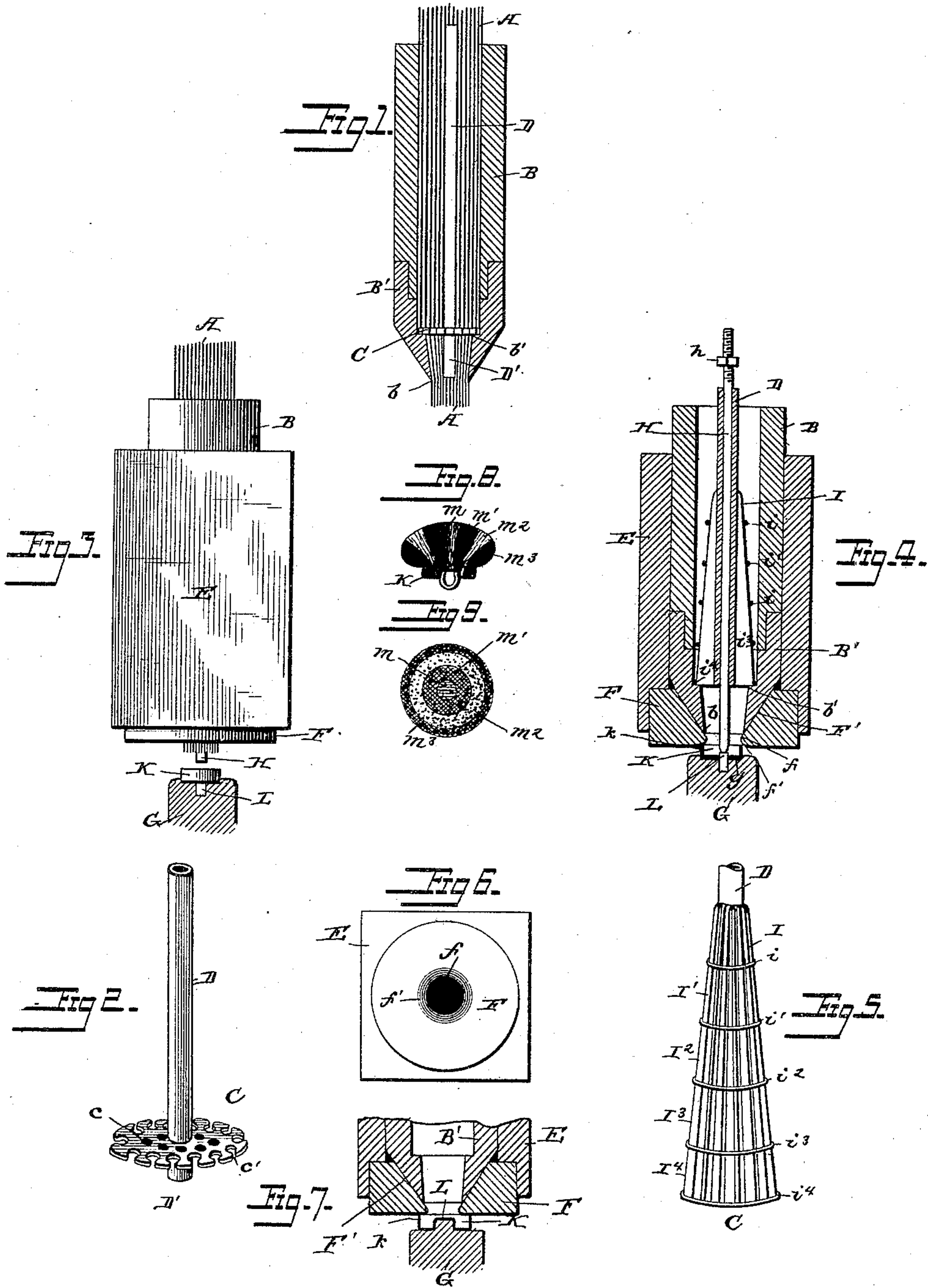


(No Model.)

H. A. CABLES.
MACHINE FOR MANUFACTURING TASSELS, UPHOLSTERERS' TUFTS, &c.
No. 427,741. Patented May 13, 1890.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR MANUFACTURING TASSELS, UPHOLSTERERS' TUFTS, &c.

