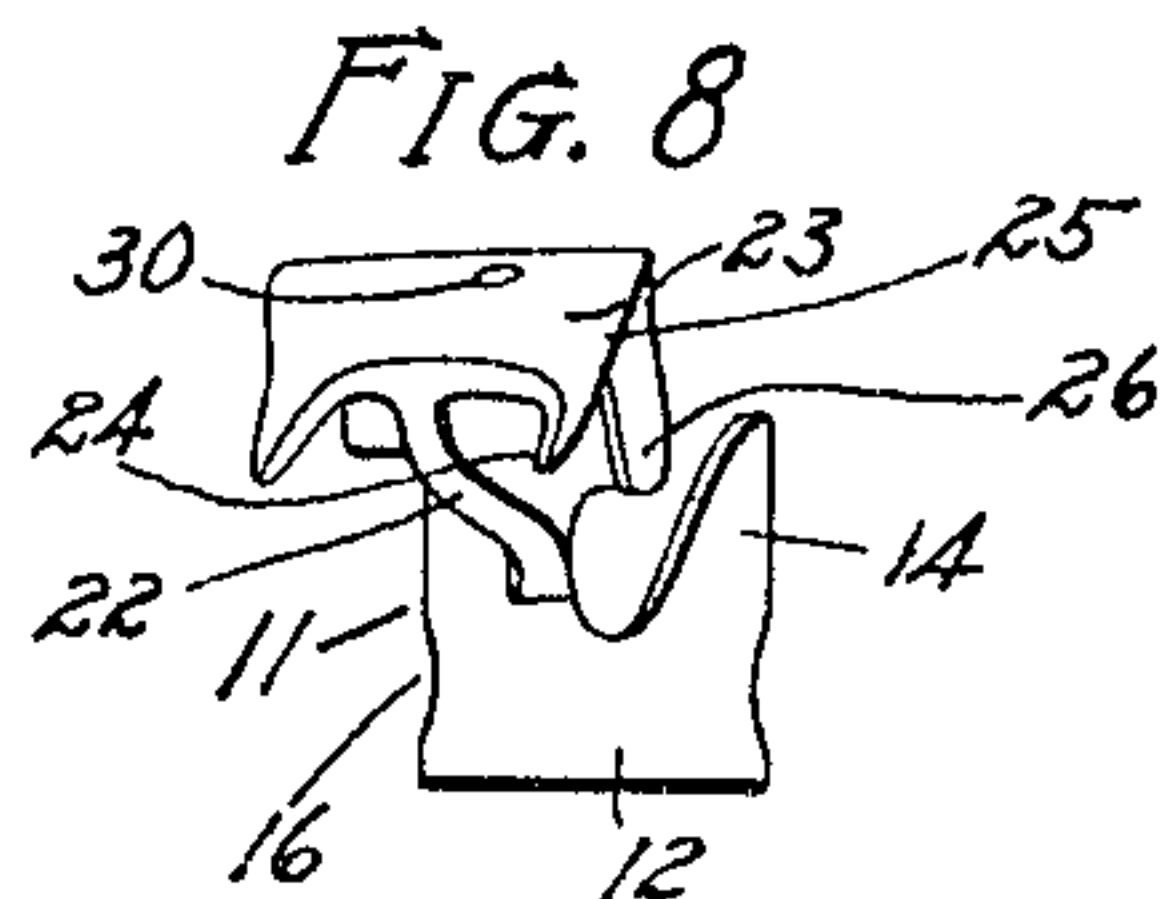
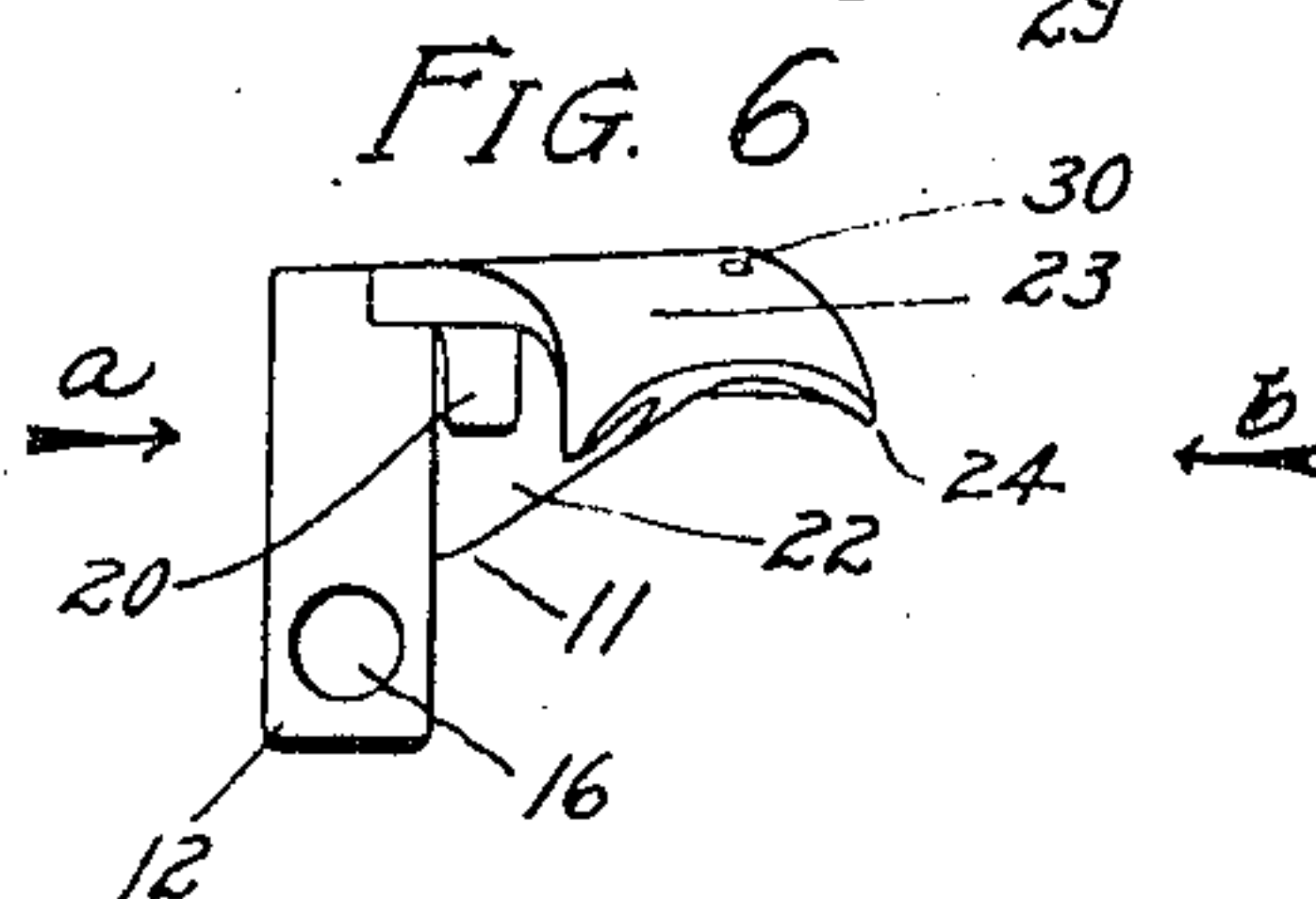
