

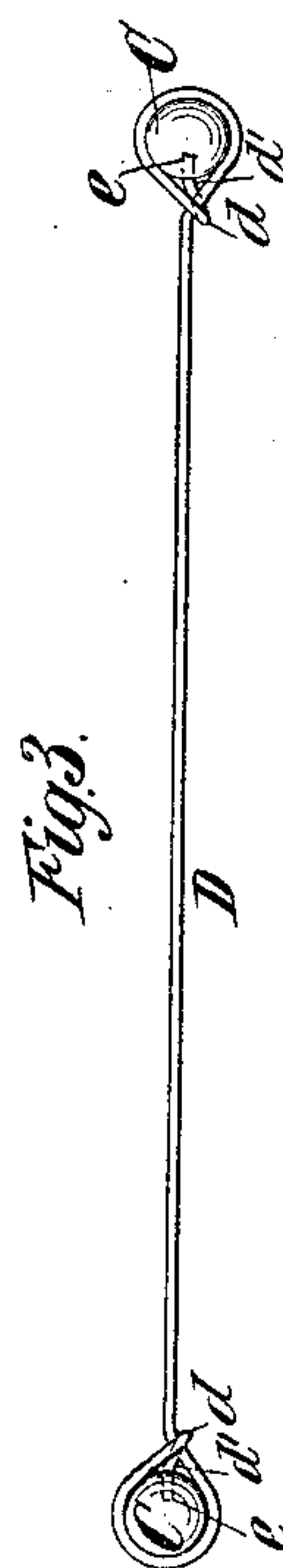
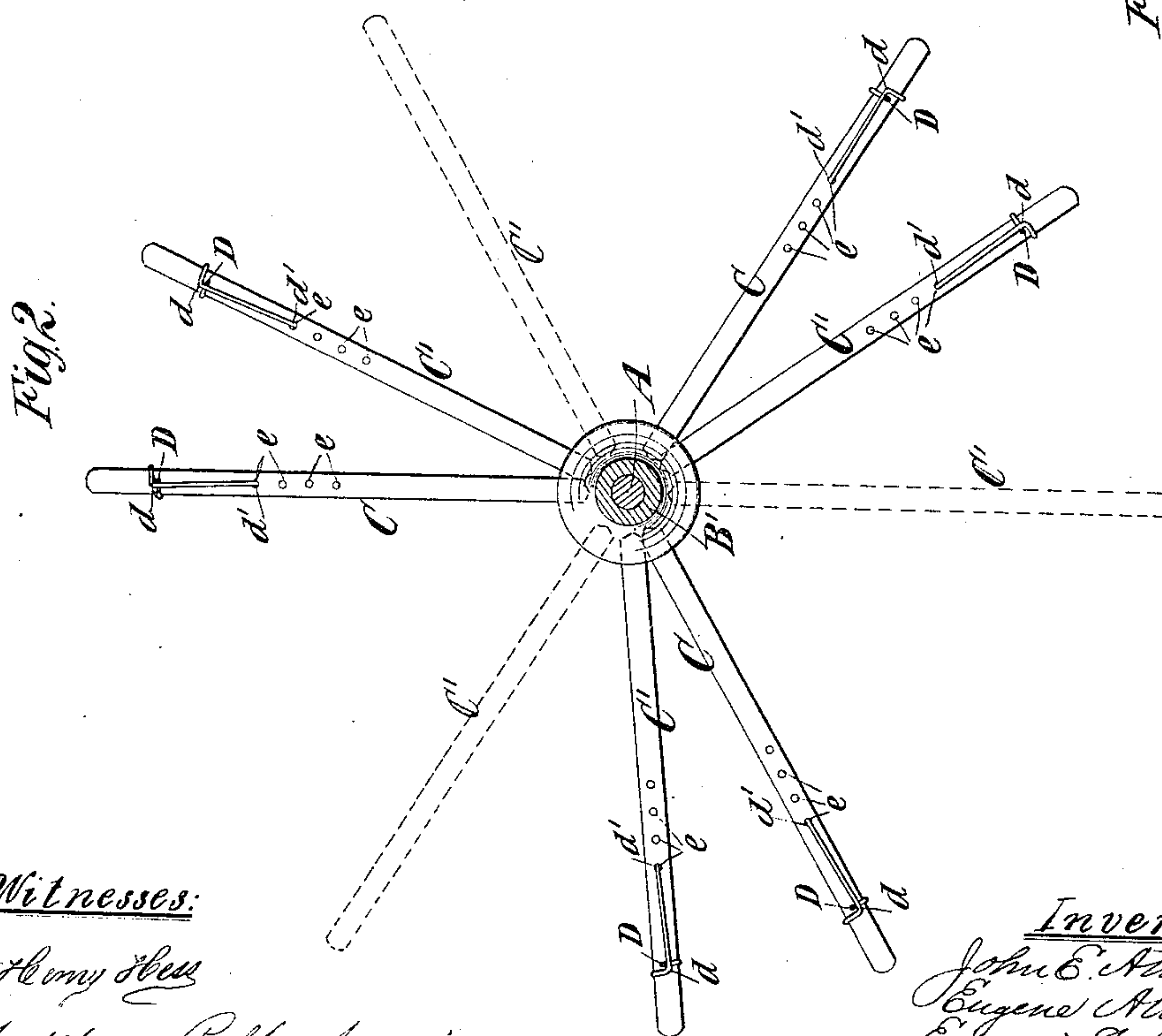
