

(No Model.)

G. S. HILL.
TENSION RELEASING DEVICE FOR BUTTON HOLE SEWING MACHINES.
No. 457,463.

Patented Aug. 11, 1891.

Fig. 1.

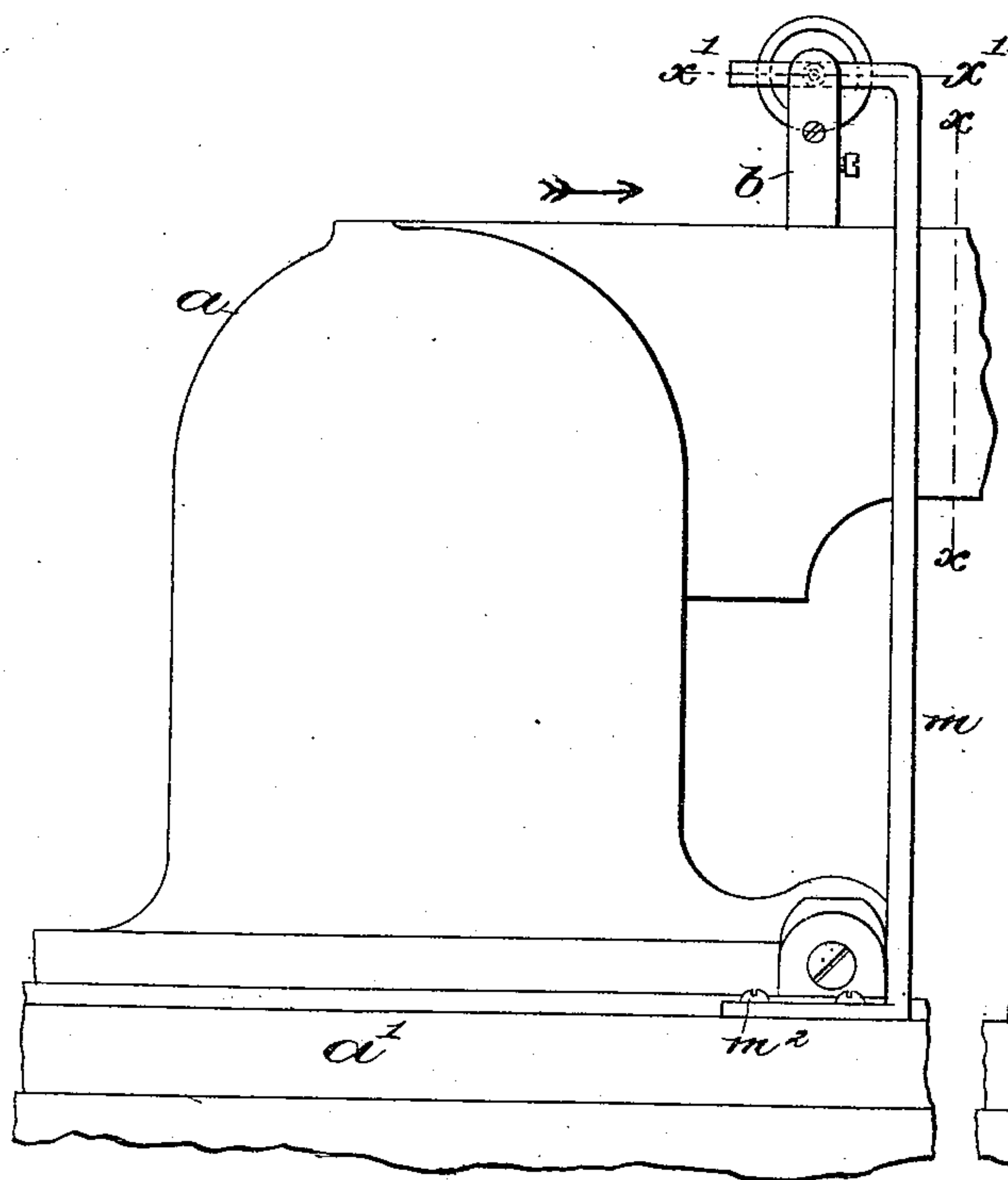


Fig. 2.

