(No Model.) 2 Sheets—Sheet 1.

J. BURKY.

WINDMILL.

No. 322,345. Patented July 14, 1885.

Fig. 2.

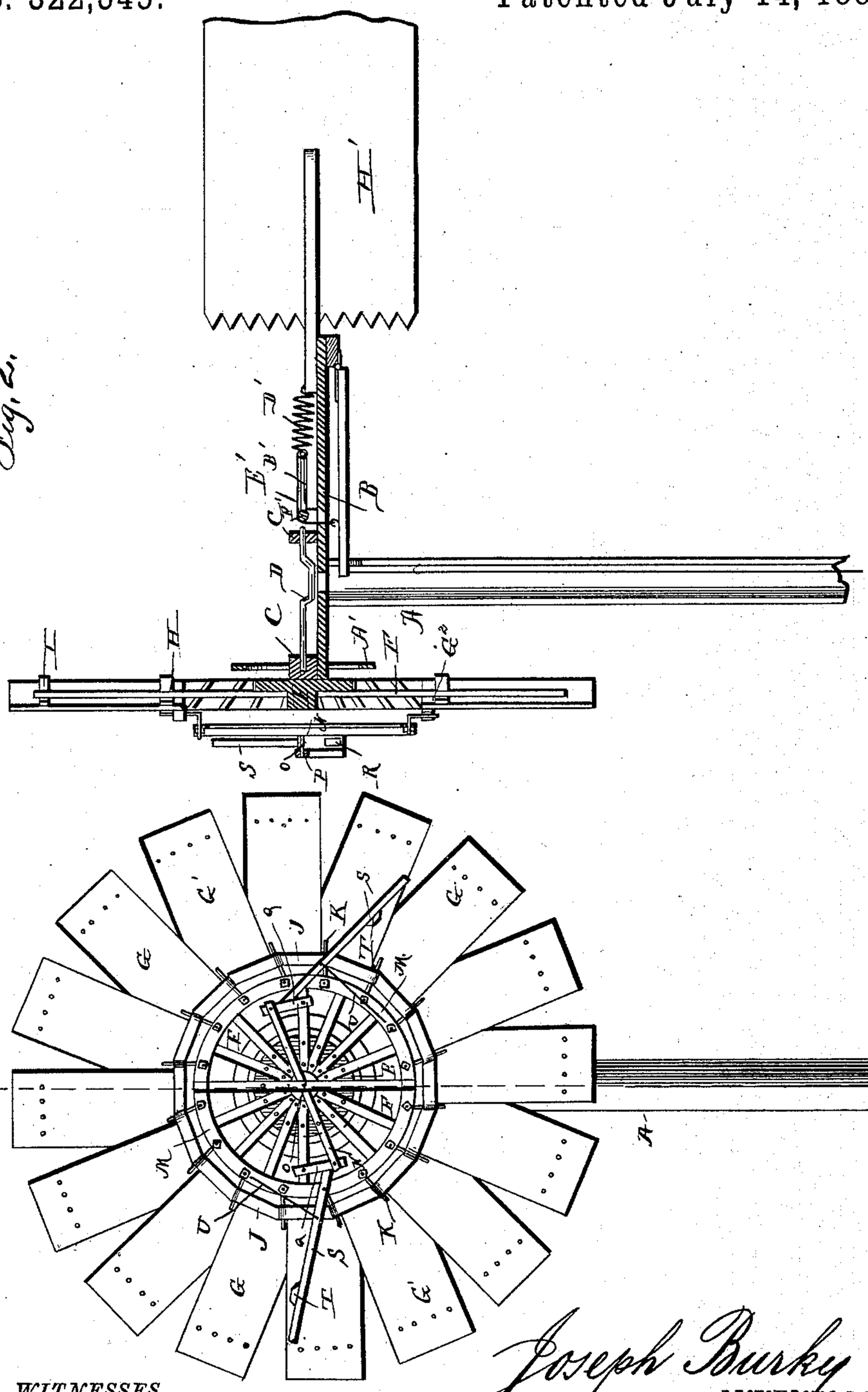

Fig. 1.

