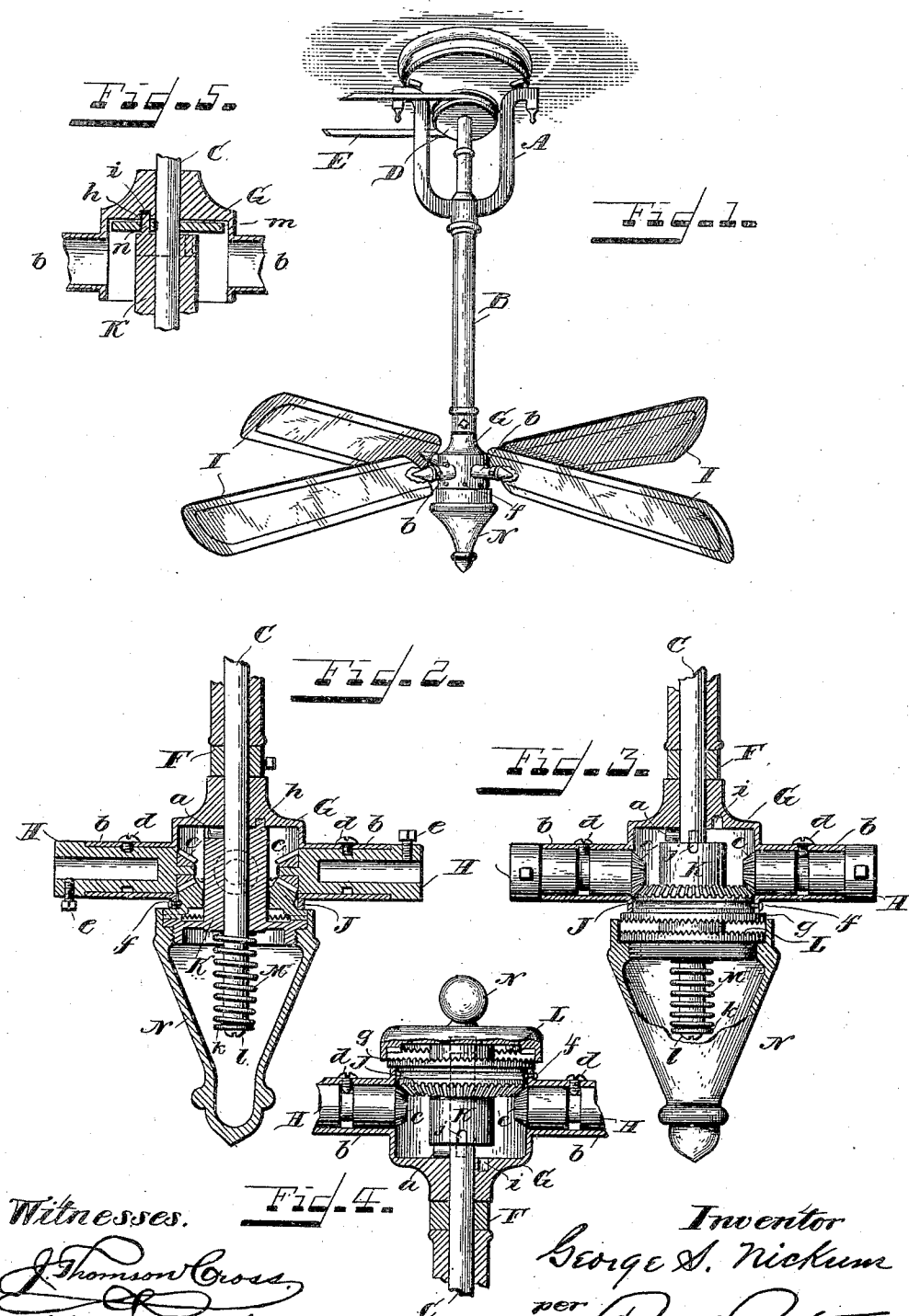


(No Model.)

G. S. NICKUM.
FAN ATTACHMENT.

No. 446,584.

