

No. 667,899.

Patented Feb. 12, 1901.

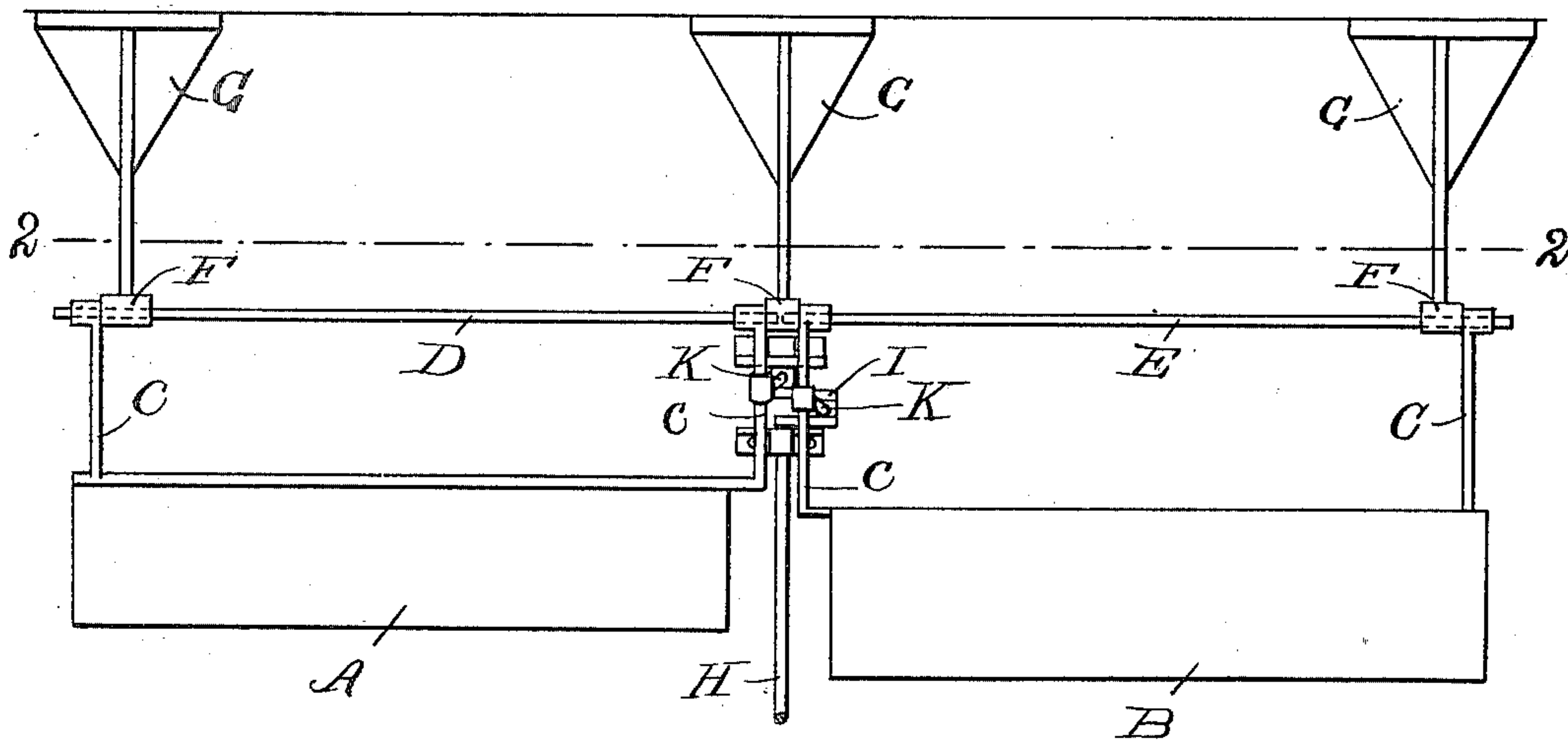
C. ADELHELM.  
FAN PROPULSION.

(Application filed May 31, 1900.)

