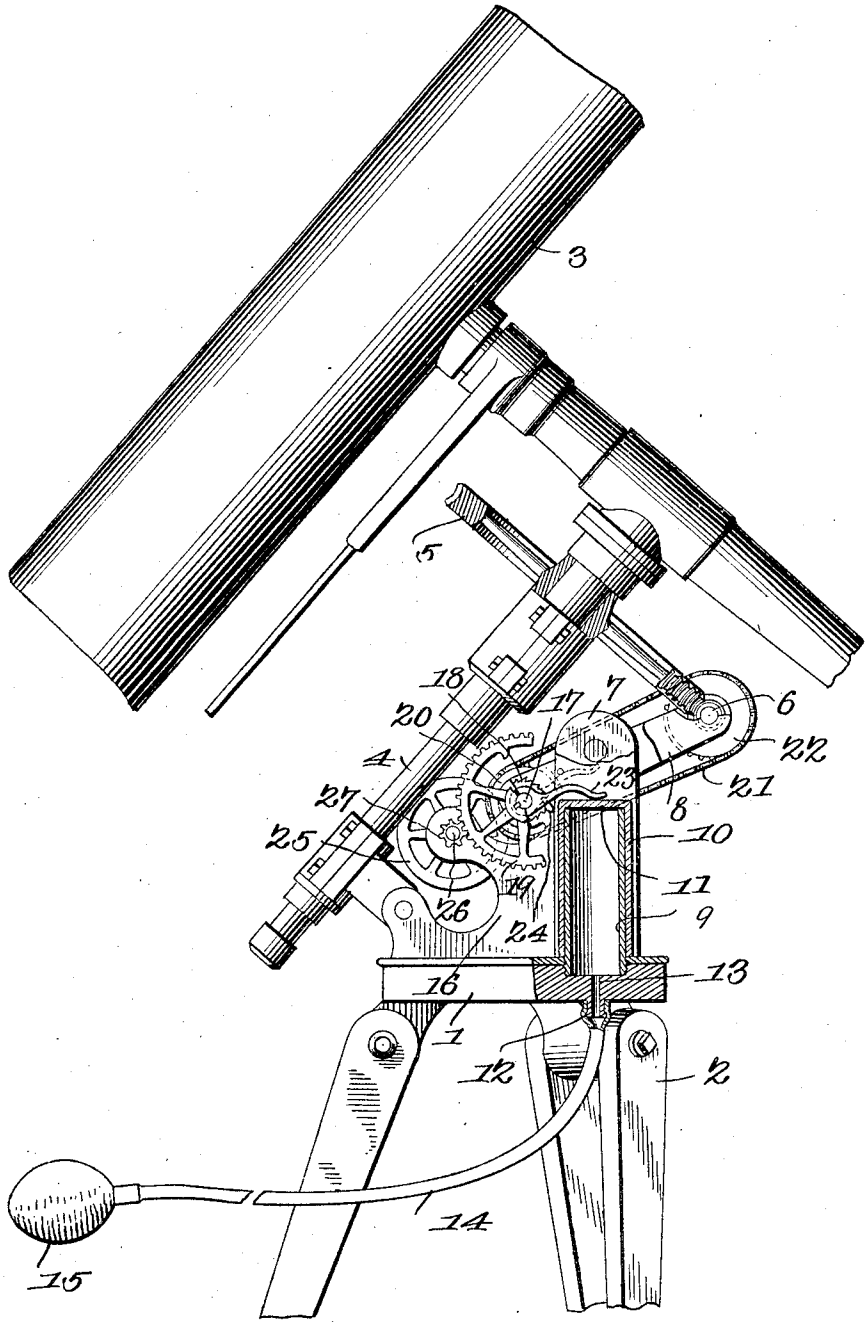
No. 836,771. PATENTED NOV. 27, 1906.

E. LOHMANN.

TELESCOPE.

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UNITED STATES PATENT OFFICE.

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TELESCOPE.

No. 836,771. Specification of Letters Patent. Patented Nov. 27, 1906.

Application filed October 18, 1905. Serial No. 283,316.

To all whom it may concern:

Be it known that I, EDWIN LOHMANN, a citizen of the United States, residing at Greenville, in the county of Darke and State of Ohio, have invented a new and useful Telescope, of which the following is a specification.

This invention relates to telescopes.

The object of the invention is in a ready, simple, thoroughly feasible, and practical manner to dispense with the ordinary driving-clock for effecting rotation of an equatorial telescope on its polar axis in right ascension and in lieu thereof to employ pneumatically-actuated mechanism for securing this result.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a driving means for effecting rotation of an equatorial telescope about its polar axis, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like characters of reference indicate corresponding parts, the figure is a view in elevation, partly in section, exhibiting the improvements that constitute this invention.