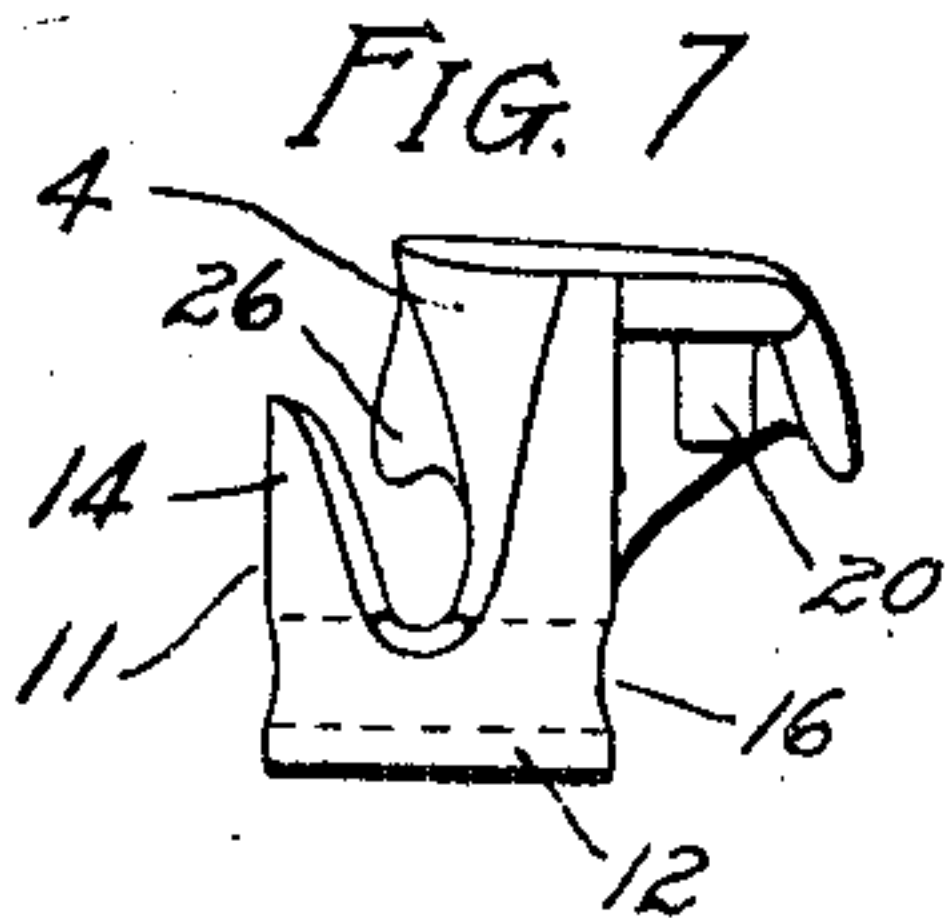
