

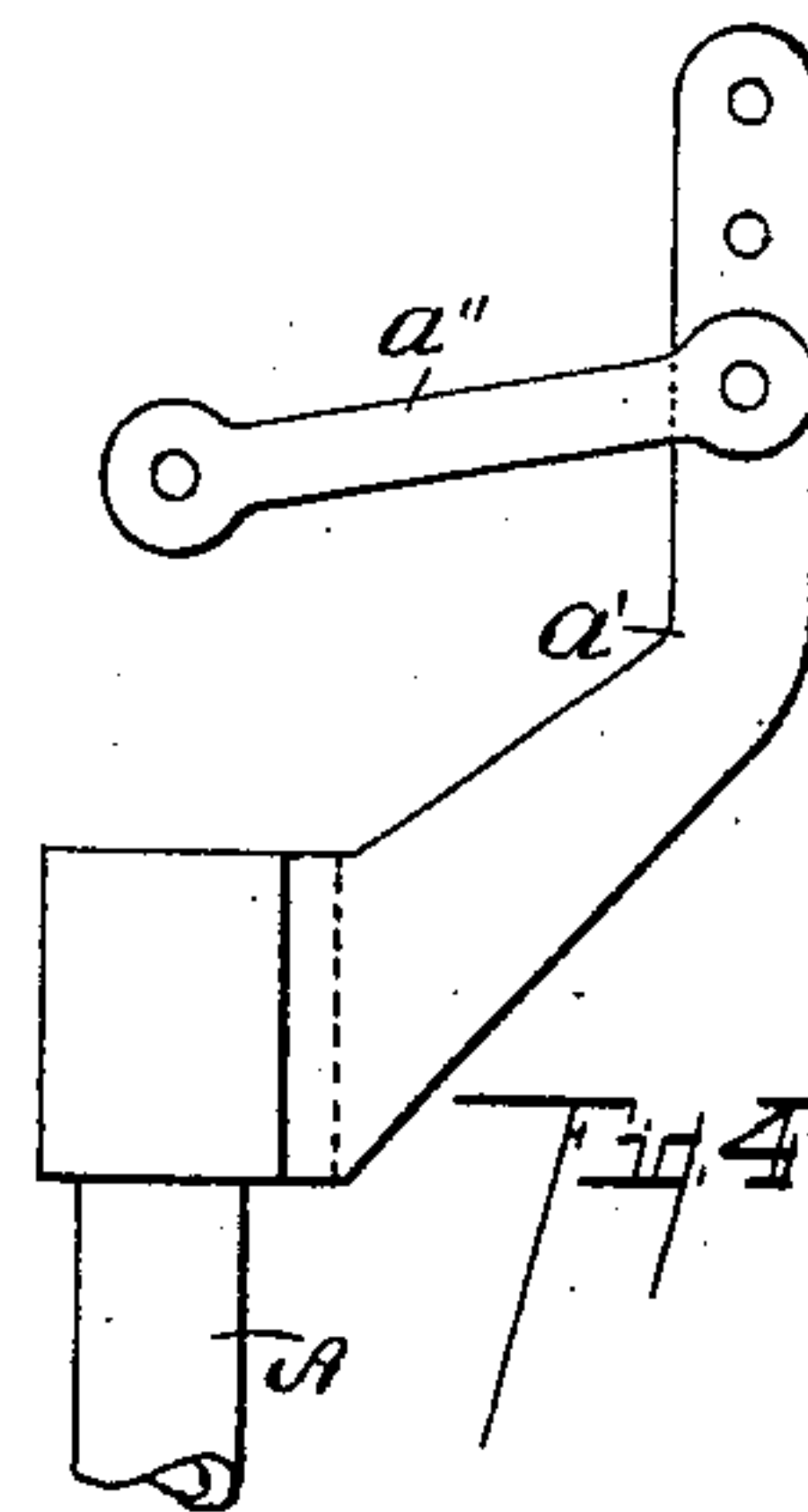
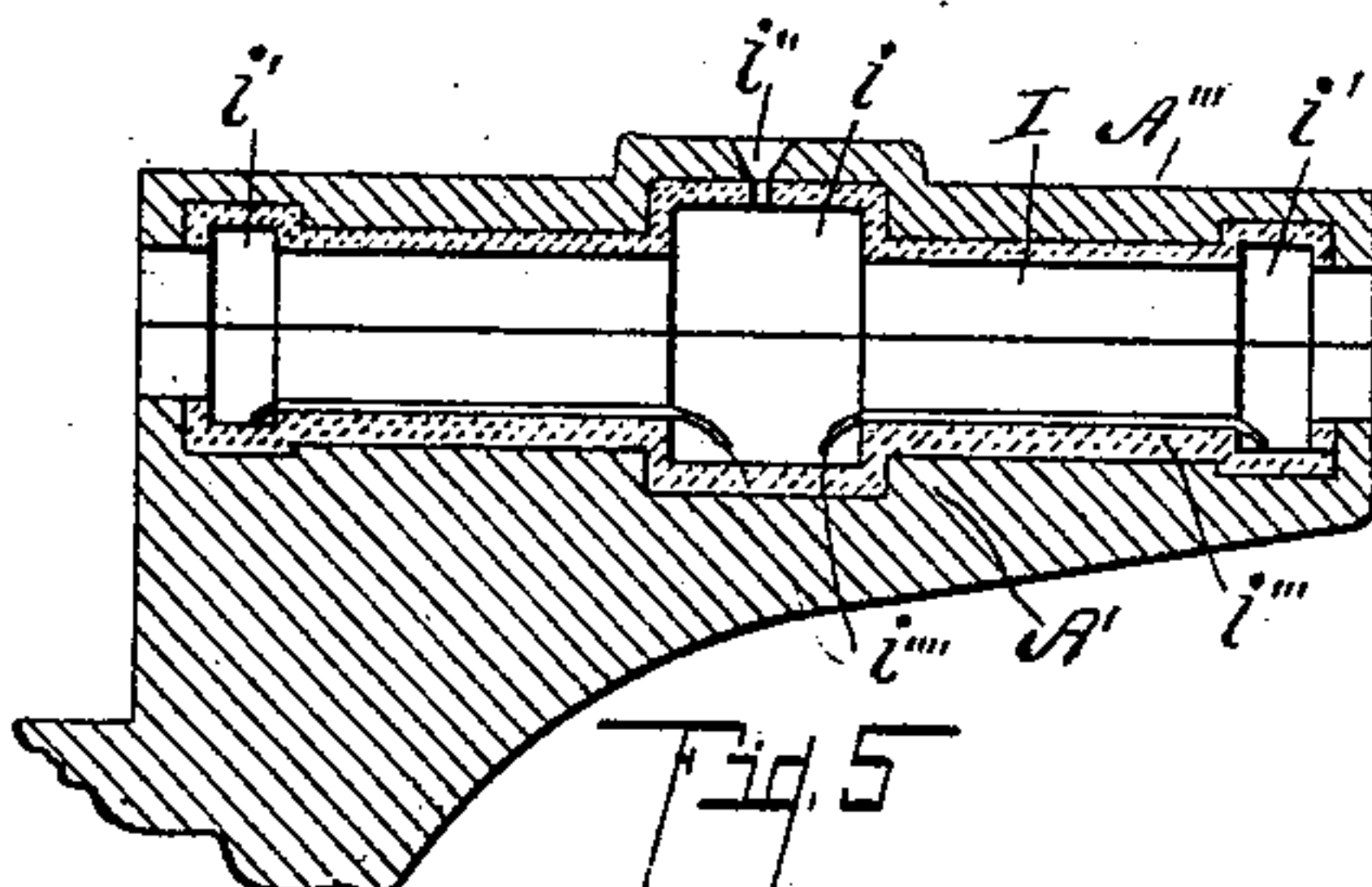
