(No Model.) 3 Sheets—Sheet 1.

J. SCHÜSSLER.

HAIR COMBING MACHINE.

No. 422,638. Patented Mar. 4, 1890.

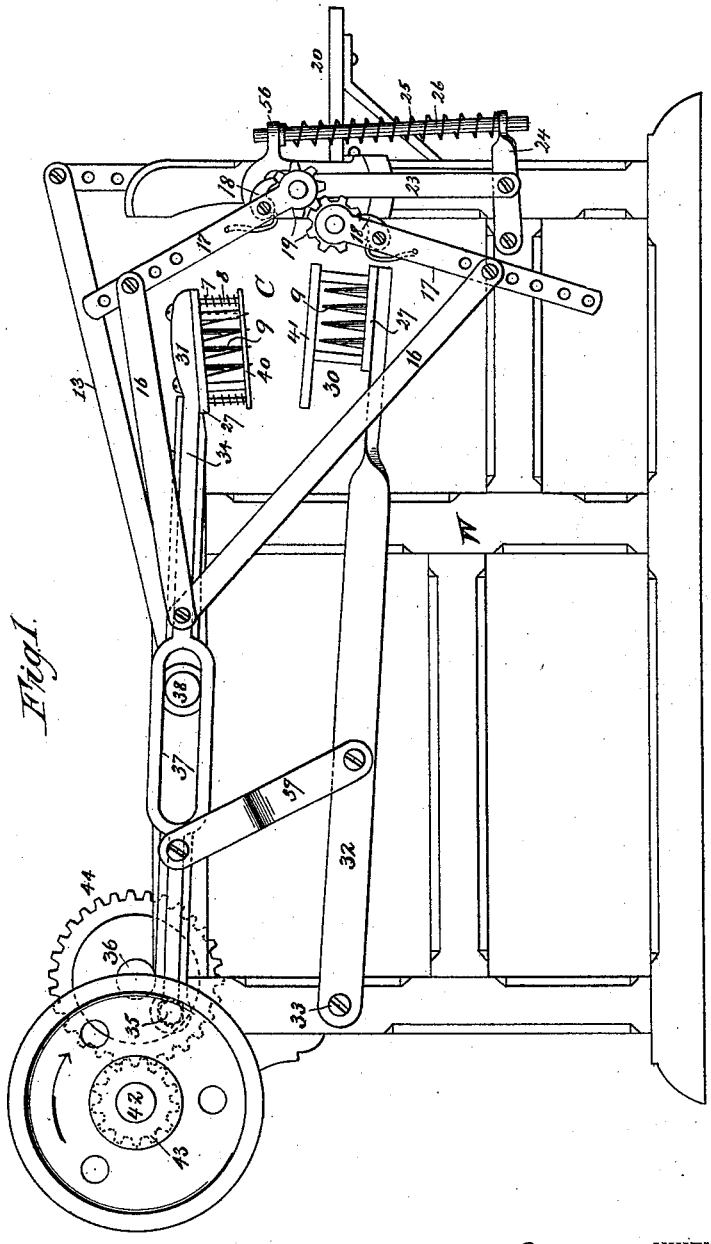

Fig. 1.

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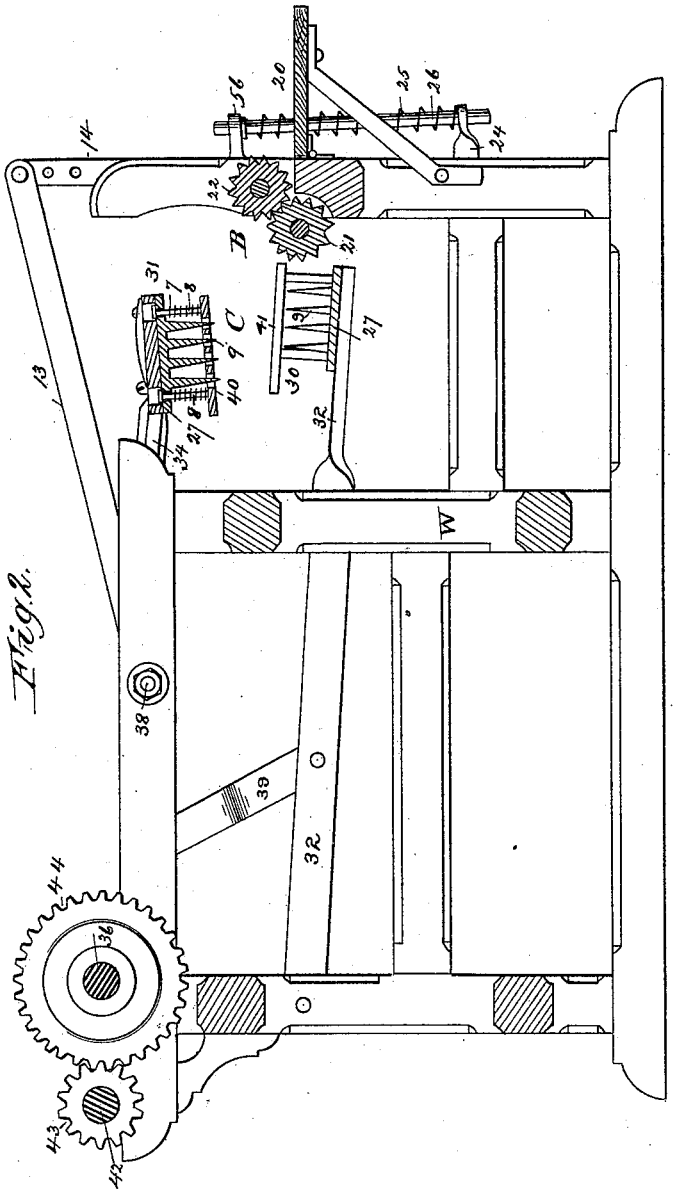

