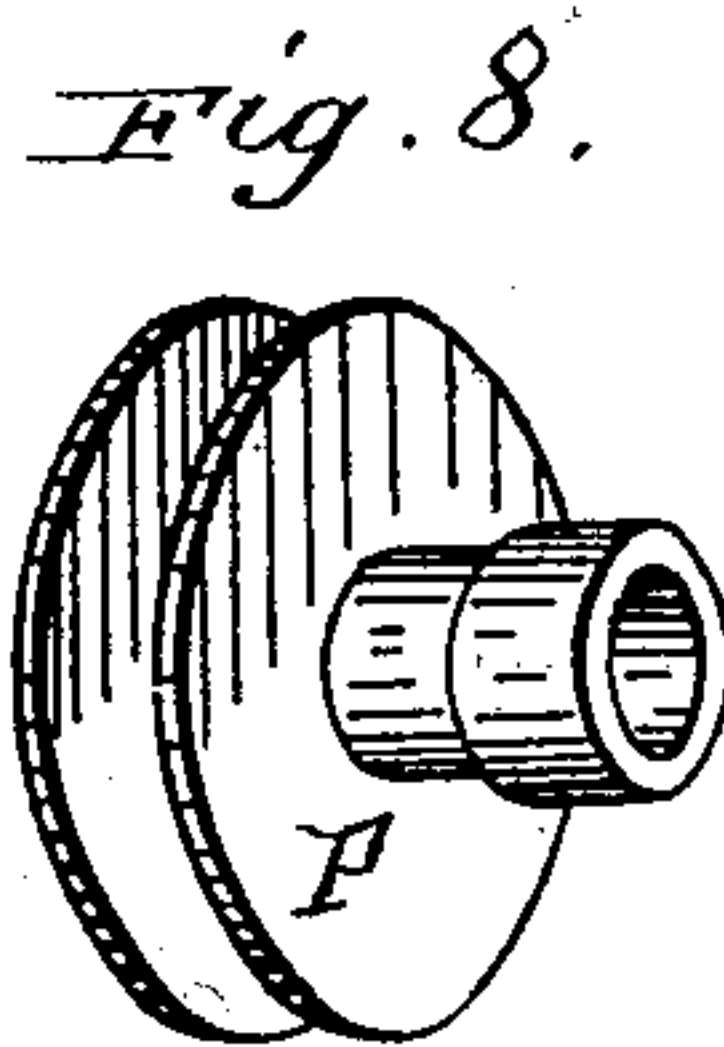
