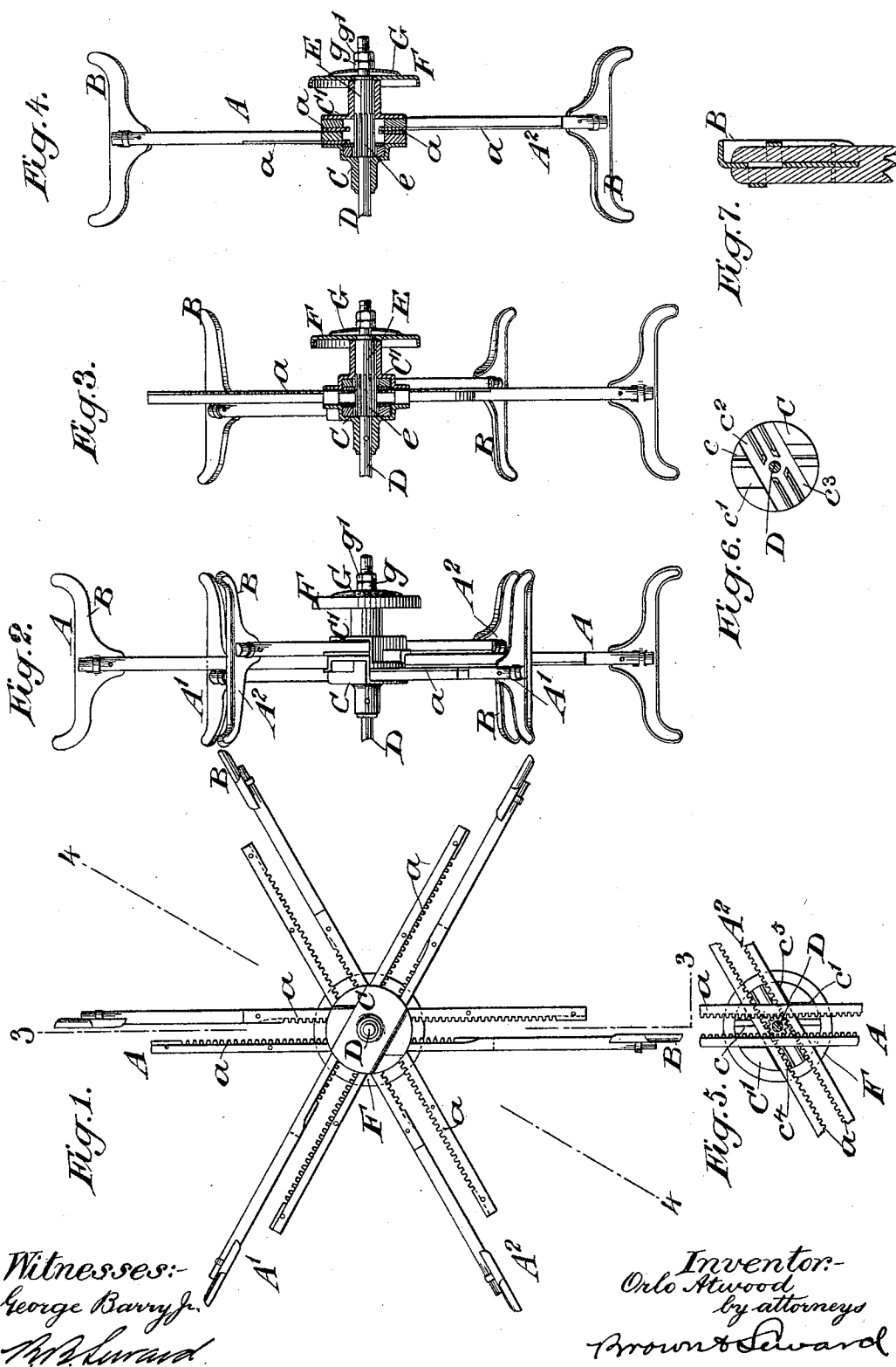


(No Model)

O. ATWOOD. REEL.

No. 583,206.

Patented May 25, 1897.



UNITED STATES PATENT OFFICE.

ORLO ATWOOD, OF STONINGTON, CONNECTICUT.

REEL.

SPECIFICATION forming part of Letters Patent No. 583,206, dated May 25, 1897.

Application filed August 1, 1896. Serial No. 601,365. (No model.)

To all whom it may concern:

Be it known that I, ORLO ATWOOD, of Stonington, in the county of New London and State of Connecticut, have invented a new and useful Improvement in Swifts and Reels, of which the following is a specification.

My invention relates to an improvement in swifts and reels for use in connection with winding and unwinding silk threads and other fibrous material, the object being to provide an improvement in this class of reels whereby the same may be readily and quickly increased or diminished in size as may be required.

A further object is to provide certain new and improved mechanisms for producing the above result, whereby all of the arms may be shifted together and uniformly outward and inward, so that the reel may be kept at all times balanced.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 represents a view of the swift or reel looking toward the end of its spindle or gudgeon, the several arms being shown in a position about midway between their inward and outward adjustments. Fig. 2 is a side view of the same. Fig. 3 is a section on the line 3 3 of Fig. 1. Fig. 4 is a section on the line 4 4 of Fig. 1. Fig. 5 is a face view of one of the hub-sections, showing the position of two pairs of arms relatively thereto. Fig. 6 is a face view of the other hub-section, showing the location of the different tangential grooves therein, the arms being removed; and Fig. 7 is an enlarged detail section of the outer end of one of the arms, showing the manner of attaching the skein-support thereto.

