

S. A. DUDLEY.

LOOM SHUTTLE.

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905,670.

Patented Dec. 1, 1908.

Fig. 1.

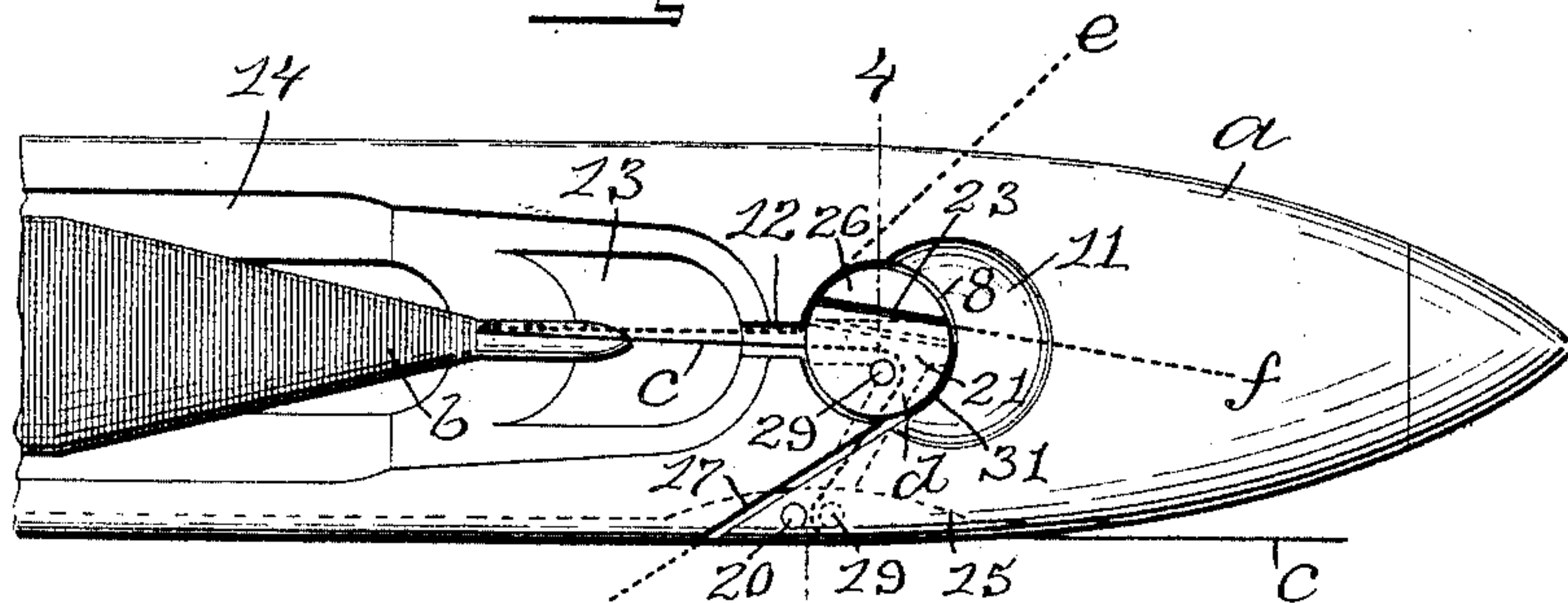


Fig. 2.

