

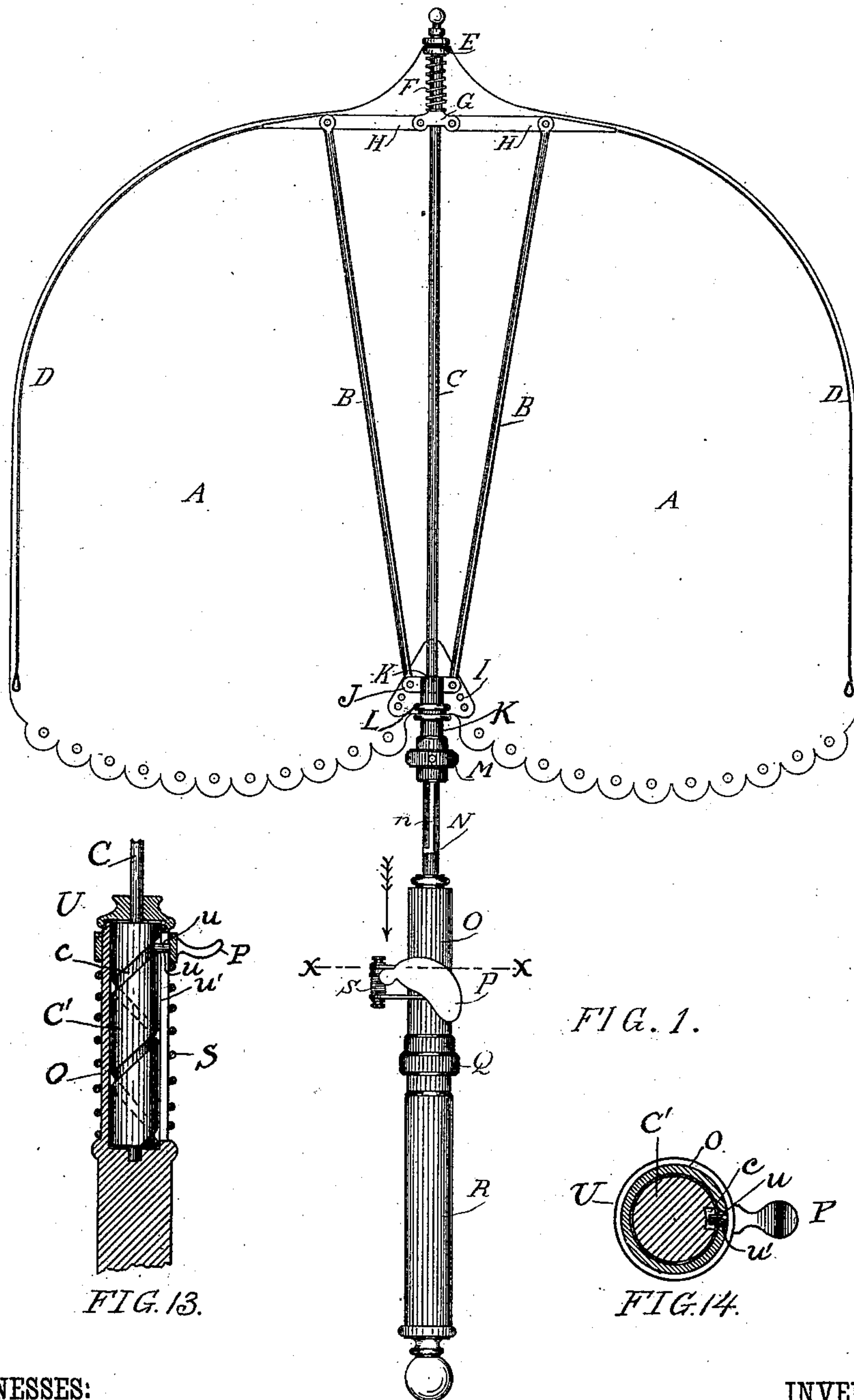
(No Model.)

2 Sheets—Sheet 1.

E. ELEFSEN.
REVOLVING HAND FAN.

No. 357,072.

Patented Feb. 1, 1887.