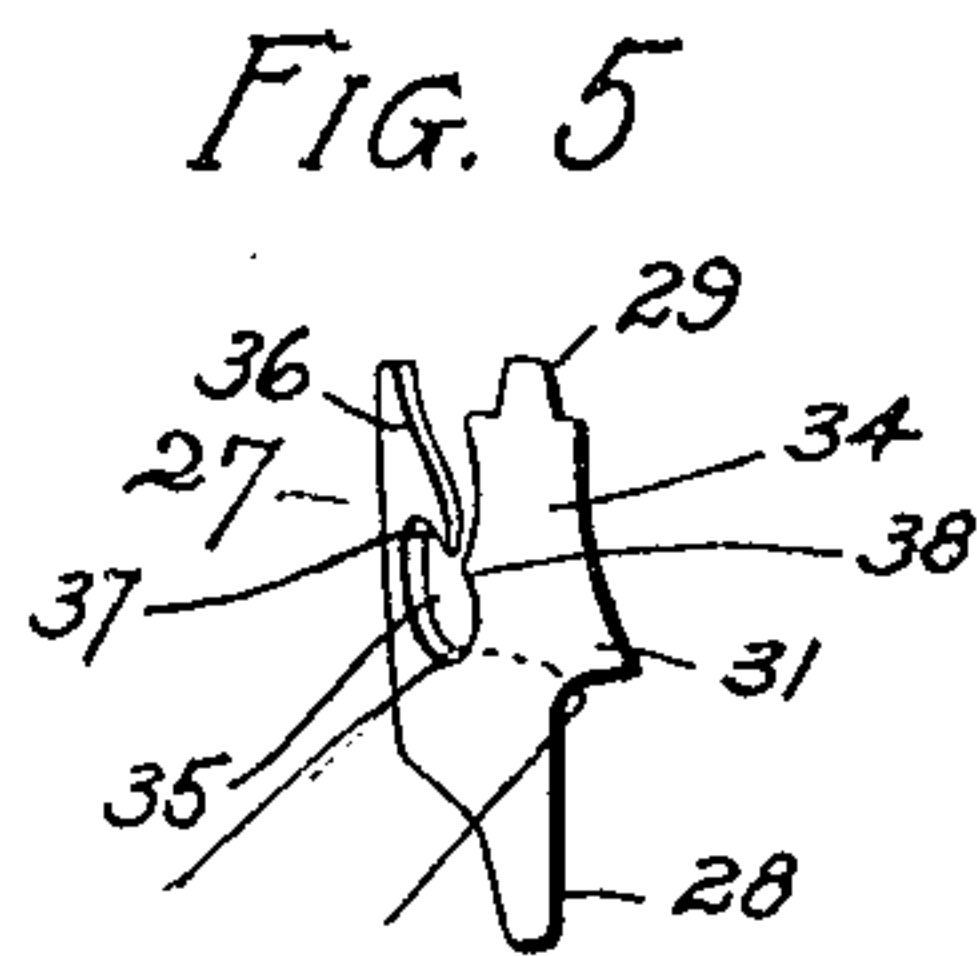
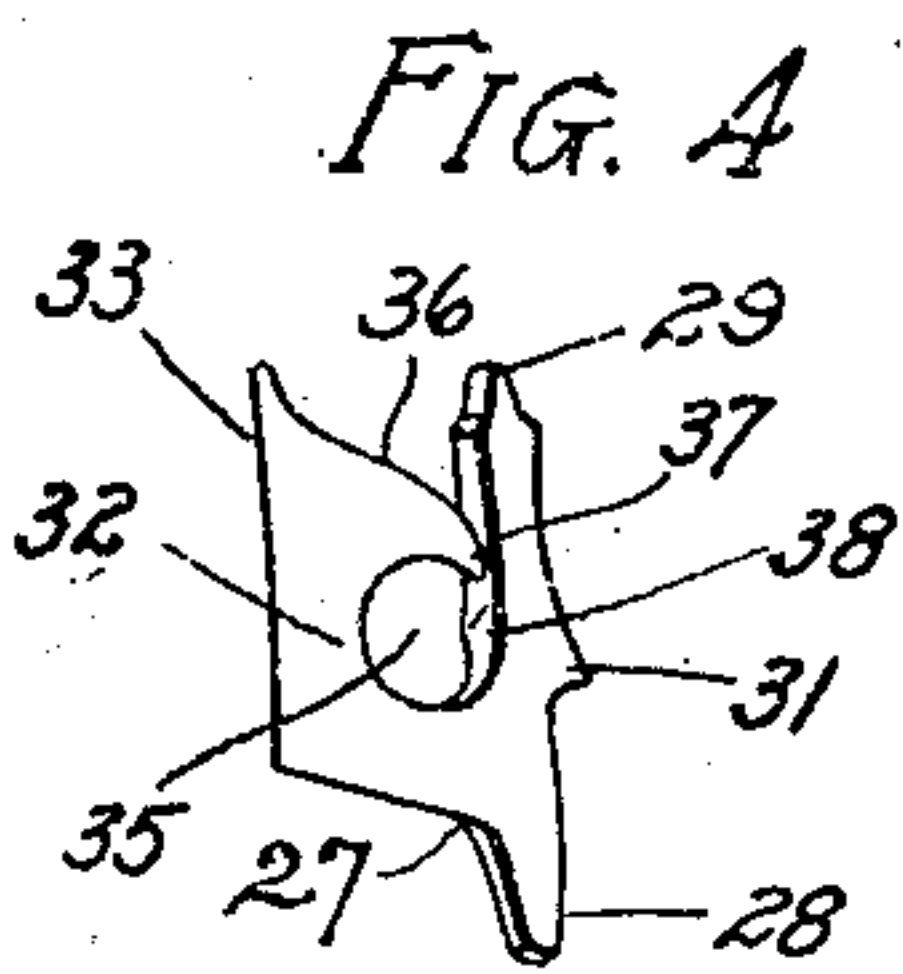
