

THE MANUFACTURE OF FANCY YARN.

BY JAMES AND CHARLES DANTZER.

(Continued from January.)

When the knots are to be placed on the yarn at irregular intervals an irregular cam



FIG. 60.

similar to that shown at Fig. 60 is used. In many cases it is necessary to stop alternately the rollers, *b* and *c*, Fig. 55. In this case each set of rolls must be driven independently. The gear, *A*, keyed to the driving shaft, *M*, is connected by a chain of gears with *B* and *D*, on the rollers to be driven,

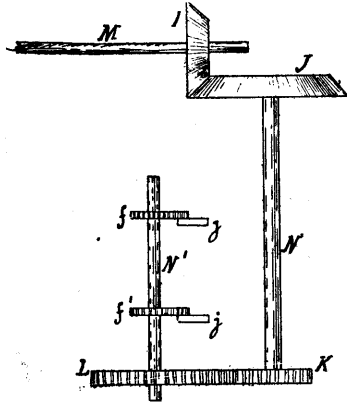


FIG. 62.

Fig. 61. The gears, *B* and *D*, are mounted on a sleeve. The vertical shaft, *N'*, driven by the gears, *I*, *J*, *K*, and *L*, carry two plates, *f* and *f'*, Fig. 62, to which are attached the cams, *j* and *j'*. These cams can be removed as desired. The forks, *P*, are held against the cams at one end and are connected with the sleeves, *B* and *D*, Fig. 63, at the other. The cams vibrate the forks and thus alternately connect and disconnect the clutches by which

the rollers are driven. In this way the rollers are stopped and started to form the knot on the yarn as already explained. By this arrangement each set of rollers can be controlled independently and each thread made to serve alternately for the base and the knot respectively.

The size of the knots and the distance separating them can be varied by changing the

FIG. 61.

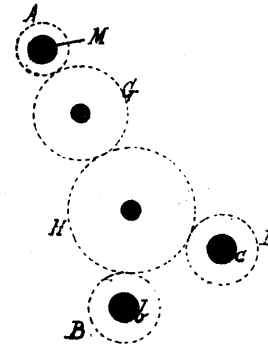
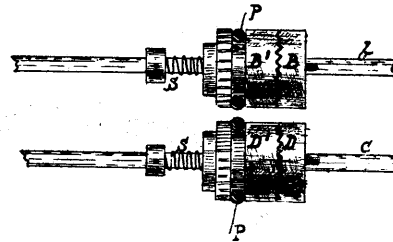


FIG. 63.

cams, *j* and *j'*, on the gear, *K*. When a tie thread is used it is twisted with the first two threads by the second operation and in a reverse direction. Fig. 64 shows a knotted yarn in which the knot is formed alternately by threads 1 and 2. At Fig. 65 the threads 1-2 and 3-4, form knots alternately. At Fig. 56 threads 2 and 3 are used under the same conditions. The base, 1, is a coarse thread. At Fig. 67 knots are formed alternately by threads 2 and 3, on the base thread, 1. The same style of knotted yarn is shown at Fig.

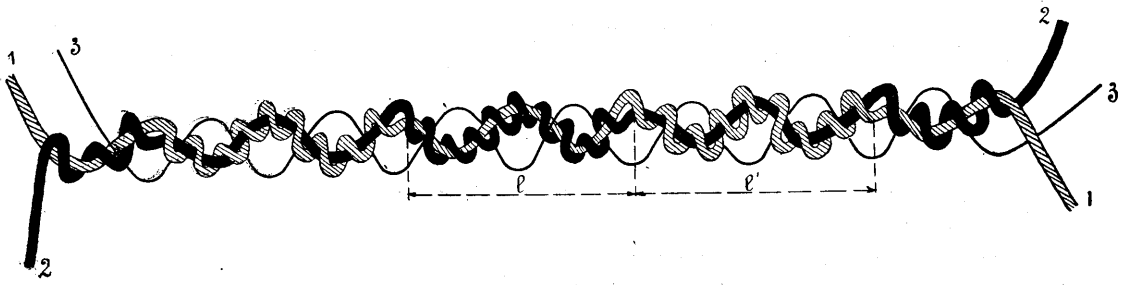


FIG. 64.

