

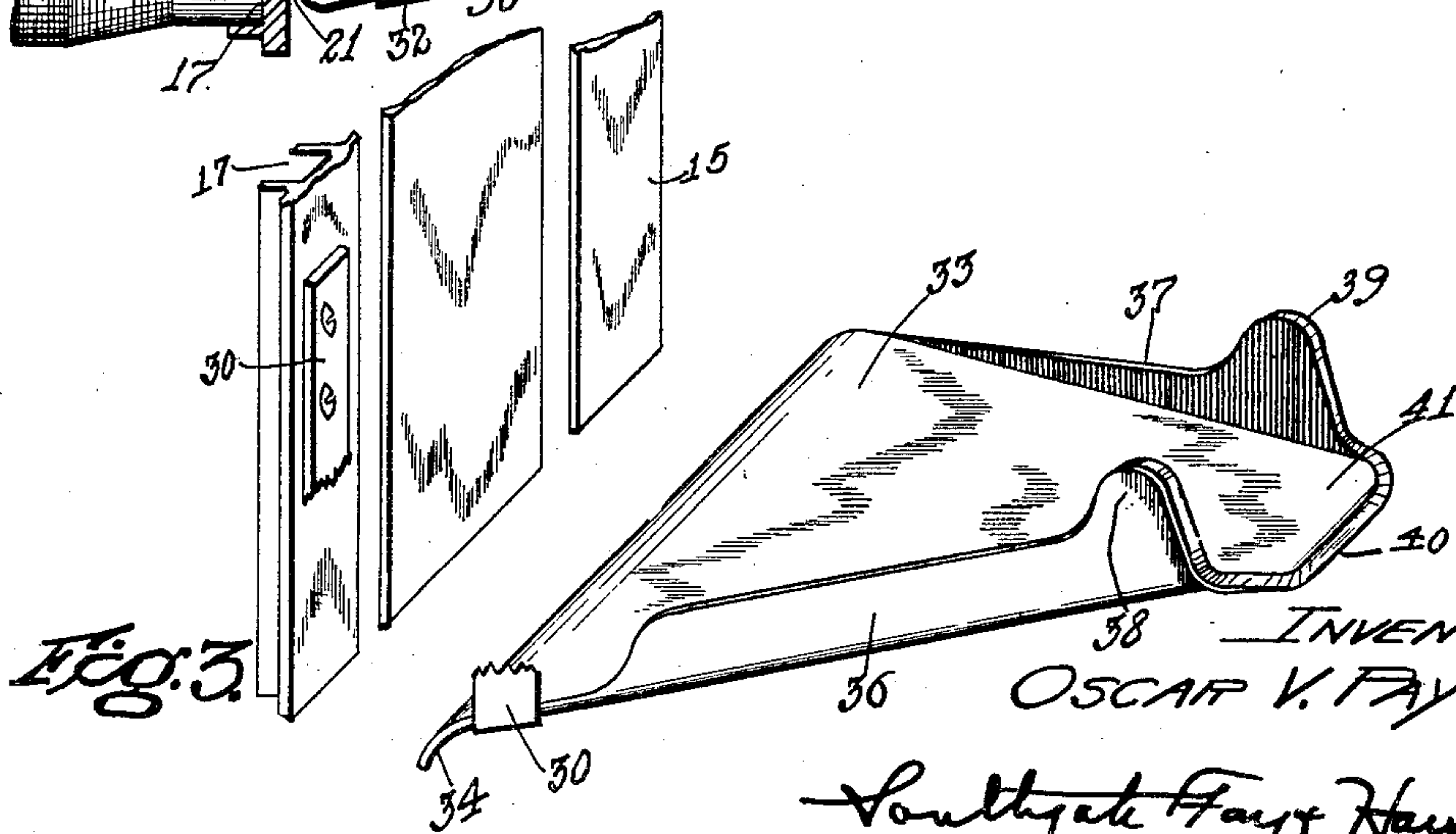
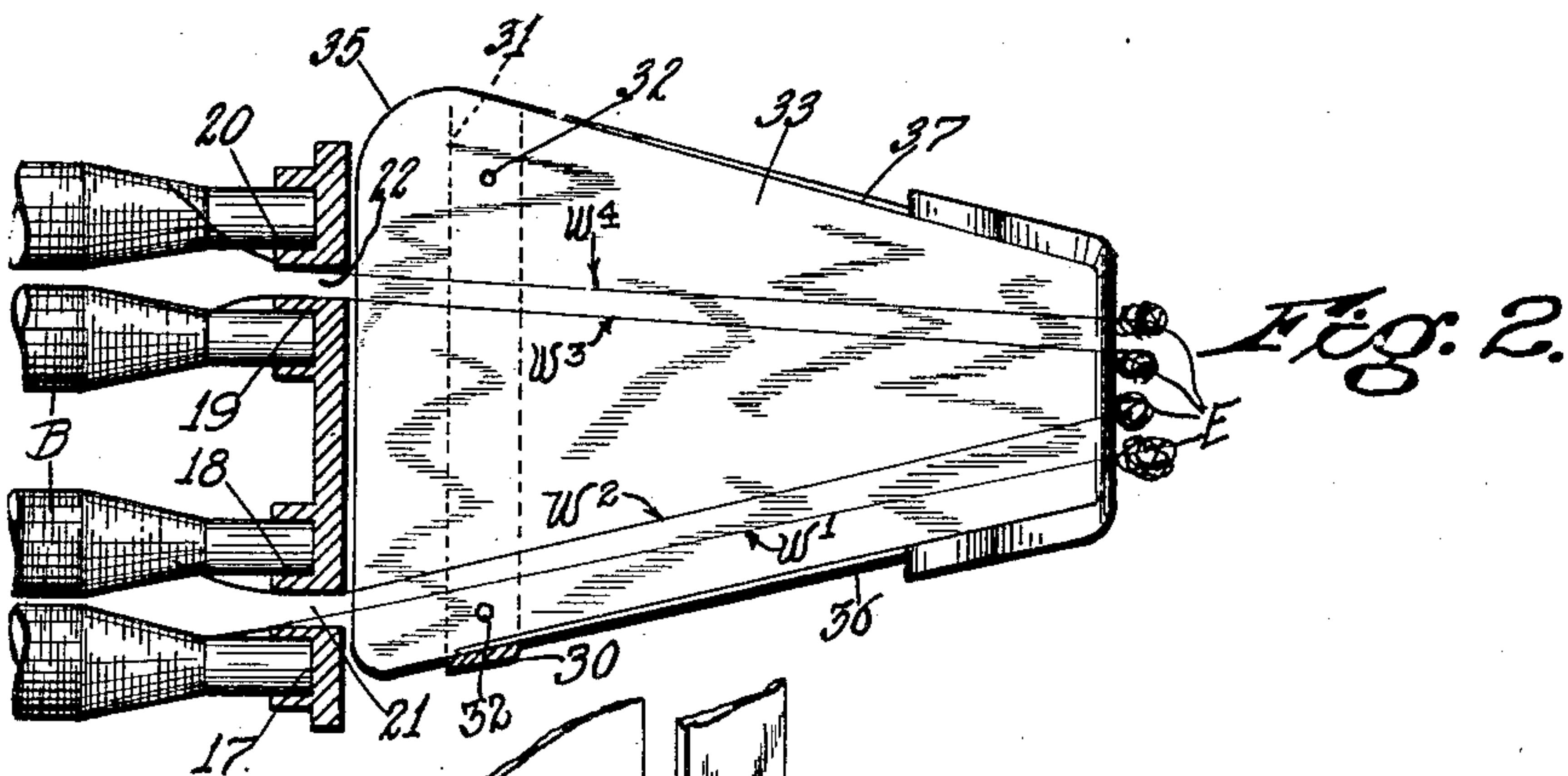
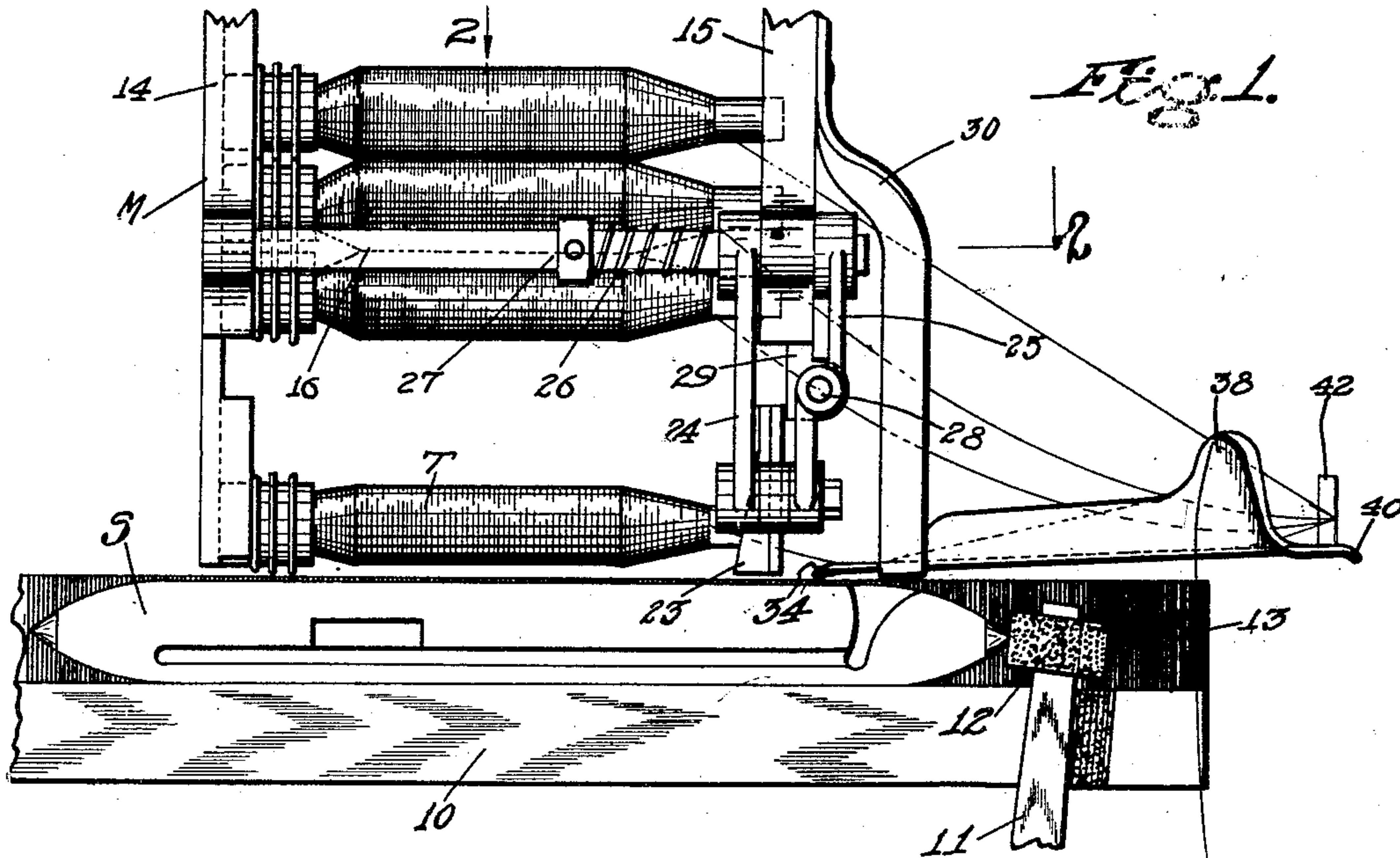
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THREAD HOLDER FOR WEFT REPLENISHING LOOMS

