

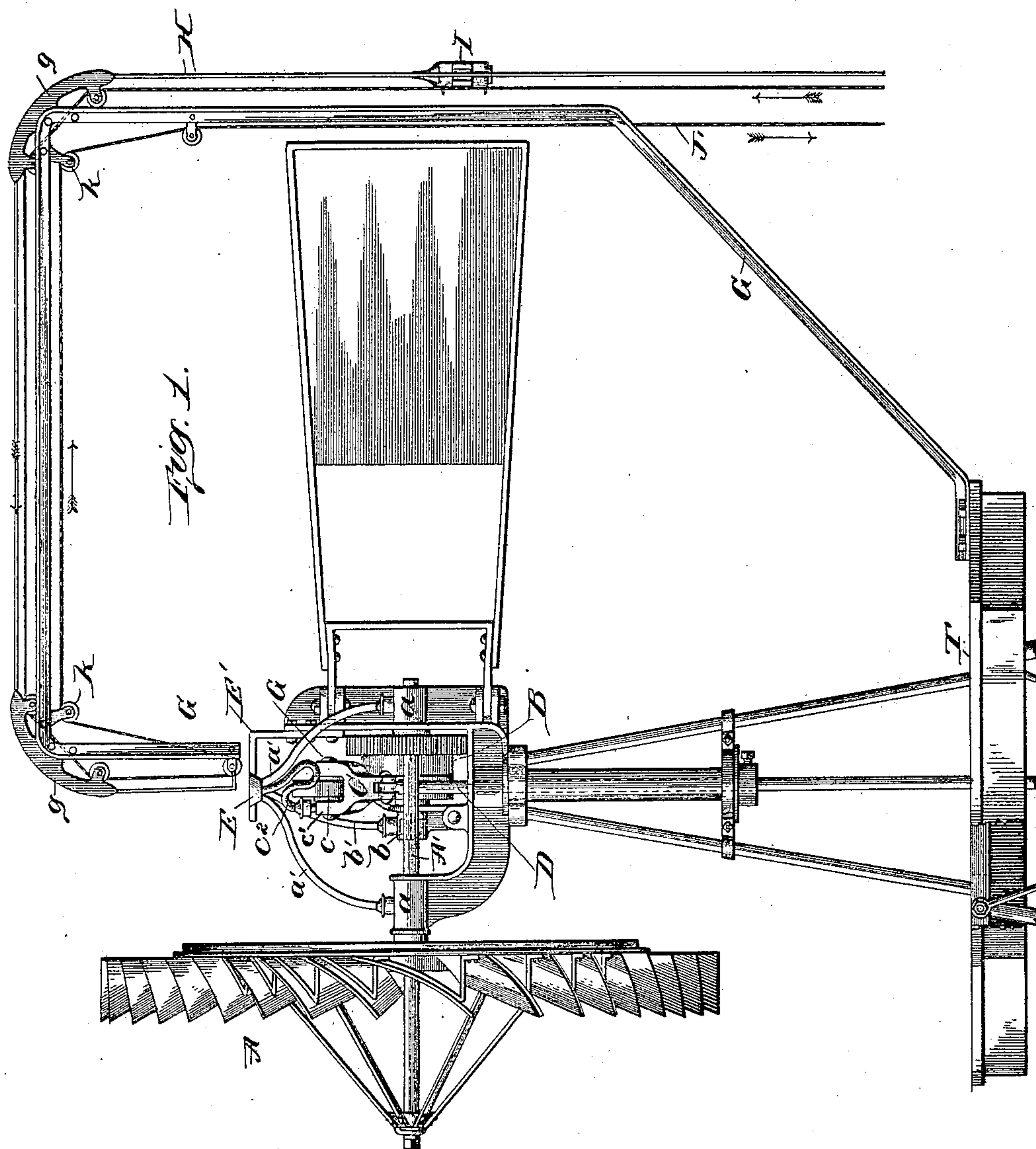
(No Model.)