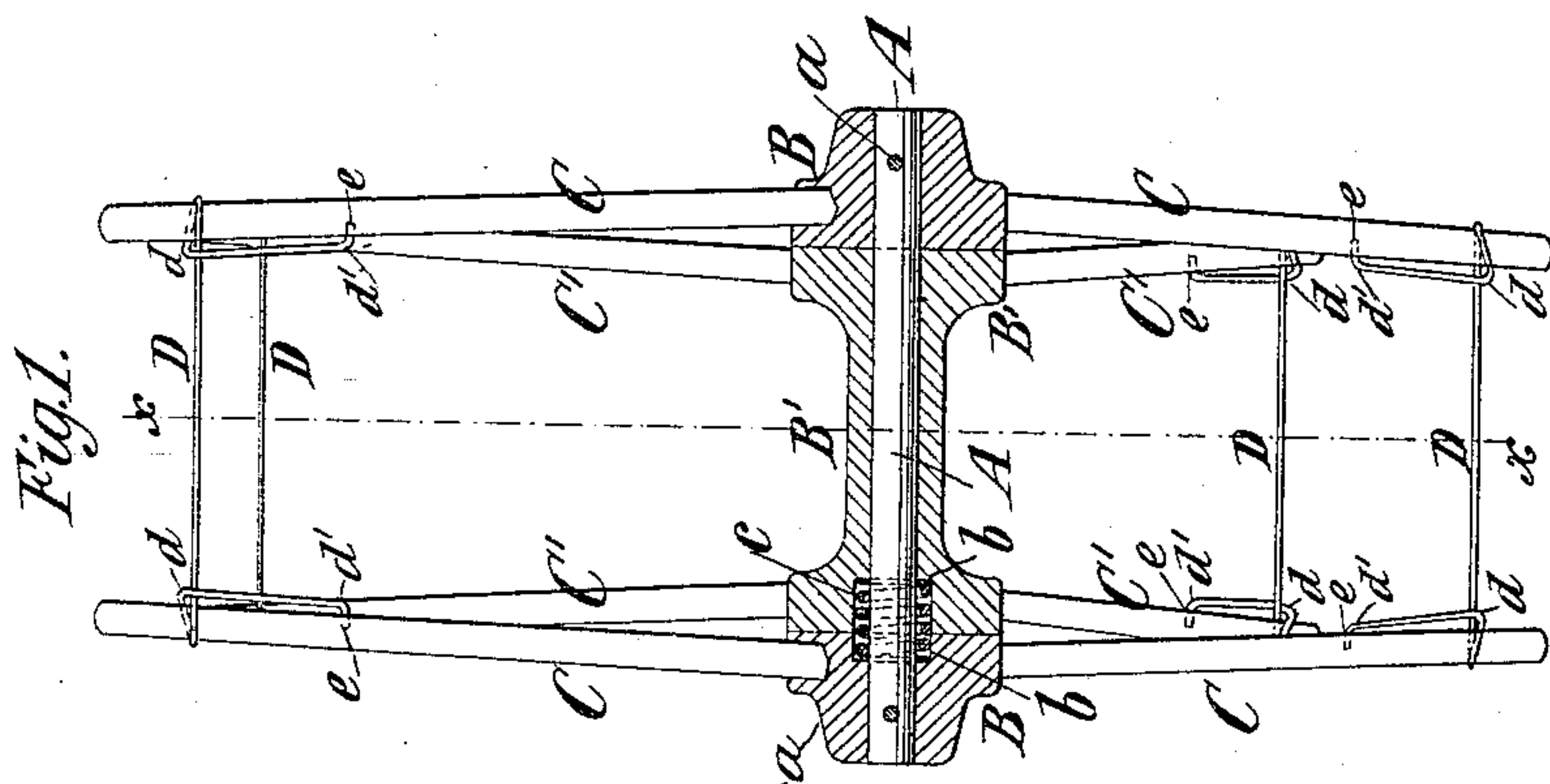
(No Model.)