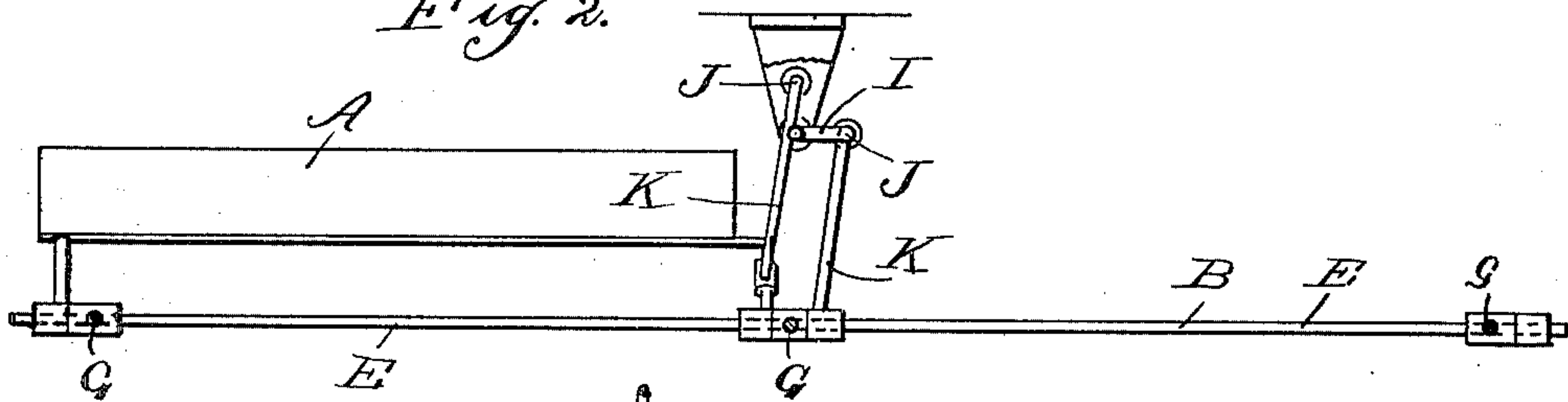
(No Model.)