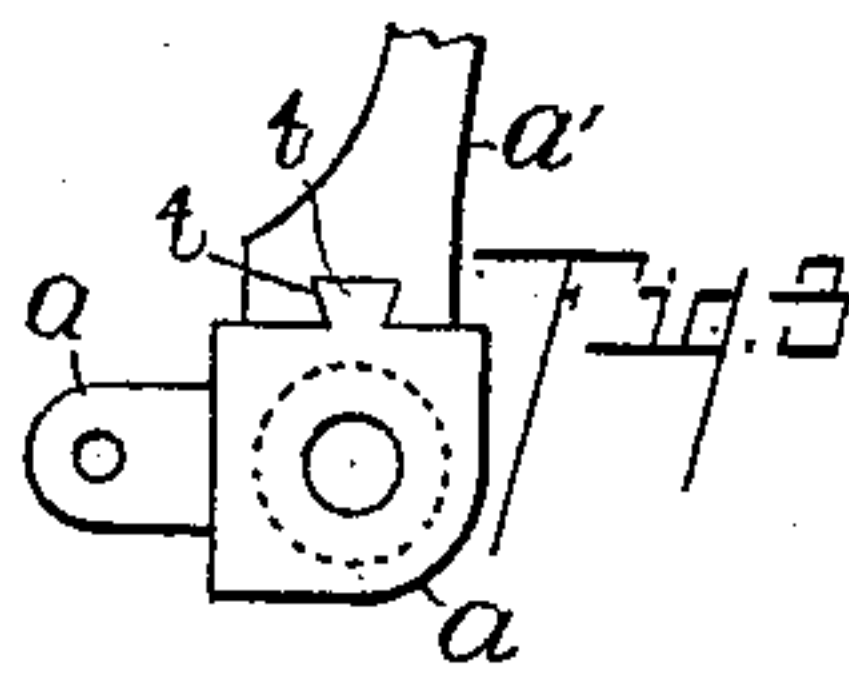
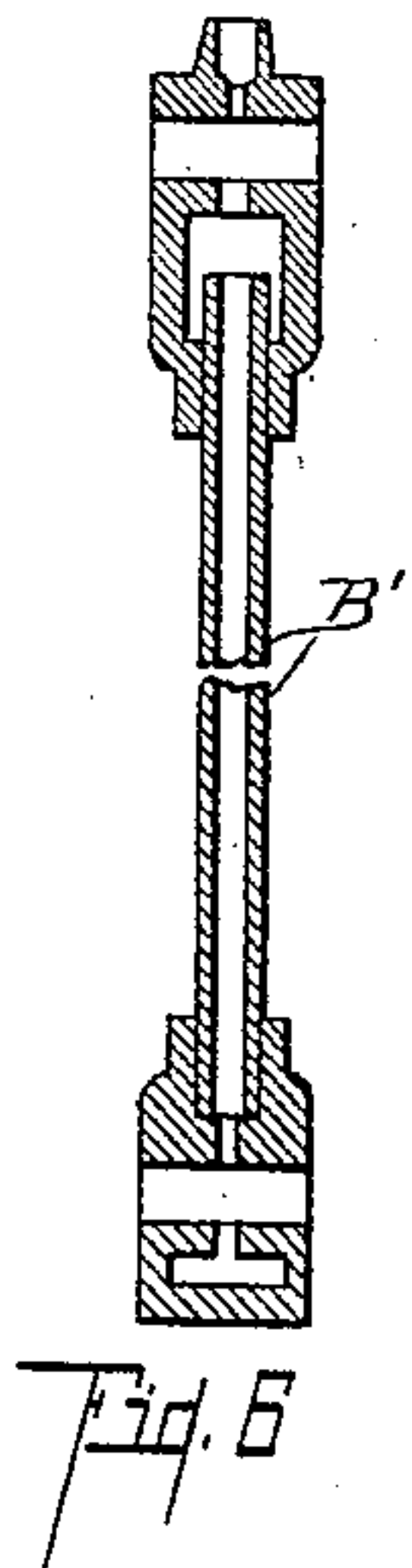