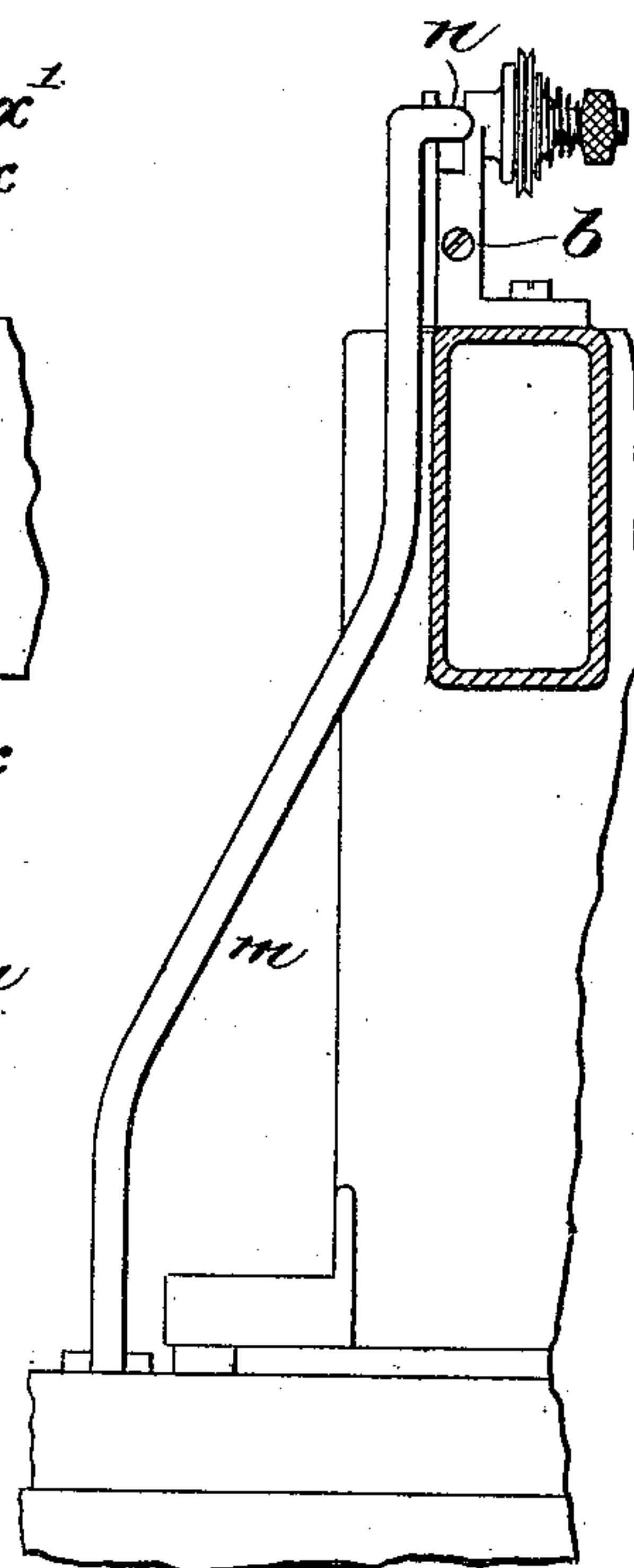
