

No. 658,539.

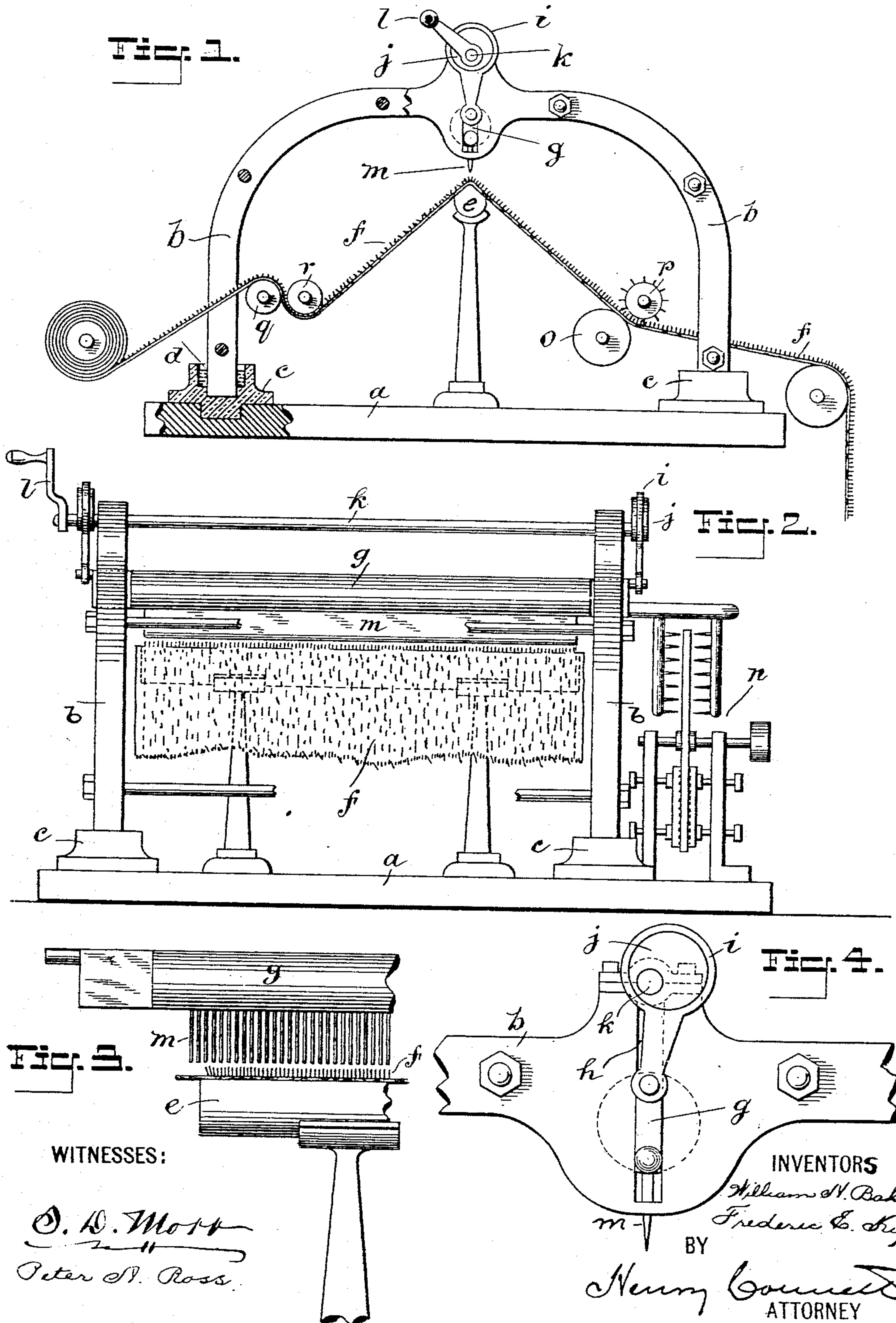
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W. H. BAKER & F. E. KIP.

MEANS FOR RAISING PILE OR NAP ON FABRICS.

(Application filed Aug. 23, 1899.)

(No Model.)



WITNESSES:

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MEANS FOR RAISING PILE OR NAP ON FABRICS.

SPECIFICATION forming part of Letters Patent No. 658,539, dated September 25, 1900.

Application filed August 23, 1899. Serial No. 728,172. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM H. BAKER, residing at Central Falls, Providence county, Rhode Island, and FREDERIC E. KIP, residing at Montclair, Essex county, New Jersey, citizens of the United States, have invented certain new and useful Improvements in Means for Raising Pile or Nap on Fabrics, of which the following is a specification.

10 This invention has for its object to raise the pile or nap on a woven fabric with the aid of static or frictional electricity.

At a certain stage in the manufacture of fabrics, and particularly of cut-pile fabrics, 15 the pile or nap lies down flat and must be made to stand erect and present a uniform appearance, such as may be seen in finished plushes, velvets, &c.; and the object of the machine or device embodying the present in- 20 vention is to effect this raising of the nap or pile.

