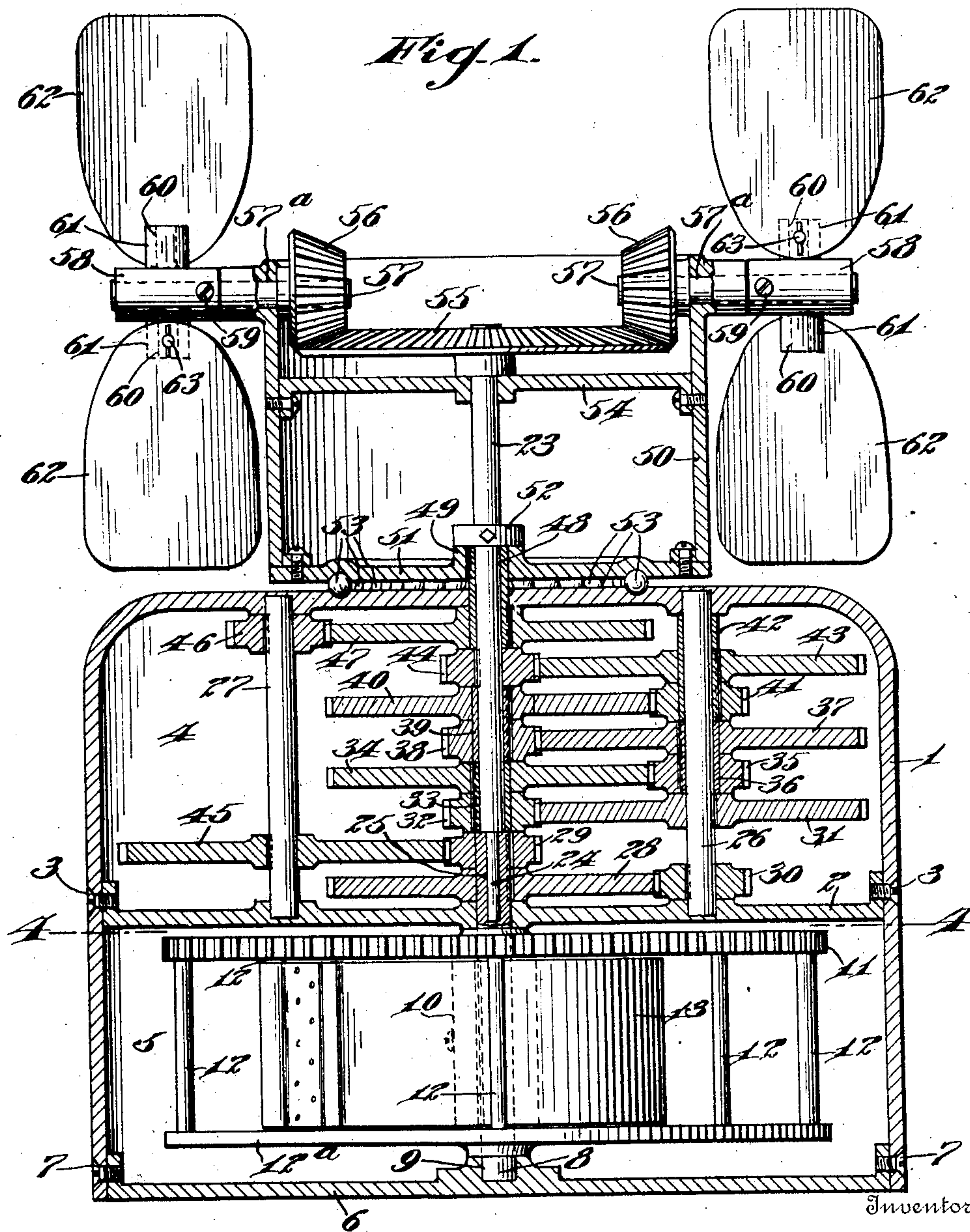


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 SPRING MOTOR DRIVEN TABLE FAN.  
 APPLICATION FILED JAN. 26, 1910.

975,714.

Patented Nov. 15, 1910.

3 SHEETS—SHEET 1.



Witnesses  
 Thos. Brennan.  
 J. A. S. Mulhall.