2 Sheets—Sheet 1.

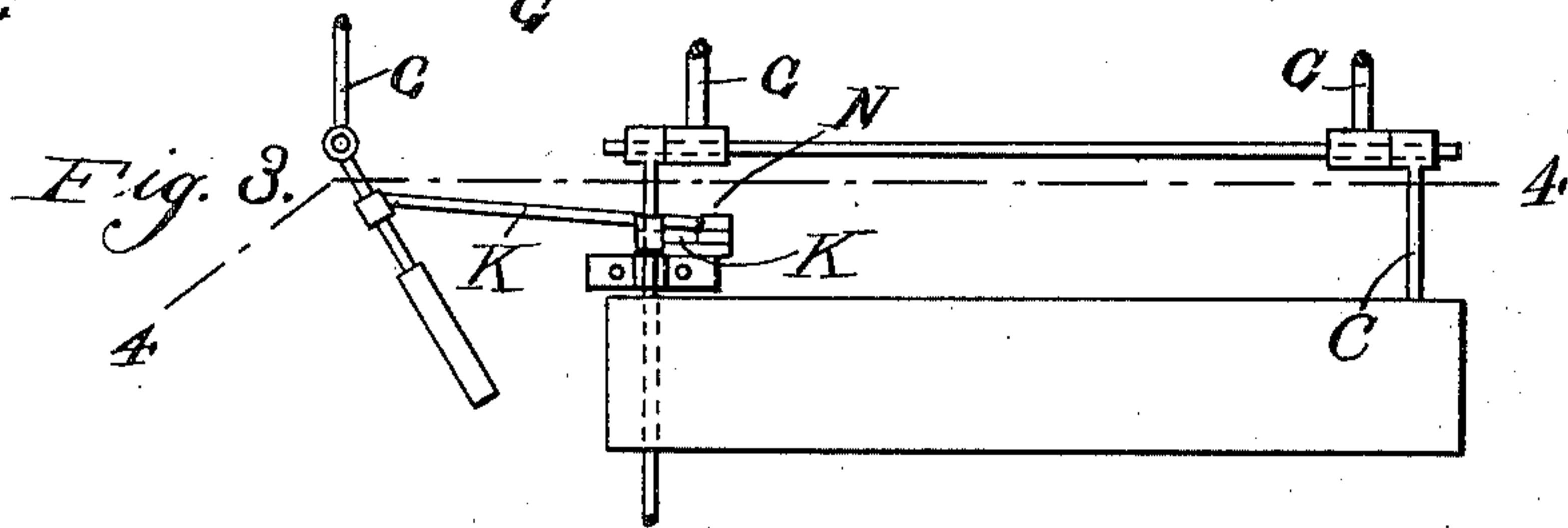
*Fig. 1.*



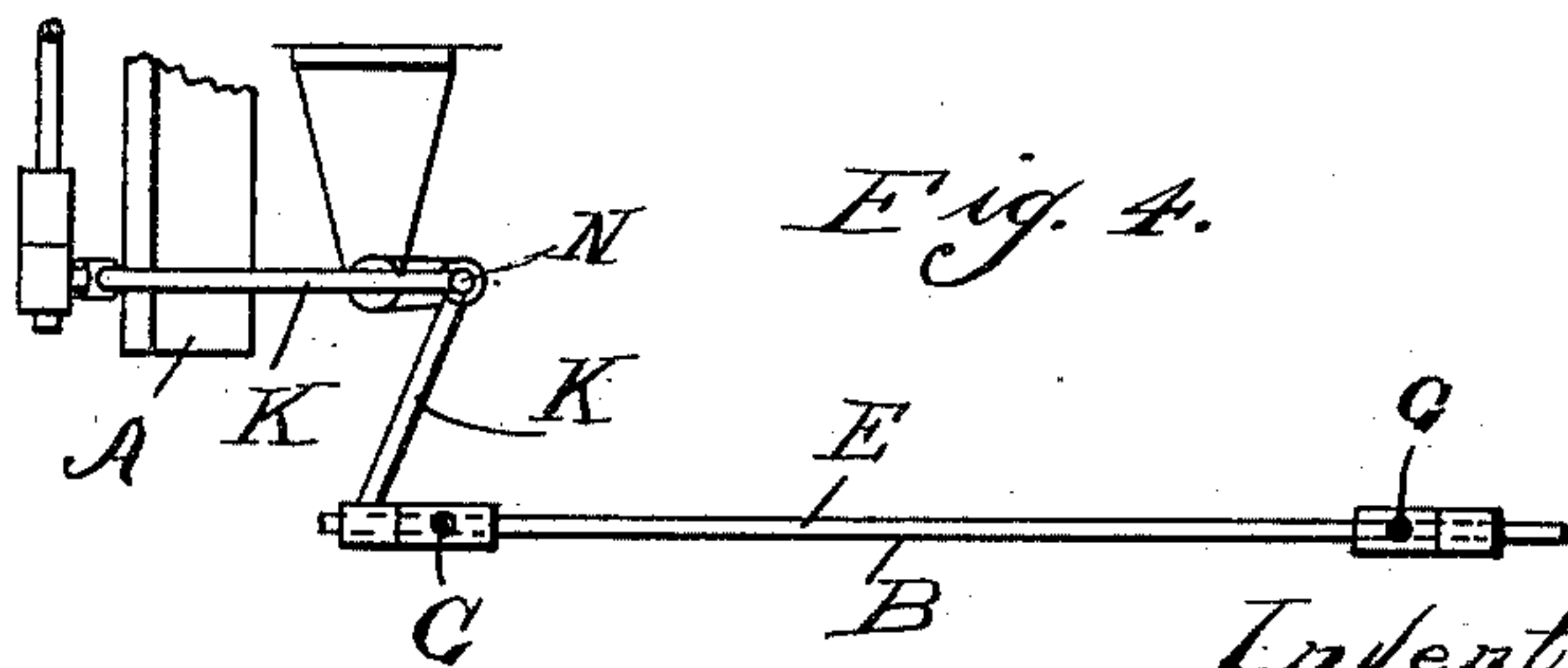
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



Witnesses:

C. F. Wilson.

D. P. Henry

Inventor:

Charles Adelmelm

By *Rudolph M. [Signature]*

Attorney

No. 667,899.

Patented Feb. 12, 1901.

C. ADELHELM.  
FAN PROPULSION.

(Application filed May 31, 1900.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 5.

