

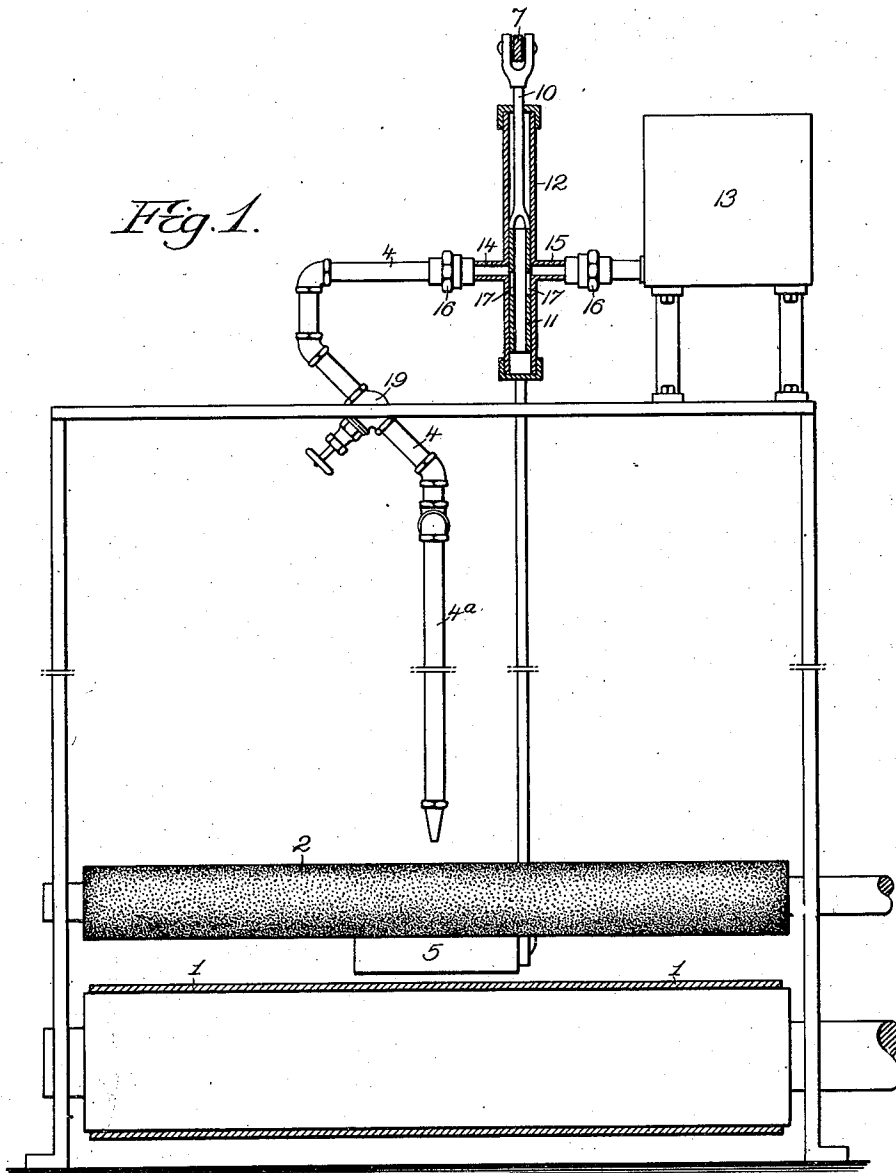
W. BOOTH.
LUBRICATOR.

APPLICATION FILED JUNE 23, 1910.

1,008,780.

Patented Nov. 14, 1911.