WITNESSES:

J. B. Halpenny.
W. W. Gridley.

INVENTOR

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ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

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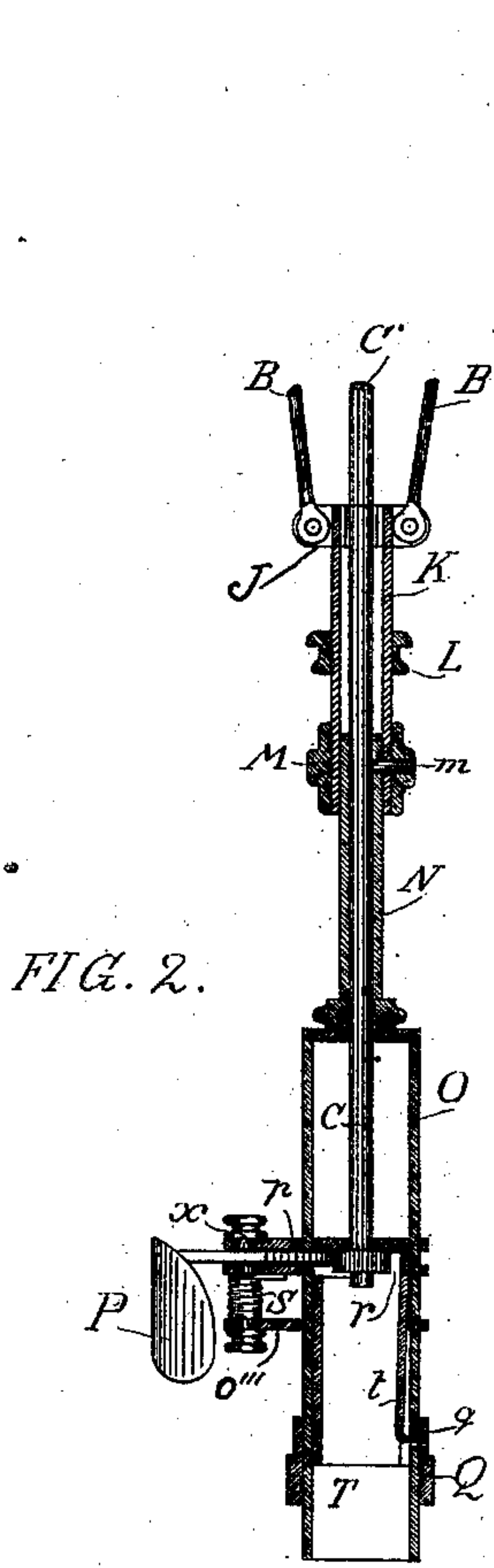


FIG. 2.

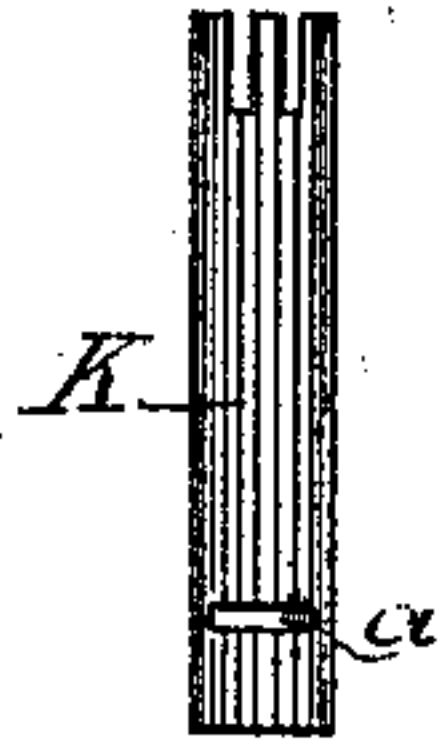


FIG. 4.



FIG. 5.

