

2 Sheets—Sheet 1.

Patented July 15, 1890.



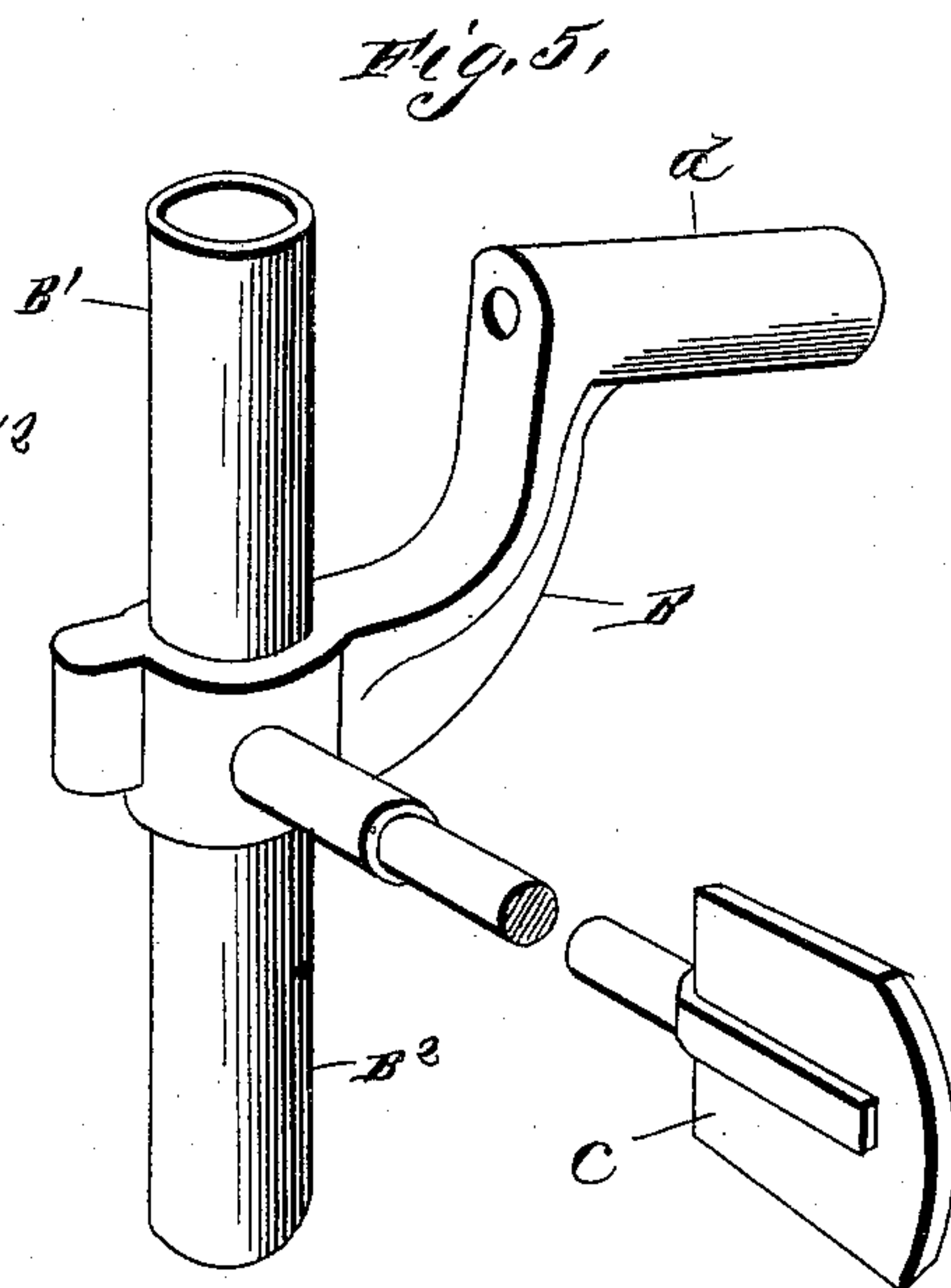