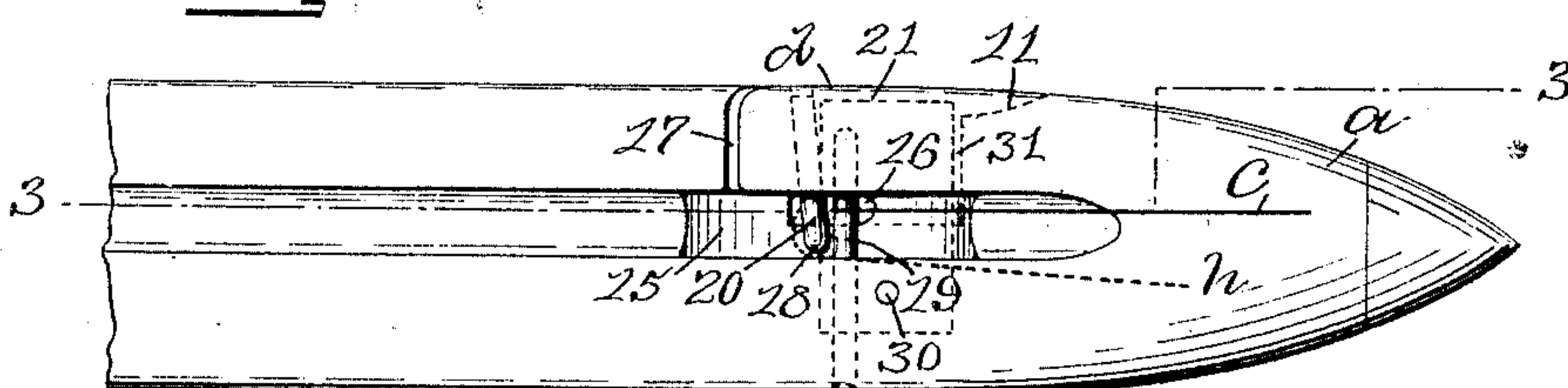


Fig. 3.

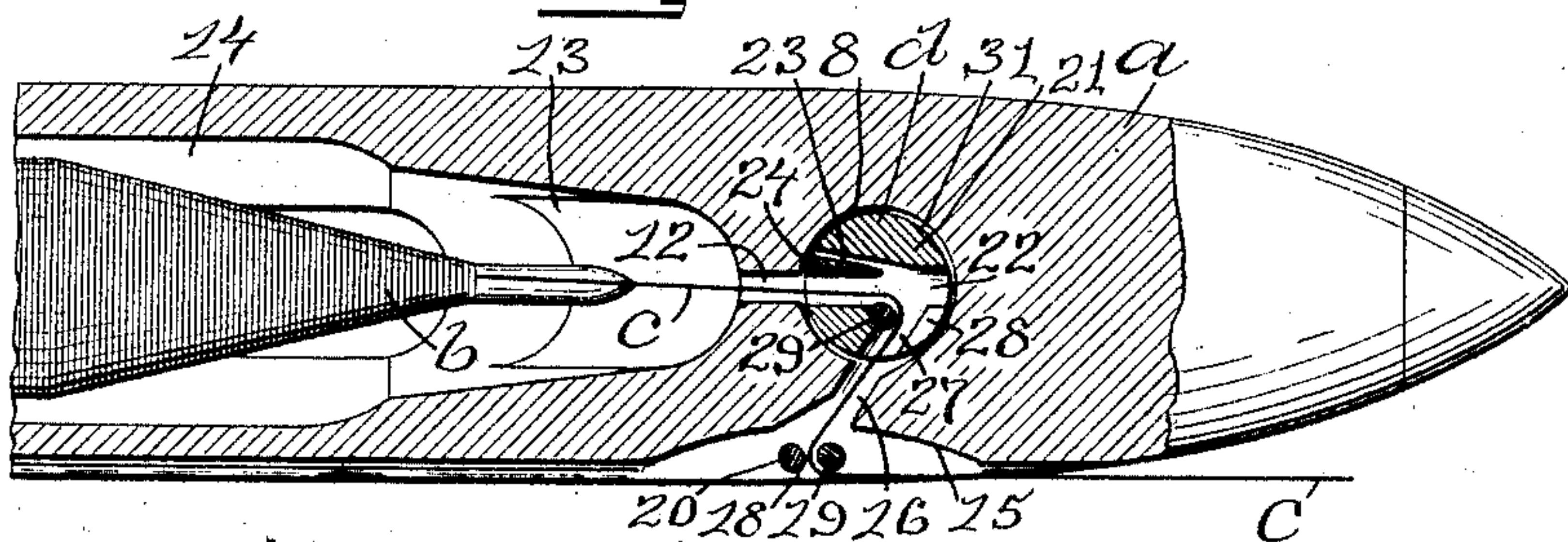


Fig. 4.

