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F. G. BERWICK & S. HADFIELD.

WOOL COMBING MACHINE.

APPLICATION FILED OCT. 26, 1903.

NO MODEL.

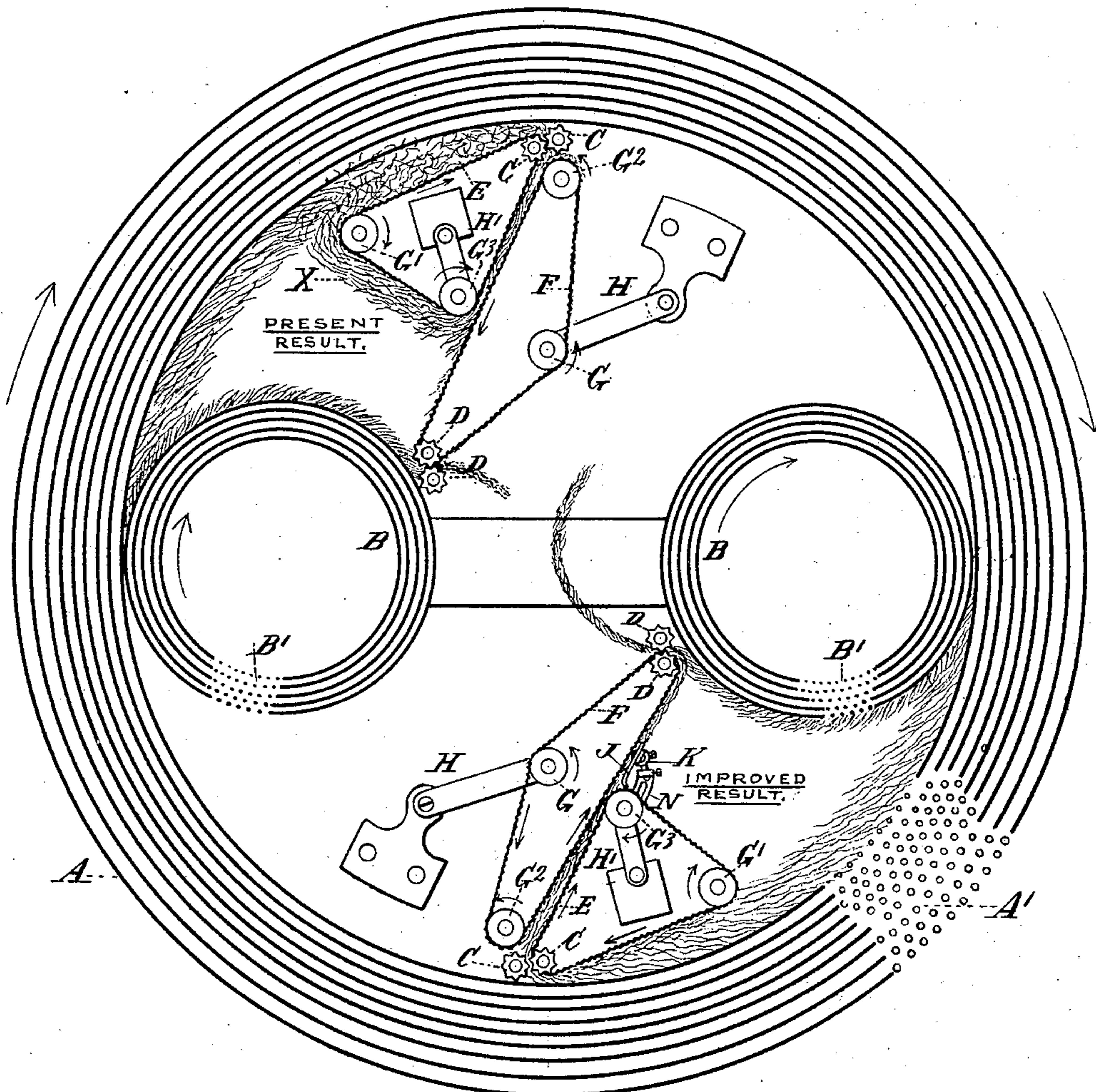


Fig. 1.

