

UNITED STATES PATENT OFFICE.

PERLEY LAFLIN, OF WARREN, ASSIGNOR TO GEORGE DRAPER & SONS,
OF HOPEDALE, MASSACHUSETTS.

MECHANISM FOR OPERATING DOFFER-COMBS OF CARDING-ENGINES.

SPECIFICATION forming part of Letters Patent No. 258,686, dated May 30, 1882.

Application filed February 23, 1882. (No model.)

To all whom it may concern:

Be it known that I, PERLEY LAFLIN, of Warren, county of Worcester, State of Massachusetts, have invented an Improvement in Mechanism for Operating Doffer-Combs of Carding-Engines, of which the following description, in connection with the accompanying drawings, is a specification.

In this my invention the comb rock-shaft contained in a fixed tube or sleeve is adapted to be rocked or vibrated on bearings at one side of the said rock-shaft, the said bearings being fixed preferably within the said sleeve, and at one end the said rock-shaft is provided with a slot that receives an eccentrically-located pin extended within it and connected with a revolving pulley, the axis of rotation of which is substantially coincident with the center of the said sleeve, so that as the said pulley is revolved the said pin carried by the pulley will cause the rock-shaft to be vibrated rapidly upon its bearings, such vibration of the comb rock-shaft causing the comb carried by suitable arms connected with the rock-shaft to operate with relation to the doffing-cylinder, as usual.

Figure 1 is an end elevation of a sufficient portion of the mechanism of a doffing-comb to illustrate my invention, the driving-pulley shown in Fig. 2 being represented in dotted lines or as transparent to show clearly the slot in the end of the comb rock-shaft. Fig. 2 is a longitudinal section on the line $x-x$, Fig. 1, the driving-pulley and its pin being, however, shown in full lines. In Fig. 2 the central part of the rock-shaft is shown in elevation, and it and the sleeve are broken out to save space upon the drawings. Fig. 3 is a section on the dotted line yy , Fig. 2, to show the manner of connecting the arms of the doffer-comb with the comb rock-shaft; and Fig. 4 is a detail, to be hereinafter referred to, showing the slot in the sleeve in which moves the screw or pin which connects the arms which carry the doffer-comb with the comb rock-shaft.

The sleeve or metal tube a will be supported by suitable fixed bearings, b , forming part of the carding-machine, a portion only of the said bearings being, however, herein shown. Outside one of these bearings the sleeve or tube a is provided with an enlarged cylindrical bearing, 2, which receives upon and about it loosely the

rotating cone-pulley c , a suitable pin, e^2 , entering a groove, d^2 , in the said cylindrical bearing to prevent longitudinal motion of the pulley upon the said bearing.

The comb rock-shaft d is enlarged at its outer end, as shown at d^1 , to form hubs of sufficient size to prevent the rock-shaft moving far enough across the sleeve or tube diametrically to be removed from its bearing-pieces d^4 in the sleeve. These hubs are each grooved, as shown at d^3 , to fit the ribs or bearing-pieces d^4 , secured within the fixed sleeve a . These ribs d^4 are shown as nearly circular, and the grooves d^3 of the hubs d^1 are correspondingly shaped to fit them and permit the hubs and shaft to rock or vibrate within the tube a about said bearings. Instead of these circular bearings, it is obvious that I might employ V-shaped ribs to fit V-shaped recesses in the hubs d^1 .

One end of the comb rock-shaft d is provided with a slot, e , in which is extended the pin e^2 , which is connected with the head-plate f , attached by screws g with and so as to form part of the cone-pulley c . The pin e^2 within the pulley c and extended into the slot e at the end of the comb rock-shaft is placed eccentrically to the axis of rotation of the pulley c , and during the rotation of the pulley c the pin e^2 vibrates the comb rock-shaft about its bearings d^4 , the extent of such vibration depending upon the degree of eccentricity of the said pin.