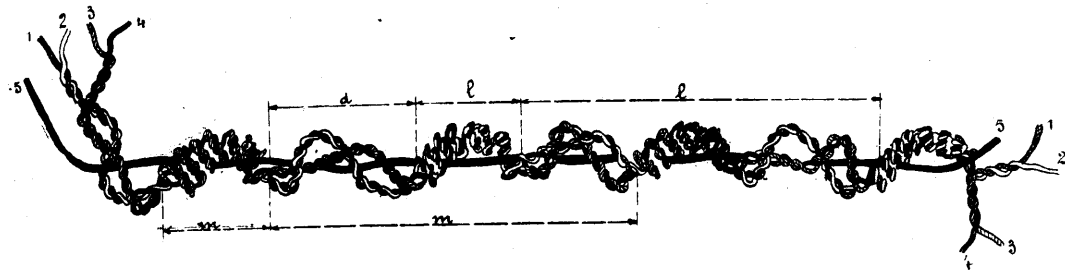


FIG. 65.

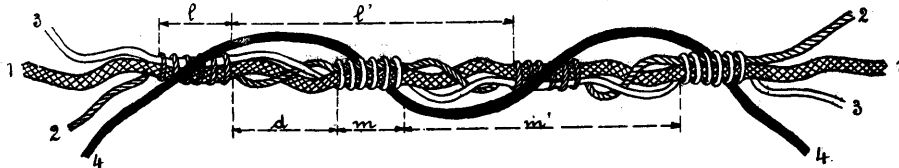


FIG. 66.

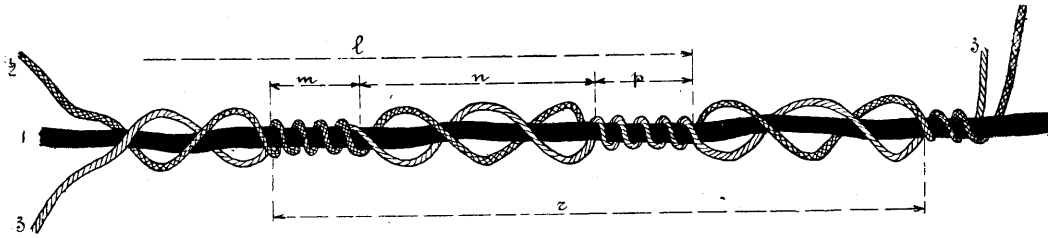


FIG. 67.

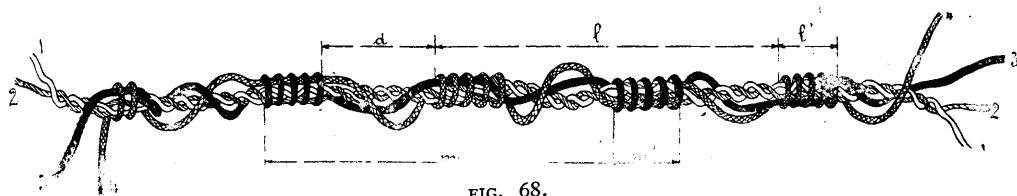


FIG. 68.

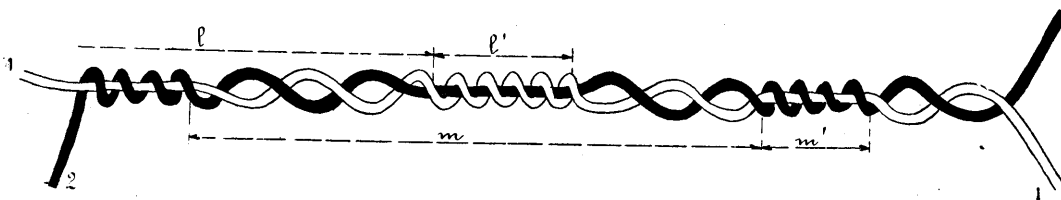


FIG. 69.