2 Sheets--Sheet 1.

W. C. WESTAWAY.
LUBRICATOR FOR WINDMILLS.

No. 471,408.

Patented Mar. 22, 1892.



Witnesses:
W. C. Corlies
J. W. Kiel.

Inventor:
Walter C. Westaway

By

L. Hill

John

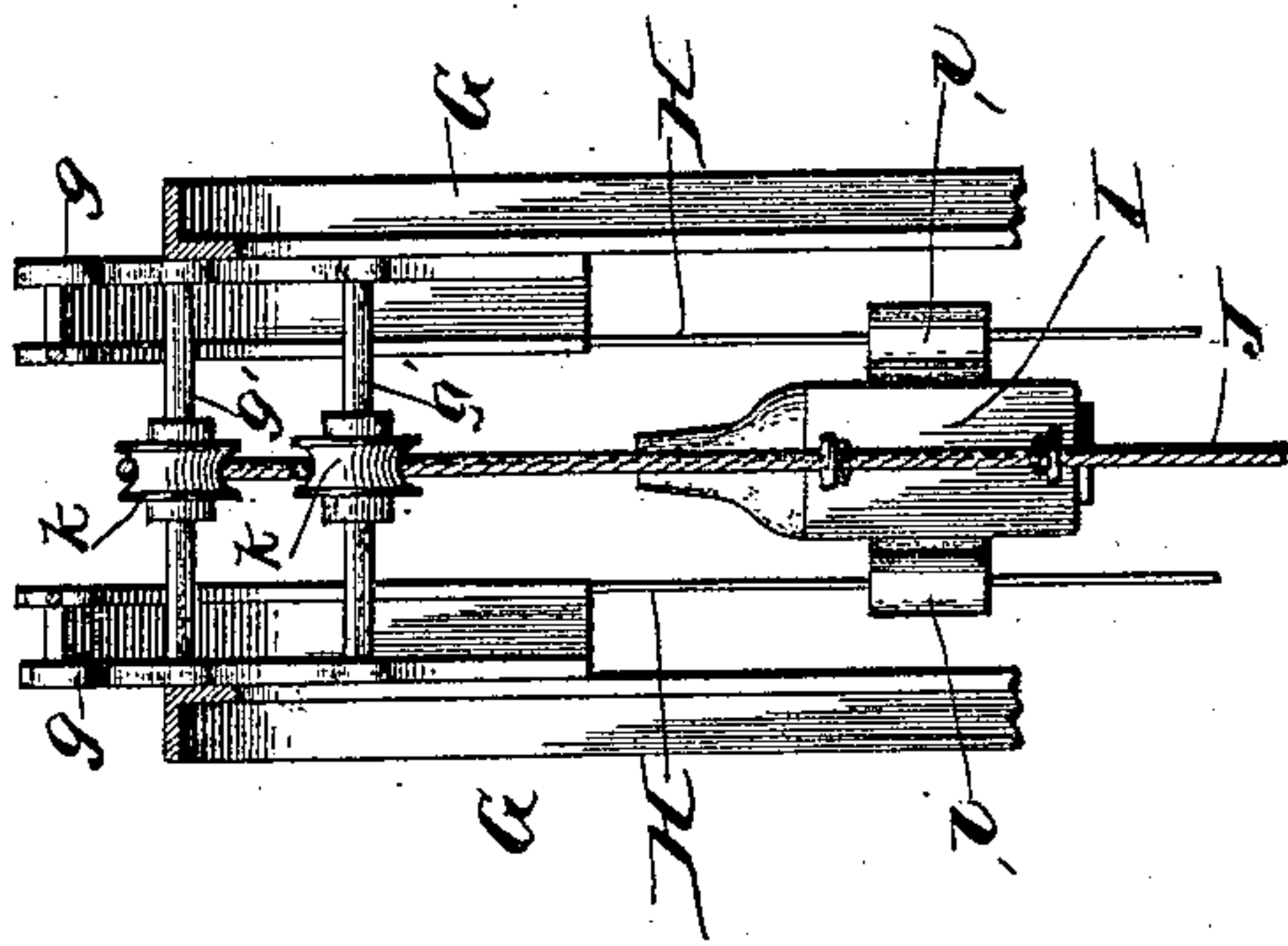
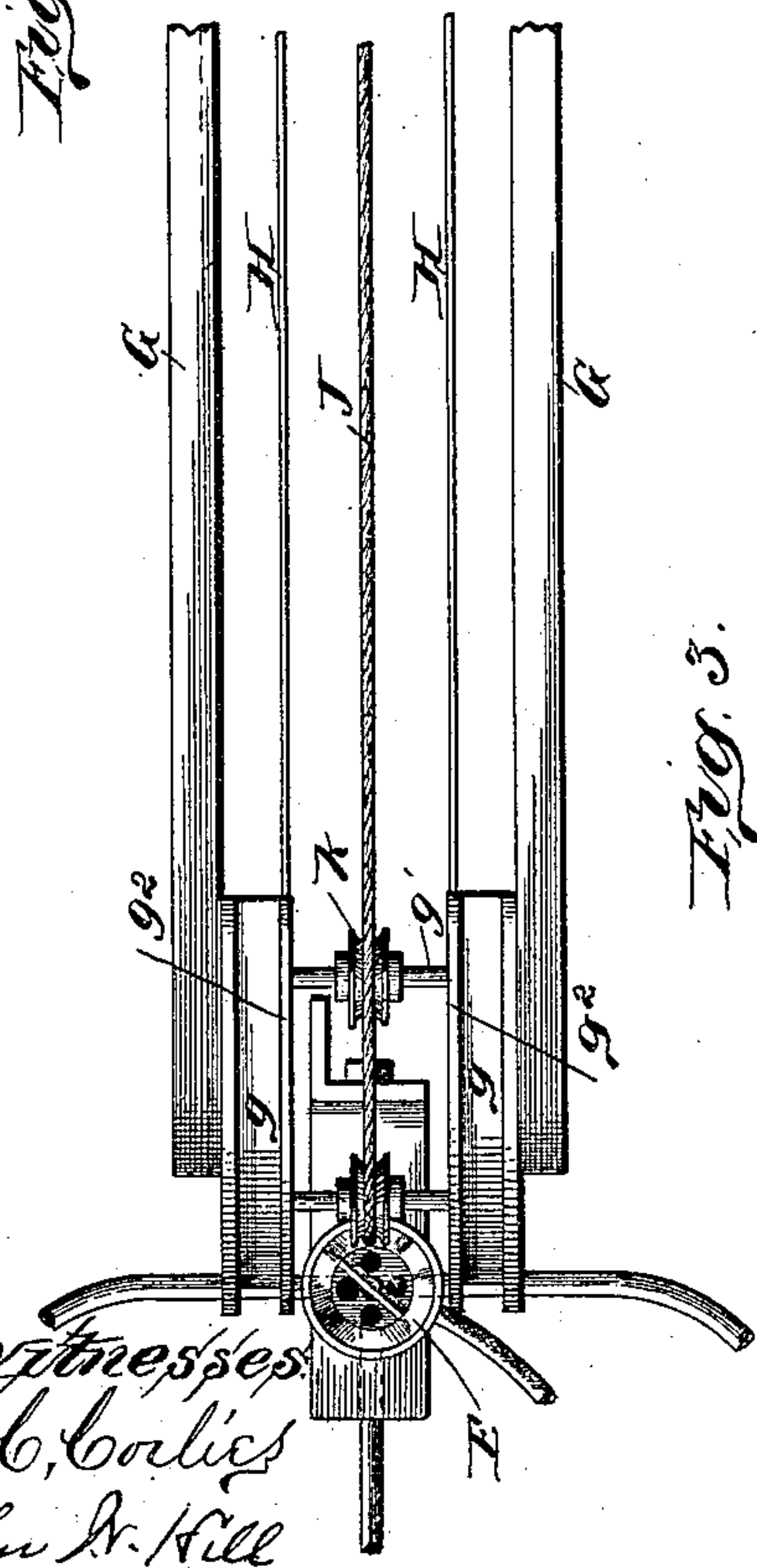
