

(No Model.)

2 Sheets—Sheet 1.

G. F. PRIESTLEY.

MACHINE FOR DRESSING SILK, &c.

No. 468,507.

Patented Feb. 9, 1892.

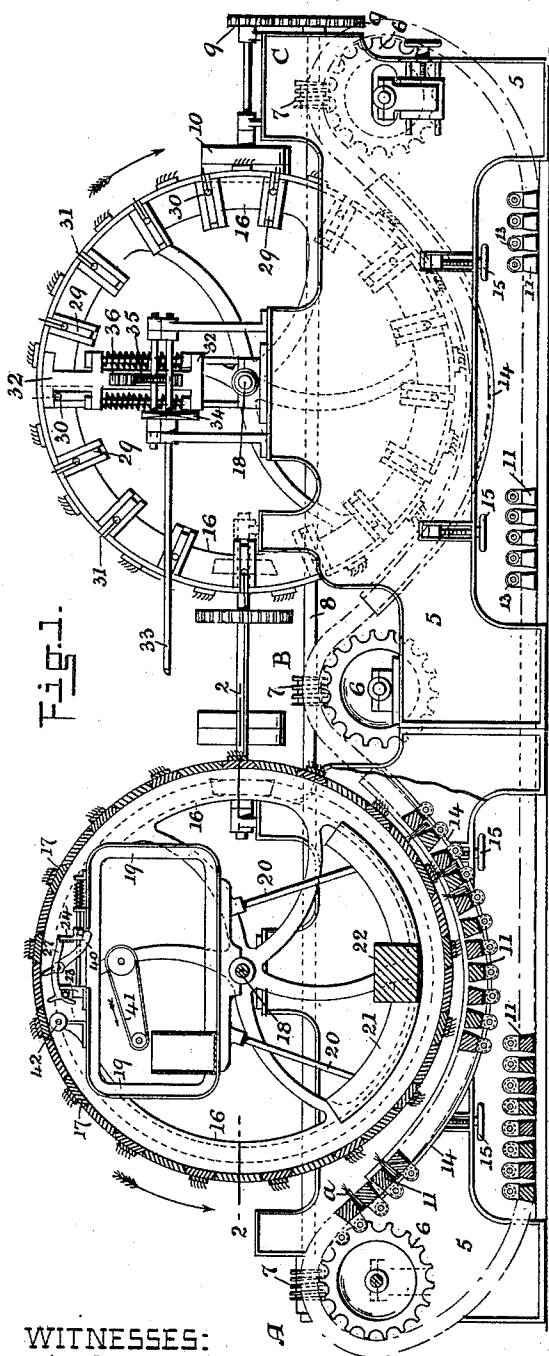


Fig. 1.

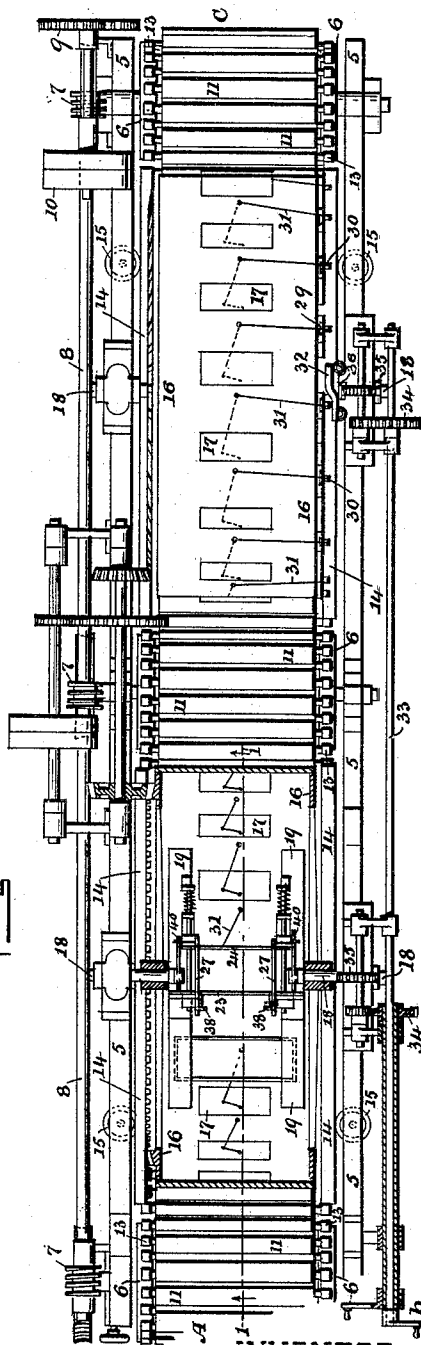


Fig. 2.