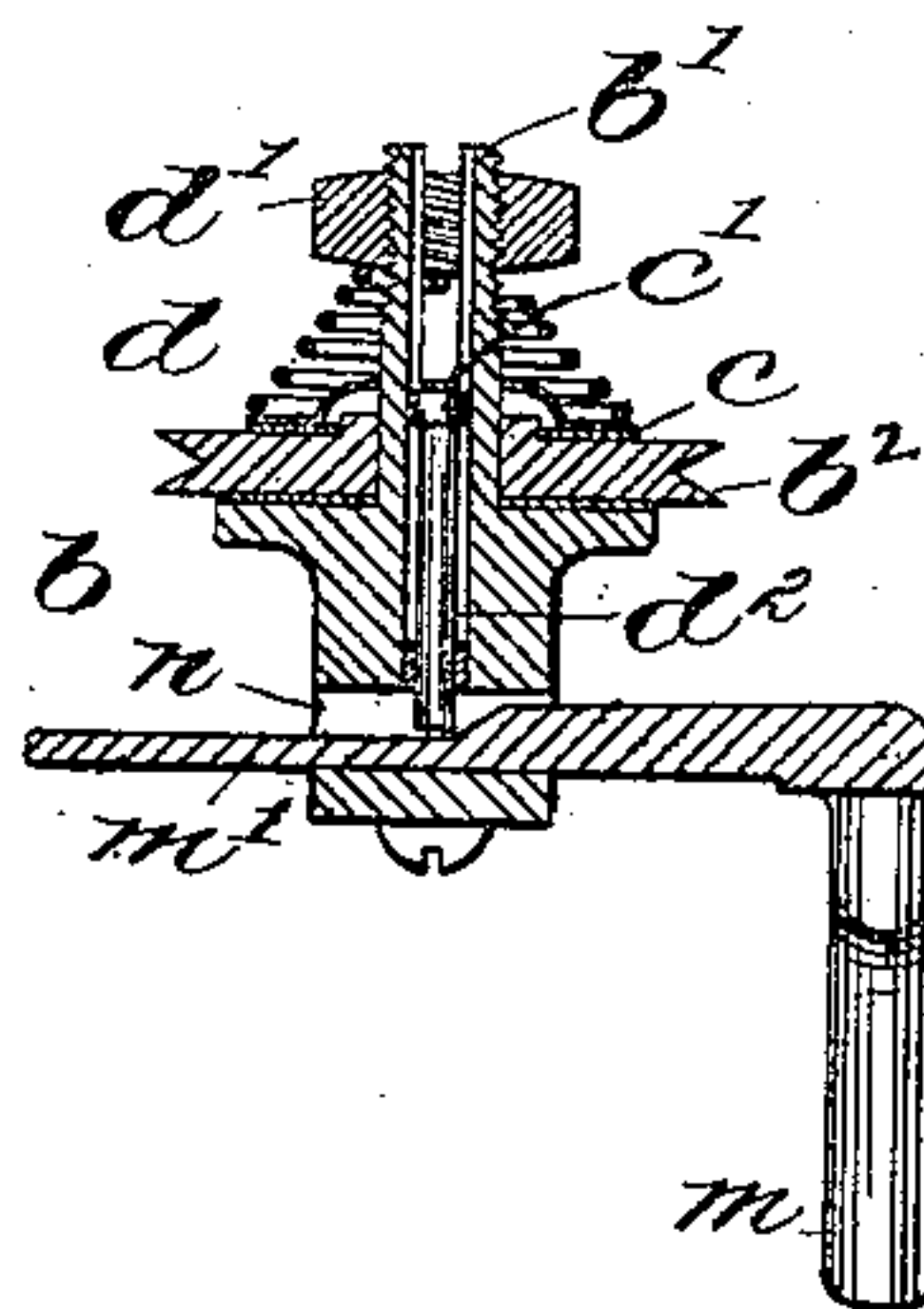