Patented Feb. 17, 1891.



Witnesses.

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UNITED STATES PATENT OFFICE.

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FAN ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 446,584, dated February 17, 1891.

Application filed November 21, 1890. Serial No. 372,189. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. NICKUM, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Fan Attachments, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to ventilating-fans for dining-rooms, stores, saloons, and the like, which are usually suspended from the ceiling and are rotated by power; and it has for its object the improved construction of the fan-hub and its associated parts, whereby the fan can be stopped and started at will in a very simple manner, and whereby the fan-blades can be given, simultaneously, any degree of angling desired.

The novelty of my invention will be herein set forth, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a ceiling-fan embodying my invention. Fig. 2 is an enlarged central section in elevation through the fan-hub and its associated parts locked together. Fig. 3 is a corresponding view with not so much in section and with the parts unlocked. Fig. 4 is a detail in elevation and partly in section showing the application of my invention to a column-fan. Fig. 5 is a detail sectional view representing a modification in the construction.

A is the usual or any suitable bracket-support; B, the tubular socket for the fan-shaft C; D, the driving-pulley, and E the belt for rotating the fan-shaft. Journaled upon the lower part of the shaft C between a fixed collar F upon the shaft and a pin or lug *a*, projecting from the shaft within the hub, is the hollow fan-hub G, having radially-projecting tubular sockets *b*—in this instance four in number—set quartering. In each of these sockets is journaled a socketed spindle H, having on its inner end a beveled pinion *c* just within the hub G. A set-screw *d* through each socket *b*, confined in a circumferential groove in each of the spindles, serves to lock the latter in place without preventing their

rotation. The shanks of the fan-blades I are inserted in the sockets of the spindles H and locked therein by set-screws *e* or by any other suitable means.

Fitted and journaled within the open bottom of the hub G is an annular beveled crown-gear J, meshing with all of the pinions *c* and held in place, though free to revolve, by set-screws *f*, passed through the lower part of the hub G and confined in a circumferential groove in the gear J. The lower side of the gear J is serrated, as shown at *g*, Fig. 3, or otherwise formed, to constitute the upper half of a clutch.

Journaled upon the shaft C and inserted into the hub G through the opening in the annular gear J is a sleeve K, having at its upper end on one side a pin *h*, which is confined in an aperture *i* in the top wall of the hub, and on the other side a slot or groove *j*, into which the pin *a* fits and is locked, as seen in Fig. 2. At the lower end of the sleeve K is a circular spider flange or disk L, whose upper surface is serrated to form a half-clutch to engage with the half-clutch upon the under side of the gear J.

A coiled spring M, surrounding the lower end of the shaft C and put under tension in any suitable manner—in this instance by a washer *k* and screw *l*—bears at its upper end against the lower end of the sleeve K and serves to hold the latter up both to lock the clutch-faces and hold the pins *a* and *h* in their respective apertures *j* and *i*. In this position (represented in Fig. 2) the parts are all firmly locked together. The hub G is locked to the sleeve K by the pin *h*, and the shaft C is likewise locked to the sleeve K by the pin *a*. The clutch-faces being engaged, the gear J is locked to the shaft C and the spindles H are held from rotation or adjustment on their axes.

Screwed upon the flange L of the lower half-clutch is a combined hollow grasping-handle and drip-cup N. Now, when it is desired to stop the rotation of the fans or to change the angles of the fan-blades, it is only necessary to grasp the cup N and pull it down, thereby disengaging the clutch-faces and withdrawing the pins *h* and *a* from their sockets. As soon as this is done the rotation of the shaft C car-

ries the pin *a* over the top edge of the sleeve K, as seen in Fig. 3, and holds it down with the spring M under tension. The cup is at once released, and the hub G is loose upon the shaft C and will not revolve; or, if it does, will revolve very slowly and merely by friction, as will be readily understood. When in this position, the gear J is freed and the fan-blades can be angled simultaneously by taking hold of any one of them and turning it as desired. Through the medium of the pinions *c* and gear J all the other fan-blades will be correspondingly turned, and it is to be observed that there is no limitation whatever as to the degree of angling of the blades, whether to throw the air up or down. To relock the fan-hub to the shaft and to relock the spindles H, it is only necessary to again grasp the cup N and hold it until the pin *a* travels around, registers with its groove *j*, and becomes partially locked therein. The sleeve K then, traveling with the shaft C, brings the pin *h* around to its socket *i*, and the spring M, being thereby released, forces the sleeve K up and re-engages the clutch-surfaces and locks all the parts, as will be readily understood.

