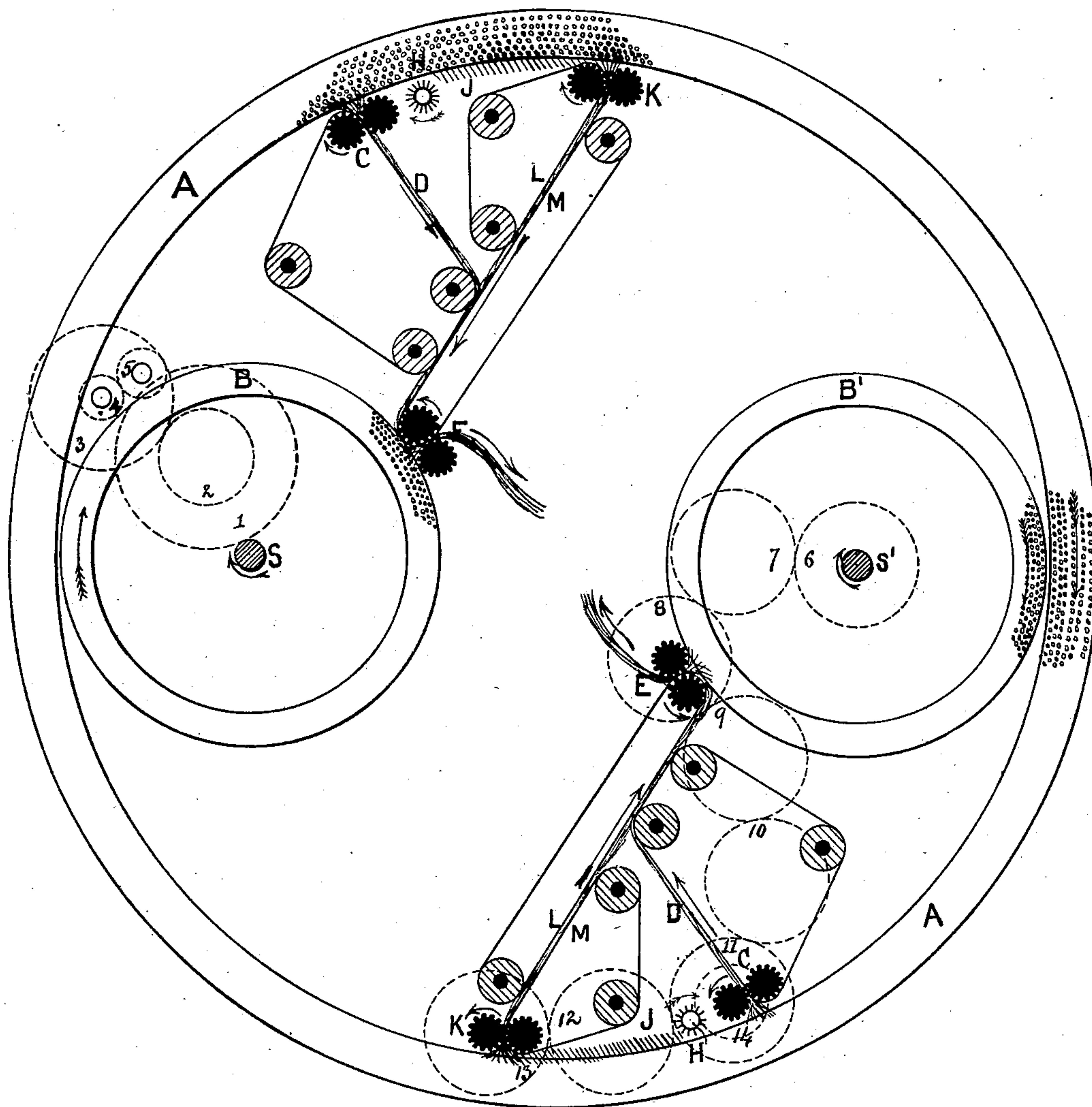


(No Model.)

A. SMITH.
Combing Machine.

No. 243,640.

Patented June 28, 1881.



Witnesses:
Harry Smith
James F. Tobin.

Inventor:
Albert Smith
by his Attorneys
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UNITED STATES PATENT OFFICE.

ALBERT SMITH, OF BRADFORD, COUNTY OF YORK, ENGLAND.

COMBING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 243,640, dated June 28, 1881.

Application filed February 14, 1881. (No model.) Patented in England December 22, 1880.

To all whom it may concern:

Be it known that I, ALBERT SMITH, a subject of the Queen of Great Britain and Ireland, and residing at Bradford, in the county of York, England, have invented certain Improvements in Combing-Machines, (for which I have obtained provisional protection in Great Britain, No. 5,369, December 22, 1880,) of which the following is a specification.

10 My invention relates to certain improvements in that class of combing-machines known as "Noble's combs;" and the object of my invention is to so construct the machine as to increase and facilitate the production of long
15 fiber combings.

