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C. N. WHEATON.

TAKE-UP HOOK FOR EMBROIDERING MACHINES.

APPLICATION FILED MAR. 29, 1907.

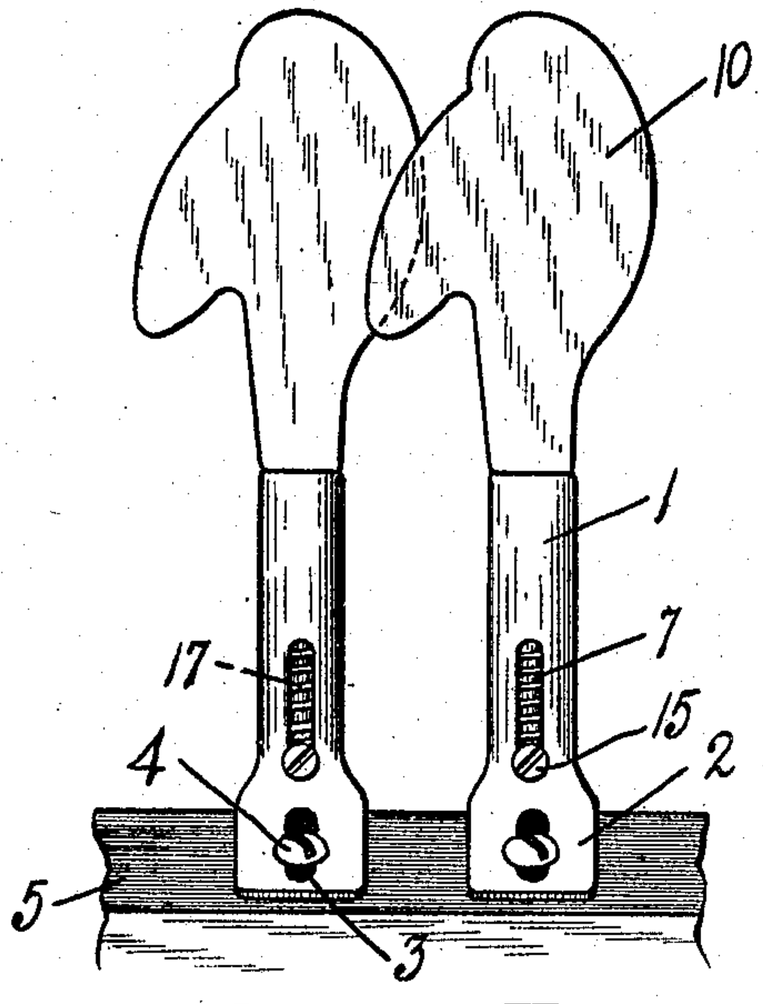

FIG. 1.

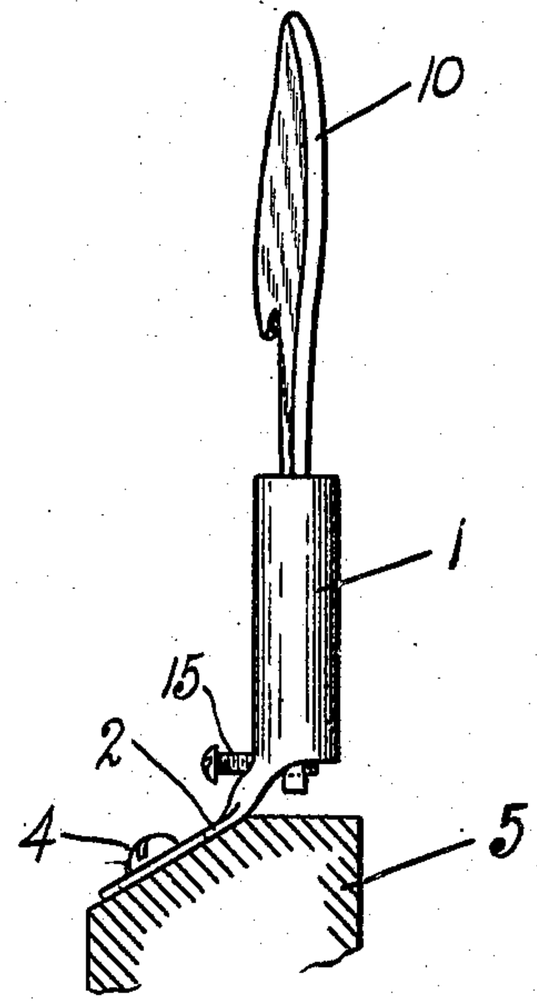

FIG. 3.