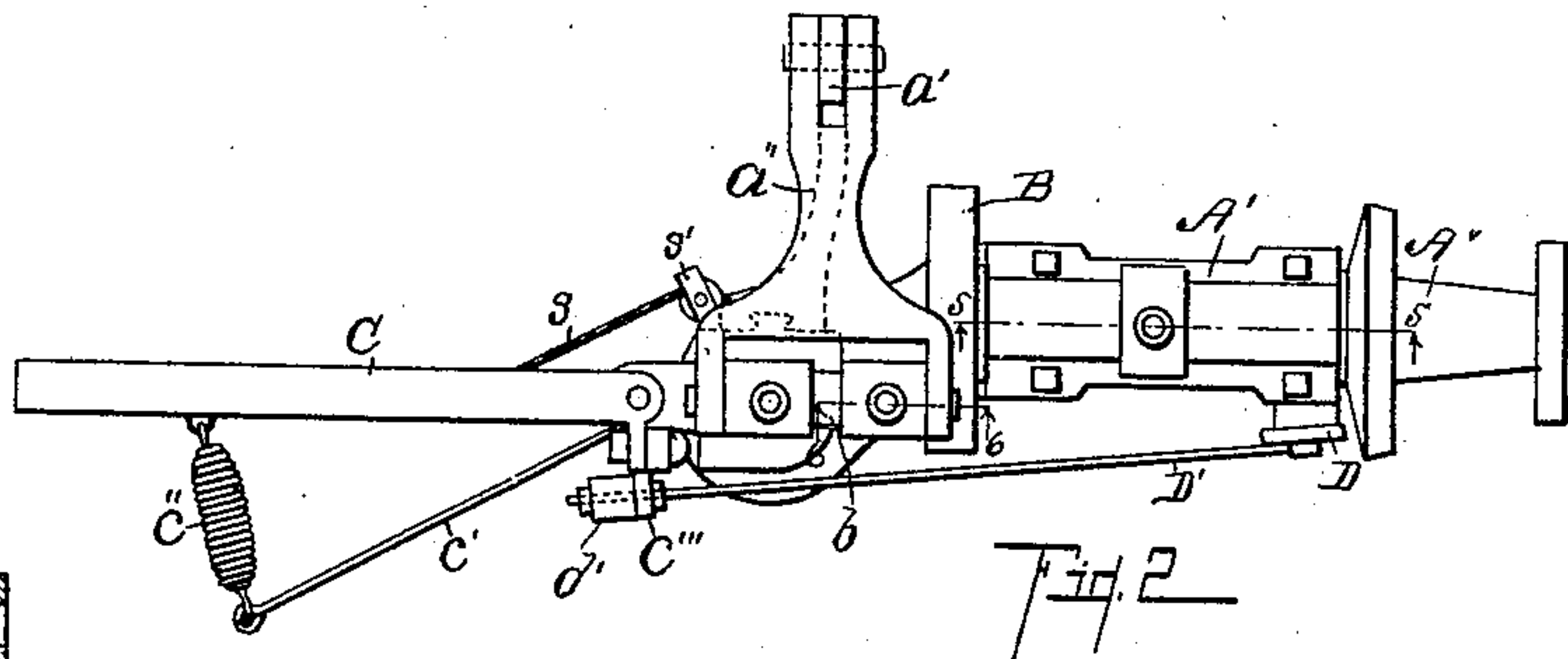
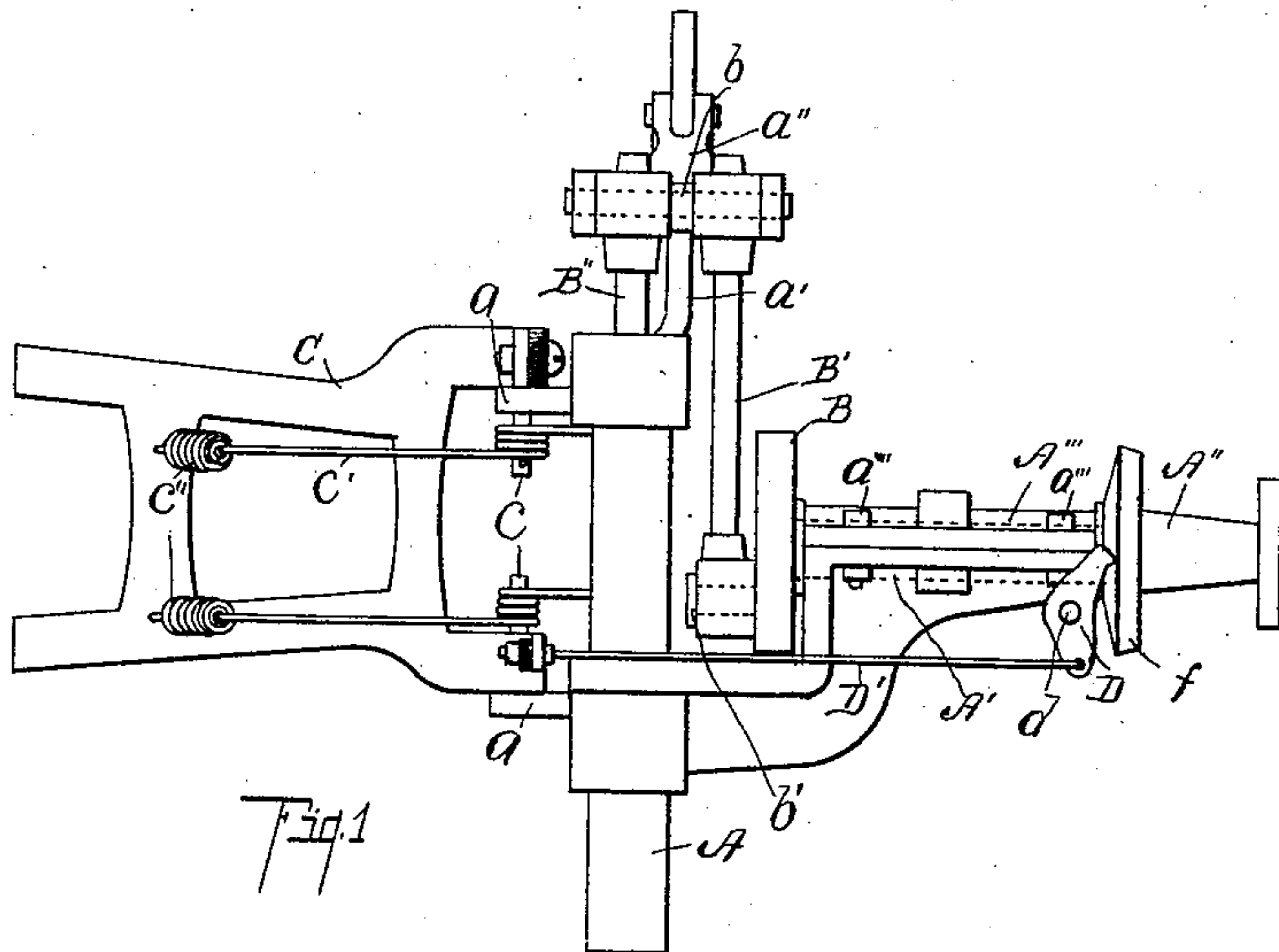
No. 865,521.

