No. 882,077. PATENTED MAR. 17, 1908.

A. B. POTTER.

RING TRAVELER.

APPLICATION FILED MAR. 27, 1905.

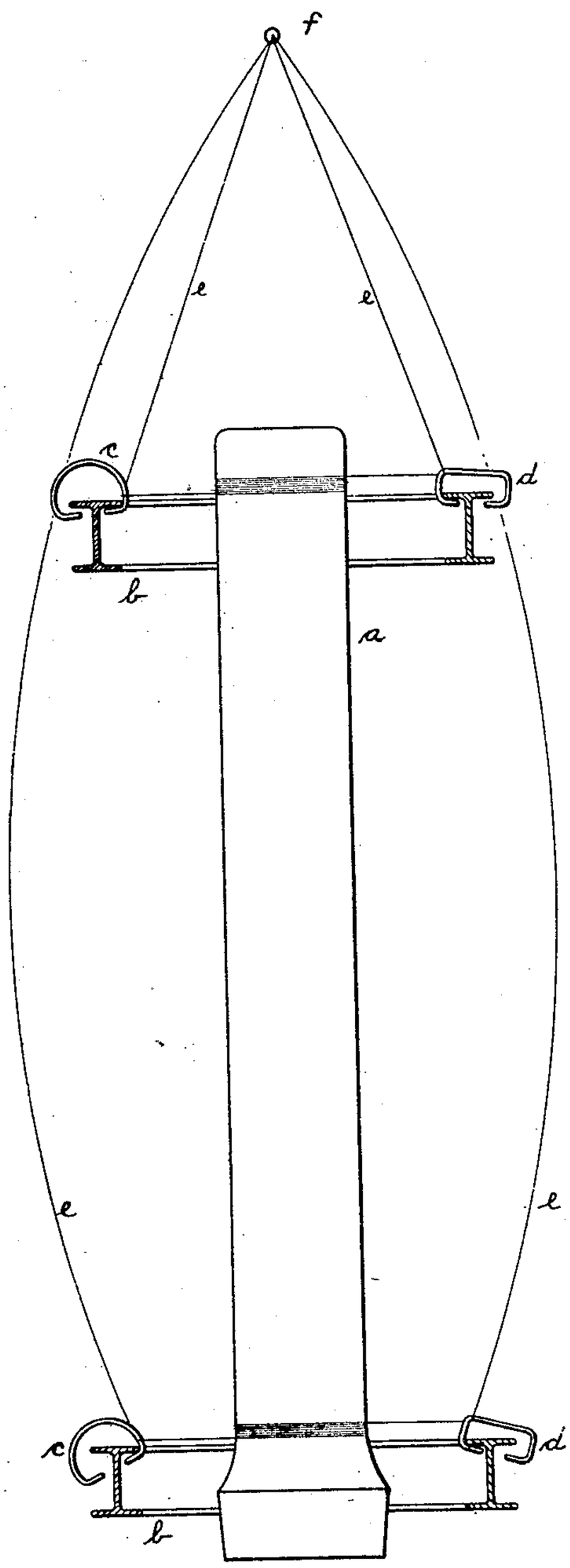

FIG. 1.