The view in the accompanying drawing is a diagram plan of sufficient of Noble's combing-machine to illustrate my invention, the feeding and delivery mechanism and other details not
20 relating to my invention being omitted.

A represents the usual large circle comb, and B B' the small circles, the vertical comb-teeth on these circles being represented only on portions of the combs. The power for driving the operative parts of the machine is derived from the vertical driving-shafts S S', the large and small combs and the ordinary drawing-off rollers, hereinafter referred to, being driven from these shafts in the usual manner,
25 as shown, for instance, in Whitehead's British Patent No. 530 of 1869. On the left-hand side of the figure in the accompanying drawing the dotted circles 1, 2, 3, 4, and 5 indicate a train of gear-wheels, by which the circles A and B may be driven in the direction of the arrows
35 from the shaft S, the wheels 4 and 5 gearing into toothed wheels on the annular plates which carry those combs. The comb B' on the other side of the large circle comb A is driven from the shaft S' in a similar manner.
40

C C represent the ordinary two pairs of rollers for drawing off the long fibers from the large circle comb, while E represents the drawing-off rollers for the small circles B B'. These
45 drawing-off rollers are driven from the shafts S S' through the usual train of gears beneath the machine, as indicated on the right-hand side of the figure by the dotted circles. A wheel, 6, on the shaft S' is geared with a similar wheel, 8, on the lower end of the shaft of
50 one of the drawing-off rollers E through a

pinion, 7, motion being communicated from the wheel 8 through the pinions 9 and 10 to a gear-wheel, 11, on the lower end of the shaft of one of the drawing-off rolls C.

The parts of the machine described form part of one of the well-known Noble's combs, and operate in the following manner: The wool or fiber to be combed is fed in at each side of the machine by any of the ordinary feeding devices, such as those described in the British Patent No. 3,241 of 1869, and is dabbed by the vertically-reciprocating dabbing-brush into the large and small circle combs at the point of nearest contact of each small circle with the
55 large one. As the combs revolve in the direction of the arrows the fiber is cleared by the receding of those portions of the combs which were nearest to each other. The wool or fiber thus combed and cleared, or, as it is termed, the "top," suitable for the manufacture of
60 worsted goods, is drawn from the large comb A by the drawing-off rollers C, and is carried in the direction of the arrows by the drawing-leathers D to the drawing-off rollers E, where it joins the slivers there drawn off the small
65 combs B B'. This sliver is then conducted to the condensing-rollers and to the sliver-can or balling apparatus in the usual manner. When each pair of the rollers C has drawn off all the fiber it can from the large comb A there is still left a small "beard," as it is called, of cleaned
70 fiber, which has hitherto passed round to the small comb on the other side of the machine, and has usually become incorporated with the "noil"—that is, the short and knotty fiber separated by the combing from the long fiber and
75 afterward used for the making of blankets and similar common goods. In order to utilize this beard and produce more combings, I apply an additional pair of drawing-off rollers, K, adjacent to and a short distance after each
80 pair of drawing-off rolls, C. These additional drawing-off rollers K are preferably similar to the rollers C; but they may be of any suitable construction, any form of nipping devices applicable to a Noble's comb being available for the purpose. These rollers K are
85 combined with drawing-leathers L M, and are driven from the other rollers C through the medium of a pinion, 12, gearing into a wheel, 13, on the lower end of the shaft of one of each
90
100

pair of rollers K. These additional rollers lay hold of the short beard left by the rollers C and draw it from the comb A, whence it is passed forward by the leathers L and M to the sliver drawn from the comb by the rollers C.

5 In order to reverse the direction of the fibers forming the beard, so that the additional rollers can nip hold of it to better advantage, I place immediately behind the rollers C a star-wheel, 10 porcupine-wheel, or circular brush, H, mounted on a perpendicular shaft which is driven by a pinion, 14, on the shaft of one of the rollers C. As this wheel H revolves in the direction of the arrow it lays the fiber forming the 15 beard somewhat as indicated by the lines at J, so that it is in a favorable direction for being gathered in by the rollers K and drawn off the comb to the sliver-can or balling apparatus with the other slivers, as before described. 20 As the cleaned wool that has hitherto been fed to the inside of the small circle combs and passed partly into the noil is thus removed from the large circle, the feed to the comb A should be increased in proportion to the amount 25 of beard removed. In proportion to the in-

crease of feed the machine will comb a greater weight of fiber in a given time than has hitherto been accomplished by machines of this class as ordinarily constructed.

I claim as my invention—

1. The combination of the large and small circle combs of a Noble's combing-machine, driving mechanism, and drawing-off rollers C and E, with two additional drawing-off devices, K, and porcupine or similar wheels, H, 35 all substantially as described.

2. The combination of the large and small circle combs of a Noble's combing-machine, driving mechanism, and drawing-off rollers C and E, with two additional drawing-off devices, K, porcupine or similar wheel, H, and leathers L M, leading to the rollers E, all substantially as and for the purpose set forth. 40

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 45

ALBERT SMITH.

Witnesses:

W. N. JENNINGS,
JOHN L. FOX.