J. E. & E. ATWOOD & E. E. BRADLEY.

SWIFT FOR SILK, &c.

No. 338,627.

Patented Mar. 23, 1886.



Witnesses:

*Henry Jones*  
*Matthew Pollock*

Inventors:

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*Eugene Atwood*  
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*by their Atty.*  
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# UNITED STATES PATENT OFFICE.

JOHN E. ATWOOD, EUGENE ATWOOD, AND EDWARD E. BRADLEY, OF STONINGTON, CONNECTICUT, ASSIGNORS TO SAID JOHN E. ATWOOD AND EUGENE ATWOOD.

## SWIFT FOR SILK, &c.

SPECIFICATION forming part of Letters Patent No. 338,627, dated March 23, 1886.

Application filed January 29, 1885. Serial No. 154,273. (No model.)

### *To all whom it may concern:*

Be it known that we, JOHN E. ATWOOD, EUGENE ATWOOD, and EDWARD E. BRADLEY, all of Stonington, in the county of New London and State of Connecticut, have invented a new and useful Improvement in Swifts for Silk, &c., of which the following is a specification.

Swifts have heretofore been made with two sets or series of sticks or arms, the arms of one set or series being secured in hubs or hub-sections which can be turned relatively to the hubs or hub-sections in which the arms of the other set or series are secured. This adjustment enables the sticks or arms of one set to be brought near to the sticks or arms of the other set when a skein is to be placed on the swift, and then to be moved away from and toward positions intermediate between the sticks or arms of said other set after the skein is in place, and in order to tighten the skein. It will be understood that when the arms of the two sets are brought near together the arms will stand in pairs, with a wide gap between the pairs, and hence the distance measuring round the skein-supporting cords or wires will be less than when the arms of one set stand intermediately between the arms of the other set, as the skein will then be made to more nearly assume a circular form. Ordinarily, one set of arms are secured in hubs or end pieces, which form the journals, and which have been pinned fast to a rod extending through them, and the other set of arms are secured in two hub-pieces, which are unconnected, and through which the center pin passes loosely, they being free to be turned on the pin or shaft. In order to hold the said loose hub-sections against accidentally turning, and so shifting the set of arms springing from them, a spiral spring has been interposed between them on the shaft or pin and has pressed them in opposite directions and against the fixed end hubs or hub-sections, so as to maintain the loose hubs or sections in frictional contact with the fixed hubs or sections. This spring has been exposed and liable to catch threads, and as the loose hubs or sections have been separate from each other,

and only indirectly connected through the medium of the arms and skein-supporting cords or wires the said loose hubs or sections have been liable to turn one independently of the other, and so throw the arms of the adjustable set which are on opposite sides of the swift out of alignment with each other in a direction across the swift. The skein-supports have usually consisted of cords or strings extending between arms which are on opposite sides of the swift, and although wire skein-supports may have been sometimes used the ends of the wires have not been properly sheathed to prevent threads from catching on them.

