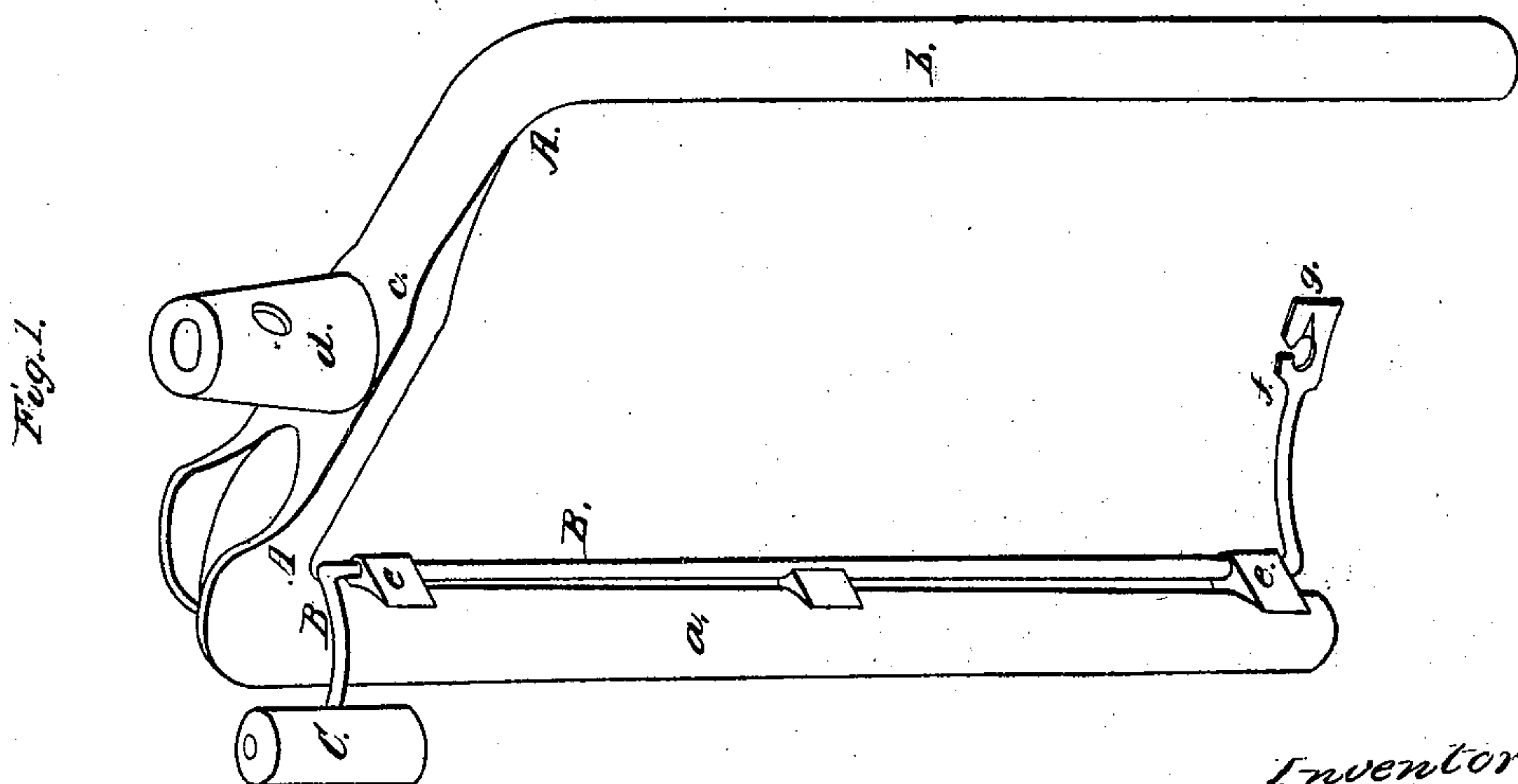
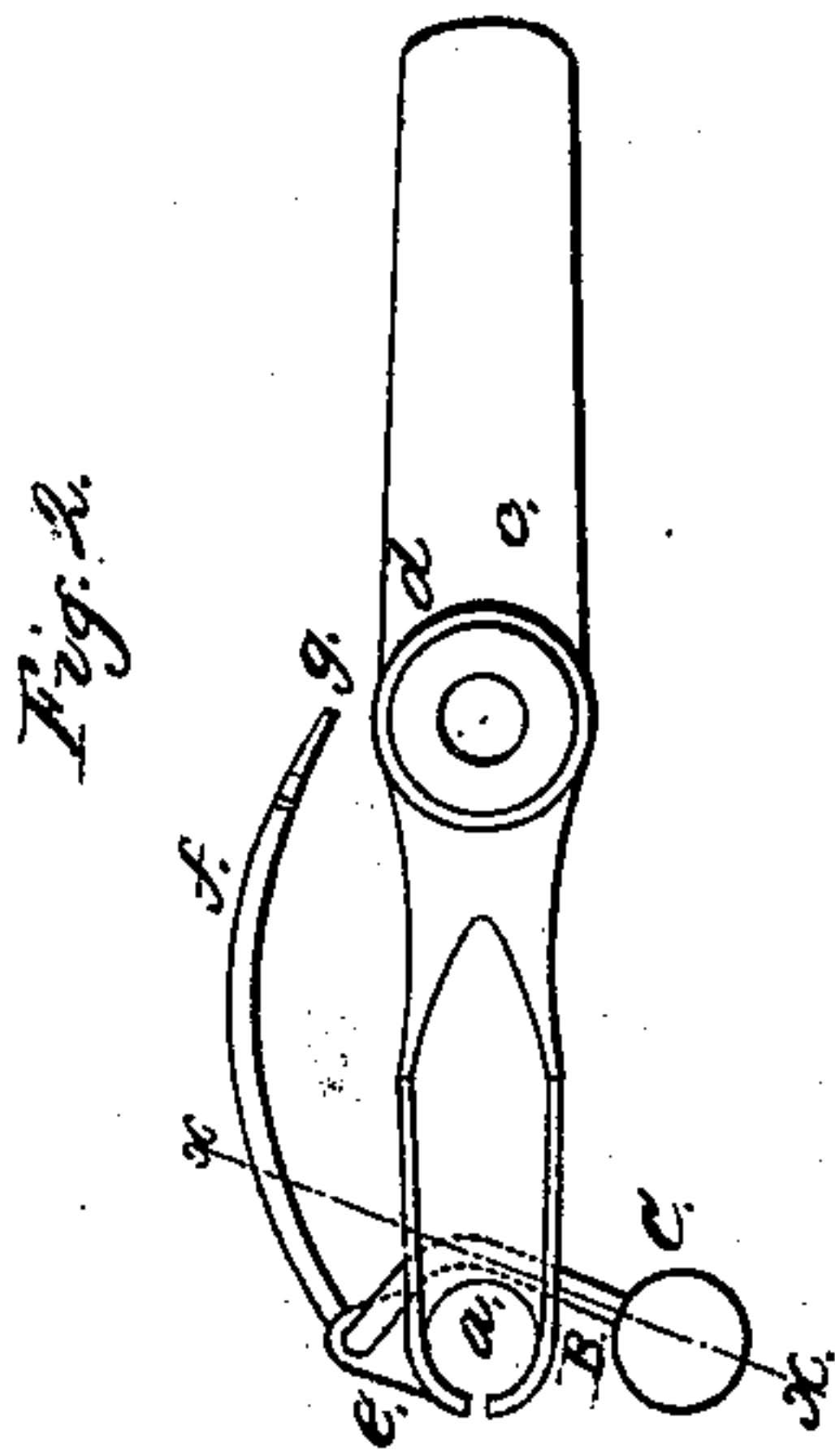