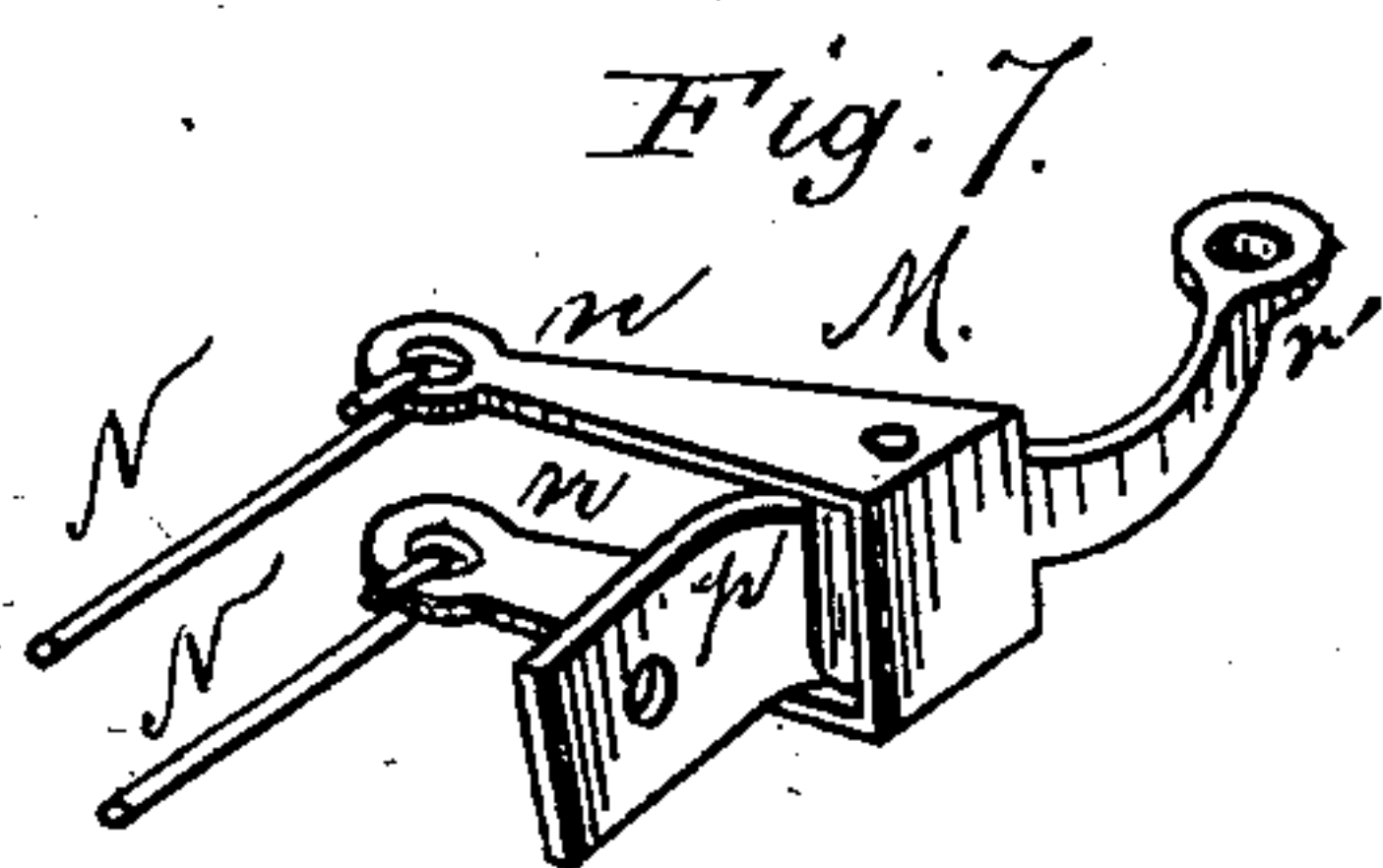
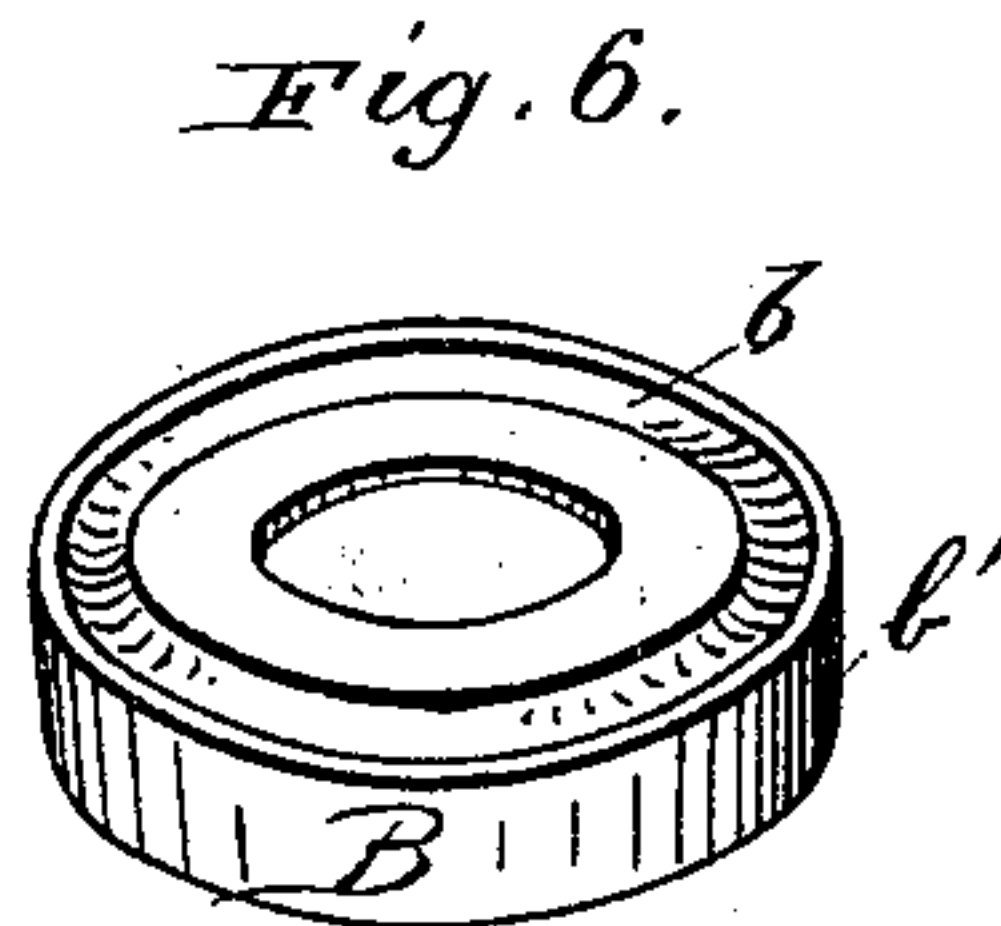