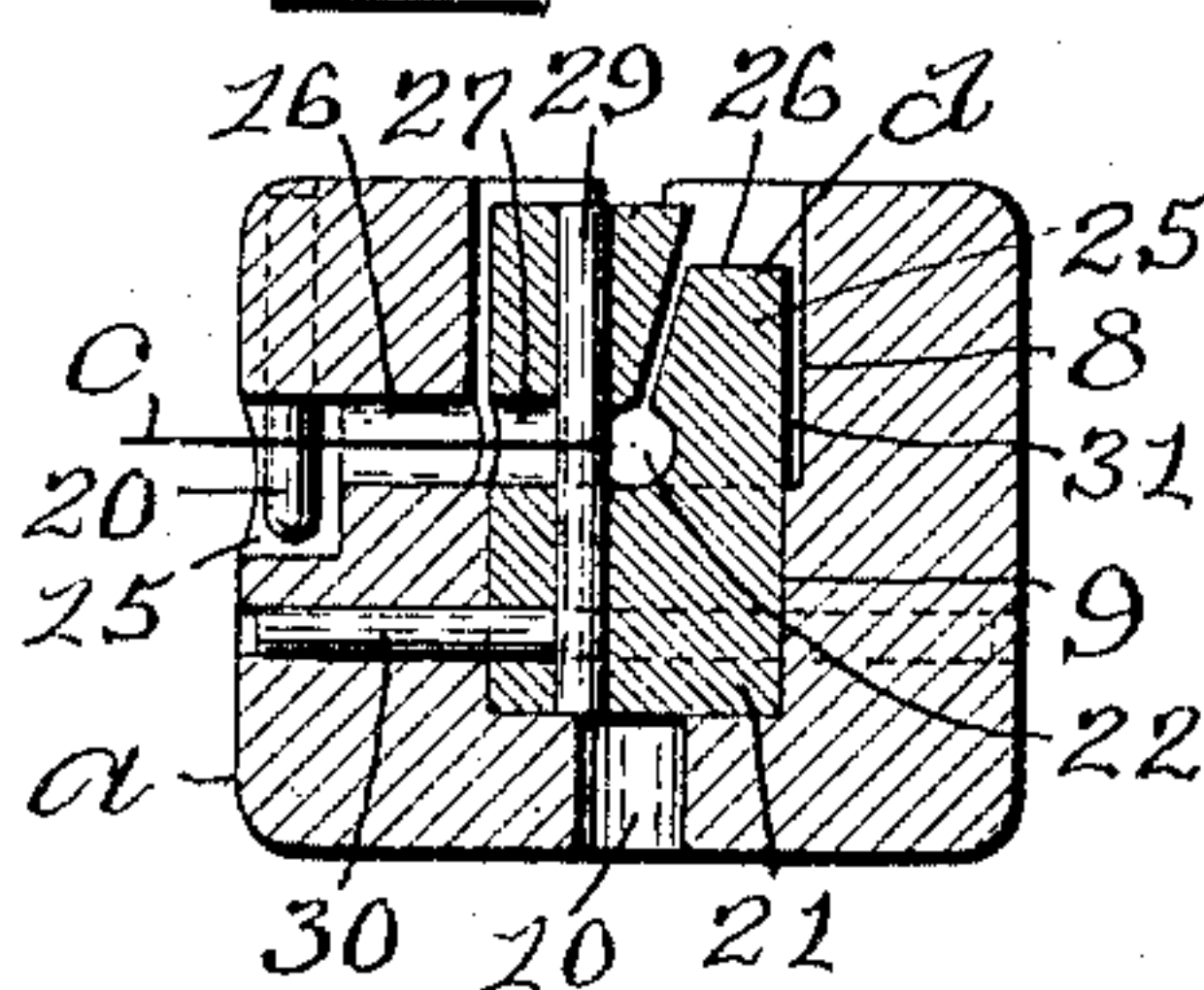


Fig. 5.

