

L. H. Wheeler

Wind Wheel.

N^o 68,674.

Patented Sep. 10, 1867.

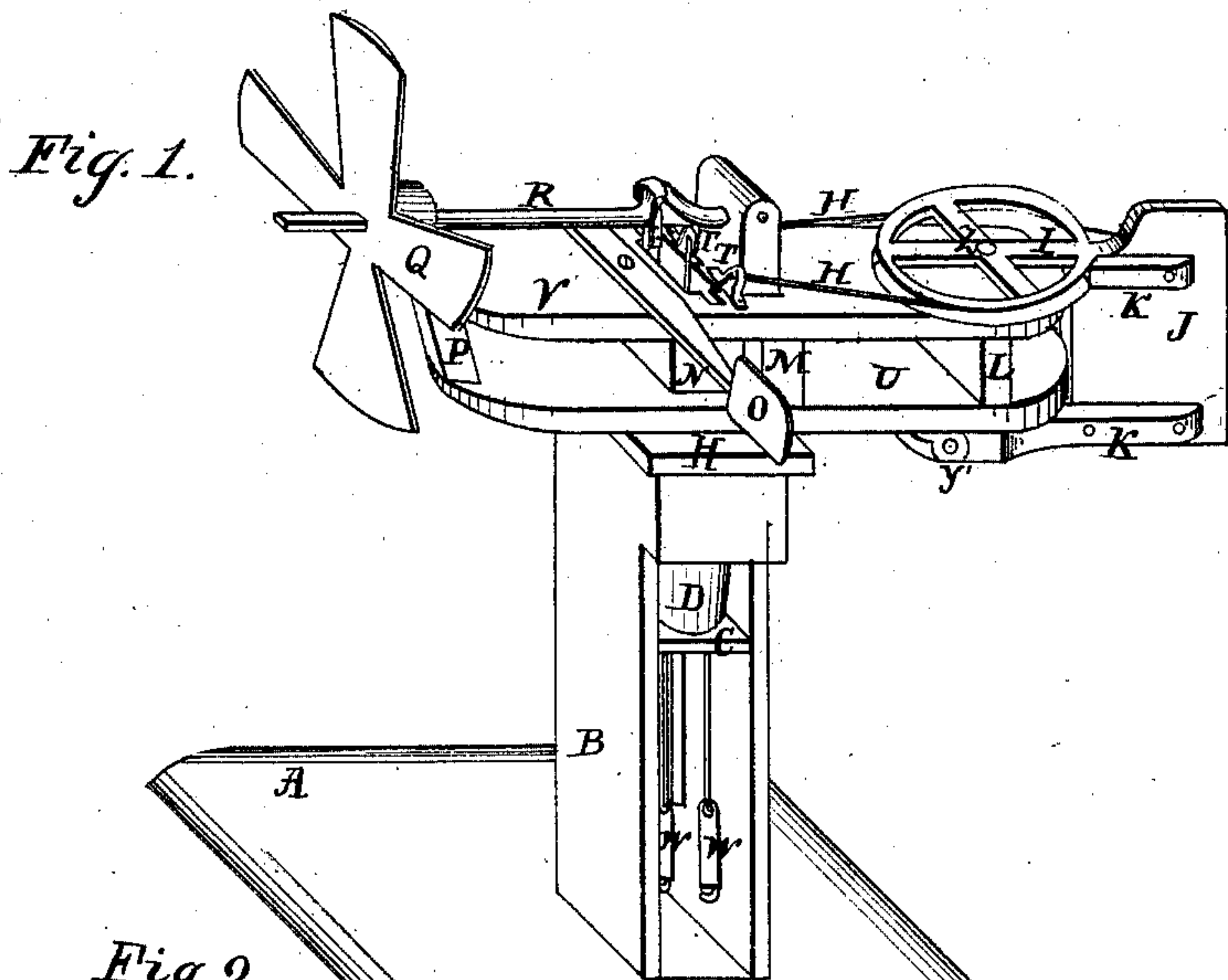


Fig. 2.

