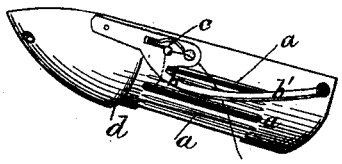
G. W. HUNTER.

Sewing-Machine Shuttle.

No. 210,330. Patented Nov. 26, 1878.



Witnesses:
M. George
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UNITED STATES PATENT OFFICE.

GEORGE W. HUNTER, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO HENRY M. BAKER, OF SAME PLACE.

IMPROVEMENT IN SEWING-MACHINE SHUTTLES.

Specification forming part of Letters Patent No. **210,330**, dated November 26, 1878; application filed August 19, 1878.

To all whom it may concern:

Be it known that I, GEORGE W. HUNTER, of Washington, in the District of Columbia, have invented certain new and useful Improvements in Sewing-Machine Shuttle-Tensions; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

In sewing-machine shuttles tension on the thread is produced in a variety of ways, mostly, however, by threading the thread through a number of holes, as in the shuttle used in the Singer machine. This threading operation is, as is well known, exceedingly troublesome and tedious as well.

It is the object of my invention to remedy this defect. To this end I form in the shell, and longitudinally of the shuttle, slots or openings, which are at varying distances from the point where the thread leaves the shuttle, it being held at that point by a suitable hook, guide, or retainer. The slots are of a size to permit the thread to pass readily through any one of them. The farther the selected slot is from the guide or retainer the greater will be the length of thread brought in contact with the periphery of the shuttle, and consequently the greater will be the tension. It is in this combination of the slotted shuttle with a thread guide or retainer that my invention mainly consists.

The nature of my invention and the manner in which the same is or may be carried into effect will be understood by reference to the accompanying drawings, which represents in perspective a shuttle embodying my invention.

The shuttle here shown in illustration of my invention is of the ordinary Singer pattern—an open-faced shuttle, containing a bobbin and a tension device, as is usual with shuttles of that type.

The body of the shuttle, in order to give effect to my invention, is pierced with a series of longitudinal slots or openings, *a*, which extend about the periphery of the shuttle, as shown.

The thread guide or retainer hereinbefore referred to may be a hook of any suitable construction, or may be any device adapted to retain or hold in contact with the periphery of the shuttle that portion of the thread which is intermediate between said retainer and the particular tension-slot from which the thread is drawn. The retainer, in this instance, is carried by and formed in one piece with the strap *b*, which is the ordinary strap used in the Singer shuttle, to hold the thread in a position where it will not be likely to become entangled with the needle. Further description of the strap is unnecessary. The retainer itself, which is substantially the same device that is used on the shuttle of the Domestic sewing-machine, and which is not of my invention, consists of a hook or prong, *c*, which at its free end is bent downward a little below the plane of the strap *b*. The thread from one of the slots *a* is first passed under the free end *b'* of strap *b*, and thence is drawn along under and past the downwardly-bent end of hook *c*. After passing *c* the thread is drawn back in a reverse direction, and now passes over the hook or prong; and thence it is drawn again under the free end of strap *b*, which completes the threading operation. The position of the thread, when the operation is complete, is shown in the drawing.

The bobbin-thread, in going to the retainer or guide, passes out through one of the slots *a*, and thence around the periphery of the shuttle. It is here that the tension is produced, there being as little friction and pressure as possible on the thread at the point where it engages the retainer. The tension is produced by the frictional contact of the thread with the outside of the shuttle; and the farther removed the slot from the retainer the greater will be the length of thread drawn around in contact with the periphery of the shuttle, and consequently the greater will be the tension. Thus by selecting one slot or another, as occasion demands, the shuttle-tension can be varied at pleasure.

The slots or openings can be of any proper and convenient dimensions to insure easy and uninterrupted delivery of the thread from the bobbin.

To prevent that portion of the thread which

is drawn about the periphery of the shuttle from meeting or striking the loop of needle-thread through which the shuttle passes, the body of the shuttle, back of its front end or nose, is reduced in size or diameter, as indicated, a shoulder, *d*, being thus formed on the shuttle in advance of the slots, over which the loop will ride so as to clear the bobbin-thread.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A sewing-machine shuttle comprising a shuttle-body and a thread-retainer, the body being provided with a series of longitudinal slots, which are arranged at different distances from said retainer, the shuttle-thread passing through one of said slots around the periphery of the shuttle to the retainer, and the degree of tension being varied in direct proportion to the distance intervening between the particular slot selected and the retainer, substantially as set forth.

2. A sewing-machine shuttle provided with a series of longitudinal tension slots or openings, formed in a portion of the body of the shuttle which is of less diameter than the shuttle-nose or front end, as and for the purposes set forth.

In testimony that I claim the foregoing as my own I hereunto affix my signature in presence of two witnesses.

GEO. W. HUNTER.

Witnesses:
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M. GEORGII.