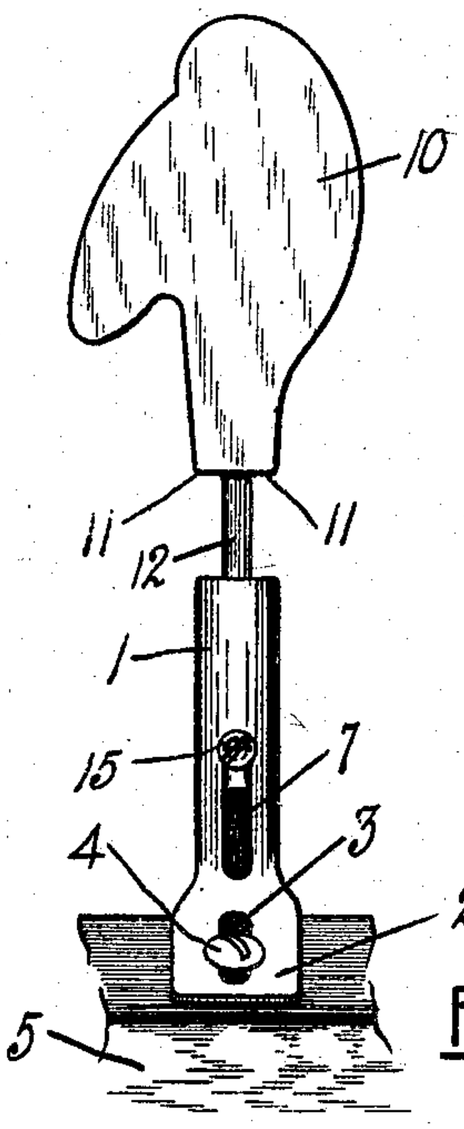

FIG. 5.

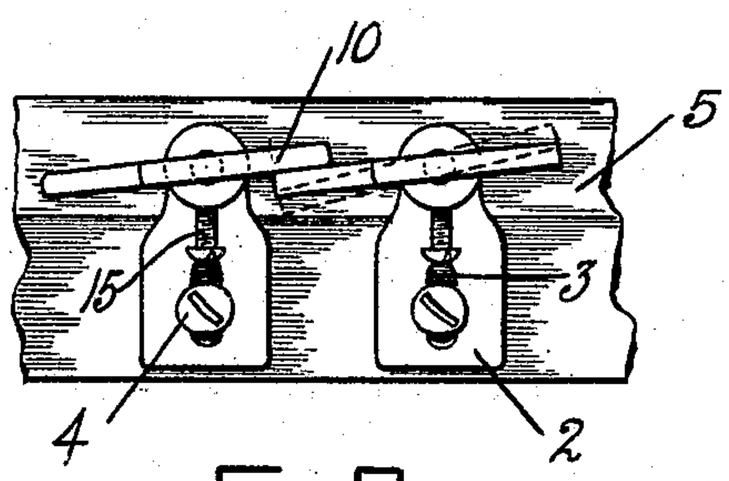

FIG. 2.