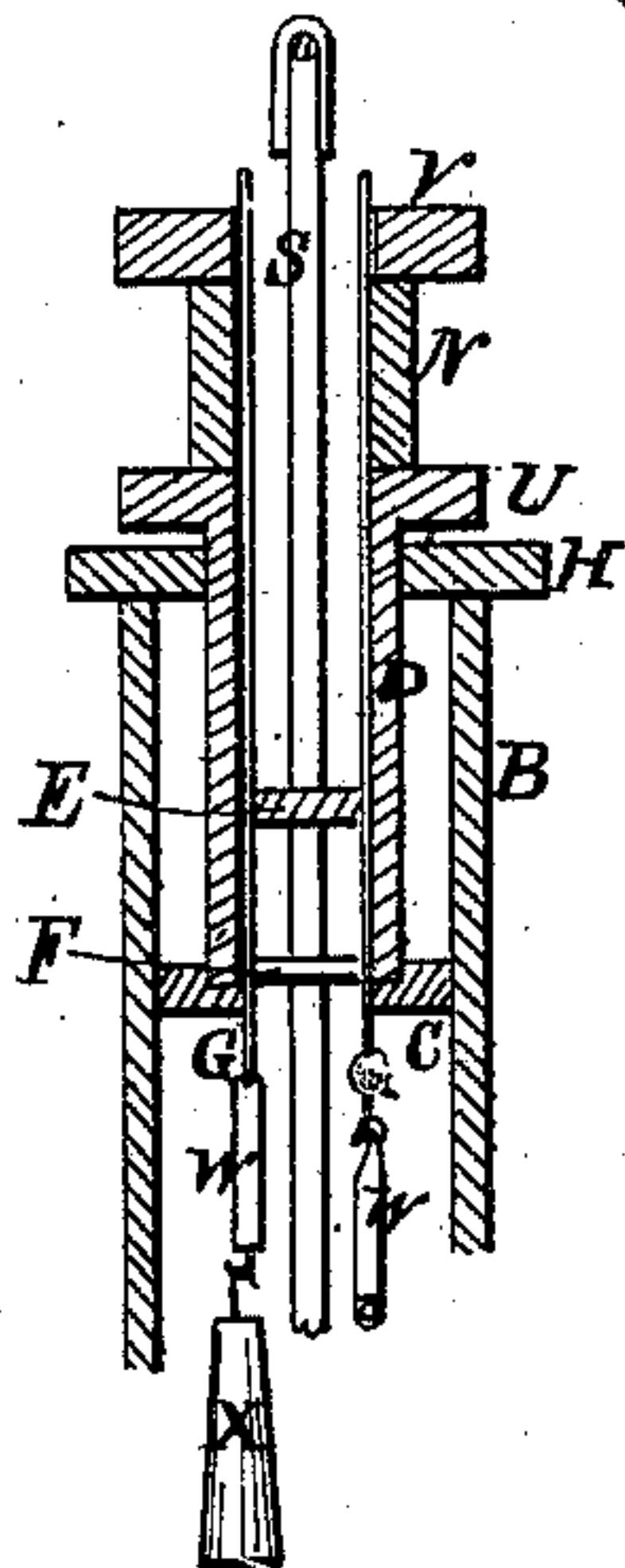


Fig. 4.