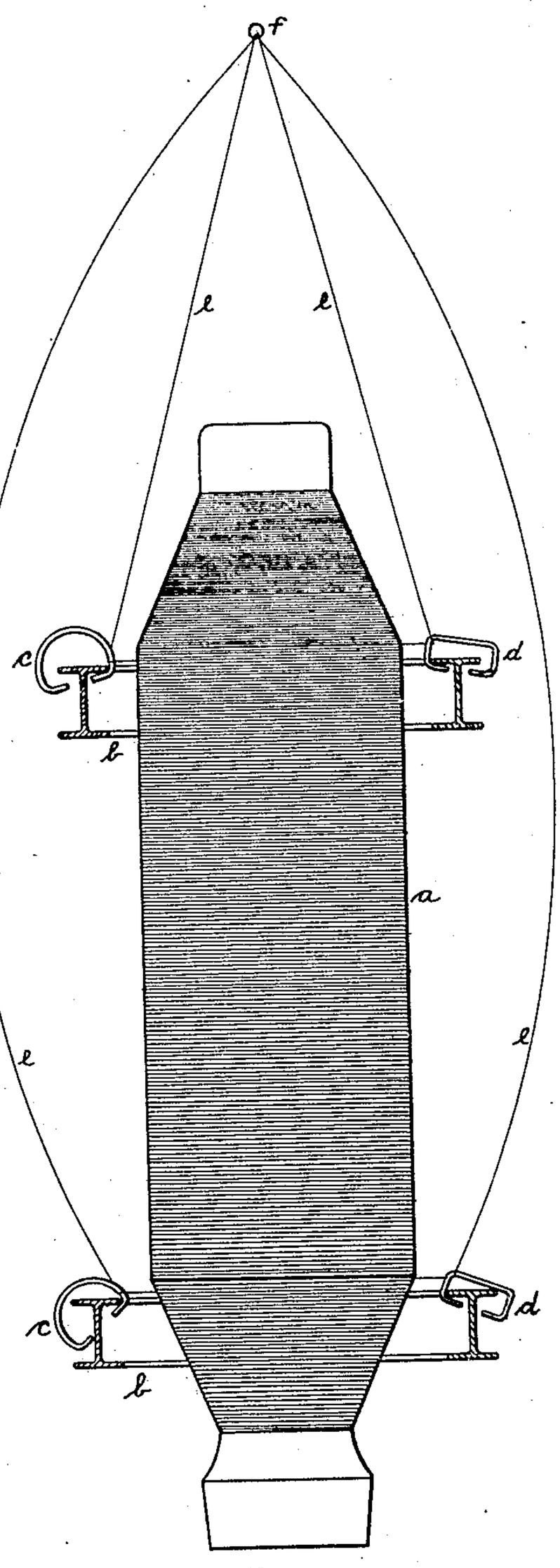

FIG. 2.

WITNESSES

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ALBERTUS B. POTTER, OF SALMON FALLS, NEW HAMPSHIRE, ASSIGNOR TO NATIONAL RING TRAVELER COMPANY, OF PROVIDENCE, RHODE ISLAND, A CORPORATION OF RHODE ISLAND.

RING-TRAVELER.

No. 882,077. Specification of Letters Patent. Patented March 17, 1908.

Application filed March 27, 1905. Serial No. 252,285.

To all whom it may concern:

Be it known that I, ALBERTUS B. POTTER, of Salmon Falls, Strafford county, and State of New Hampshire, have invented certain new and useful Improvements in Ring-Travelers; and I do hereby declare the following specification, taken in connection with the accompanying drawings, forming a part of the same, to be a full, clear, and exact description thereof.

In ring spinning the ring-rail traverses up and down the length of the bobbin to lay the thread thereon. As a result the length of free thread between the thread eye above the spindle and the traveler on the ring varies, being greatest when the ring rail is at its lowest position and shortest when the ring rail is at its highest position. It follows that the effect of centrifugal force upon such length of thread and the consequent ballooning thereof is much greater when the ring rail is in its lowest position and at such time the thread may be said to control the traveler, rather than the traveler controlling the thread, as is the case when the ring-rail is in its upper position. The increased ballooning of the thread as the ring-rail moves towards its lowest position has the effect to tip the traveler more and more from a horizontal position, until when the ring-rail reaches or approaches its lowest position the ordinary C-shaped traveler heretofore commonly employed becomes tipped to an angle of 45° or more. The ballooning of the thread and the consequent tipping of the traveler is further effected by the condition of the bobbin, whether full or empty. Thus when the bobbin is empty the inward pull of the thread leading from the bobbin to the traveler is nearly radial to the axis of the ring, but as the bobbin fills the angle of the thread at this point changes until when the bobbin becomes practically filled the pull of the thread is nearly tangential to the ring. This results in a correspondingly different pull of the thread upon the traveler in the two cases. With the bobbin empty the inward pull of the thread upon the traveler, being substantially radial to the ring, is greatest and so great as to materially lessen the amount of ballooning even when the ring-rail is at its lowest position. With the bobbin filled or nearly so, on the other hand, and with the pull of thread nearly tangential, the greatest amount of the pull will be in a direction to pull the traveler around the ring, while the amount of inward pull, and consequently the effect to prevent ballooning, will be correspondingly small. It follows that to produce uniform work the friction of the traveler on the ring, and the resulting lag of the traveler, should be gradually increased as the bobbin fills, and also that the friction of the traveler on the ring should be greater when the ring-rail is at its lowest position than when the rail is at its highest position. With the C-shaped traveler heretofore commonly employed, instead of the desired increase of friction being obtained under the conditions referred to, the reverse is the case. Thus while such C-shaped traveler assumes nearly a horizontal position with the ring-rail in its upper position and the bobbin empty, it tips from this position more and more as the bobbin fills, and especially as the ring-rail moves towards its lower position. Inasmuch as the friction of the traveler on the ring is largely produced by the contact of the inner horn of the traveler with the underside of the inner flange of the ring, it necessarily follows that as the traveler tips this friction will be reduced, because the inner horn of the traveler is moved more and more out of contact with the under side of the flange of the ring by reason of the tipping of the traveler. Thus the friction of the traveler on the ring is greatest when the bobbin is empty and the ring-rail in its upper position, and is least when the bobbin is filled and the ring-rail in its lower position, which is directly the reverse of what is desired.

The object of the present invention is to produce a ring traveler which will by reason of its form or shape serve to maintain a greater friction on the ring when the bobbin fills and when the ring rail moves downward than is the case with the C-shaped traveler referred to.

A further object of the invention is to produce a ring traveler which will by reason of its form or shape serve to increase the friction of the traveler on the ring when the bobbin becomes filled and the ring-rail is at its lower position.

To these ends the invention consists primarily of a ring-traveler formed with a substantially straight or flat top, which flat top also serves to produce angular bends between the top and sides of the traveler.