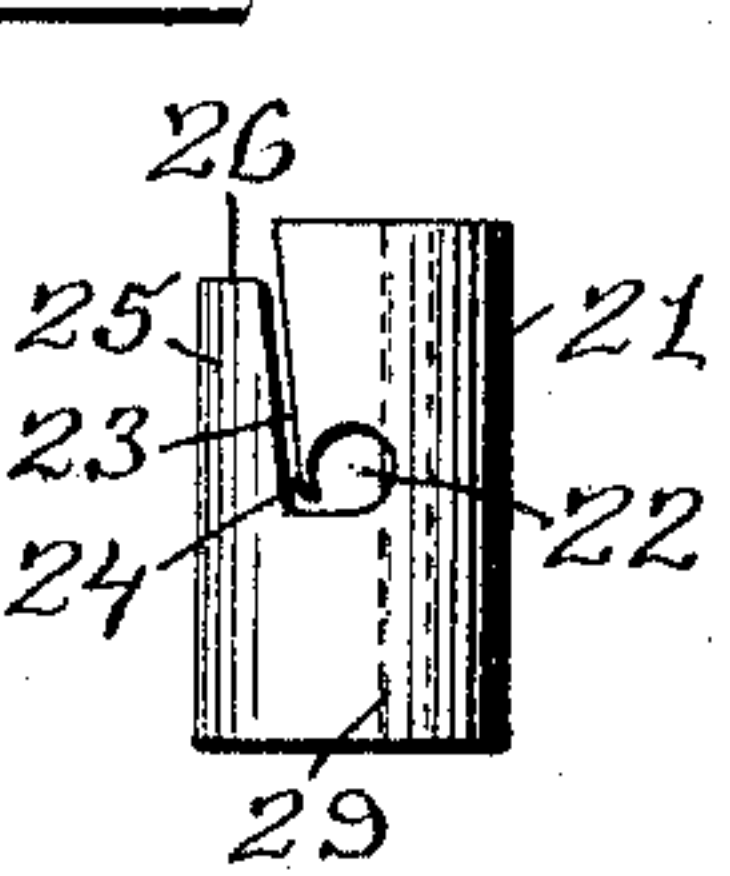


Fig. 6.

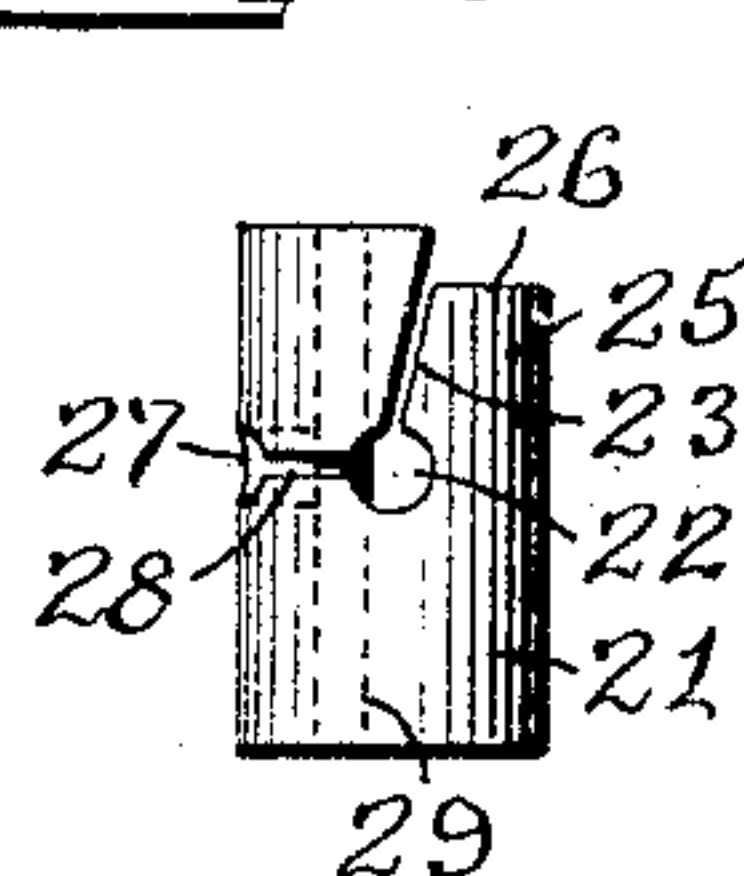
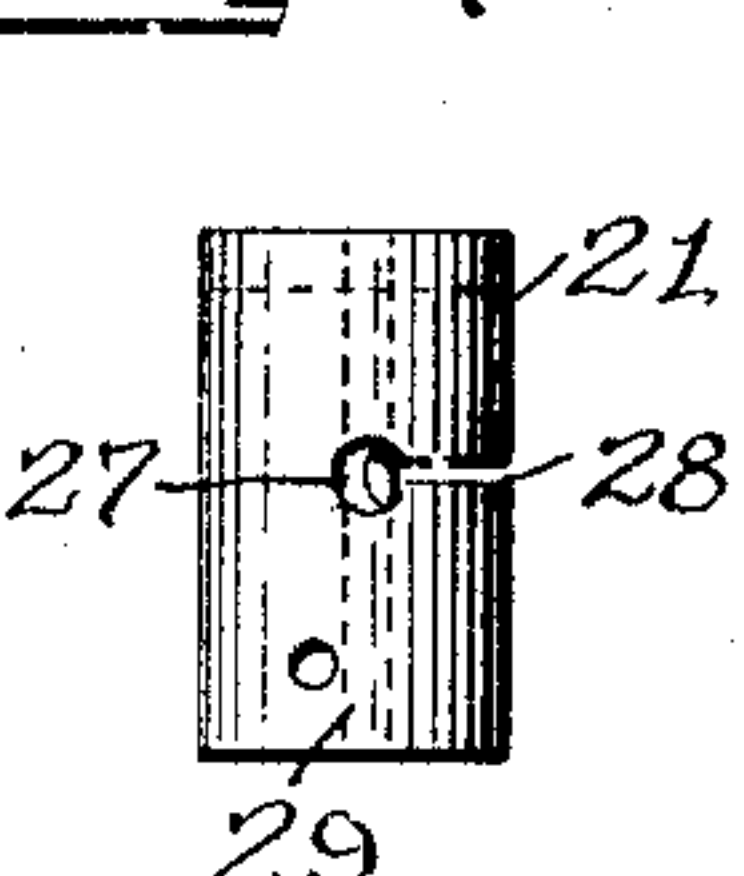