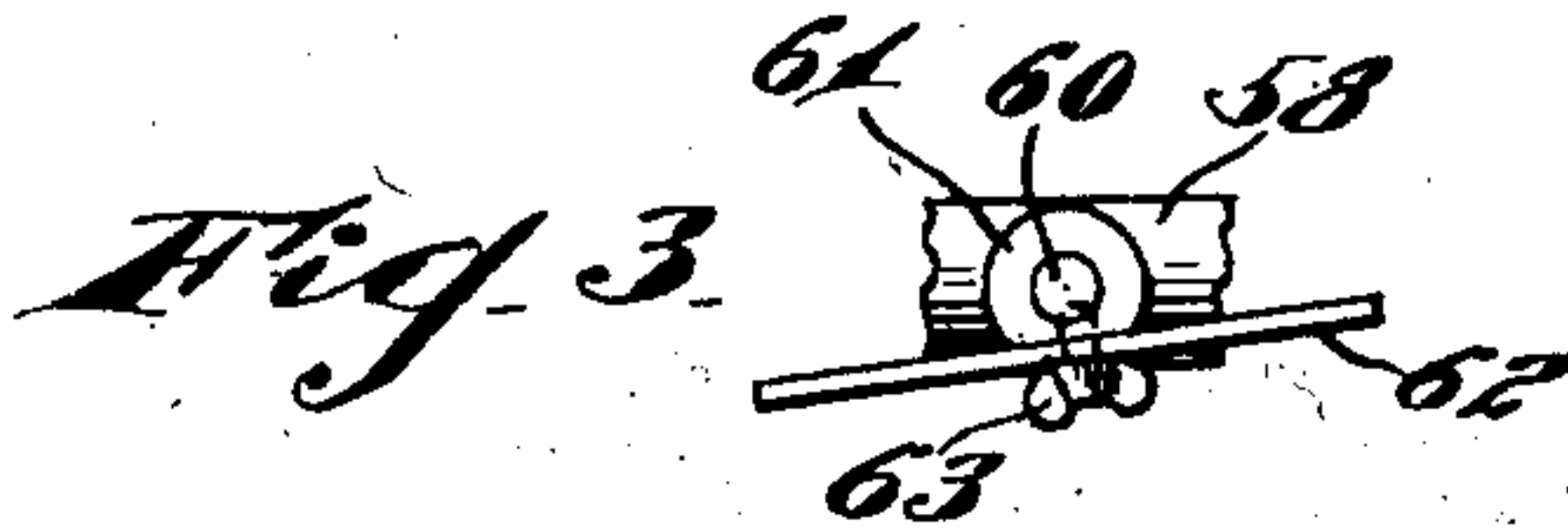
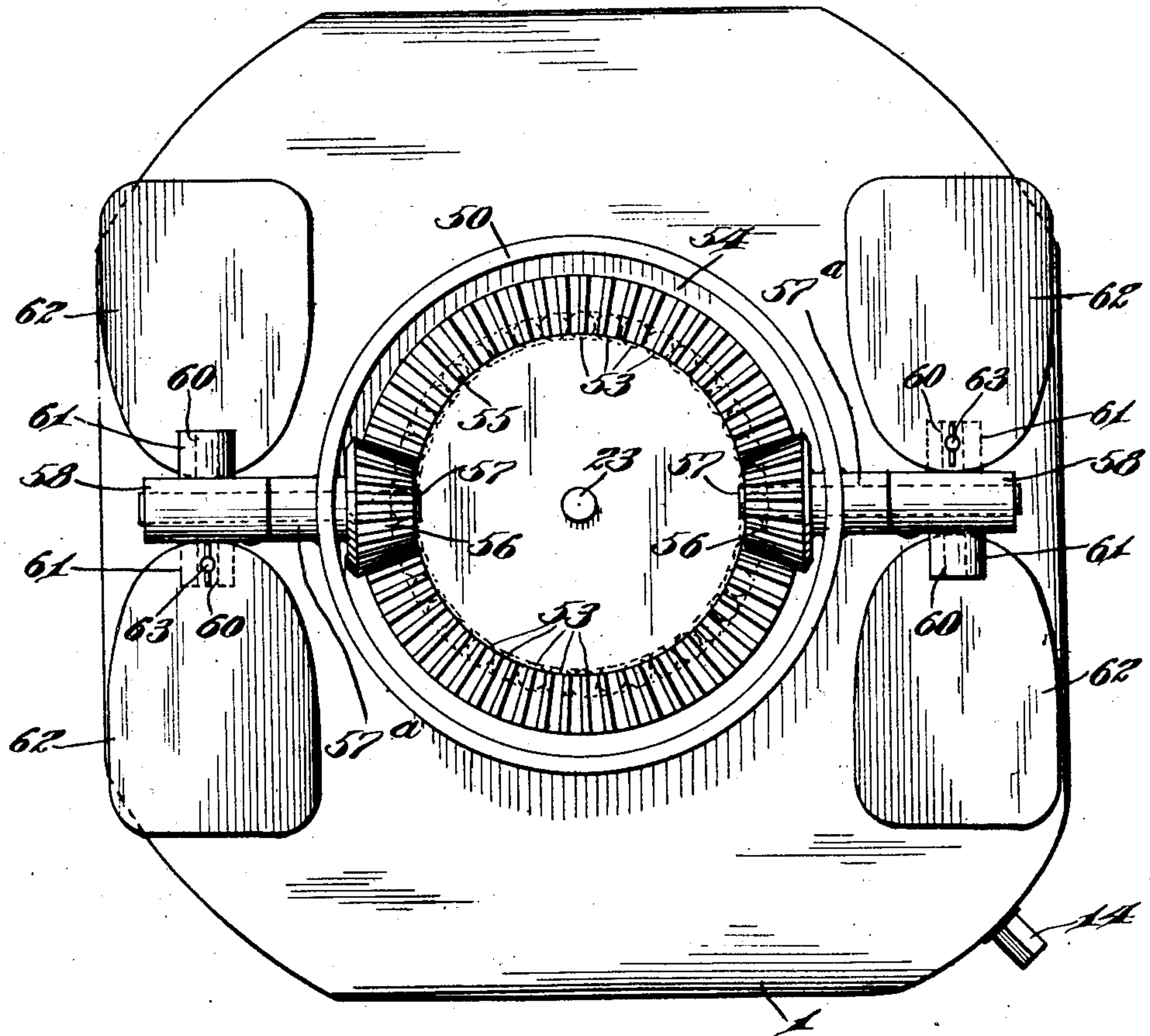
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 3 SHEETS—SHEET 2.