The arms h , which carry the doffer-comb i , of usual construction, have their rear ends, h^2 , grooved and provided with pins h^3 , which in the drawings are shown as split, so that when inserted in the holes m , made in the comb rock-shaft, the friction of the pins h^3 will hold said arms firmly. Instead of these split pins, however, I may attach the rear ends of the arms h directly to the comb rock-shaft by means of screws or bolts, the said screws or bolts, as are the pins h^3 , being extended through elongated slots l , made in the sleeve or tube a , as shown in Fig. 4, such slots being necessary in order to permit the comb rock-shaft to be moved or vibrated on its bearing-points d^4 , located at one side of its center and within the fixed sleeve or tube a .

The pulley c will be driven by a suitable belt, n —such, for instance, as shown in dotted lines

n—driven in any usual manner from any usual part of the carding-machine.

The comb rock-shaft is prevented from longitudinal motion in the sleeve *a* in the direction of its length by means of a screw, *o*, herein shown as having a large head, the shank of the screw being inserted into a threaded hole at one end of the rock-shaft, while the head of the screw bears against one end of the sleeve *a*.

10 I claim—

1. The tubular fixed sleeve *a* and its bearings *d'*, and the comb rock-shaft supported upon the said bearings at one side of its center, and provided at its end with a slot, *e*, combined with
15 a driving-pulley, *c*, having a pin mounted eccentrically thereon and entered directly within said slot, the rotation of the pulley causing its pin within the said slot to vibrate the rock-shaft, substantially as described.

2. The tubular fixed sleeve *a* and the bearings *d'*, the pulley *c*, mounted on said sleeve, and its eccentrically-placed pin *e'*, combined with the comb rock-shaft supported at one side of its center by the bearings *d'*, and provided at one

end with a slot to be entered by the pin *e'*, 25 whereby by the rotation of the said pulley its stud or pin is caused to rock the rock-shaft, substantially as described.

3. The tubular fixed sleeve *a*, provided with slot *l*, bearings *d'*, and the cylindrical bearing 30 *2* for the pulley, and the pulley *c* and its eccentrically-placed pin *e'*, and the comb rock-shaft *d*, sustained by the bearings *d'* at one side of its center, and provided with the slot *e* to receive the said pin *e'*, combined with the comb 35 *i* and its arms *h*, connected, substantially as described, with the comb rock-shaft, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two sub- 40 scribing witnesses.

PERLEY ^{his} × LAFLIN.
mark

Witnesses:

E. D. BANROFT,
GEO. A. DRAPER.

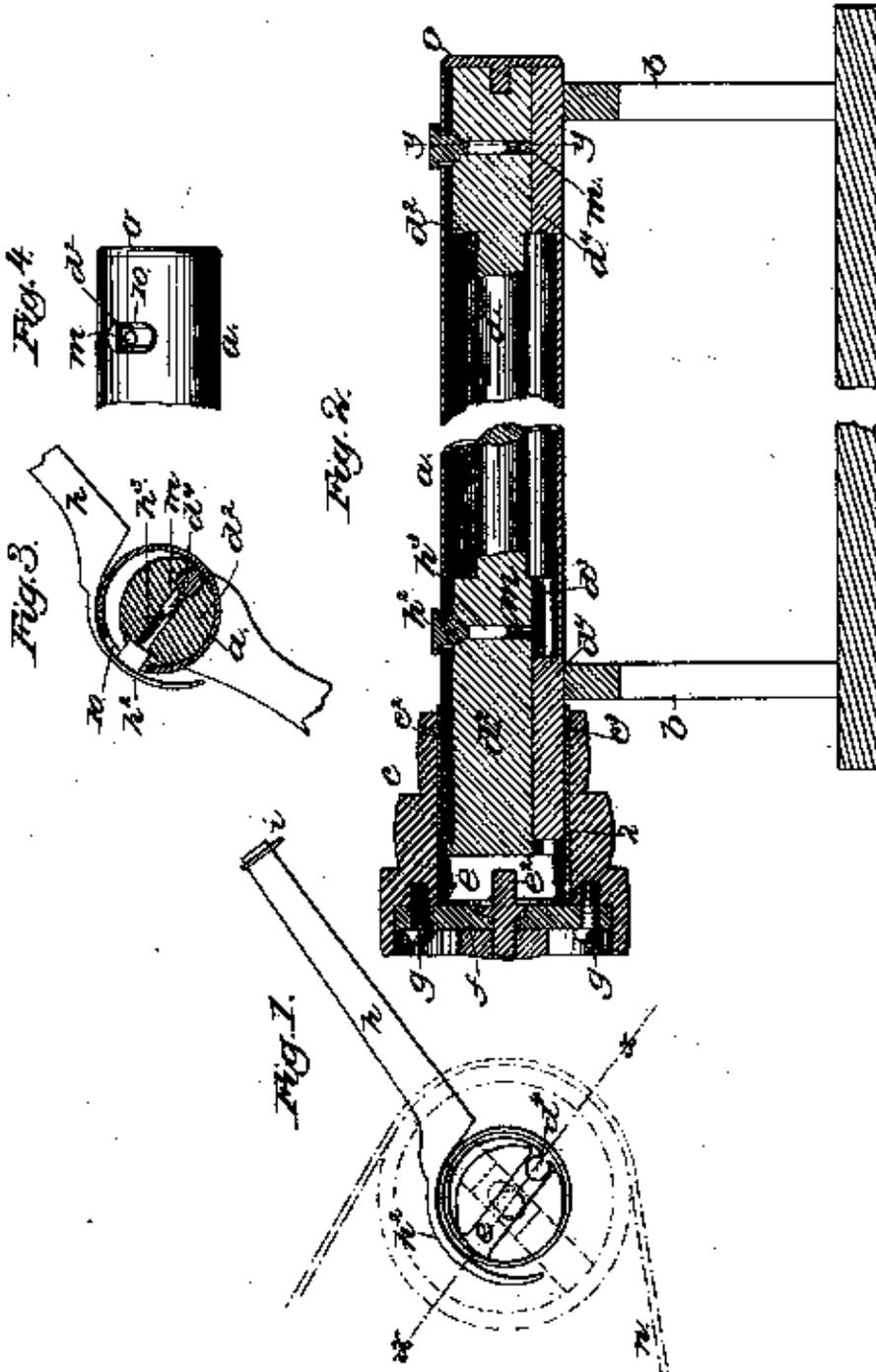
(No Model.)

P. LAFLIN.

MECHANISM FOR OPERATING DOFFER COMBS OF CARDING ENGINES.

No. 258,656.

Patented May 30, 1882.



Witnesses.
John F. La Tourette
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UNITED STATES PATENT OFFICE.

PERLEY LAFLIN, OF WARREN, ASSIGNOR TO THEODORE C. BATES, OF
NORTH BROOKFIELD, MASSACHUSETTS.

BOBBIN-HOLDER FOR SPOOLING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 379,880, dated January 3, 1888.

Application filed August 17, 1887. Serial No. 277,210. (No model.)

To all whom it may concern:

Be it known that I, PERLEY LAFLIN, a citizen of the United States, residing at Warren, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Bobbin-Holders for Spooling-Machines, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

My present invention relates to the construction of bobbin holders for spooling-machines and to the manner of supporting the same in combination with the rail or frame of the machine, the prime objects of the invention being, first, to provide a bobbin-holder that is convenient for the introduction and discharge of the bobbins and for the observation of the same while running; second, to provide convenient facilities for the regulation of the friction or tension on the bobbin by means of a laterally-adjustable weight, whereby the holder is adapted for heavy or light work; third, to afford facilities for the adjustment of the holder longitudinally in relation to its support; fourth, to provide means for the lateral adjustment of the guard to accommodate bobbins of different diameters; fifth, to provide a rolling or rocking bed or support for the bobbin and means for retaining the bobbin laterally, as more fully hereinafter set forth, and, sixth, to provide means for supporting the bobbin-holder in combination with the spindle step-rail of the spooling-machine, as hereinafter described. These objects I attain by mechanism the nature, construction, and operation of which is explained in the following description, the particular subject-matter claimed being hereinafter definitely specified.

In the drawings, Figure 1 is a side view of a bobbin-holder constructed in accordance with my invention. Fig. 2 is a plan view of the same. Fig. 3 is a section of the same at line $x-x$, Fig. 1. Fig. 4 is a sectional view showing a modification of the construction. Fig. 5 is a view showing the relative arrangement of the bobbin-holder, the spindle-supporting rails, the spindle, spool, and thread-guiding devices in the spooling-machine.