58, the base thread consisting of a 2-ply, 1-2. At Fig. 69 two threads, 1 and 2, are used, the effect being obtained by alternating them

Fig. 77 shows another device for making knotted yarn. Rollers 5 and 6 deliver the

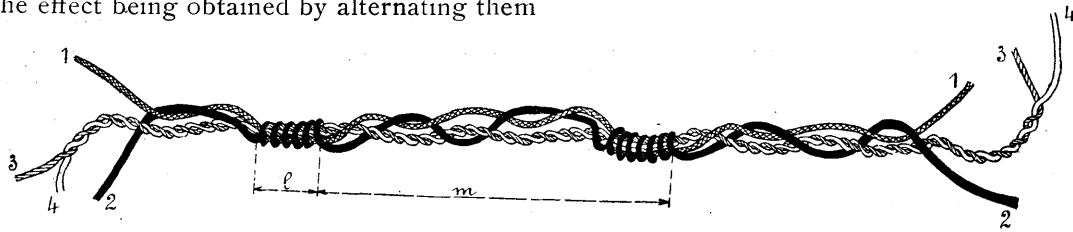


FIG. 70.

in the knot. Figs. 71, 72 and 73 show various similar forms of knotted yarn.

yarn; the knot is formed by the thread, 1, on the base thread, 2. The teeth are removed from part of the circumference of the driving gear, 7, and in this way the rollers, 5 and 6,

At Fig. 74 the threads, 3 and 4, alternate

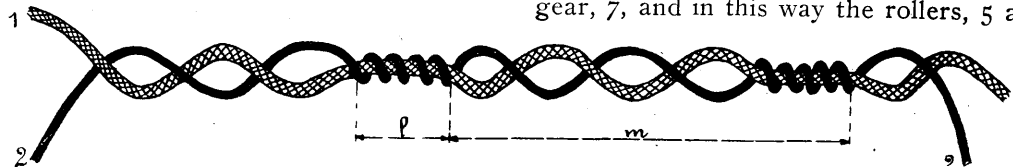


FIG. 71.

in forming the knot on the base, 2. The principal base is thread, 1, and the tie threads 5 and 6.

are stopped at intervals during which time the thread, 1, is wound in a knot around the base thread. Fig. 78 shows a device similar



FIG. 72.

Knotted yarn can also be made on the mule. Fig. 75 shows an attachment for this

to that at Fig. 76. Thread, 1, is the base; thread, 2, forms the knot. The base thread

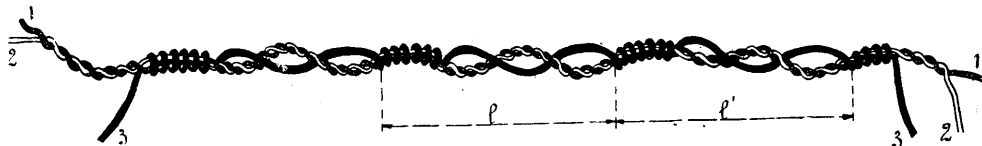


FIG. 73.

purpose. The thread, R, forms the knot around the roving, B. For this purpose the

passes through the rollers, 3 and 4, while the knot thread passes through the guide in the

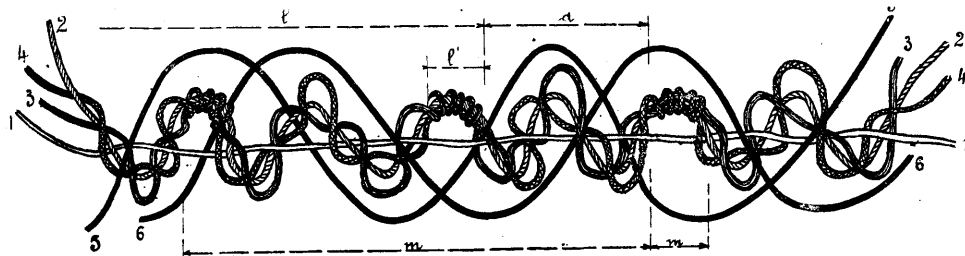


FIG. 74.

thread is passed through the eyelet to the end of the arm, E. This arm is oscillated by the cam, C''. Fig. 76 shows another form of the device for forming the knot.

lever, 5, swinging on the axis, o. The cam, c, vibrates the lever. The rotation of this cam is intermittent as the teeth are moved by the driving gear.

