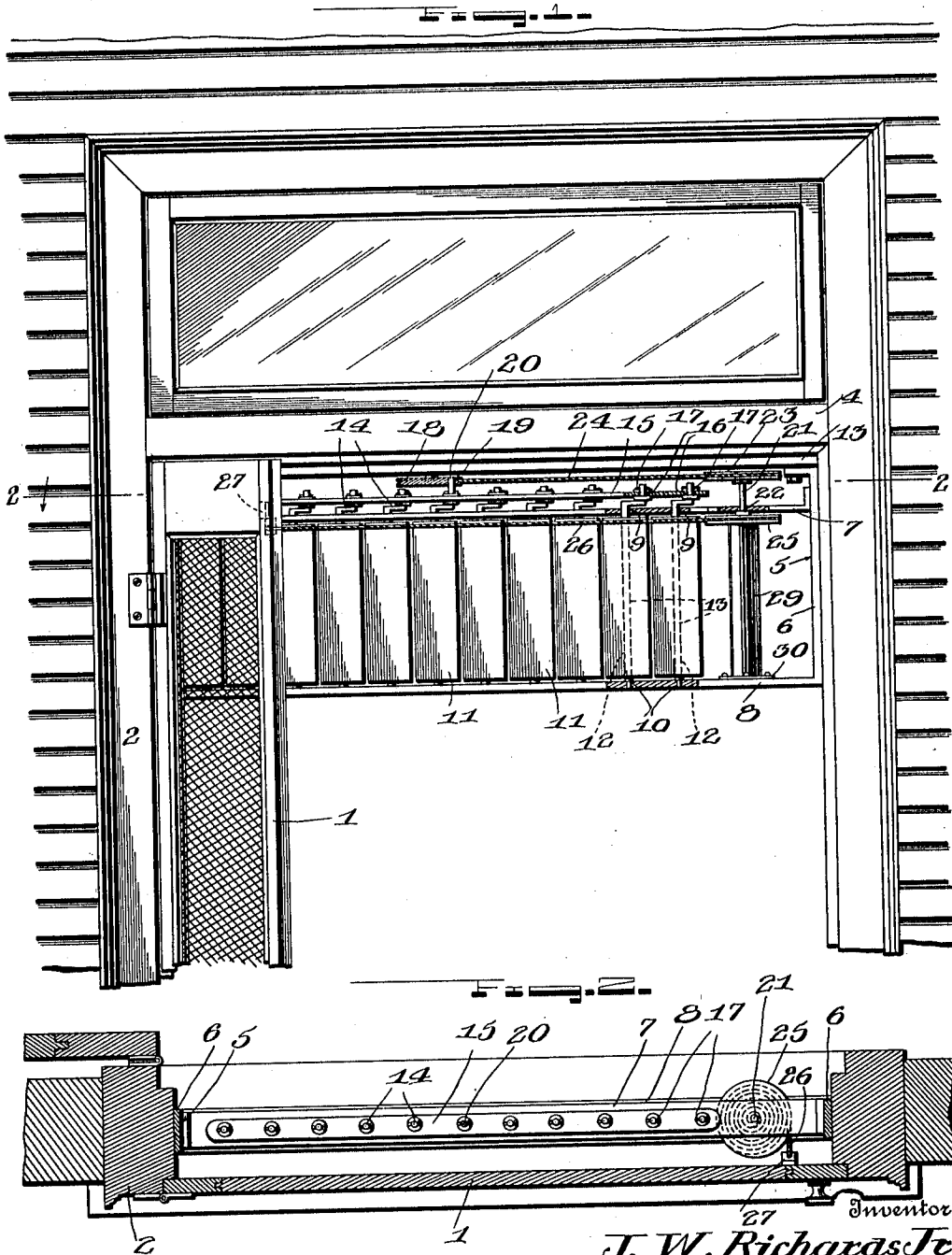


J. W. RICHARDS, JR.
 FLY FAN.
 APPLICATION FILED NOV. 21, 1911.

Patented Sept. 24, 1912.
 2 SHEETS—SHEET 1.

1,039,196.



