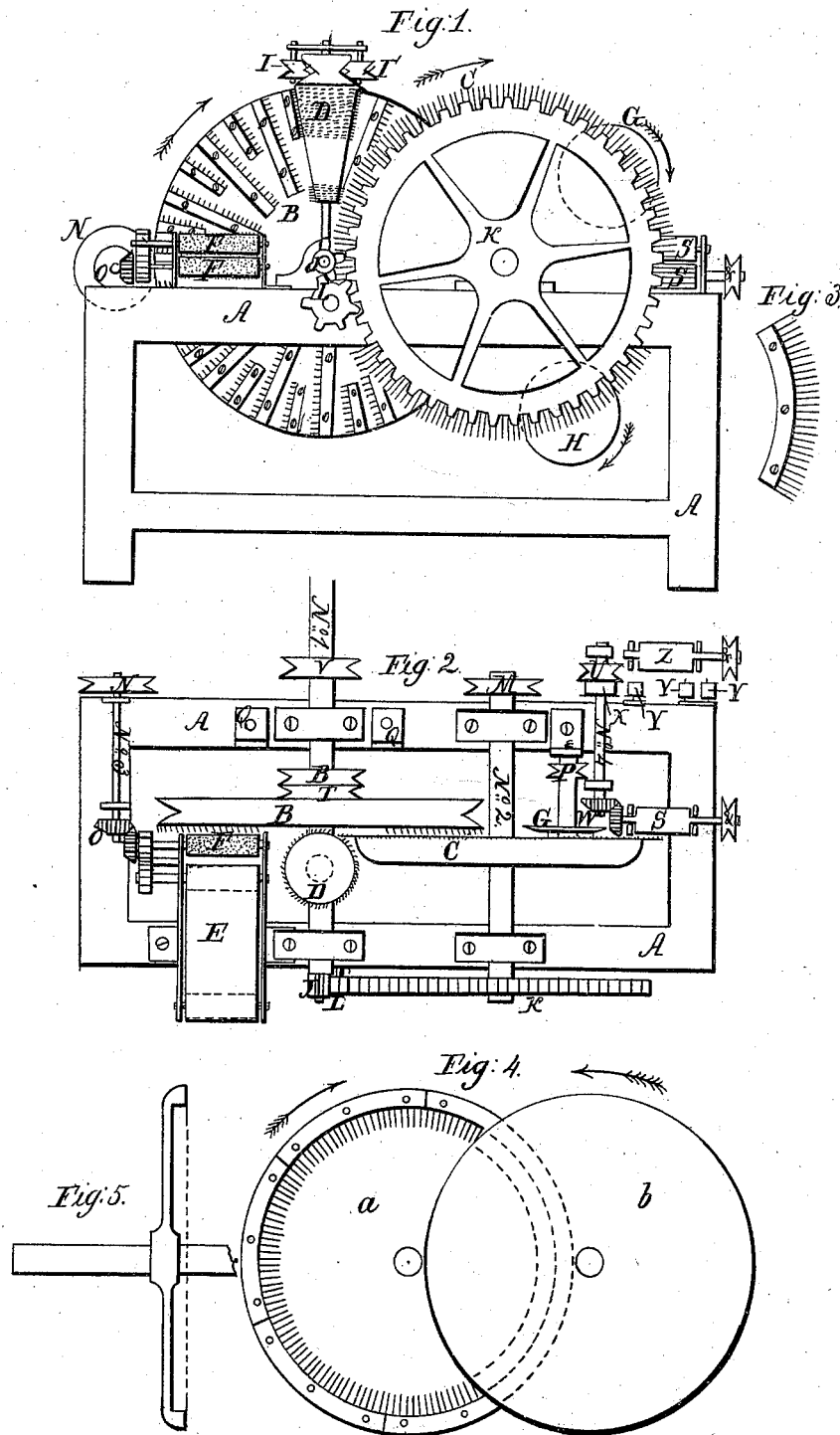


E. Gould, *Combing Machine.*

N^o 3,785.

