

(No Model.)

2 Sheets—Sheet 1.

G. DIETZEL.

CHENILLE MACHINE.

No. 263,492.

Patented Aug. 29, 1882.

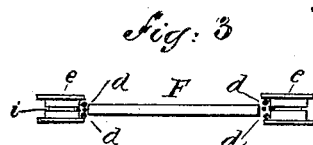
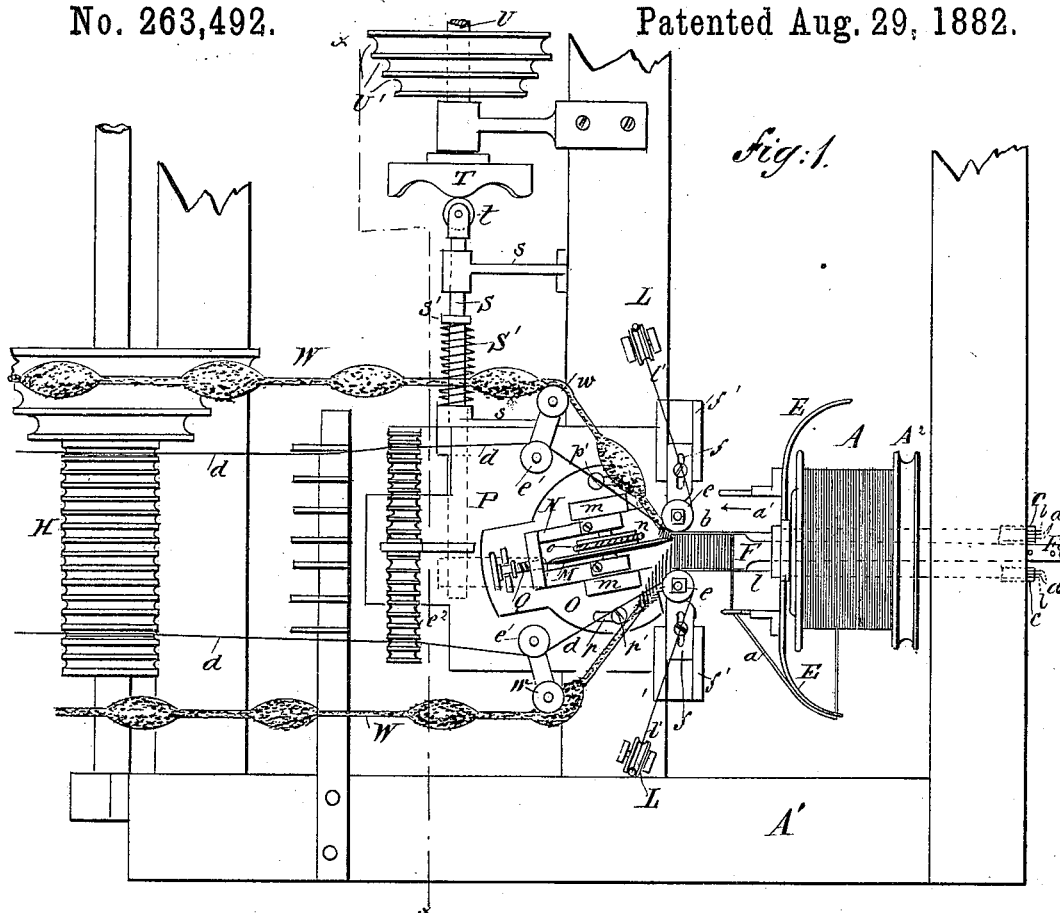
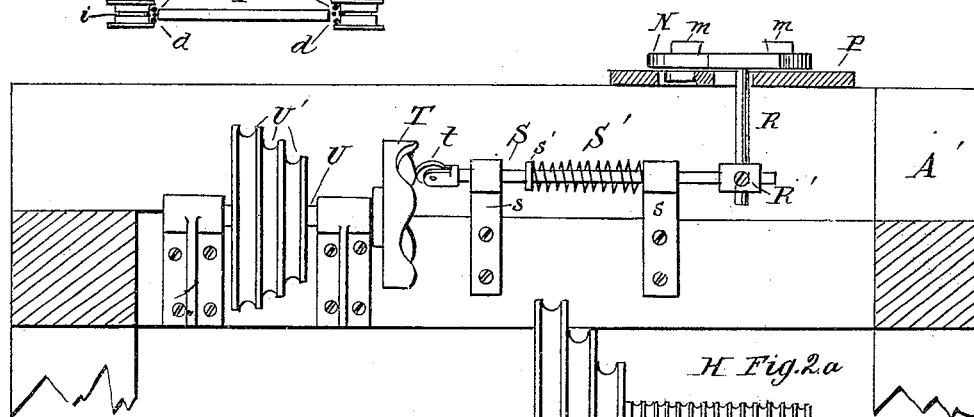


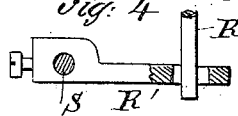
Fig. 2



WITNESSES:

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Fig. 4



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2 Sheets—Sheet 2.