Witnesses
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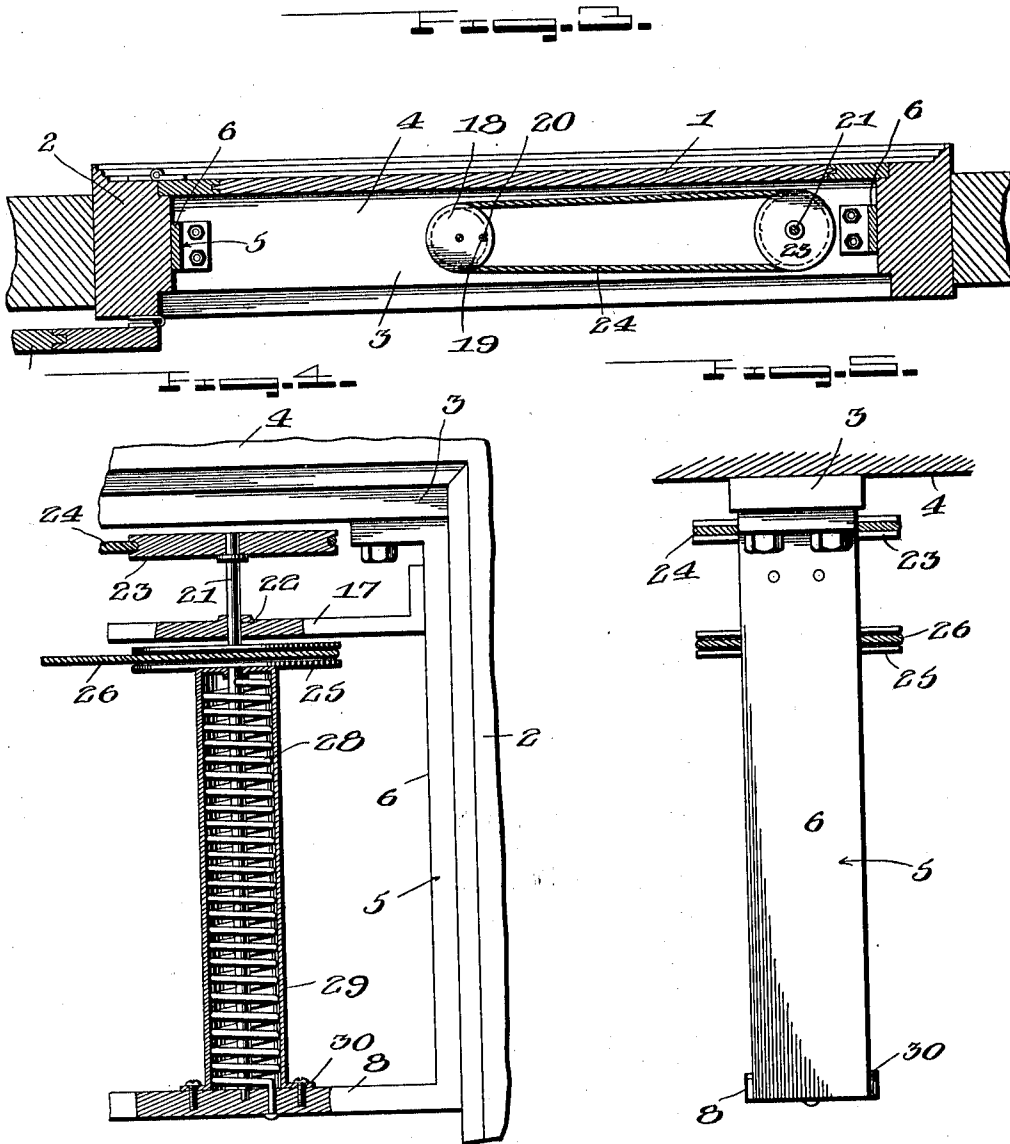
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UNITED STATES PATENT OFFICE.

JOHN W. RICHARDS, JR., OF FLINT, MICHIGAN.

FLY-FAN.

1,039,196.

Specification of Letters Patent.

Patented Sept. 24, 1912.

Application filed November 21, 1911. Serial No. 661,487.

To all whom it may concern:

Be it known that I, JOHN W. RICHARDS, Jr., a citizen of the United States, residing at Flint, in the county of Genesee and State of Michigan, have invented certain new and useful Improvements in Fly-Fans, of which the following is a specification.

This invention relates to fly fans adapted for use in connection with screen doors, and has for its object to produce a device of this character which may be easily and quickly attached to the upper sill of a door frame, and between the screen door and usual door.

A further object of the invention is to provide a device of this character with a spring adapted to be wound when the screen door is opening, the resultant tension of the spring acting to close the door, thus eliminating separate door closing springs.

A still further object is to provide a fan that will operate upon the initial opening movement of the door.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter described, illustrated in the accompanying drawings, and pointed out in the claim hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claim may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings: Figure 1 is a front elevation of a screen door and a portion of a building, the door being shown in its open position, and the fan attached. Fig. 2 is a sectional view on the line 2—2 of Fig. 1. Fig. 3 is a similar view, looking toward the top of the door frame. Fig. 4 is a detailed sectional view of the spring and its connected parts. Fig. 5 is an end view of the device.