*Fig. 2*



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975,714.

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# UNITED STATES PATENT OFFICE.

DANIEL M. PFAUTZ, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO WILLIAM H. TIGERMAN, OF PHILADELPHIA, PENNSYLVANIA.

SPRING-MOTOR-DRIVEN TABLE-FAN.

975,714.

Specification of Letters Patent.

Patented Nov. 15, 1910.

Application filed January 26, 1910. Serial No. 540,194.

*To all whom it may concern:*

Be it known that I, DANIEL M. PFAUTZ, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Spring-Motor-Driven Table-Fans, of which the following is a specification.

My invention relates to an improved spring motor driven table fan, the object of the invention being to provide improved means for revolving fans supported on a revolving head or support with improved means for transmitting motion from a spring to impart rotary motion to the fans and to the head or support.

A further object is to provide an improved arrangement of gears, an improved casing inclosing them, an improved means for winding the spring, an improved ball bearing mounting for the head and improved mounting for the fan blades which permit them to be turned to any desired angle, all of which results in a device of simple, inexpensive construction, ornamental and attractive in appearance, and strong and durable in use.

With these and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts as will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings, Figure 1, is a view in vertical longitudinal section illustrating my improvements. Fig. 2, is a top plan view. Fig. 3, is a fragmentary view showing the fan blade mounting. Fig. 4, is a view in cross section on the line 4-4 of Fig. 1, and Fig. 5, is a fragmentary view in vertical section illustrating the spring winding mechanism.

1 represents a casing preferably of the shape shown but I do not, of course, limit myself to any particular shape. A horizontal partition 2 is secured in the casing by means of screws 3 and divides the casing into an upper gear chamber 4 and a lower spring chamber 5, the latter closed by a bottom plate 6 secured in place by screws 7.

8 represents a vertical shaft, located centrally in the spring chamber 5, having a thrust bearing 9 in bottom plate 6 and projecting up through partition 2 into gear chamber 4. A sleeve 10 is keyed to shaft 8

in chamber 5 and a large gear wheel 11 is secured to the upper end of the sleeve 10 and is connected by a series of rods 12, with disk 12<sup>a</sup> fixed to the lower end of the sleeve forming a spring casing, and 13 represents a spring secured at its inner end to sleeve 10, wound on the sleeve, and secured at its other end to one of the rods 12.

To wind the spring, a short shaft 14 projects through the wall of chamber 5 and is made angular on its outer end for the reception of a key 15, shown in dotted lines in Fig. 5, to turn the same. A beveled pinion 16, secured on the inner end of this shaft 14 meshes with a beveled pinion 17 fixed to a spur gear 18 and both supported on a short shaft 19 secured in partition 2, and said spur gear 18 meshes with large gear 11 so that the turning of shaft 14 serves to transmit rotary motion to the gear casing to wind the spring. To prevent any retrograde movement of the spring case, a ratchet wheel 20 is secured on shaft 14 and is engaged by a pivoted dog 21 connected to a bracket 22 secured to casing 1.