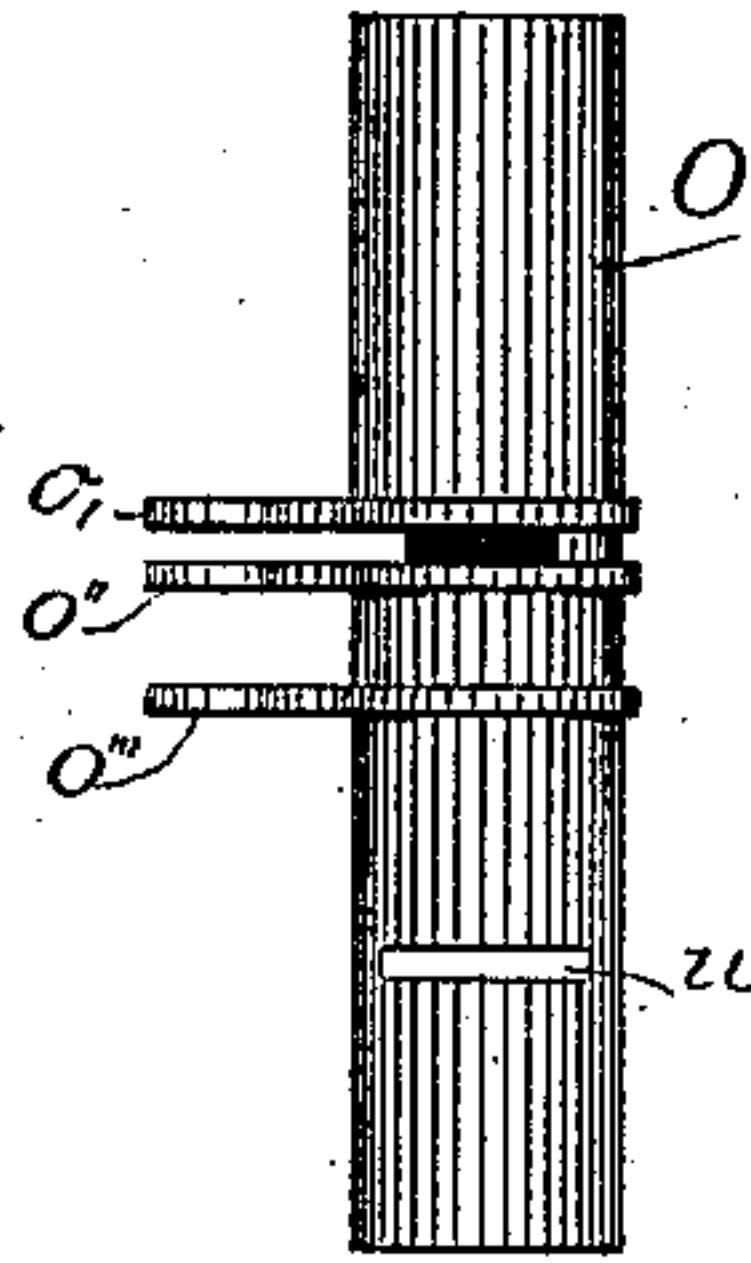


FIG. 6.

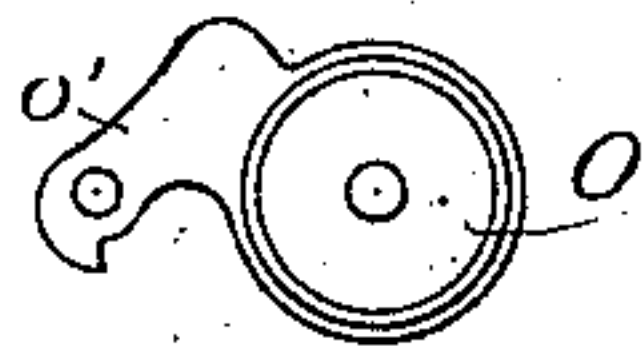


FIG. 7.