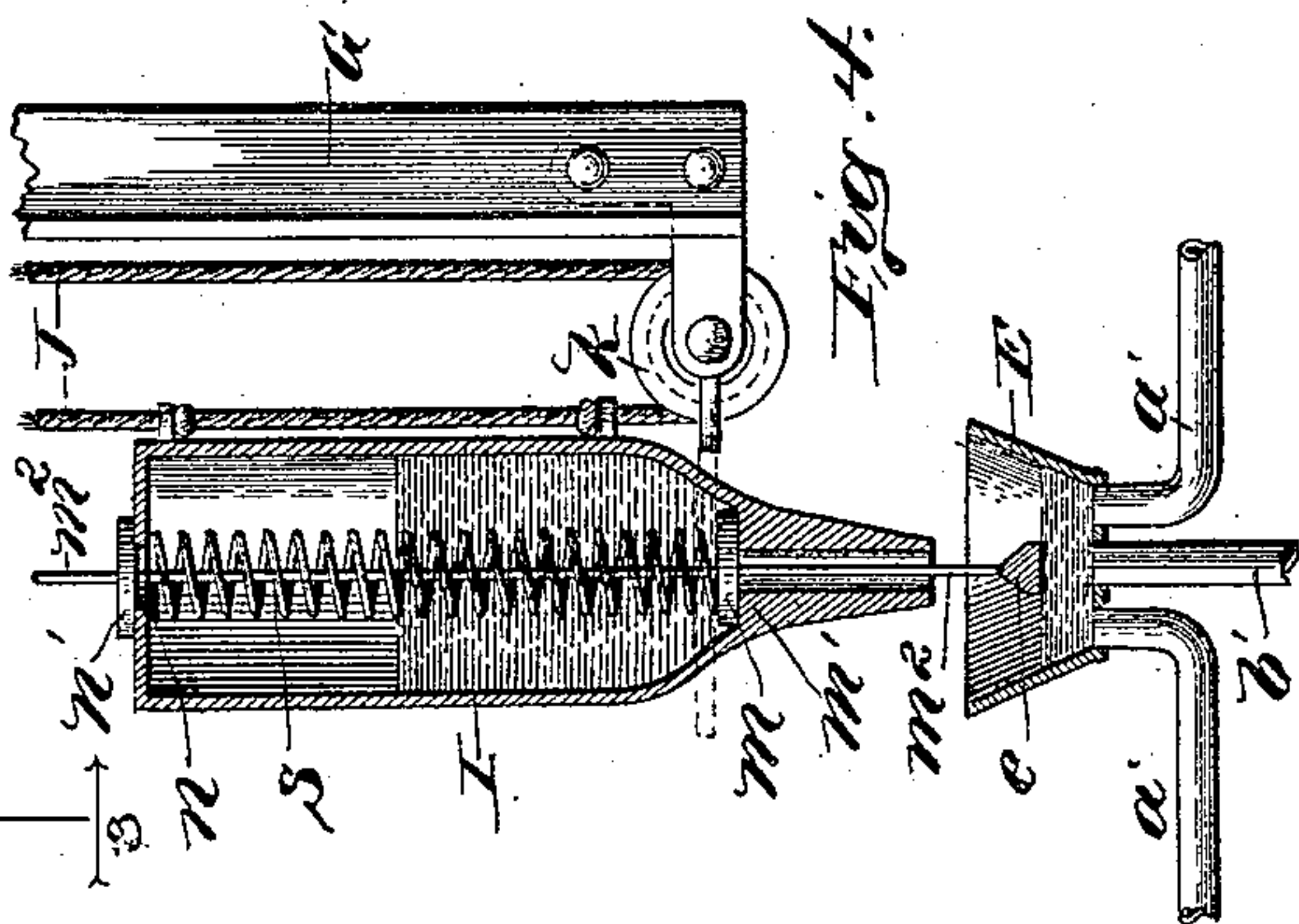
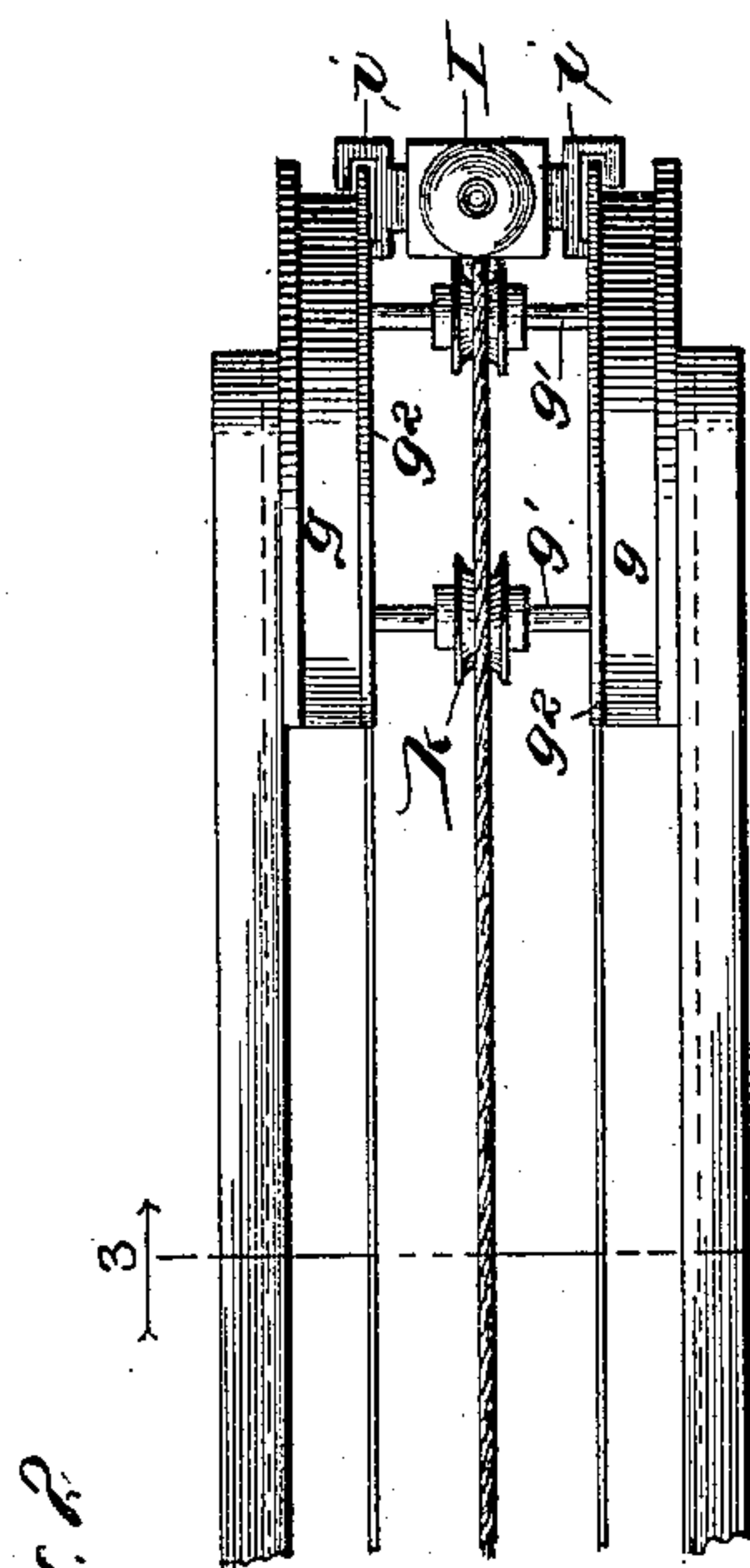
(No Model.)