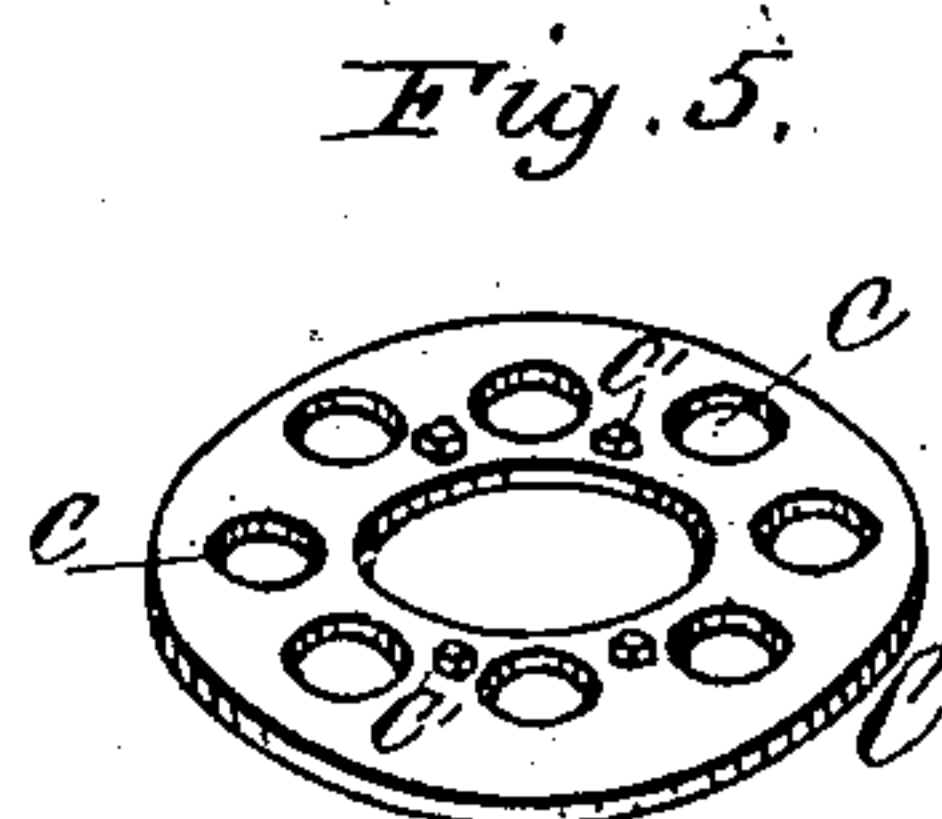
