

(No Model.)

2 Sheets—Sheet 1.

A. GUNERMAN & G. SCHACHT.
COMBING MACHINE.

No. 554,265.

Patented Feb. 11, 1896.

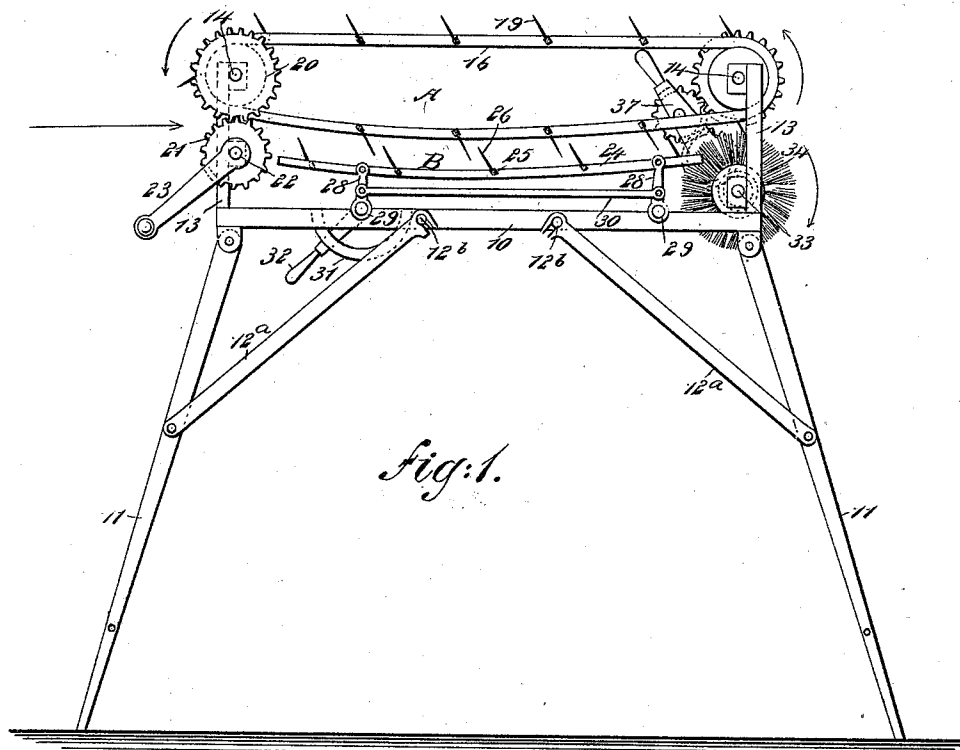


Fig. 1.

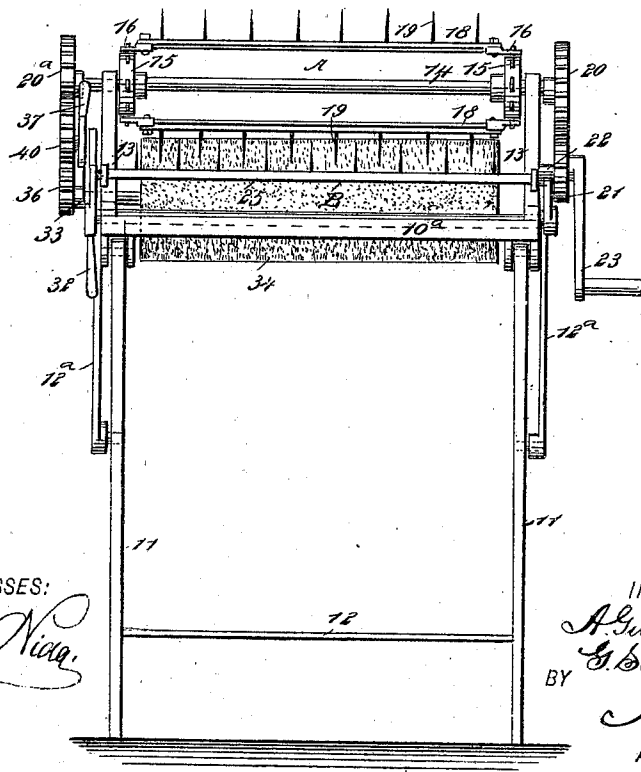


Fig. 2.