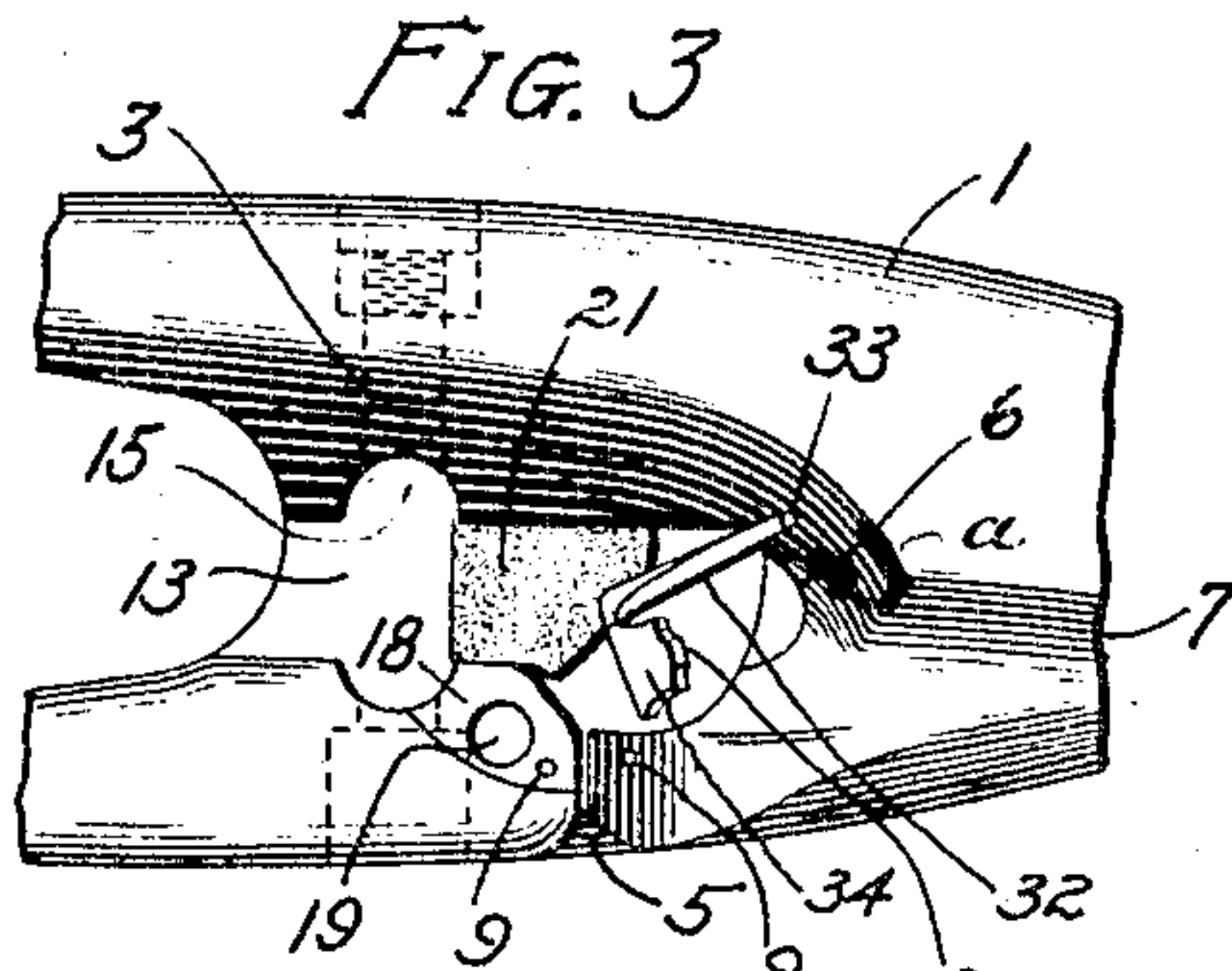