2 Sheets—Sheet 2.

W. C. WESTAWAY.
LUBRICATOR FOR WINDMILLS.

No. 471,408.

Patented Mar. 22, 1892.



Witnesses
W. C. Corlies
John R. Hill

Inventor
Walter C. Westaway,

By L. Hill Atty

UNITED STATES PATENT OFFICE.

WALTER C. WESTAWAY, OF DECORAH, IOWA.

LUBRICATOR FOR WINDMILLS.

SPECIFICATION forming part of Letters Patent No. 471,408, dated March 22, 1892.

Application filed May 27, 1891. Serial No. 394,238. (No model.)

To all whom it may concern:

Be it known that I, WALTER C. WESTAWAY, a citizen of the United States of America, residing at Decorah, in the county of Win-

5 shiek and State of Iowa, have invented a new and useful Improvement in Lubricating Devices for Windmills, of which the following is a specification.

In the accompanying drawings, wherein

10 like reference-letters indicate like parts, Figure 1 is a side elevation; Fig. 2, a top plan of the elevator; Fig. 3, a partial vertical section in line 3 3 of Fig. 2, looking in the direction indicated by the arrows in Fig. 2; and

15 Fig. 4, a sectional view of the oil-can and receptacle with the can in position to commence charging the receptacle.

This invention relates to means for lubricating the working joints or bearings of the

20 windmill. These joints or bearings are arranged at or above the top of the tower, and in order to lubricate them it has always heretofore been necessary either for an attendant to ascend the tower and supply oil by hand

25 or for the tower to be so constructed that the mill-head can be lowered to the ground and the joints there oiled by hand. Both methods are laborious and inconvenient, the one involving more or less danger to the attend-

30 ant and the other to the machinery, and the construction which enables the mill-head to be lowered to the ground adds to the cost of the structure and involves a departure from the mechanical conditions necessary to the

35 rigidity and stability of the tower.

The object of my invention is to enable the attendant to supply the oil at will without ascending the tower or lowering the machinery to the ground.

40 To this end the broad principle of my invention consists in combining with the windmill machinery and its supporting structure or tower, whatever may be their form and construction, an elevating device or carrier of any

45 suitable form and construction competent to the end proposed, by which the lubricant can be elevated at the will of the attendant to the machinery and there applied to the bearings which it is desirable to oil.

50 My main invention consists in the broad combination above suggested.

Subordinate inventions and improvements

consist in the devices and sub-combinations employed in carrying the main invention into practice, and which will be more particularly

55 indicated in the claims hereto annexed.

Of the many possible forms and constructions contemplated by me in which my main invention may be embodied the drawings illustrate and this specification will describe

60 the one which I consider as, on the whole, best adapted to the purpose.

The upper end of a windmill-tower, with a windmill mounted thereon, is shown in Fig. 1, and will readily be recognized without fur-

65 ther description. In the form of windmill shown the shaft A' of the wind-wheel A is mounted in two bearings *a a*. A cam-wheel B, driven from the wind-wheel shaft, oscillates a lever C, which is provided with a friction-

70 roller *c*, riding on the cam-wheel. The lever C raises and lowers the pitman D, which is connected below to the pump-rod. In this construction the strain in working comes principally upon the bearings *a a* of the wind-

75 wheel shaft, the bearing *b* of the cam-wheel shaft, and the bearing *c'* of the friction-roller *c*, and therefore these are the joints or bearings which in this form of mill it is most im-

80 portant to keep properly lubricated. Hence I will describe my invention as adapted to their lubrication, premising, however, that the sphere of its operation may be extended to any other bearings or parts which it may be deemed desirable to lubricate in any form

85 of windmill, and that such further extension will be within the skill of any competent workman who shall have familiarized himself with the method and means herein described for lubricating the joints or bearings *a a b c'*.