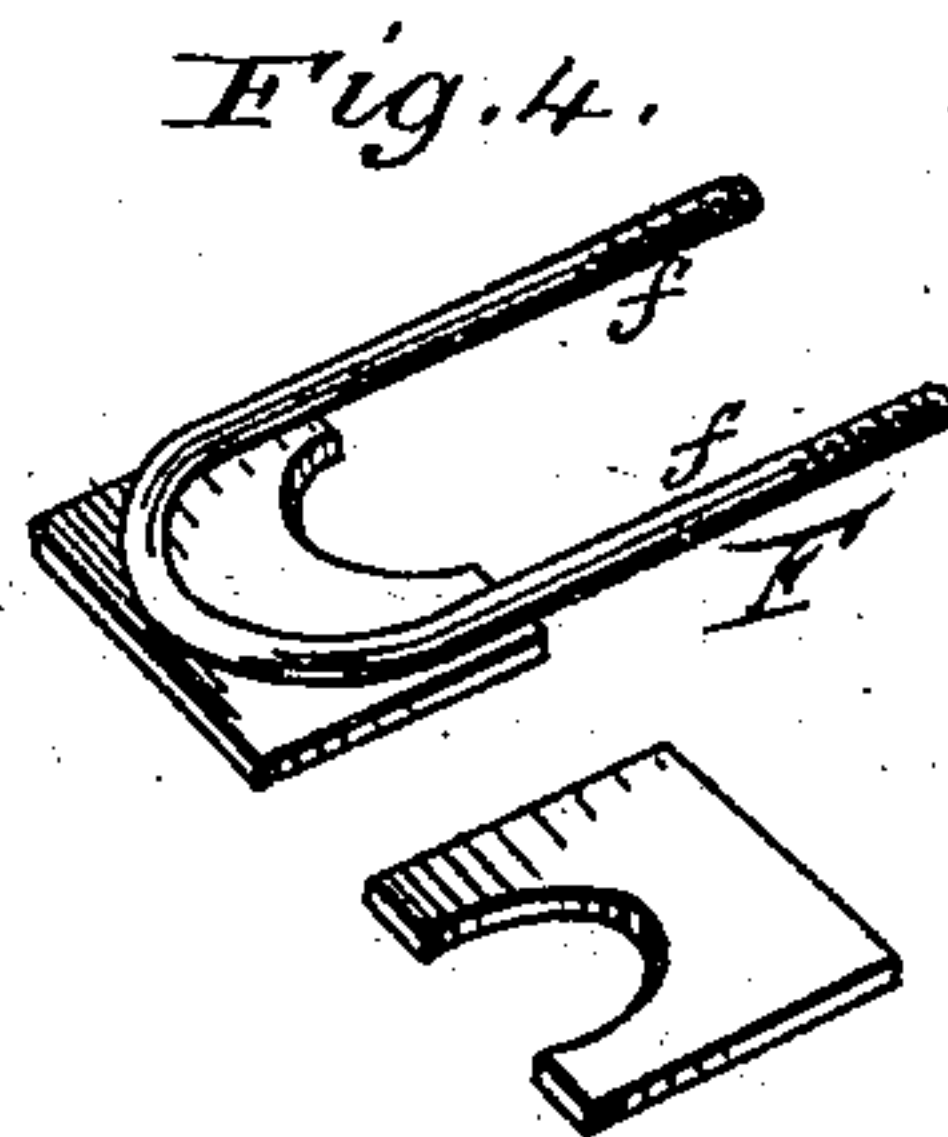