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Fig. 1.

Fig: 5.

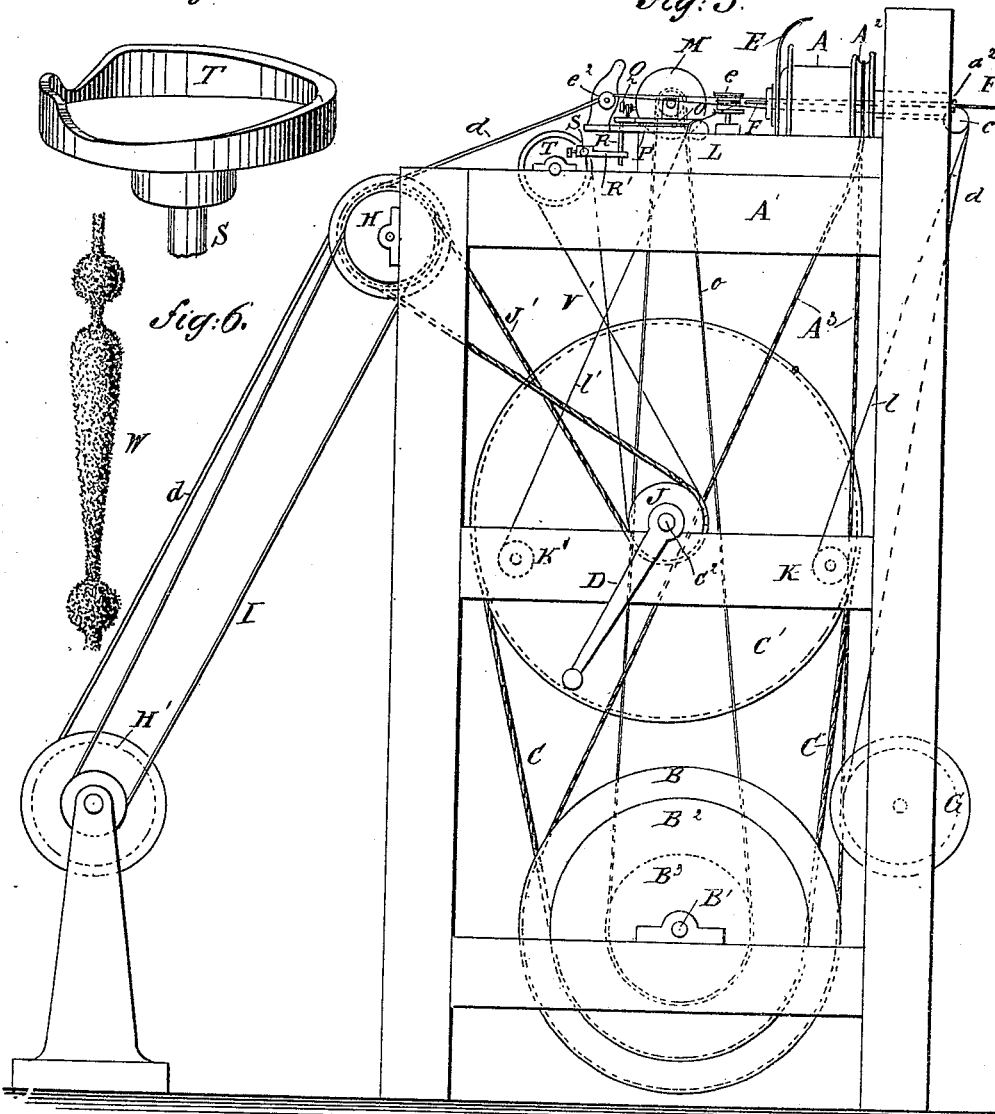
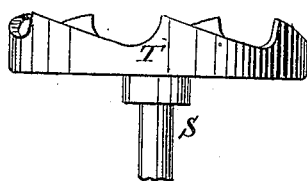


Fig: 9.

Fig: 8.

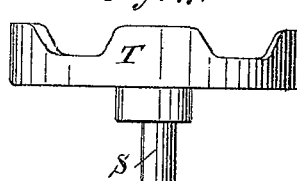
Fig. 10.

Sign. H



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UNITED STATES PATENT OFFICE.

GEORGE DIETZEL, OF NEW YORK, N. Y.

CHENILLE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 263,492, dated August 29, 1882.