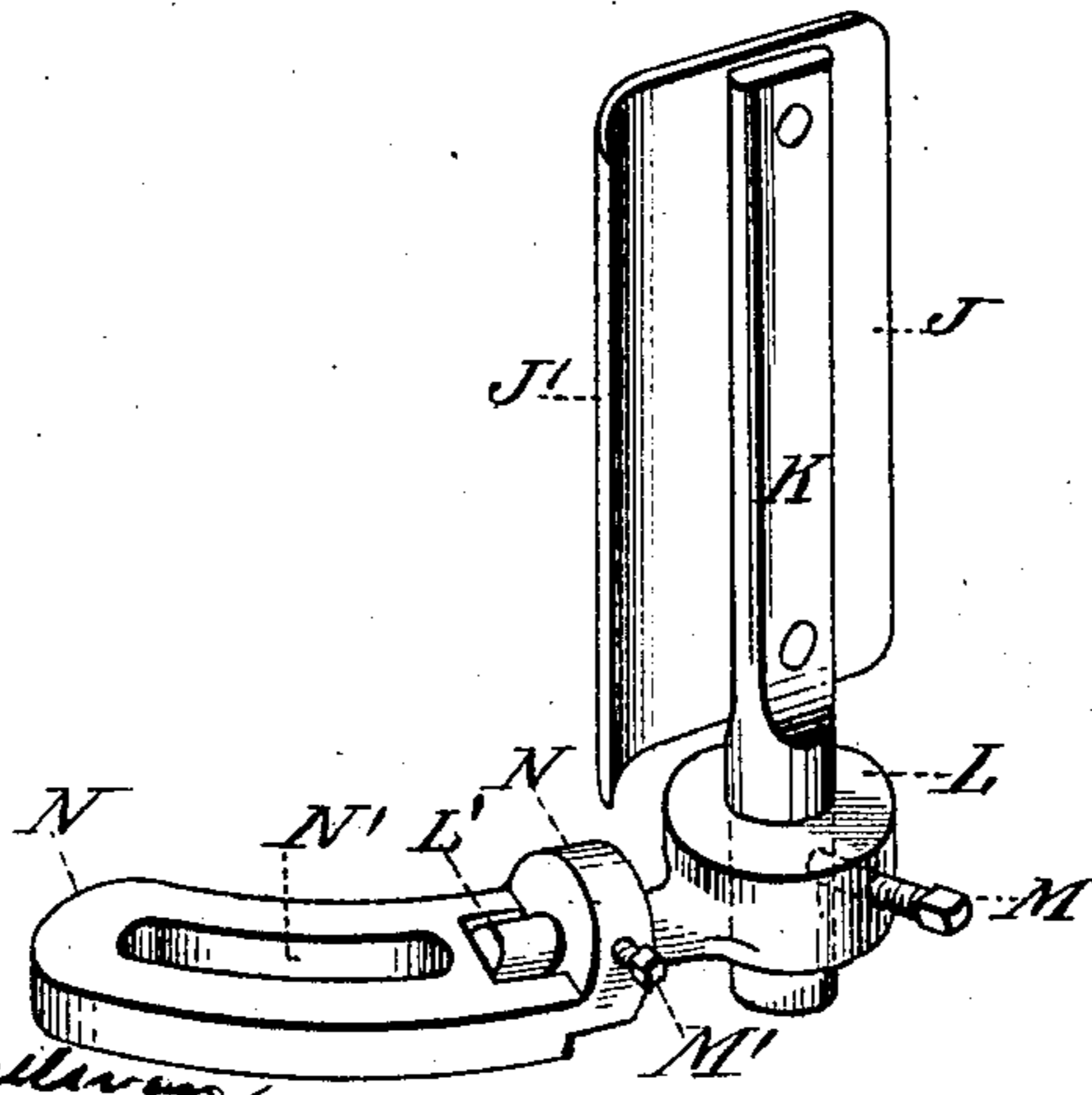


Fig. 2.