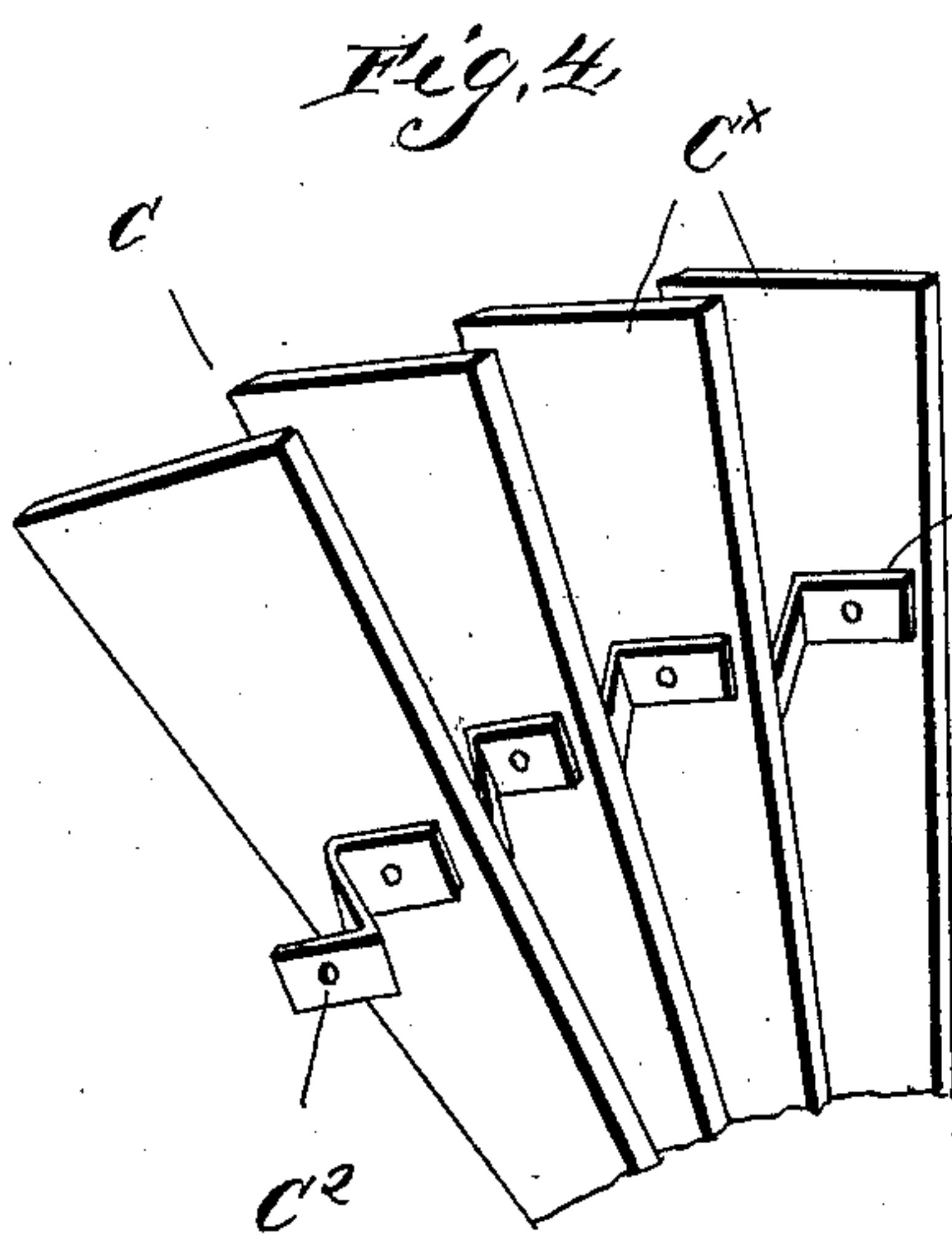