Fig. 3.



Witnesses:
Edward F. Allen.
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Inventor:
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UNITED STATES PATENT OFFICE.

GEORGE S. HILL, OF BRADFORD, MASSACHUSETTS, ASSIGNOR TO THE REECE
BUTTON HOLE MACHINE COMPANY, OF PORTLAND, MAINE.

TENSION-RELEASING DEVICE FOR BUTTON-HOLE SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 457,463, dated August 11, 1891.

Application filed March 10, 1891. Serial No. 384,443. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. HILL, of
Bradford, county of Essex, State of Massa-
chusetts, have invented an Improvement in
5 Button-Hole-Stitching Machines, of which the
following description, in connection with the
accompanying drawings, is a specification,
like letters on the drawings representing like
parts.

10 In button-hole-stitching machines wherein
the work is held in a work-clamp, as provided
for, for instance, in United States Patent
No. 349,359, dated September 21, 1886, it is
customary prior to removing the material
15 from the clamp to seize the needle-thread
between the work and the tension device and
draw off enough needle-thread to easily pass
through the eye of the needle and enable the
work to be taken out of the work-clamp and
20 be moved without straining the needle.

The object of this invention is to obviate
the described hand manipulation of the nee-
dle-thread to form slack thread for the re-
moval of the work. I do this by automatically
25 moving the tension device for the needle-
thread to relieve or release the needle-thread
from tension as soon as the frame carrying
the stitch-forming mechanism reaches the end
of its traverse after having stitched along the
30 second straight side of the button-hole.

Figure 1, in side elevation, shows a sufficient
portion of a sewing-machine such as shown
in United States Patent No. 349,359 with my
improvements added to enable my invention
35 to be understood; Fig. 2, a section to the left
of the line x ; Fig. 3, a section in the line x' .

The movable overhanging frame a and the
stationary bed-plate a' , on which it is made to
slide, are and may be as in the said patent,
40 wherein like letters are used to designate like
parts, and in practice it will be understood
that the said frame a , provided with stitch-
forming mechanism, (not shown,) will be actu-
ated as in said patent and that the plate a'
45 will be provided with a work-clamp, as in the
said patent.

In this my invention I have erected on the
sliding frame a , supposed to be moving in the
direction of the arrow, Fig. 1, a stand b , hav-
50 ing a hollow, split, and screw-threaded stud
 b' . This stud serves as an axis for the thread-
tension wheel b^2 , at each side of which is
preferably a felt washer. Outside the ten-

sion-wheel b^2 is a metal washer c , cut away to
embrace the stud and leave a bar c' to enter 55
the slot in the spindle. The washer c is acted
upon by a spring d , controlled by a nut d' . A
pin d^2 in the hollow stud receives against its
outer end the bar c' , and the spring, acting
60 on the said washer, causes the inner end of
the said pin to project into the space n of the
stand. To relieve the needle-thread from
tension and release the tension-wheel, so that
it may be rotated freely, it is only necessary
to push against the inner end of the pin d^2 , 65
and thus remove the washer c from contact
with the tension-wheel.

This particular form of tension device is
not of my invention; but I have combined
with these parts a releasing device or actu- 70
ator, it consisting, as shown, of a stationary
cam-bar m' , against one side of which the
inner end of the said pin d^2 , in the movement
of the frame a , is made to bear when the ten-
sion is to be released. The bar m' has a shank 75
 m , which is connected rigidly to the bed or
plate a' by screws m^2 , the cam part lying in
the path of movement of the end of said pin,
so that when the pin strikes the cam or
thicker part of the bar m' the tension is re- 80
leased, the tension acting when the pin is
opposite the thinner part of the said bar.
The bar m' is of such length that it will re-
main in the space n of the stand during all
its movement. 85

I claim—

In a sewing-machine for stitching button-
holes, a movable frame carrying stitch-form-
ing mechanism, and a fixed bed-plate, combined
with a tension device carried by said mov- 90
able frame, a spring-controlled releasing-pin
 d^2 , connected with said tension device, and a
stationary rod or bar provided with a cam-
surface in the path of movement of and to
be struck by said pin d^2 when the frame a 95
in its movement arrives in position to have
the work in the work-clamp released, sub-
stantially as described.

In testimony whereof I have signed my
name to this specification in the presence of 100
two subscribing witnesses.

GEORGE S. HILL.

Witnesses:

GEO. W. GREGORY,
EDWARD F. ALLEN.