No. 677,805.

Patented July 2, 1901.

A. T. SCOTT.

WINDMILL.

(Application filed Oct. 11, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

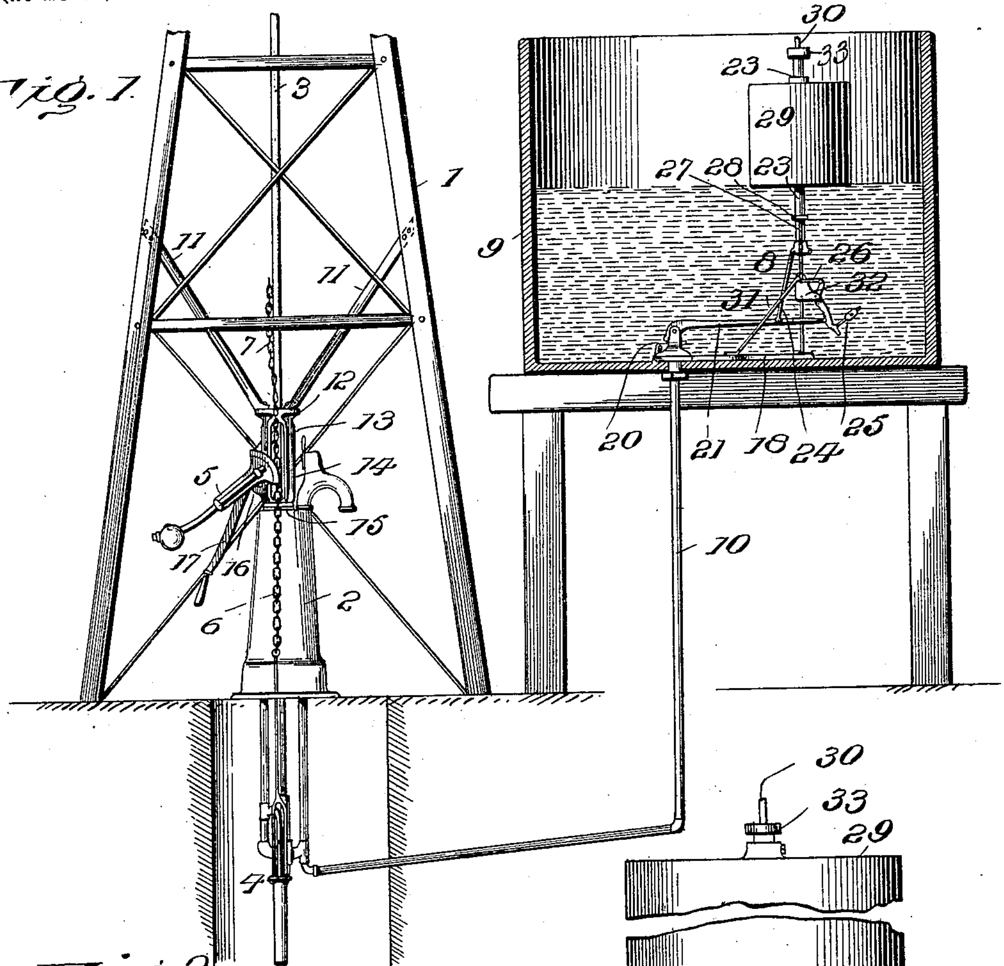
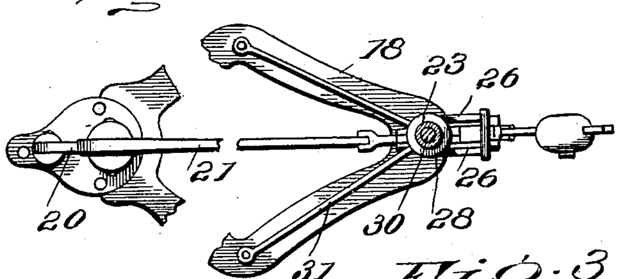
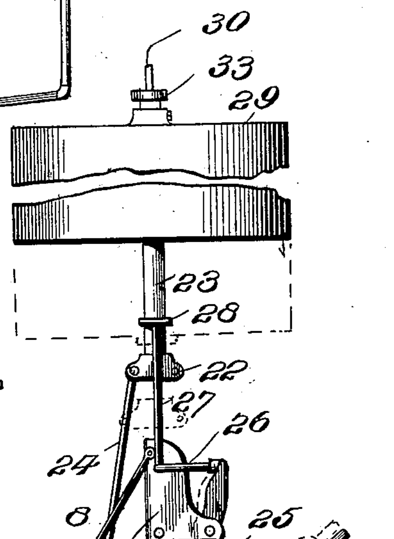


Fig. 2.