Patented Oct. 9, 1844.



UNITED STATES PATENT OFFICE.

EZRA GOULD, OF PATERSON, NEW JERSEY.

MACHINE FOR COMBING WOOL.

Specification of Letters Patent No. 3,785, dated October 9, 1844.

To all whom it may concern:

Be it known that I, EZRA GOULD, of Paterson, in the county of Passaic and State of New Jersey, have invented a new and useful Improvement in Machines for Combing Wool for Worsted, of which the following is a full and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a longitudinal elevation, and Fig. 2, is a bird's-eye view of the same.

A, A, A, A, is a frame five feet long, two feet wide and two feet six inches high of wood.

B, is a circular plate wheel about two feet six inches in diameter, made fast to the main driving shaft No. 1, said shaft being one and a half inches in diameter and running in boxes which are fastened on the top side of the frame, and in a horizontal position. On the side of wheel B, as seen in Fig. 1, are fastened combs about sixteen of which are ten inches and sixteen five or six inches long commencing on the greatest diameter and extending toward the center of said wheel, the teeth of the combs are one half inch long the points projecting three sixteenths of an inch out farther from the face of the wheel than the base of the teeth. Car teeth, pins or brushes may be used on the face of the wheel instead of combs.

E, Fig. 2 is the feed table.

F, F, Fig. 1, are feed rollers made in the usual manner, placed in a parallel line to the face of wheel B, and having a slow rotary motion placed close to the teeth of the combs on wheel B, wheel B, revolving with a quick motion, in the direction of dart, the wool is received on the teeth of the combs of wheel B, from feed rollers F, F, covering the face of the said wheel.

D, Fig. 2, is a conical roller placed in an upright position in front of wheel B, made of wood ten inches long, six inches in diameter at its upper end and three inches at its lower end, being covered with card teeth in the usual manner, its lower pivot resting in a step, its upper one in a stand secured to the frame at Q Q, Fig. 2, and driven by a cord passing around the periphery of wheel B, Fig. 2, and guided by two pulleys I, I, attached to the upper part of stand Q, Q, as seen in Fig. 1, to the pulley on the upper end of roller D, the teeth on roller D,

revolving as close as they can to the combs on B, in the same direction and with considerable more velocity, which throws out the wool from the face of wheel B, or it may be driven by a pair of bevel wheels one on the shaft No. 1, and the other on the lower end of the shaft of roller D, gearing into each other, or wind may be used to answer in the place of the conical roller, by having wheel B, an arm wheel and open except as much as is necessary to fasten combs to, the wind being applied on the opposite side of wheel B, as seen in Fig. 1, which will blow the wool from its teeth on the teeth of the combs on wheel C, thereby effecting the object for which roller D, is used. C, is another circular plate wheel of about two feet six inches in diameter, its shaft revolving in boxes on the same frame and in the same way as the shaft of wheel B, the shafts of wheel B, and C, are in a horizontal position and as close to each other as their wheels will admit, (see Fig. 2.) On the opposite side of wheel C, as in Fig. 1, are circular comb plates with teeth about one inch long radiating from the center, (see Fig. 3,) which are inserted in on the outer circumference of wheel C, level with its face, the teeth setting outside of the circumference of said wheel as seen in Fig. 2, the side of wheel B, having the combs on, is made to revolve as close to the side of wheel C, which has on the circular combs as they will admit of without striking, both wheels revolving in the same direction, wheel B, about twenty times as fast as wheel C, which is effected by pinion J, on shaft No. 1, and wheel K, on shaft No. 2, connected together by stud wheel L, as seen in Figs. 1, and 2. The wool is received on the teeth of the combs on wheel C, from the combs on wheel B, by which it undergoes the process of combing.