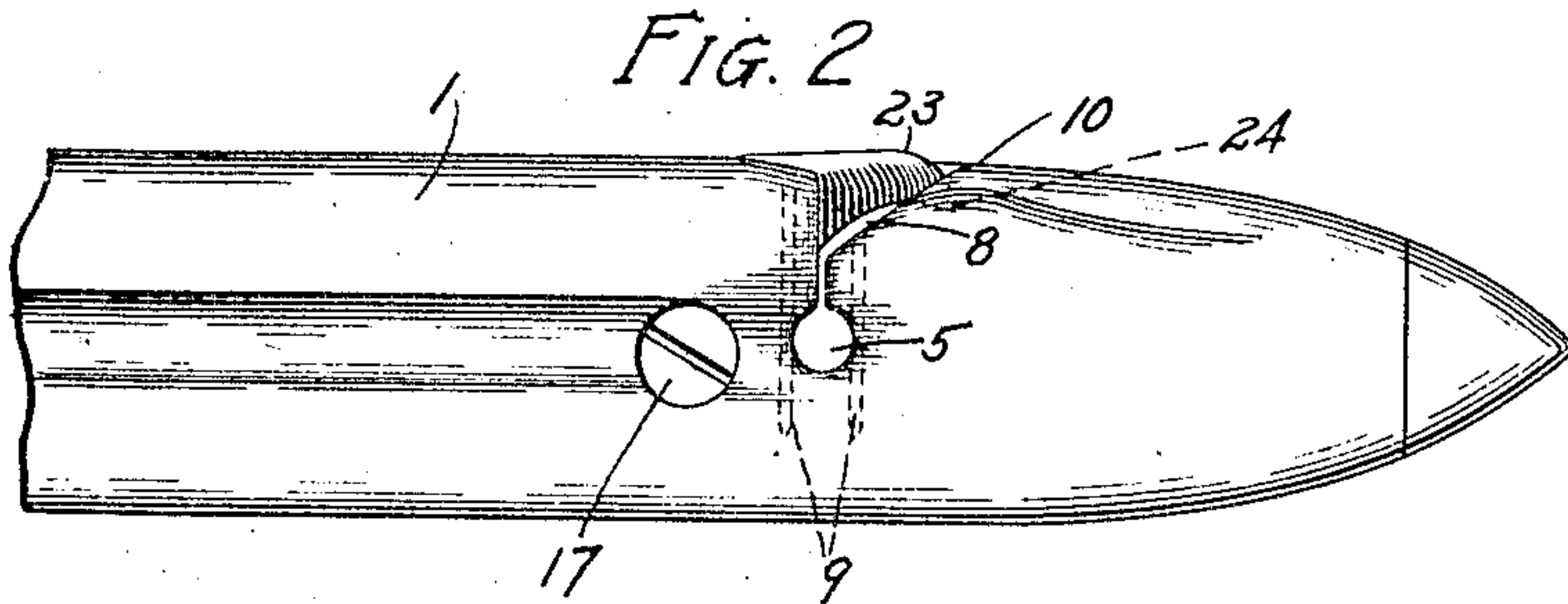
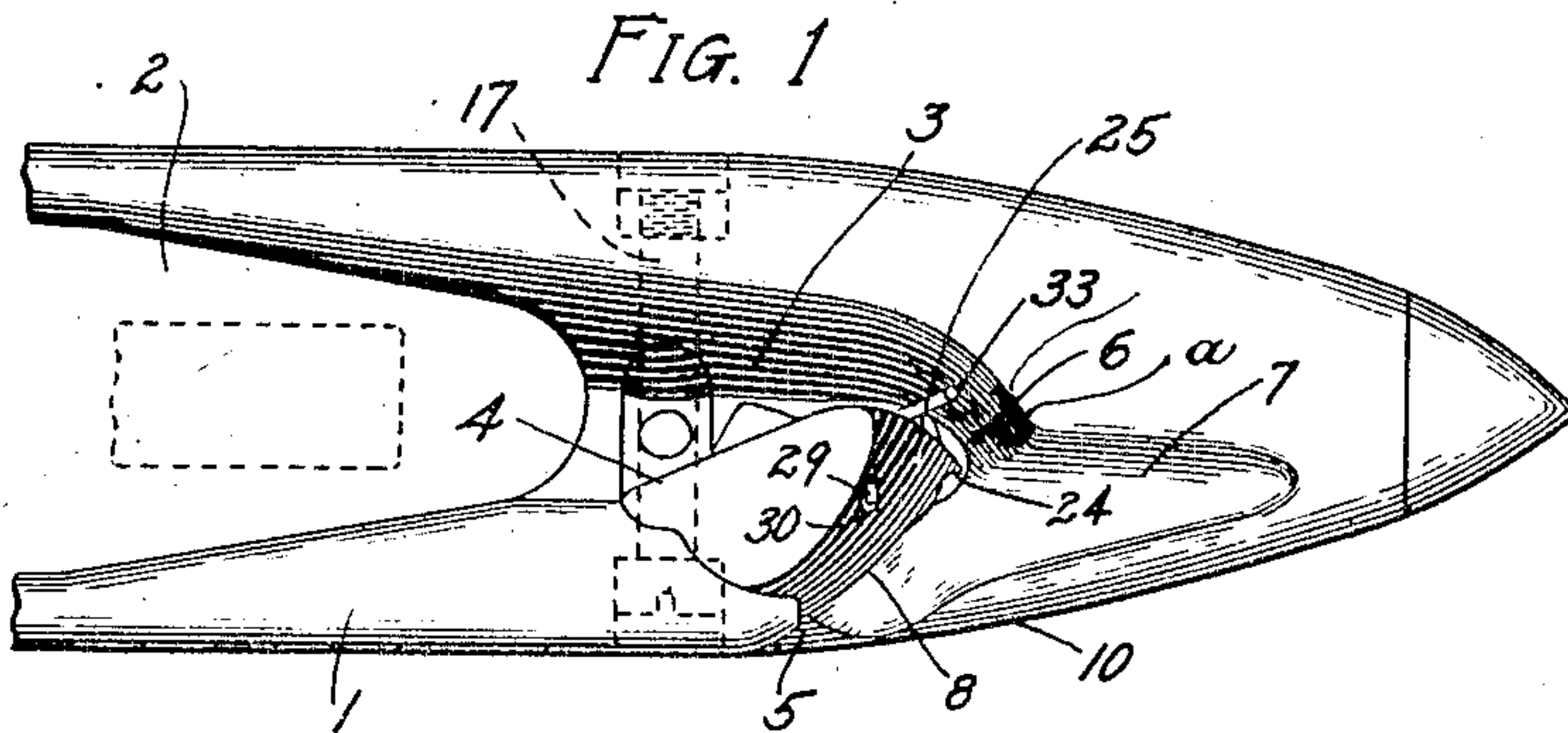