Fig. 79 shows an apparatus which is used extensively for making not only knotted yarn, but a wide variety of other kinds of fancy yarn. At the bottom of the frame are spindles on which the bobbins of the base yarn are placed. About 16 inches above the floor is a horizontal bar running the length of the machine and carrying the spindle, b, for the yarn to form the loop or knot. About 12 inches above this is a second bar of spindles on which are placed the bobbins, c, car-

The last named is provided with a whorl, n, which receives the band from the drum, t. The tube, f, revolves on the tube, g, the latter being fastened to the spindle rail. The bobbin and yarn, which are to form the knot and the loop, rest on the whorl, being held by friction of the tube, f. The yarn passes through the guide eye, r, Figs. 79 and 81, placed above the bobbin and unites with the base yarn as soon as the latter comes from the spindle. The guide eye is the extension of a round spring. The spindles on the second rail are larger than those below to admit of a larger bore and thus avoid chafing the thread as it passes through the spindle.

Fig. 82 shows how the reel is driven in

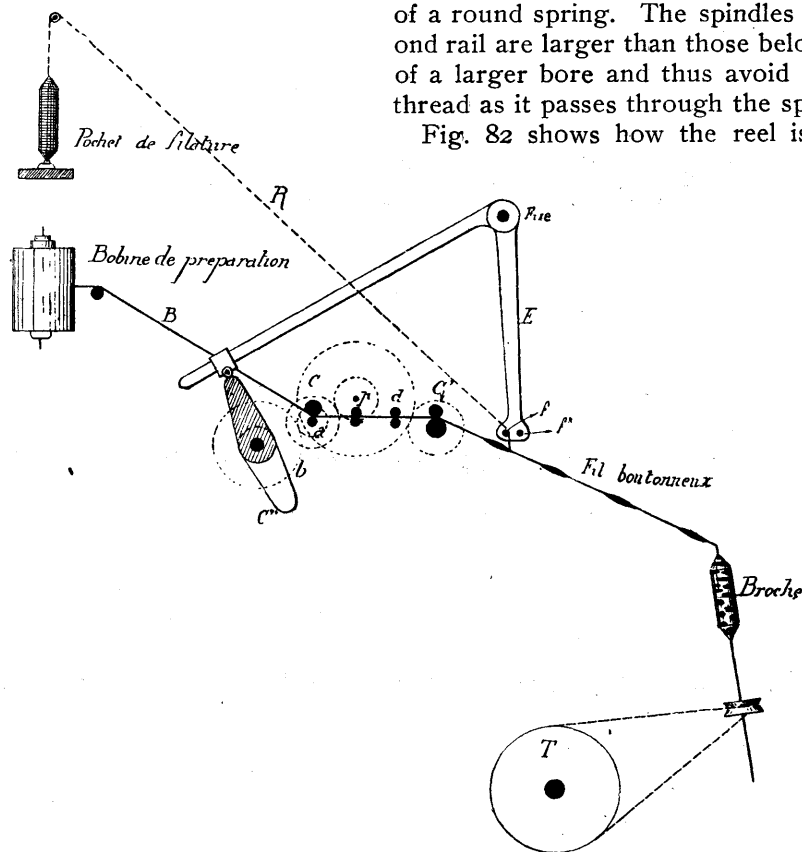


FIG. 75

rying the binder yarn. The base yarn from the bobbin, a, passes through the hollow spindle at b and c, and is wound on the reel, d, at the top of the frame. The speed of this reel regulates the speed of the yarn, the gear being driven positively by suitable connections at the end of the frame.

The hollow spindle, used at b and c, is illustrated at Fig. 80. It consists of two copper tubes, f and g, one inside the other. One is fixed and the other is moved up and down.

order to produce the knots. The shaft, M, carries the pinion gear, a, connecting with the gear, b. The latter carries a slotted crank, c, which is connected with the lever, f, the latter connecting with the ratchet, g, fastened to the shaft carrying the reel. The intermittent motion of the reel thus produces the knots. When the lever, f, moves forward the reel is stationary and the knot is formed. In order to produce a very hard knot, friction regulated by weight is applied to the bobbin

