

(No Model.)

W. A. MACK.

THREAD GRIPPING DEVICE FOR SEWING MACHINES.

No. 512,255.

Patented Jan. 2, 1894.

Fig. 1.

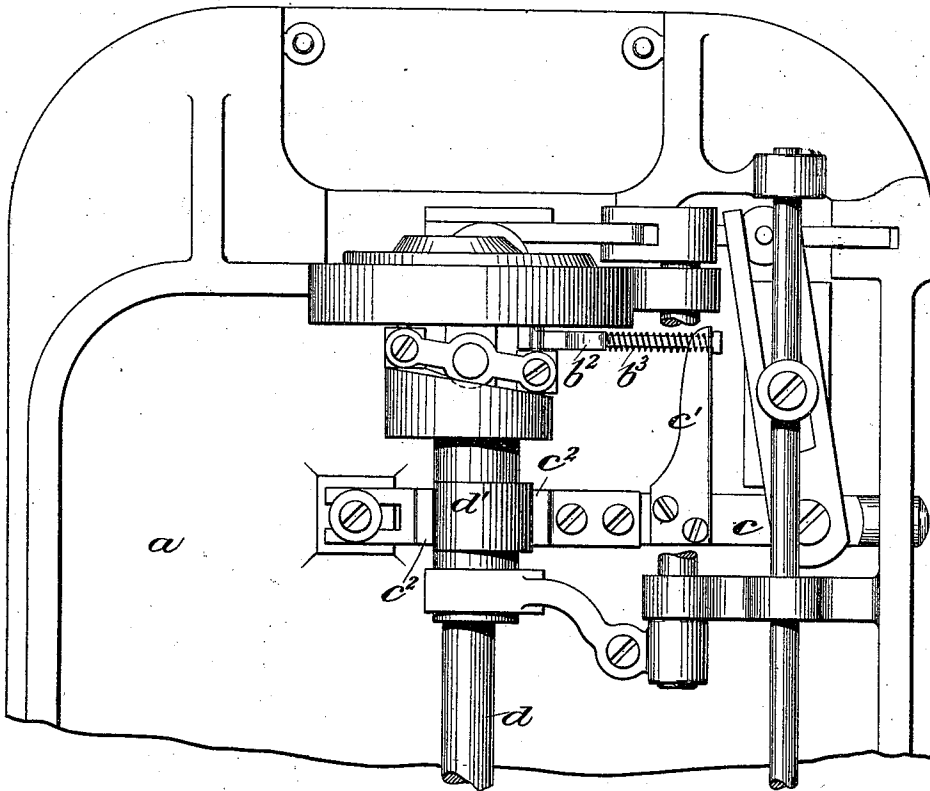
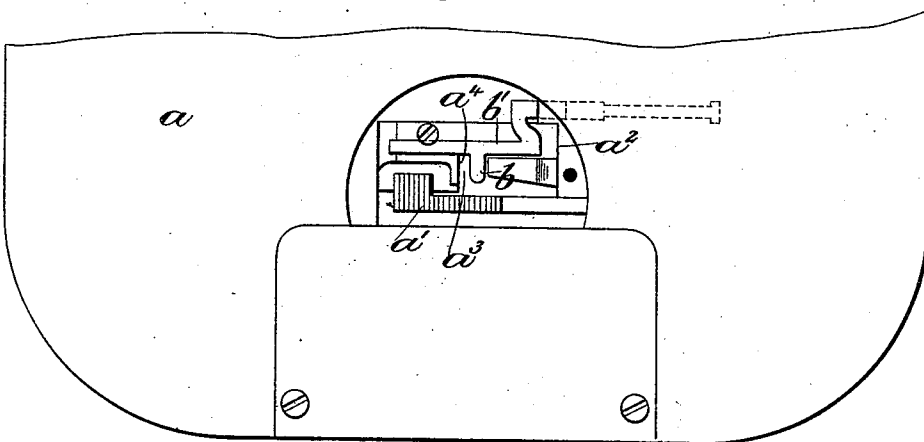


Fig. 2.



Witnesses:-

R. N. Raymond
A. E. Hayes

Inventor:-

Wm. A. Mack
by Chas. F. Dams
his Atty.

UNITED STATES PATENT OFFICE.

WILLIAM A. MACK, OF NORWALK, OHIO, ASSIGNOR TO THE STANDARD SEWING MACHINE COMPANY, OF OHIO.

THREAD-GRIPPING DEVICE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 512,255, dated January 2, 1894.

Application filed January 24, 1893. Serial No. 459,558. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. MACK, a citizen of the United States, and a resident of Norwalk, county of Huron, and State of Ohio, have invented new and useful Improvements in Sewing-Machines, of which the following description, taken in connection with the drawings herewith accompanying, is a specification.