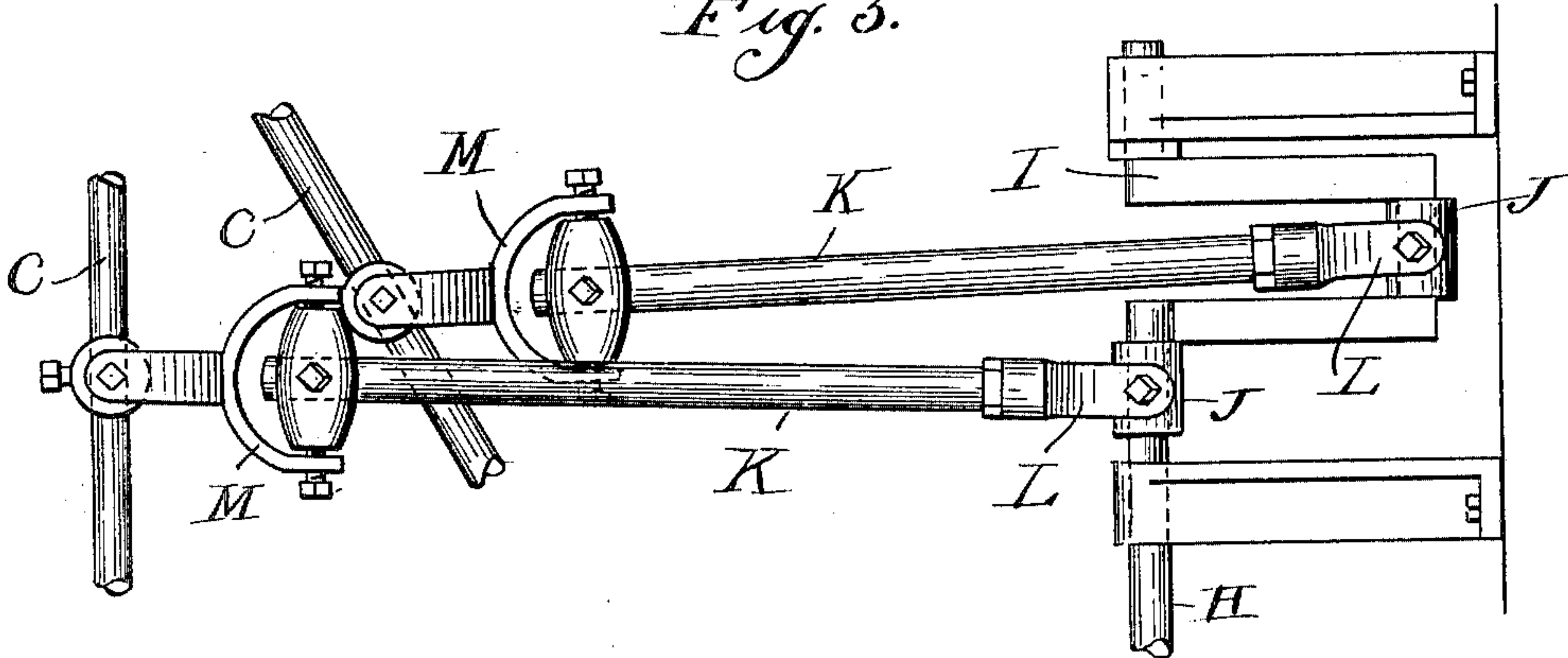


Fig. 6.