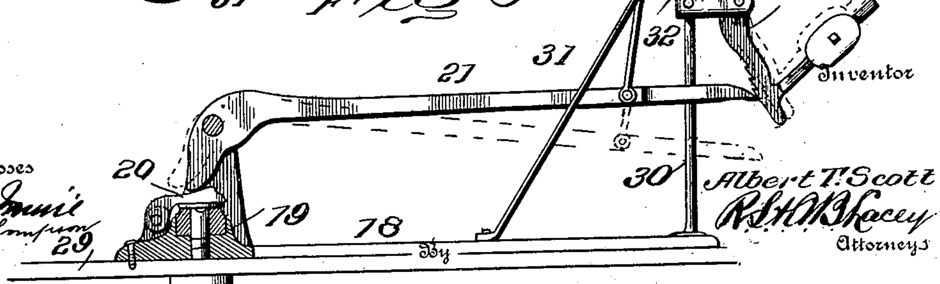


Fig. 3.

Witnesses

Jno. Mmie

G. Thompson

Inventor

Albert T. Scott

By R. S. & A. B. Lacey

Attorneys

THE NORRIS PETERS CO. PHOTO-LITHO., WASHINGTON, D. C.

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(No Model.) 2 Sheets—Sheet 2.

Fig. 4.

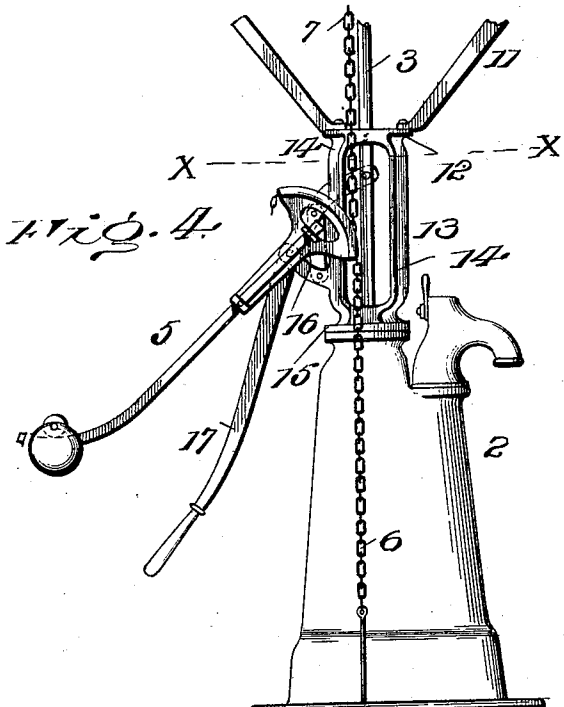


Fig. 5.

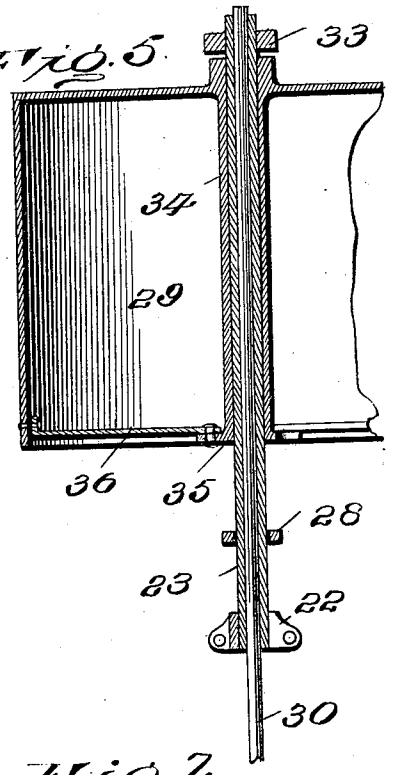


Fig. 7.

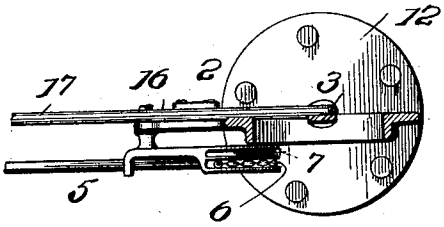


Fig. 6.

