(No Model.)

J. H. IRVING.

FAN.

No. 492,684. Patented Feb. 28, 1893.

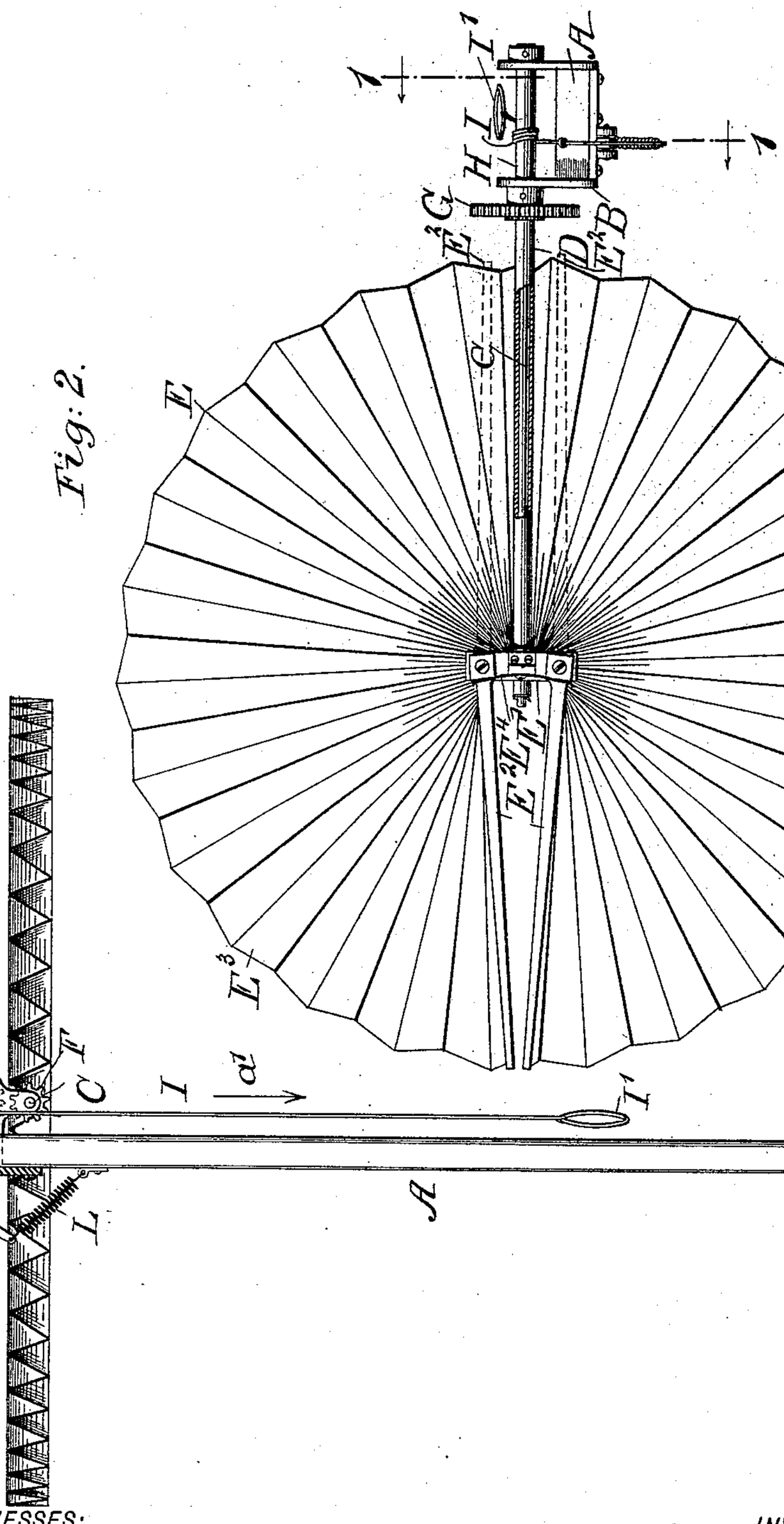

Fig: 2.

Fig: 1.

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SPECIFICATION forming part of Letters Patent No. 492,684, dated February 28, 1893.

Application filed November 16, 1892. Serial No. 452,194. (No model.)

To all whom it may concern:

Be it known that I, JAMES HAMILTON IRVING, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and Improved Fan, of which the following is a full, clear, and exact description.

