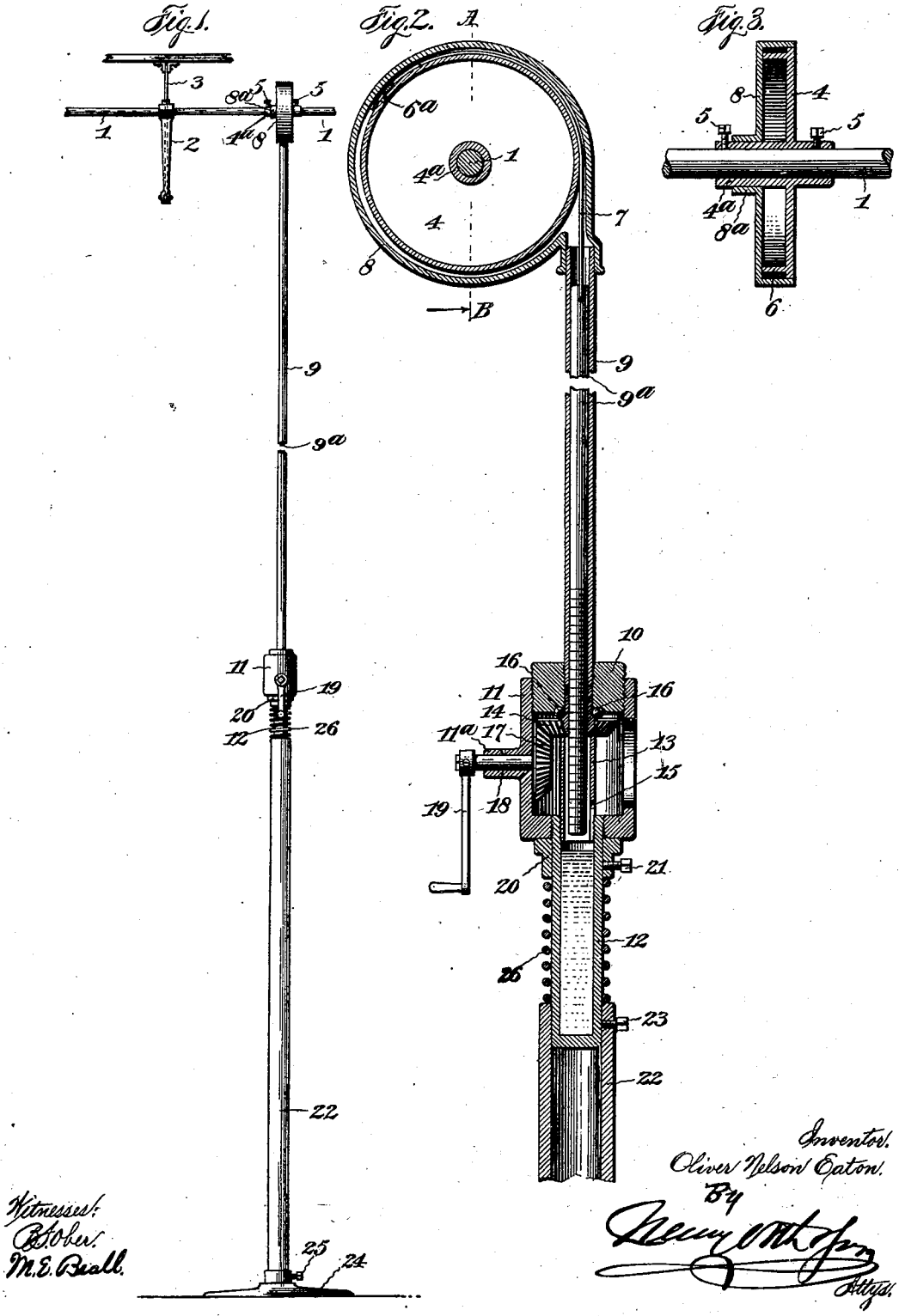
No. 723,447. PATENTED MAR. 24, 1903.

O. N. EATON.

TRANSOM LIFTER.

APPLICATION FILED JUNE 24, 1902.

NO MODEL.



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UNITED STATES PATENT OFFICE.

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TRANSOM-LIFTER.

SPECIFICATION forming part of Letters Patent No. 723,447, dated March 24, 1903.

Application filed June 24, 1902. Serial No. 112,994. (No model.)

To all whom it may concern:

Be it known that I, OLIVER NELSON EATON, a citizen of the United States of America, residing in the city of New York, State of New York, have invented certain new and useful Improvements in Transom-Lifters; 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, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

My invention relates to devices to impart a partial rotation to a shaft, and more especially to the shafts that simultaneously open and close a series of transoms, and is especially adapted for use in a greenhouse where rows of ventilators are to be opened and shut, and has for its object a simplification and cheapening of the device and inclosing the operating parts, so as to prevent them from exposure to moisture and dirt.

It has been found to be a great desideratum to provide a device that will open and shut the ventilators of greenhouses by continuous movement without sticking or jerking. On account of the light structure of the framing of greenhouses and the large area of glass used in the ventilators the sticking of such devices during opening will jar the ventilators to such an extent that putty will be shaken loose from the glass and the dust and dirt from off the ventilators shaken into the building.

Referring to the drawings, in which like parts are similarly designated, Figure 1 shows my device in operative relation to a line-shaft that operates a series of ventilators in a greenhouse. Fig. 2 is a section of a portion thereof on a larger scale. Fig. 3 is a section of Fig. 2 on the line A B.