In the drawings, A denotes the frame or base of the bobbin-holder, which is made dovetailed, or with beveled or flanged sides along its opposite parallel edges, and is provided at its rear end with an upward-projecting arm, A', and with an ear, A'', at its front end.

B indicates a forked guard or cradle, having an interior space for receiving the bobbin of somewhat greater width than the diameter of the bobbin or cop. One side of the guard is fitted with an upright inner surface, b , against which the bobbin rests when in operation. Said guard B is attached at its rear end to the upright arm A' of the frame by means of a screw or bolt, C, which passes through a laterally-extending slot, c, formed in the end of the guard in a manner to afford lateral adjustment of the guard upon the frame A. The lower edge of the guard is rounded at b' for the passage of the thread beneath the same.

D indicates the bobbin-supporting bed, which is pivoted in the frame at $d-d'$, longitudinally parallel with and in position to support the bobbin at the proper height in relation to the side of the guard. Said bed is formed as a roll or rocking piece, upon the top of which the bobbin is supported with its side parallel with and against the inner surface, b , of the guard. The position of the bobbin is shown by dotted lines in Figs. 1, 3, and 4.

F indicates an upwardly-projecting arm or presser-bar, preferably formed of wire and connected with the bed D, or supported on the pivoted journals thereof, to swing or rock back and forth at its top end, and serving to press against the bobbin and retain it against the surface b of the guard, thereby confining it steadily in position while imparting the required degree of tension when the thread is being unwound.

I indicates a ball or weight mounted on a screw-threaded stud, i , which is fitted in the supporting-bed in such manner that it can be turned in or out to increase or diminish the leverage, or to carry the weight nearer to or farther from the axis of the bed and presser for increasing or diminishing the force with which the presser F is caused to bear against the bobbin, and the consequent variation of the pressure of the bobbin against the surface b , thus increasing or diminishing the tension

or draft upon the thread as it is drawn from the bobbin to the spool.

E indicates a supporting bracket having dovetailed or undercut ears *e*, that embrace the sides of the frame A, and between which said frame is arranged to adjust or slide longitudinally, and a set-screw, G, is provided for retaining said frame at positions of adjustment. The rear part of said bracket E is made of suitable form to embrace the spindle step-rail K, substantially in the manner illustrated, and provided with a lip, Z, that locks over the upper corner of said rail, and with a backwardly-projecting arm, E', that extends around to the rear of said rail and is furnished with a set-screw, J, to be turned in against the rear side of the rail for securing or clamping the bracket firmly in position thereon.

In Fig. 5, M indicates the spool; S, the spindle, which is supported in bearings on the step-rail K and bolster rail N, in the ordinary manner.

T indicates the thread-guide, which is of ordinary form, and is adapted to be raised and depressed by the usual mechanism to traverse the thread from one end of the spool to the other as it is wound thereupon, in the usual manner.

The bobbin is placed in the holder from the top by tipping back the bar F and dropping the bobbin upon the bed or roll D, the end of the thread being then passed under the guard at *b'*, and carried up through the guide T and onto the spool M, in the manner indicated. The draft on the thread causes the bobbin to revolve within the holder as it lies against the guard-surface *b* and upon the top of the bed, while the presser F confines it and causes it to rotate steadily and without jumping about. If more or less friction is required for giving the desired tension, it can be attained by turning the ball I so as to screw it more or less to or from the axis of the supporting-bed and presser.

In Fig. 4 I have illustrated a modification of construction adapted to very fine light work, or where light friction and tension is essential. In this the bed is made as a roll to revolve freely with the rotary movement of the bobbin. The presser-arms in this case are pivoted on the axis or journals *d* and *d'* at the ends of the rolls, and an auxiliary bar, D', is employed for connecting the arms from end to end of the bed, and the tension-adjusting weight I is combined with said auxiliary bar, instead of being combined directly with the bed itself. In this instance I have also shown the weight I made as a nut to traverse on the screw *i*, which latter is fixed in the bar D', instead of the weight being made the head of the screw-stud, as in Fig. 3. I prefer, however, the form shown in Fig. 3 as being the simplest construction.