The invention relates to hand fans, and its object is to provide a new and improved fan, which is simple and durable in construction and can be readily set in motion by the user, without much exertion.

The invention consists of certain parts and details, and combinations of the same, as will be hereinafter described, and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of the improvement on the line 1—1 of Fig. 2; and Fig. 2 is an end view of the same.

The improved fan is provided with a suitably-constructed handle A carrying on its forward end, a suitable bearing B in which is secured a rod C on which is mounted to turn a hollow shaft D carrying the fan leaf E preferably made circular in form and adapted to be folded as hereinafter more fully described.

On the hollow shaft D is secured a pinion F in mesh with a gear wheel G secured on a shaft H mounted to slide in elongated slots B′ formed in the bearing B so that the said gear wheel can move in and out of mesh with the pinion F. A cord or rope I winds several times around the shaft H and is provided at one end with a finger ring I′ adapted to be taken hold of by one of the fingers of the hand grasping and carrying the handle A. The other end of the rope or cord I is connected with one end of a lever K, fulcrumed on the bearing B and connected at its other end with a spring L attached to the handle A, as plainly shown in Fig. 1.

As illustrated in Fig. 2, the fan leaf E is adapted to be folded upon itself and for this purpose the fan leaf is provided with an arm E′ secured to the hollow shaft B and carrying on its ends the pivoted arms E^2 connected with the free end of the folded fan leaf E^3 proper. A spring E^4 secured on the frame E′ presses onto the squared ends of the pivots of the arms E^2, so as to hold the latter in either an open position, as shown in Fig. 2, or in a closed position, that is when the said arms have been given one-half turn toward the shaft D; see dotted lines in Fig. 2.

The device is used as follows: When the fan leaf E^3 proper, is extended as shown in Fig. 2, and the operator takes hold of the handle A with one hand and inserts one of his fingers of this hand in the ring I′ and pulls on the same in the direction of the arrow a', then the shaft H is drawn inward in the slots B′, so that the gear wheel G is brought in mesh with the pinion F, so that on a further pull on the ring I′, the said shaft H, the gear wheel G and the pinion F are rotated, whereby the fan E is revolved in one direction. At the same time, the pull on the rope I causes the lever K to swing, thus compressing the spring L so that on the operator releasing the pull on the ring I′ the spring L exerts a pressure on the lever K to cause the latter to swing back to its normal position shown in Fig. 1, whereby the rope I is pulled in the inverse direction of the arrow a', and turns the shaft H first outwardly and then rotates it in the inverse direction as soon as it is out of mesh with the pinion F. At the next forward pull on the ring I′ in the direction of the arrow a', the above described operation is repeated, that is the shaft H slides in the slots B′ to bring its gear wheel G in mesh with the pinion F and on the release of the pressure on the ring I′, the shaft H slides outward to move the gear wheel G out of mesh with the pinion F. Thus, it will be seen that on every pull on the ring I′, the fan E is rotated so as to cause a disturbance of the air surrounding it, thus fanning the person carrying the fan.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A folding fan comprising the cross arm E′ provided at its ends with the pivoted arms E^2 having squared portions at their pivoted ends, a spring bearing on said squared portions and holding the arms open or closed and the fan leaf E^3 secured to the arm E′ and arms E^2, substantially as set forth.

2. A hand fan comprising a handle, a fan shaft journaled transversely in the outer end thereof, a cross arm on the outer end of the

shaft provided with swinging arms at its ends in the plane of the shaft, the folding circular leaf secured to the said cross and swinging arms, a drive shaft journaled in bearings on the handle, gearing for connecting said two shafts and an operating mechanism for the drive shaft, substantially as set forth.

3. A fan consisting in the handle provided with a transverse fan shaft carrying the fan leaf at its outer end and provided with a pinion at its inner end, a drive shaft movable toward and from the fan shaft and having a pinion to mesh with that on the fan shaft, a spring normally holding the drive shaft away from the fan shaft and disconnecting their pinions, and a cord for rotating the drive shaft and at the same time drawing it toward the fan shaft to throw said pinions into mesh, substantially as set forth.

4. The combination with the fan shaft and its pinion, of the drive shaft movable toward and from the fan shaft and having a pinion to engage with the pinion thereof, a spring pressed lever and an operating cord wound about the drive shaft and connected with one end of the spring pressed lever, substantially as set forth.

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Witnesses:
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