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LOOM SHUTTLE.

APPLICATION FILED JAN. 25, 1909.

926,017.

Patented June 22, 1909.



WITNESSES,

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LOOM-SHUTTLE.

No. 926,017.

Specification of Letters Patent.

Patented June 22, 1909.

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To all whom it may concern:

Be it known that I, JONAS NORTHROP, a citizen of the United States, residing at Hopedale, in the county of Worcester and State of Massachusetts, have invented an Improvement in Loom-Shuttles, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The invention to be hereinafter described relates to loom shuttles, and more particularly to the general type known as self threading shuttles.

In a prior application filed by me April 29, 1908, Serial No. 429,803, there was shown, described and claimed a self threading shuttle for use in so called filling replenishing looms, said shuttle being constructed and provided with means whereby it assumes deliverable control of the filling on relative movement of the shuttle and thread end in a direction transverse to the length of the shuttle prior to being picked.

The present invention is a development of this same general character of shuttle, the aims and objects of the invention being best presented by the following description and accompanying drawing, showing one form of means for practical embodiment thereof.

In the drawings: Figure 1 is a top or plan view of the delivery end of a loom shuttle showing the present invention associated therewith; Fig. 2 is a side elevation of the shuttle shown by Fig. 1; Fig. 3 is a plan view similar to Fig. 1 with the threading block removed, the tip of the shuttle being broken away; Figs. 4 and 5 are detached views of the horn looking from different directions; Fig. 6 is a side elevation of the threading block detached; Fig. 7 is an end view of the threading block looking in the direction of the arrow *a*, Fig. 6; and Fig. 8 is a view similar to that of Fig. 7, looking in the direction of the arrow *b*, Fig. 6.

The shuttle body 1 is provided with the bobbin receiving opening 2, and at its delivery end is formed with a wall 3, which, in connection with the diagonal side 4 of the threading block forms a substantially V-shaped opening, as indicated in Fig. 1. The wall 3 of the shuttle body inclines downwardly from the top of the shuttle. and in

general contour may turn forwardly or toward the front of the shuttle as it extends toward the shuttle tip, it being understood, of course, that the front of the shuttle is that face thereof which contains the thread delivery eye 5. At its forward position 6, the wall 3 meets a depressed portion 7 in the shuttle body extending in a general direction longitudinally of the shuttle, the effect being, the frontwardly inclined portion 6 of the shuttle wall and the longitudinal portion 7 serve to position the exterior portion of the thread so that on movement of the shuttle the thread will engage beneath the beak of the threading block, as will presently appear.

The thread delivery eye 5 may be formed in a suitable manner and is herein preferably countersunk within the plane of the front face of the shuttle, and an open slot 8 leads from the eye in a general direction toward the V-shaped opening hereinbefore mentioned. If desired a wear piece may be disposed at each side of the delivery eye 5, said wear pieces being preferably provided by pins 9, 9, Figs. 2 and 3. Between the delivery eye 5 and the depression 7, the shuttle body is or may be formed with an upwardly projecting part 10, Figs. 1 and 2.

The delivery end of the shuttle is provided with a suitable recess to receive the threading block 11, of the general construction indicated in Figs. 6, 7 and 8. In the present form the threading block is provided with a base portion or bridge piece 12 adapted to extend transversely of the shuttle body in a seat 13 thereof, Fig. 3, said bridge piece having an upwardly extending lip 14 seated in a recess 15 in the wall of the shuttle body, the construction being such that the exposed surface of the lip 14 does not project beyond or flush with the wall 3, which forms part of the thread passage leading to the delivery eye. The bridge piece 12 is provided with a perforation 16 through which a suitable bolt 17, Figs. 1 and 2, may pass to assist in holding the threading block in place. A seat 18, preferably above the surface plane of the seat 13, is provided with a hole 19 to receive a stud 20 depending from a portion of the threading block, Figs. 6 and 7. Supported upon the recessed portion of the shuttle body and in front of the recess 13 or bridge piece 12 is a friction pad 21, Fig. 3, so disposed as

to act upon the thread as it passes from the bridge piece toward the delivery eye.

