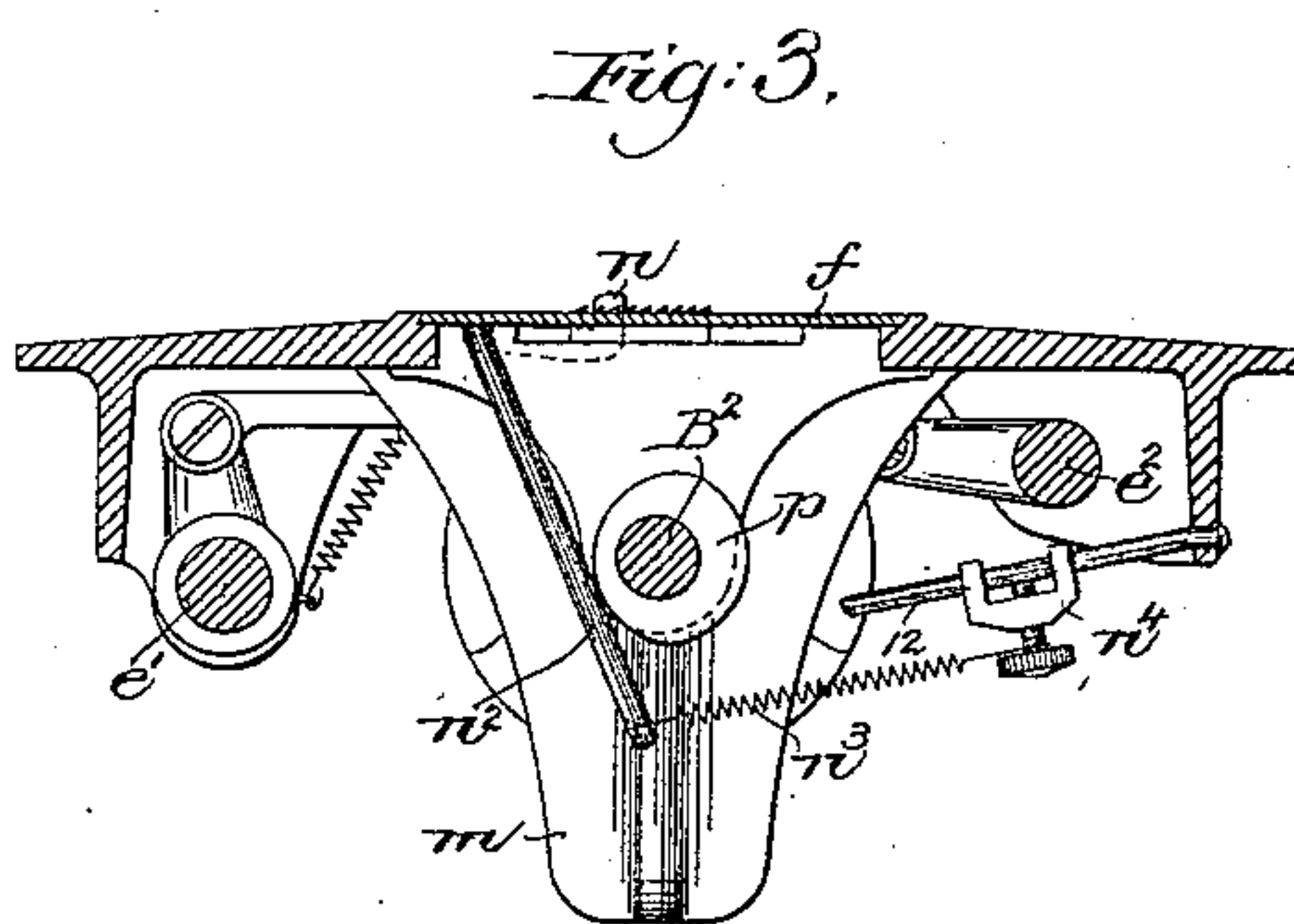