In cases where it is desired to use this improved bobbin-holder upon the old style of spooling-machines, in which an inclined spindle-rail exists, it can be done by substitut-

ing a supporting-bracket of the form substantially as indicated by dotted lines *e'* on Fig. 1 and at *e'* on Fig. 3, such bracket being provided with a shank, *e'*, to be inserted into the hole in said rail where the old bobbin-supporting spindles are taken out. This form of bracket would be provided with a head having the undercut or dovetailed ears *e* and the set-screw G, as above described.

My improved bobbin holder can also, when desired, be supported in connection with a round rod, such as is used in many existing machines, by simply making the bracket of a form that will embrace said rod and be attached to it substantially in the manner as are the bobbin-holders such as are now in use.

The advantages incident to my invention are, that the bobbin-holder is open at the top, so that the bobbin is in plain sight of the attendant, who can thus the better observe the operation of the work.

Another advantage is that the bobbin is retained steadily in position while allowed a free and easy rotation as the thread is unwound therefrom, so that the spools are wound with an even tension and density, while the degree of tension can be readily varied as desired.

Another advantage, and one incident to the rocking or rolling bed, is that any tendency of the bobbin to become cramped or wedged between the guard-surface *b* and the supporting-bed surface by the downward draft on the thread, is counteracted by the backward roll or rocking action of the bed, which overcomes the wedging tendency, and instantly relieves any excess of friction due to this cause. As the diameter of the bobbin decreases, the presser-arm friction-bar F swings over toward the surface *b* of the guard, and the bobbin descends lower between the bed D and said surface *b*. This somewhat releases the friction as the size of the bobbin decreases, thus giving a more nearly uniform draft between the large and small diameter. This also insures the more perfect running of or unwinding of the yarn or thread, and by consequent avoidance of frequent breakages greatly lessens the labor of attendance and the loss of time in the running of the machines, which is an item of considerable importance where many bobbin-holders and spooling-machines are in use.

The longitudinal adjustment of the frame upon its supporting-bracket permits of the bobbin-holder being placed in such relation to the guide T that the draft on the thread will be substantially direct and uniform, whether running from the point or the head of the bobbin.

What I claim as of my invention, and desire to secure by Letters Patent, is--

1. A bobbin-holder provided with an axially-pivoted rolling support or bed upon which the bobbin lies, a guard or side plate having an upright surface, as *b*, against which the bobbin rests, and an upwardly-projecting swinging presser opposite thereto, between which and said surface the bobbin is confined, in the

manner described, and permitted rotary movement as the thread is drawn therefrom around the lower edge of said guard, substantially as set forth.

2. A bobbin-holder provided with an axially-pivoted bobbin-supporting bed, having a swinging presser connected therewith for bearing the bobbin against the side of the holder, and a laterally-projecting stud or arm, in connection with the pivotal axis thereof, having a weight or ball-head disposed at one side of said axis, for the purpose set forth.

3. A bobbin-holder having an axially-pivoted bobbin-support, an open-topped cradle or guard with side bearing-surface, a presser-arm for retaining the bobbin against said guard-surface, swinging on an axis which is below the bobbin, and a laterally-adjustable weight in combination therewith for regulating the pressure of said arm thereof against the bobbin, substantially as described.

4. The combination, with the bobbin-holder frame and the bobbin-supporting bed, of the guard attached to said frame and laterally adjustable in relation to said bed, substantially as and for the purpose set forth.

5. The combination, with the bobbin-holder frame and the guard or cradle having sides for retaining a bobbin, of an axially-pivoted roll or bed disposed parallel with the sides of the guard at a position for supporting the bobbin between the same, substantially as described.

6. The combination of the frame A, having the upward projection A', the forked guard B, supported thereon and attached by the screw at its rear end, the supporting-bed axially pivoted in said frame, the presser-arm F, and the adjustable stud carrying the weight I, substantially as and for the purpose set forth.

7. The combination, with a supporting-bracket having means for its attachment to a spool-

ing-machine, of a longitudinally-adjustable bobbin-holder frame carrying a bobbin-supporting cradle or guard and mounted to slide upon said bracket, and a clamping-screw for securing the parts together, substantially as and for the purpose set forth.