PATENTED SEPT. 10, 1907.

J. W. PARK.
WINDMILL.

APPLICATION FILED JUNE 30, 1905.

2 SHEETS—SHEET 1.



Witnesses:

Adair A. Adams
E. Marie Jackson

Inventor,

John W. Park
By *Chappell & Carl*
Att'ys

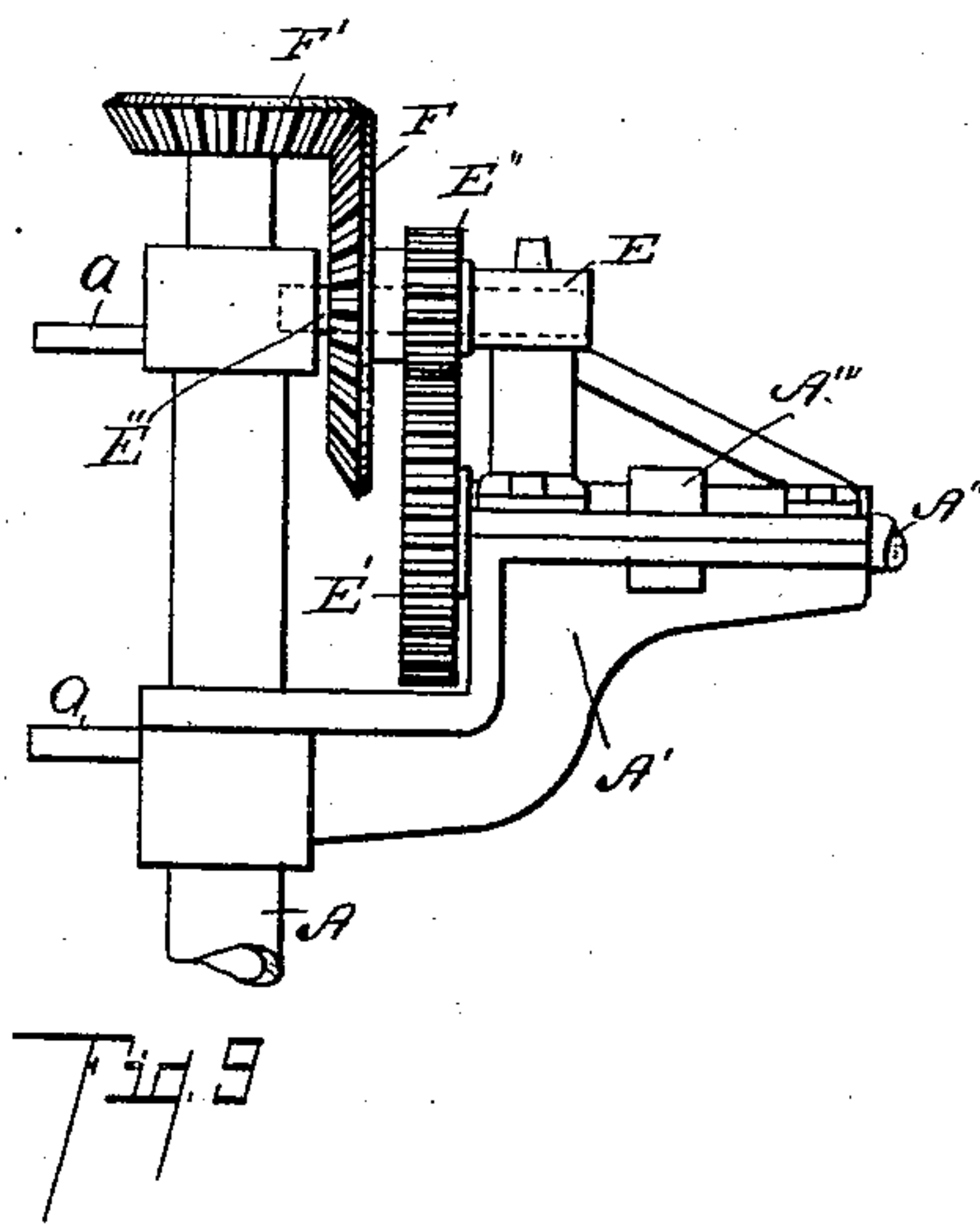
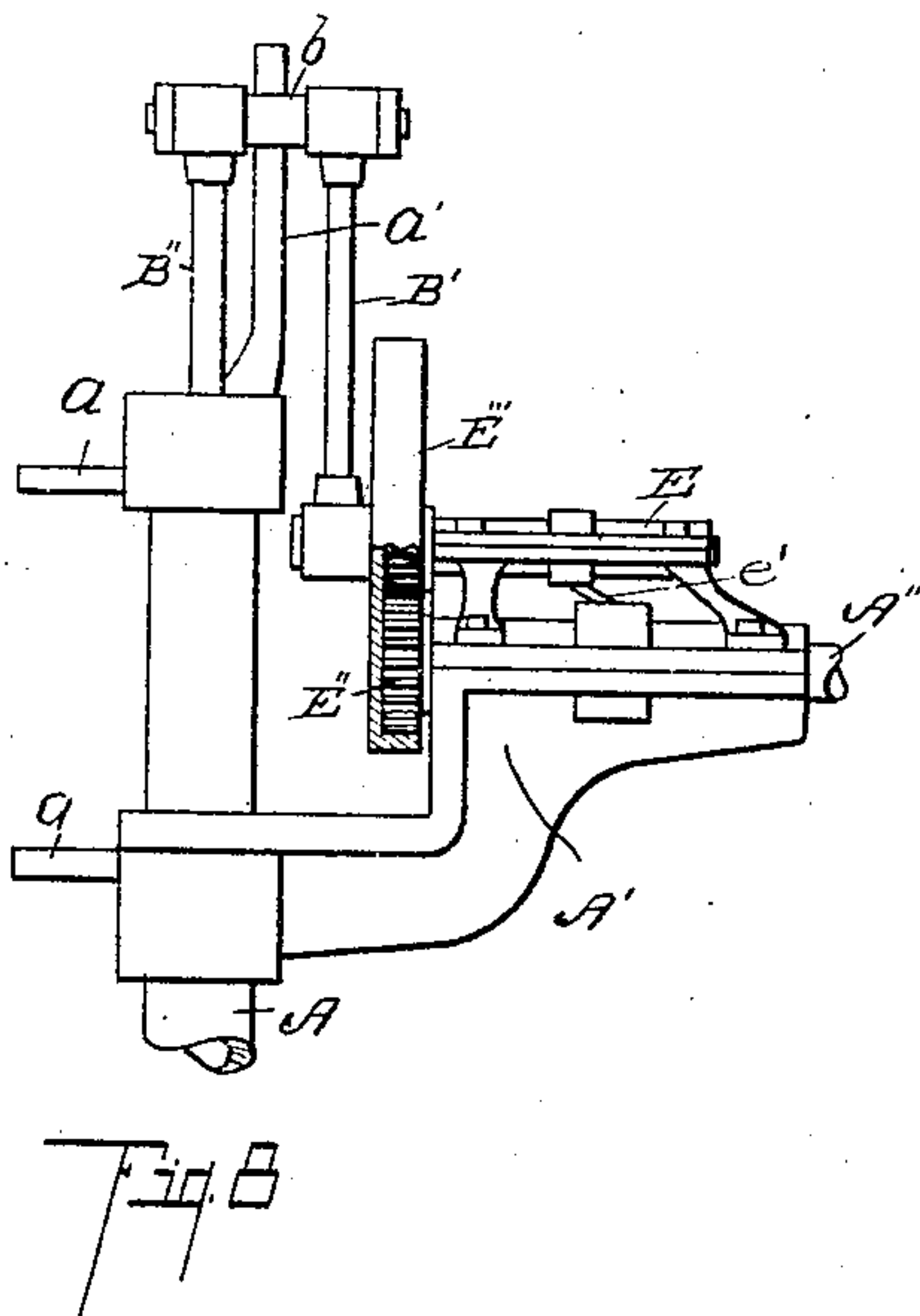
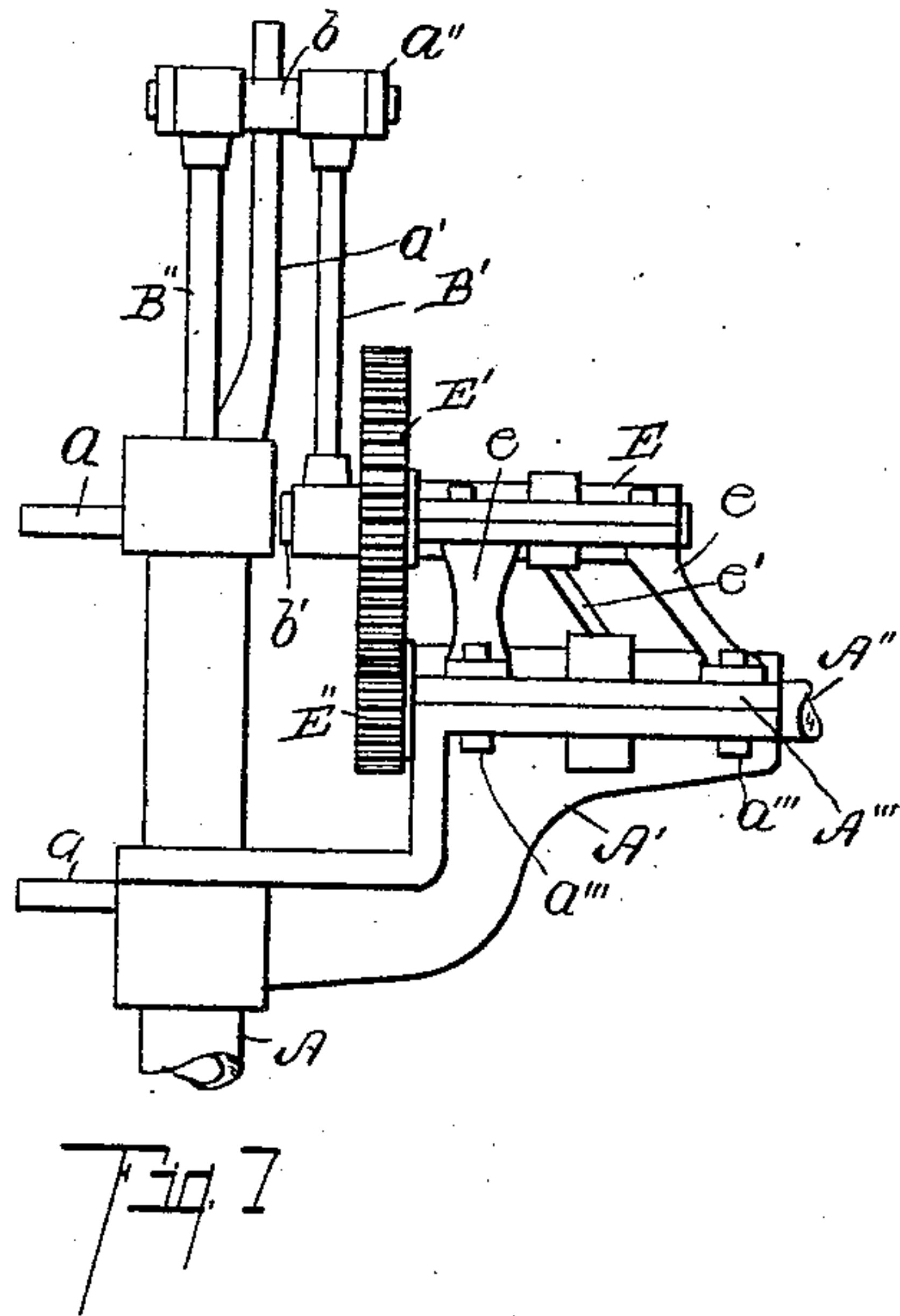
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN W. PARK, OF EXCELSIOR SPRINGS, MISSOURI.