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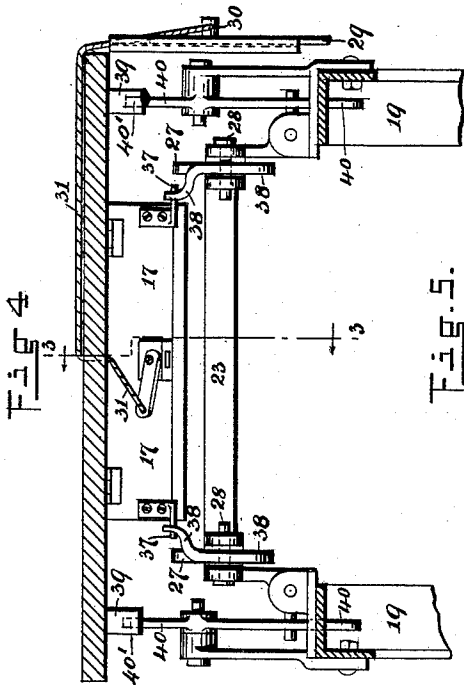


Fig. 5.

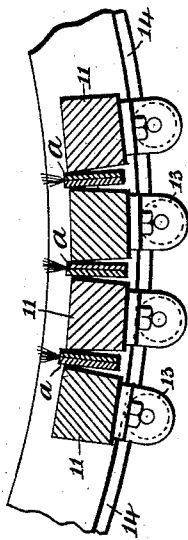


Fig. 7.

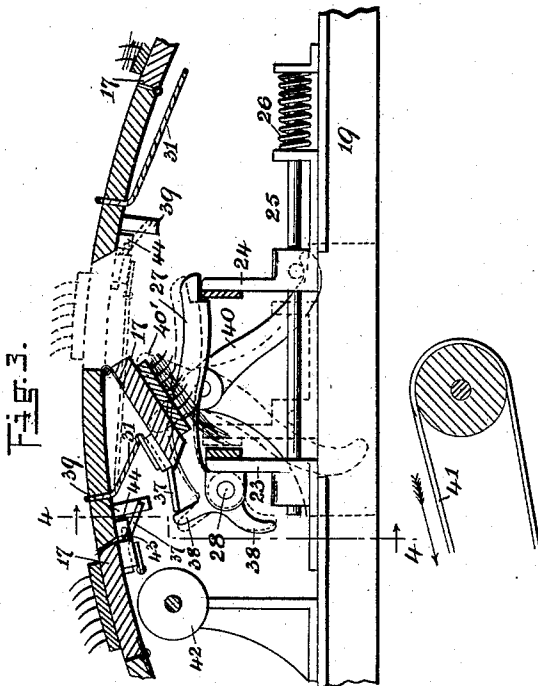
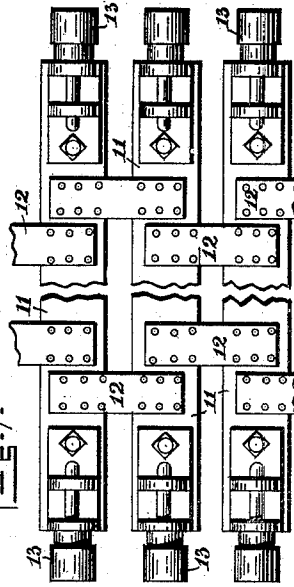
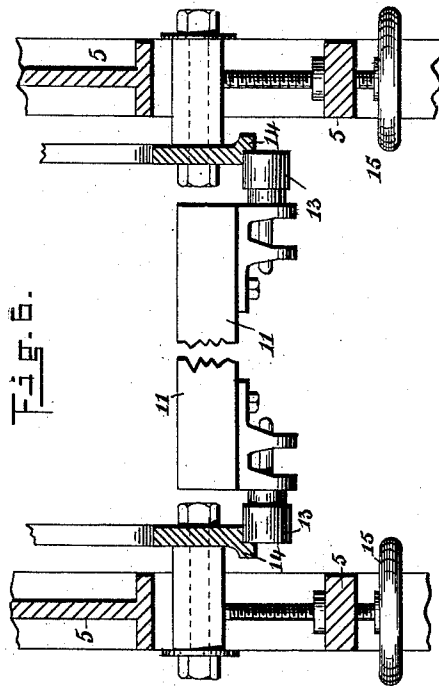


Fig. 6.



