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THE LITTLE MONITOR SEWING MACHINE.

We have examined with much interest sundry novel improvements, which have recently been added to the sewing machine the distinctive title of which forms the above-caption. These improvements are claimed by the inventor, in connection with the other advantages already possessed, to impart capabilities to the implement of considerable value in their variety and utility, and at the same time to insure for it that popular appreciation which is always accorded to simplicity of parts and facility of operation. We took occasion, some years ago, to describe in detail this machine as then constructed; and as certain important portions are unaltered, a repetition of the description is deemed unnecessary. For the proper comprehension of the improvements, however, the principal features may be briefly considered as we progress.

The machine is one in which two threads are used to form principally a lock stitch. This is effected wholly without shuttle mechanism; and the thread, in lieu of being wound upon bobbins, is used directly from the ordinary spools. One spool is located above, as shown in Fig. 1, the other is somewhat curiously placed directly below the needle, and is previously inclosed in a hard rubber case, shown in Fig. 2, which is exactly the shape of a conical rifle shot. The end of the thread is carried through an opening in this case, and is then wound once or twice about the wire guard. The case is then inserted between two curved metal pieces, A, Fig. 3, and is retained in place by the pivoted stop, B. The end of the thread is carried back between the parts of the case holder and there left. It requires no further care, for the turn or two made around the wire guard of the case gives it the requisite tension. The general construction of the parts last described is new, and is an improvement on that of the similar portions in the older machine.

As regards the manner of forming the stitch, instead of the usual shuttle mechanism there is a rotating hook, represented at C, Fig. 3. Its shank is shown at D, Fig. 1. It is pivoted to a disk which imparts to it its rotary throw. The upper thread, after being carried through the fabric by the needle, is retracted so as to produce a slack loop. Into this the advancing hook catches, pulling it (the loop of course opening out) over the point and the smooth surface of the spool case, until it finally slips off said surface and likewise off the hook. The loop then lies loosely on top of the spool case and incloses the lower thread. The hook, continuing its rotation, takes a second loop from the needle, and carries it along as it did the first. As it opens out the second loop, it pulls taut the slack of the first one, and thus the stitch is completed. The capabilities of the machine in this respect, however, are not

pushed in (the lower thread still absent), the loop catches at once on that obstacle, giving the needle time to come down and pass through loop No. 1, and for the hook to engage loop No. 2, so that the second loop is pulled through the first one and so on, forming the chain. With the lower thread in action, precisely the same operation continues, only the lower thread becomes caught over a portion of the chain made by the upper thread, and literally forms a spiral about it, so that on one side of the cloth is a row of simple, straight stitches, and on the other a chain stitch and a spiral