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# UNITED STATES PATENT OFFICE.

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## WOOL-COMBING MACHINE.

SPECIFICATION forming part of Letters Patent No. 764,791, dated July 12, 1904.

Application filed October 26, 1903. Serial No. 178,598. (No model.)

*To all whom it may concern:*

Be it known that we, FRANK G. BERWICK and SAMUEL HADFIELD, citizens of the United States of America, and residents of Lawrence, 5 in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Wool-Combing Machines, of which the following is a specification.

Our invention relates to improvements on 10 wool-combing machines; and the object of our invention is to correct the tendency of the wool fiber to return upon itself or overlap and to guide the united fibers composing the wool slivers along their appropriate traveling 15 aprons to the funnel and into the roving-cans set to receive them.

A brief summary of the operation of a wool-combing machine sufficient to show the application of our invention thereto may be appropriately introduced as follows: The large 20 circle and the smaller circles herewith illustrated comprise rows of pins constituting, broadly, the combs, and they vary in size and number according to the quality of 25 wool to be combed, the three circles revolving in the same direction. The smaller circles of pins revolve in juxtaposition to the large circle and with the same peripheral speed, which combs the wool previously 30 brought to the meeting-point of the large and smaller circles as it constantly feeds through the "boxes" surrounding the large circle. A "dabbing-brush" presses the wool down upon the pins of each circle at such point of 35 meeting and permits the small circles to draw off the short wool from the larger circle, the longer projecting fibers of wool being retained there, while the shorter projecting fibers remain in the smaller circles, the wool being 40 thus combed clear, leaving the "noil" in the pins of the circles. Vertical drawing-off rolls now catch the protruding fibers of wool from the small circles, combing as they draw the end previously in the pins. Meanwhile 45 the large circle is rotating with its long fibers projecting until they meet with a traveling apron which passes around one of a pair of drawing-off rolls which carry along such fibers as they catch and passes on until it

meets with a second traveling apron bearing 50 the short fiber from the smaller circles. Thus the ends of short and long fibers unite to form the "combed top" and are conveyed through the funnel and deposited into their several receptacles. 55

In the practical operation as above outlined the long fibers of wool have a tendency to separate after their union with the short fibers and in consequence overlap and constantly accumulate in bulk upon the outside 60 apron as they approach the larger circle, increasing until they interfere with the pins, causing breakage thereof and becoming a serious obstacle to the proper combing of the wool, while preventing the legitimate func- 65 tions of the machine. Such a false accumulation of wool fiber is illustrated in that part of the drawings designated by the words "present result." To obviate this difficulty, 70 our improved device, comprising a "sliver-conductor," is secured near the union of the outside and inside aprons in a manner to direct the sliver of wool properly along the inside apron and effectually prevents the objectionable overlapping and consequent conveyance of the sliver back again to the beard 75 coming from the large circle. This feature is also delineated in the drawings as the "improved result."

Referring to the drawings, Figure 1 is a 80 ground plan of sufficient portions of a wool-combing machine to adequately exhibit the objectionable overlapping of the wool fiber, together with the location of our improved invention to guide the sliver of wool in the 85 proper direction. Fig. 2 exhibits in perspective our improved device termed a "sliver-conductor."