While I have shown the grasping-handle N as a detachable drip-cup, such form of handle is not essential, as any handle for disengaging the pins and clutch-faces might be substituted. Again, the pin *a* and groove *j* may be dispensed with, as in Fig. 5, where a collar *m* is made fast to the fan-shaft within the hub and upon which the latter rests. This collar has a perforation *n* through it registering with the opening *i* in the hub, and the pin *h* is made sufficiently long to pass through the perforation *n* in the collar and into the opening *i* to lock all the parts securely together. To unlock them it is only necessary to draw down the sleeve K until the pin *h* is freed from the perforation *n*, whereupon the sleeve is partially turned and the pin bears against the under side of the collar, as shown by the dotted lines, Fig. 5.

Again, while I have described the application of my invention to ceiling-fans, which necessitates the employment of the spring M, yet it is to be understood that the invention is capable of application to column-fans, as in Fig. 4, where the use of the spring is not necessary and is dispensed with, as is also the grasping-handle in the form of a drip-cup.

In Fig. 4 the parts are inverted and the sleeve K is held with its pins and clutch-faces engaged by gravity alone, and to unlock the parts it is only necessary to lift the sleeve by grasping its attached or integral handle N.

Having thus described my invention, I claim—

1. In a fan attachment, the combination,

with the rotating fan-shaft, of the hub journaled thereon and provided with journaled fan-spindles having pinions upon their inner ends, a gear journaled in the hub meshing with said pinions and having on its opposite side a clutch-face, a sleeve free to slide on the fan-shaft and having at its end within the hub means for locking it both to the fan-shaft and the fan-hub, said sleeve also having a clutch-face to engage the clutch-face on the gear and a grasping-handle for said sleeve, substantially as described.

2. In a fan attachment, the combination, with the rotating fan-shaft, of the hub journaled thereon and provided with journaled fan-spindles having pinions upon their inner ends, a gear journaled in the hub meshing with said pinions and having on its opposite side a clutch-face, a sleeve free to slide on the fan-shaft, having at its end within the hub a groove to engage a locking-pin on the fan-shaft and having a projecting pin to engage a socket in the hub, said sleeve also having a clutch-face to engage the clutch-face on the gear and a grasping-handle for said sleeve, substantially as described.

3. In a fan attachment, the combination, with the rotating fan-shaft, of the fan-hub journaled thereon and provided with journaled fan-spindles having pinions upon their inner ends, a gear journaled in the hub, meshing with said pinions, and having on its opposite side a clutch-face, a sleeve free to slide on the fan-shaft, having at its end within the hub a groove to engage a locking-pin on the fan-shaft and having a projecting pin to engage a socket in the hub, said sleeve also having a clutch-face to engage the clutch-face on the gear, a spring for said sleeve tending to force the same into the hub, and a combined drip-cup and grasping-handle for said sleeve, substantially as described.

4. The combination and arrangement of the fan-shaft C, hollow hub G, journaled thereon and provided with radial sockets *b*, fan-spindle H, having pinions *c* on their inner ends within the hub, the gear J, meshing with said pinions, journaled in the hub, and having on its opposite side a clutch-face, the sleeve K, free to slide on the fan-shaft and having at its end within the hub the groove *j* to engage the pin *a* upon the fan-shaft and the pin *h* to engage the socket *i* in the hub, the clutch L, carried by the sleeve K and arranged to engage the clutch on gear J, the spring M, and the drip-cup N, substantially as and for the purpose described.

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Witnesses:

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