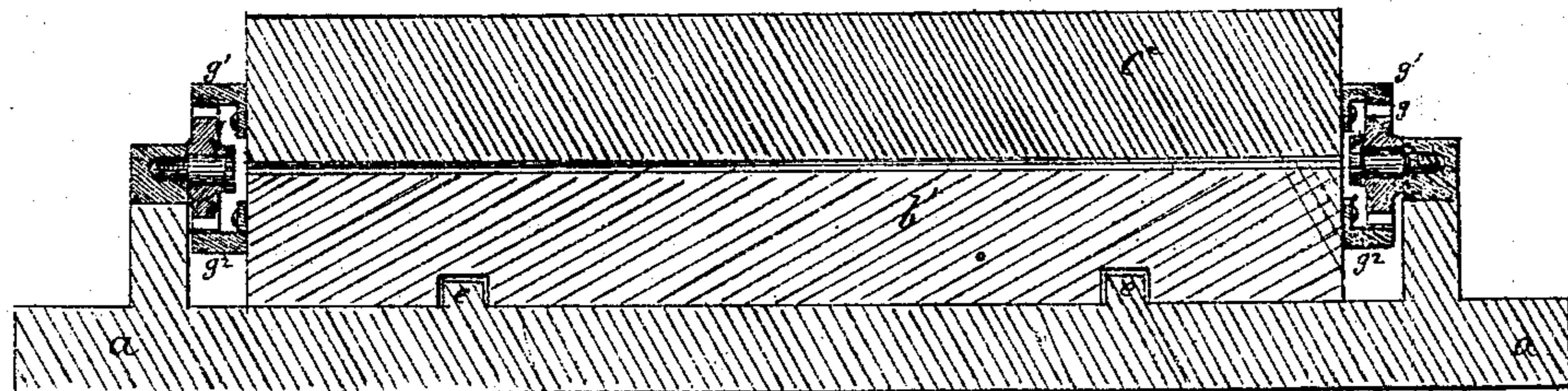


*Gustav Lieberknecht's*  
 = Apparatus for =  
*Disentangling Hairs*

