G. W. BEADLE.

CLEANING MACHINE.

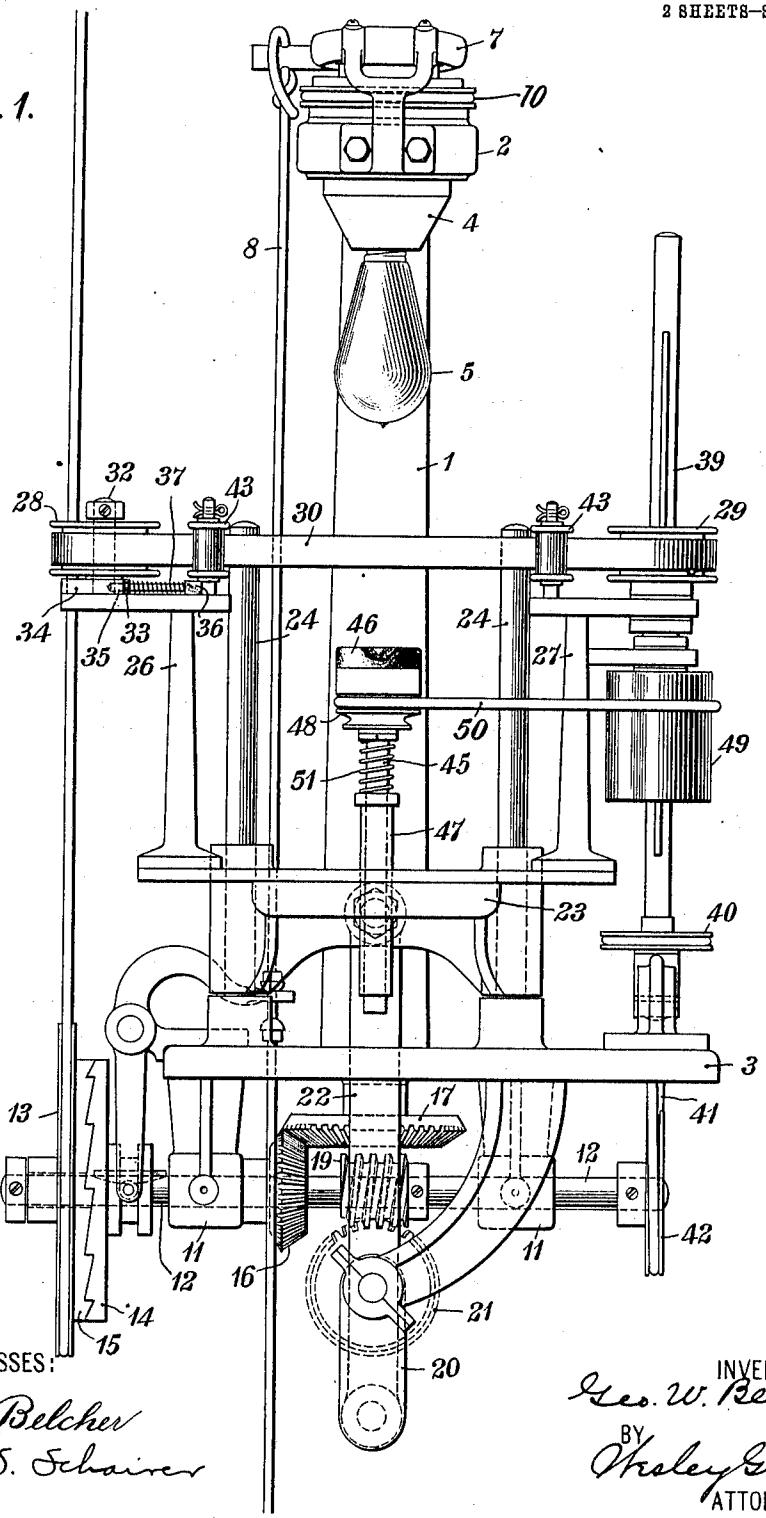
APPLICATION FILED MAY 16, 1910.