The reel which I have shown in the accompanying drawings is provided with three pairs of arms $A A' A^2$, each arm being provided at its outer end with a laterally-extended skein-support B. The several pairs of arms are located in different planes, so as to enable them to pass each other freely at the hub of the reel, the said arms being adapted to be extended and withdrawn by a rack-and-pinion connection, hereinafter to be more fully explained. Each of the arms is provided with

a rack a , extending from the end of the arm opposite the skein-support to a point a short distance from the skein-support, the racks of each pair of arms being upon the adjacent sides of the side arms. These sets or pairs of arms are guided in their outward and inward movement by grooves in the hub-sections $C C'$, which grooves are preferably so arranged as to keep the several pairs of arms at about sixty degrees apart.

The grooves in which the pair of arms A run are formed by the two sections $C C'$ and are denoted by $c c'$. The arms A' pass through grooves in the hub-section C , the said grooves being denoted by $c^2 c^3$. The grooves in which the arms A^2 slide are denoted by $c^4 c^5$ and are located in the hub-section C' .

The spindle or gudgeon of the reel is denoted by D , and the hub-section C is secured against movement thereon.

On the spindle D is loosely mounted a sleeve E , having a pinion e , which pinion is of sufficient width to extend across the plane of the three sets of arms $A A' A^2$. Beyond the end of the hub-section C' the sleeve E is provided with a suitable operating wheel or knob F , which in the present instance consists of a flat disk having its edge curled or crimped over to form a convenient hold for the hand. This operating-wheel F is also free to rotate independently of the spindle D .

The hub-section C' is held interlocked with the hub-section C in the following manner: A flexible washer G , in the present instance a metal disk of concavo-convex form, is slid over the end of the spindle D , which projects beyond the hub-section C' , and the edge of said washer is held in frictional engagement with the operating-wheel F by means of a nut g and a jam-nut g' , having a screw-threaded engagement with the end of said spindle D . This spring-washer serves the double function of holding the two hub-sections together and also applying friction to the operating-wheel F , whereby the arms may not be extended or contracted unless positively operated. The grooves heretofore mentioned in the hub-sections $C C'$ are so arranged that they will cause the adjacent racks in each set of arms to engage the pinion e upon opposite sides thereof. It will be seen that the inner

sides of all of the grooves are necessarily tangential to the pinion ϵ . It will also be seen that the pinion ϵ turns upon a so-called "dead-spindle" when it is desired to adjust the arms outwardly or inwardly.

The manner of securing the skein-supports to the ends of the arms is as follows: The skein-support B is preferably of metal, and a ferrule is formed by striking half out of each side of the body of the support. The arm is bifurcated at its end, and the skein-support is forced between the bifurcated ends of the arm, and the ferrule passes around the exterior of the bifurcated ends and holds the support snugly in position. A suitable fastening device may, if desired, be passed through the bifurcated ends and body of the skein-support to more securely hold it in position, if so desired.

As above described, it will be seen that the swift or reel may be adjusted to any required size very quickly and easily by turning the operating wheel or knob F and when adjusted will stay in such position until positively changed.

While I have shown three pairs of arms in the reel illustrated in the accompanying drawings, it is evident that any number of sets or pairs of arms might be provided for in the same manner, as desired. By adjusting all of the arms by a single pinion meshing with the racks on the several arms as the reel is increased or diminished in size it will at the same time be always equally balanced, thereby insuring the best results in operation.

The skein-supports may be adjusted laterally relative to the ends of the rods, so that all of them will run in the same plane, irrespective of the planes of the several sets of arms.

It is evident that slight changes might be resorted to in the construction and arrangement of the several parts without departing from the spirit and scope of my invention.

Hence I do not wish to limit myself strictly to the structure herein set forth; but

What I claim is—

1. In a swift or reel, a spindle, a hub comprising two hub-sections, the one secured to the spindle against rotation relatively thereto and the other adapted to be interlocked with the first-named hub-section, skein-supporting arms having a sliding movement through the hub-sections, racks on said arms, a pinion loosely mounted on the said spindle and engaged with the racks on the said arms and spring-actuated means for holding the two hub-sections together, substantially as set forth.

2. In a swift or reel, a spindle, a hub comprising two interlocking hub-sections one of the said sections being secured to the spindle against rotation relatively thereto, skein-supporting arms having a sliding movement through said hub-sections, racks on said arms, a pinion loosely mounted on the spindle and engaged with said racks for sliding the arms outwardly and inwardly, an operating-wheel secured to said pinion for rotating it independently of the spindle, an abutment on the spindle exterior to said pinion-operating wheel and a spring-washer interposed between said wheel and abutment serving to hold the two hub-sections together and to regulate the tension under which the pinion may be rotated, substantially as set forth.

3. The combination with an arm of a swift or reel, of a skein-support secured to the end thereof, the said skein-support having a ferrule for embracing the end of the arm, the said ferrule being struck from the body portion of the skein-support, substantially as set forth.

ORLO ATWOOD.

Witnesses:

J. F. JOSEPH,

WM. A. GILBERT.