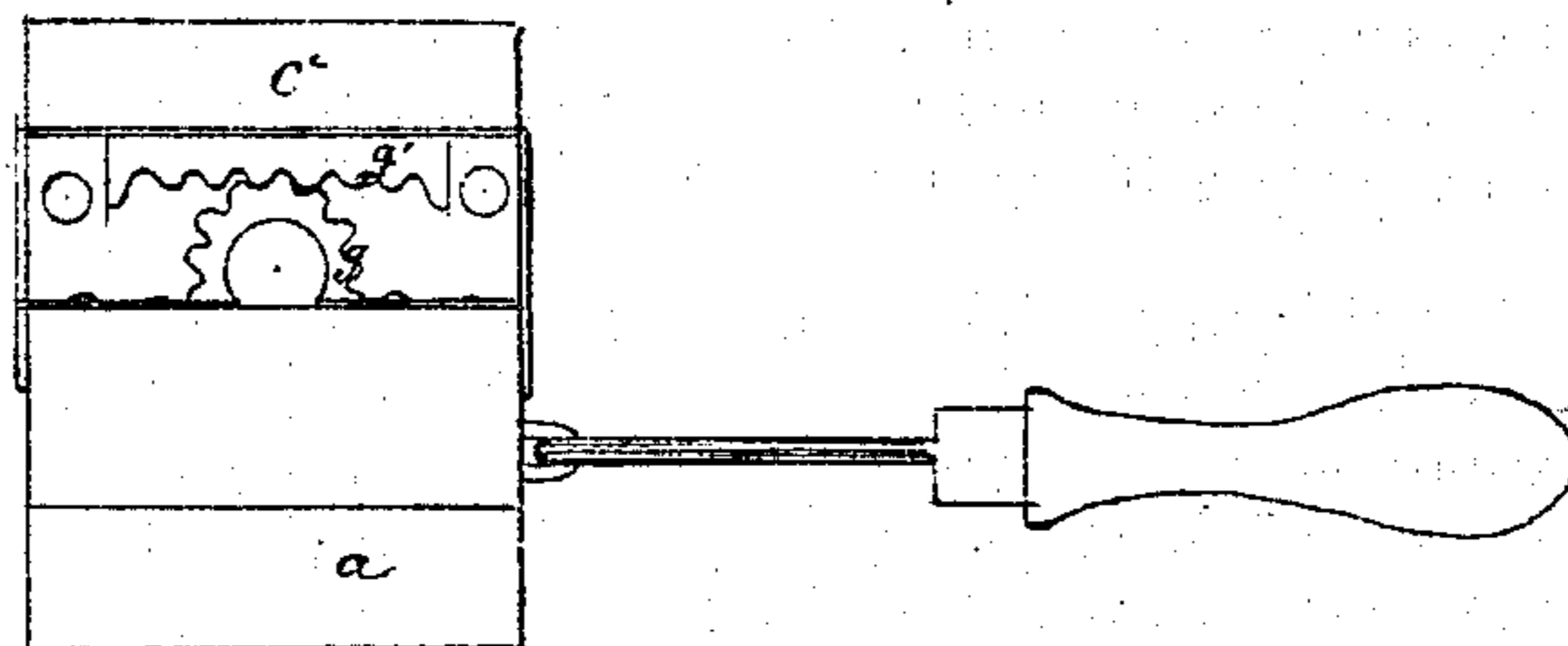
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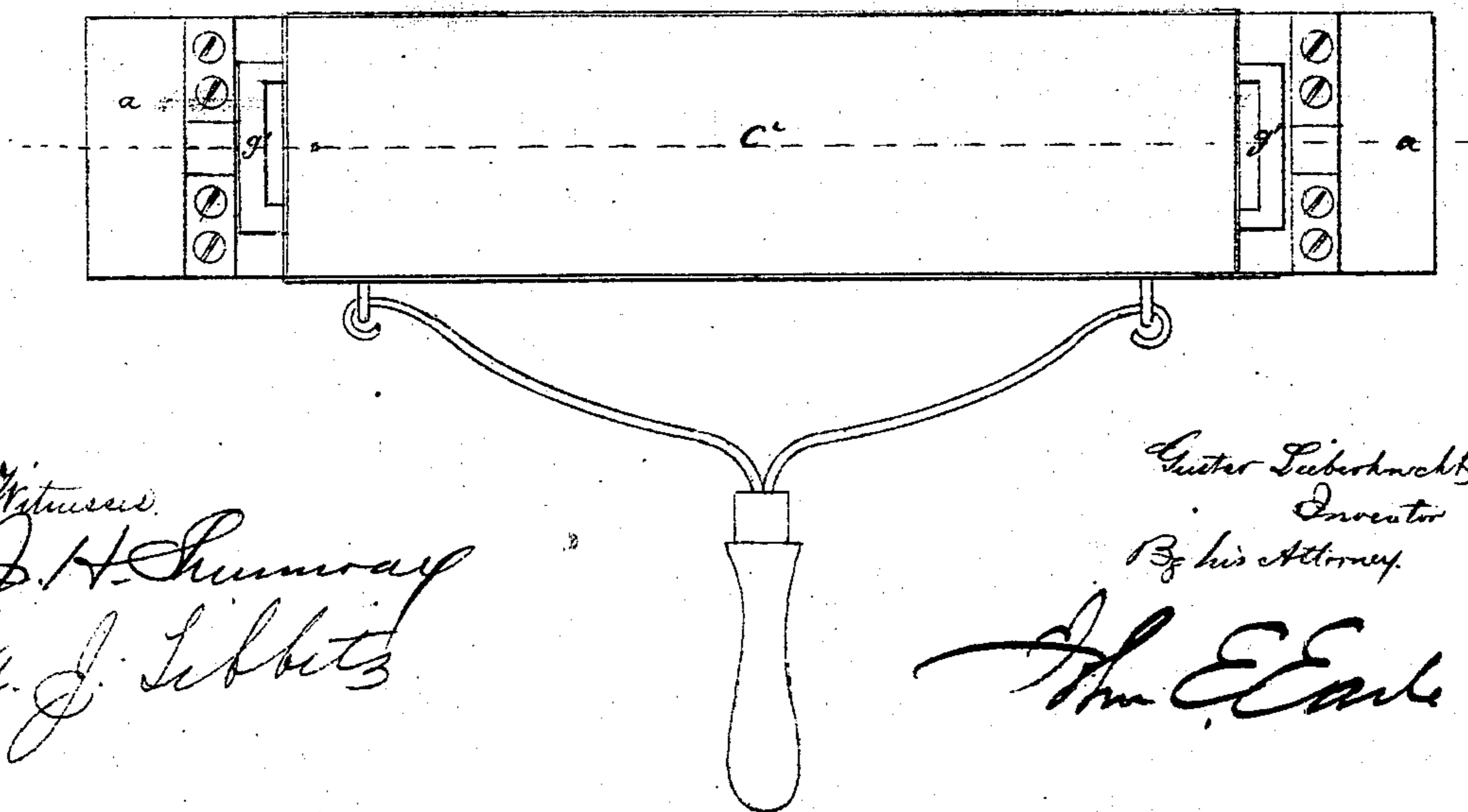
*Fig. 1*