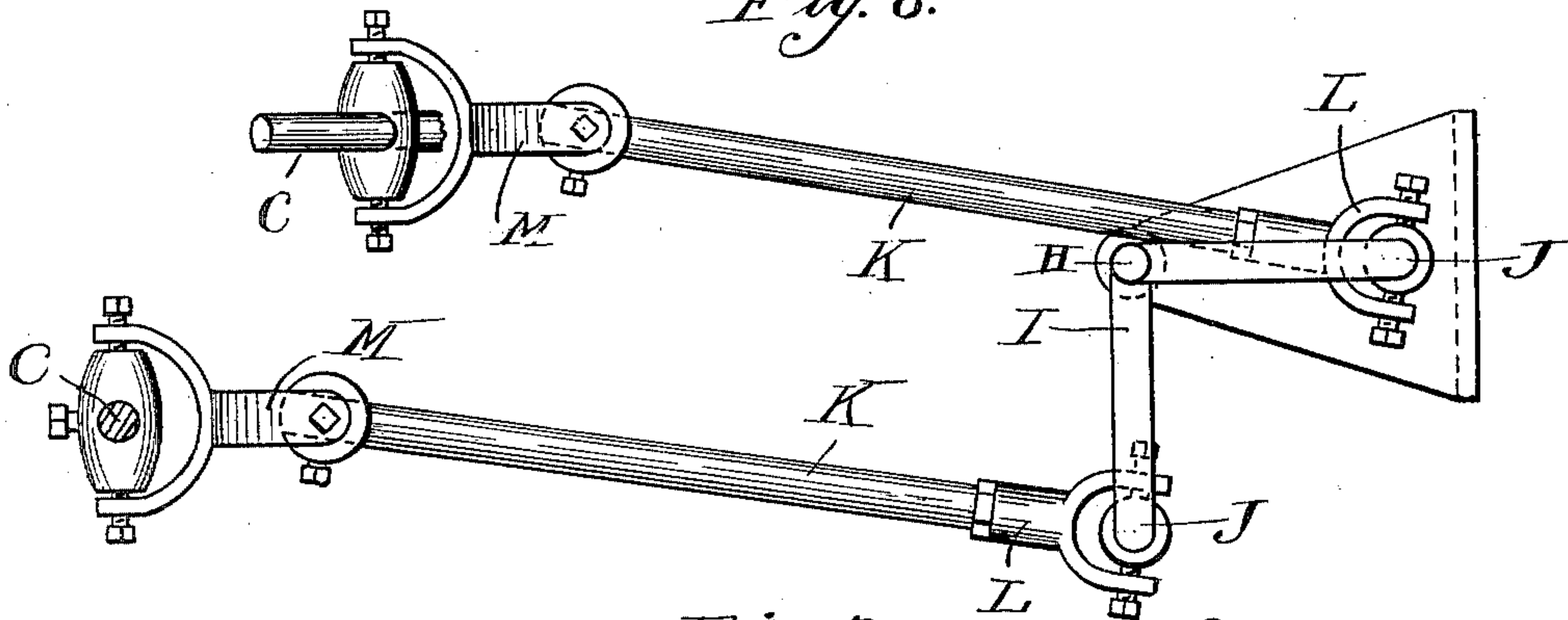


Fig. 7.