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THREAD HOLDER FOR WEFT-REPLENISHING LOOMS

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This invention relates to improvements in means for controlling the weft ends which extend from the reserve bobbins in a weft replenishing mechanism and it is the general object of the invention to provide for holding said ends in such position as to clear the lay and parts associated therewith.

In multicolor weft replenishing mechanisms it is customary to store the reserve bobbins in a plurality of parallel vertical spaced stacks and to lead the ends of weft from the bobbins of the several stacks to a common thread holder extending above the lay when the latter is on front center. It is found with this arrangement that when the weft ends become slack they fall into the path of the lay and are likely to be entangled with the latter during its backward stroke. The picker stick and shuttle are of course movable longitudinally along the lay at the time of picking and if the threads are unduly slack they are likely to be caught by the picker and broken. It is an important object of my present invention to provide a shelf or similar means to extend over the lay to a point preferably beyond the lay to the thread holder to serve as a support for the weft ends to keep the latter at all times above the lay.

It is customary for weavers to wind the ends of filling which extend from the reserve bobbins around the thread holder, but as the latter is fixed the threads become more and more slack as the bobbins descend from the top of the magazine toward transfer position. It is accordingly a further object of my invention to provide a guide for the weft ends so that the latter may be wrapped together in a small ball which will act by gravity to keep the weft ends taut.