SPECIFICATION forming part of Letters Patent No. 427,741, dated May 13, 1890.

Application filed May 20, 1887. Serial No. 238,875. (No model.)

To all whom it may concern:

Be it known that I, HARTLEY A. CABLES, a citizen of the United States, and a resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Machines for Manufacturing Tassels, Upholsterers' Tufts, and Similar Articles, of which the following is a specification.

10 This invention has for its object to manufacture tassels, tufts, balls, rosettes, and like articles from yarn or other continuous fibers, and is particularly applicable when such articles are made from yarns of different colors
15 or from fibers of different kinds, which it is desired should have certain definite relations of position relative to each other in the completed article; and my invention consists in devices fully set forth hereinafter for carrying out the said manufacture.

In order that my invention may be understood I have illustrated what I consider the most improved form of the apparatus.

Figure 1 is a vertical longitudinal section
25 of a simple form of device embodying my invention, the yarn-guide being in elevation. Fig. 2 is a perspective of the yarn-guide shown in Fig. 1. Fig. 3 is a side view of a complete apparatus, the follower being in section. Fig. 4 is a vertical longitudinal section
30 of the same, the yarn being omitted for the sake of clearness. Fig. 5 is a perspective of the yarn-guide shown in Fig. 4. Fig. 6 is a bottom or face view of the die F. Fig. 7 shows
35 a different form of button or tuft back from that shown in Fig. 4 and the follower therefor. Fig. 8 is a central section of a button or tuft formed by the apparatus shown in Figs. 3 and 4. Fig. 9 is a top view of a completed tuft or
40 button.

In the drawings the yarns or fibers from which the tufts, tassels, or other articles are to be formed are designated by A, and are fed in any desired manner to the condensing-tube B, the lower end of which is contracted
45 to form a condensing-opening *b*, in passing through which the strands of yarn are tightly compressed. By preference this tube is composed of two parts B^x B', the lower section
50 B' of which is comparatively short and tapers toward the contracted opening *b*, the parts B^x B' being united in any suitable manner, as by

a rabbit-joint illustrated in Fig. 1. The section carrying the contracted opening *b* being short greatly facilitates the threading or passing the yarns or fibers through said opening. 55

C indicates a guide, which in Figs. 1 and 2 is shown as consisting of a plate having formed therein one or more concentric series of apertures *c*. The outer series of apertures
60 communicate with the periphery of the plate by slots *c'* so as to enable the strands of yarn to be more easily placed therein. This guide is of substantially the same size as the internal diameter of tube B, so that it is guided and
65 properly centered thereby, and is situated in close proximity to the aperture *b*, preferably resting upon a ledge *b'* formed therefor on the inside of the tube. This plate is provided with a handle or rod D, by which it is properly
70 placed. It may also be provided with a short rod D' projecting downward from the center thereof and extending to the working end of the compressing-tube, in order to keep the fibers separate at the center, for a purpose to
75 be hereinafter described.

Referring to Figs. 3 and 4, E represents a holder carrying the die F in its lower end and being centrally perforated to receive the condensing-tube, which slides freely therein. 80 The block F, which forms the die, is centrally perforated, the aperture flaring upward, as at F', to correspond with the tapering portion B' of the tube, and being contracted at *f* a short distance above the lower face of the die
85 to a size substantially corresponding with the condensing-opening *b*. Surrounding opening *f* the die is countersunk, as at *f'*, for a purpose to be described. Within the tube B is mounted a guide C, which is adapted to separate the yarns or fibers of different kinds or colors, and to be situated close to opening *f*,
90 and I prefer the style of guide shown in Figs. 4 and 5. This consists of a central support formed of a tube D, from which project radially a series of wings I, between which the
95 strands of yarns or fibers lie and are thereby kept separate. In order to confine the yarns or fibers between the wings, I mount upon and secure to their outer edges at suitable
100 distance apart a series of rings *i i' i''*, &c., under which the yarns or fibers are passed. The wings are preferably stepped or tapered, their widest portions being at the lower end