M, is a groove pulley about six inches in diameter on the end of shaft No. 2, giving motion to shaft No. 3, by means of pulley N. On the opposite end of shaft No. 3, is bevel wheel O, four inches in diameter gearing in a bevel wheel of the same on feed roller F, Fig. 2, which are connected together in the usual manner.

G, is a thin circular plate wheel nine inches in diameter on a socket on which is pulley P, driven by pulley R, on shaft No. 1, this wheel revolving on a stud close to the combs on wheel C, having pins project-

ing out from the face see Fig. 2, and revolves in the direction of dart (see Fig. 1), the object of which is to place the combed wool in a proper position on the face of wheel C, to be drawn off by rollers S, S, in the usual manner. The noiles or short wool remaining in between the teeth of the combs on wheel C, passes on down to H, a thin plate size as wheel G, with leather on its face fitting close to the combs on wheel C, as seen in Fig. 1, revolving on a stud and driven from pulley T, on shaft No. 1, in the direction of dart, its object being to clean the teeth of the short wool.

U, is a pulley five inches in diameter on shaft No. 4, driven by pulley V, on shaft No. 1; on the opposite end of shaft No. 4, is bevel wheel W, two and a half inches in diameter gearing into bevel wheel on the end of fluted roller S, giving motion to the take off rollers.

X, is a pulley on shaft No. 4, inside of pulley U, around which and stud pulleys Y, Y, Y, is passed an endless belt for the purpose of condensing the sliver between rollers S, and Z, as in the usual manner from which it passes off into receiving vessels in front of roller Z. I also propose to use a wheel on shaft No. 2, with combs having teeth pointing inward toward the center in the place of wheel C, Fig. 1, this wheel is seen in Fig. 4, marked *a*, and is of the same size with wheel C, Fig. 1. Fig. 5, shows a half section of wheel *a*, the teeth setting out one inch or more from its face, to admit the wool to hook on and into its teeth, said wheel revolving in the contrary direction to wheel *b*, see dart, in Fig. 4. Wheel *b*, in Fig. 4, is the same wheel as B, in Fig. 1, as seen on its opposite side. The wool on wheel *b*, Fig. 4, passes the upper face of wheel *a*, to the teeth on its lower side, and the wool when combed passes up from below to the rollers which draw it off. Wheels G, and H, as seen in Fig. 1, will have to be reversed, H, placed on the upper face and G, on the lower face of wheel *a*, in Fig. 4. In using the inside teeth the shafts of

wheels *a*, and *b*, will require to be raised a little from their parallel positions, that the wool may more easily pass the upper surface of wheel *a*, as it passes to the teeth on the lower side of wheel *a*, all the other parts of the machine as described for wheels with teeth pointing outward suiting the machine having a wheel with teeth pointing inward. I also propose to use on the periphery of wheel (C) one or more rows of comb teeth. Or my improvements of combs pins, card teeth or brushes may be used in connection with pins or combs on a flexible belt or they may be attached to a metal chain as may suit my purpose. If card teeth, pins or brushes are used on wheel (B) they may cover the whole face or nearly so as may best effect the object of combing carding or brushing of wool or similar fibrous substances.

I do not confine myself to any particular sized wheel or number of combs as the size of this machine may be varied from that herein given without altering the principles of its operation, in which case, it will be important to increase or diminish the number and length of the combs. Also other parts of the machine, may be varied from that herein described as may best suit those who shall make or use the within described combing machine.

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

Arranging the combs, pins card teeth, or brushes in rows radiating from a common center and parallel or nearly so with the face of a wheel, when attached to the wheel or to arms projecting from a wheel, or to a plane corresponding to the face of a wheel when they are attached to arms simply projecting from a shaft as herein described, and the employment of a comb, brush as thus constructed in combination with combs on another wheel for the purpose and in the manner substantially as described.

EZRA GOULD.

Witnesses:

RICHD. K. WATTS,
LAFAYETTE CALDWELL.