2 SHEETS—SHEET 1.



Witnesses
Harry L. Smith
Hamilton D. Turner

Inventor
William Booth
by his attorneys
Smith & Myers

W. BOOTH.
LUBRICATOR.

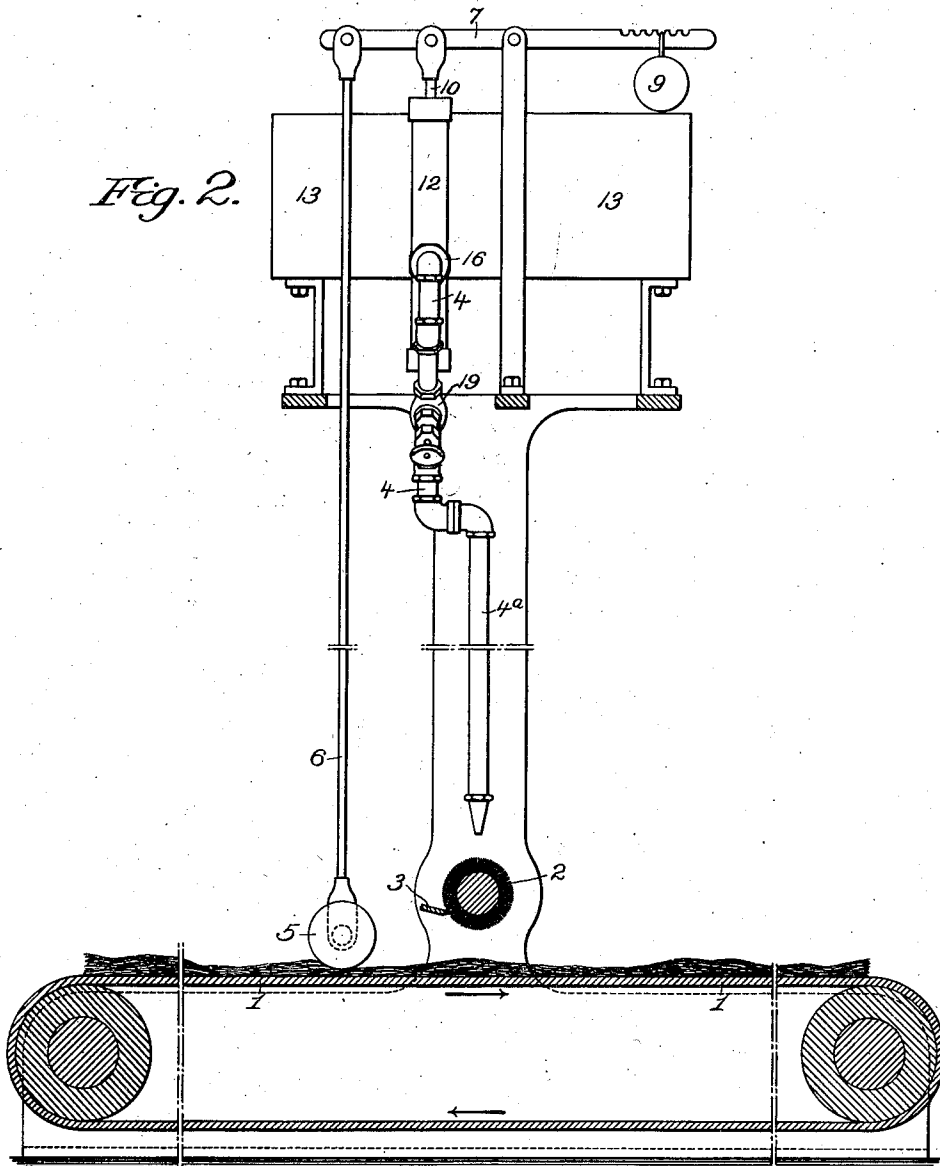
APPLICATION FILED JUNE 23, 1910.

1,008,780.

Patented Nov. 14, 1911.

2 SHEETS—SHEET 2.

Fig. 2.



Witnesses
Harry S. Smith
Hamilton D. Turner

Inventor
William Booth
by his Attorneys
Smith & Engler

UNITED STATES PATENT OFFICE.

WILLIAM BOOTH, OF GLADWYNE, PENNSYLVANIA.

LUBRICATOR.

1,008,780.

Specification of Letters Patent. Patented Nov. 14, 1911.

Application filed June 23, 1910. Serial No. 568,566.

To all whom it may concern:

Be it known that I, WILLIAM BOOTH, a citizen of the United States, residing in Gladwyne, Montgomery county, Pennsylvania, have invented certain Improvements in Lubricators, of which the following is a specification.