WINDMILL.

No. 865,521.

Specification of Letters Patent.

Patented Sept. 10, 1907.

Application filed June 30, 1905. Serial No. 267,775.

To all whom it may concern:

Be it known that I, JOHN W. PARK, a citizen of the United States, residing at the city of Excelsior Springs, county of Clay, State of Missouri, have invented certain new and useful Improvements in Windmills, of which the following is a specification.

This invention relates to improvements in windmills.

The objects of this invention are, first, to provide in a windmill an improved construction, the main parts of which are adapted for use with the various forms of gear. Second, to provide in a windmill an improved construction in which the gear connections may be changed as desired from one style to another. Third, to provide in a windmill an improved construction which is very simple and economical and in which the parts are readily assembled.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification. The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing forming a part of this specification, in which—

Figure 1 is a detail side elevation view of a structure embodying the features of my invention, equipped with a direct stroke driving connection. Fig. 2 is a plan view of the structure shown in Fig. 1. Fig. 3 is a detail plan view showing the manner of attaching the supporting arm a' for the pump rod guiding link. Fig. 4 is a detail side elevation view showing the arrangement of the arm a' and the guiding link a'' of the pump rod. Fig. 5 is a detail longitudinal sectional view through the boxing for the wheel spindle, taken on a line corresponding to line 5 5 of Fig. 2. Fig. 6 is a central longitudinal sectional view through the pitman B' , showing the arrangements of its bearings and the oil conduits therein, taken on a line corresponding to line 6 6 of Fig. 2. Fig. 7 is a detail elevation view of my improved windmill structure equipped with a spur reduction gear drive. Fig. 8 is a detail view of my improved windmill structure equipped with an internal gear drive. Fig. 9 is a side elevation view of my improved windmill equipped as a power mill.

In the drawings similar letters of reference refer to similar parts throughout the several views, and the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

Referring to the drawings, A is the main frame casting of the mill. This main frame casting is provided with a laterally projecting arm A' on which the wheel bearing is supported. The spindle A'' of the wheel only is illustrated. The bearing A''' for the wheel spindle

A'' is formed with a base section formed in the arm A' , and a cap section, which is secured thereto by suitable bolts, as a''' . The bearing A''' is provided with a box I—see Fig. 5—made up of two sections corresponding to the cap and base sections of the bearing. The boxing is formed with a central chamber or enlargement i , and chambers i' toward its ends to form oil receptacles. An oil hole i'' communicates with the central oil chamber i .

The lower section of the box is provided with longitudinal grooves i''' in which the wicks i'''' are arranged. The inner ends of these wicks project into the central chamber i of the box, and their outer ends project into the end-chambers i' of the box. The wicks serve to convey the oil from the central chamber to the end chambers, and are preferably made of felt, although any suitable material may be used for this purpose. In addition to conveying the oil to the end chambers, these wicks serve to distribute the oil along the spindle.

When the structure is equipped as a direct stroke pumping mill, I provide a pitman disk B which is secured upon the inner end of the wheel spindle A'' . The pitman is connected to this disk by means of a suitable crank pin, as b' . The pitman is connected to the pump rod B'' by means of the pitman head b , as clearly appears in Figs. 1 and 2.

The guiding link a'' is connected at its inner end to the pitman head, and at its outer end to the arm a' which is detachably secured to the main frame A. The arm a' is provided with a plurality of holes so that the guiding link a'' may be adjusted thereon to adapt the same to the driving gear with which the structure is equipped. The arm a' is detachably secured to the frame A by a dovetailed joint, the main frame being provided with a dovetailed projecting tenon t , and the arm being provided with a dovetail-shaped mortise t' to engage the same, so that the arm may be attached or detached without the use of bolts or screws.