1,053,554.

Patented Feb. 18, 1913.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

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2 SHEETS—SHEET 2.

Fig. 2.

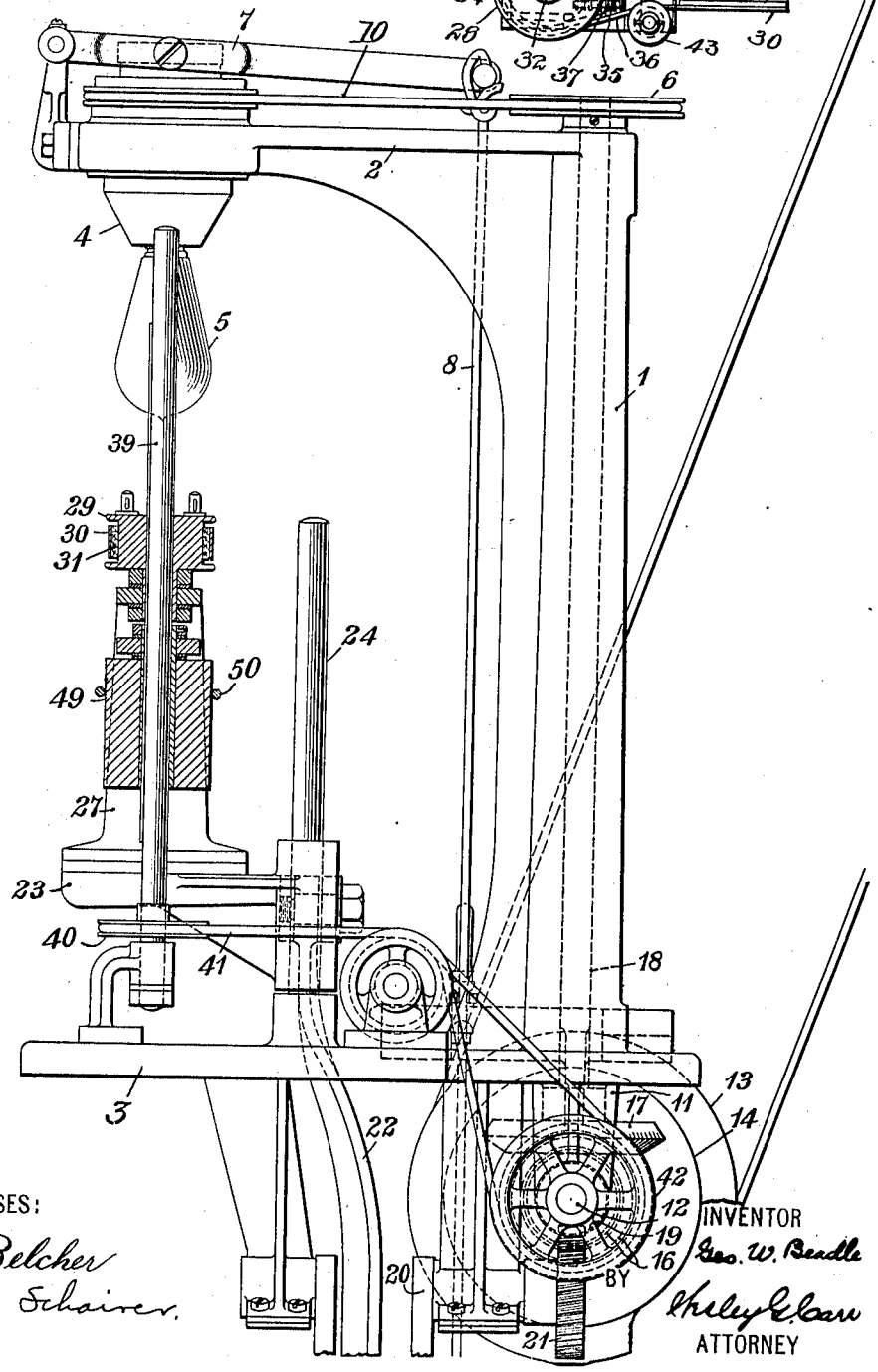
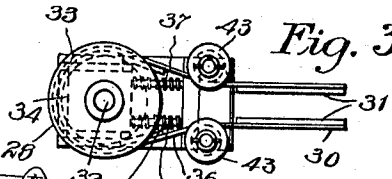


Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE W. BEADLE, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO WESTINGHOUSE LAMP COMPANY, A CORPORATION OF PENNSYLVANIA.