My invention relates to devices for applying oil or other lubricant to wool or other textile fibers as they are being fed to a machine, such, for instance, as a carding machine or a Garnett machine whereby the fibers are acted upon after the lubrication of the same, the object of my invention being to insure the uniform lubrication of the mass of fibers by preventing either the overloading of the same with oil or the application of an insufficient amount of oil thereto. This object I attain by regulating the supply of oil which is being fed to the mass of fibers, so that the volume of the supply will accord with the volume of the mass to be lubricated.

In the accompanying drawings Figure 1 is a view, partly in elevation and partly in transverse section, of apparatus constructed in accordance with my invention, and Fig. 2 is a view of the same, partly in elevation and partly in longitudinal section.

In the drawing, 1 represents a feed belt or apron for conveying the wool or other fiber (hereinafter, for convenience, termed "wool") to the machine which is to act upon the same, 2 a suitably rotated brush located above the feed belt and extending across the same from side to side, and 3 a fixed blade or plate engaging with the projecting bristles or other brush material. Oil is fed to the top of the brush and is sprinkled or scattered over the surface of the wool as the same is carried forward by the conveyer 1, the engagement of the blade 3 with the lubricated brush material serving first to bend the same backward and then permit it to spring forward so as to throw the oil in the form of a spray onto the mass of wool.

The pipe which delivers oil to the brush usually consists of a fixed under member 4 and a lower member 4^a pivotally connected thereto, this lower member being intended to be vibrated by suitable connections, so that it will deliver the oil from end to end of the brush 2. As an instance of means

available for the purpose reference can be had to the patent of G. A. Spencer, No. 553,628, dated January 28, 1896. The objection to lubricating devices of this type as heretofore constructed has been that they provide a substantially uniform supply of oil, the only means of regulating the volume of flow being the hand operated valve 19 in the pipe 4. While this is available for regulation of the volume of flow at the beginning of the operation to accord with the general thickness of the mass of wool, it is not possible, with it alone, to effect constant variations in the volume of oil supply necessary to accord with local variations in the thickness of the mass, which, in practice, frequently occur, consequently the thinner portions of the mass receive a surplus of oil while the thicker portions of the mass are insufficiently lubricated. The object of my invention is to overcome this defect in previous lubricators, and this object I attain by the use of what may be termed a "detector" roll, which rests upon the mass of wool on the conveyer belt or apron and rises and falls in accordance with the variations in the thickness of said mass, these movements of the detector roll being caused to operate a valve in the oil supply pipe and thereby accurately regulate the flow of oil to accord with the requirements of the case, and thus effect uniform lubrication.

In the drawing, 5 represents the detector roll, which may extend completely across the apron, or may be of lesser length, as desired, this roll being mounted so as to be free to turn on or with a spindle at the lower end of a rod 6, the upper end of which is connected to one arm of a lever 7 suitably mounted above the feed belt or conveyer 1, the other arm of said lever carrying a counterbalance weight 9, which is adjustable on said arm of the lever so as to counterbalance the weight of the detector roll and its supporting rod whatever such weight may be. The lever 7 is also connected to the stem 10 of a valve 11 which is free to slide vertically in a valve chest 12, the latter being fixedly mounted and inserted in the fixed member 4 of the oil supply pipe which communicates with an oil reservoir 13 likewise fixedly mounted in any convenient position above the feed belt or conveyer 1. In the present instance the

valve chest 12 is provided with front and rear branches 14 and 15, which are secured by detachable couplings 16 to adjoining sections of the fixed member of the oil supply pipe, but it will be evident that other means of mounting the valve chest and providing for its communication with the oil supply pipe may be adopted without departing from my invention.