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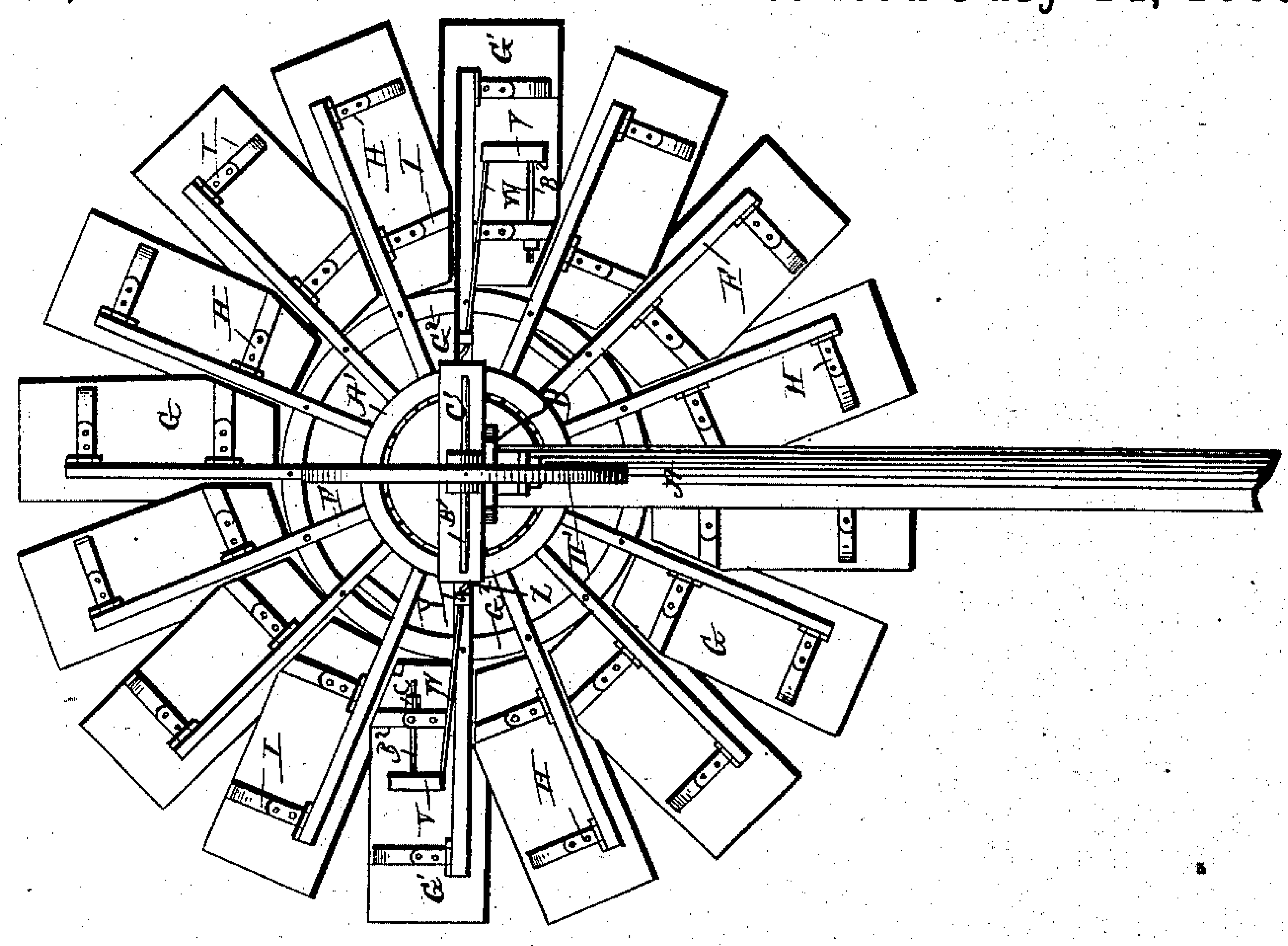

Fig. 4.

