edge of the body, over which the thread draws as it is delivered, holds it up above the extremity 8. As the head 7 is located adjacent the outer end of the thread passage 1 it serves in practice as the delivery-eye for the shuttle, as will be apparent. In the modified form shown in Figs. 9 and 10 this same retaining device is used, in the manner described, and occupies the same position in the transverse passage 1, performing the functions just set forth.

Returning now to the structure illustrated in Figs. 1 to 5, the retaining device for the receiving passage 3 is very similar to the device shown in Fig. 8, but differing in the fact that the cylindrical, tubular body 11, Figs. 6 and 7, is provided with a longitudinal opening or slot 12, the hook-like head 13 surmounting the body, as before, and its extremity 14 is turned back and extends downward below the upper edge of the body. The entrance to the head is opposite the slot 12, which is slightly beveled at one side, at 15, Figs. 6 and 7, to facilitate the entrance of the thread into the head. The body 11 is forced upward through the passage 3 with its opening 12 opposite the intersection of the slot 4 with the passage 3, see Fig. 5, and the bottom of the body is slightly above the upper edge of the horizontal part 5 of the threading slot. As the thread is drawn down into the vertical slot 4 in the threading operation it passes over the exposed part of the head 13 and under the extremity 14 into the eye formed by the head and thence through the longitudinal opening 12 into such body, and at the same time the thread draws under the lower edge of said body into the transverse passage 1 and into the head 7 of the retaining device therein, as shown by the line *t*, Fig. 5. The shuttle is now completely threaded, and escape of the thread from either of the thread passages 1 or 3 is prevented by the hook-like retaining devices 7 and 13, as will be apparent. Should the thread loop and be thrown forward from the bobbin toward the threading-slot it cannot enter the latter, for

the head 13 is hooked around the thread so that it cannot escape, and when tension is applied to the thread the loop is straightened out and disappears.

5 In Fig. 1 the dotted line t^* shows the thread as it is about to be drawn back in the horizontal slot 5, while in full and dotted lines t the thread is shown under the full control of the retaining devices. The body 10 11 not only holds its head 13 in fixed position but it also serves as a metallic lining for the part of the thread passage 3 through which the thread draws, and as the thread is changed in direction from substantially a 15 horizontal path to a vertical path, and then back to a horizontal path, a sufficient tension is put upon it to prevent too free delivery.

Having reference to Figs. 9 and 10, the vertical hole or thread passage 3^* which communicates with the transverse passage 1, as 20 before, is bored from the bottom of the shuttle up into the part S^* of the bobbin-recess at the inner end of the vertical part 4 of the threading-slot, and a metal tube 16 is forced 25 up into the passage 3^* flush with its upper end. Said tube has a longitudinal slot 17 which communicates with the slot 4, so that in threading the shuttle the thread is drawn down into such slot and passes thence 30 through the slot 17 into the tube 16, which serves as a lining for the vertical thread passage 3^* in the part thereof traversed by the thread. To prevent escape of the thread therefrom I drive a pin 18 diagonally 35 through the shuttle body from its rear wall frontward, the free end of said pin entering the open upper end of the tube 16, with its tip or extremity 19 close to the opposite inner wall thereof below its upper edge. The 40 thread when pulled down into the tube or lining 16 passes under the pin and is thereafter held by it from escaping, as a forwardly thrown thread-loop will drop across the pin but cannot pass underneath it. In 45 this embodiment of my invention the diversion or change in the direction of the thread imparts the requisite drag or tension thereto, as in the first form illustrated.

In the modification shown in Figs. 11 and 50 12, a so-called "left-handed" shuttle is shown, and the transverse thread passage 20 is bored into the shuttle wood from its side to its longitudinal center, being intersected by two vertical holes 21, 22 bored from the 55 shuttle bottom upward. Each one of the holes receives one of the retaining devices shown separately in Fig. 8, as clearly shown in Fig. 12, the bodies 6 being held tightly in said holes while the hook-like heads 7 are 60 concentric and in the passage 20, with their entrances opposite the intersection of the inclined slot 23 with the passage 20, said slot 23 and the intersecting vertical slot 24 constituting an open threading-slot. The shuttle body is vertically recessed from its top

at 25 to form a receiving thread passage, leading from the bobbin-recess S' to and communicating with the transverse, delivering thread passage 20, and also communicating at the enlarged forward end 26 with 70 the vertical slot 24. A diagonal retaining pin 27 crosses the passage 25 and projects into an offset 28 thereof, to permit the thread to pass easily down and underneath said pin but thereafter preventing its escape from the 75 passage 25, in the bottom of which a tension pad 29 of felt or other suitable material is secured.

The threading operation will be apparent, the thread being drawn by the weaver into 80 the slots 24, 23 constituting the open threading-slot and being guided thereby into the passage 25 beneath the retaining pin 27, the thread as it leaves the inclined slot 23 entering the heads 7 arranged side by side in 85 the thread passage 20. Said hook-like heads not only retain the thread in the transverse passage 20 but also serve as a metallic lining therefor, as the thread is supported by the two heads and the upper edges of the bodies 90 6 upon which they are mounted, giving a free delivery of the thread while at the same time effectually controlling it to prevent escape thereof from the delivering passage.

My invention is not restricted to the precise construction and arrangement herein 95 shown and described, for various details may be modified or re-arranged by those skilled in the art without departing from the spirit and scope of my invention as explained herein and set forth in the annexed 100 claims.