Fig. 7.



WITNESSES:

Ada E. Hagerly.  
Chas. W. Luther

INVENTOR:

Sumner A. Dudley  
 and Joseph A. Miller  
 ATTORNEYS

ATTORNEY:



## UNITED STATES PATENT OFFICE.

SUMNER A. DUDLEY, OF TAUNTON, MASSACHUSETTS.

## LOOM-SHUTTLE.

No. 905,670.

Specification of Letters Patent.

Patented Dec. 1, 1908.

Application filed November 29, 1907. Serial No. 404,217.

*To all whom it may concern:*

Be it known that I, SUMNER A. DUDLEY, a citizen of the United States, residing at Taunton, in the county of Bristol and State of Massachusetts, have invented a new and useful Improvement in Loom - Shuttles, of which the following is a specification.

This invention has reference to an improvement in shuttles and more particularly to an improvement in hand threading devices for loom shuttles.

Hand threading devices for loom shuttles have heretofore been constructed of metal and add materially to the weight of the delivery end of the shuttle. In practice I find that this excessive weight at the delivery end of the shuttle causes the shuttle to have an imperfect throw in the loom with liability of the shuttle jumping through and smashing the warp threads.

The object of my invention is to improve the construction of a loom shuttle, whereby the shuttle is provided with a light weight mechanical threading device adapted to facilitate the threading of the shuttle by hand, without suction.

Further objects of my invention are to improve the action and appearance and lessen the cost of manufacturing loom shuttles having hand threading devices.

My invention consists in the peculiar and novel construction of a loom shuttle, said invention embodying a mechanical hand threading device and the adjacent portions of the shuttle and having details of construction, as will be more fully set forth hereinafter and claimed.

Figure 1 is a top plan view of the thread delivery end of a loom shuttle provided with my improved mechanical hand threading device. Fig. 2 is a side view of Fig. 1, looking at the delivery eye side of the shuttle. Fig. 3 is a longitudinal sectional view taken on line 3 3 of Fig. 2, showing the thread running through the threading device and out of the delivery eye of the shuttle. Fig. 4 is a transverse sectional view taken on line 4 4 of Fig. 1 through the shuttle and threading device, and Figs. 5, 6 and 7 are side views of the plug member of the threading device removed from the shuttle to show the construction of the same.