In the accompanying drawings, which illustrate an embodiment of the invention, Figure 1 is an end elevation of the apparatus, and 25 Fig. 2 is a side elevation of the same. Figs. 3 and 4 are fragmentary detail views, on a larger scale, illustrating the construction and operation of the apparatus.

a represents any suitable base for the ap- 30 paratus, which may be connected with the earth or ground, and *b* represents, as a whole, a suitable frame mounted on and insulated from said base. Conveniently the frame *b* may be made of two arched members, of metal, 35 connected and rendered rigid by suitable tie rods or bars. The two arched members provide four feet, upon which the frame is supported, and for insulating the frame these feet may be set in glass receptacles *c*, set in 40 the base *a* and partly filled with oil *d*, as indicated in Fig. 1, where these glass insulating-receptacles are seen in section.

Mounted on the base *a* or on the earth is a V-edged saddle-bar *e*, of metal or partly of 45 metal, over which passes the fabric *f* to be treated. By the breaking of the fabric over the bar *e* at an angle the pile or nap thereon is somewhat opened.

Directly over and adjacent to the edge of 50 the bar *e* is mounted in the frame *b* a bar *g*, which will be, by preference, mounted so as

to be capable of some vertical adjustment—that is to say, the ends of this bar *g* occupy keeper-slots *h*, Fig. 4, in the end members of the frame *b* and are pivotally coupled to 55 yokes *i*, which embrace each an eccentric *j*, fixed on a shaft *k*, rotatively mounted on the frame *b* and provided with some means of turning it—as a crank *l*, for example.

The bar *g* has at its lower side, directly 60 over and parallel with the V edge of the saddle-bar *e*, a thin strip or edge piece of metal *m*, or, as an equivalent thereof, a row of metal teeth to form a comb, as indicated in Fig. 3. This strip or piece *m*, in whatever shape it is 65 made, forms the positive pole or terminal of a static electrical machine *n*, (indicated somewhat diagrammatically in Fig. 2,) with which machine it will be properly connected, and the bar *e* may be connected with the earth. 70

The fabric *f* will be moved or drawn at a proper speed over the bar *e* by any suitable mechanism, the pile or nap being uppermost, and a static electrical discharge flowing from the terminal *m* to the bar *e* will cause the 75 fibers of the pile or nap to separate and stand erect.

Any means may be employed for drawing the strip of fabric *f* over the saddle-bar *e*. That herein shown consists of a plain roller *o* 80 and a toothed roller *p*, the proper tension being put on the fabric at the other side by rollers *q* and *r*. All that is needed for feeding the cloth is means for moving it along at the proper speed and means for putting a 85 suitable tension on it as it is drawn over the bar *e*.

The device for adjusting the terminals *m* up or down, and in consequence farther from or nearer to the fabric where it passes over 90 the bar *e*, may have, of course, any suitable construction. That shown will serve the purpose.

While we contemplate the employment of a known form of machine for producing what 95 is called “frictional” electricity, it must be understood that our invention is not limited in this respect. Any machine or generator capable of producing electricity of high tension corresponding to what is produced by the 100 friction-machines will serve.

Being the first, as we believe, in this field

of invention, we claim the same broadly and would consider as coming within the scope of our invention any device or means for raising the pile or nap on a fabric wherein electricity is employed for effecting the result.

Having thus described our invention, we claim—

1. Means for raising the nap or pile on fabrics, comprising a bar over which the fabric may be drawn, a generator of electricity of high tension, and a terminal of such generator arranged parallel to, but out of contact with said bar, and adjacent to that edge of the latter over which the fabric is drawn.

2. Means for raising the nap or pile on fabrics, comprising a saddle-bar over which the fabric is drawn with the pile outward, mechanism for moving the fabric over said bar while under tension, an elongated terminal adjacent to the pile on the fabric along the line where the latter passes over the saddle-bar, and a generator of electricity of high tension, said terminal being connected with one pole of the said generator.

3. Means for raising the nap or pile on fabrics, comprising a V-edged saddle-bar over which the fabric is drawn at an angle with the pile outward, mechanism for moving the fabric over said bar while under tension, a generator of electricity of high tension, and a bar-like terminal of said generator situated adjacent to and parallel with the edge of said saddle-bar.

4. In means for raising the nap or pile on fabrics, the combination with the saddle-bar *e*, and mechanism for drawing the fabric over the same, of a generator of electricity of high tension, an adjustable terminal of said generator, situated parallel with and adjacent to the bar *e*, and means for adjusting said terminal with respect to the bar *e*.

5. In a device for raising the nap or pile on fabrics, the combination with the frame, the bar *g*, mounted therein and having a comb-like terminal, of the generator, one pole of which is connected with said terminal, the saddle-bar *e*, situated under said terminal and parallel therewith, and means for drawing the fabric in a continuous manner over said bar *e*, substantially as set forth.