In gear chamber 4, in line with shaft 8 and projecting up through the top of casing 1 is a shaft 23 which is provided at its lower end with a pin 24, projecting into a socket 25 in the upper end of shaft 8, holding the shafts against lateral displacement but permitting independent rotary movement. Shafts 26 and 27 are also located in chamber 4 at opposite sides of shaft 23 and are supported at their ends in the top of casing 1 and in partition 2. On shaft 8, in chamber 4, a large gear 28 and a small pinion 29 are keyed. The large gear 28 meshes with a small pinion 30, keyed to shaft 26 and a large gear 31 keyed on shaft 26 meshes with a small pinion 32, keyed on a sleeve 33, loose on shaft 23. A large gear 34, keyed on sleeve 33, meshes with a small pinion 35, keyed on a sleeve 36, loose on shaft 26 and a large gear 37, keyed on sleeve 36, meshes with a small pinion 38, keyed on a sleeve 39, loose on shaft 23. A large gear 40, keyed on sleeve 39 meshes with a small pinion 41, keyed on a sleeve 42, loose on shaft 26 and a large gear 43, keyed on sleeve 42, meshes with a small pinion 44, keyed directly to shaft 23, so that the speed of shaft 23 is greatly increased over the speed of shaft 8. The small pinion 29, on shaft 8, meshes with a large gear 45, keyed on shaft 27 and a



small pinion 46, keyed on shaft 27, meshes with a large gear 47, keyed on a sleeve 48, loose on shaft 23, and projecting up through the top of casing 1. The upper end of this sleeve 48, is keyed in a central sleeve or collar 49, in a rotary head 50, having a bottom 51 held in place on shaft 23 by a clamping collar 52. The bottom 51 and top of casing 1 are provided with circular runways for balls 53, reducing friction and noise and resulting in an easy turning head. A partition 54 is secured in head 50 and through which shaft 23, projects and has a large beveled gear 55 secured on its upper end meshing with beveled pinions 56 secured on fan shafts 57 supported in bearings 57<sup>a</sup> at opposite sides of the head 50. Sleeves 58 are secured on shafts 57, by means of screws 59, and these sleeves 58 are provided with radial lugs 60 to receive sleeves or collars 61 at the inner ends of the fan blades 62 and thumb screws 63 are provided in said sleeves or collars 61 and are adapted to engage lugs 60, to lock the blades at the desired angle of adjustment.

In operation, it will be observed that while the fans are revolved the head 50 is slowly turned to blow the air in all directions.

The device is especially adapted for use on dining tables but is also adapted for other uses and I do not restrict myself to the precise details set forth but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

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

1. In a fan, the combination with a casing, of a rotary head on the casing, fans on said head, a spring driven shaft in the casing, a fan driving shaft in the casing projecting up into the head, means for transmitting rotary motion from the fan driving shaft to the fans, a train of gearing connecting the spring driven shaft and fan driving shaft, a sleeve keyed to the head and projecting into the casing, and a train of gearing transmitting motion from the spring driven shaft to said sleeve.

2. In a fan, the combination with a casing, of a rotary head on the casing, fans supported at opposite sides of the head, a

shaft projecting through said head and into the casing, and around which said head turns, a large gear on the upper end of said shaft, fan driving pinions meshing with said large gear, a sleeve secured to the head located around said shaft, and projecting into the casing, a spring, and gearing between said spring and said shaft for revolving the fans, and between said spring and said sleeve, for turning the head, substantially as described.

3. In a fan, the combination with a casing, of a rotary head on the casing, fans at opposite sides of the head, a shaft projecting through the head and into the casing, devices at the upper end of said shaft for turning the fans, a sleeve secured to said head and located around said shaft, and projecting into the casing, gears on said shaft and said sleeve in the casing, shafts in the casing parallel with the first mentioned shaft, a gear on one of said shafts engaging with the gear on the first mentioned shaft, a gear on the other of said shafts engaging the gear on the sleeve, and a spring in said casing transmitting motion to both of said last mentioned shafts, substantially as described.

4. In a fan, the combination with a casing, of a rotary head on the casing, fans at opposite sides of the head, a shaft projecting through the head and into the casing, devices at the upper end of said shaft for turning the fans, a sleeve secured to said head and located around said shaft, and projecting into the casing, gears on said shaft and said sleeve in the casing, shafts in the casing parallel with the first mentioned shaft, a gear on one of said shafts engaging with the gear on the first mentioned shaft, a gear on the other of said shafts engaging the gear on the sleeve, a spring in said casing, a short shaft turned by said spring, gears connecting said short shaft with the two last mentioned shafts, and means for winding said spring, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DANIEL M. PFAUTZ.

Witnesses:

S. W. FOSTER,

J. A. L. MULLHALL.