Referring to the drawings, 1 designates the ordinary base of the telescope, which is mounted upon the usual tripod 2. Supported upon the base in any preferred manner is the telescope 3, the shaft 4 thereof which constitutes the polar axis having combined with it an ordinary worm-wheel 5, with which meshes a worm 6. All of these parts may be of the usual or any preferred construction, and therefore need no detailed description.

The present invention resides in the novel mechanism for effecting rotation of the worm-wheel 5, whereby the telescope is caused to turn upon its polar axis in right ascension to cause it to follow a celestial object. This result is secured by a novel arrangement of pneumatically-actuated mechanism, in the operation of which a steady motion will be imparted to the telescope-tube that will closely approximate the ordinary clockwork mechanism commonly employed.

To accomplish the objects sought, the base between the two standards 7, that carry the arms 8, in which the worm 6 is journaled, has mounted upon it a cylinder 9, with which is combined a piston 10, the upper end of which is closed by a head 11. The cylinder 9 may be cast integral with the base or may be a separate element secured thereto, as shown in the present instance by screw-threads. Generally it will be preferred to make both the cylinder and piston of brass tubing, as shown. The under side of the base is provided with an orificed teat or lug 12, through which and the base extends a port 13, that communicates with the cylinder. Connected with the teat is one end of a rubber or other flexible tubing 14, the other end of which has combined with it a compressible bulb 15, such as is commonly employed in connection with cameras. The teat 12 may be formed integral with the base or may be secured thereto in any preferred manner.

Mounted in a pair of brackets 16, (one only being shown,) supported by the base, is a shaft 17, upon the intermediate portion of which is keyed a ratchet-wheel 18, one end of the shaft having keyed to it a gear-wheel 19 and the other end a sprocket-wheel 20, the latter being engaged by a sprocket-chain 21, that engages a sprocket-wheel 22, carried by the worm-shaft. Loosely mounted upon the shaft 17 is a lever 23, that carries a spring-pressed pawl 24, adapted to engage with the ratchet-wheel 18 on the upward movement of the lever, the free end of the lever being disposed over the head of the piston. It will be seen from this arrangement that when the bulb 15 is compressed the air will be forced through the port 13 and into the cylinder and lift the piston, whereupon the lever 23 will be rocked, and this latter through the medium of the pawl 24 and ratchet-wheel 18 will rotate the shaft 17, and this motion will be transmitted by the sprocket-chain 21 to the worm-shaft, thereby causing the latter to turn and actuate the worm-wheel 5. While sprocket-wheels and a sprocket-chain are herein shown for transmitting motion from the shaft 17 to the worm, it is to be understood that the invention is not to be limited thereto, as any other means for securing this result may be adopted if found necessary or desirable.

In order to carry the motion resulting from the compression of the bulb over to the next compression, thus to secure a continuous motion, a fly-wheel 25 is provided, which is carried by one end of a shaft 26, journaled in the bracket 16, the other end of the shaft having secured to it a pinion 27, that meshes with the gear-wheel 19. It will be seen by this arrangement of mechanism that a continuous and even motion may be imparted to

the worm-wheel 5 at any desired rate of speed which will be controlled or regulated by the amount of pressure exerted upon the bulb 15.

It will be seen from the foregoing description that although the driving mechanism herein defined is simple in character it will be thoroughly effective for the purposes designed and may be readily applied to an ordinary telescope without requiring any extended change in its structural arrangement.

Having thus described the invention, what is claimed is—

1. The combination with the worm of an equatorial telescope; of means for driving the worm comprising a cylinder, a piston coacting therewith, means for forcing air into the cylinder, a drive-shaft operatively connected with the worm, a ratchet-wheel rigid with the drive-shaft, a lever loosely mounted on the drive-shaft and adapted to be actuated by the piston, and a pawl carried by the lever and engaging the ratchet-wheel.

2. The combination with the worm of an equatorial telescope, of means for driving the worm comprising a cylinder, a piston coacting therewith, a flexible tube and compressible bulb for supplying air to the cylinder, a drive-shaft operatively connected with the worm, a ratchet-wheel rigid with the drive-shaft, a lever loosely mounted on the drive-shaft and engaging the piston, and a pawl carried by the lever and engaging the ratchet-wheel.

3. The combination with the worm of an equatorial telescope, of means for driving the worm comprising a cylinder, a piston coacting therewith, a flexible tube and compressible bulb for supplying air to the cylinder, a drive-shaft operatively connected with the worm, a ratchet-wheel rigid with the drive-shaft, a lever loosely mounted on the drive-shaft and engaging the piston, a pawl carried by the lever and engaging the ratchet-wheel, and a fly-wheel actuated from the drive-shaft to convert the intermittent motion of the piston into a continuous motion.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

EDWIN LOHMANN.

Witnesses:
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