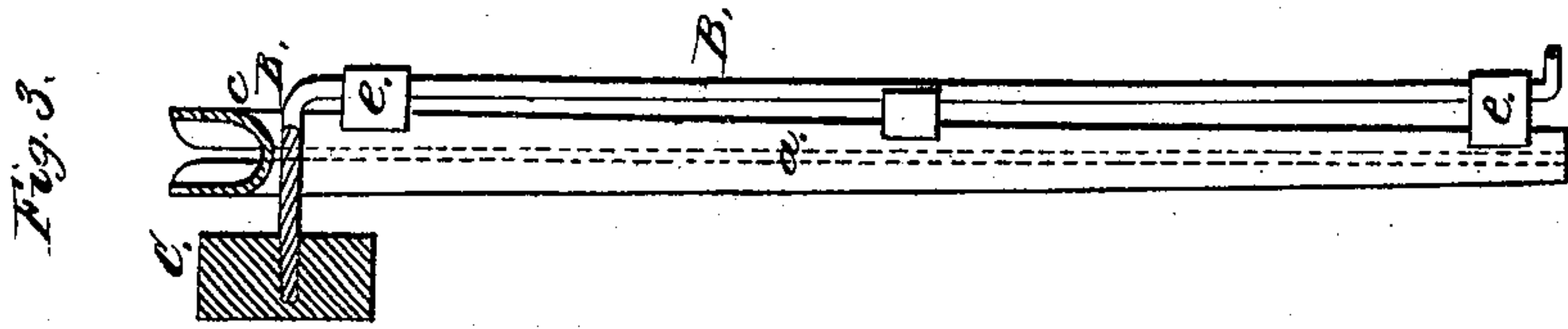


