(No Model.)

H. McDONALD.

SEWING MACHINE.

No. 270,192. Patented Jan. 2, 1883.

Fig. 1.

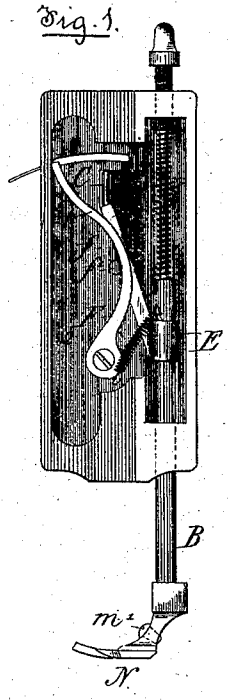

Fig. 2.

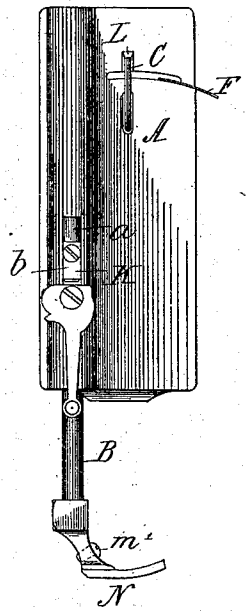

Fig. 6.

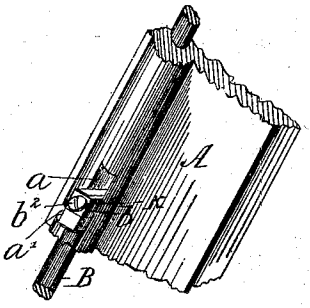

Fig. 7.

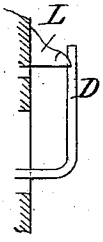

Fig. 8.

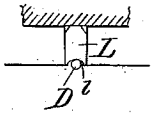

Fig. 3.

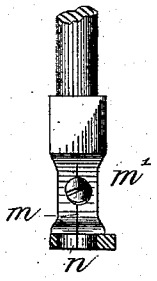

Fig. 4.

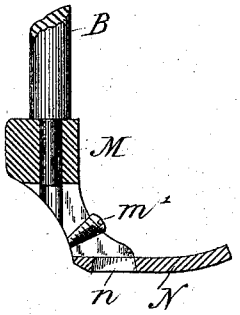

Fig. 5.

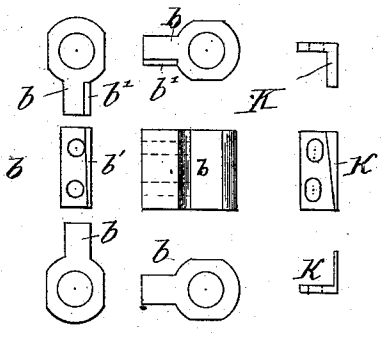

Fig. 9.

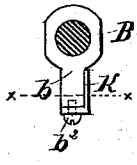

Fig. 10.

Witnesses:

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UNITED STATES PATENT OFFICE.

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SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 270,192, dated January 2, 1883.

Application filed August 18, 1882. (No model.)

To all whom it may concern:

Be it known that I, HUGH McDONALD, of Plattsburg, in the county of Clinton and State of New York, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

The invention consists in certain novel features of construction and in combinations of co-operating parts, which features and combinations will be fully described in the ensuing specification, and particularly pointed out in the claims at the close thereof.

For more complete comprehension of my invention reference must be had to the accompanying drawings, in which letters similar to those used in this description indicate like parts.

Figure 1 is a view of inside of face-plate, showing general parts in position, but particularly representing my arrangement of spring and take-up lever. Fig. 2 is a front elevation of face-plate and parts in position; Figs. 3 and 4, enlarged detail views of detachable foot and foot-block; Fig. 5, detail views of adjustable wedge and its connection; Fig. 6, perspective detail view of modification of the same; Figs. 7 and 8, enlarged details of self-threading attachment. Fig. 9 is a plan view of the projection secured to the foot-bar, showing the adjusting wedge-piece secured thereto. Fig. 10 is a sectional view on line *x x*, Fig. 9.