I prefer when employing the ball method of controlling the weft ends to tie the latter in separate balls having one ball for each column or stack of bobbins. The reason for this is that not infrequently a pattern will call

for more picks of one color than another, and if all the ends were wound together the bobbins of the less frequently called color would support the balls corresponding to the more frequently used colors, and the ends of the latter, instead of moving down by gravity, might become slack enough to become tangled with the lay.

In a multicolor magazine the thread of the bobbins from the front cell must move rearwardly relatively to the magazine when moving from the stack to transfer position, and must thereafter move rearwardly with the lay subsequent to transfer. The bobbin when in transfer position is held by yielding supports and it is a further object of my present invention to provide a smooth continuous guiding surface extending along the path to be traversed by the weft end of a front bobbin, said surface preferably being sufficiently low to enable the weft end to clear the bobbin support as the lay moves rearwardly after transfer.

With these and other objects in view which will appear as the description proceeds my invention relates to the arrangement and combination of parts described and claimed hereinafter.

In the accompanying drawings, wherein a convenient embodiment of my invention is shown,

Fig. 1 is a front elevation of a weft replenishing mechanism and one end of a lay showing the relation of my invention to these parts, part of the lay being removed,

Fig. 2 is a horizontal section of line 2—2 of Fig. 1, and

Fig. 3 is a perspective view of the device forming the important part of my present invention and showing the relation the same sustains to the adjacent end of the magazine.

Referring to the drawings, I have shown a lay 10 and shuttle S mounted thereon. The picker stick 11 supports the usual picker 12

by means of which the shuttle is propelled across the loom. The box back 13 forms the rear end of the shuttle box into which the shuttle moves as it nears the end of its flight toward the magazine end of the loom.

The weft replenishing mechanism M of itself forms no part of my present invention and may be the usual multicolor magazine such as is shown in patent to Ryon No. 1,030,748. The magazine comprises an inner plate 14 and an outer plate 15, said plates being held together by tie rods 16, one of which is shown in Fig. 1. The outer plate 15 is provided with a plurality of vertically extending guideways 17, 18, 19, and 20 which extend respectively from the front to the back of the magazine. Said guideways are for the reception of the tips of reserve bobbins B which are held in spaced parallel vertical stacks.

Thread delivery slots are provided for the weft ends which extend from the reserve bobbins, slot 21 being located between guideways 17 and 18 to receive the weft ends W^1 and W^2 for the front and second stacks, respectively, and slot 22 being located between guideways 19 and 20 for the reception of weft ends W^3 and W^4 which extend, respectively, from the third and rearmost stack of bobbins.

The usual means for supporting a bobbin in transferring position may be employed and I show herein the type set forth in patent to Ryon No. 1,563,592, said means including a bobbin supporting element 23 which is mounted on a pair of links 24 and 25. Said links are held in normal position by a spring 26 which surrounds a part of tie rod 16 and is held in position by an adjustable collar 27 on said tie rod. A stop screw 28 in one of the links engages a depending extension 29 of the plate 15 to limit movement of the support 23.

It is to be understood that there will be two supports 23, one for the front and the other for the rear of a bobbin in transfer position, and I wish it to be understood that the particular form of support set forth herein is merely one of several types which can be used, the support 23 being merely illustrative.

In the operation of the mechanism thus far described the bobbin will descend along the guideways and one or another of them will be moved to the transfer position shown at T in Fig. 1, depending upon which shuttle of the loom calls for replenishing. At the proper time a transferrer arm not shown will descend to press a fresh bobbin into the shuttle and to expel from the latter the depleted shuttle.

The matter thus far described is a common construction and may be the same as set forth in the aforesaid patents to Ryon and forms no part of my present invention.

In carrying my improvements into effect I secure to the plate 15 a metallic strap 30 which extends downwardly in front of the forward slot 21. The strap has the lower portion bent to extend horizontally to the rear as at 31. Secured to the horizontal extensions 31 as by rivets 32 or any other similar means is a flat plate 33 having an inner downwardly turned edge 34 substantially parallel to the plane of plate 15. Said edge 34 extends from a point somewhat in front of the thread guiding slot 21 to a position considerably behind the rear slot 22 and said edge is preferably no higher than the bottom of the bobbin support 23.