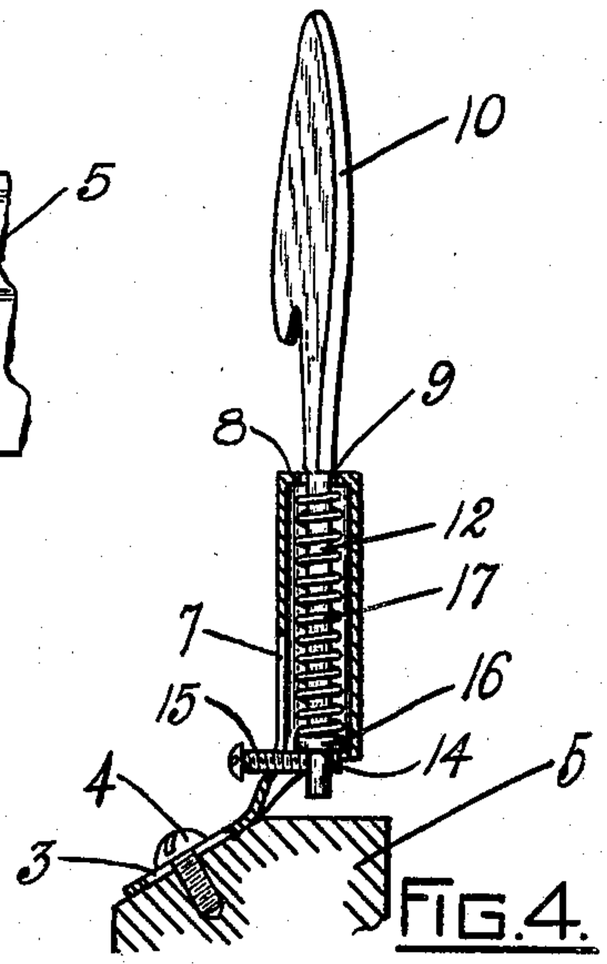

FIG. 4.

WITNESSES.

A. G. Pieczentkowski.

Walter E. Goodwin.

BY

INVENTOR.

Charles N. Wheaton

Horatio E. Bellows

ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES N. WHEATON, OF WARREN, RHODE ISLAND.

TAKE-UP HOOK FOR EMBROIDERING-MACHINES.

No. 885,817. Specification of Letters Patent. Patented April 28, 1908.

Application filed March 29, 1907. Serial No. 365,300.

To all whom it may concern:

Be it known that I, CHARLES N. WHEATON, a citizen of the United States, residing at Warren, in the county of Bristol and State of Rhode Island, have invented certain new and useful Improvements in Take-Up Hooks for Embroidering-Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to take up hooks for use upon embroidering machines of that type in which double pointed needles are thrust completely through the fabric alternately from one side to the other by reciprocating grippers; the fabric being alternately shifted in relation to the needles to determine the length and direction of the successive stitches. The threads in this type of machine, of definite length, attached to the centers of the needles, and the slack thereof between the needles and fabric, are taken up by hooks fixed upon long hook bars which reciprocate vertically. My invention has for its object, besides the ends commonly sought in such devices, a means for tensioning each individual thread independently of, or in addition to, the general tensioning means of the machine, whereby compensation is afforded when different qualities of yarn are used on different hooks of the same series; when the adjacent grippers vary in the distance they approach the hooks; or when the horizontal plane of various portions of the hook bar or frame varies.

Another object is to furnish a yielding or adjustable tension for each individual thread.

A further object is to cushion or obviate the shock and strain upon the yarn when the hook bar reaches its limit of travel.

An additional object is to facilitate the passage of the threads between the adjacent contiguous hooks.

To the above ends my invention consists essentially in furnishing the hooks with vertically yielding means; also in providing an axial play for the hook head; and in the novel construction and combination of the parts.

In the drawings which form a part of this specification, Figure 1 is a front elevation of two of a series of hooks embodying my invention, showing portions of the hook bar broken away. Fig. 2, a plan of the same. Fig. 3, a side elevation of a single hook in normal position. Fig. 4, like elevation of the same partially in vertical central section, and Fig. 5, a front elevation of the same in elevated position.

Like reference characters indicate like parts throughout the views.