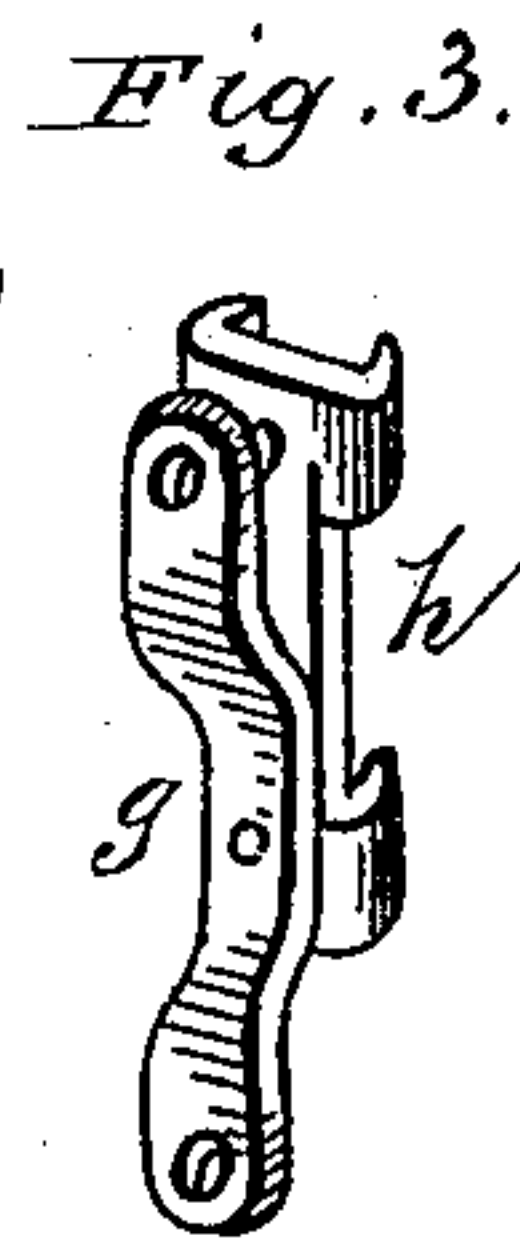
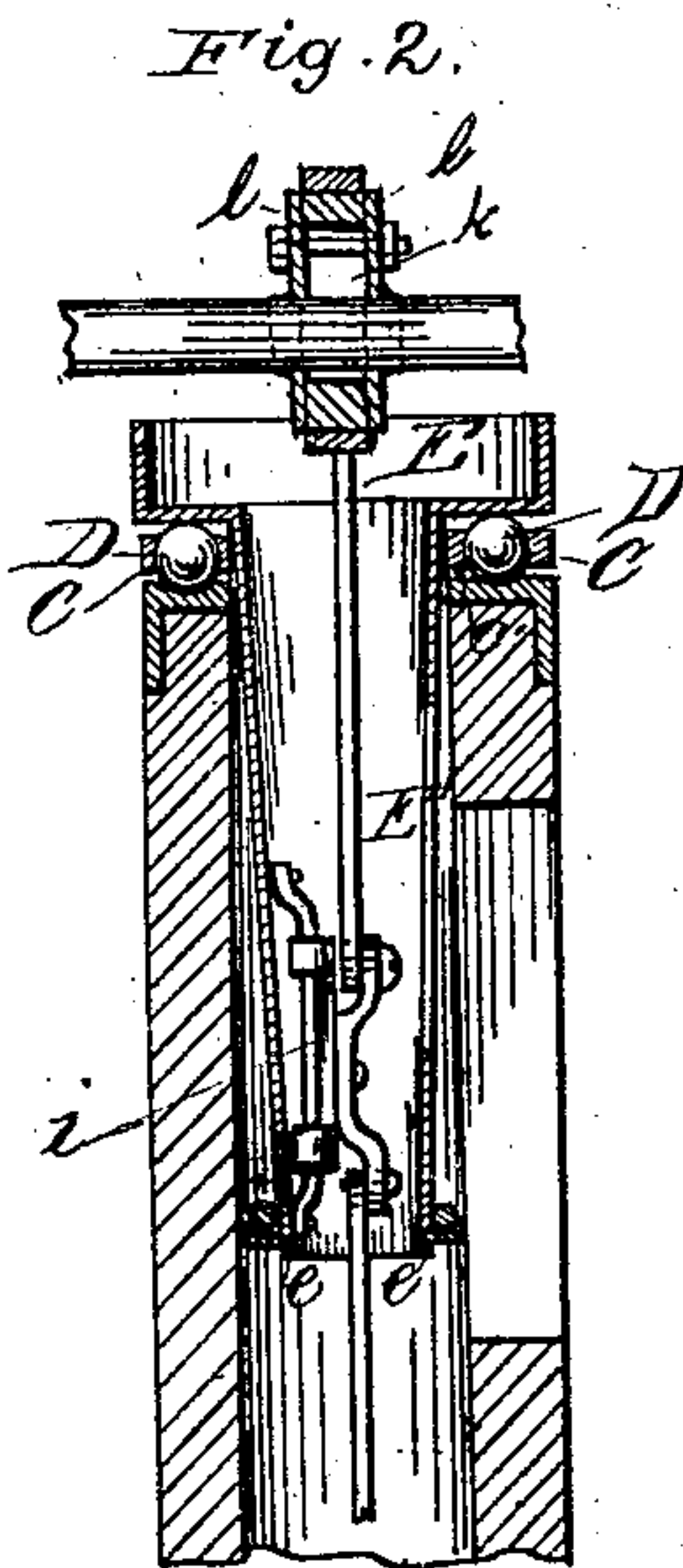