The valve 11 consists, in the present instance, of a tube open at both ends and having oppositely disposed ports 17, which, when they register with the bores of the branches 14 and 15, permit a full and free supply of oil to pass from the tank 13 to and through the pipe 4, 4*, this being the position of the valve when a mass of wool of maximum thickness is being carried forward by the feed belt or conveyer 1. If, however, said mass of wool diminishes in thickness the detector roll 5 will accordingly fall to a corresponding extent, thereby lowering the valve 11 and causing it to partially obstruct the bores of the branches 14 and 15 of the valve chest, thereby restricting the freedom of flow through the oil pipe 4 to accord with the reduced volume of wool to be lubricated, the absence of any wool beneath the detector roll permitting the latter to drop into contact with the feed belt or apron 1 and thereby causing such a lowering of the valve 11 as to, completely cut off the flow of oil through the pipe 4, the resumption of the passage of wool beneath the detector roll causing the same to again rise to an extent dependent upon the thickness of the mass, thus again opening the valve to a corresponding degree and permitting a flow of oil of proper volume through the pipe 4, 4*. By making the valve 11 tubular and open at both ends the oil can flow freely through the valve from the chamber below the same to that above it, so that the downward movement of the valve will not be restricted by the trapping of a body of oil in the valve chest below the valve. The detector roll 5 is located so far in the rear of the sprinkling brush 2 that increase or decrease in the thickness of the mass of wool which is being carried forward by the conveyer belt or apron will have effected the desired change in the volume of flow of oil to the sprinkling brush by the time the increased or reduced volume of wool reaches the point at which the oil is applied to the same.

While I prefer in all cases to use a detector roll for running upon the top of the mass of wool deposited upon the conveyer belt or apron, this roll may, if desired, be supplanted by a plate or shoe for bearing upon the top of said mass, the roll, however, having less tendency to disturb or displace the fibers than would a fixed bearing device. The term "roll" as used in the claims, therefore, is to be taken as including such shoe or

plate as an equivalent structure. The construction and location of the governing valve may also be varied without departing from my invention, the construction and location shown in the drawing, however, being preferred.

I claim:

1. The combination in a wool lubricating device, of a conveyer for the wool, an oil supply pipe, a valve therein, a detector roll bearing upon the mass of wool and serving to operate the valve so as to govern the flow of oil to accord with the thickness of the mass to be lubricated, and means for counterbalancing the weight of said detector roll and its connections whereby said roll will bear lightly upon the mass of wool and will respond quickly to any increase in the thickness of the mass.

2. The combination, in a wool lubricating device, of a conveyer for the wool, a sprinkling brush located above said conveyer, a pipe for supplying oil to said sprinkling brush, a valve in said pipe, a detector roll bearing upon the mass of wool on the conveyer, means for counterbalancing said detector roll and its connections so as to cause it to bear lightly upon the mass of wool and respond quickly to any increase in the thickness of the mass, and means whereby the movements of the detector roll are transmitted to the valve and the latter is caused to govern the flow of oil to the sprinkling brush to accord with the volume of the mass of wool passing beneath the latter.

3. The combination, in a wool lubricating device, of a conveyer for the wool, means for applying oil to said mass of wool as it is carried forward by the conveyer, a vertical valve chest, a balanced valve in said chest for governing the supply of oil to the applying device, a detector roll resting upon the mass of wool on the conveyer, a lever to which both the detector roll and the valve are connected, and a counterbalance weight on said lever.

4. The combination, in a wool lubricating device, of a conveyer for the mass of wool, means for supplying oil to said mass of wool as it is carried forward by the conveyer, a valve chest, a valve governing the supply of oil and providing free communication between opposite ends of the valve chest, a detector roll bearing upon the mass of wool, and means whereby the rising and falling movements of said detector roll, due to the varying thickness of the mass of wool, are transmitted to the governing valve.

5. The combination, in a wool lubricating device, of a conveyer for the wool, a pipe for supplying oil to the mass of wool as it is carried forward by the conveyer, a valve chest having branches and couplings whereby the same are connected to adjoining sections of the oil supply pipe, a valve in said

chest for governing the flow of oil through the pipe, a detector roll mounted upon the mass of wool, and means whereby the rising and falling movements of said detector roll, due to the varying thickness of the mass of wool on the conveyer, are transmitted to said valve.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

WILLIAM BOOTH.

Witnesses:

WALTER MACINDOE,
JAMES A. MCNELES.