My invention relates to improvements in sewing machines of the rotary and oscillating class, and more particularly to a thread-gripping or retaining device for automatically engaging with the loose end of the needle-thread when the needle first enters the goods, to prevent it being drawn beneath the throat-plate of the machine until it has been properly secured in the goods or material being operated upon, as more fully set forth in an application of mine now pending, filed February 5, 1891, and bearing Serial No. 380,304; and my present invention consists more particularly of improvements in the means for operating the thread-retaining device forming the subject-matter of my said pending application, Serial No. 380,304, the object of my present invention being more particularly to simplify and lessen the cost of construction of such thread-gripping or retaining mechanism.

Referring to the drawings:—Figure 1, represents the bottom view of a section of the bed-plate of a machine embodying my invention, and Fig. 2, represents a top view of the same with the throat-plate removed.

To explain in detail,— a , represents the bed-plate of a sewing machine, a' the feed, and a'' the shuttle raceway casement which is provided with an opening or depression a''' in its upper surface adjacent to the path of the needle, in which the thread-gripping or retaining device, represented at b , operates or reciprocates to alternately contact with and withdraw from one of its walls a^4 to engage with the needle thread in a manner as will be described.

The gripping arm b of the thread retaining device is carried by a reciprocating plate b' which is supported and guided on the upper surface of the shuttle-race casement, as shown in Fig. 2, and is provided with an arm or extension b^2 which is loosely connected with an arm c' of a horizontally reciprocating bar c ,

by which latter it is operated. The arm or extension b^2 of the retaining device b has a loose sliding connection with the arm of the reciprocating bar c , and is provided with a coiled spring b^3 thereon having its bearings at one end against the arm c' and at its opposite end against a shoulder or projection on its supporting arm b^2 , in such manner that the gripping-arm b , when moved forward to contact with the engaging surface a^4 , has a yielding or elastic engagement therewith in order to conform to any irregularities in the thread or in the engaging surface or otherwise, without liability of causing breakage in the thread; and when the gripping arm is moved or carried back from engagement with the surface a^4 to release the thread, it is moved positively by reason of the arm c' acting against a head or other enlargement on the arm b^2 as will be readily understood by reference to Fig. 1.

The reciprocating bar c is supported and guided in suitable bearings on the undersurface of the bed-plate, and is provided with two arms or projections $c^2 c^2$ which embrace a cam or eccentric d' located on the lower rotating driving shaft d , to be operated thereby.

The function of the thread retaining device being fully set forth in detail in my said pending application, Serial No. 380,304, and in another application of mine now pending, filed April 25, 1885, and bearing Serial No. 163,395, I will dispense with such description herein as being superfluous.

Having thus set forth my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination in a sewing machine, with a vertically reciprocating needle, of a bearing surface located adjacent to the path of the needle, and arranged in a line substantially parallel with the eye of the latter, the reciprocating gripping device b for alternately engaging with and withdrawing from said bearing surface, the horizontally arranged reciprocating bar c^2 provided with an arm having a loose sliding connection with said gripping device and a spring acting in combination with said arm for giving the gripping device an alternate yielding and positive movement, and an operating shaft provided with a cam or eccentric thereon for operating said

reciprocating bar, substantially as described and for the purpose set forth.

2. The combination in a sewing machine with the circular shuttle race-way casement 5 and a vertically reciprocating needle, of a stationary bearing surface located adjacent to the path of the needle, and arranged in a line substantially parallel with the eye of the latter, the reciprocating gripping device 10 alternately engaging with and withdrawing from said bearing surface, loosely supported and guided upon said casement, a horizontally arranged reciprocating bar provided with an arm loosely connected with said gripping device and a spring acting in combination 15 with said arm for giving the gripping device an alternate yielding and positive movement, and an operating shaft provided with a cam or eccentric for operating said reciprocating bar, substantially as described 20 and for the purpose set forth.

3. The combination in a sewing machine

with a vertically reciprocating needle, of a thread retaining device, consisting of a stationary jaw or bearing surface, located adjacent to the path of the needle and in a line substantially parallel with the eye of the latter, a reciprocating gripping device or jaw supported and operating independently of said stationary jaw and adapted for engaging 25 with and withdrawing from the same, a horizontally arranged reciprocating bar having an arm loosely connected with said gripping device and a spring acting in combination 30 with said arm for giving the gripping device an alternate yielding and positive movement, and an operating shaft provided with a cam or eccentric thereon for operating said reciprocating bar, substantially as described and for the purpose set forth. 35

WILLIAM A. MACK.

Witnesses:

A. E. INGALLS,
GEO. P. SMITH.