In the drawings, *a* indicates the thread delivery end of a loom shuttle body, *b* the nose end portion of a bobbin in the shuttle, *c* a weft thread, *d* my improved hand threading

device, and *e*, *f*, *g*, and *h* dotted lines illustrating the successive positions the thread will assume in threading the shuttle, as shown in Figs. 1 and 2.

The shuttle body *a* has a circular upper cavity 8 extending down from the top adjacent the throat of the shuttle and merging into a slightly smaller circular bottom cavity 9 from the bottom of which is a central hole 10 extending down through the bottom of the shuttle, a semi-circular dished depression 11 in the top merging into the upper circular cavity 8 on the end side of the cavity, a longitudinal slot 12 connecting the upper circular cavity 8 with the throat 13 which merges into the usual bobbin cavity 14, a narrow longitudinal depression 15 in the side of the shuttle, a hole 16 bored at an angle from the depression 15 into and toward the end of the shuttle and on a line with the lower portion of the upper circular cavity 8, a slit 17 cut at an approximately corresponding angle down from the top of the shuttle to the hole 16 and extending from the upper circular cavity 8 to the outside of the shuttle, and a delivery eye 18 formed by a pin 19 driven upward from the bottom through the depression 15 at the mouth of the hole 16, and a pin 20 driven downward from the top into the concave depression 15 at an angle to the pin 19 and slightly clearing the bottom of the depression 15, as shown in Figs. 2 and 4, otherwise the shuttle may have the construction of any of the well known forms of loom shuttles.

The hand threading device *d* consists principally of a round plug 21 constructed preferably of hard wood and having a central transverse hole 22, a slit 23 which extends down from the top and intersects the transverse hole 22 at an angle and forming a downwardly-extending lip 24 at the inlet end of the hole 22, as shown in Figs. 3 and 5, a shortened side 25 the upper end 26 of which lays below the upper end of the plug, as shown in Figs. 5 and 6, a transverse hole 27 bored at an angle corresponding to the angle of the hole 16 in the shuttle from the outside of the plug in to a point where it intersects the transverse hole 22, a transverse slit 28 cut centrally in from the side and intersecting the transverse holes 22 and 27, and a metal wearing pin 29 driven lengthwise through the plug at the intersection of the transverse holes 22 and 27, as shown in Figs. 3 and 4. The plug 21 has a driven fit in the bottom cavity 9 in the shuttle and is held in position



by a pin 30 driven transversely through the shuttle and the lower portion of the plug, as shown in Fig. 4. The upper portion of the plug 21 and the wall of the upper cavity 8 form a thin annular space 31, as shown in Figs. 1, 3 and 4.

In the operation of threading a shuttle provided with my improved hand threading device, the shuttle is held in the left hand and the thread *c* pulled from the bobbin *b* through the throat 13 and slot 12 in the shuttle. That portion of the thread in the throat 13 of the shuttle is now depressed by the index finger of the left hand into the throat of the shuttle and the thread pulled into the annular space 31, as indicated by the dotted line *e* in Fig. 1. This thread is now carried to the right over the upper end 26 of the shortened side 25 of the plug 21 through the slit 23 in the plug and through the depression 11 in the top of the shuttle, as indicated by the dotted line *f* in Fig. 1. The thread is now pulled down through the annular space 31 and the slit 17 in the shuttle and through the transverse slit 28 in the plug into the transverse holes 22 and 27 in the plug and the hole 16 in the shuttle, as indicated by the dotted line *g* in Fig. 1. The thread is now pulled under the end of the pin 18, as indicated by the dotted line *h* in Fig. 2, into the delivery eye 18 of the shuttle, completing the threading of the shuttle, as shown in full lines in Figs. 1, 2, 3 and 4. These operations as explained in detail are almost instantaneously performed in one continuous movement of the hand.