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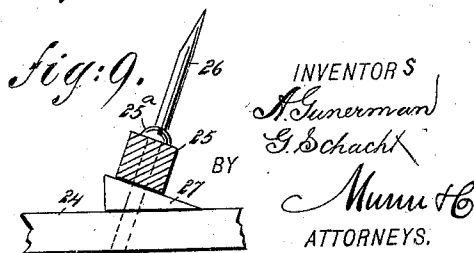
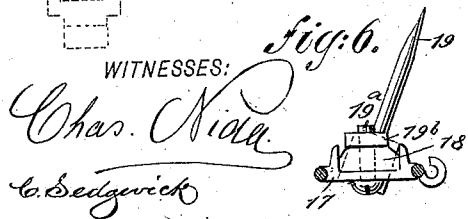
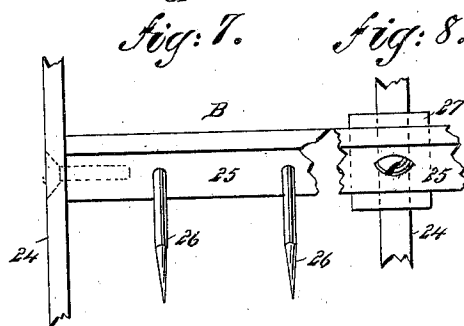
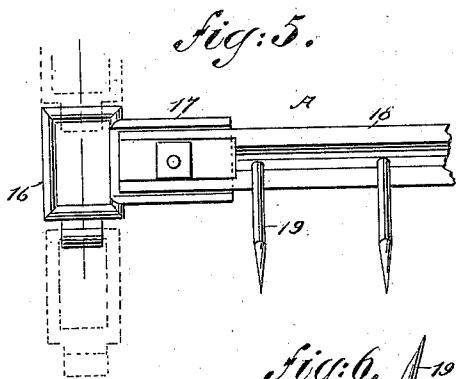
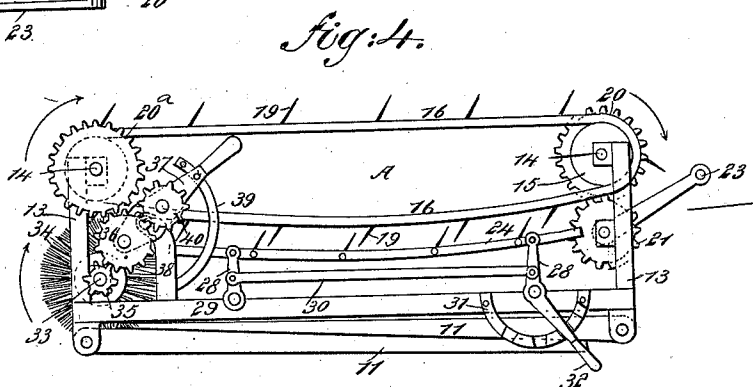
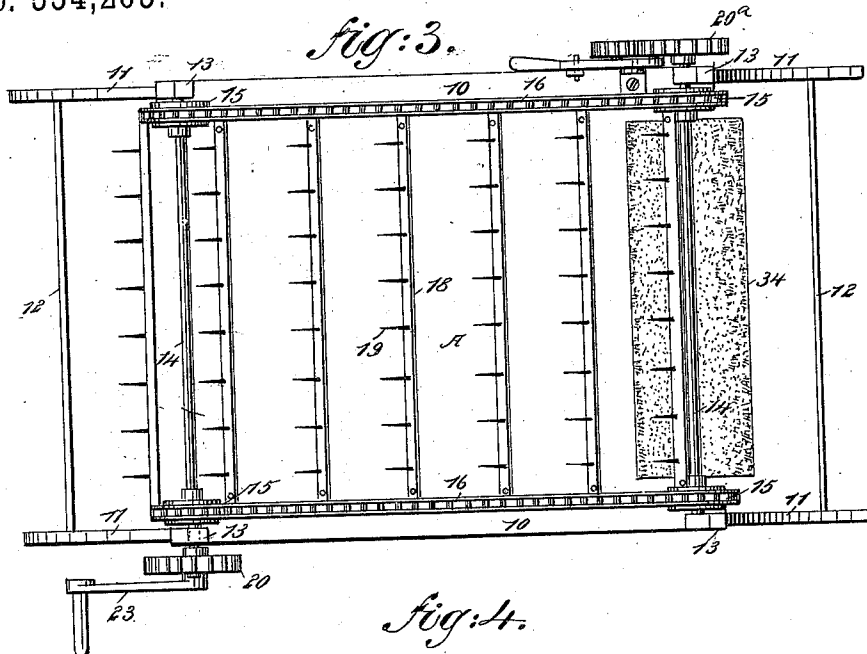
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

ANTHONY GUNERMAN, OF HOBOKEN, AND GEORGE SCHACHT, OF JERSEY CITY, NEW JERSEY.

COMBING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 554,265, dated February 11, 1896.

Application filed April 26, 1895. Serial No. 547,275. (No model.)

To all whom it may concern:

Be it known that we, ANTHONY GUNERMAN, of Hoboken, and GEORGE SCHACHT, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and Improved Combing-Machine, of which the following is a full, clear, and exact description.