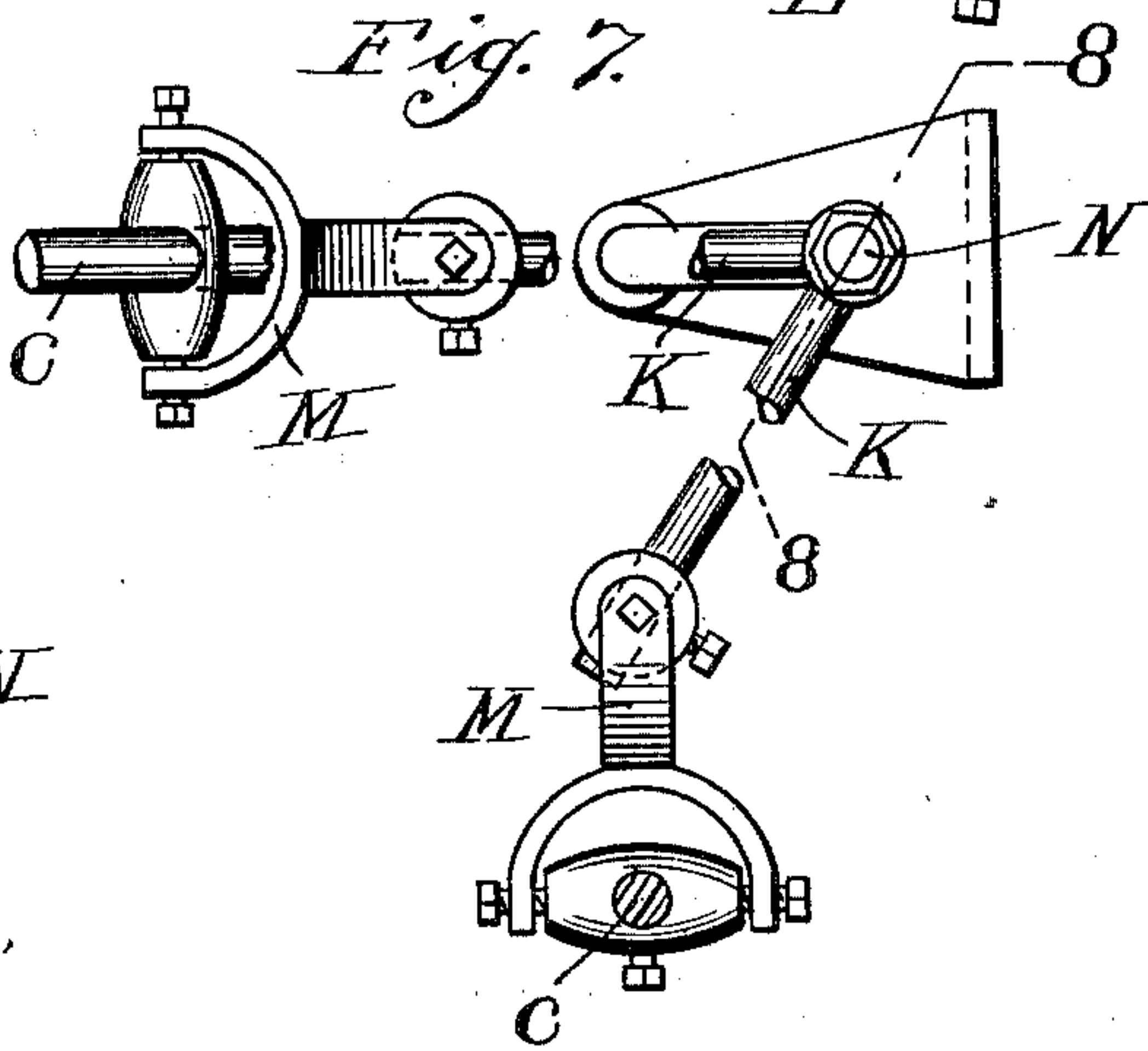
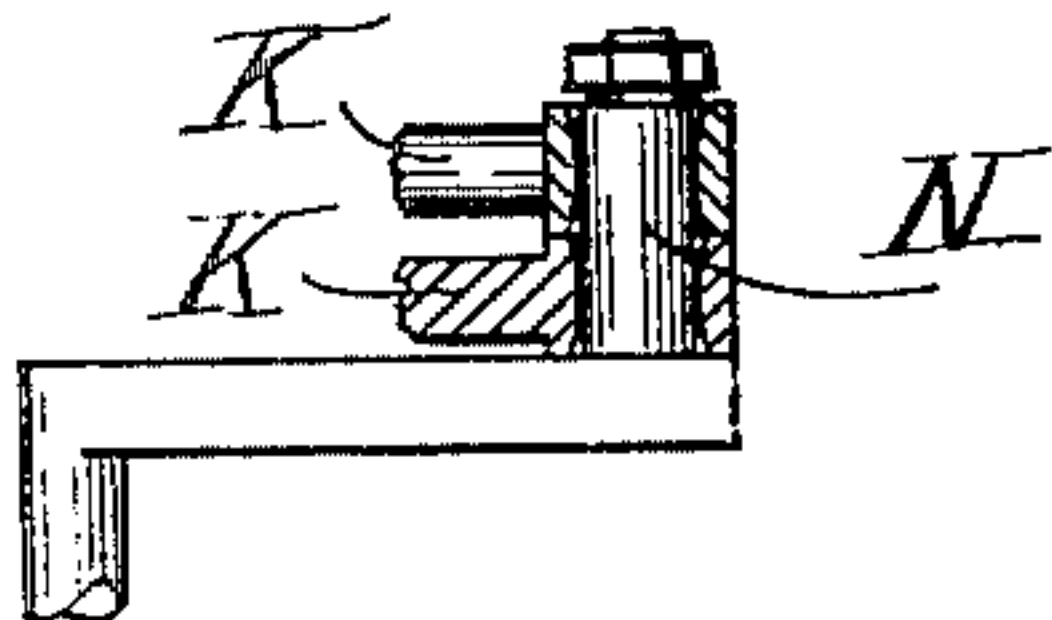


Fig. 8.