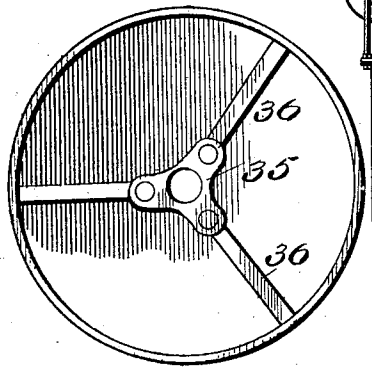
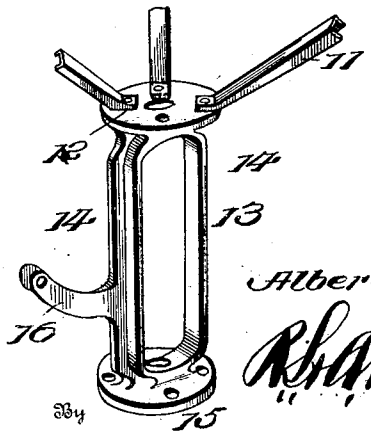


Fig. 8.



Witnesses:
Jno. Tonnie
Gladys L. Thompson.

Inventor
Albert T. Scott
By R. H. B. Kacey
Attorney

UNITED STATES PATENT OFFICE.

ALBERT TITIAN SCOTT, OF DEFIANCE, IOWA.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 677,805, dated July 2, 1901.

Application filed October 11, 1900. Serial No. 32,762. (No model.)

To all whom it may concern:

Be it known that I, ALBERT TITIAN SCOTT, a citizen of the United States, residing at Defiance, in the county of Shelby and State of Iowa, 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.

This invention relates to the general construction of windmills, whereby the parts are strengthened, braced, and rendered more positive and smooth in operation.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are necessarily susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a detail view of the adjunctive parts of a windmill, such as the regulator, the governor, the pump, and the tower. Fig. 2 is a detail plan view of the bed of the governor mechanism, showing the valve and controlling mechanism therefor, the said bed and the valve-operated lever having an intermediate portion broken away. Fig. 3 is a detail view in elevation of the governor, parts being in section and the float having an intermediate portion broken away. Fig. 4 is a detail view in elevation of the pump and the parts intimately associated therewith. Fig. 5 is a vertical central section of the float and the parts directly connected therewith. Fig. 6 is a view of the float inverted. Fig. 7 is a horizontal section of the pump-head and attached parts about on the line X X of Fig. 4. Fig. 8 is a detail view in perspective of the pump-head, showing some of the braces connected thereto.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The tower or derrick 1 may be of any desired form of construction and is of the usual type, comprising four corner-posts connected by horizontal and oblique tie rods and bars. The pump 2 may be of any selected type adapted to be operated by hand and by the wind-engine, the pump-rod 3 extending to the positively-actuated part of the windmill. (Not shown.) The regulator 4 for throwing the windmill out of gear is of the hydraulic type and may be of any construction. The weighted lever 5, having the movable part of the regulator connected therewith by the chain 6, is mounted so as to return the said movable part to a normal position after being actuated and is connected with the releasing chain or line 7 in any selected way. The governor 8, located in the tank 9, coöperates with the pipe 10, by means of which the water is supplied from the pump to the tank, and the mechanism of the governor is substantially the same as that set forth in Patent No. 645,019, granted me March 6, 1900. Within the spirit of the present invention the foregoing-enumerated parts may be of any make or variety so long as they operate in the ordinary manner to maintain a predetermined level of the water in the tank and to throw the windmill into and out of gear at the proper time, so as to prevent overflow of the tank or the emptying thereof.

It has been found in practice that the pump soon becomes loosened from the platform or other support by reason of the upward thrust and jar of the pump-rod, and inconvenience and annoyance result in tightening and replacing the fastenings employed for holding the pump in place. In accordance with this invention the pump is braced vertically and laterally from above by means of bars or rods 11, which are attached at their lower ends to the upper plate 12 of the pump-head 13 and have their upper ends firmly secured to the corner-posts or other convenient part of the tower or derrick. The braces 11 being upwardly divergent likewise serve to stiffen and stay the parts of the tower, as well as hold the pump in position against vertical and lateral displacement. In order that the pump-head 13 may be enabled to sustain the strain to which it is subjected, it is composed of vertical standards 14, connected at their lower ends to a plate 15 and at their upper ends to the plate 12, and these standards are trans-

versely spaced, so as to come upon opposite sides of the pump-rod 3, whereby the strain is quickly distributed upon each side. An arm 16 projects from one of the standards in the usual manner, and the pump-handle 17 and the mountings of the weighted lever 5 are fitted thereto.