On the line-shaft 1 is secured a number of levers 2, hinged to arms 3, connected to the sash to be lifted. On the shaft 1 is fixed a band-wheel 4 by means of set-screws 5, passing through its boss 4^a. The band-wheel is provided with a flange 6, somewhat from the edge of the wheel, to which is secured at 6^a one end of a flexible connection 7. The band-wheel is inclosed in a casing 8, that covers flange 6 and takes over the edge of the wheel, said casing having a boss 8^a, that is journaled on the boss 4^a of the band-wheel. To this casing is connected a pipe 9, tangential to the periphery of the band-wheel, so that the flexible connection whose free end is connected to a threaded rod 9^a in the pipe 9 can leave the band-wheel and be drawn into this pipe by said rod. The lower end of this pipe is threaded into a union or filler 10, which is threaded into a casing 11. Into the bottom of the casing 11 is secured an oil-well 12, and threaded into the upper end of the oil-well and within the casing 11 is a sleeve 13, designed to support a bevel-pinion 14 and provided with an oil-passage 15, through which oil can be poured into the well. The pinion 14 is journaled in the union 10, that has formed in its lower face a raceway for balls 16, forming a ball-bearing. Gearing with the pinion 14 is a similar pinion 17, journaled on a boss 11^a, formed on the casing 11, and the stub-shaft 18 of the pinion 17 projects from the sleeve 11^a and carries a hand-crank 19.

Just below the casing 11 is a collar 20, secured to the oil-well by means of the set-screw 21, and the lower end of the oil-well is secured to the pipe 22 by means of the set-screw or screws 23. This pipe 22 seats in a foot or base plate 24 and is held therein by a set-screw 25. The whole device is supported from the foot 24 and pipe 22, so as to take the weight off the counter-shaft. The cheapness of the construction of these devices does not allow of expensive foundation for their support, and for this reason a simple casting, as 24, is used as a base, and it often happens that due to the settling of the ground and the base-casting with it the device will tend to hang on the shaft. In order to take up this weight, I surround the oil-well with the rather heavy coil-spring 26, held between the collar 20 and the end of the pipe 22. By loosening the set-screw 23 in pipe 22 the upper part of the device will be lifted by the spring 26 an extent equal to the settling at the base, the coil-spring thus taking up the weight during adjustment.

Referring more particularly to Fig. 3, the belt-pulley 4 is provided with a long sleeve

4ª, having set-screws 5, securing it to the shaft, while the casing is seated on this sleeve.

The operation of the device is as follows: The turning of the crank 19 will revolve the pinion 17, which in turn rotates the pinion 14. This pinion, having an internal thread, acts as a nut and draws down the screw-rod 9ª, which in turn pulls the band 7 and rotates the band-wheel 4 and the shaft 1, to which the latter is secured, thereby lifting the ventilators during the descent of the rod. The threaded end at the same time passing through the pinion or nut 14 dips into the oil-well 12, and thereby automatically oils the lower threaded portion of the rod. The bottom of the oil-well acts as a stop to prevent the rod from being pulled down too far and the shaft 1 likewise rotated too far and the ventilators being forced off their hinges. The flexible band or element 7 may be a piece of steel, a square-link chain, a piece of wire rope, or equivalent device that has sufficient stiffness to stand the downward pull and upward pressure, while the buckling of these flexible connections is prevented by the narrow space between the flange of the band-wheel and its casing, thereby enabling the shaft 1 to be rotated by pushing the flexible connection as well as by pulling it.

Should it be desired, the collar 20 and spring 26 may be omitted; but the adjustment of the device is then quite difficult.

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

1. The combination with a shaft, a band-wheel having a flange 6, a casing encompassing it to form a space between the casing and flange, a flexible element secured at one end to the flange in said space and means connected to the other end of the element to longitudinally move it in two directions, said flange and casing coöperating to hold the element in position and prevent it from buckling when it is moved in one of said directions, substantially as described.

2. In combination, a shaft, a band-wheel having a boss secured thereto, a casing encompassing the band-wheel and having bearing on the boss of the former, a band secured to the flange of the band-wheel, and a threaded rod connected to the band, an oil-reservoir at the end of said rod and means to reciprocate the rod and cause its end to pass into and out of the oil-reservoir, substantially as described.

3. In combination, a shaft, a rod threaded on its end, a flexible connection between the shaft and rod, a pinion having an internal thread through which said rod passes, a second pinion gearing therewith, a casing for the pinions, a ball-bearing between the first pinion and the casing, and an oil-reservoir below the first pinion into which the rod moves and is stopped thereby, substantially as set forth.

4. In combination, a shaft to be rotated, a band-wheel thereon having a boss, a casing for the band-wheel journaled on the boss a gear-casing, a pipe connecting the two casings, a union between the pipe and second casing provided with a raceway, a rod in said pipe having a threaded end, a flexible connection between the band-wheel and rod, a threaded pinion through which said rod passes, ball-bearings between said pinion and raceway an oil-reservoir below the pinion into which the end of the rod passes, substantially as set forth.

5. In combination, a band-wheel, a casing therefor, a second casing, a pipe connecting them, a rod in said pipe, a flexible connection between the band-wheel and rod, mechanism in the second casing to reciprocate the rod, an oil-reservoir screwed into the bottom of the second casing, a pipe secured to the reservoir and a coil-spring between the second casing and pipe, substantially as and for the purposes set forth.

6. The combination with a shaft, a band-wheel, a casing therefor, a metallic band secured at one end to the wheel, said casing cooperating with the wheel to prevent the band from buckling when it is shoved, means to pull and shove the band, a second casing having an oil-reservoir to contain said means, a pipe 22 and a collar, both adjustably secured to the reservoir and a coil-spring between the end of said pipe and collar, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

OLIVER NELSON EATON.

Witnesses:
HENRY ORTH, Jr.,
PHILIP F. LARNER.