8. The supporting-bracket E, having dove-tailed guides or retaining-ears e, in combination with the bobbin-holder frame A, fitted thereto and longitudinally adjustable upon said bracket, and means for confining said frame at positions of adjustment, substantially as set forth.

9. The combination, with the spindle step-rail K, in a spooling-machine, of the bobbin-holder-supporting bracket E, having the lip l, backwardly-extended arm E', and clamp-screw L, embracing said spindle step-rail, and the forwardly-extended seat and under cut ears e, supporting the bobbin-holder frame, which is longitudinally adjustable thereon, and the set-screw G, substantially as and for the purposes set forth.

10. The combination of the supporting-bracket E, the frame A, adjustable thereon, the guard B, having the bearing-surface b, the bobbin-support bed D, journaled at its ends on the frame A, the presser F, adapted to swing on the same axis as the bed, and the threaded stud carrying the weight I, connected therewith and laterally adjustable in relation to the axis, substantially as and for the purposes set forth.

Witness my hand this 20th day of June, A. D. 1887.

PERLEY ^{his} X LAFLIN.
mark

Witnesses:

CHAR. H. BURLINGH,
BENJ. L. SAMPSON.

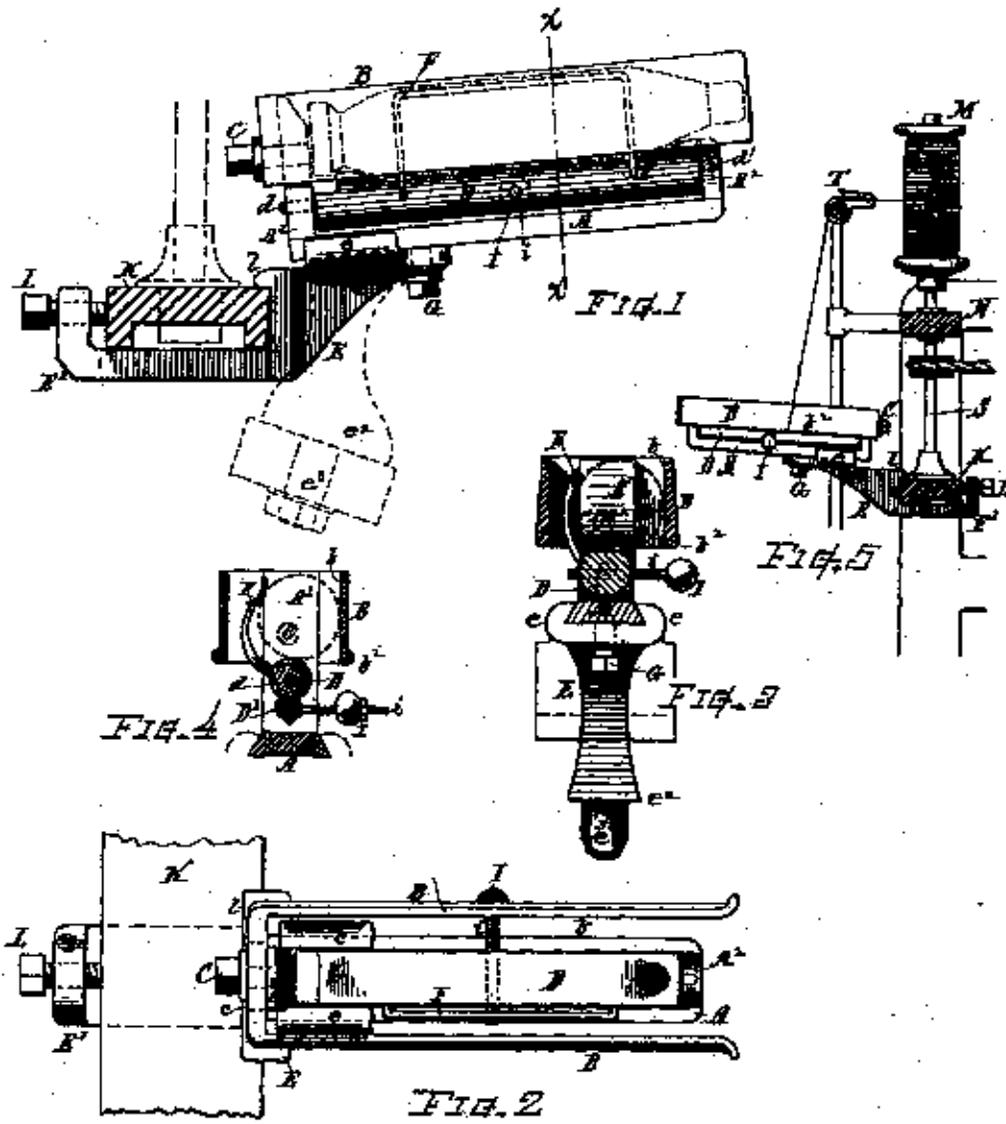
(No Model.)

