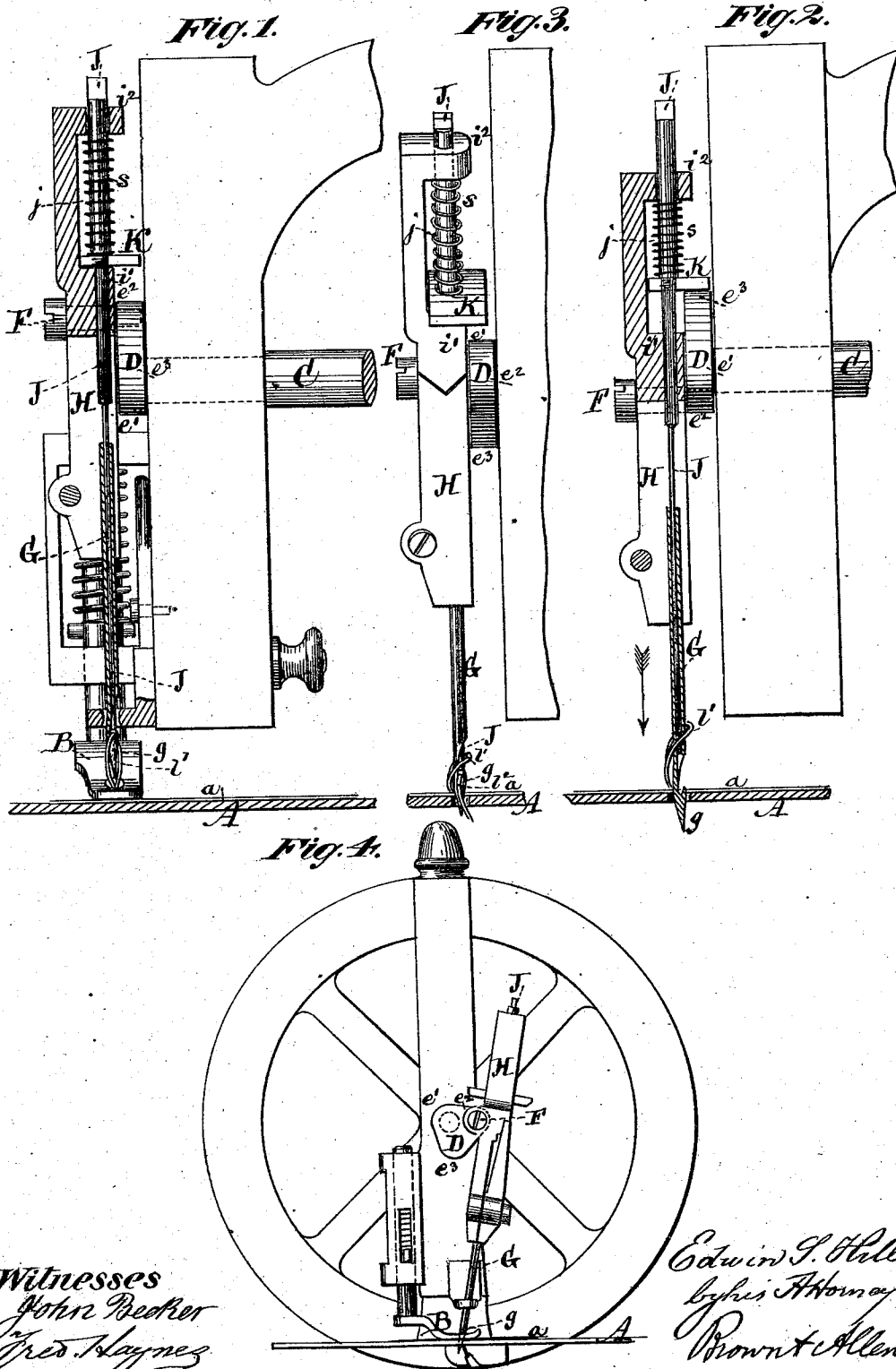


E. S. HILL.
Sewing-Machine.

No. 159,673

Patented Feb. 9, 1875.



Witnesses
John Becker
Fred Haynes

Edwin S. Hill
by his Attorneys
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UNITED STATES PATENT OFFICE.