Our invention relates to an improvement in combing-machines, being especially adapted for combing hair, moss, fiber, tow, tampico, wool, cotton, jute, excelsior, &c., and the object of this invention is to provide a machine which will thoroughly comb such material, and which will be simple, durable and economic in its construction, and capable of being compactly folded, rendering it readily portable.

A further object of the invention is to construct the machine in such a manner that the dust will be allowed to escape at the top, bottom and sides, and whereby the material will be combed without breakage or injury, and will be supplied with ample air during the combing operation. A further object of the invention is to so construct the machine that it may be effectually used for treating hair, the same being fed from the top of the machine, and also to provide means for thoroughly cleaning the combs when necessary, and for brushing the hair from the combs at the exit end of the machine.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the machine. Fig. 2 is a front elevation thereof. Fig. 3 is a plan view. Fig. 4 is a side elevation showing the machine folded up and the brush geared to run in a reverse direction to its ordinary course. Fig. 5 is a detail view showing the manner in which the combing-bars are attached to the carriage or carrier of the machine. Fig. 6 is a section through one of the links, illustrating the manner in which the combing-bars are attached thereto. Fig. 7 is a detail view of one of the lower station-

ary combing-bars. Fig. 8 is a detail view of a modified construction of the same; and Fig. 9 is a section through one of these bars, illustrating a slightly-different manner of attaching it to its carrier.

In carrying out the invention the frame usually consists of two side bars 10, connected by front and rear bars 10^a, and may be constructed of any desired material. Legs 11 are pivoted to the corners of the frame and the legs at each end are connected by a cross-bar 12, while each leg is furthermore provided with a brace 12^a, adapted for removable engagement with buttons 12^b, secured to the sides of the frame, the braces serving to lock the legs in position to support the frame. A standard 13 is erected at each corner of the frame and the upper ends of the standards are provided with boxes, and in the boxes at each end of the machine a shaft 14 is journaled, and both of these shafts are provided at or near each end with a sprocket-wheel 15, the side-aligning sprocket-wheels being made to carry endless chains 16, forming a portion of the upper combing-carriage A.

Sundry of the links of the chain are provided with channeled extensions 17 from their inner side faces, as shown in Fig. 5, and in these channeled extensions of the links the end portions of comb-bars 18 are secured, the bars being made to extend somewhat at an inclination, presenting their longitudinal upper edges to the line of travel of the carriage, and each comb-bar is provided with any desired number of teeth 19, and these teeth are inclined in the same direction as the bars—namely, the teeth on the upper stretch of the combing-carriage will incline upwardly and in direction of the front or feed end of the machine and those on the lower stretch of the comb-carriage will have an inclination in direction of the delivery end of the machine.

Ordinarily the comb-bars are secured in the extensions of the links by means of suitable bolts and nuts 19^a and 19^b, as illustrated in Fig. 6.

A gear 20 is secured upon one end of the forward shaft, 14, while a gear 20^a is secured to the opposite end of the rear shaft, 14, as illustrated in Figs. 1 and 3. The forward gear, 20, is made to mesh with a pinion 21,

secured on the shaft 22, preferably a short shaft not extending through the frame, and this shaft may be made to turn either through the medium of a crank-arm 23, or other power may be applied to said shaft, or the crank arm or power may be applied directly to the pinion 21, in which case the pinion will turn loosely upon the shaft.

A stationary, yet adjustable, combing-frame B is located beneath the combing-carriage A. The combing-frame comprises two side bars 24, placed in parallel position and connected by sundry cross or comb bars 25, placed diagonally or at an inclination in the frame, and each of these lower comb-bars, 25, is provided with teeth 26, arranged so as not to interfere with the teeth on the lower stretch of the comb-carriage, and the stationary combing-teeth have an inclination just opposite to those on the lower stretch of the comb-carriage, as shown in Fig. 1.

In Fig. 7 we have illustrated the comb-bars 25 as secured in the side bars 24 of the stationary combing-frame by passing screws through the side bars into the comb or cross bars, and in Figs. 8 and 9 we have shown a slightly-different way of making the attachment, which consists in placing blocks 27 on the side bars 24, having an inclined upper face, and securing the cross-bars 25 on these blocks by means of screws 25^a, passed through the cross-bars and blocks and into the side bars.

The stationary combing-frame is supported by links 28, which are pivoted to the side bars near each end, and are secured at their lower ends to shafts 29, held to rock in the main frame of the machine, the links being connected by rods 30; and one of the shafts is provided with an attached handle 32, adapted to engage with the rack 31, and by moving the handle along the rack it is evident that the stationary combing-frame may be adjusted to and from the combing-carriage.