P. LAFLIN.

BOBBIN HOLDER FOR SPOOLING MACHINES.

No. 375,880.

Patented Jan. 3, 1888.



WITNESSES.

D. R. Fenton
Edw. P. Blenck

INVENTOR.

Durley Laflin
By Chas. St. Dunlough
Attorney

UNITED STATES PATENT OFFICE.

PERLEY LAFLIN, OF WARREN, ASSIGNOR TO THEODORE C. BATES, OF
NORTH BROOKFIELD, MASSACHUSETTS.

SCAVENGER-ROLL FOR SPINNING-MACHINES, &c.

SPECIFICATION forming part of Letters Patent No. 376,891, dated January 3, 1888.

Application filed August 17, 1887. Serial No. 917,211. (No model.)

To all whom it may concern:

Be it known that I, PERLEY LAFLIN, a citizen of the United States, residing at Warren, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Scavenger-Rolls for Spinning and Roving Machines, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

This invention relates to that class of devices which are employed in spinning and roving machines for preventing broken-down ends and waste from winding onto and interfering with the proper working of the drawing-rolls, which devices are commonly known as "clearers," "wipers," or "scavenger-rolls."

Previous to my invention scavenger-rolls made of wood and used plain or covered with cloth, and others provided with a cord disposed spirally about the roll, have been employed on spinning machines, mounted in relation to the frame and drawing-rolls in substantially the same position and manner as herein indicated; hence I do not claim novelty in the employment or disposition of such rolls in connection with roving drawing-rolls for the purpose named. Such rolls as heretofore constructed have, so far as I am aware, failed to fully meet the requirements of the service, since they do not in all instances prevent broken strands of roving from winding onto the bottom drawing-roll, and thus interfere with the proper running of the adjacent top rolls and consequent production of imperfect yarn.

The object of my present invention is to provide a wiper or scavenger roll that will be more efficient, sure, and reliable in its operation than are those ordinarily employed, more economical and desirable for use, and which can be constructed and maintained with comparatively small labor and expense.

My invention consists in a wiper or scavenger roll having a granulated surface or coating to which the fine fiber readily adheres, as hereinafter explained.

My invention further consists in a scavenger-roll having an exterior surface or coating

formed of cork, or an equivalent substance that presents a granular surface substantially such as produced by a coating of comminuted or ground cork.

The particular subject-matter claimed is hereinafter definitely specified.

In the drawings, Figure 1 is a front view of drawing-rolls as employed in a cotton-spinning machine, showing my improved scavenger-roll applied thereto. Fig. 2 is a sectional diagram showing the relation of the scavenger-roll to the drawing-rolls. Fig. 3 is a side view of my improved scavenger-roll, and Fig. 4 is a transverse section of the same.

My improved scavenger-roll A is preferably made as follows: A body or cylinder of the required size and length, formed of wood, metal, or other suitable material, is prepared and provided with suitable journals, *b*, for its support. A quantity of cork, sawdust, or cork comminuted or ground to the desired degree of granular fineness is then prepared and spread on a suitable table or flat surface. The exterior of the roll A is then dressed over with a coating of glue or cement and rolled over the bed of comminuted cork, the particles of which adhere to the cement or glue and form a close granular surface or coating, C, about the roll, which when the glue or cement has hardened is firmly secured to the body A, and can be dressed off to any degree of fineness or left in its original condition for use, as desired.