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Fig. 4.

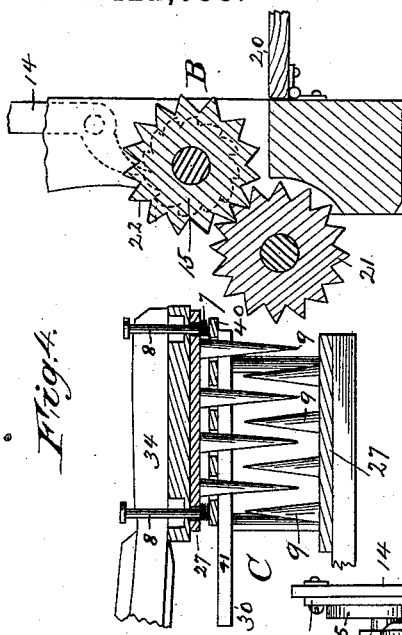


Fig. 5.

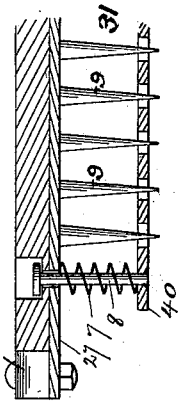
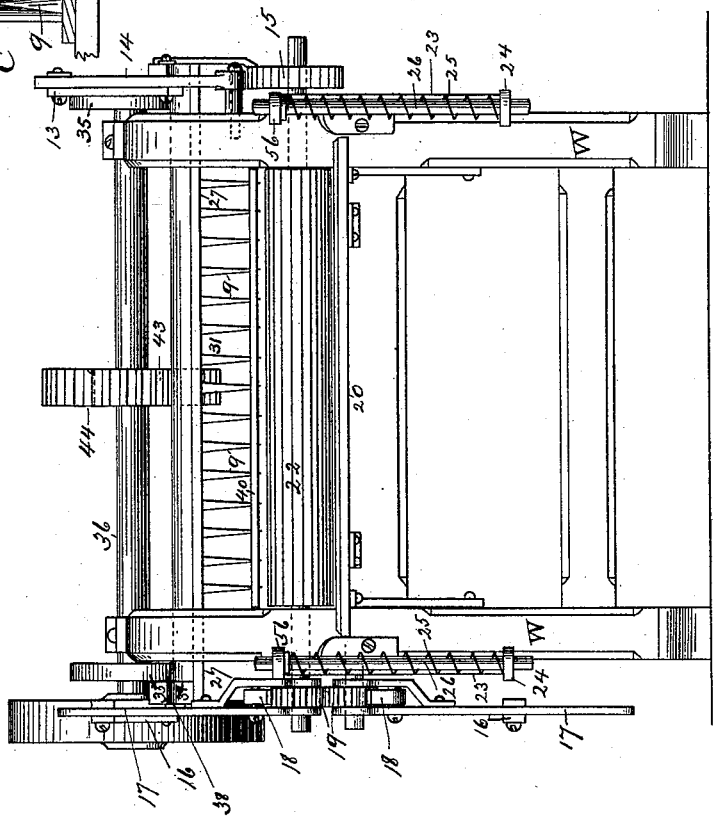


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN SCHÜSSLER, OF BROOKLYN, NEW YORK.

HAIR-COMBING MACHINE.