90

For the purpose of oiling the several bearings by a single operation of the elevating device, whatever may be the form of the latter, it is essential that said bearings should be connected by separate ducts to a single oil

95 receiver or conduit capable of supplying them, and as the elevating device must be mounted on the tower, and therefore immovable in position, while the bearings, ducts, and common conduit or receiver must be mounted

100 upon and turn with the mill-head, it is necessary that the receiver should be arranged substantially in the line of the vertical axis of the mill-head or turn-table, so that, although ro-

tating with the latter, it will not change position with relation to the elevator.

In the construction here shown, E is the receiver or conduit mounted upon a suitable bracket or support E', attached to the mill-head.

a' a' are the ducts leading from the receiver to the bearings a a , respectively; b' , the duct leading to the bearing b , and c' a flexible duct leading to the vertically-movable bearing c' . The oil may be forced from the common receiver or conduit through the ducts to the several bearings by any suitable means, the preferable means being to arrange the receiver at a sufficient elevation to permit the oil to flow down to the bearings by gravity.

With a suitable receiver or conduit mounted axially upon the mill-head and connected with the several bearings by suitable ducts the lubricating-fluid may be supplied to the receiver from time to time by any form of elevating device capable of raising it from a point at or near the base of the tower and delivering it into the receiver. I prefer to employ an elevator constructed and operating on the general plan of the well-known "store-service" apparatus, but adapted to elevate an oil-can and deliver its contents into the receiver, and the drawings illustrate one way in which this may be practically accomplished. Such device consists, in general terms, in a support attached to the tower, a guide mounted on said support, a can or can-holder adapted to travel along the guide, a cord, chain, or other suitable means for causing the can to travel along the guide to and from the receiver, and means for discharging the contents of the can into the receiver.

G is the support, of any suitable form and construction, preferably consisting of two parallel angle-iron bars suitably connected together. In the form here shown it extends from the top of the tower T obliquely outward and upward far enough to clear the swing of the tail-vane, thence vertically upward far enough to clear the top of the wind-wheel, thence horizontally inward to a point nearly in vertical line with the receiver E, and thence vertically downward to the neighborhood of the receiver. At the upper corners I apply curved guiding-plates g to each of the bars and connect them together by rods g' . The plates g extend outward and upward beyond the line of the bars G and are provided with flanges g^2 . From the lower ends of these flanges parallel guide-wires H extend on the one hand down to or nearly to the ground, where they may be attached to any suitable structure—for example, the lower part of the tower—and on the other hand down to the bracket E', and similar guide-wires extending horizontally connect the flanges at one corner of the frame with those at the other corner, so that the two parallel guide-wires, in connection with the parallel curved flanges g^2 , form a continuous guide-track or railway extending from a point near the ground to a point

near the receiver E, upon which track or railway the oil-can may be carried from the one end of the "line" to the other.

The oil-can I, or any suitable carrier adapted to hold it, is provided with arms i i , grooved to fit the wires H and flanges g^2 , as shown in Figs. 2 and 3, and is attached or attachable to a traveling cord J, running over guide-rollers k , mounted upon the cross rods or ties g' , as shown in Fig. 1, and upon the end of the guide-frame near the receptacle E, as shown in Fig. 4. By attaching the can to the cord near the ground, connecting the grooved arms i i to the guide-track, and operating the cord the can will be caused to ride along the track up over the top of the guide-frame and down to the receptacle E, to which it will be presented in the manner shown in Fig. 4, with its neck downward, and after the receiver is charged with oil the can may, by reversing the movement of the cord, be drawn back to the point whence it started on its journey and detached, if desired.