When applied to use, this scavenger-roll is disposed and supported in relation to the drawing-rolls D and E substantially in the ordinary manner.

The granulated cork gives to the roll a semi-elastic, slightly rough, soft, or spongy surface, by which the fiber is readily taken up, so that the fiber will in all cases adhere to the surface of the scavenger in preference to its adherence to the surface of the metal roll D, while such granulated surface freely and completely yields up the fiber when the waste is picked off, thus leaving the surface clean and in condition for service.

As modifications of my invention, in some instances the roll A can be made wholly of cork, or as a cylinder of cork on a central shaft, the exterior thereof being ground or roughened to produce a working-surface of the pe-

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cular granulated nature desired; or, again, a comminuted substance of other material than cork, but of similar nature, or rubber granulated, might be used to form a granulated coating or surfacing for the roll, and such constructions, whereby a roll is produced having the semi-elastic granulated surface, such as described, for taking on and winding up the loose ends of roving and waste fiber, I desire to include within the scope of my invention.

The advantages incident to my invention are, that a scavenger-roll having a granulated surface of the nature described catches and winds up the waste and broken-down ends more surely and efficiently than do the ordinary rolls in use, while the surface is less subject to deterioration by continued use.

Another important advantage is, that waste can be readily picked off from the roll without liability of tearing off or injuring the covering or surface, as frequently occurs with rolls covered with fabric or cord.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. A scavenger-roll for spinning or roving machines, composed of or having its exterior surface formed of cork, substantially as and for the purpose set forth.

2. A clearer or scavenger roll for spinning or roving machines, having a rough granulated

surface, substantially such as described, for the purpose set forth.

3. A clearer or scavenger roll for spinning or roving machines, having a granulated exterior surface coating of a semi-elastic substance, substantially as and for the purpose set forth.

4. A scavenger-roll for spinning or roving machines, consisting of a cylindrical body having its exterior surface coated with a comminuted substance of granulated semi-elastic nature, substantially as set forth.

5. A scavenger-roll for spinning and roving machines, having its exterior surface covered with granulated cork secured thereon by glue or cement, substantially as hereinbefore set forth.

6. The combination, with the drawing-rolls in spinning or roving machinery, of a clearer or scavenger roll having a granular surface, substantially such as described, for the purpose set forth.

Witness my hand this 20th day of June, A. D. 1887.

PERLEY ^{his} + LAFLIN.
_{mark.}

Witnesses:

CHAS. H. BURLEIGH,
BENJ. L. SAMPSON.

(No Model.)

P. LAFLIN.

SCAVENGER ROLL FOR SPINNING MACHINES, &c.

No. 375,881.

Patented Jan. 3, 1888.

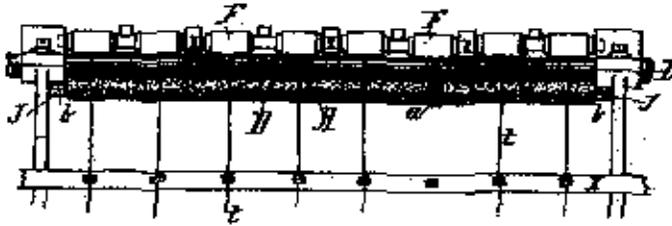


FIG. 1

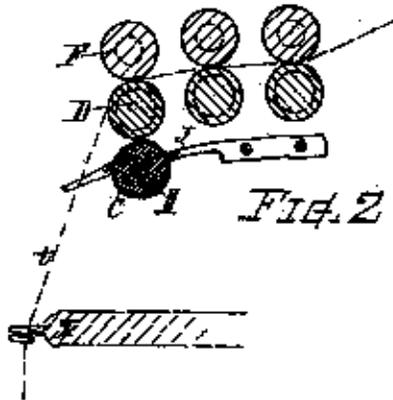


FIG. 2



FIG. 3

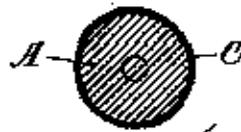


FIG. 4

Witnesses.

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