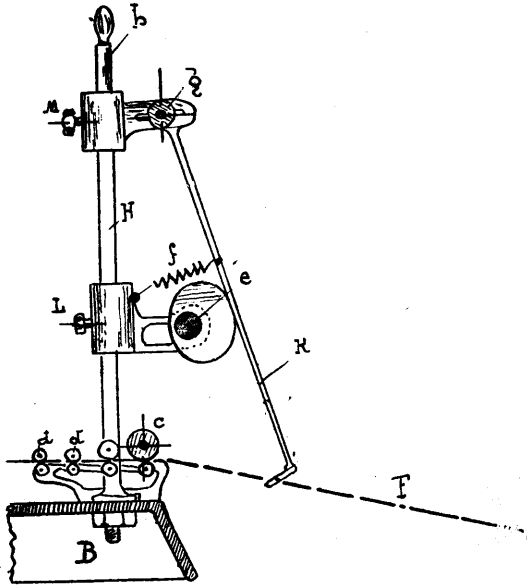


FIG. 76

carrying the knotted thread. The bobbins of fancy and binder yarn should be as small as possible as each revolution of the spindle delivers a quantity of yarn equal to the circumference of the bobbin. If the bobbin is much larger the difference between the delivery at

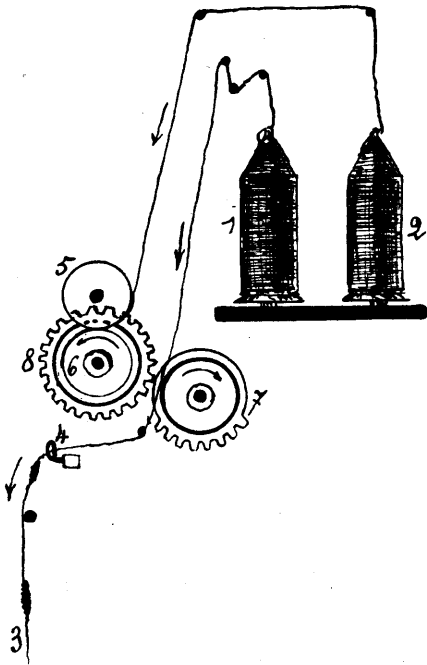


FIG. 77

the beginning and the end would cause a great irregularity in the fancy thread. This variation is reduced by regulating the friction on the bobbin. The size of the knots can be varied by changing the size of the pinion gear, a.

When the fancy thread is made with a binder the upper row of spindles should be driven as slowly as possible in order that the yarn may not catch on the knots. The guide eye should be well weighted in order to tie the fancy thread tightly and thus hold the

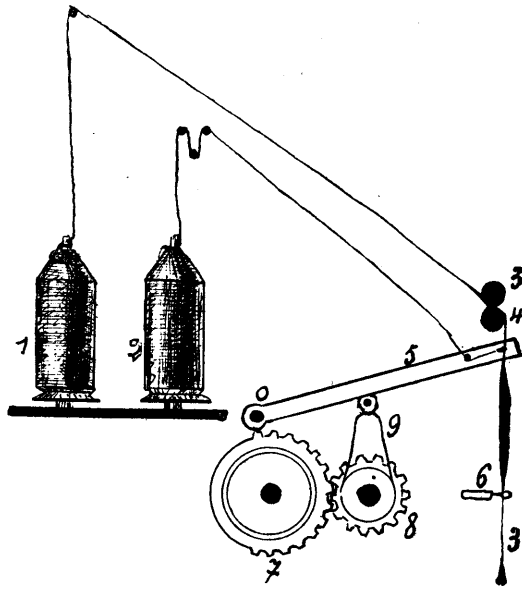


FIG. 78

knots firmly in place. The effects obtained with the guide eye tie threads can be varied by changing the speed of the drums t and t'.

Elongated knots. The knots in fancy yarn can be elongated by vibrating the guide eye, f, Fig. 55, which produces the base and knot threads. In this way the knot thread is vibrated on the base thread producing the effect desired. Fig. 83 shows a device for producing this vibration. The guide eye, f, is connected with a shaft running lengthwise of the machine. At the end of this shaft is fastened, e, the lever, a. The end of this lever is a roller, b, resting against the cam, c, upon the plate, d. By the revolution of this plate the cam and shaft, e, receive an oscillating movement, which can be varied by changing the cam.