A represents the face-plate, of any desired construction, *a* being a slot cut through same in line with the foot-bar B, as usual. A projection, *b*, secured to the foot-bar, works in the slot *a*, and is connected to the slack-thread regulator C, which works up and down in another slot formed in said plate as the foot-bar B is raised or lowered. This projection *b* has an inclined surface, *b'*, at one side, as shown particularly in Fig. 5, and on this inclined surface is fitted a wedge-shaped block, K, the same being adjustably attached to the projection *b* by means of one or more screws, b^2, passing through a slot in same. This wedge-shaped block is adjusted vertically as its side becomes worn, as will be readily understood, thus insuring perfect tightness of the parts at all times.

In Fig. 6 I have shown a modification, in which the projection *b* is divided into two pieces, the upper of which fits loosely on the foot-bar B, and the lower half being rigidly mounted thereon, a side slot, *a'*, being cut at right angles to the slot *a* through the curved part of the face-plate, so as to permit of the foot-bar B being turned out in that direction in order to clear the foot N from the needle, when desired.

To the foot-bar B, or the projection *b* or slack-thread-regulating-lever D, if desired, is attached one end of a tension-spring, E, its other end being fixed to the take-up lever F, preferably near its lower end, as shown in Fig. 1, the purpose of which spring is to automatically regulate the resistance offered to the movement of the take-up lever F as the foot rides over a thick or a thin fabric, or changes from a thin to a thick part.

The take-up lever F is formed of a continuous regular curve, *f*, the pin or stud *f'* (the position of which is shown in dotted lines in Fig. 1) carried by the needle-bar (not shown) traveling on same between the points 1 and 2. This particular form of take-up lever has a great advantage over those with a sudden or sharp curve at present in use, inasmuch as the pin *f'* will always keep in close contact with my continuous regular curve, no matter how fast the machine may be worked, and prevents all the noise and inaccuracy of motion caused in the present machines by the pin jumping over a portion of the existing sharp curve and striking or "clicking" violently against its next point of impact.

The foot-bar B has attached to it a foot-block, M, which foot-block is partly split up, as shown at *m*, and has an inverted-cone bearing, *n*, on its lower side, over which a removable foot, N, is slipped, a hole of like contour to *n* being formed in same. This removable foot is used in order to enable me to readily change same for one suitable for braiding, hemming, and the various uses to which a sewing-machine is adapted. The device which I prefer to use for holding this removable foot to the foot-block is a tapered screw, *m'*, fitting into a hole or channel cut for it in the center of the slit *m*, which, as it is tightened, has the effect of expanding the two halves of the inverted-

cone bearing *n*, and in this manner holding the removable foot firmly in place. It will be understood that by loosening this tapered screw *m'* the two halves of the cone-bearing *n* will be allowed to come together, and the foot N is easily removed.

A novel self-threading device is shown in Figs. 7 and 8. It is used in combination with the slack-thread-regulating lever D, and consists of a projecting block, L, attached to the face-plate A, its outer edge being concave, as shown in Fig. 8, so as to allow the round end of the lever D to slide up and down therein as the foot moves, it being understood that the slack-thread-regulating lever is firmly fixed to the foot-bar and moves conjointly therewith, but has sufficient spring at its upper end to permit a thread to be passed between it and the concaved portion of the block L.

What I claim, and desire to secure by Letters Patent, is as follows:

1. In a sewing-machine, the combination, with the foot-bar and the take-up lever, of a tension-spring, secured at one end to the foot-bar and at its other end to said lever, substantially as and for the purpose described.

2. The combination, with the needle-bar provided with a laterally-projecting pin, of the take-up lever having between the points 1 and 2 a continuous regular curve fulcrumed beside the needle-bar at a point beyond the limit of travel of its pin, said pin being arranged to travel opposite and in contact with the continuous curve of the lever, substantially as and for the purpose described.

3. The combination, with the projection *b*, foot-bar B, and face-plate A, of the wedge-shaped block K, arranged substantially in the manner and for the purpose set forth.

4. The combination, with the foot-block M, provided with slit *m* and inverted cone *n*, and the loose foot N, of the tapered screw *m'*, as and for the purpose set forth.

5. The combination of the plate A, the block L, projecting therefrom, provided at it end with a concave, *l*, and the slack-thread regulator constructed to move vertically in concave *l* and adapted to be sprung slightly from said concave, substantially as and for the purpose described.

Plattsburg, New York, 2d day of August, A. D. 1882.

H. McDONALD.

Witnesses:

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R. A. KELLOND.