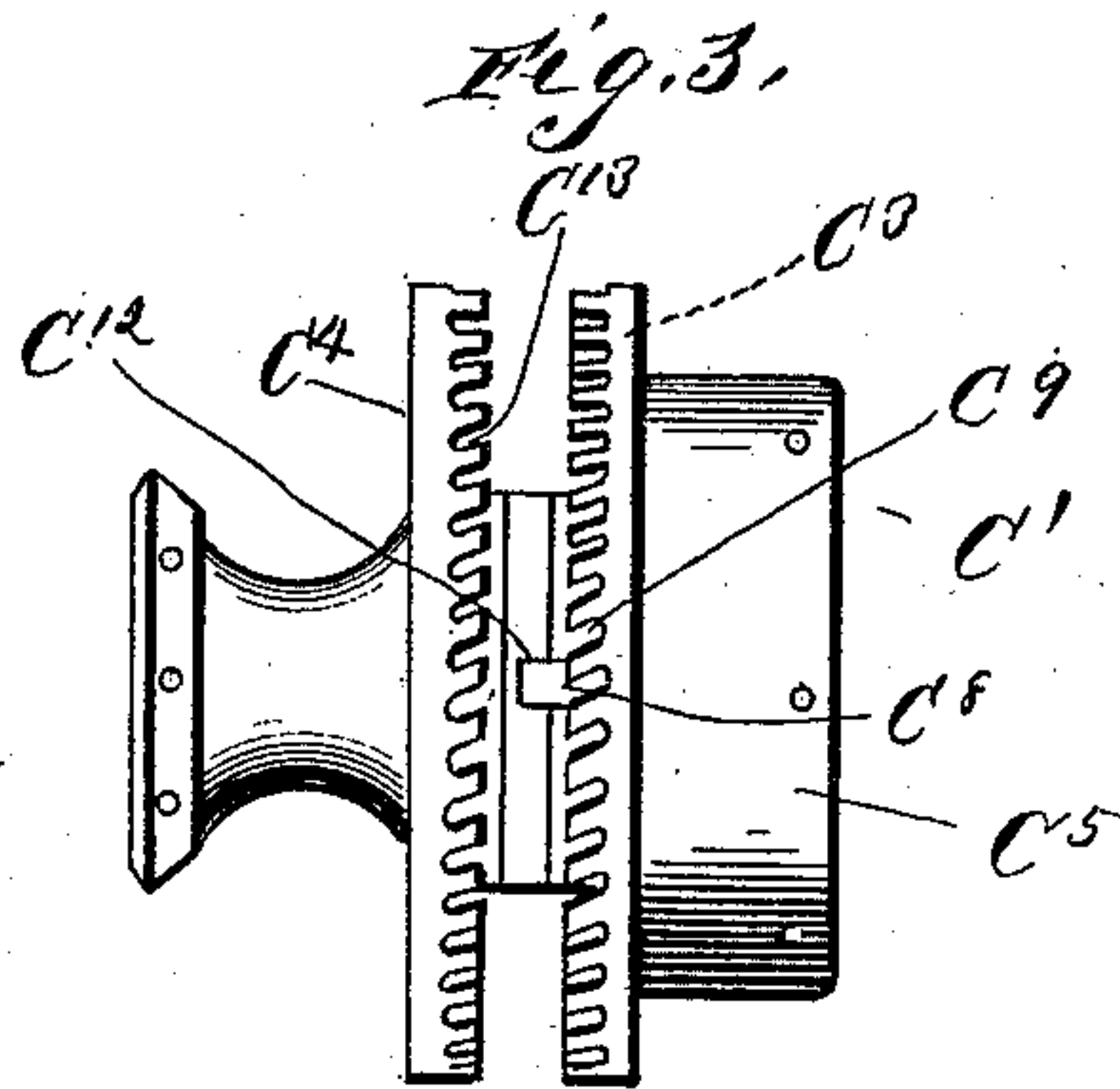
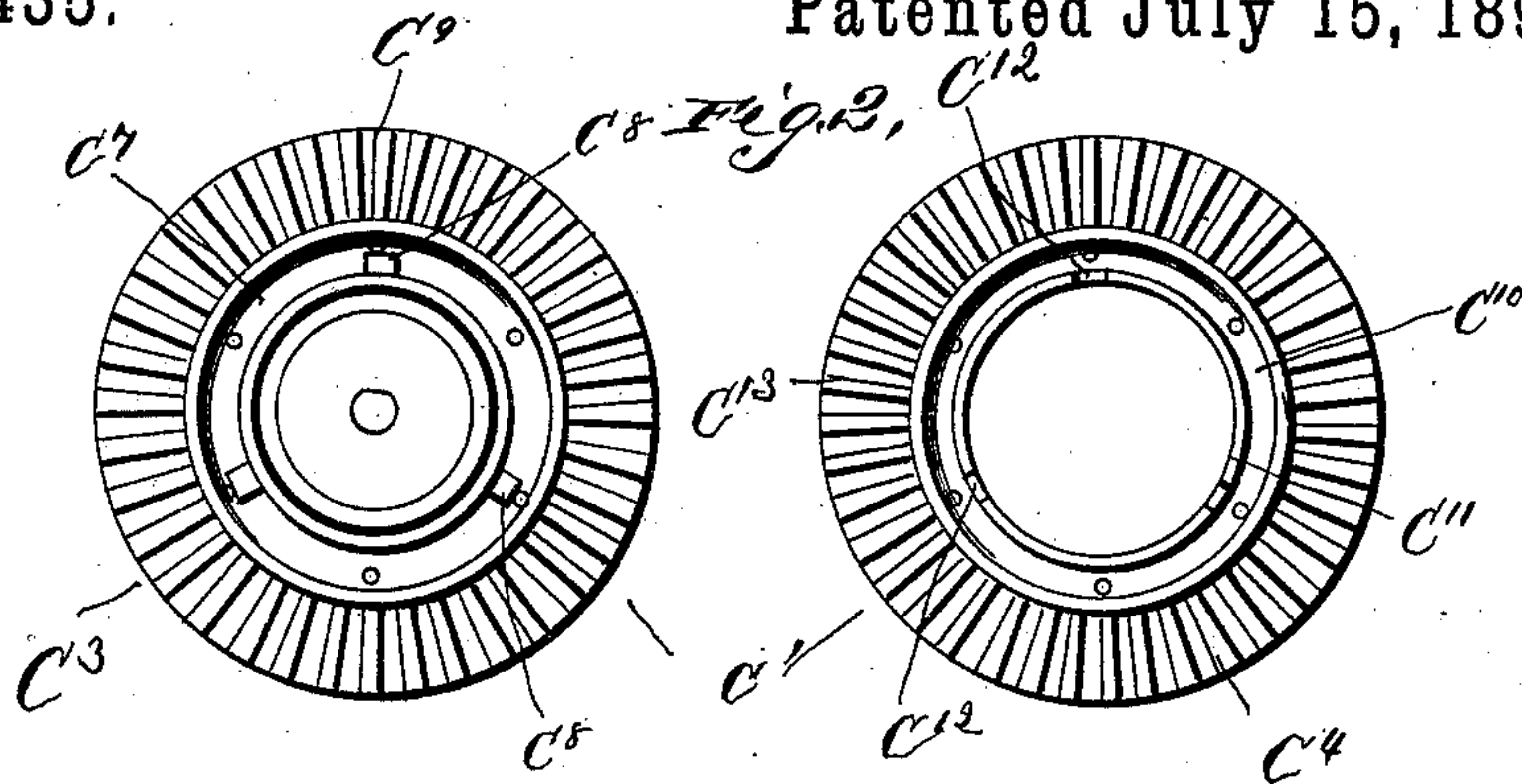
(No Model.)