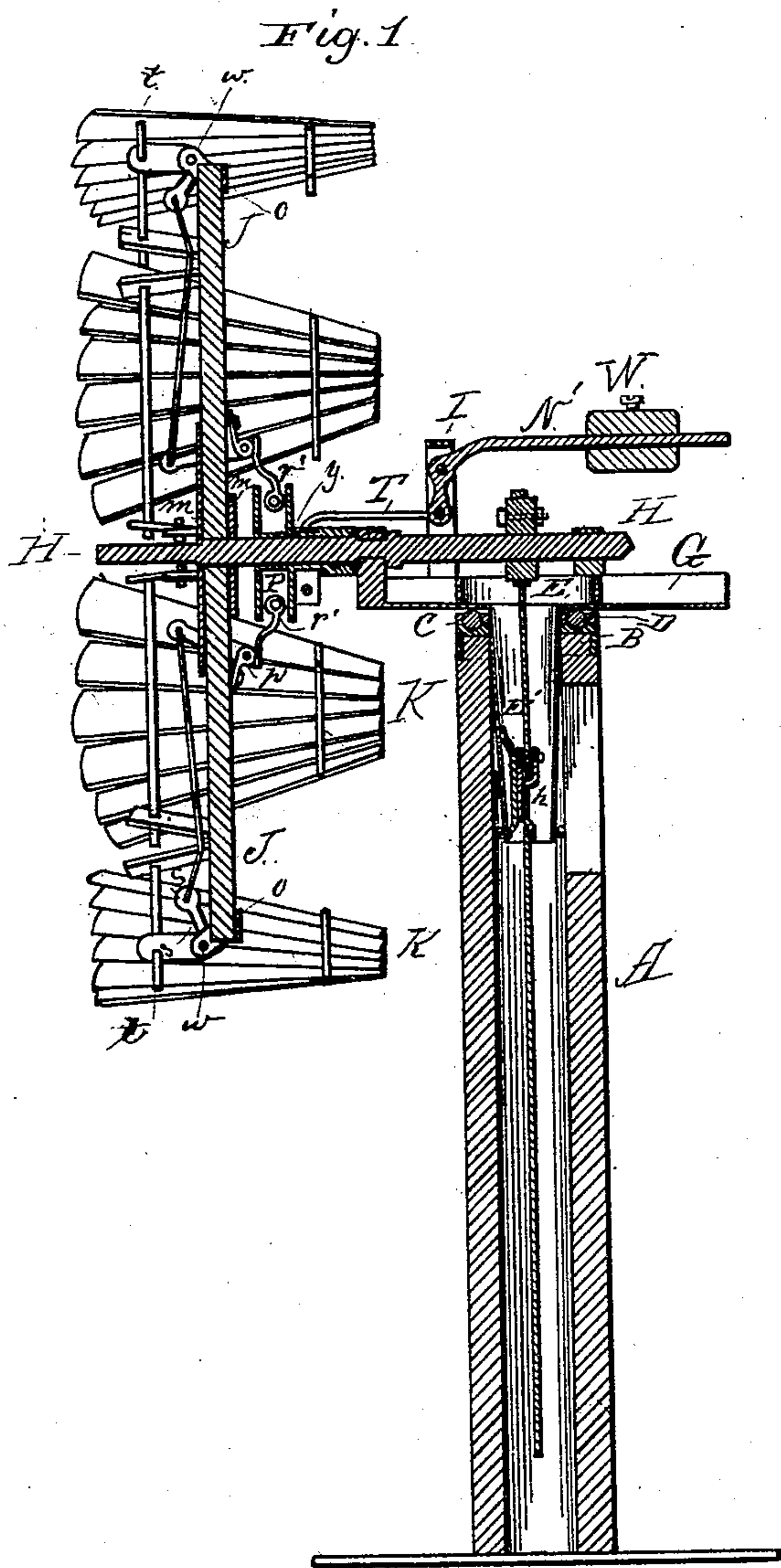