Having fully described my invention, what I claim as new and desire to secure by 105 Letters Patent is:—

1. A hand-threading shuttle having communicating thread passages to respectively receive the thread leading from the bobbin-recess and to deliver such thread at the shuttle side, a vertical hole extending from 110 the shuttle bottom to the delivering passage, and an open threading-slot leading to said passages, and a thread-retainer having a tubular body fixed in said hole and provided with an overhanging hook-like head within 115 and substantially concentric to the delivering passage, the extremity of the head projecting into the adjacent end of the body, to receive the thread as it passes from the 120 threading-slot into the thread passages and thereafter to retain the thread in the delivering passage.

2. A hand-threading shuttle having thread passages communicating at their inner ends and adapted respectively to receive 125 the thread from the bobbin-recess and deliver such thread at the shuttle-side, a vertical hole intersecting the latter of said passages, and an open threading-slot leading to the passages, and a thread-retainer having 130

a body fixed in the vertical hole and provided with an open head within and substantially concentric to the delivering passage near its outer end, the extremity of the head extending into and being hooded by the adjacent part of the body, to receive the thread as it enters the delivering passage from the threading-slot and thereafter to retain it in said passage.

3. A hand-threading shuttle having thread passages communicating at their inner ends and adapted respectively to receive the thread from the bobbin-recess and deliver such thread at the shuttle-side, and a metallic thread-retainer having a cylindrical body fixed in the shuttle wood adjacent the delivering passage and having a hook-like head projecting from the body into and substantially concentric to the delivering passage and open toward the intersection of the threading-slot therewith, the extremity of the head being curved under and away from the entrance to the passage and below the bottom thereof, to permit entrance of the thread into the head as it passes from the threading-slot to said passage and thereafter to prevent its escape from the passage.

4. A hand-threading shuttle having a thread passage leading from the bobbin-recess and a transverse, communicating thread passage to deliver the thread at the shuttle side, a vertical hole intersecting the latter passage, and an open threading slot leading to the thread passages, and a thread-retainer comprising a tubular metallic body and a hook-like head having its extremity incurved and projecting into the adjacent open end of the body, to form a guarded entrance to the head, said body being fixed in the hole with its head within and substantially concentric to the delivering passage, the entrance to the head being adjacent the intersection of such passage and the threading-slot, to receive and retain the thread as it passes from the slot to the delivering passage.

5. A hand-threading shuttle having a thread passage leading from the bobbin-recess, a transverse thread passage leading from the shuttle side to the first-mentioned passage communicating therewith, a vertical hole in the shuttle wood intersecting the transverse passage near its outer end, and an open threading slot leading to said passages, and a metallic thread-retainer comprising a tubular body fixed in the hole and a hook-like head having a guarded thread-entrance, said head entering the transverse passage substantially concentric thereto and forming a combined delivery-eye and guard to receive the thread as it passes from the threading-slot into the transverse passage and thereafter to retain it in such passage.

6. A hand-threading shuttle having a vertical thread passage leading from the bob-

bin-recess, a transverse thread passage leading from the first-named passage to the shuttle side, and an open threading slot leading from the top of the shuttle to said passages, a device to permit the entrance of the thread from the threading-slot to the vertical passage and thereafter to prevent escape of the thread therefrom, a tubular, longitudinally-slotted metallic lining for said passage and upon the upper end of which lining said device is fixedly mounted, an open, hook-like head extended into the transverse passage, to permit the entrance of the thread therinto from the threading-slot, and a supporting body for said head, embedded in the shuttle wood and cooperating with the extremity of the head to prevent the thread from escaping therefrom and from the transverse passage.

7. A hand-threading shuttle provided with vertical and transverse thread passages, a longitudinally-slotted metallic lining in the vertical passage, said lining having an upright hook-like head on and extended above its upper end to receive the thread as it passes into the lining and thereafter to prevent its escape therefrom, a curved threading-slot leading to said lining and the transverse passage from the top of the shuttle, and a thread-retainer having a body fixed in the shuttle wood and provided with a hook-like head within and substantially concentric with the transverse passage adjacent its outer end, to permit entrance of the thread thereto from the threading-slot and thereafter to prevent escape of the thread from said passage.

8. A thread-retainer or guard for hand-threading shuttles, comprising a tubular metallic body, and an upright, hook-like head integral with and at the upper end of the body, the extremity of said head being incurved and projecting within and below the upper edge of the body.

9. A thread-retainer or guard for hand-threading shuttles, comprising a tubular, metallic body having a cut-away portion at its upper end, and a curved, hook-like head mounted on said upper end, the extremity of the head projecting into the body adjacent such cut-away portion and below the upper end of the body.

10. A metallic thread-retainer or guard comprising a cylindrical body open at its upper end, and a hook-like head mounted upon said upper end thereof and having its extremity incurved and extended within the open upper end of the body and below the annular edge thereof.

11. A thread-retainer or guard for hand-threading shuttles, comprising a tubular metallic body, and an upright, open head mounted upon the upper end of the body and of less width than the body, the extremity of the head being curved downward and

inward and projecting into the open end of the body.

12. A metallic thread-retainer or guard comprising a tubular body having a longitudinal opening in its wall, and a hook-like head mounted upon the upper end of said body and having its extremity incurved opposite the longitudinal opening and extended into the body below its upper edge.

10 13. A hand-threading shuttle provided with vertical and transverse thread passages, and with an open threading-slot leading to said passages, a longitudinally-slotted lining

in the vertical passage, and a hook-like head on the upper end of said lining and having 15 its extremity extended into the lining below its upper edge, to permit the entrance of the thread thereinto from the threading-slot and thereafter to prevent escape of the thread.

In testimony whereof, I have signed my 20 name to this specification, in the presence of two subscribing witnesses.

GEORGE M. CHENEY.

Witnesses:

JOHN C. EDWARDS,

THOMAS J. DRUMMOND.