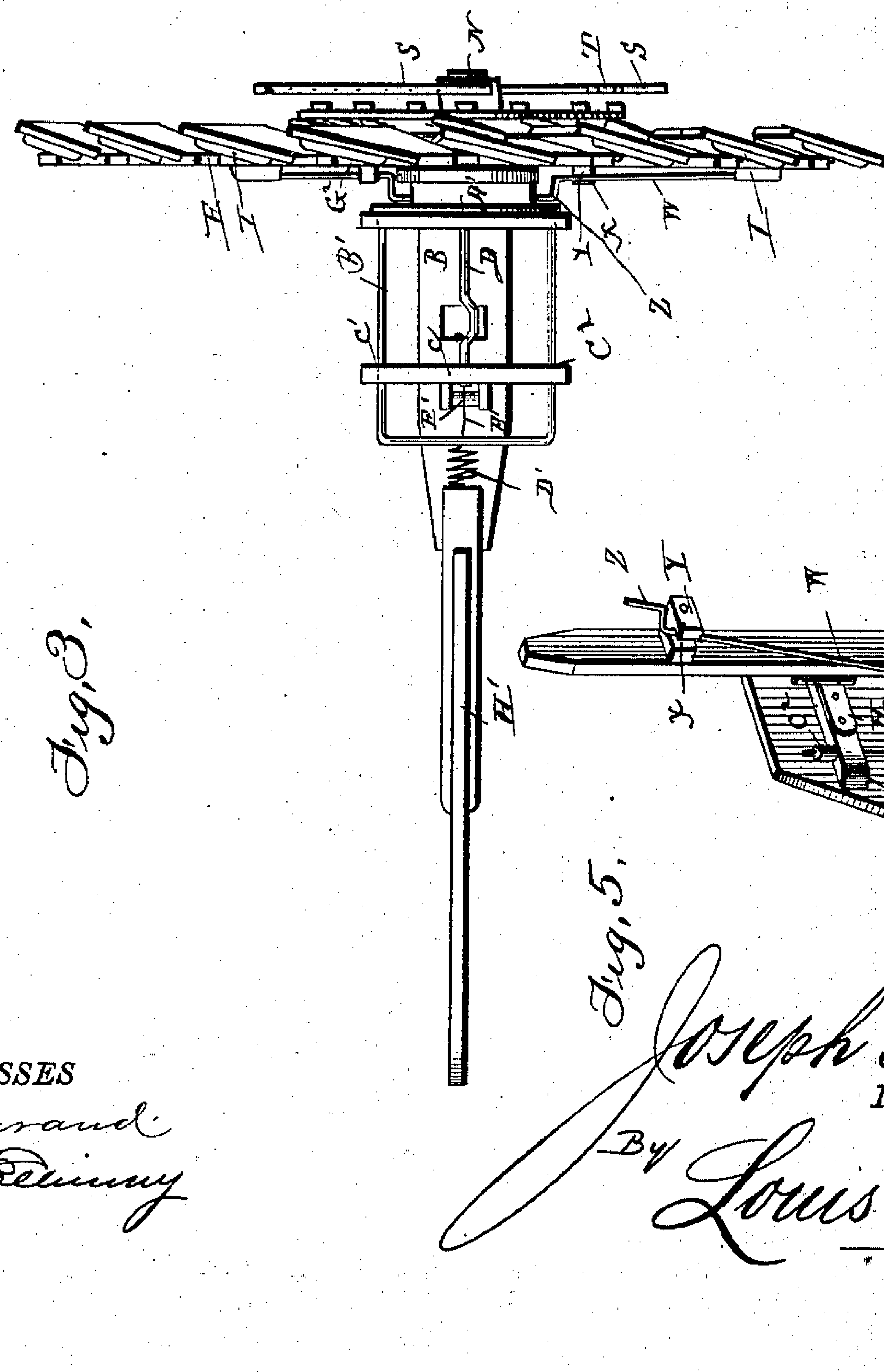

Fig. 3.