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UNITED STATES PATENT OFFICE.

GEORGE FREDK. PRIESTLEY, OF HALIFAX, ENGLAND.

MACHINE FOR DRESSING SILK, &c.

SPECIFICATION forming part of Letters Patent No. 468,507, dated February 9, 1892.

Application filed September 18, 1891. Serial No. 406,059. (No model.) Patented in England November 27, 1889, No. 19,045; in France December 27, 1890, No. 210,458; in Belgium December 29, 1890, No. 93,263, and in Italy January 12, 1891, No. 473.

To all whom it may concern:

Be it known that I, GEORGE FREDERICK PRIESTLEY, a citizen of Great Britain, residing at Halifax, in the county of York, England, have invented certain new and useful Improvements in Machines for Dressing Silk, Silk Waste, and other Fiber, (for which I have obtained patents as follows: in England, No. 19,045, dated November 27, 1889; in France, No. 210,458, dated December 27, 1890; in Belgium, No. 93,263, dated December 29, 1890, and in Italy, No. 473, dated January 12, 1891;) 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.

Hitherto the dressing of silk has been performed by manual labor; but it is my intention to perform the operation of dressing and opening silk by mechanical or self-acting means.

For the purpose of carrying out my invention I employ a suitable frame-work in which are mounted cross-shafts carrying toothed wheels and an endless chain composed of wood lags. The lags are connected together by hinges composed of leather, metal, or other suitable material. The endless chain is made sufficiently long so that between the two toothed wheels the upper surface of the said endless chain is dished or forms a concave surface. The lags forming the endless chain are laid parallel to each other, and their sides are of such a shape that when the chain is passing over the toothed wheels an open space is left between the parallel sides of each lag, into which spaces the tufts of silk are inserted; but where the lags arrive at the part where the chain becomes concave the space between the lags closes, whereby the ends of the tufts of fiber are nipped or held fast, allowing the projecting tuft or fringe of fiber to be dressed or lashed out by teeth or combs attached to a revolving cylinder, and when the lags have carried the tufts of fiber to the second toothed wheel the intervening spaces between the wood lags open out again when the tufts of fiber are removed, after which the dressed fringe of fiber may be inserted between the lags to have the undressed fringe

operated upon in like manner to that already described. The concave part of the endless traveling chain forms a segment of a circle in which the dressing-cylinder, with combs attached, is made to revolve; but the said cylinder is arranged not to be concentric with the circle of the endless chain, but eccentric therewith, so that the teeth on the cylinder only slightly enter the fiber at the commencement; but as the eccentrically-placed cylinder revolves the teeth gradually penetrate farther into the fiber until they arrive at the root or as near as it is thought desirable. The axle of the revolving cylinder is made adjustable, so that its eccentric position can be regulated as required. In order to insure that the lags will close to nip the fiber and also to insure that the concave part of the endless chain shall form a true and correct segment of a circle, I employ a segment or a plate forming part of a circle, and on the end of each wood lag I place a bowl or small roller arranged to pass underneath the segment, which closes the lags and forms them into a true and correct arc of a circle. Worms and wheels are employed to give the necessary rotary motions to the endless chain, and the dressing-cylinder may be driven by bevel or other form of wheels. A second or a third revolving cylinder may be also employed in conjunction with that already described.

The cards or teeth on the periphery of the dressing-cylinder are attached thereto in strips running lengthwise, leaving an intervening space between each two adjacent strips, and as the teeth or cards must occasionally be cleaned I arrange that each lath to which the cards are attached shall be hinged, and at a given part of a revolution of the said cylinder such hinged laths shall be made to open inwardly and come into contact with a fixed or movable comb or brush for the purpose of cleaning the said card-teeth, and this goes on while the machine is at work.