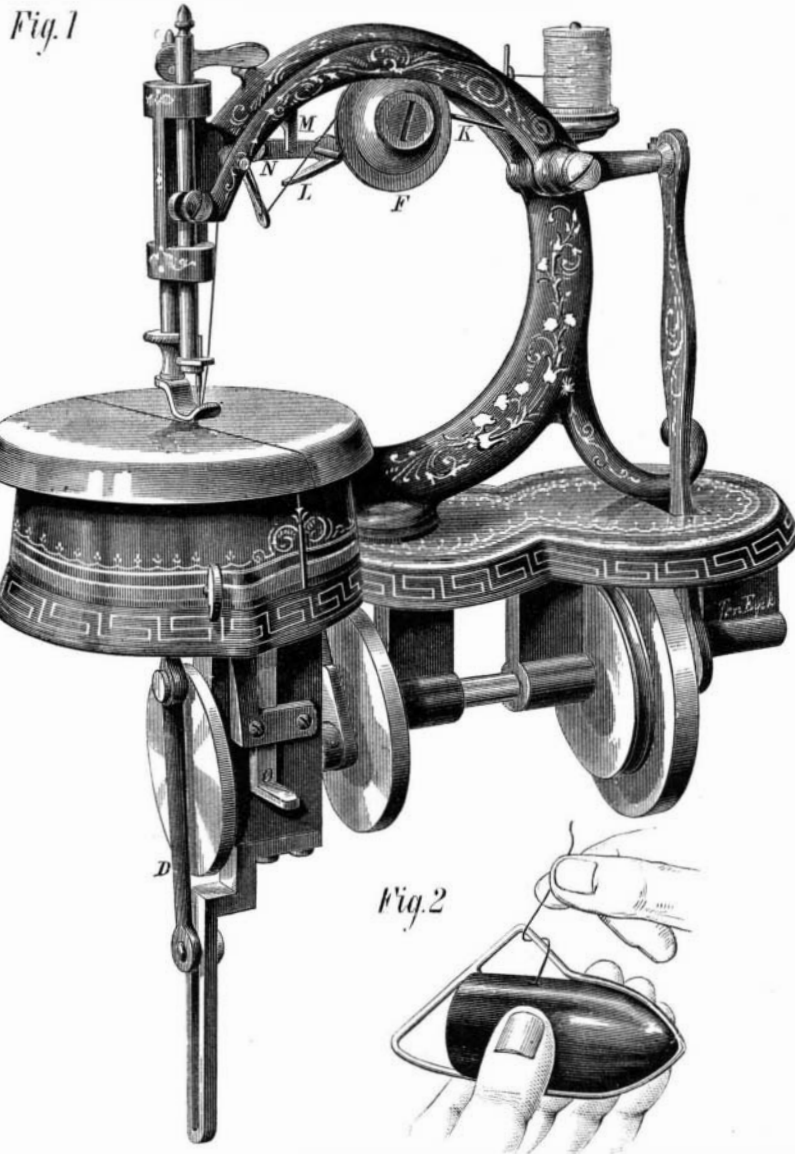
turns the same forward a distance proportionate to the travel of the arm, L. It is obvious that, by governing this travel, we govern likewise the rotation of the disk, and hence the amount of thread unwound in the direction of the needle. This is easily done by the simple pivoted bar, N, which has an arm at right angles at its extremity, as shown in Fig. 1, which extends directly over the clutch arm, L. By raising or lowering said extremity of N, the clutch arm is pushed more or less down, and consequently the projection, M, strikes it earlier or later, and accordingly pushes it a greater or less distance.

The tension regulator must, of course, be used in connection with the stitch governing devices. To alter the length of the stitches, it is simply necessary to raise the catch, O, Fig. 1, which governs a stop limiting the motion of the feed bar, which is actuated by eccentric devices on the rear of the disk on the left. When a short stitch is used, the tension regulator is set to allow but little thread to escape from the tension disk, and *vice versa*.

In Fig. 4 it will be seen that the bar, P, to which the bar, N, is pivoted, is curved and extends downward, terminating just below the coiled presser spring. This is a very neat device for yielding, automatically, the extra thread required in sewing thick cloth. In that case, the upward motion of the feed teeth acts on the fabric and lifts both it and the foot; as the latter rises, the bar, P, ascends with it, and consequently the bar, N, also lifts, and is followed by the clutch arm. The ensuing descent of the last causes, as before explained, a partial revolution of the tension disk, and thus a small amount of thread is given off, in addition to that caused to unwind through the movement of the main arm. This arrangement is sufficient to give the extra thread without requiring any adjustment of the tension or change of stitch, and of course adapts itself to varying thicknesses.

Lack of space compels us to summarize briefly the other advantages. These are: An ingenious arrangement whereby the chafing of the thread against the needle is prevented; ball and socket joints which render the pitman and treadle adjustable; a self-setting needle which cannot be inserted wrongly; and the noiseless operation of the mechanism.