2 Sheets—Sheet 2.

E. PECK.
WINDMILL.

No. 432,435.

Patented July 15, 1890.



WITNESSES
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ELISHA PECK, OF WAWAKA, INDIANA, ASSIGNOR OF ONE-HALF TO W. A. STEWART, OF SAME PLACE.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 432,435, dated July 15, 1890.

Application filed August 17, 1889. Serial No. 321,064. (No model.)

To all whom it may concern:

Be it known that I, ELISHA PECK, a citizen of the United States, and a resident of Wawaka, in the county of Noble and State of Indiana, have invented certain new and useful Improvements in Windmills; and I do 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 of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is partly a vertical central section. Fig. 2 is a view of the opposite faces of the hub-disks separated. Fig. 3 is a side view of the hub, and Figs. 4 and 5 are detail views. Fig. 6 is a detail sectional view of the joint between the pump-rod sections.

This invention relates to certain improvements in windmills; and it consists of the novel construction and combination of parts, as hereinafter set forth.

In the embodiment of my invention I provide the tower A, upon the upper end of which is secured the turn-table *a*.

B is a wheel-casting having its lower beveled end seated and turning in the upper countersunk surface of the turn-table *a*. To a socket *b* of wheel-casting B is applied the rod carrying the rudder or supplementary vane *c*.

C is the wind-wheel, whose shaft *c'* is suitably journaled upon the upper end of the cross-arm *d* of the wheel-casting B, one end of which shaft carries a disk or eccentric *e*, to which is connected by a pitman *e'* the pump-rod D. The pitman *e'* has a wrist-pin connection with the eccentric or disk *e* and is sleeved upon a pin or projection *e''* of the pump-rod D, said pin or projection extending out through a vertical slot *e'''*. The wheel C comprises a two-part hub C' and a series of angularly-arranged radial blades C^x, which are braced in position and connected together at outwardly-diverging intervals apart by zigzag bars or braces C², bolted to the blades a short distance inward from their outer ends.

The hub C' consists of two circular plates or disks C³ C⁴. The disk or plate C³ has projecting from one side a cylindric flange or