Abbott & Fields.  
Flyer.

N<sup>o</sup> 3,156.

Patented Aug. 3, 1869.



Witnesses  
W. W. Stearns  
H. J. Cambridge

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# United States Patent Office.

S. A. B. ABBOTT, OF BOSTON, MASSACHUSETTS, AND E. F. FIELDS,  
OF LEWISTON, MAINE.

Letters Patent No. 93,156, dated August 3, 1869.

## IMPROVEMENT IN FLIERS FOR SPINNING.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, S. A. B. ABBOTT, of Boston, in the county of Suffolk, and State of Massachusetts, and E. F. FIELDS, of Lewiston, in the county of Androscoggin, and State of Maine, have invented certain Improvements in "Fliers" for Cotton and other Machinery, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of a flier, with our improvements applied thereto.

Figure 2 is a plan of the same.

Figure 3 is a vertical section on the line  $xx$  of fig. 2.

Our invention relates to certain improvements in the ordinary "fly" or "flier," which winds the roving upon the bobbin, by which it is twisted; and

Our invention has particular reference to the connection of the presser-carrying rod, with the weight at its top.

The vertical rod and weight above referred to have been connected, by bending up the upper end of the rod, at right angles, or nearly so, and inserting it within the lower end of the weight, but this method of attachment is objectionable for the following reasons, viz:

As the turns of the roving on the spool increase in number, the pressure thereof, outward on the finger or foot, causes the weight to be brought so forcibly against the side of the upper part of the flier, as frequently to bend the upper end of the rod, and incline the weight from the vertical, thus allowing the lower end or "presser-foot" of the rod to be thrown out sufficiently to catch into that of the next flier, revolving in a contrary direction, thereby breaking or tearing the rods out of their weights, and necessitating constant repairs, which are not only expensive, but difficult and tedious to perform.

And the bent portion of the rod has also been inserted through an elongated slot in the side of the weight, and the weight mounted on the top of the vertical bent part, in the same manner as when the rod was secured to the bottom of the weight, but this last arrangement still leaves the bent rod subject to be bent by the action of the centrifugal force of the weight, and it is liable to be bent, and the weight to be thrown from its vertical position.

By our new device, or mode of fastening, the rod passes at right angles into the centre and side of the weight, and into a hole, in which it fits snugly, and is secured without allowing any play, either laterally or vertically, thus avoiding the possibility of being thrown from its true position by the centrifugal force.

To enable others skilled in the art to understand and use our invention, we will proceed to describe the manner in which we have carried it out.

In the said drawings—

A represents a fly or flier, which consists of two vertical portions, or arms  $a b$ , connected by and forming a part of the central portion  $c$ , which bridges over them horizontally, or nearly so, one arm  $a$  being hollow, for the purpose of containing the roving, the other arm  $b$  being solid, to counterbalance the first during the revolution of the flier.

Projecting from the centre of the upper side of the bridge-portion  $c$  is a hollow cylindrical or conical boss,  $d$ , by which means the flier is fitted to the spindle, (not shown,) so as to revolve with it.

B is a rod, of small diameter, passing through and turning loosely within guides or bearings  $e e$ , soldered or otherwise secured to or forming a part of the hollow arm  $a$  of the flier.

The upper end of this rod, just above the upper guide  $e$ , is bent around under the central portion of the flier, and is provided with a screw-thread at its extremity, over which is turned a weight, C, which is provided with a screw-thread of corresponding size for its reception, the rod entering the side of the weight, and being fitted closely and securely therein, as shown in section, fig. 3.

The lower end of the rod B is curved around, as seen in figs. 1 and 2, being enlarged or flattened out from  $f$  to  $g$ , which serves as a presser-foot or blade, the broad surface of which presses the roving compactly and evenly upon the bobbin, the distance of the weight C from the centre of revolution being carefully regulated, and the relation of the weight to the rod being such as to insure the proper degree of pressure of the "presser-foot" upon the roving.

When the flier is revolving at a high rate of speed, and the bobbin is nearly filled with the roving, the presser-foot is pushed outwardly thereby, so as to bring the side of the weight in contact with the side of the central or bridge portion  $c$ , but, owing to the straightness of the rod, and its connection with the side of the weight, at or near its middle, the rod does not bend, nor does the weight incline, but they rigidly retain their original position, thus preventing two presser-feet from engaging with each other, and breaking the respective parts to which they are connected.

By the old method of uniting, when the rod is broken, the bearings  $e e$  must first be unsoldered and removed from the arm  $a$ ; then the rod must be taken from its bearings, and a straight piece welded to the lower end of the rod, after which it is replaced within its bearings, and its upper end carefully bent, first nearly or quite horizontally, then more abruptly in about a vertical direction, and then attached to the



centre of the bottom of the weight, when finally the bearings are resoldered in place, which operations consume much time, beside being inconvenient and expensive.

It will be seen, from the foregoing, that the causes incident to the old construction, which produce the breakage of the parts, are by our improved method of connection entirely removed.

Furthermore, the broken rods of the old construction may thereby be readily repaired at a small cost.

It is evident that the end of the rod, instead of screwing into the weight, may be pointed, and simply be driven in or soldered thereto.

*Claim.*

What we claim, and desire to secure by Letters Patent, is—

The combination, with the flier, of the presser-carrying rod B, and the weight C, when the rod and weight are secured together, in the manner and for the purpose set forth.

S. A. B. ABBOTT.  
E. F. FIELDS.

Witnesses:

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