SPECIFICATION forming part of Letters Patent No. 422,638, dated March 4, 1890.

Application filed September 26, 1889. Serial No. 325,221. (No model.)

To all whom it may concern:

Be it known that I, JOHN SCHÜSSLER, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Hair-Combing Machines, of which the following is a specification.

This invention relates to hair-combing machines—that is to say, to that class of machines that are adapted to automatically loosen and clean matted hair, so as to render it fit for use in upholstering furniture, stuffing cushions, and the like; and it consists in the novel structure hereinafter fully set forth and claimed.

In the accompanying drawings, which illustrate a practical embodiment of the invention, Figure 1 is a side elevation of the improved machine. Fig. 2 is a central sectional elevation of the same. Fig. 3 is an end elevation. Fig. 4 is an enlarged sectional detail showing particularly the feeding-rolls and the combing devices. Fig. 5 is an enlarged cross-section of the combing devices and the stripping or clearing plate.

Referring to said drawings, it is to be understood that the improved machine consists, essentially, of a feeding device B for the hair, represented in its preferred form by a pair of grooved or fluted rolls 21 22, the combing devices represented by a pair of combs C, having a peculiar movement with respect to the feed-rolls and to each other, and means for imparting said movement to the combs.

The parts of the machine are supported in a suitable frame-work W, providing at one end suitable bearings for the journals of the feed-rolls. Each of these rolls is fluted longitudinally to better feed the matted hair from a table 20 to the combing devices. The feed-rolls are preferably mounted so that one or the other may yield as the quantity of hair being fed is varied. Thus the journals of the lower roll 21 are mounted in fixed bearings, while those of the upper roll 22 are movable vertically within short limits against the stress of a spring. As shown, each box supporting the journals of the upper roll is provided with a link 23, connected to a pivoted lever 24, the free end of which is borne upon by a spring 25, that is guided by a rod 26, supported by the lever 24 and by an arm 56, projecting from the framing.

The combing devices C consist of the combs 30 31, each of which is formed by a number of pins or teeth 9, the bases of which are secured to a plate 27 and project therefrom. The pins or teeth of each plate are arranged so that those of one plate will pass between those of the other when the combs come together, as is shown in Fig. 4. The combs extend transversely of the machine beyond the feed-rolls, and the plate 27 of the lower comb 30 is secured at opposite ends to the ends of a pair of levers 32, pivoted at 33 to the side framing at some distance from the comb. The plate 27 of the upper comb 31 is similarly secured to the ends of a pair of arms 34, the opposite ends of which are attached to the studs of a pair of crank-disks 35, that are mounted on a transverse shaft 36. Each of the arms 34, about midway of its length, is provided with a slot 37, that is engaged by a guiding-stud 38, that also forms a pivot upon which the arm may rock. The rocking motion of the arms 34 is imparted to the levers 32 by a link 39. From this construction and arrangement the motion imparted to the lower comb 30 will be simply a vibrating up-and-down movement, the arc of movement being imperceptible, owing to the length of the levers and distance of the pivots from the comb. The upper comb 31, in addition to the rocking movement of the arms upon the studs 38, has imparted to it a longitudinal movement by reason of the throw of the crank-disk, so that when the two combs are vibrated toward each other into the position shown in Fig. 4 the upper comb will be moved so that its pins or teeth will move past those in the lower comb, thus drawing the hair grasped by the teeth to open or comb it. So soon as the drawing movement of the upper comb has taken place the combs will commence to separate until they are separated at a distance apart, as in Figs. 1 and 2, when the return action will commence. It will also be observed that the separating and return movements of the combs, by reason of the peculiar construction of the operating mechanism, will be practically simultaneous, with this exception, that the parts are so timed and arranged that the teeth of the lower comb first grasp the hair fed forward by the feeding-

rolls, so that when those of the upper comb finally enter into the hair grasped by the lower comb the longitudinal movement of the upper comb will effect the combing.

In the separating movement of the combs the hair that has been drawn or combed will become disengaged from the teeth of the lower comb, and in order to insure its disengagement from the teeth of the upper comb the latter is provided with a stripper-plate 40, which, as the two combs separate, moves down and strips the hair from the teeth of that comb. This stripper-plate 40 is carried by the upper comb by studs 8, passing freely through perforations in the plate 27, and having a head to prevent it from falling from place. The stripper-plate is perforated to permit the pins or teeth 9 of the upper comb to pass through it, and while the stripper may effect its stripping function by gravity it is preferred to employ slight springs 7 to insure this result. In order that the stripper-plate shall not contact with the ends of the teeth of the lower comb, and to temporarily remove it from its position near the ends of the teeth of the upper comb while in the act of combing, the plate 40 contacts with a projection 41, supported by the lower comb as the teeth of both combs meet each other, and as the combs move closer together the stripper-plate is moved back, as in Fig. 4, allowing the teeth of the upper comb to pass or lap those of the lower comb without becoming engaged by such teeth.