As indicated in Fig. 6, the threading block 11 has a web 22 extending forwardly from the bridge piece 13 and surmounted by a top or loop casting portion 23 generically characterized by a gradually diminishing or wedge-like formation, such that a loop of thread caught on said top or loop casting portion would ride off the end thereof without unthreading the shuttle or breaking the thread by a pull on the thread exterior to the shuttle. At its forward end the top or loop casting portion has a beak 24 turned toward the bottom and front of the shuttle body, its face 25 acting as a thread engaging and directing element to effect a deliverable control of the thread when the shuttle and exterior portion of the threading-block leading therefrom are relatively moved in a direction transverse to the length of the shuttle. The beak 24 extends somewhat below the surface of the shuttle body adjacent thereto, so that the thread having once passed beneath the beak in the manner stated, and the shuttle having thus assumed deliverable control of the thread, unthreading is prevented, as will be readily understood by those skilled in the art. If desired, a metal guard *a* may be secured to the body of the shuttle adjacent to or opposite the beak to prevent change in the established relation of the beak and wall of the shuttle body below which the beak extends.

As previously stated, the thread passage leading from near the end of the bobbin is formed on one side by the inclined wall 3 of the shuttle body and on the other side by the wall 4 of the threading block. The wall 4 of the threading block near its forward portion is provided with an overhang 26 forming a shoulder extending over the thread passage, said part thus acting to prevent rising of the thread when once it has found its proper position in the lower part of the passageway.

Secured to the shuttle body forward of the threading block is the horn 27, Figs. 3, 4 and 5, having a toe 28 adapted to be securely seated in the shuttle body and a lip 29 at its upper portion adapted to engage a recess 30 in the top or loop casting portion of the threading block 11. The horn 27 is formed of a hard metallic substance having a shoulder or thread retainer 31 beneath which the thread passes on its way to the delivery eye 5, said horn being preferably provided with an angularly disposed side extension or wing 32, the edge 33 of which is seated in the shuttle body, Figs. 1, 3 and 4. The edge of the wing 32 adjacent the body 34 of the horn is formed with a thread guiding eye 35, the edge 36 of the wing being inclined or curved, Fig. 4, to act as a thread director to direct the thread to the opening of the eye 35 as said thread is drawn from the bobbin. It will be noted

that the end 37 of the eye producing portion of the wing is disposed adjacent the edge of the body 34 of the horn, and adjacent thereto said body of the horn has a bur or thread stop 38 which, in connection with the overhang 26 of the threading block, when the thread has once been caught by the eye 35, prevents disengagement of the thread therefrom.

By reference to Fig. 3, it will be noted that the body 34 of the horn is disposed at one side of and angularly with relation to the longitudinal axis of the shuttle and is inclined from top to bottom in a direction angularly away from the tip or end of the shuttle, such general disposition of the horn being conducive to more certainty of action in completion of the threading operation, although it is to be understood that the invention is not circumscribed by these details. It is also to be understood that the wing 32 is not of necessity an integral formation with the horn body; indeed, the guide eye 35, if used at all, might be otherwise formed and related to the horn body 34 without departing from the generic character of the present invention, which, in its true scope, is definitely set forth in the claims.

In the present invention it will be noted that the top portion of the threading block 11 is disposed slightly above the top surface plane of the shuttle body and that the downwardly and frontwardly inclined beak acts as a thread engaging and directing element to cause the shuttle to assume deliverable control of a thread upon relative movement of the shuttle and exterior portion of the thread leading therefrom, such as takes place in filling replenishing looms by relative movement of the replenished shuttle and replenishing means before the shuttle is picked. It will also be clear to those skilled in the art that such deliverable control of the thread having been assumed in the manner stated, the horn serves to complete the threading operation, and, by its retainer 31, maintains the thread depressed for proper guidance to the delivery eye 5. The wing 32 and eye 35, if used, will, in conjunction with the coacting parts, insure proper direction to the thread and its maintenance in the thread passage during the weaving operation.

It will be noted that the overhang 26, in the present form of the invention, is disposed above the tension pad 21 of felt or other material as described, and, in conjunction with the thread engaging portions of the horn, serves to maintain the thread in proper relation to the tension pad with the result that uniform tension is secured.

While the invention has been described with detail illustrations of one means for securing its practical adoption, it is to be un-

derstood that such details, except as definitely pointed out by the claims, are not essential, and that the shuttle is primarily intended for use in connection with automatic filling replenishing looms.

What is claimed is:

1. A self threading shuttle having a threading block provided with a downwardly and frontwardly inclined beak, and a horn separate from the threading block and secured to the shuttle body.

2. A self threading shuttle having a threading block provided with a downwardly and frontwardly inclined beak, and a horn separate from the threading block and secured to the shuttle body, said horn having a thread retainer.

3. An automatically threading shuttle having a threading block provided with a downwardly and frontwardly inclined portion to assume deliverable control of the thread by relative movement of the shuttle and an exterior portion of the thread in a direction transverse to the length of the shuttle, and a horn separate from the threading block and secured to the shuttle body.