of tube D, and hence the rings i i' i'' , &c., increase in size from the upper one downwardly, the different portions or sections of the wings between the rings being lettered I
 5 I' I'', &c. Supposing a tuft or tassel having a center of red and concentric circles of black, yellow, and black yarns is to be made, by the use of the holder shown in Fig. 5 the red yarn will be placed between sections I of the
 10 wings and passed under the first ring i , which confines the strands in place; thence, following the bottoms of the channels formed by the wings, it passes to the lower end of the guide or holder. The number of threads of
 15 red yarn lying in each channel will be comparatively small, though the number will vary according as the size of the central design (designated by m , Fig. 9) is large or small. The yarn forming the first circle of black
 20 (designated by m') lies in the same channels as and immediately over the red yarn; but it enters the channels lower down than does the red yarn—to wit, between sections I' of the wings—and passes first under ring i' , and
 25 thence follows the channels to the end of the guide. The yellow yarn, forming the next circle of color, (designated by m'') lies in the channels over the black and red yarns just described, but enters below where the black
 30 yarn does—to wit, between sections I'' of the wings—and passes first under ring i'' , and thence under the other rings to the end. The black yarn, which forms the outer circle m^3 of the tuft, preferably enters the channels
 35 between wing-sections I⁴ and passes under only the one ring i^4 ; but it will be understood that it might enter the section above, and a fourth circle of color be added to the tuft. The number of threads of yarn passing into
 40 the channels at each successive section will depend upon the relative sizes or widths of the concentric circles of color; but it will be understood that the tendency will be to increase the number entering each successive
 45 lower section, as the amount of yarn required for a large circle is greater than that for one of less size. The wings need not be of tapering or stepped form; but may be of the same width throughout. This, however, would
 50 much increase the difficulty of threading up the guide, and would not so well keep the different-colored yarns separated as does the guide shown.

The above-described holder or guide permits an almost endless variety of designs to
 55 be made by a single apparatus. By increasing the number of sections, the number of circles of color in a tuft may be increased. By regulating the amount of yarn of different colors introduced at the different sections,
 60 the relative sizes of the circles may be varied to suit the taste. By placing different colors in the alternate channels of any section, the circle formed by such yarn will be broken
 65 with different colors, and so various other changes will readily suggest themselves to those skilled in the manufacture of such ar-

ties. The largest ring i^4 fits the interior of tube B quite closely and so gives a central position to the guide. A guide of the character
 70 shown in Fig. 5 may be of much smaller diameter than a disk-shaped guide such as shown in Fig. 2, and may hence be arranged closer to the condensing-opening b , with the advantage attending such proximate arrangement.
 75

In my patent, No. 373,128, dated November 15, 1887, I have described a novel tuft or button having a metallic back, which holds the
 80 yarns or fibers forming the tuft in a circle around the central projection carried by or formed from the back, such a tuft or button being illustrated in Fig. 8 of the drawings.

The apparatus shown in Figs. 3 and 4 is adapted to make such tufts, and I will now
 85 describe the process of manufacture: The guide is properly threaded with the yarn and is placed in the condensing-tube, the projecting ends of the yarn passing through the contracted openings b and f . The projecting
 90 fibers are then properly trimmed either by hand or a cutter automatically operated. The back which confines the ends of the fibers is indicated by K, and consists of a cup-shaped piece of metal having a central projection L
 95 and an outer flange k . The yarns or fibers are arranged in a circle around this projection L, and are confined in such position by the flange k being bent over, as shown in Fig. 8.
 100

G represents a follower moving below the opening in the die, and provided in its upper face with a suitable recess g , adapted to receive and hold one of the backs K.

H is a small rod fitting in tube D of the
 105 yarn guide and holder, and extending below the same through openings b and f . It serves as a core, around which the fibers are closely arranged in a circle as they pass through the
 110 condensing-openings, and prevents their being formed into a close solid mass, and extends down sufficiently far to engage with projection L, when the follower G is raised to bring the back into engagement with the
 115 fibers.