Corresponding letters of reference denote similar features throughout the drawings, referring to which— 90

A designates the large circle composed of several concentric lines of vertical pins. Their formation and distribution throughout will be comprehended by the fragmental portion 95 illustrated at A'. The small circles B B are similarly equipped as B' B' and revolve in the direction of the larger circle and with the

same speed. Adjacent to the pins A' are the large-circle drawing-off rolls C C, vertically placed, while the small-circle drawing-off rolls contiguous to the pins B' are observed at D D. Between the several sets of fluted drawing-off rolls are drawn the traveling aprons E E and F F, the former designated as the "outside" and the latter as the "inside" aprons. Rolls or idlers G G<sup>3</sup>, adjustably supported on stud-plates H H', impart proper tension to each set of aprons, while the idlers G<sup>2</sup> G<sup>2</sup> sustain the aprons F F at the points farthest from the drawing-off rolls D D, and in a like manner the idlers G<sup>3</sup> G<sup>3</sup> hold the aprons E E in juxtaposition to the aprons F F at a place substantially midway the drawing-off rolls C C and D D. Now as the traveling aprons E E move in the direction indicated by arrows they draw off the longer beard or fiber projecting from the pins A' and convey it between the drawing-off rolls C C, while in a similar manner the shorter fiber is drawn off from the pins B' by the traveling aprons F F. The wool fibers of dissimilar lengths are commingled and form (technically) the sliver, as the outside and inside aprons E and F converge toward the idlers G<sup>3</sup> G<sup>3</sup> from their respective drawing-off rolls C C and idlers G<sup>2</sup> G<sup>2</sup>, as plainly illustrated. In the ordinary operation of these coacting aprons the slivers of wool become disunited as they pass the idlers G<sup>3</sup> G<sup>3</sup> and partially or entirely diverge toward the idlers G' G' and repeatedly sweep against the fiber projecting from the pins A', and thus continue overlapping, as shown at X, until the functions of the machine are interrupted or serious breakage of the parts occurs. To control the wool slivers in their legitimate paths upon the aprons F F, the sliver-conductors, one for each set of aprons, comprises the thin guide-plates J, curved on one edge, as at J', and attached to standards or studs K, adjustably and vertically supported in the rotatable eyebolts L, Fig. 2, by set-screws M, their stems L' being adjusted and secured horizontally in the base-plates N by set-screws M', the assembled devices thus having a multiple adjustment. Thus organized they are positioned near the idlers G<sup>3</sup> G<sup>3</sup> in a manner that the curved edges of the plates J' lie contiguous to the aprons E E, the grouped devices being finally secured to the arms of the stud-plates H' H' by bolts or screws through the medium of the slots N'. The contiguity of said plates and belts opposes the divergent action of the slivers, while the curved edges induce and facilitate the adherence of said slivers to their respective aprons

F F and their passage between the drawing-off rolls D D.

Through the instrumentality of our invention the constant supervision necessary to obviate the tendency of the wool slivers to deviate from their proper course is entirely avoided, and while we have described our preferred manner of construction we do not confine ourselves to the details illustrated and may variously modify the same without departing from the spirit of our invention.

We claim—

1. In a wool-combing machine, a sliver-conductor comprising a curved guide-plate adapted to control and properly direct the sliver of wool upon the inside apron, a standard affixed to and adjustably supporting said guide-plate, a base-plate perforated to sustain said standard vertically, means integral with the base to adjust said conductor in proper alinement with the moving slivers of wool, and an inside apron to receive, support and convey said wool sliver to its receptacle.

2. A wool-combing machine having an attached adjustable base-plate, a standard supported in said base-plate and arranged to aline with a moving sliver composed of wool fibers, and means united to said standard to prevent the overlapping of the wool sliver upon the outside apron.

3. In a wool-combing machine the combination of a base-plate, an eyebolt receivably connected thereto, a standard supported therein, a guide-plate attached to said standard, said assembled members having a multiple adjustment to confine a wool sliver against the inside apron until it reaches its legitimate destination.

4. A sliver-conductor comprising the following instrumentalities, a guide-plate, a standard therefor and a rotatable eyebolt to adjust said guide-plate to desired inclinations, a base-plate provided with means for the adjustment of said eyebolt in a rotatable and horizontal position, and further provided with means for its horizontal and lateral adjustment to a wool-combing machine in a manner to coact with a sliver of wool and compel its adherence to the traveling apron.

Signed at Lawrence this 17th day of October, 1903.

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