The embodiment of my invention herein set forth comprises a hollow cylindrical post, 1, provided with a lateral flange, 2, upon its lower end having an oblong slot, 3, to accommodate a screw, 4, which binds the flange to the hook bar 5. The wall of the post, 1, is provided with a vertical oblong slot, 7, and upon its upper end has an internal annular shoulder, 8, which forms a circular opening, 9, in the top of the post. 10 represents the flat head of a hook with a retracted lower portion to form lateral shoulders, 11, upon either side of an integral shank, 12, which loosely traverses the post, 1, and its opening, 9. The shoulders, 11, normally rest on the top of the post, 1. The lower end of the shank, 12, has a transverse opening, 14, through which passes a pin or screw, 15, whose end projects through the slot, 7. The diameter of the pin, 15, is less than the breadth of the opening through which it passes. A collar, 16, upon the shank, 12, rests upon the pin, 15, and forms a support for a coiled spring, 17, which incloses the hook shank and bears against the shoulder, 8, of the post.

In operation the hook parts, when the hook bar, 5, is elevated, assume the positions shown in Fig. 4. Namely, the spring, 17, retains the hook head, 10, depressed with the shoulders, 11, contacting with the top of the post. When, however, the hook bar descends and engages a thread, the latter exercises a slightly lifting tendency upon the hook thereby compressing the spring, 17, somewhat, and permitting the shank to rise. The stop pin, 15, contacting with the upper end of the slot, 7, prevents excessive travel of the hook. In Fig. 5 is shown the hook head at its maximum elevation. The adjacent heads, 10, slightly overlap as is usual, in these devices, but by the described construction the heads are capable of a slight axial movement as shown in broken lines in Fig. 2, whereby the thread may more easily pass between the adjacent surfaces of the head. This axial play is permitted by the difference in dimensions of the pin, 15 and the slot, 7.

It will be observed that the spring, 17, receives and cushions all shocks and jars which would otherwise affect the thread during the vertical travel of the hooks, and affords the

desired tension of each thread independently of the others.

What I claim is,

1. The combination with the hook bar of an embroidering machine, of a member affixed thereto, a flat hook head, and a shank carrying said head and vertically movable in said member.

2. The combination with the hook bar of an embroidering machine, of a member affixed thereto, a flat hook head, a shank vertically movable in said member and carrying said head, means for limiting the vertical movement of said shank, and a vertically compressible means acting on said shank.

3. The combination with a hook bar of an embroidering machine, of a plurality of overlapping flat hook heads mounted on said bar for independent movement, and yielding means permitting vertical movement of each hook independent of the other.

4. A flat hook head, a shank therefor, a member in which said shank is vertically movable, and a lateral flange on said member having means whereby it may be attached to the hook bar of an embroidering machine.

5. A flat hook head, a shank therefor, a member on which said shank is vertically movable, a lateral flange on said member having means whereby it may be attached to the hook bar of an embroidering machine, and springs within said member acting on said shank and means carried by said shank for limiting the vertical movement of the hook.

6. The combination with the hook bar of an embroidering machine, of a member affixed thereto, a flat hook-head and a shank axially and vertically movable in said member, and means for limiting both the axial and vertical movement of said shank.

7. The combination with the hook bar of an embroidering machine, of a member affixed thereto, a flat hook-head and a shank axially and vertically movable in said member, means for limiting both the axial and vertical movement of said shank, and a spring within said member and acting on said shank.

8. A take up hook for embroidering machines comprising a fixed member, a hook-head having a shank vertically movable therein, means projecting laterally from said shank and movable with the shank in the direction of the length of said member, a spring acting on said shank, and inclosed by said member, and means coöperating with said lateral means for allowing axial movement of said shank and also serving to limit such movement.

9. The combination with a hook bar of an embroidering machine, of a plurality of overlapping flat hook-heads mounted on said bar for independent and restricted axial movement and means permitting vertical movement of each hook independently of the other.

10. The combination with a hook bar of an embroidering machine, of a plurality of overlapping flat hook-heads mounted on said bar for independent and restricted axial movement, means permitting vertical movement of each hook independently of the other, and means for limiting the vertical movement of the hooks, said means serving additionally to limit the axial movement of the hooks.

In testimony whereof I have affixed my signature in presence of two witnesses.

CHARLES N. WHEATON.

Witnesses:
HORATIO E. BELLOWS,
WALTER E. GOODWIN.