In order that my invention may be better understood, I will now make reference to the accompanying sheets of drawings illustrative thereof, wherein—

Figure 1 is a front elevation, partly in section, of my improved machine for dressing or

combing silk and other fiber. Fig. 2 is a plan view thereof. Figs. 3, 4, 5, 6, and 7 are enlarged sectional details of some of the parts.

5 represents the frame-work of the machine, bolted together by cross-rails in any well-known manner.

6 represents three toothed wheels made to revolve by worms 7, driven from horizontal shaft 8, deriving its motion from driving wheels or pulleys 9 and driving-pulleys 10. These toothed wheels 6 carry and drive an endless wooden chain 11, comprising a series of cross-bars or lags connected together by short pieces of leather 12 or other suitable hinges. (See enlarged plan, Fig. 7.) Each end of each lag comprising the endless chain carries a bowl or runner 13, employed for the purpose of rolling underneath a concentric guide-flange 14, so as to insure the endless chain forming a true semicircular or concave surface, as shown in Fig. 1, which may be tightened or slackened by vertical screws and hand-wheel 15.

The dressing-cylinders are shown at 16 and are supported in suitable bearings on shafts 18, placed crosswise of the machine, such shafts being supported in pedestals which are so placed as to cause the said cylinders to be eccentric with the concave surface of the endless chain to allow the teeth on the said cylinders to gradually enter and penetrate the projecting tufts of fiber presented to them. The endless chain is made to travel slowly from left to right of the machine, and when an attendant, standing at the feeding end of the machine A, inserts a book *a*, having a projecting tuft therein, between the spaces of the lags, such book is held secure as soon as the lags commence to form a concave surface, whereby the tuft is in a fit condition to be lashed or combed by the revolving cylinder, which moves at a quicker surface speed than the endless chain and in the same direction. At the point B the tufts pass over the central wheels 6 and begin to descend again. The tufts then pass under the second cylinder, which revolves in the reverse direction from the chain, and the teeth of the second cylinder comb the backs of the tufts in the same manner as the fronts of the tufts have been combed by the first cylinder. When the tufts of fiber arrive at point C, the combing or dressing thereof may be continued by corresponding endless chains and dressing-cylinders.

The cylinders 16 are composed of two armed rims or disks joined together by wood lags 17, forming thereby a cylinder or drum. The laths are hinged alternately or otherwise, so as to form "shutters," and they carry porcupine or other form of combs, such said shutters being made to open inwardly to allow the combs thereon to be dressed, and also for the purpose of having stripped therefrom the fiber which accumulates or gathers in the act of dressing or combing the tufts in the books *a*, as already explained. Within the cylinders

and resting on the shaft 18, but not revolving with it, is a metal frame-work 19, having on the under side thereof projecting arms 20 attached to a segment 21, carrying a weight 22, employed for the purpose of preventing the frame from turning around with the shaft. The upper portion of the frame-work 19 carries a fixed jaw 23, (see enlarged end view, Fig. 3, and front view, Fig. 4,) and opposite the said fixed jaw is a movable jaw 24, supported by a horizontal shaft 25, on which it is capable of sliding when released by a compressed spiral spring 26. The function or object of these jaws is to strip the combs of the fiber with which they are filled and which occasionally require to be cleaned off. When the jaws are not in use, they are kept open, as shown at Fig. 3, by a hinged catch 27, working on a fulcrum 28, operated as hereinafter explained.