*Fig. 2*



*Fig. 3*



Witnesses.  
*J. H. Murray*  
*A. J. Lebits*

*Gustav Lieberknecht*  
 Inventor  
 By his Attorney.

*John E. Earle*

# UNITED STATES PATENT OFFICE.

GUSTAV LIEBERKNECHT, OF WISMAR, NORTH GERMAN CONFEDERATION.

## IMPROVEMENT IN APPARATUS FOR ARRANGING HAIRS.

Specification forming part of Letters Patent No. 117,648, dated August 1, 1871.

*To all whom it may concern:*

Be it known that I, GUSTAV LIEBERKNECHT, of Wismar, in the Grand Duchy of Mecklenburg-Schwerin, in the North German Confederation, have invented a new and useful Apparatus for Arranging Hairs; and I do hereby declare that the following is a full and exact description thereof, reference to be had to the accompanying drawings and to the letters of reference marked thereon.

The object of this invention is to arrange hairs with the head ends together, it being well known that a large portion of hair-work is made from hair which is received in a tangled mass, and that to make perfect work the head end of the hairs should be all in one direction. This I succeed in doing by taking advantage of the natural taper of the hair from the head end to the other extreme; and the invention consists in the arrangement of a pair of reciprocating plates, the meeting surfaces of which are covered with a fabricated or other suitable material to cling to the hairs, the hairs being arranged transversely between the said plates, so that by the working of the plates the larger or head ends of the hairs are worked outward from the said plates.

*a* is the bed upon which, in suitable guides, are arranged two plates, *b c*, one above the other, their meeting surfaces covered with any suitable fabricated material, as silk. To these plates a

reciprocating movement is imparted by a handle attached to one of the plates, a pinion, *g*, fixed in the frame and working in a rack, *g<sup>1</sup> g<sup>2</sup>*, respectively, on the upper and lower plates, so that as the one plate is forced in one direction the other plate moves in the opposite direction. The handle, therefore, moved forward and backward causes the plates to rub upon each other.

The hairs having been hatcheled or combed until thoroughly disentangled, are laid between the plates and transversely across, the length of hair projecting chiefly from one side; then the plates held together on the hairs and worked. The root or larger ends of the hairs which project least will be held, and, while thus working, the hairs—the root ends of which are at the opposite side—may be easily drawn out by combing or hatcheling, the difference in diameter of the two ends of the hair allowing this operation.

I claim as my invention—

The process herein described for arranging hairs by means of the apparatus substantially as described.

Done at Wismar, Mecklenburg, this 31st day of March, 1870.

GUSTAV LIEBERKNECHT.

Witnesses:

J. DAHLMANN,  
L. PAUL FREUND.