4. An automatically threading shuttle having a threading block provided with a downwardly and frontwardly inclined portion to assume deliverable control of the thread by relative movement of the shuttle and an exterior portion of the thread in a direction transverse to the length of the shuttle, and an inclined horn secured directly to and supported by the shuttle body.

5. An automatically threading shuttle having a threading block provided with a downwardly and frontwardly inclined portion to assume deliverable control of the thread by relative movement of the shuttle and an exterior portion of the thread in a direction transverse to the length of the shuttle, and a hard metal horn separate from the threading block secured to the shuttle body and provided with a thread retainer.

6. A self threading shuttle having a threading block provided with a downwardly and frontwardly inclined beak, and a horn independent of the threading block and secured to the shuttle body, said horn being inclined and having a thread retainer.

7. A self threading shuttle having a threading block provided with a downwardly and frontwardly inclined beak, and a horn secured to the shuttle body, said horn being disposed angularly with relation to the longitudinal axis of the shuttle.

8. A shuttle adapted for the automatic insertion of a bobbin and having a threading block provided with a downwardly and frontwardly inclined beak, and a horn having a wing secured to the shuttle body.

9. A shuttle adapted for the automatic insertion of a bobbin and having a threading block provided with a downwardly and

frontwardly inclined beak, and a horn having a thread retainer and wing portion, said horn being secured to the shuttle body.

10. A shuttle adapted for the automatic insertion of a bobbin and having a threading block provided with a downwardly and frontwardly inclined beak, and a horn secured at one end to the shuttle body at its opposite end to the threading block.

11. A shuttle adapted for the automatic insertion of a bobbin, and having means thereon provided with a thread engaging and directing portion to assume deliverable control of the thread upon relative movement of the shuttle and exterior portion of the thread in a direction transverse to the length of the shuttle, and a horn having a wing portion secured to the shuttle body.

12. A shuttle adapted for the automatic insertion of a bobbin, and having means thereon provided with a thread engaging and directing portion to assume deliverable control of the thread upon relative movement of the shuttle and exterior portion of the thread in a direction transverse to the length of the shuttle, and a horn having a wing portion secured to the shuttle body, said wing portion having a thread retainer.

13. A shuttle adapted for the automatic insertion of a bobbin, and having means thereon provided with a thread engaging and directing portion to assume deliverable control of the thread upon relative movement of the shuttle and exterior portion of the thread in a direction transverse to the length of the shuttle, and a horn secured to the shuttle body, said horn having a thread retainer disposed at one side thereof and a guide eye at the other side thereof.

14. A shuttle adapted for the automatic insertion of a bobbin and having a threading block provided with a bridge piece, a horn disposed in front of the threading block and having a thread retainer, and a thread tension pad disposed between the bridge piece and horn.

15. A shuttle adapted for the automatic insertion of a bobbin and having a threading block provided with a bridge piece, a horn disposed in front of the threading block and having a thread retainer, and a thread tension pad disposed between the bridge piece and horn, said threading block having an overhang disposed above said pad.

16. A shuttle adapted for the automatic insertion of a bobbin and having a threading block provided with a bridge piece having an upwardly extending lip, a horn disposed adjacent the opposite end of the block and secured to the shuttle body, and a tension pad seated between the bridge piece and the horn, said threading block having an overhang, the thread engaging portion of which extends over and adjacent the pad.

17. A self threading shuttle having a

threading block provided with a forwardly and frontwardly inclined beak, and a horn independent of the threading block and having a portion secured to the shuttle body to support the horn.

18. A self threading shuttle having a threading block provided with a bridge piece and a forwardly and frontwardly inclined beak, and a horn secured to the shuttle body.

19. An automatically threading shuttle having a threading block provided with a forwardly and frontwardly inclined portion to engage and assume deliverable control of the thread by relative movement of the shuttle and an exterior portion of the thread in a direction transverse to the length of the shuttle, and a horn having an extended portion secured to the shuttle body.

20. An automatically threading shuttle having a threading block provided with a downwardly and frontwardly inclined portion to engage and assume control of the thread, the wall opposite said block having its forward portion turned toward the front of the shuttle to direct the thread into engagement with said downwardly and frontwardly inclined portion of the threading block.

21. An automatically threading shuttle having a threading block provided with a downwardly and frontwardly inclined por-

tion to engage and assume control of the thread, the wall opposite said block having its forward portion turned toward the front of the shuttle to direct the thread into engagement with said downwardly and frontwardly inclined portion of the threading block, the top wall of said shuttle having a depressed portion extending longitudinally of the shuttle and connecting with the frontwardly turned portion of said wall.

22. An automatically threading shuttle having a threading block provided with a downwardly and frontwardly inclined beak, and a guard secured to the body of the shuttle adjacent to the beak to prevent change in the established relation of the beak and wall of the shuttle body below which the beak extends.

23. An automatically threading shuttle having a threading block secured to the body of the shuttle, and a horn separate from the threading block, said horn having a portion extending therefrom by which it is secured to the shuttle body.

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

JONAS NORTHROP.

Witnesses:

EVERETT S. WOOD,
WENDELL WILLIAMS.