rim C⁵, while from its opposite side projects a chambered or hollow cylindric extension C⁶, its open side being toward the rim or flange C⁵. The chambered or hollow extension C⁶ terminates in a narrow or contracted passage, which is of a diameter adapted to just receive the wheel-shaft *c'*. Upon this side of the plate or disk C³ and of slightly greater diameter than the extension C⁶ is a shallow circular chamber or recess C⁷, the inner wall of which is formed by said extension, which is provided at suitable intervals apart with lugs or projections C⁸. Radially from the outer wall of the recess or chamber C⁷ stands a series of grooves C⁹. The opposite plate or disk C⁴ has projecting from that side facing the plate or disk C³ a narrow circular channel or groove C¹⁰, the inner wall C¹¹ of which has a number of recesses or notches C¹², which register with and receive the lugs or projections C⁸, and thus prevent the turning of the part or plate C⁴. Also standing radially from the outer wall of the channel C¹⁰ is a series of grooves C¹³, which, by reason of the relation of the engagement of the notches C¹² and lugs C⁸ therewith, range obliquely opposite to each other, thus providing for the feathering of the blades C^x, which they are designed to receive. The adjustment of the relation of the grooves to each other, in order to vary the feathering of the blades, it is obvious, can be readily effected by shifting the notches C¹² to others of the lugs or projections C⁸, as may be required. The blades C^x are further braced in position by rods C^{x'x}, connected to the arm or flange C⁵ of the hub of the wheel and to certain parts of the blades near their outer ends.

The pump-rod D is partially hollow or tubular and passes through upper and lower tubular or hollow cylindric sections B' B² of the wheel-casting B and a separate similar cap-section *f*, fitting upon the upper end of said upper section B'. This cap-section *f* rests at its lower end upon a separate section *f'*, fitted upon the section B', and has journaled in its extreme upper enlarged end a pulley *g*, over which passes a cord or line E. This cord extends from a point within easy reach of the operator, being preferably passed through an aperture in the lower part of the pump-rod and knotted at its lower end, and having its upper

or opposite end connected to the governor F, as shown, for the manipulation of the latter to take the wheel "out of the wind" to slacken its speed, as will be understood. The pump-rod consists of two sections D' D^2 , which are connected together by a flexible sliding joint, as at d' , a spring d^2 automatically holding the two sections in engagement, said joint comprising an enlargement d^x on the lower section D^2 , engaging a shoulder d^{xx} on the upper section D' at its lower end. The spring d^2 rests at its lower end upon a collar d^3 or shoulder of the lower pump-rod section, and has its upper end entering the lower hollow or tubular section B^2 of the wheel-casting B and connecting with the upper pump-rod section. The lower end of the pump-rod enters the pump-barrel h , and to one side of the latter is secured the lower end of a stout flat spring i , which serves as a fulcrum for a hand-lever j , pivoted, as at j' , to the upper end of said spring. This lever carries at its forward end a sleeve k , pivoted, as at K, thereto, through which passes the lower end of the pump-rod D, and is adapted to engage a shoulder or collar k' on the latter, and thus normally hold the pump-rod sections D' D^2 in engagement against the action of the spring d^2 .

It will be observed that as the handle of the lever j is thrown down the collar K is elevated, and the pivot of said lever and the pivot of the collar K being brought substantially in the same vertical plane the descent of the lower pump-rod section is prevented by the collar K' engaging the collar K, the upper pump-rod section being unable to descend against the stress of the spring d^2 . On the other hand, when the handle of the lever j is thrown up the collar K is carried down out of the way of the collar K', whereupon both pump-rod sections are permitted to move down together, the resistance of the spring to the compressor being greater than that offered by the working of the pump. This arrangement is designed to permit of stopping the

pumping action of said rod when it is desired to put the mill out of operation, though the wheel may be in motion.

H is the vane, the inner end of which has a short vertical shaft h' , which is centered or journaled between a stud h^2 of the wheel-casting B and a stud h^3 on the section f' above referred to. The shaft h' carries a tooth-sector h^4 , engaging a corresponding sector h^5 on the disk-shaped portion of the governor F. Upon the return side of the vane H is applied, at its inner end, a stout strong spring h^6 , which, upon the maximum return movement of the vane, is designed to engage the side of the section B^2 of the wheel-casting B, and thus automatically to limit the movement of the vane in that direction.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. In a windmill, the combination of the wind-wheel and its shaft and pitman, the two-part or sectional pump-rod, its sections or parts having a flexible or spring joint-connection, and the lever fulcrumed upon a spring and carrying a pivoted sleeve or collar which engages a shoulder or collar on the pump-rod, substantially as set forth.

2. The combination of the wind-wheel, its shaft and pitman, the wheel-casting bearing the wind-wheel shaft, the vane, the rudder, and the governor geared to said vane, the partially-hollow pump-rod formed in sections having a flexible joint-connection, the hand-lever fulcrumed upon a spring and carrying a sleeve or collar engaging a shoulder upon said pump-rod, and the cord or line connected to the governor and passed through the pump-rod and over a pulley in the hollow cap-section, substantially as specified.

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

ELISHA PECK.

Witnesses:

ORRIN DODGE,
A. O. OSBORN.