The rear inner end of plate 33 is rounded as at 35 to permit uninterrupted and easy movement of the weft thread thereover. Each side of the plate is preferably formed with an upstanding flange, the forward and rearward flanges being designated at 36 and 37, respectively, said flanges stiffening the plate and tending to hold the same in normal position. The flange 36 at the outer edge thereof terminates in an upstanding guide horn 38 while the flange 37 is formed with a similar rear horn 39.

The plate 33 extends outwardly beyond the said horns and has a rearwardly extending rounded edge 40. Located between the edge 40 and the horns is an area 41 over which the weft ends extending from the reserve bobbins may extend.

If the ball method of controlling the weft ends is to be employed the ends of the threads extending from each stack are rolled together in a ball and thrown over the edge 40, the several balls being indicated at E. If desired, however, a pin 42 may project upwardly from the area 41 and have wound therearound the weft ends extending from the reserve bobbins. In whichever method is employed, however, the plate 33 will serve as a support for the threads extending from the outer plate 15, said plates serving to keep the weft ends above the lay and out of the path of the picker stick and shuttle.

In operation the weaver will either tie the weft ends in a ball as suggested in Fig. 2 or will wind the same around the pin 42 as suggested in Fig. 1, and as the bobbins descend the ends W^1 , W^2 , W^3 and W^4 will fall on plate 33 and be held by the latter out of engagement with the lay. The horns 38 and 39 operate to restrain movement of the yarns when the ball method of control is employed. When a bobbin is transferred from the front cell, for instance, the corresponding thread W^1 will descend with its bobbin and if slack will be guided by the edge 34 from a position in vertical alignment with slot 21 to a position substantially midway between the slots 21 and 22 corresponding with the transfer position of the bobbin. If, on the other hand, a bobbin from the rear stack is to be

transferred its end if slack will slide forwardly along the edge 34 to transfer position.

At the time of transfer the bobbin will
 5 move downwardly from the position shown at T in Fig. 1 into the shuttle therebeneath, and the weft end will extend below the bobbin supports 23 and will lie along the plate 33 to be attached either to pin 42 or to hang over
 10 the rounded edge 40. The transfer takes place when the lay 10 is in its foremost position and as said lay moves rearwardly the weft end will slide along the rounded edge 34 and be held in a position above the path
 15 along which the picker moves. It will be seen that the end 34 is very close to the bobbin support 23 so that the ends extending from the outer portion of the thread support will be maintained above the path of the lay to a point almost in line with the bobbin support. By this construction there is very little opportunity for a thread, even if slack, to become entangled with the lay.

From the foregoing it will be seen that I
 25 have provided a very simple thread support for weft replenishing mechanisms effective to hold the weft ends above the lay. It will further be seen that said support terminates a short distance from the bobbin supports so
 30 that very little opportunity is afforded the weft ends to fall into the path of the lay during the time that the bobbin is waiting in a transferring position to be inserted into the exhausted shuttle.

It will also be seen that the device provides means for supporting a series of balls of yarn, one ball for each stack of bobbins, the effect of this arrangement being to permit the weft ends of each stack to move downwardly and tighten themselves by gravity
 40 irrespective of the color demands of the cloth being woven. It will also be seen that the flanges 36 and 37 which serve to stiffen and support the plate 33 and also act to prevent
 45 unduly slack threads from falling over the edges of the plate into a position where they can be entangled with the lay.

Having thus described my invention it will be seen that changes and modifications may
 50 be made therein by those skilled in the art without departing from the spirit and scope of the invention and I do not wish to be limited to the details herein disclosed, but what I claim is:

In a multicolor weft replenishing loom having a lay, a bobbin storage magazine having bobbins arranged in vertical stacks substantially parallel to the lay and spaced in the direction in which the lay swings back
 60 and forth in the loom, a thread holder to receive the ends of the weft threads extending from the bobbins in the magazine, and a plate lying over the lay and between the thread holder and magazine, said plate having the
 65 edge thereof adjacent the magazine curved

downwardly and said edge extending in the direction in which the lay swings to be common to all the stacks of bobbins, a thread from the holder to a bobbin transferred from one of the front stacks of bobbins passing under
 70 the weft threads to the rear thereof and over the curved edge of the plate as the lay moves rearwardly.

In testimony I have hereunto affixed my signature.

OSCAR V. PAYNE.

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