Application filed January 23, 1882. (No model.)

To all whom it may concern:

Be it known that I, GEORGE DIETZEL, of the city, county, and State of New York, have invented a new and Improved Chenille-Machine, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved machine for making beaded chenille, or chenille with a varying diameter.

The invention consists in the construction and combinations of parts, fully described hereinafter, and pointed out in the claims.

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

Figure 1 is a plan view of my improved chenille-machine. Fig. 2 is a cross-sectional elevation of the same on the line *xx*, Fig. 1. Fig. 2^a is a detail of the grooved guide-roller H partly broken away. Fig. 3 is a detail end elevation of the flanged guide-rollers and the strip or blade on which the pile-thread is wound, before being cut and twisted, between the longitudinal binding-threads of the chenille. Fig. 4 is a longitudinal elevation of the arm connecting the swinging knife frame with the rod acted on by the cam. Fig. 5 is a longitudinal side elevation of my improved chenille-machine. Fig. 6 represents a specimen of the chenille made by my improved machine. Fig. 7 is a perspective view of the cam used to make the chenille shown in Fig. 6. Fig. 8 represents another specimen of the chenille. Fig. 9 is a perspective view of the cam used to make the chenille shown in Fig. 8. Fig. 10 represents another modification of the chenille, and Fig. 11 is a perspective view of the cam used to make the chenille shown in Fig. 10.

The bobbin or spool A, on which the pile-thread for making the chenille is wound, is journaled in the top of the frame A', and is provided with a grooved pulley, A², over which passes a belt or cord, A³, also passing over a pulley, B, mounted on the same shaft B', with a pulley, B², which is rotated by a belt, C, from the main driving-wheel C', mounted on the shaft C², provided at the end with a crank-handle, D. The bobbin A is provided with a

flier, E, of the usual construction, for winding the weft-threads *a* around a flat strip, F, or blade projecting from the central aperture of the spool, and held in position by means of a pin or screw, a², which holds its opposite or outer end fixed to the frame A', as shown in Figs. 1 and 5. The inner end, *b*, of the strip F is wider than the opposite end. Wires *d* are wound on a drum or cylinder, G, journaled in the frame A', and these wires run in pairs to rollers *c*, journaled in the outer edge of the frame A' at the sides of the end of the strip F, one pair of wires *d* running to each roller *c*. From the rollers *c* the wires *d* run to rollers or pulleys *e*, at the sides of the inner end, *b*, of the blade or strip F, so that one pair of wires will be parallel with each longitudinal edge of the strip or blade F, these wires being close to the longitudinal edges of the wider part *b* of the strip F, as shown in Figs. 1 and 3. From the pulley *e* the pairs of wires *d* (see Fig. 3) are guided from each other, as shown in Fig. 1, and pass over pulleys *e'* and grooved guide-rollers *e''* and H, and are wound upon a drum, H', which is rotated by a belt or cord, I, running over a pulley on the guide-roller H, which is rotated by a belt or cord, J', from a pulley, J, mounted rigidly on the driving-shaft C². The wires *d* can be made endless, if desired, instead of being wound from the drum G upon the drum H'. The rollers or pulleys *e* are journaled on blocks *f*, sliding between guides *f'*, and provided with locking devices whereby the pulleys *e* can be adjusted any desired distance apart, according to the width of the blade F. The rollers or pulleys *e* have flanges for guiding the wires *d* at the top and bottom, and are further each provided with an annular groove, *i*, for guiding the longitudinal binding-threads *l* *l'*. The longitudinal binding-threads *l* are wound on drums or spools K, pass over the pulleys *e* *e'*, through the spool A, with the wires *d*, and along the longitudinal edges of the strip or blade F. The threads *l'* are wound on drums or spools K', pass over pulleys L on the top of the frame A', and pass around the pulleys *e*, and are twisted, together with the threads *l*, to hold the pile-threads. A rotary knife, M, is journaled in standards of

a frame, N, sliding between guides *m* on a plate, O, pivoted on the top plate, P, of the frame A'. The position of the frame N can be adjusted by means of a set-screw, Q, held in a support on the plate O and entering the rear end of the frame N. A pulley, *n*, is mounted on the same shaft with the knife M, and over this pulley a cord, *o*, passes, also passing around a driving-pulley, B³, on the shaft B'. The plate O is provided with segmental guide-slots *p*, through which screws or pins *p'* pass into the top plate, P. A rod or arm, R, projects down from the pivoted plate O, through a vertical slot in the end of an arm, R', attached to and projecting from a sliding bar, S, held by arms *s s* of the frame A', below the top plate, P. A spring, S', is coiled around the bar S, and rests against one of the arms *s* and a shoulder-plate, *s'*, of the bar S. This spring S' presses a roller, *t*, journaled in the outer end of the bar S, against the edge of a cam-wheel, T, mounted on a shaft, U, provided with one or more pulleys, U', for driving belts or cords, around one of which pulleys a cord or belt, V', passes, as shown in Fig. 5, which belt also passes around the pulley J on the shaft C². The completed chenille W passes around rollers or pulleys *w*, arranged outside of the rollers *e'*. The chenille is twisted from a twisting-carriage by the ordinary twisting mechanism—for example, such as that shown by United States Patent No. 80,134.