Referring to the drawings, the numeral 1 designates a screen door, the same being hingedly connected to the casing 2, and in the usual manner.

The device consists of a supporting bar 3, the same being adapted to be secured to the upper sill 4 of the door frame in any suitable manner. Secured to the under surface of the supporting bar 3 is a rectangular frame 5, said frame consisting of vertical

end bars 6 and upper and lower horizontal bars 7 and 8 respectively, said bars being arranged in spaced parallel relation. The bar 7 is provided with a series of alined perforations 9, said perforations being in direct alinement with sockets 10 formed in the lower bar 8.

Arranged between the upper and lower bars 7 and 8 is a plurality of vertically disposed fan blades 11, each of which being provided with a central bore 12, the bore of each blade being adapted to register with the perforations 9 of the upper bar 7 and the sockets 10 of the lower bar 8. Passing through the bores 12 of the blades are shafts 13, the lower ends of which project slightly beyond the lower edges of said blades and are seated in the sockets 10. The upper ends of the shafts 13 pass through the perforations 9 in the upper bar 7 and are formed with crank arms 14. A link 15 is provided and is formed throughout its length with a plurality of spaced perforations 16, and in which the crank arms engage. The link 15 is held against accidental displacement by cotter pins 17 which are passed through the crank arms of the endmost shafts.

Rotatably secured to the central under surface of the supporting bar 3 is a grooved pulley 18, said pulley being provided with an eccentrically arranged aperture 19, and in which is loosely journaled the upper extended end 20 of the centrally located shaft.

Mounted adjacent one of the side bars 6 is a shaft 21, the lower end of which is journaled in the lower bar 8, and the upper end thereof being passed through a perforation 22 formed in the upper bar 7. The upper end of the shaft 21 extends upwardly and has secured to its extreme upper end a grooved pulley 23, said pulley being arranged in direct alinement with the pulley 18. Passing around the pulleys 18 and 23 and operatively connecting the same, is an endless belt 24, the purpose of which will be hereinafter described.

Fixed to the shaft 21 and immediately below the upper bar 7 is a drum 25, and around which is wound a cord 26, the outer end of said cord being detachably connected in any suitable manner to a bracket 27 carried by the screen door. A coil spring 28 surrounds the shaft 21 and has its upper terminal secured thereto, while the lower terminal of said spring is secured in the lower

bar 8. Adapted to inclose the spring 28 is a casing 29, the lower end of which is provided with outwardly extending flanges 30, and by which said casing is rigidly connected to the lower bar 8.

From this construction it will be seen that upon opening the screen door the cord 26 will unwind and rotate the drum 25, thus causing the tensioning of the spring 28 and rotating the pulley 23, which in turn, through the belt 24 similarly operates the pulley 18, which during its rotation will cause the link 15 to oscillate and impart rotatory movement to the fan blades 11 through their shafts and crank arms 12 and 14, respectively. Upon a person freeing the door, the spring 28 will be relieved of the tension and will cause the drum 25 to rotate in the opposite direction, thus pulling the door to its closed position, and consequently reversing the rotation of the fan blades 11, which action preventing flies from entering the building during the opening and closing of the screen door. Thus it will be seen that by providing the pulley 18 with the eccentrically arranged aperture 19 all of the fan blades 11 will be operated simultaneously during the opening and closing of the screen door.

What is claimed is:

A fly fan comprising a supporting bar adapted to be secured to the upper sill of a door frame, a frame supported by said bar and consisting of end, and upper and lower

bars, the upper bar being provided with a series of spaced perforations, sockets formed in the lower bar, a plurality of fan blades mounted between said bars, shafts passing through the perforations in the upper bar and through said blades, the lower ends of said shafts being seated in the sockets of the lower bar, crank arms formed upon the upper ends of said shafts, a link pivotally connected to said crank arms, a pulley rotatably supported by the supporting bar, one of said crank shafts being eccentrically connected to said pulley, a shaft rotatably mounted adjacent one of the end bars, a second pulley fixed to the upper end of said shaft, an endless belt operatively connecting said pulleys, a drum connected to said shaft, a cord wound upon said drum and having its ends adapted to be connected to a screen door, a spring surrounding said shaft and having one of its ends secured thereto and its other end secured to the lower bar, whereby when said door is opened or closed, said drum will rotate said shaft and pulleys to oscillate the link to simultaneously rotate said blades, said spring acting to positively close the door.

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

JOHN W. RICHARDS, JR.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."