Our invention consists in the combination, with the two sets of arms and skein-supports of a swift, of a center shaft and end hub-sections fast thereon, and from which one set of arms spring, a single loose sleeve or intermediate hub-section extending between the end hub-sections, and from which all the arms of the other set spring, and a spring interposed between one end hub-section and the sleeve. In the above combination the spring is preferably of spiral form and arranged in a recess between the adjacent faces of the end hub-section and the sleeve, and this particular construction is also included in our invention. The combination above described enables one set of arms and the loose sleeve or long hub-section to be turned relatively to the other set of arms, and always holds the arms of the adjustable set in proper alignment across the swift.

The invention also consists in the combination, with the hub and arms of a swift, the arms being provided with holes or sockets, of skein-supporting wires extended between and coiled around the arms and having their ends extended parallel with the arms and sheathed in the holes or sockets therein. The arms are preferably each provided with a series of holes or sockets at different points in their length, thereby affording provision for the adjustment of the wire skein-supports to suit skeins of different sizes.

In the accompanying drawings, Figure 1 is an axial section for a swift embodying all the features of our invention. Fig. 2 is a section



thereof on the line  $x\ x$ , Fig. 1; and Fig. 3 represents, on a larger scale, a wire skein-support and end views of two arms to which it is secured.

5 Similar letters of reference designate corresponding parts in all the figures.

A designates the center pin or shaft, and B the end hubs or hub-sections, which are secured fast at opposite ends thereof by pins  $a$ ,  
10 or other suitable devices, and which form the journals of the swift.

B' designates a sleeve or hub-section long enough to fill the space between the end hub-sections, and which is loose on the pin or  
15 shaft A.

C C' designate the two sets or series of arms or sticks to which the skein-supporting wires D are secured. The arms C of one set are secured in the end hubs or hub-sections, B, and the  
20 arms C' of the other set are secured in and spring from opposite ends of the sleeve or intermediate hub-section, B'. Inasmuch as the arms C', on opposite sides of the swift, spring from the same rigid piece, B', they are always  
25 maintained in alignment in a direction across the swift. The sleeve or intermediate hub-section, B', may then be turned to adjust its arms into the positions shown by full lines in Fig. 2, to enable the skein to be placed on the swift,  
30 and the sleeve may then be turned to move the arms C' to or toward the positions indicated by dotted lines in Fig. 2, whereby the skein will be tightened.

In the adjacent faces or ends of the sleeve  
35 B', and one of the hub-sections or end hubs, B, is a cavity or recess,  $b$ , (here shown as formed partly in each,) and therein is confined, concealed, and protected a spiral spring,  $c$ . This spring produces such a frictional resistance to  
40 the turning of the sleeve that it and its adjustable set of arms C' will not become accidentally shifted. The spring is so concealed and protected that threads cannot catch thereon.

The skein-supports D each consist of a wire 45 extending between and coiled around opposite arms. The end portions of the wire cross the main portion at  $\bar{d}$ , and are then extended in the direction of the length of the arms, and their extreme ends  $d'$  are bent at right angles 50 and sheathed in holes or sockets  $e$  in the inner sides of the arms. Each arm preferably has a series of holes or sockets,  $e$ , at different points in its length, thus providing for setting the wires D in or out, to accommodate skeins of 55 different sizes.

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

1. The combination, with the two sets of arms and skein-supports, of a center shaft and 60 end hub-sections fast thereon and from which one set of arms spring, a single loose sleeve or intermediate hub-section extending between the end hub-sections and from which all the arms of the other set spring, and a spring in- 65 terposed between one end hub-section and the sleeve, substantially as herein described.

2. The combination, with the two sets of arms C C' and skein-supports, of the shaft A, end hub-sections, B B, and a loose interposed 70 sleeve, B', on said shaft, one end hub-section and the sleeve having a recess formed between them, and a spiral spring in said recess, substantially as herein described.

3. The combination, with the hub and arms 75 of a swift, the arms having in them sockets  $e$ , of the wire skein-supports D, coiled around the arms and having their end portions extended parallel with the arms and sheathed in said sockets, substantially as herein de- 80 scribed.

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