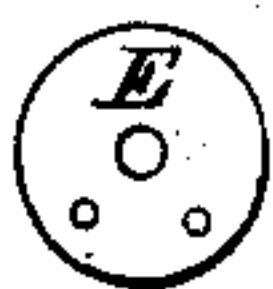
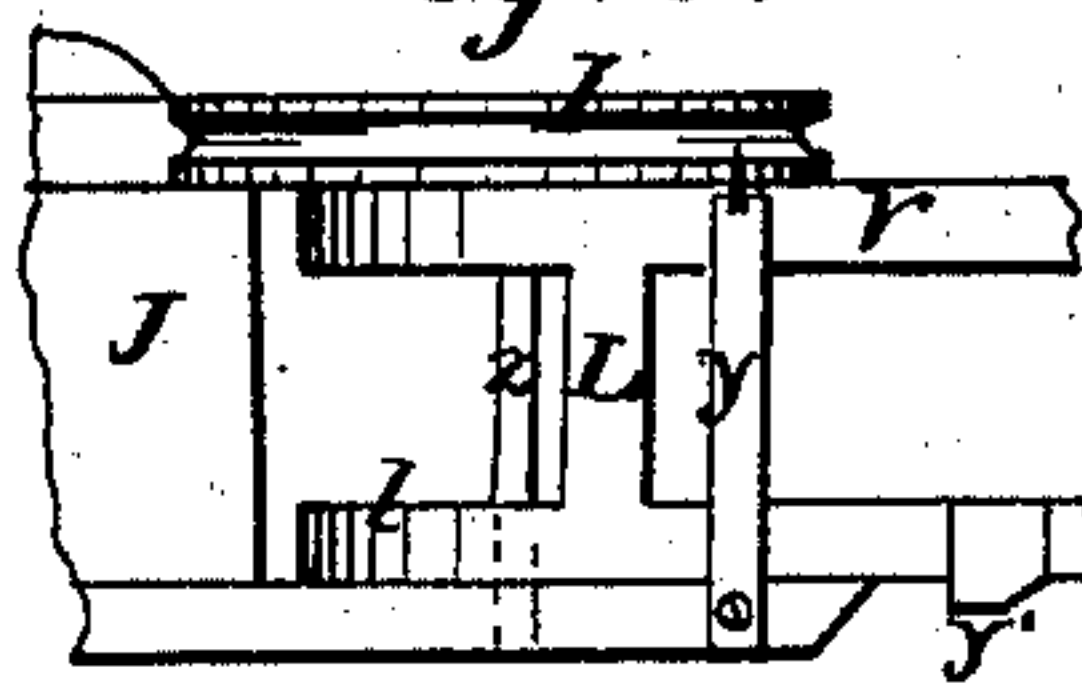


Fig. 3.



Fig. 5.



Witnesses:

*Geoy Bennett
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UNITED STATES PATENT OFFICE

REISSUED

LEONARD H. WHEELER, OF BELOIT, WISCONSIN.

IMPROVEMENT IN WIND-WHEELS.

Specification forming part of Letters Patent No. 68,674, dated September 10, 1867.

To all whom it may concern:

Be it known that I, LEONARD H. WHEELER, of Beloit, in the county of Rock and State of Wisconsin, have invented an Improved Windmill; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings and letters marked thereon, making a part of this description, in which—

Figure 1 is a perspective representation of my invention; Fig. 2, a vertical sectional elevation taken through the stock supporting the vane and gearing; Fig. 3, a broken elevation of the hollow pivot which supports the vane; Fig. 4, a plan view of the upper guide which supports the connecting-rod; Fig. 5, a broken elevation of the rear end of the vane, showing the opposite side from that represented at Fig. 1.

The object of my invention is to provide a vane which will more effectually regulate and control the motion of the common windmill, thereby preventing the inconvenience arising from irregularity of motion and the danger of breakage, as in the case of high winds, &c.; and its nature consists, firstly, in the use of a substantial frame having an upper and lower part made of light material, and of such height as will give a suitable support to the double attachment of the tail of the vane, and so arranging said attachments as to swing on the frame and throw the tail of the vane more or less in or out of the wind, as the case may require, and in the use of weights and pulleys which are operated in combination with a side wing for throwing the wind-wheel into or out of the wind, according to its velocity, and, further, in arranging locks at the tail of the vane to prevent its being thrown out of position; secondly, in the use of a cylindrical pivot, through which the pulley-cords and connecting-rods are made to pass, and in providing guides for the support of said cords and rod, and also suitable bearings in the stock supporting the pivot to revolve in.