While the feeding movement of the rolls 21 22 may be imparted in any convenient manner, the movement of one of the arms 34 is made the means of imparting such feeding movement.

The journal at one side of the machine of each roll is provided with a toothed wheel 19, that is engaged by a pawl 18, carried by an arm 17, rocking loosely on the journal. Motion from the arm 34 is imparted to each of the pawl-carrying arms by links 16. The point of connection between the links and the arms may be varied, so as to change the extent of throw of the pawl, and consequently the amount of movement to the feed-rolls. This manner of imparting the feeding motion materially simplifies the machine, as it is only necessary to move the arm 34 of the upper comb, and this movement at the same time effects the movement of the lower comb. Thus all the motions in the machine are produced from the movement of a single instrumentality.

To prevent any premature feeding movement of the rolls while the combing action is taking place, one of the rolls—as, for instance, the upper one—is provided with a ratchet-wheel 15, that is engaged by a stop-pawl 14, rocked into engagement with the teeth of the ratchet-wheel by a link-connection 13 with one of the arms 34, and is also rocked out of engagement when the feeding-pawls 18 are about to operate.

Motion may be imparted to the crank-disk shaft 36 in any convenient manner. Thus a driving-shaft 42 is mounted on the framing and has a pinion 43 engaging with a gear-wheel 44, secured to the shaft 36. Motion may be imparted to the driving-shaft by hand through a crank, or it may be provided with a belt-wheel to be driven by power.

Of course the feeding-rolls 21 22 might be geared together, in which case, only one feeding-pall and the connection with an arm 34 for vibrating it need be employed.

No separate description need be given of the operation of the improved machine as thus organized, as its operation will be readily understood from the description already given.

Without limiting the invention to the precise details of construction shown, what is claimed is—

1. In a hair-combing machine, the combination of hair-feeding devices, a pair of combs vibrating simultaneously in opposite directions toward and from each other, and means for vibrating the combs and for causing the teeth of one comb to draw through those of the other, substantially as described.

2. In a hair-combing machine, the combination of hair-feeding devices, a pair of combs vibrating simultaneously in opposite directions toward and from each other, a crank, and connections with said combs for operating them and for causing the teeth of one comb to draw through those of the other, substantially as described.

3. In a hair-combing machine, the combination of hair-feeding devices, a pair of combs vibrating simultaneously in opposite directions toward and from each other, a crank, and connections with said combs and the feeding devices for operating each of them and for causing the teeth of one comb to draw through those of the other, substantially as described.

4. In a hair-combing machine, the combination of feeding-rolls, a pair of combs vibrating in opposite directions, a vibrating arm for one of the combs, means for vibrating said arm and a lever for the other comb, and connections between the arm and lever whereby the combs are vibrated simultaneously, substantially as described.

5. In a hair-combing machine, the combination of feeding-rolls, a pair of combs vibrating in opposite directions, a vibrating arm for one of the combs, means for vibrating said arm, a lever for the other comb, and connections between the arm and lever and between the arm and feeding-rolls whereby the movement of the arm operates both combs and the feeding-rolls, substantially as described.

6. In a hair-combing machine, the combination of feeding-rolls, a pair of combs vibrating in opposite directions, a crank and connections with said combs and the feeding-rolls, and a stop-pawl for the feeding-rolls brought into action during the combing action of the combs, substantially as described.

7. The combination of feeding-rolls, pawls for moving them intermittingly, a pair of combs vibrating in opposite directions, a crank, an arm connected with the crank and with one of the combs, and connections between said arm and the other comb and the pawls of the feeding-rolls whereby the combs and the feeding-rolls are operated from the crank, substantially as described.

8. The combination of feeding devices, a pair of combs vibrating in opposite directions, a stripper-plate carried by one of the combs, a crank, and connections for operating the combs, substantially as described.

9. The combination of feeding devices, a pair of combs vibrating in opposite directions, a yielding stripper-plate carried by one of the combs, a projection for engaging said plate carried by the other comb, a crank, and connections for operating the combs, substantially as described.

Signed at New York, in the county of New York and State of New York, this 23d day of September, A. D. 1889.

JOHN SCHÜSSLER.

Witnesses:
EDWD. K. ANDERTON,
GEO. H. GRAHAM.