Elongated knots can also be obtained by vibrating rails supporting the spindles of the frame shown at Fig. 79. A device for this

purpose is shown at Fig. 84. The pinion gear, a, is geared to the driving shaft, M, and

FIG. 80

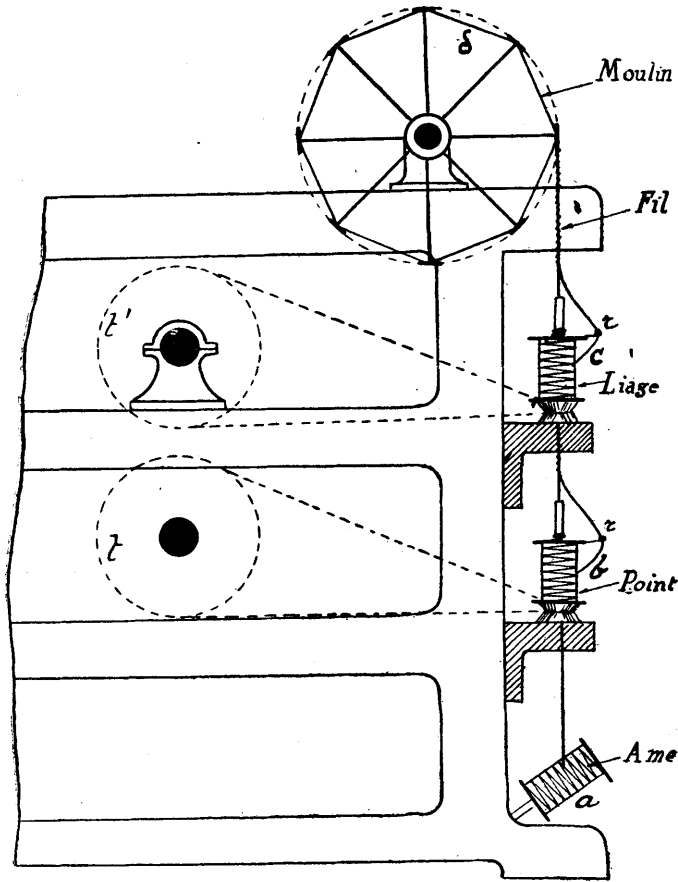


FIG. 79

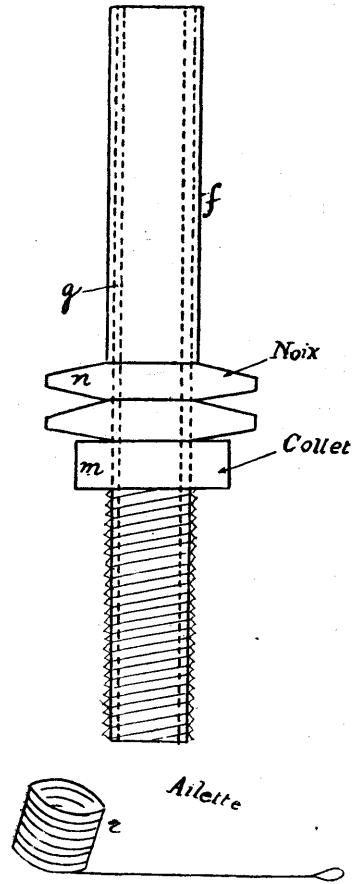


FIG. 80

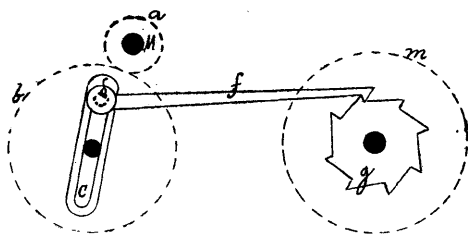


FIG. 82

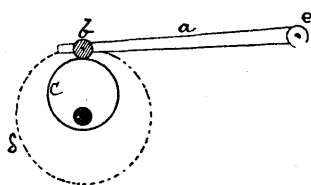


FIG. 83.

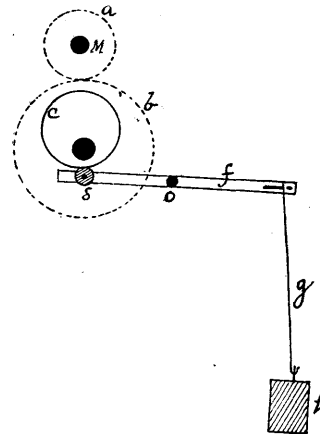


FIG. 84.

connects with the gear, b, carrying the cam, c. This cam vibrates the lever, f, which is

supported at o. The spindle rail, h, is supported at the hook, g, fastened to the lever. In this way the ring rail vibrates with the motion of the lever. The length of the knot is varied by changing the position of the axis on which the lever, f, swings.

(To be continued.)