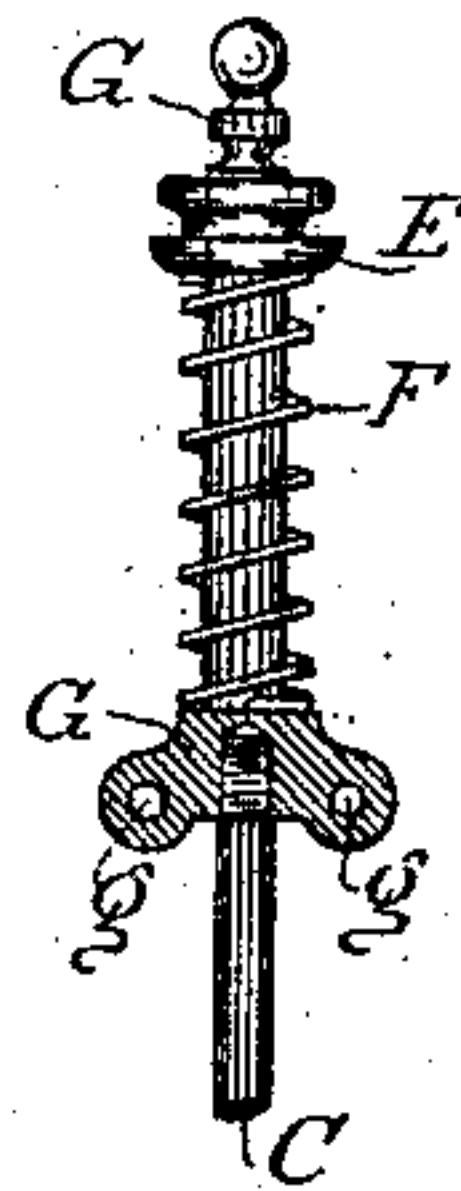


FIG. 8.

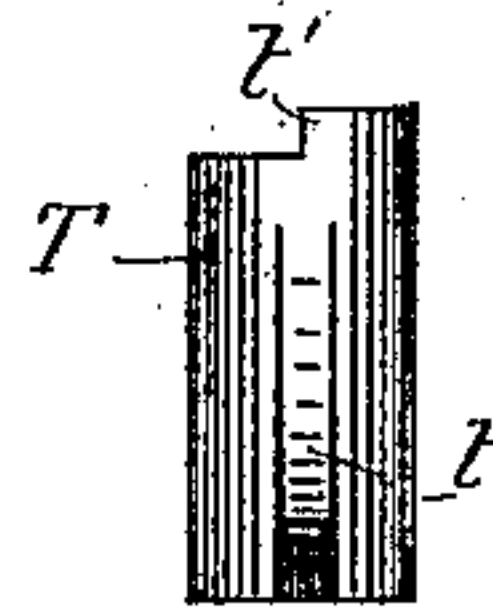


FIG. 9.

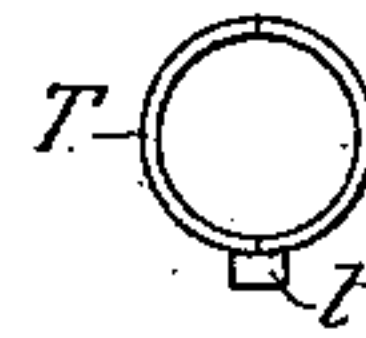


FIG. 10.

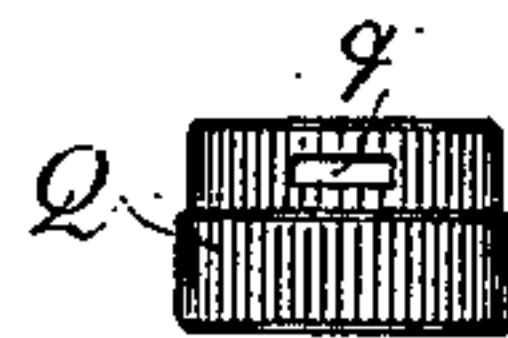


FIG. 11.

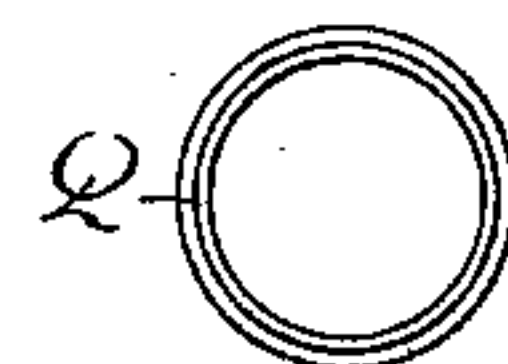


FIG. 12.

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UNITED STATES PATENT OFFICE.