Various devices may be resorted to for discharging the contents of the can into the receptacle when it reaches the latter, one of which is shown in Fig. 4, and is as follows: The can is provided with a valve m at its upper end seating upward against a valve-seat m' and fixed to a valve-rod m^2 , which projects from the neck of the can. The valve is normally held seated by means of a spring s , arranged within the can. The receptacle E is provided with a tripping-bar e extending across it in such position as to be struck by the valve-stem m^2 when the can is in position to deliver its oil into the receiver. A slight pull upon the cord J will then compress the spring, unseat the valve, and allow the oil to flow out into the receiver and thence to the bearings. If it be considered desirable to admit air into the can above the oil during this operation to enable the oil to flow more freely, the bottom of the can may be provided with an orifice n , normally closed by an exterior valve n' , attached to the valve-stem m^2 , in which case both valves will be opened or closed simultaneously. With this latter construction the spring s should be made strong enough to hold the valve n' tightly seated against the weight of the oil when the can is not inverted.

The entire apparatus, substantially as herein shown and described, has been put into practical use by me and demonstrated to be an exceedingly convenient and satisfactory device for accomplishing the desired object. It can be made very light and adds but little to the cost of the mill.

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

1. In combination with the bearings of a windmill, an oil receptacle or conduit mounted axially upon the mill-head, a series of ducts leading therefrom to the several bearings, and a carrier for mechanically raising the lubri-

cant from a point at or near the ground and charging it into said receptacle or conduit at the will of the operator, substantially as described.

5 2. In combination with a receptacle mounted axially upon the mill-head of a windmill elevated upon a tower and communicating with the several bearings of the windmill mechanism, a guide-track extending from a point at
10 or near the ground to a point at or near said receptacle, a lubricant-vessel adapted to be guided by said track, and a cord for causing said vessel to travel along said track to and from said receptacle, substantially as described.
15

3. In combination with a receptacle mounted axially upon the mill-head of a windmill elevated upon a tower and communicating with the several bearings of the windmill mechanism, a guide-track extending from a point at
20 or near the ground to a point at or near said receptacle, a lubricant-vessel adapted to be guided by said track, a cord for causing said vessel to travel along said track to and from
25 said receptacle, and means for discharging the contents of said vessel into said receptacle at the will of the operator when the vessel and receptacle are in the proper relative position therefor, substantially as described.

30 4. In combination with an oil-receptacle mounted axially upon the mill-head of a windmill elevated upon a tower and communicating with the several bearings to be lubricated, an elevator adapted to mechanically elevate
35 a vessel of oil from a point at or near the base of the tower to a position immediately over the receptacle, and means for enabling the attendant from a point at or near the ground to discharge into said receptacle the contents of
40 the oil-vessel so elevated to the neighborhood of the receptacle, substantially as described.

5. A windmill having an oil receptacle or

conduit and a duct leading from said conduit to the bearings of the windmill, in combination with a supporting arm or frame extending from the tower beyond the sweep of the
45 tail-vane upward above the line of the top of the wind-wheel and thence inward to a point over the mill-head and forming a guide-track, an oil-can, and a hoisting apparatus supported by said arm or frame and constructed
50 to raise the said oil-can to the oil receptacle or conduit, substantially as described.

6. In combination with an oil-receptacle at the top of a windmill communicating with the
55 bearings of the mill and a hoisting apparatus for mechanically raising an oil-vessel from the base of the tower to a position over the receptacle, a vessel having a valve controlling its discharge, and a tripping device constructed to open said valve when the vessel has arrived at its position above said receptacle,
60 substantially as described.

7. In combination with an oil-receptacle at the top of a windmill, communicating with
65 the bearings of the mill, a hoisting apparatus for mechanically raising an oil-vessel from the base of the tower to a position over the receiver, and the vessel I, provided with the valve m , the spring s , and the projecting valve-stem m^2 , substantially as described.
70

8. In combination with an oil-receptacle arranged at the top of a windmill, communicating with the bearings of the mill, the guide-track, the actuating-cord, and the vessel I,
75 adapted to be connected to the track and the cord and provided with the two valves m n' , spring s , and projecting valve-stem m^2 , substantially as described.

WALTER C. WESTAWAY.

Witnesses:

H. C. GODDARD,
E. J. CURTIN.