To enable others to fully understand my device, I have marked corresponding parts with similar letters, and will now give a detailed description.

A represents a substantial base or founda-

tion, made in the usual manner, and supports a stock, B, made of common plank, and of suitable size and strength, and has an opening for receiving a pivot, D, weights W X, and cords G, as seen at Figs. 1 and 2, and also has a step, C, open at the center and rabbeted out at the top, as seen at Fig. 2, for the support of said pivot D, the opening at the center being made for cords G and connecting-rod S to pass through and for lessening of friction of bottom pivot D. The stock has a cap, H, which also has a hole through which pivot D passes and is held in position. The pivot is made hollow, as seen at Figs. 2 and 3, and has guides F, through which rod S and cords G pass and are held in place, and is rigidly attached to frame U V by means of the square box N, thus forming a continuous opening from the top of the vane downward to or near the base A.

The frame U V is supported a suitable distance apart by standards P M L, to conform to the width of the tail I, in order that it may have a double support by means of the lock-braces K K'. The upper brace, K, is rigidly attached to pulley I, and the lower brace, K', to an enlarged bearing, both being arranged to swing on a shaft, z, put through said pulley I, frame U, V, and K', as seen at Fig. 5, and to be locked parallel with frame U V when wheel Q is directly in the wind by means of a metallic strap, Y, Fig. 5, and to be locked by stops Y' Y', Figs. 1 and 5, one of which is attached to brace K' and the other to U, the lower part of the frame.

The standard M is made to pass through V and to support one end of crank-shaft R, the opposite end of said shaft being supported by standard P, which also is elevated above V. The cord G is adjusted on pulley I, and made to pass over pulleys T, Fig. 1, downward into stock B and support weights W X. A side wing, O, is rigidly attached to V, and is used for a purpose hereinafter explained.

Operation.

Under ordinary circumstances my device will operate automatically, and, being very light, will operate with the application of very little power. The principle of its operation consists in turning the vanes Q more or less

toward a position parallel with the direction of the wind, so that their edges instead of their faces shall be opposed to the wind. The stationary side vane, O, effects this movement of the vanes Q, and will move them more or less, according to the strength of the wind and the counterbalancing effect of the tail J. The position of the tail J and its operation, to counterbalance to a greater or less degree the tendency of the vane O to move the vanes Q "out of the wind," is regulated by means of the pulley I, cords H H, and weights W W X. As the vanes Q move "out of the wind" one or the other side of the tail J is presented more strongly to the wind, and if held rigidly in its position parallel with the axis of the vanes Q it would completely check the lateral movement of the vanes Q; but the tail J is permitted to yield as the wind presses upon one side or the other, and this tendency to yield is controlled by the weight X, which must be raised by said change in the relative position of the tail J. The degree of movement of the vanes Q out of the wind is therefore measured by the power of the wind upon the vane O to raise the weight X.

If it is desired to bring the vanes Q to a

state of rest, the weight X is transferred to the other cord, when the said weight immediately turns the tail J in the opposite direction, and it no longer resists the operation of the vane O, which thereupon becomes a regulator to retain the vanes Q edge to the wind, in which position they will not be caused to revolve, no matter how hard the wind may blow.

Having described my invention, what I claim as new is—

1. The flexible regulating-vane J, operated by the weights, cords, and pulleys, substantially as described, in combination with the side vane, O, for the purpose set forth.

2. The vane J, constructed with the braces K K', stops Y', and strap Y, as and for the purpose set forth.

3. The hollow shaft D, in combination with the flexible vane J, cords H H, and connecting-rod S, so that said cords and connecting-rod may not influence the action of the vanes Q and their supporting-frame, as set forth and described.

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Witnesses:

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