For opening and closing the shutters 17 for the purpose of allowing the fiber to be removed from the teeth carried by the said shutters I employ a partially self-acting mechanism for that purpose, which is operated in the following manner: On one side of the dressing-cylinders are a number of sliding plates 29, one representing each shutter, and on each sliding plate is a stud 30, connected by cord 31 to the under side of each shutter. (Shown clearly in Figs. 3 and 4.) The shutters are opened by the sliding plate 29 being drawn down toward the axle of the dressing-cylinder, and this is effected by means of a vertical casting 32, (see Fig. 1,) which is made to catch hold of the stud 30 on the sliding plate, and on the attendant operating a hand-wheel *b* or other device on the horizontal shaft 33 the gear-wheels 34 thereon operate the pinion 35, in gear with a rack 36 on the face of the casting 32, the rotary motion of which pinion 35 draws the casting 32 downward, whereby, through the intervention of the cord 31, the shutter is opened. Other mechanical devices, however, may be employed for effecting the same purpose. On the shutter being opened it passes over the jaws 23 and 24, as shown in Fig. 3, which are standing in an open position, with the fiber in the teeth of the shutter hanging between the said jaws, which are, however, instantly closed by the stud or finger 37 at the back of the shutter striking the bell-crank form of lever 38 in such a manner as to remove the catch 27 from the movable jaw 24, which is immediately forced against the fixed jaw by the compressed spiral spring 26, whereby the fiber is nipped or seized hold of, so that as the shutter returns to its position again the fiber is left in the jaws; but on the continued rotary motion of the dressing-cylinder a fixed stud 39 (shown clearly in Figs. 3 and 4) comes into contact with the hinged lever 40, (shown clearly in dotted lines, Fig. 3,) so as to strike the upper end 40' of such lever, causing the lower end thereof to force the movable jaw 24 back, as shown in full lines, permitting the

catch 27 to drop, so as to hold the jaw open. Simultaneously with such movement the fiber drops from the jaws onto an endless traveling belt 41, (see Fig. 3,) whence it passes to a can or other receptacle placed to receive it, which can is afterward removed from the inside of the dressing-cylinder, one of the arms of the cylinder being left out in the casting for that purpose. The open shutter 17 is closed as the dressing-cylinder revolves by the said shutter coming into contact with the tappet-bowl or pulley 42. Each edge of the said shutter is provided with a spring-latch 43, which is made by pressure to enter into the latch 44, after the manner of a door-latch.

What I claim is—

1. In a fiber-dressing machine, the combination, with a carding-cylinder, of an endless chain provided with parallel cross-bars, wheels for supporting the chain, and curved guide-flanges under the said cylinder for causing the said cross-bars to grip the fiber-holders and carry them under the cylinder, substantially as set forth.

2. In a fiber-dressing machine, the combination, with a carding-cylinder, of an endless chain provided with parallel cross-bars, wheels for supporting the chain, and curved guide-flanges arranged eccentric to the periphery of the said cylinder, whereby the fiber carried along by the said chain may be gradually submitted to the action of the carding-teeth, substantially as set forth.

3. In a fiber-dressing machine, the combination, with a carding-cylinder provided with inwardly-opening shutters carrying the carding-teeth, of cleaning devices supported inside the cylinder and adapted to remove the fibers from the said teeth, and mechanism for opening the said shutters as they approach the said cleaning devices, substantially as set forth.

4. In a fiber-dressing machine, the combination, with a carding-cylinder provided with inwardly-opening shutters carrying the carding-teeth, of cleaning devices supported inside the cylinder and adapted to remove the fibers from the said teeth, the cords connected to the said shutters, the slides connected to

the said cords and provided with projecting pins, and a sliding catch adapted to engage with the said pins, whereby the shutters may be opened, substantially as set forth.

5. In a fiber-dressing machine, the combination, with a carding-cylinder provided with inwardly-opening shutters carrying the carding-teeth, of a stationary frame supported inside the said cylinder, a pair of spring-actuated jaws carried by the said frame and adapted to remove the fibers from the carding-teeth, a catch normally holding the said jaws apart, and the projections on the said shutters for releasing the said catch, substantially as and for the purpose set forth.

6. In a fiber-dressing machine, the combination, with a revoluble carding-cylinder provided with inwardly-opening shutters carrying the carding-teeth, of spring-latches for retaining the said shutters and a stationary tappet for closing the said shutters, substantially as set forth.

7. In a fiber-dressing machine, the combination, with a carding-cylinder provided with inwardly-opening shutters carrying the carding-teeth, of a frame mounted on the cylinder-shaft and provided with a weight adapted to hold the frame stationary and cleaning devices supported by the said frame inside the cylinder for removing fiber from the carding-teeth, substantially as set forth.

8. In a fiber-dressing machine, the combination, with a carding-cylinder provided with inwardly-opening shutters carrying the carding-teeth and a pair of spring-actuated jaws supported inside the cylinder and adapted to seize the fiber carried by the said teeth, of pivoted levers adapted to separate the jaws, studs projecting from the cylinder and adapted to actuate the said levers, and an automatic catch for holding the said jaws apart, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GEO. FREDK. PRIESTLEY.

Witnesses:

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