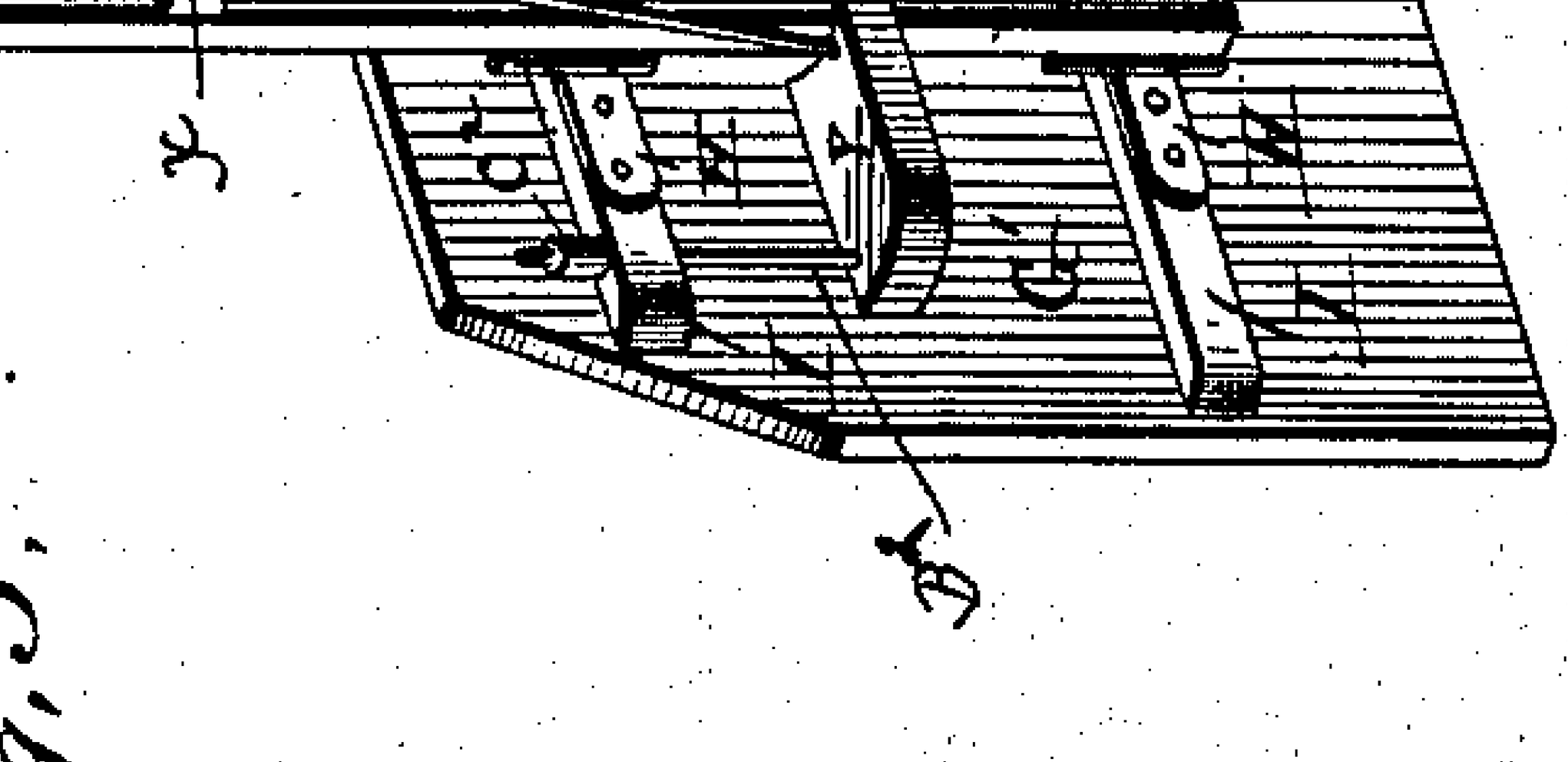

Fig. 5.

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UNITED STATES PATENT OFFICE.

JOSEPH BURKY, OF GRIDLEY, ILLINOIS.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 322,345, dated July 14, 1885.

Application filed April 22, 1885. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH BURKY, a citizen of the United States, and a resident of Gridley, in the county of McLean and State of Illinois, have invented certain new and useful Improvements in Windmills; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a front view of my improved windmill. Fig. 2 is a vertical sectional view of the same taken on the line *x x* in Fig. 1. Fig. 3 is a top view. Fig. 4 is a rear view of the wind-wheel, and Fig. 5 is a detail view of one of the operating-vanes.

The same letters refer to the same parts in all the figures.

This invention relates to windmills; and it has for its object to provide a device of this class which shall possess superior advantages in point of simplicity, durability, and general efficiency.