The vane C is pivoted on the projecting perforated ears a of the main frame by the pins c which are arranged therethrough. The vane is held normally outward by means of the rod springs c' which are coiled about the pivot pin c of the vane, their inner ends engaging the main frame. The outer ends of the rod springs are secured to the vane by means of the coiled springs c'' . The vane C controls the brake D which is arranged to engage the flange f on the wheel spindle. The brake D is pivoted on the arm A' of the main frame at d , and is connected to the vane by the rod D' , the end of which is arranged through the laterally projecting ear c''' at the inner end of the vane. A buffer d' is provided for the connecting rod D' . The vane is controlled by the cable s , which is connected thereto and arranged over the guide pulley s' , as clearly appears in Fig. 2. Thus arranged, the mill is thrown out of gear,

as it is called, by means of the vane. When released, the vane is thrown out by the rod springs *c'*.

When it is desired to equip the structure with a reduction spur gear, a bearing E is mounted on the arm
5 A' of the main frame. This bearing, which is the same as that described for the wheel spindle A'', is supported by the downwardly projecting arms *e* which are secured by the bolts *a'''*. These arms *e* are of proper length to support the gear E', the shaft of which is arranged
10 in the bearing E so that it properly meshes with the pinion E'' which is substituted for the crank disk B on the wheel spindle A''. The pitman B' is connected to the gear E' by a suitable crank pin, instead of being connected to the disk B as is illustrated in Fig. 1.

15 When the structure is equipped with an internal gear, the parts remain in the same relation, an internal gear E''' being substituted for the spur gear E' of the structure illustrated in Fig. 7. The bearing E for the journal of the gear E''' is supported in the same manner
20 as in the structure shown in Fig. 7, the supporting arms *e* for the bearing being of the proper length to bring the gear into proper relation. As these changes in the gear change the operative position of the pitman, it is desirable to change the position of the guiding link *a''*.
25 This is provided for by means of the series of pivot pin holes formed in the arm *a'* heretofore described.

When it is desired to equip the mill as a power mill—so-called—in which a rotary motion is imparted, the rod B'', the arm *a'*, and the guiding link *a''* are removed.
30 For this purpose a beveled gear F' is secured to the upper end of the rod B'', and the beveled gear F is arranged to mesh therewith.

In order to utilize the gears E' and E'' illustrated in Fig. 7, I arrange the gear E' upon the wheel spindle A'',
35 and the gear E'' upon the shaft E''' mounted in the bearing E, on which the beveled gear F is also mounted. By this arrangement of the parts, it is only necessary to provide the beveled gears F and F' and proper length supporting arms for the bearing E, the same being
40 mounted upon the arm A' the same as in Figs. 7 and 8. It is thus evident that I am able to use the main frame or casting A with all of the several styles of gear, it being only necessary, to make the change, to provide a few simple parts. This results in great economy in manu-
45 facture and also enables the changing from one style to another, as may be desired.

To provide for convenience in oiling, the central oil chambers of the bearing E and the boxing for the spindle A'' are connected by a tube *c'*, so that it is only
50 necessary to supply the central chamber of the upper bearing with oil, which flows to the chamber below. The bearings for the pitman are also connected by a conduit formed within the pitman rod, so that it is only necessary to supply oil to the upper bearing in
55 order to secure the proper oiling of the pitman. This connection of the bearings is of particular advantage where oilers are used, the same not being here shown, as they form no part of this invention.

My improved mill, as before stated, is of advantage
60 in that it is very economical to manufacture and can be readily converted or changed from one style of gear to another, as may be desired, the main parts being made so that they are applicable to all. I have illustrated and described the same in detail in the form preferred
65 by me on account of the structural simplicity, although

I am aware that the parts may be varied considerably in structural details without departing from my invention.

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

70 1. In a windmill, the combination of a main frame; a laterally projecting arm formed integral therewith; a wheel spindle; a bearing therefor, consisting of a base section formed in said arm, and a removable cap section; bolts for securing said cap section in position; a gear
75 shaft; a bearing therefor; supporting arms for said gear shaft bearing mounted on said bearing for said wheel spindle, secured in position by bolts for securing the said cap section thereof; suitable gears on said wheel spindle and shaft; a pump rod; a pitman rod; a pitman head connecting said pitman rod to said pump rod; a dovetailed
80 projection on said main frame; an outwardly and upwardly projecting arm, having a groove in its inner end, adapted to engage said dovetailed projection; and a guiding link for said pitman rod pivotally mounted on said
85 arm, coacting for the purpose specified.

2. In a windmill, the combination of a main frame; a laterally projecting arm formed integral therewith; a wheel spindle; a bearing therefor, consisting of a base section formed in said arm, and a removable cap section;
90 bolts for securing said cap section in position; a gear shaft; a bearing therefor; supporting arms for said gear shaft bearing mounted on said bearing for said wheel spindle, secured in position by bolts for securing the said cap section thereof; suitable gears on said wheel spindle
95 and shaft; a pump rod; a pitman rod; a pitman head connecting said pitman rod to said pump rod; an outwardly projecting arm detachably secured to said main frame; and a guiding link for said pitman rod pivotally mounted on
100 said arm, coacting for the purpose specified.

3. In a windmill, the combination of a main frame; a laterally projecting arm formed integral therewith; a wheel spindle; a bearing therefor carried by said arm; a gear shaft; a bearing therefor; supporting arms for said
105 gear shaft bearing removably mounted on said arm; suitable gears on said wheel spindle and shaft; a pump rod; a pitman rod; a pitman head connecting said pitman rod to said pump rod; a dovetailed projection on said main frame; an outwardly and upwardly projecting arm, having
110 a groove in its inner end, adapted to engage said dovetailed projection; and a guiding link for said pitman rod pivotally mounted on said arm, coacting for the purpose specified.