In the construction of guide shown in Figs. 1 and 2 the projecting rod D' is the analogue
 120 of and serves a similar purpose to this rod H. The rod H is provided at its upper end with an adjusting device, as nut h , by which the distance which it shall project below the guide C is determined. The trimmed yarns or
 125 fibers projecting below die F the proper distance, and the rod passing through them to arrange them in a circle, the follower G is raised, carrying with it a holding back K, the
 130 projection L of which first engages with the end of rod H, and carries it with it in its further short upward movement. When the edge of the flange k comes in contact with the flaring mouth f' of opening f , the yarns or fibers are arranged in a ring in the groove or recess between the projection and flange, when by a further upward movement of fol-

lower G the flange is, by the flaring mouth, turned inward toward projection L, against which it binds the fibers. As soon as the back has been closed upon the yarn, the tube B is moved upward the proper distance in holder E, carrying with it guide C, which slides upon the yarn, the latter being held from backward movement by the back K. The next movement is to bring down the back, and with it the yarns or fibers, tube B, and yarn-guide into the position of parts indicated in Fig. 4, when a cutter will separate the fibers close to the lower face of the die, and the operation be repeated.

In Fig. 4 the projection L of the back is shown as consisting of a small tube mounted centrally in the back, in which case the lower end of rod H may be tapering and adapted to slightly spread the upper part of the tube L to hold it in place and more tightly compress the material in a circle between the outer flange and tube L.

In Fig. 7 a back having the projection struck up from the metal itself is shown, in which case the follower has a stud or boss adapted to support said hollow projection while the flange K is being turned over.

When this invention is used in making tassels or balls and like articles, any well-known or desired means for sewing or wrapping the yarn below the condensing-opening may be used.

I do not wish at all times in manufacturing buttons or tufts, as shown in Fig. 4, to be limited to placing the guide C close to the condensing-opening *b*, nor to the use of that at all, because where the tufts are made from yarn of but a single color the guide C might be dispensed with and yet satisfactory results be obtained, though I prefer in that case to use the construction shown. However, were the guide dispensed with or placed at the upper end of the condensing-tube, it would still be necessary to employ the rod H or an equivalent device in order to arrange the yarn while passing from the condensing-orifice in a circle, in order to enter the seat therefor in the metallic back.

Without limiting myself to the precise construction and arrangement of parts shown, I claim—

1. The combination, with a condensing-tube having a contracted opening and provided internally with a shoulder arranged adjacent to the said contracted opening, of a yarn-arranging guide within the tube and fitting removably to the said shoulder, substantially as set forth.

2. A condensing-tube made in two parts B^x B', the one B' being short and being formed

with a contracted opening *b*, substantially as and for the purpose set forth.

3. The combination, with a condensing-tube, of a yarn-guide having a central support, from which projects a series of wings between which the yarn is placed, substantially as described.

4. In combination with a condensing-tube, a yarn-guide having a central support, from which projects a series of wings, and rings supported upon the edges of the wings, whereby they are divided into sections longitudinally of the central support, substantially as described.

5. In combination with a condensing-tube, a yarn-guide having a central support, a series of tapering or stepped wings projecting from said support, and rings supported on the edges of the wings, substantially as described.

6. The combination of a condensing-tube having a contracted opening, and a die with a flaring mouth, and a holder or follower provided with a stud or boss adapted to carry a cup-shaped metallic back having a central projection, substantially as and for the purpose set forth.

7. The combination of a condensing-tube, a die having a contracted opening through which the condensed yarn passes, and a rod arranged centrally in said contracted opening and serving as a core around which the yarn is arranged in circular form, substantially as described.

8. The combination of a condensing-tube, a yarn-guide therein having a hollow central support, a die having a contracted opening through which the condensed yarn passes, and a rod passing through said hollow support and arranged centrally in the contracted opening of the die, substantially as and for the purpose set forth.

9. The combination of a condensing-tube, a yarn-guide therein having a hollow central support, a die having a contracted opening through which the condensed yarn passes, a rod passing loosely through said hollow support and having its lower end arranged centrally in the contracted opening of the die, means for adjusting the position of the rod, and a follower adapted to carry a metallic back into engagement with said die, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HARTLEY A. CABLES.

Witnesses:

A. C. MAYER,
A. LEY.