Witnesses:

C. F. Wilson.  
D. P. Lenny

Inventor.

Charles Adelm  
By Rudolph M. Lenny

Attorney.



# UNITED STATES PATENT OFFICE.

CHARLES ADELHELM, OF CHICAGO, ILLINOIS.

## FAN PROPULSION.

SPECIFICATION forming part of Letters Patent No. 667,899, dated February 12, 1901.

Application filed May 31, 1900. Serial No. 18,608. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES ADELHELM, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Fan Propulsion; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a novel method of connecting oscillating or swinging fans with a source of power, the object being to so connect a plurality of fans with each other and with the source of power that the power necessary to operate the system will be governed by each of said fans, so as to be practically constant, and thus prevent any irregular and jerky motion of the others thereof; and it consists in the features of construction and combinations of parts hereinafter fully described and claimed.

In the accompanying drawings, illustrating my invention, Figure 1 is a view in elevation of two fans and connections constructed in accordance with my invention, having the upper bracket broken away. Fig. 2 is a longitudinal section on line 2 2 of Fig. 1, having the upper bracket removed. Fig. 3 is a view in elevation of another arrangement where one fan is hung practically at right angles to the other. Fig. 4 is a plan section of same on the line 4 4 of Fig. 3. Fig. 5 is an enlarged detail side view of the connections shown in Fig. 1. Fig. 6 is a plan view of same. Fig. 7 is a detail plan view of the connections shown in Figs. 3 and 4. Fig. 8 is a partial section on line 8 8 of Fig. 7.

Referring now to said drawings, A and B are flat or leaf fans hung by means of rods C to the rock-shafts D and E, which are journaled in bearings F on brackets G, which may be fastened to the ceiling or other suitable support. H is a vertical shaft connected with a source of power and carrying at its upper end the double crank I, the two arms of which extend at an angle of about ninety degrees to each other. The crank-pins J are connected, by means of the connecting-rods K and the universal joints L and M, to the supporting-rods C of the two fans A and B. As this style of fan is ordinarily connected either

only one fan is used or all of the fans in the system are so connected that they oscillate together, thus causing an irregular and jerky movement to the fans and causing trouble with belts and motors. In my system I so divide up the fans and their movements that while one half of the total area of the fans is at a limit of its motion the other half will be midway between the limits of its motion, thus producing a constant load on the driving mechanism and causing the fans to move with a very regular, smooth, and even motion.

In Figs. 3, 4, 7, and 8 I have shown an arrangement of two fans, one being hung practically at right angles to the other. In this case both the connecting-rods K are pivoted upon the same crank-pin N, so that when one fan is at a limit of its motion the other will be midway between the limits of its motion.

It is obvious that many arrangements of cranks and rods could be devised to bring about the result which I wish to obtain; but these various arrangements would readily suggest themselves to fit the conditions to be met in hanging the fans.

I claim as my invention—

1. In a device of the kind specified, the combination with a plurality of oscillating fans, and means for driving same, of crank connections between said fans and said driving means so arranged that when one of said fans reaches a limit of its motion the remaining fans will be between their limits of motion, whereby each of said fans acts as a regulator to prevent irregular and jerky motion of the others thereof, thus rendering the load on the driving means practically constant, substantially as described.

2. In a device of the kind specified, the combination with a plurality of oscillating fans, and means for driving same, of connections between said fans and said driving means including a crank on said driving means and rods connecting said crank with said fans so arranged that when one of said fans reaches a limit of its motion the remaining fans will be between their limits of motion, whereby each of said fans acts as a regulator to prevent irregular and jerky motion of the others thereof, and rendering the load

on the driving means practically constant, substantially as described.

3. In a device of the kind specified, the combination with a plurality of oscillating fans, and means for driving same, of connections between said fans and said driving means including a double crank having the two arms thereof extending practically at right angles to each other, and rods connecting said crank with said fans so arranged that when one of said fans reaches a limit of its motion the remaining fans will be be-

tween their limits of motion, whereby each of said fans acts as a regulator to prevent irregular and jerky motion of the others thereof, and rendering the load on the driving means practically constant, substantially as described. 15

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES ADELHELM.

Witnesses:

RUDOLPH WM. LOTZ,  
E. F. WILSON.