The bed or base 18, supporting the valve and governor mechanism, is of skeleton form and approximately of diamond shape, as shown most clearly in Fig. 2, and is secured to the bottom of the tank 9 in any substantial manner. The valve-seat 19 is formed with or applied to one end of the bed 18, and the valve 20 is connected to an offstanding portion thereof in such a manner as to squarely seat itself under varying conditions, thereby completely shutting off the inflow of water into the tank when the predetermined level has been reached. The valve-operating lever 21 has connection with the head 22, at the lower end of the vertically-movable tube 23, by means of a rod or bar 24 instead of a chain or like flexible connection, as shown in my previous patent herein referred to. As a result of the rigid connection 24 between the parts 21 and 23 the said lever 21 is positively actuated upon the descent of the float, thereby permitting the valve 20 to open quickly when the level of the water in the tank 9 recedes below the minimum level. The weighted lever 25 for holding the valve-operating lever 21 elevated at its free end is provided at its upper end with transversely-spaced arms 26, which are connected by rods 27 with the collar or stop 28 and slidably mounted upon the lower end portion of the tube 23. When the float 29 descends and is approaching the limit of its downward movement, it comes in contact with the collar 28 and depresses it and effects a release of the lever 21 from the lever 25, and should the said lever 21 stick or refuse to operate the weight of the float coming upon the head 22 will cause the outer end of the said lever 21 to move downward by reason of the force transmitted through the rods 24 to the outer end of the lever 21, as will be readily comprehended. The collar 28 has a limited downward movement prior to coming in contact with the head 22, thereby permitting the release of the lever 21 prior to the downward movement of the tube 23. The guide-rod 30, by means of which the float 29 is directed in its vertical movements, is secured at its lower end to the end of the bed 18 opposite the valve-seat 19 and is stayed by braces 31, attached at their lower ends to the bed 18 and having their upper ends made fast to the bracket 32, clamped or otherwise secured to the rod 30 at a point between its ends. The float 29 is hollow and closed at its top and sides, the bottom or lower end being open. The tube 23, slidably mounted upon the upper part of the guide-rod 30, passes centrally through the float 29 and is provided with a stop or collar 33 in addition to the collar 28, which constitutes the lower stop. The tube 34, centrally disposed within the float 29, is secured to the upper part thereof in any convenient way and is prevented from lateral displacement at its lower end by means of a spider connecting the lower extremity with the lower part of the said float, said spider consisting of a plate 35 and braces or arms 36. By having the float hollow and its lower end open air confined therein is adapted to be compressed, so that the action of the float while positive is not sudden, and the tube 23 can be moved either up or down by a force equal to the amount of water displaced plus the force resulting from the compression of the air in the upper portion of the float. This construction has been found in practice to give the best results, and for this reason is preferred.

The operation of the different parts is not different materially from the corresponding mechanisms of windmill apparatus. Hence a detailed description is not deemed necessary, especially since any type of hydraulic regulator and governing mechanism may be substituted for those shown and described.

Having thus described the invention, what is claimed as new is—

1. In a windmill, the combination with the valve mechanism for controlling the flow of water into the tank, and a float-controlled support having rigid connection with the valve-controlling lever, of a detent mechanism for holding the free end of the valve-controlling lever elevated, and a stop in the path of the float to release the detent mechanism prior to the actuation of the float-controlled support by the descent of the float, substantially as described.

2. In a windmill, and in combination with the valve mechanism for controlling the inflow of water into the tank, and a float-controlled support having rigid connection with the valve-controlling lever, a stop having a limited vertical movement on the float-controlled support, a detent mechanism for holding the free end of the valve-controlling lever elevated, transversely-spaced arms secured to the upper end of the detent, and rigid connections between the free ends of said spaced arms and the aforementioned movable stop, substantially as set forth.

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

ALBERT TITIAN SCOTT. [L. S.]

Witnesses:

O. F. COX,

THOMAS MCBRIDE.