CLEANING-MACHINE.

1,053,554. Specification of Letters Patent. Patented Feb. 18, 1913.

Application filed May 16, 1910. Serial No. 561,698.

To all whom it may concern:

Be it known that I, GEORGE W. BEADLE, a citizen of the United States, and a resident of East Orange, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Cleaning-Machines, of which the following is a specification.

My invention relates to cleaning machines, and particularly to such as are employed in the manufacture of incandescent lamps for cleaning the exteriors of the bulbs of completed lamps.

The object of my invention is to provide a simple and effective machine of the character indicated whereby lamps may be effectively and expeditiously cleaned and in which the liability to breakage of, or damage to, the lamps being cleaned is rendered extremely remote.

The present invention is an improvement over the subject-matter of an application Serial No. 526,063, filed by me November 3, 1909, as assignor to the Westinghouse Lamp Company, and many of its structural features are identical with, or similar to, those of the machine described in the said application.

Figure 1 of the accompanying drawing is a view in front elevation and in section of a machine embodying the present invention, Fig. 2 is a view in side elevation of the machine of Fig. 1, and Fig. 3 is a plan view of some of the parts of the machine.

The operating parts of the machine are carried by a standard or frame 1 having horizontally extending brackets or shelves 2 and 3, a work-holder or chuck 4 for the reception of a lamp 5 to be cleaned being mounted in the upper bracket 2 so that it may be rotated by a belt 10 that passes over a pulley 6. The chuck 4 is similar in construction to that set forth in the aforesaid application, and, accordingly, requires no detailed description herein, it being sufficient to state that it is opened and closed, to permit of the insertion of lamps to be cleaned and to retain them therein during cleaning, by raising and lowering a yoke-shaped lever 7 that is normally held in its uppermost position to open the chuck, and is adapted to be moved downwardly to close the chuck, by means of a rod 8 that is connected with a treadle (not shown).

Depending from the lower bracket 3 are bearing posts 11 for a driving shaft 12 upon the outer end of which a pulley 13 is loosely mounted. A clutch member 14, that is keyed to the shaft 12 and is movable longitudinally thereof, is adapted to engage a corresponding member 15 carried by a pulley 13, the longitudinal movement of the clutch member 14 being effected by the treadle that governs the opening and closing of the chuck 4. The shaft 12 carries a bevel gear 16 that meshes with a similar gear 17 upon the lower end of a vertical shaft 18 to the upper end of which the pulley 6 is attached. The shaft 12 is also provided with a worm-gear 19 for driving a crank 20 through a corresponding worm-wheel 21, the said crank being connected by means of a link or connecting rod 22 to a reciprocable carriage or table 23. The latter member is mounted upon vertical guide posts 24 that are carried by the lower shelf or bracket 3, and is provided at its opposite ends with standards 26 and 27 that carry pulleys 28 and 29 over which runs a belt 30 carrying cleaning devices 31 upon its inner face, such as pieces of felt. The pulley 28 is mounted upon a short post or shaft 32, carried by a block 33 that operates in guides 34 upon the upper face of the standard 26 and is provided with recesses for the reception of the free ends of rods 35, the other ends of which are set in a block 36 that is secured to the standard 26. Helical compression springs 37 that surround the rods 35 are interposed between the blocks 33 and 36 for the purpose of forcing the blocks apart and of thereby applying tension to the belt 30. The other pulley 29 is keyed to a vertical shaft 39 in such a manner as to be capable of movement longitudinally thereof as the carriage 23 is raised and lowered, the said shaft being operated by a pulley 40 to which power is applied by means of a belt 41 that passes over another pulley 42 carried by the main driving shaft 12. Idler pulleys 43 are also carried by the standards 26 and 27 for the purpose of directing the movements of the belt and of shortening the distance between its oppositely moving sides. Mounted upon the upper end of a vertical shaft 45, beneath the belt 30, and also directly beneath the lamp chuck 4, is another cleaning device 46 in the form of a disk or cylinder of felt having a central recess or depression corresponding to the shape of the end of a lamp,