The operation is as follows: The flier E winds the pile-thread *a* around the wide end of the blade F, the wires *d*, and the binding-threads *l*, as shown in Fig. 1, and as the wires *d* move in the direction of the arrow *a'* they draw these transversely coiled or wound threads *a* in the same direction—that is, from the end of the blade F. The rotary knife M is so located and of such size that it can cut the threads *a* as the same leave the end of the blade F. The second binding-thread, *l'*, is then united with the first binding-thread on each side of the knife, and these two threads are twisted together and the short pile-threads are held by the twisted binding-threads, the pile-threads projecting radially from the binding-threads, as in ordinary chenille. The wires *d* are guided from the threads *l l'* at the rollers *e*—that is, as soon as the binding-threads are united. If the knife is placed centrally in front of the end of the blade F, the two pieces of chenille obtained will be cylindrical when twisted and of uniform diameter throughout, as the pile-threads will all be of equal length; or, in other words, ordinary chenille will be obtained; but if the knife M is oscillated or reciprocated in a horizontal plane, the pile-threads cut by the knife M will be of different lengths, as the edge of the knife is applied to the threads at different points of the end of the blade F. As the pile-threads of the chenille vary in length, the diameter of the completed chenille will vary in length correspondingly. It is evident that

if the pile-threads for the right-hand chenille are cut long the pile-threads of the left-hand chenille will be cut short, and vice versa, as the combined lengths of the pile-threads cut at the same time must always be equal to the length of thread wound around the blade F and the wires *d d*. The oscillations of the knife-carrying frame or plate O are governed by the shape of the cam T, which acts upon the rod S, which in turn acts upon the arm R', which operates the arm R of the pivoted plate O. Two pieces of chenille are made at the same time, and the diameter of the chenille varies according to the form of the cam T, and when a thin part is being formed on one piece of chenille a thick part is being formed on the other piece. The chenille can be formed of a series of united tapering and spherical beads, as shown in Fig. 6, or it can consist of united tapering beads only, as shown in Fig. 8, or of alternating thicker and thinner parts, as shown in Fig. 10, or may be produced in any other form. The knife M being journaled on an oscillating plate, it is evident that the cutting end of this knife will be reciprocated or moved to and fro laterally. This cutting-edge of the knife can be reciprocated or moved laterally by means of a sliding or swinging plate, as well as by the pivoted horizontally-oscillating plate. The edges of the cams can be provided with any desired contour, according to the pattern of chenille to be produced.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of a laterally-reciprocating pile-cutting knife with a cam for reciprocating said knife as the pattern of the chenille may require, and means for operating said cam, substantially as herein shown and described, and for the purpose set forth.

2. The combination of the laterally-reciprocating plate O and the rotary knife M, journaled in standards of the frame, with devices for rotating the knife and devices for reciprocating the frame, substantially as herein shown and described, and for the purpose set forth.

3. The combination, with devices for winding the pile-threads and twisting the binding-threads of chenille, of the oscillating plate O, carrying a rotary knife M, the cam T, pulley U', shaft U, and the rod or bar S, connected with the pivoted plate O, and resting against the edge of the cam T, substantially as herein shown and described, and for the purpose set forth.

4. The combination, with devices for winding the pile-thread and twisting the binding-threads of chenille, of the pivoted plate O, the bar S, the cam T, pulley U', shaft U, the adjustable frame N, screw Q, and the rotary knife M, journaled in the frame N, substantially as herein shown and described, and for the purpose set forth.

5. The combination, with the blade F, the

wires *d*, the spool A, provided with a flier, E, the guide-rollers *e*, and means for feeding the wires forward and operating the spool and flier, of the reciprocating rotary knife M, substantially as herein shown and described, and
5 for the purpose set forth.

6. The combination, with the blade F, the wires *d*, the spool A, provided with a flier, E, the guide-rollers *e*, provided with top and bot-
10 tom flanges, and with an annular groove, *i*, and

means for feeding the wires forward and operating the spool and flier, of the reciprocating rotary knife M, substantially as herein shown and described, and for the purpose set forth.

GEORGE DIETZEL.

Witnesses:

GUSTAVE DIETERICH,
C. SEDGWICK.