(No Model.)

M. A. BUTTON.
WINDMILL.

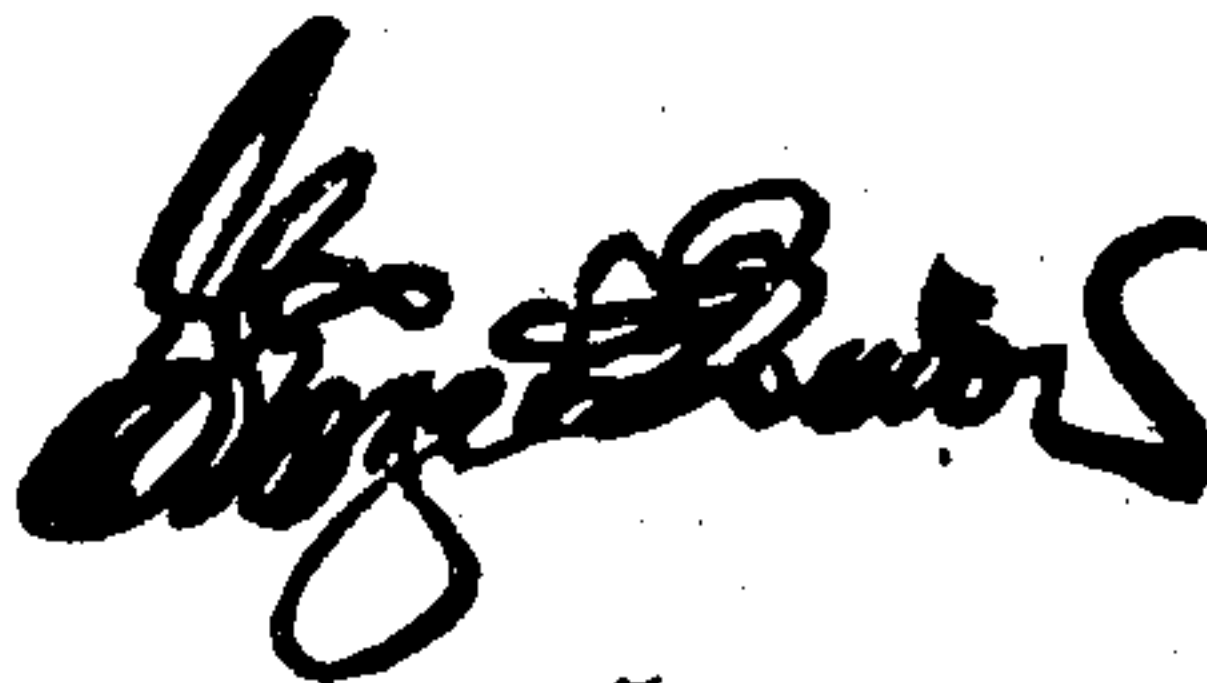
No. 275,137.

Patented Apr. 3, 1883.



Witnesses:
E. M. Johnson
Lamarch Duwall.

Inventor:
Melamed H. Button.

By 
Attorney.

UNITED STATES PATENT OFFICE.

MILADORE A. BUTTON, OF EL DORADO, KANSAS.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 275,137, dated April 3, 1883.

Application filed October 25, 1882. (No model.)

To all whom it may concern:

Be it known that I, MILADORE A. BUTTON, a citizen of the United States of America, residing at El Dorado, in the county of Butler and State of Kansas, have invented certain new and useful Improvements in Windmills; 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in windmills; and it consists in the novel means of connecting and operating the wings, which adjust themselves in and out of the wind, and in the novel construction, arrangement, and combination of the parts, as will be hereinafter described, and pointed out in the claims.

In the annexed drawings, Figure 1 is a vertical section of my improved windmill, in which the wings are shown thrown out of the wind. Fig. 2 is a vertical section of the supporting-table, eccentric, and reciprocating slides. Figs. 3, 4, 5, 6, 7, and 8 are detailed perspective views.

The object of this invention is to provide a wind-wheel with wings which will readily throw themselves in and out of the wind, and which are operated automatically, another object of my invention being to reduce the number of the operating parts and render the wheel lighter, which is accomplished by the construction and arrangement of the parts.

In the accompanying drawings, A represents the upper portion of the frame upon which all the parts of the operating mechanism are supported. Attached to the top of this frame or support is a cap, B, which has in its upper portion a circular depression, *b*, and downward-projecting side walls, *b'*, which embrace the upper portion of the frame. This cap B has a central opening, through which passes the eccentric-rod. Above this plate or cap is placed an annular perforated disk, C, which is provided near its central opening with lugs or blocks *c'*. The perforations *c* are for the reception of balls D, upon which rests

the frame which carries the operating parts of the wind-engine. These balls form anti-friction bearings upon which the upper story of the windmill rotates. The perforated disk holds the balls in place, and it is held so as to bear upon the central portion of the balls by the lugs *c*, which prevent the disk from resting upon the cap.

The frame E, to which the operating parts of the wind-wheel are attached, and which rests upon the cap B, is provided with a hollow downwardly-projecting portion, *E'*, which tapers from its upper end downwardly, one side of it being cut away, so as to allow access to the slide *h*, which is connected to the shaft of the wind-wheel by a rod and eccentric, and is moved up and down by the same. The lower end of this conical portion *E'* of the frame E is provided with recesses *e e*, which are embraced by the clamps F F, which are secured within the hollow portion of the support A. One of these clamps is provided with screw-threaded arms *f f*, which pass through and are bolted to the frame. These clamps prevent the turn-table from being vertically displaced and allow the same to rotate freely.