EDVARD ELEFSEN, OF CHICAGO, ILLINOIS.

REVOLVING HAND-FAN.

SPECIFICATION forming part of Letters Patent No. 357,072, dated February 1, 1887.

Application filed October 16, 1886. Serial No. 216,395. (No model.)

To all whom it may concern:

Be it known that I, EDVARD ELEFSEN, a subject of the King of Sweden and Norway, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Revolving Hand-Fans, of which the following is a description, reference being had to the accompanying drawings, in which—

10 Figure 1 is a view of said fan as it appears when unfolded and ready for use, the cover being removed from one side to show the frame. Fig. 2 is a central longitudinal sectional view in detail of a portion of the handle and frame. Fig. 3 is a transverse sectional view of the handle of the fan, taken upon the line *x x*, Fig. 1, as viewed in the direction of the arrow there shown. Fig. 4 is a detail view of one of the loose sleeves which connects with the folding frame. Fig. 5 is a like view of a secondary sleeve overlapped by and connected with the first, and which forms the bearing for the rotary shaft. Fig. 6 is an enlarged hollow tube forming a part of the handle and inclosing a portion of the shaft with its pinion, the segmental rack for operating the pinion being removed therefrom. Fig. 7 is a detail view of said tube and the arms attached thereto, as seen from one end. Fig. 8 is an enlarged detail view of the end of a portion of the supporting-frame and the spring attached thereto for stretching the cloth cover. Fig. 9 is a detail view of a loose tube forming the locking device. Fig. 10 is an end view of the same. 35 Fig. 11 is a side view in detail of the loose ferrule for operating said locking device. Fig. 12 is an end view thereof. Fig. 13 is a vertical sectional view of a part of the handle, showing a modification of the means for rotating the fan; and Fig. 14 is a transverse sectional view of the same.

Like letters of reference indicate like parts in the different figures.

45 The primary object of my invention is to so construct a hand-fan that the same may be held in the hand in the usual way, and at the same time be caused to rotate at will by means of a pressure of the thumb and finger; and a further object is to provide a novel means for 50 folding said fan into a compact space, all of which is hereinafter more particularly de-

scribed, and definitely pointed out in the claims.

A, Fig. 1 of the drawings, represents the body or web of a fan, which is preferably formed from cloth or other fabric adapted to be folded, which is stretched upon bows or wires *D D*, rigidly attached to hinged arms *H H*, which are loosely pivoted, as shown, to the ends of arms or rods *B B*, pivoted in turn to a link or cross-bar, *J*, which is rigidly attached to a sleeve, *K*, Figs. 2 and 4, forming the upper portion of the handle, and hereinafter more particularly described. The arms *H H* are likewise pivotally attached to a single link, *G*, Figs. 1 and 8, to which a rod, *C*, is rigidly secured. Said rod serves to connect the parts *G* and *J*, the latter of which is adapted to slide up and down thereon, said rod constituting the main portion or support of the frame. The rod or shaft *C* is fitted or journaled within a sleeve, *N*, which is rigidly attached to a tube, *O*, forming a part of the handle *R*, Fig. 1.

The lower end of the shaft *C* has a pinion, *r*, Figs. 2 and 3, keyed thereto, with which is adapted to engage a segmental rack, *p*, which is pivoted upon a pin, *x*, passing through arms *o' o'' o'''*, extending laterally from and attached rigidly to the tube *O*. A bent arm or thumb-piece, *P*, is attached to said segment, and serves as a means for operating the same. A spiral spring, *S*, upon the pin *x* has one end attached to said segment, while the other is attached to the arm *o'''*, said spring being under sufficient tension to normally retain said segment in the position shown in Fig. 3. Upon grasping the handle of the fan and pressing the thumb upon the thumb-piece *P*, the shaft *C*, and with it the fan *A*, is caused to revolve until the segment has reached the limit of its movement, when, upon a release of pressure, the movement is reversed by means of the spring *S*.