6. In a device for raising the nap or pile on fabrics, the combination with a support over which the fabric is moved, and means for moving the latter, of a generator of electricity, a conductor and terminal for said electricity, said terminal being substantially parallel with said support, and means for adjusting said terminal with respect to said support, said means comprising the shaft *k*, the eccentric *j* thereon, and the yokes *i*, coupled to said terminal, substantially as set forth.

7. Means for raising the nap or pile on fabrics, comprising a generator of electric energy and a suitable conductor and terminal for applying same to the nap or pile of the fabric.

8. Means for raising the nap or pile on fabrics, comprising a generator of electric energy

and a suitable conductor and terminal for applying same to the nap or pile of the fabric, in combination with means for moving the fabric adjacent to said terminal.

9. Means for raising the nap or pile on fabrics, comprising a generator of electric energy and a suitable conductor and terminal for applying same to the nap or pile of the fabric, in combination with automatic means for moving the fabric adjacent to said terminal.

10. Means for raising the nap or pile on fabrics, comprising a generator of electric energy and a suitable conductor and terminal for applying same to the nap or pile of the fabric, in combination with means for continuously moving the fabric adjacent to said terminal.

11. Means for raising the nap or pile on fabrics, comprising a generator of electricity, a conductor and terminal through which the current flows, and mechanism for moving the fabric along a path in proximity to the current flowing through said terminal, whereby the electric energy of the current acts to raise the nap or pile thereof.

12. Means for raising the nap or pile on fabrics, comprising a generator of electricity, a conductor and terminal through which the current flows, and mechanism for automatically moving the fabric along a path with its nap or pile in proximity to the current flowing through said terminal, whereby the electric energy of the current acts to raise the nap or pile thereof.

13. Means for raising the nap or pile on fabrics, comprising a generator of electricity, a conductor and terminal through which the current flows, and mechanism for continuously moving the fabric along a path with its nap or pile in proximity to the current flowing through said terminal, whereby the electric energy of the current acts to raise the nap or pile thereof.

14. Means for raising the nap or pile on fabrics, consisting of a generator of electricity, a conductor and terminal through which the current flows, and mechanism for moving the fabric along a path with the nap or pile face thereof in proximity to the current flowing through said terminal, whereby the electric energy of the current acts to raise the nap or pile on the moving fabric.

15. Means for raising the nap or pile on fabrics, consisting of a generator of electricity, a conductor and terminal through which the current flows, and mechanism for automatically moving the fabric along a path with the nap or pile face thereof in proximity to the current flowing through said terminal, whereby the electric energy of the current acts to raise the nap or pile on the moving fabric.

16. Means for raising the nap or pile on fabrics, consisting of a generator of electricity, a conductor and terminal through which the current flows, and mechanism for continuously moving the fabric along a path with the nap or pile face thereof in proximity to the current flowing through said terminal, where-

by the electric energy of the current acts to raise the nap or pile on the moving fabric.

17. Means for raising the nap or pile on fabrics, consisting of a generator of electricity, 5 a conductor and terminal through which the current flows, and mechanism for automatically and continuously moving the fabric along a path with the nap or pile face thereof in proximity to the current flowing through said 10 terminal, whereby the electric energy of the current acts to raise the nap or pile on the moving fabric.

18. Means for raising the nap or pile on fabrics, consisting of a generator of electric energy, a conductor and terminal through which 15 the current flows, a support for the moving fabric situated near said terminal, and mechanism for moving said fabric in an angular path over said support and with its nap or 20 pile face adjacent to said terminal, for the purpose specified.

19. Means for raising the nap or pile on fabrics, consisting of a generator of electric energy, a conductor and terminal through which 25 the current flows, a support for the moving fabric situated near said terminal, and mechanism for moving said fabric in an angular path over said support and adjacent to said terminal and with its face bearing the nap or 30 pile next thereto, for the purpose specified.

20. Means for raising the nap or pile on fabrics, consisting of a generator of electric energy, a conductor and terminal through which

the current flows, a support for the moving fabric situated near said terminal, and mechanism for automatically moving said fabric 35 in an angular path over said support and adjacent to said terminal and with its face bearing the nap or pile next thereto, for the purpose specified. 40

21. Means for raising the nap or pile on fabrics, consisting of a generator of electric energy, a conductor and terminal through which the current flows, a support for the moving fabric situated near said terminal, and mechanism for continuously moving said fabric in 45 an angular path over said support and adjacent to said terminal and with its face bearing the nap or pile next thereto, for the purpose specified. 50

22. In a device for raising the nap or pile on fabrics, the combination with a support over which the fabric is moved, and means for moving it, of a generator of electricity, and a conductor and terminal for the latter, 55 said terminal being adjustable with respect to said support for the fabric.

In witness whereof we have hereunto signed our names, this 31st day of July, 1899, in the presence of two subscribing witnesses.

WILLIAM H. BAKER.
FREDERIC E. KIP.

Witnesses:

PETER A. ROSS,
HENRY CONNETT.