With these ends in view it consists in the improved construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, A designates a suitably-mounted vertical cylindrical post or tubular shaft, the upper end of which is provided with a cross-piece, B, having transverse braces C C, affording bearings for a longitudinal crank-shaft, D, on the front end of which is mounted a hub, E, to which a series of radial arms, F F, are bolted or otherwise secured. The said arms F F are connected by means of an annular ring, G^2, which is bolted or otherwise secured to the front side of the said arms.

G G are the wings or vanes, which are secured to the arms F F by means of hinges H H, attached to the ends of cross-braces I I upon the rear or inner sides of said wings, which are thus permitted to turn from their normal diagonal position to a position at which their edges shall be presented to the wind, thereby placing the wheel in an inoperative position. The lower or inner edges of the wings or vanes are provided with laterally-extending brackets J J, in which are mounted swiveled rods K, the inner ends of which are provided with cranks L, which are journaled in a ring or band, M. Said ring or band is provided with a cross-brace, N, journaled upon a pin or stud, O, which extends rearwardly from a cross-bar, P, connecting a pair of blocks, Q Q, which are secured to the front sides or faces of the radial arms or spokes F of the wheel on diametrically opposite sides.

The blocks Q Q are provided with slots or openings R R, in which are hinged a pair of arms or bars, S S, which are provided with adjustable weights T T, tending by centrifugal action to throw the said arms into a radial position when the wheel revolves rapidly. The said arms are connected by pivoted rods U U with the ring or band M, which latter, when the arms S are thrown into a radial position, turns upon the center pin, O, thereby turning the vanes out of the wind and retarding or stopping the motion of the wheel.

Two of the vanes, which are located on diametrically-opposite sides of the wheel, and which are designated by letters G′ G′, are provided on their rear sides with pivoted blocks V, to which are attached suitably-constructed springs W W, the inner ends of which are adjusted in recesses X formed in plates Y, which are mounted upon the radial rods or spokes carrying the said wings or vanes G′. By the action of these springs the entire set of vanes will be automatically restored to their normal position when the motion of the wheel slackens.

The tension of the spring-bars W may be regulated by means of bolts B^2, connecting the opposite ends of the pivoted blocks V with the inner cross-bars I, and having adjusting-nuts C^2.

The inner ends of the spring-bars W are formed with cranks Z, by means of which they may be turned so as to turn the vanes out of the wind. The said cranks are adapted to bear against the front side of a flat ring, A′, secured upon the front end of a bail, B′, which is arranged to slide longitudinally in suitable bearings, C′, on top of the wheel tower or post. The said bail is connected with a spring, D′, which serves to draw it automatically in a rear-

ward direction. E′ is a cord or chain, which is also attached to the said bail B′, and which passes over suitably-arranged guides or pulleys F′ to some point at which it may be conveniently reached and manipulated. It will be seen that by pulling the said rope the bail B′ is drawn in a forward direction, thereby pushing the ring B′ against the cranks Z, thereby turning the vanes out of the wind.

The rear end of the cross-piece B upon the upper end of the tubular post A carries the tail-vane H′, the functions of which are well known.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood.

The construction is simple and inexpensive, and the wheel may be operated by hand or automatically in the manner and by the mechanism herein described.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a windmill, the herein-described wheel, consisting of a hub having radial arms, the vanes hinged to the said arms, a pair of blocks secured to the front sides of the said arms on diametrically-opposite sides, a cross-bar connecting the said blocks and having a center pin or pivot, a ring having a cross-bar by which it is mounted to turn and to slide upon the said center pin, swiveled cranks connecting the said ring with the free corners of the vanes, and a pair of centrifugal arms pivoted in the blocks upon the face of the wheel, and connected with the adjusting-rings by pivoted rods, substantially as and for the purpose herein set forth.

2. The combination of the crank-shaft, the hub having radial arms or spokes, the vanes hinged to the latter, the adjusting-ring connected with the free corners of the vanes by swiveled cranks, the centrifugal arms connected with the adjusting-ring by pivoted rods, the spring-rods attached to the rear sides of several of the vanes and having cranks at their inner ends, and a ring mounted upon a longitudinally-sliding bail and adapted to bear against the said cranks, substantially as and for the purpose herein set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

JOSEPH BURKY.

Witnesses:

JACOB DANNER,

HIRAM COLLMAN.