By this construction I provide a loom shuttle with a light, strong and durable hand threading device, which is not liable to break or wear out quickly, all wear of the thread coming on the metal pins 19, 20 and 29 which can be easily replaced if required, also by eliminating the use of metal as far as practical in the construction of the threading device I construct a loom shuttle having practically the same weight at the delivery end as the old form of suction shuttles and giving the same perfect action in the loom as the older forms of shuttles.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. In a shuttle, the combination with a shuttle body having a circular top cavity extending down from the top and merging into a smaller circular bottom cavity, a dished depression in the top merging into the upper circular cavity, a slot extending from the upper circular cavity into the throat of the shuttle body, a hole bored at an angle from the side of the shuttle body into the upper circular cavity, a slit cut at an angle down from the top of the shuttle body, intersecting the hole and extending from the upper circular cavity out through

the side of the shuttle, of a plug having a transverse hole, a slit extending down from the top of the plug and intersecting the transverse hole at an angle, a hole bored in from the side of the plug at an angle and intersecting the first transverse hole, and a slit cut in from the side of the plug and intersecting both the transverse holes, and a pin driven lengthwise at the intersection of the transverse holes.

2. In a shuttle, the combination with a shuttle body having a circular top cavity extending down from the top and merging into a smaller circular bottom cavity, a dished depression in the top merging into the upper circular cavity, a slot extending from the upper circular cavity into the throat of the shuttle body, a narrow longitudinal depression in the side of the shuttle body, a hole bored at an angle from the depression in the side of the shuttle body into the upper circular cavity, a slit cut at an angle down from the top of the shuttle body intersecting the hole, and extending from the upper circular cavity out through the side of the shuttle, of a plug having a transverse hole, a slit extending down from the top of the plug and intersecting the transverse hole at an angle and forming a downwardly-extending lip at the inlet end of the transverse hole, a shortened side, a transverse hole bored at an angle corresponding to the angle of the hole in the shuttle body from the outside of the plug in to a point where it intersects the first transverse hole, and a horizontal slit extending in from the side and intersecting both the transverse holes and a wearing pin driven lengthwise through the plug at the intersection of the transverse holes.

3. In the combination with the loom shuttle, a shuttle body *a* having a circular upper cavity 8 merging downward into a smaller circular bottom cavity 9 in the bottom of which is a hole 10, a dished depression 11 in the top, a slot 12, a throat 13, a bobbin cavity 14, a narrow longitudinal depression 15 in the side, a hole 16 extending at an angle from the depression 15 into the cavity 8, a slit 17 cut at an angle down from the top to the hole 16 and extending from the upper cavity 8 to the outside of the shuttle, of a delivery eye 18 formed by a pin 19 driven through the depression 15, and a pin 20 driven downward into the depression 15 at an angle to the pin 19 and clearing the bottom of the depression 15, as described.

4. In a loom shuttle, the combination with a shuttle body *a*, of a hand threading device *d* consisting principally of a round plug 21 having a central transverse hole 22, a slit 23 extending down from the top and intersecting the hole 22 at an angle and forming a downwardly-extending lip 24 at the inlet end of the hole 22, a shortened side



25 having the upper end 26 below the upper  
end of the plug, a transverse hole 27 bored  
at an angle from the outside of the plug in  
to a point where it intersects the hole 22,  
5 and a transverse slit 28 cut in from the side  
and intersecting the holes 22 and 27, and a  
pin 29 driven lengthwise through the plug  
at the intersection of the holes 22 and 27.

10 5. In a loom shuttle, the combination of a  
shuttle body *a* formed with a circular upper  
cavity 8 merging downward into a smaller cir-  
cular bottom cavity 9, a hole 10, a dished de-  
pression 11, a slot 12, a throat 13, a bobbin  
cavity 14, a depression 15, a hole 16, a slit  
15 17, and a delivery eye 18 formed by a pin 19  
and a pin 20, of a hand threading device *d*  
consisting principally of a round plug 21  
having a transverse hole 22, a slit 23, a

downwardly-extending lip 24, a shortened  
side 25 having the upper end 26 below the 20  
upper end of the plug, a transverse hole 27  
intersecting the hole 22, a transverse slit  
28 intersecting the holes 22 and 27, a pin 29  
driven lengthwise through the plug at the  
intersection of the holes 22 and 27, a pin 30 25  
driven through the shuttle body and the  
plug 21, the upper portion of the plug 21  
and the wall of the upper cavity 8 forming  
a thin annular space 31, as described.

In testimony whereof I have signed my 30  
name to this specification in the presence of  
two subscribing witnesses.

SUMNER A. DUDLEY.

Witnesses:

ADA E. HAGERTY,  
J. A. MILLER.