4. In a windmill, the combination of a main frame; a laterally projecting arm formed integral therewith; a
115 wheel spindle; a bearing therefor carried by said arm; a gear shaft; a bearing therefor; supporting arms for said gear shaft bearing mounted on said arm, suitable gears on said wheel spindle and shaft; a pump rod; a pitman rod detachably connected to said gear on said wheel shaft; a
120 pitman head connecting said pitman rod to said pump rod; an arm detachably secured to said main frame; and a guiding link for said pitman rod pivotally mounted on said arm, coacting for the purpose specified.

5. In a windmill, the combination of a main frame; a laterally projecting arm thereon; a wheel spindle; a bearing therefor carried by said arm; a gear shaft; a bearing therefor; supporting arms for said gear shaft bearing
125 mounted on said arm; suitable gears for said wheel spindle and shaft; a pump rod detachably connected to said gear on said wheel shaft; a pitman rod; a pitman head connecting said pitman rod to said pump rod; an arm detachably secured to said main frame; and a guiding link
130 for said pitman rod pivotally mounted on said arm, coacting for the purpose specified.

6. In a windmill, the combination of a main frame; a laterally projecting arm formed integral therewith; a wheel spindle; a bearing therefor carried by said arm; a crank wheel on the inner end of said wheel spindle; a
140 pump rod; a pitman rod; a pitman head connecting said pitman rod and pump rod; a dovetailed projection on said main frame; an outwardly and upwardly projecting arm having a mortise in its inner end to engage said dovetailed projection; a guiding link for said pitman rod pivotally

mounted on said arm; laterally projecting perforated ears formed on said main frame; a vane; suitable pivots for said vane arranged through the said perforated ears; a pair of rod springs having coils therein to engage said pins; coiled springs for connecting the outer end of said rod springs to said vane; a wheel brake; and a rod for connecting said brake to said vane, all coacting for the purpose specified.

7. In a windmill, the combination of a main frame; a laterally projecting arm on said main frame; a wheel spindle; a bearing therefor carried by said arm; a crank wheel on the inner end of said wheel spindle; a pump rod; a pitman rod; a pitman head connecting said pitman rod and pump rod; laterally projecting perforated ears formed on said main frame; a vane; suitable pivots for said vane arranged through the said perforated ears; a pair of rod springs having coils therein to engage said pins; coiled springs for connecting the outer end of said rod springs to said vane; a wheel brake; and a rod connecting said brake to said vane, all coacting for the purpose specified.

8. In a windmill, the combination of a main frame; a laterally projecting arm formed integral therewith; a wheel spindle; a bearing therefor carried by said arm; a crank wheel on the inner end of said wheel spindle; a pump rod; a pitman rod; a pitman head connecting said pitman rod and pump rod; a dovetailed projection on said main frame; an outwardly and upwardly projecting arm having a groove in its inner end to engage said dovetailed projection; a guiding link for said pitman rod pivotally mounted on said arm; laterally projecting perforated ears formed on said main frame; a vane; suitable pivots for said vane arranged through the said perforated ears; a pair of rod springs having coils therein to engage said pins; and coiled springs for connecting the outer end of said rod springs to said vane, all coacting for the purpose specified.

9. In a windmill, the combination of a main frame; a laterally projecting arm on said main frame; a wheel spindle; a bearing therefor carried by said arm; a crank wheel on the inner end of said wheel spindle; a pump rod; a pitman rod; a pitman head connecting said pitman rod and pump rod; laterally projecting perforated ears formed on said main frame; a vane; suitable pivots for said vane arranged through the said perforated ears; a pair of rod springs having coils therein to engage said pins; and coiled springs for connecting the outer ends of said rod springs to said vane, coacting for the purpose specified.

10. In a windmill, the combination of a main frame; a laterally projecting arm formed integral therewith; a wheel spindle; a bearing therefor carried by said arm; a crank wheel on the inner end of said wheel spindle; a pump rod; a pitman rod; a pitman head connecting said pitman rod and pump rod; a dovetailed projection on said main frame; an outwardly and upwardly projecting arm having a groove in its inner end to engage said dovetailed projection; and a guiding link for said pitman rod pivotally mounted on said arm, coacting for the purpose specified.

11. In a wind mill, the combination of a frame; a laterally projecting arm on said frame; a wheel spindle; a bearing therefor carried by said arm; laterally projecting perforated ears on said frame; a vane; suitable pivots for said vane arranged through the said perforated ears; a pair of rod springs having coils therein arranged to engage said pivots; coiled springs for connecting the outer end of said rod springs to said vane; a wheel brake; and a rod for connecting said brake to said vane, for the purpose specified.

12. In a windmill, the combination of a frame; laterally projecting perforated ears on said frame; a vane; suitable pivots for said vane arranged through the said perforated ears; a pair of rod springs having coils therein arranged to engage said pivots; and coiled springs for connecting the outer end of said rod springs to said vane, coacting for the purpose specified.

13. In a windmill, the combination of a pivotally supported vane; a rod spring adapted to hold said vane normally outward; and a coiled spring for connecting the outer end of said rod spring to said vane, for the purpose specified.

14. In a windmill, the combination of a wheel spindle; a bearing therefor; a gear shaft bearing mounted thereon; and an oil conduit connecting said bearings, for the purpose specified.

15. In a wind-mill, the combination of a main frame; an arm detachably secured thereto; a pitman rod; and a guiding link for said pitman rod, adjustably secured to said arm, for the purpose specified.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

JOHN W. PARK. [L. S.]

Witnesses:

R. M. WILSON,
W. E. TEMPLETON.