At the delivery end of the machine suitable boxes are provided on the main frame, and in these boxes the shaft 33 of a circular brush 34 is journaled. This brush extends from one side of the machine to the other and beyond the delivery end of the machine, the diameter of the brush being such that it will engage with the movable combing-teeth and clean the hair or other material therefrom, brushing the material at the same time.

In the operation of the machine this brush is rotated in the direction shown by the arrow in Fig. 1, but the brush is adapted to have a reverse motion in order that the combing-teeth of the combing-carriage may be readily cleaned by the brushes. To that end the brush-shaft 33 is provided with a pinion 35 at one extremity, which is in mesh with a gear 36 journaled upon the lower end of the lever 37, which lever is fulcrumed at or near its center upon a bracket 38 or equivalent support, and the handle end of the lever is carried in engagement with a rack 39, as shown in Fig. 4.

A second gear 40 is journaled also on the lever, meshing with the gear 36, the latter being larger than the gear 40, and by shifting the lever 37 either the gear 36 or the gear 40 may be carried into mesh with the large gear 20^a on the rear shaft 14. When the upper gear 40 is made to mesh with the large gear 20^a, the movement of the brush will be outwardly to discharge the material from the machine, as shown in Fig. 1. When the intermediate gear 36 meshes with the large gear 20^a, the motion of the brush will be reversed, the direction of rotation being inward, as shown in Fig. 4, and adapted to clean the teeth as they are moved through the brush by their driving mechanism. The material is usually fed to the combing-carriage at the front of the machine, but if in practice it is found desirable, especially where short hair is to be cleaned, it may be fed in at the top. In any event, whatever the material, such as hair, fiber, wool, &c., that may be passed through the machine, it will be thoroughly combed and cleaned without damage to the material.

A movable carriage comprising a sprocket-chain has an advantage over a roller or similar rigid carriage provided with teeth, inasmuch as the chain-carriage will yield relatively to the fixed or lower carriage when stones, pieces of wood, or like obstructions get into the machine, and would be apt to break the teeth were the opposite teeth held in rigid relation.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A combing-machine, comprising a rotating combing-carriage, means for rotating the same, combing-teeth on said carriage, a combing-frame located beneath the combing-carriage and provided with combing-teeth, a brush rotated in one direction by the rotation of the carriage to discharge material from the machine and a change-gearing whereby the brush may be rotated in the opposite direction to clean the combing-teeth of the carriage as the said teeth are drawn through it, as and for the purpose specified.

2. In a combing-machine, a combing-carriage, means for operating the same, the said carriage being provided with comb-bars having their teeth inclined, a combing-frame located beneath the combing-carriage, provided with comb-bars the teeth of which incline in an opposite direction to the teeth of the carriage, and a brush located at the delivery end of the carriage and frame, and means, substantially as shown and described, whereby the brush may be made to discharge material from the machine or by a reverse motion to clean the combing-teeth of the carriage as the said teeth are moved through it, as and for the purpose specified.

3. In a combing-machine, the combination, with an endless rotating combing-carriage, provided with comb bars and teeth inclined in direction of the feed end of the machine on

the upper stretch of the carriage, and in direction of the delivery end at the lower stretch of the carriage, and means, substantially as shown and described, for rotating the said carriage, of a stationary combing-frame located below the lower stretch of the carriage and having combing-teeth arranged out of alignment with those on the carriage and having an inclination in an opposite direction to the teeth on the lower stretch of the carriage, an adjustable support for the said combing-frame, whereby it may be carried to or from the carriage, and a brush journaled beneath the delivery end of the carriage at the rear of the delivery end of the combing-frame, the said brush being rotated through the medium of the carriage, and means, substantially as shown and described, for reversing the movement of the said brush, as and for the purpose specified.

4. In a combing-machine, the combination, with an endless rotating combing-carriage, provided with comb bars and teeth inclined in direction of the feed end of the machine on the upper stretch of the carriage, and in direction of the delivery end at the lower stretch of the carriage, and means, substantially as shown and described, for rotating the said

carriage, of a stationary combing-frame located below the lower stretch of the carriage and having combing-teeth arranged out of alignment with those on the carriage and having an inclination in an opposite direction to the teeth on the lower stretch of the carriage, an adjustable support for the said combing-frame, whereby it may be carried to or from the carriage, a brush journaled beneath the delivery end of the carriage at the rear of the delivery end of the combing-frame, the said brush being rotated through the movement of the carriage, means, substantially as shown and described, for reversing the movement of the said brush, a common frame supporting the carriage and the supporting mechanism of the stationary combing-frame, legs pivoted to the said main frame, being adapted to fold over or beneath the said main frame, and latch-braces carried by the legs and engaging with the said main frame, as and for the purpose specified.

ANTHONY GUNERMAN.
GEORGE SCHACHT.

Witnesses:

JAS. K. MURPHY,
AUGUSTUS BROWN.