this device being provided for the purpose of cleaning the ends of the lamps. The shaft 45 is mounted in a hollow post 47 and is operated by a pulley 48 that is belted to a cylinder 49 operated by and movable longitudinally of the shaft 39, the said cylinder being of such length that the belt 50 will remain in engagement with it as the cleaning device 46 is moved up and down. Interposed between the pulley 48 and the upper end of the hollow post 47, is a helical compression spring 51 which normally holds the cleaning device 46 in its uppermost position, but which permits the said cleaning device to be pressed downwardly when brought into engagement with the lamp.

In the use of the machine a lamp to be cleaned is inserted in the chuck 4, and the treadle is depressed for the purpose of securing it therein, and also for causing engagement of the clutch members 14 and 15. The lamp is rapidly rotated by the chuck, and, as the carriage is raised, the belt 30 is brought into engagement therewith upon opposite sides thereof, the direction of movement of the belt being opposite to that of the lamp. As the carriage reaches its upper limit of travel, the end cleaning device 46 is brought into engagement with the lamp, it being rotated in a direction opposite to the direction of the rotation of the lamp. The end of the lamp is thus cleaned, and, as the two sides of the belt are normally somewhat closer together than the thickness of the lamp, and are capable of yielding, all portions of the lamp are engaged by the one or the other of the cleaning devices and are polished thereby. If the lamps are very dirty, it may be desirable to dip them in water or some cleaning solution before insertion in the chuck.

I claim as my invention:

1. A cleaning machine comprising a rotatable work-holder, a reciprocable carriage, a traveling cleaning belt carried by the carriage, and a rotatable resiliently mounted cleaning device also carried by the carriage.

2. A cleaning machine comprising a work-holder, means for rotating the same, a reciprocable carriage movable toward and away from the work-holder, and a traveling cleaning belt carried by the carriage.

3. A cleaning machine comprising a rotatable work-holder, a reciprocable carriage movable toward and away from the work-holder, and a traveling cleaning belt carried by the carriage the sides of which are disposed upon opposite sides of the axis of rotation of the work-holder.

4. A cleaning machine comprising a rotatable work-holder, a reciprocable carriage, pulleys carried by the carriage, a cleaning belt operated by the pulleys, and a shaft upon which one of the pulleys is longitudinally movable.

5. A cleaning machine comprising a rotatable work-holder, a reciprocable carriage, pulleys carried by the carriage, a cleaning belt operated by the pulleys, a shaft upon which one of the pulleys is longitudinally movable, and a rotatable annular brush also carried by the carriage and having operative connection with said shaft.

6. A cleaning machine comprising a rotatable work-holder, a reciprocable carriage, pulleys carried by the carriage, a cleaning belt operated by the pulleys, a shaft upon which one of the pulleys is longitudinally movable, and a rotatable resiliently mounted annular brush also carried by the carriage and operatively connected with said shaft.

7. A cleaning machine comprising a work-holder, means for rotating the same, a reciprocable carriage movable toward and away from the work-holder, and a traveling cleaning belt carried by the carriage and movable in a direction opposite to the work holder.

In testimony whereof, I have hereunto subscribed my name this 28th day of April, 1910.

GEORGE W. BEADLE.

Witnesses:
R. C. KARCHNER,
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."