We are informed that the demand for the machine is now very large, and has made it necessary for the manufacturers considerably to increase their facilities for construction. This has been done in the purchase of the Union Iron Works, at Rhinebeck, N. Y., with all the machinery therein, so that at the present time 300 machines can be made weekly. A large machine for manufacturing uses, on the same principle as the one that we have described, is now being manufactured. The various devices have been

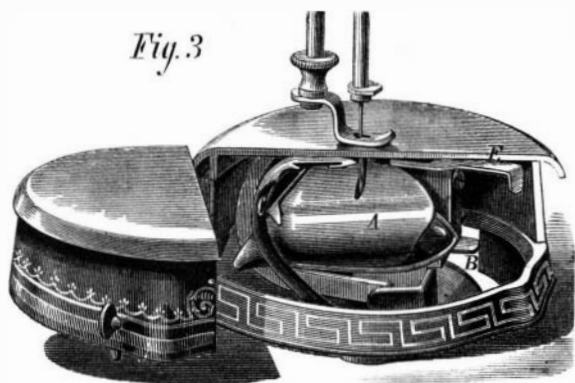


DU LANEY'S "LITTLE MONITOR" SEWING MACHINE.

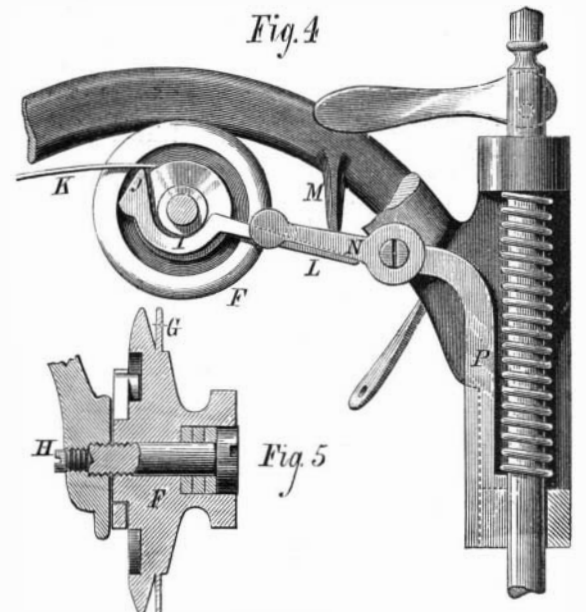
thread mingled, the latter not passing through the fabric. The most ingenious portion of the machine, and at the same time the newest, is the device for giving tension to the upper thread, and this is entirely different from any other piece of mechanism, devoted to like purpose, which has come under our notice. Its disposition and its construction will be seen in Figs. 1, 4, and 5. It consists of a metal disk, F, having a sharply grooved periphery, G, and secured by a screw to a lug on the stationary arm of the machine, as represented in section, Fig. 5. This screw serves as an axis, about which the disk revolves. The screw head is countersunk, and beneath it are several flexible washers. The threaded portion enters the lug, as stated, and therefore it is obvious that, by turning said screw inward, the disk may be crowded against the lug, and its rotation, through the friction engendered, rendered less free. This, however, is adjusted by the manufacturers, and the limit of the inward motion of the screw is defined by the small set screw, H, Fig. 5, inserted in the lug from the opposite side.

The principle on which the attachment is constructed is that (the thread from the spool being wound once around it), when every stitch begins, it shall turn so as to release exactly enough thread to make that stitch. This is carried out as follows: In a channel in the disk, and between it and the lug, is placed a clutch, I, Fig. 4, which embraces the axial screw and has a wedge-shaped extremity, J, which bears against the inner periphery of said channel, being thus held by the spring, K. The other end, L, is elongated and is so placed as to be struck and carried down by the projection, M, on the moving arm of the machine. The consequence is that, at each descent of the needle, the arm, L, being forced down, its opposite end, J, is wedged against the disk, and

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confined to the lock stitch alone, although that form, owing to its strength and security, is usually the most popular. A very neat embroidering stitch with two threads can be produced, or the lower spool may be abolished altogether and the instrument transformed into a single thread chain stitch machine, and this without any adjustment whatever beyond pushing in the little catch, shown at E in Fig. 3. It will easily be understood that, without the lower thread to lock the stitch, the rotating hook would keep on making loop after loop of the upper thread, which would slip off over the spool case and never be caught. Now, with the catch, E,



patented in this country and abroad by Mr. G. L. Du Laney. For further information address the manufacturers, Messrs. G. L. Du Laney & Co., 744 Broadway, New York city.