EDWIN S. HILL, OF WATERBURY, CONNECTICUT.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 159,673, dated February 9, 1875; application filed November 2, 1874.

To all whom it may concern:

Be it known that I, EDWIN S. HILL, of Waterbury, in the county of New Haven and State of Connecticut, 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 thereof, reference being had to the accompanying drawing, making part of this specification.

This invention has for its object to furnish a cheap and simple toy sewing-machine, which is intended to be operated by the hand, and is for use by children for amusement. The invention embodies in its construction the usual vibrating needle-bar, barb-closer, and needle; and my invention consists of a novel construction and combination of parts, which will be fully hereinafter described and pointed out in the claim, whereby the machine is capable of being produced at a very small expense, while it is capable of producing very good results, and affords amusement for children.

In the accompanying drawing, Figure 1 is a side view, partly in section, representing the needle closed and about to descend, being near its highest position. Fig. 2 represents the needle open and in the act of descending after the loop has slipped out of the barb or hook. Fig. 3 represents the needle closed and in the act of rising with a new loop through the preceding loop. Fig. 4 is a view at right angles to Fig. 3.

A represents the table of the machine, with the cloth *a* resting thereon, under the presser-foot B. C is the driving-shaft, on the end of which is a cam, D. This cam is of a rounded triangular or approximate form, and is attached to the shaft C near one of the rounded angles *e*¹. A crank-pin, F, projects from the cam near another of the rounded angles *e*², and, by this crank-pin, the needle-bar H is attached so as to receive motion from the shaft C as the latter revolves. The needle G is of the kind known as the tubular barbed needle, being made tubular in form with a barb or hook, *g*, at its lower end near its point; and is attached to and held by the lower portion of the needle-bar H by being clamped therein in the usual way. The barb-closer consists of

a rod or wire, J, the lower portion of which works in the tubular needle G, and the upper portion works in guides *i*¹ *i*² in the needle-bar H. The lower guide, *i*¹, is formed by a perforation in the portion of the needle-bar near its point of attachment to the cam; and the upper guide, *i*², is formed by a perforation in the upper end of the needle-bar, which is bent over for the purpose, so as to leave an open space, *j*, between the guides. At a suitable point above the center the barb-closer J has a saddle, K, attached to it, and between this saddle and the upper guide, *i*², is a spiral spring, *s*, surrounding the wire J. This spring has its upper end bearing against the lower side of the guide *i*², and its lower end bearing against the upper side of the saddle, and thus has a tendency to keep the saddle pressed against the lower guide, *i*, and the barb-closer at its lowest position, with its lower end resting upon and closing the barb or hook *g*.

In the operation of this machine, the needle descends and takes the thread from the thread-guide under the table, and also feeds the work forward, in the same manner as is usual in machines of this description. As the shaft C revolves, and the needle descends, the barb-closer descends with it, as shown in Fig. 1, until the needle reaches a point somewhat lower than that shown in said figure, and the point of the barb is about entering the cloth, at which time the portion *e*² of the cam D, by the revolution of the shaft C, is brought in contact with the lower side of the saddle K, and lifts or arrests the motion of the barb-closer J, as shown in Fig. 2, so that the needle descends with its barb open, allowing the loop *l*¹ to slip out of the hook or barb. As the needle continues its motion, the barb remains open until after it has taken the thread for the new loop and the needle begins to ascend, by which time the revolution of the shaft has carried the portion *e*² of the cam away from its contact with the saddle K, allowing said saddle to rest upon the guide *i*¹, and the barb-closer J to descend and close the barb before it returns through the cloth, so that the needle ascends with the barb closed, as shown in Fig. 3, bringing with it the loop *l*², and passing it through the preceding loop

4. The barb remains closed, as in Fig. 1, until after the needle has reached its highest position and begins to descend, when the barb is opened again, as in Fig. 3, as before described.

What I claim as new, and desire to secure by Letters Patent, is—

The vibrating needle-bar H, pivoted directly to the face of the cam D, and provided with a tubular needle, G, and upper and lower

guides, ¹ ², in combination with the barbcloser J, provided with the saddle K, and passing through the tubular needle, and the spring s, arranged between the saddle and the upper guide of the needle-bar, all substantially as herein described.

EDWIN S. HILL.

Witnesses:

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