Referring to the drawings, Figure 1 repre-

sents an empty bobbin and showing in section a spinning-ring at the upper end of the bobbin in the position it will occupy when the ring-rail is in its highest position, and also showing in section a spinning ring at the lower end of the bobbin in the position it will occupy when the ring-rail is in its lowest position, the old form of C-shaped traveler being shown on each ring at the left, and my improved flat top traveler being shown on each ring at the right, each traveler being shown in the position it will occupy under the conditions represented. Fig. 2 represents correspondingly a filled bobbin with the positions of the ring and of the respective travelers.

a represents a bobbin of ordinary form; *b* the spinning ring; *c* the C shaped traveler; *d* my improved flat top traveler; *e* the thread; and *f* the thread eye above the bobbin.

As shown in Fig. 1 with the ring-rail in its upper position and the bobbin empty both the C shaped traveler and my improved flat top traveler occupy approximately horizontal positions, and the thread leads straight from the thread eye *f* to the traveler. With the ring-rail in its lower position, however, it will be seen that my improved flat top traveler does not tip nearly as much as the C-shaped traveler, but remains more nearly horizontal, and that while the inner horn of the C-shaped traveler is practically out of contact entirely with the under side of the ring flange, this is not the case with the flat top traveler, but instead, by reason of the fact that said traveler has not tipped as much as the other, a portion of the inner horn of the flat top traveler is still in contact with the under side of the ring flange. Thus with the flat top traveler there is under these conditions a greater amount of friction between the traveler and the ring than is the case with the C-shaped traveler, and consequently a correspondingly greater lag of the traveler. This serves to reduce the amount of ballooning of the thread, as indicated in the drawings, the increased friction of the traveler on the ring and the resulting increased lag serving to counteract to a certain extent the effect of centrifugal force on the thread.

I attribute the less amount of tipping in the case of my improved flat top traveler to the fact that the thread runs in the inner angular bend of the traveler, and that the inward pull of the thread tends to turn the traveler about the inner edge of the ring flange as a fulcrum, thereby serving to hold the traveler more nearly upright or horizontal. With the C-shaped traveler, with no angular bend and no defined position for the thread to run in, the thread slips on the traveler or the traveler on the thread, and consequently the inward pull of the thread has no substantial effect to turn the traveler about the inner edge of the ring flange as a fulcrum. But whatever the cause may be, repeated tests have shown it to be a fact that my improved flat top traveler does run more nearly upright or horizontal than the C-shaped traveler under the conditions referred to.

With the bobbin filled as shown in Fig. 2 the same conditions exist and the same results are attained as in the case of an empty bobbin, but to a more marked degree, by reason of the changed angle of the inward pull of the thread, as hereinbefore explained.

As before stated the extreme tipping of a ring traveler is reached when the bobbin is filled and the ring-rail is at its lowest position, as shown by the positions of the two travelers at the bottom of Fig. 2. With my improved flat top traveler, however, by reason of its flat top and the consequent reduced space between the top and the inwardly bent horns of the traveler, the tipping of the traveler under these conditions is positively arrested by the top of the traveler coming in contact with the upper surface of the outer flanger of the ring, as shown in Fig. 2. This contact of the top of the traveler with the ring not only prevents further tipping of the traveler, but also produces automatically, as it were, an increase of friction between the traveler and ring at the time and under the conditions when such increased friction is desirable and advantageous, that is, when the bobbin is filled and the ring-rail at its lowest position. This is a very important advantage resulting from the use of my improved flat top traveler. In addition, as will be evident, the contact of the traveler with the ring at this additional point serves to divide the wear on the traveler and on the ring and thus to lessen the wear on each at the point of normal contact between the two.

As heretofore pointed out, one of the practical advantages attending the use of my improved flat top traveler is the reduction in the amount of ballooning of the thread. Another advantage of such flat top traveler is that by reason of its maintaining a more nearly horizontal positon, the traveler is much less likely to be pulled off of the ring, which pulling off quite frequently occurs with the C-shaped traveler.

As will be obvious, it is not essential that the top of the traveler should be entirely flat or exactly straight, as some or all of the advantages referred to may be secured with a traveler, the top of which is not thus entirely flat or straight, but in which the angular bends are present and in which the distance between the top and the horns of the traveler is reduced as compared with the C-shaped traveler.

It is to be understood therefore that any form or construction of the top of the traveler which enables the traveler to perform the

functions and secures the results hereinbefore set forth is to be regarded as a mechanical equivalent for the flat top herein shown and described, and to be within the scope of the claims.

What I claim as my invention and desire to secure by Letters Patent is:

1. A ring traveler having a flattened top, relatively short sides and horns substantially parallel with said top, substantially as described.

2. A ring traveler having a flattened top and straight sides, a horn substantially parallel with said top, the sides and top forming substantially right angles with each other, substantially as described.

3. The combination with a spinning ring, of a traveler having a flattened top and relatively short sides at an angle to said top whereby when the traveler tips the top of the traveler will come in contact with the upper surface of the ring, substantially as described.

4. The combination with a spinning ring, of a traveler having a flattened top, relatively short sides at an angle to said top and horns substantially parallel with said top, substantially as described.

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Witnesses:
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