When it is desired to use the fan in the ordinary way, the thumb-piece *P* may be compactly folded against the handle and locked by means of the locking device *T*, as follows: The tube *T* has a notch, *t'*, Fig. 9, formed in one end, and a tongue, *t*, cut from one side, the end of which is bent outwardly. Said tube is loosely inserted within the tube *O*, so that the end of the tongue is caused to project through

a slot, *u*, Fig. 6, and into a slot, *q*, in a loose ring or ferrule, *Q*, which surrounds the tube *O*. By this means the tube *T* and ferrule are prevented from longitudinal movement, while said tongue is free to move laterally in the slot *u*, thereby permitting the tube *T* to be partially rotated within the tube *O* upon grasping the ferrule *Q*. When it is desired to lock said fan to prevent the same from being rotated, the part *P* is depressed until it touches or is close to the handle, when the ferrule *Q* is rotated in an opposite direction until the part *t'*, Fig. 9, engages with a tooth of the segment *p*, which is thereby prevented from reversing its movement.

The sleeve *N* is provided with a slot, *n*, Fig. 5, which is curved laterally at the top and bottom, respectively, and into which is inserted a pin, *m*, rigidly attached to a ring or ferrule, *M*, upon the lower end of the sleeve *K*. Upon moving the ferrule up or down to either extremity of the slot *n*, and then turning it so that the pin *m* may enter the laterally-bent portion of the slot, the body of the fan is caused to be expanded or folded and retained in either position, as described, this movement causing the arms *B B* to be pushed up or drawn down, which in turn expands or folds the arms *H H* and the bows *D D*.

A short rod, *F*, Figs. 1 and 8, is attached to the part *G*, thus forming an extension of the rod *C*. A spiral spring, *G*, is placed over the rod *F* and bears against a loose ring, *E*, upon the end of said rod *F*, said ring having a groove in its periphery, into which the cloth of the cover is secured. By this means the cover is retained under elastic tension and assumes the shape, when expanded, as shown in Fig. 1. This prevents the cloth from wrinkling, while the frame is free to fold and unfold.

Instead of using the segmental rack and pinion for rotating the shaft *C*, it is obvious that the same may be done by means of a spirally-grooved shaft and pin adapted to engage therewith and to reciprocate in a straight slot. Such modified construction, though less preferable, I have shown in Figs. 13 and 14, in which *C'* represents an enlarged shaft adjusted in bearings within the tube *O* and rigidly attached to the shaft *C*. The part *C'* is provided with a spiral groove, *c*, into which is loosely projected a pin, *u*, rigidly attached to a loose

ring, *U*, which surrounds the tube *O*, and is provided with a projecting thumb-piece, *P*, for actuating the same. A spiral spring, *S*, serves to retain the ring normally at its upward limit of movement, as shown in Fig. 13. Said pin *u* passes through a straight slot, *u'*, in the tube *O*, which causes the pin to move up and down in a straight line. As the pin in so doing acts upon the faces of the spiral slot *c*, the part *C'* is caused to rotate. A downward pressure of the thumb revolves it one direction, while a reverse movement is produced by the spring *S*, thereby effecting the same movement of the fan as heretofore described.

It is apparent that any ordinary fan may be attached to the shaft *C* and caused to rotate, as described.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A rotary hand-fan consisting of a frame provided with a suitable covering, a rod or shaft rigidly attached to said frame and having loose bearings within the handle, and a pinion and segmental gear, in combination with a thumb-piece and spring, whereby said fan may be rotated in opposite directions upon alternately pressing and releasing said thumb-piece, substantially as described.

2. The combination, with a folding fan-frame, *B D H*, provided with a suitable cover, of the shaft *C*, journaled within the handle, and provided with a pinion adapted to engage with a rack pivoted to the handle, and a thumb-piece and spring for actuating said rack, substantially as and for the purposes set forth.

3. The combination, with a hand-fan, of the shaft *C*, journaled within the handle, gears *p r*, thumb-piece *P*, and spring *S*, substantially as and for the purposes set forth.

4. The combination, with a hand-fan, of the shaft *C*, journaled within the handle, gears *p r*, thumb-piece *P*, spring *S*, and locking device *T*, adapted to engage with the teeth of the segmental gear, substantially as and for the purposes set forth.

EDVARD ELEFSEN.

Witnesses:

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