To the inner side of the downwardly-projecting cone *E'* is bolted a guide, *i*, which is embraced by the slide *h*, which is attached to the link *g*, the ends of which are bent downward. To the ends of this link are attached the rods which connect the eccentric and device which it is desired to operate. The eccentric, which is attached to the horizontal shaft of the wind-wheel, is made so as to be adjustable for varying the throw and movement of the operating-rods.

The plate *k*, which forms the eccentric proper, and which is embraced by the ring on the end of the rods, is slotted, so as to slide or be adjustable upon the shaft, and it is held firmly to the shaft by the side plates, *l l*, which are rigidly attached to the shaft and provided with a set-screw, which clamps the parts together.

The cap or rotary part of my windmill is provided at one end with an extension, G, for the attachment of the tail or vane, and it is also provided with a similar extended portion on the opposite end, to which is attached the

shaft-bearing, another bearing being provided rear of the eccentric. Forwardly from this cap E extends a strap, I, which is united at its upper end, the lower end being bifurcated, and straddles the shaft.

The shaft H has attached near its outer end two small plates, *m m*, which are secured rigidly to the shaft and embrace the inner end of the arms of the wind-wheels, so that the same will not become displaced and will revolve with the shaft.

The radial arms J J of the wheel, of which there are an equal number, preferably eight, support between them a series of wings, K K, which form the wind-wheel proper. These arms J J are embraced on their outer ends by the clamps *o o*, having eyes which project beyond the end of the same and at an angle therewith. To the lower part of every other one of these radial arms J is attached a bearing-plate, *p*, to which are pivoted bell-crank levers M, having arms *n n*, which extend over the arms of the wind-wheel. These levers or bell-cranks are of the shape shown in Fig. 7.

To the upper end of the wings K, which are composed of a series of tapering fans set in an inclined position in slotted cross-bars, are attached bell-cranks *s s*, which are secured to the upper ends of the cross-bars *t t*, at right angles with the same, and they are pivoted to the radial arms J J by a rod, *w*, which passes through the eyes of the bell-cranks *s s* and the eyes on the sockets *o o* at the ends of the arms. These rods *w* are screw-threaded at their ends and provided with nuts, and, besides holding the wings to the arms, they serve to strengthen the wheels by uniting the radial arms to each other.

The bell-cranks M, which are arranged adjacent to each other on every other one of the radial arms J, are connected to each other by the rods N N in front of the wheel. By this arrangement each of the bell-cranks with double arms operates a pair of wings, and consequently less operating parts are required and a lighter wheel is produced.

Upon the shaft H, between the front bearings of the same and rear of the radial arms, is placed a sliding plate, P, which embraces the end *r'* of the bell-crank M. This sliding plate P is provided with a collar, *y*, which rotates freely upon the rearwardly-projecting hub of the same. This collar has side pins or projec-

tions, over which fit the eyes on the end of the rod T T, which rod is connected to the lever N', said lever being pivoted in the support I, attached to the cap. This lever N' is provided with an adjustable weight, W, by which the position of the wings is governed according to the strength of the wind, as is usual in this class of mills.

It will be noticed that by the construction of the connecting parts I provide a wheel which is light and strong, and that the operating parts are simple and not liable by their arrangement to interfere with the movement of the wings, and that I reduce the friction on the sliding collar by making one set of bell-cranks operate two of the wings. It will also be noticed that the radial arms are braced and connected to each other by the rods which attach the wings to the same.

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

1. The wind-wheel-supporting table E, having downward-extended portion E', with recesses *e e*, in combination with the plates F F, having bolts *f f*, and frame A, substantially as described, and for the purpose set forth.

2. The rotary table E, with hollow downward portion E', having attached thereto guide *i*, clamp *h*, and link *g*, said link being connected to the operating-shaft of the wind-wheel, substantially as shown.

3. In a windmill, the combination of the pivoted wings K, radial arms J, attached rigidly to the shaft, and provided on their ends with sockets *o*, having inclined ears, the wings being provided with cross-bars *t*, with arms *s s*, connected to said sockets by a cross-rod, *w*, said wings being connected by rods N to the bell-crank M, which is pivoted near the base of said arms J, and provided with a single rear arm, *r'*, which is embraced by a sliding socket having collar *y*, connecting-rod T, and weighted lever N', the parts being combined and organized substantially as described and shown.

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

MILADORE A. BUTTON.

Witnesses:

W. A. SALLEE,
J. T. DUNLAP.