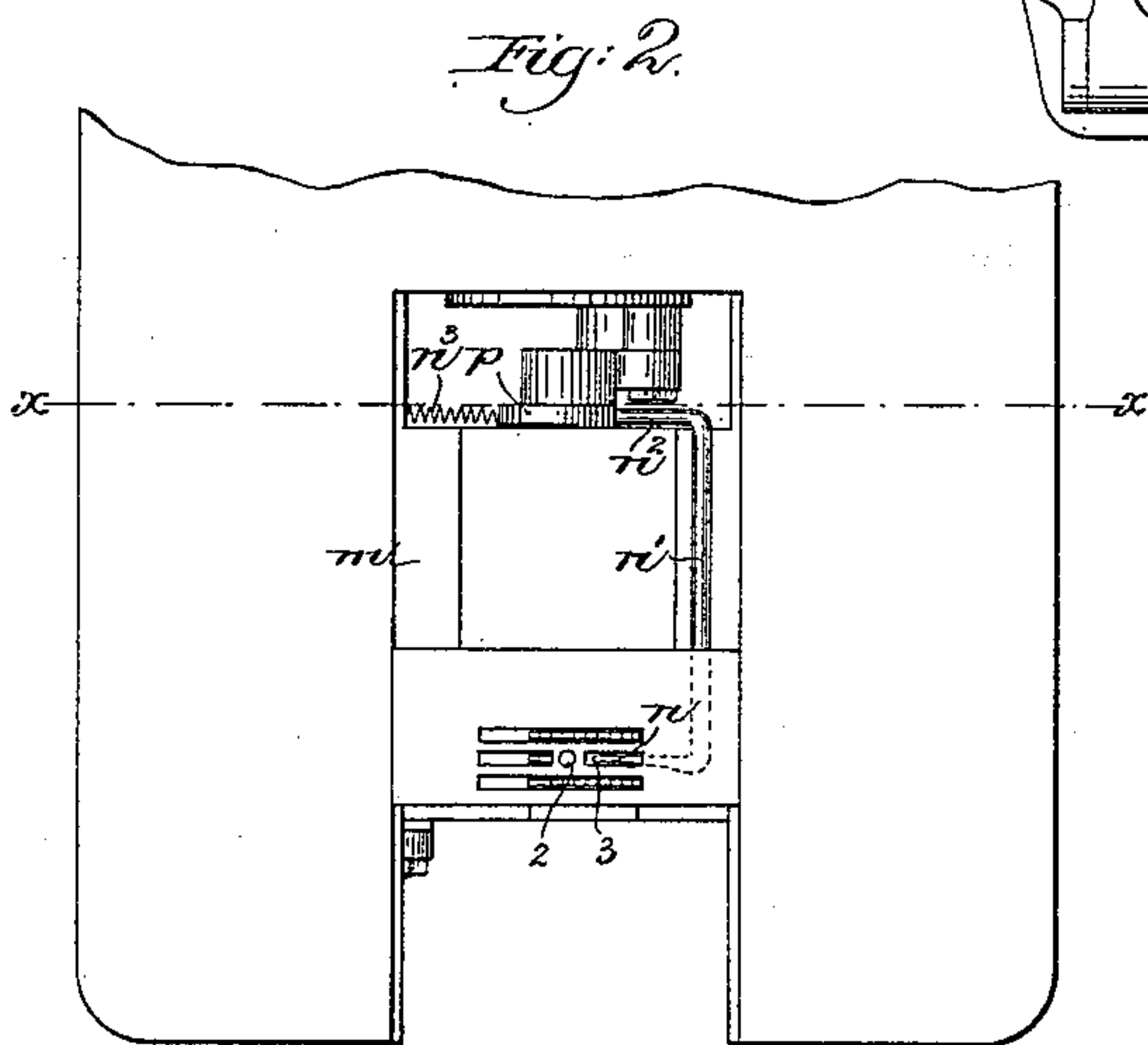
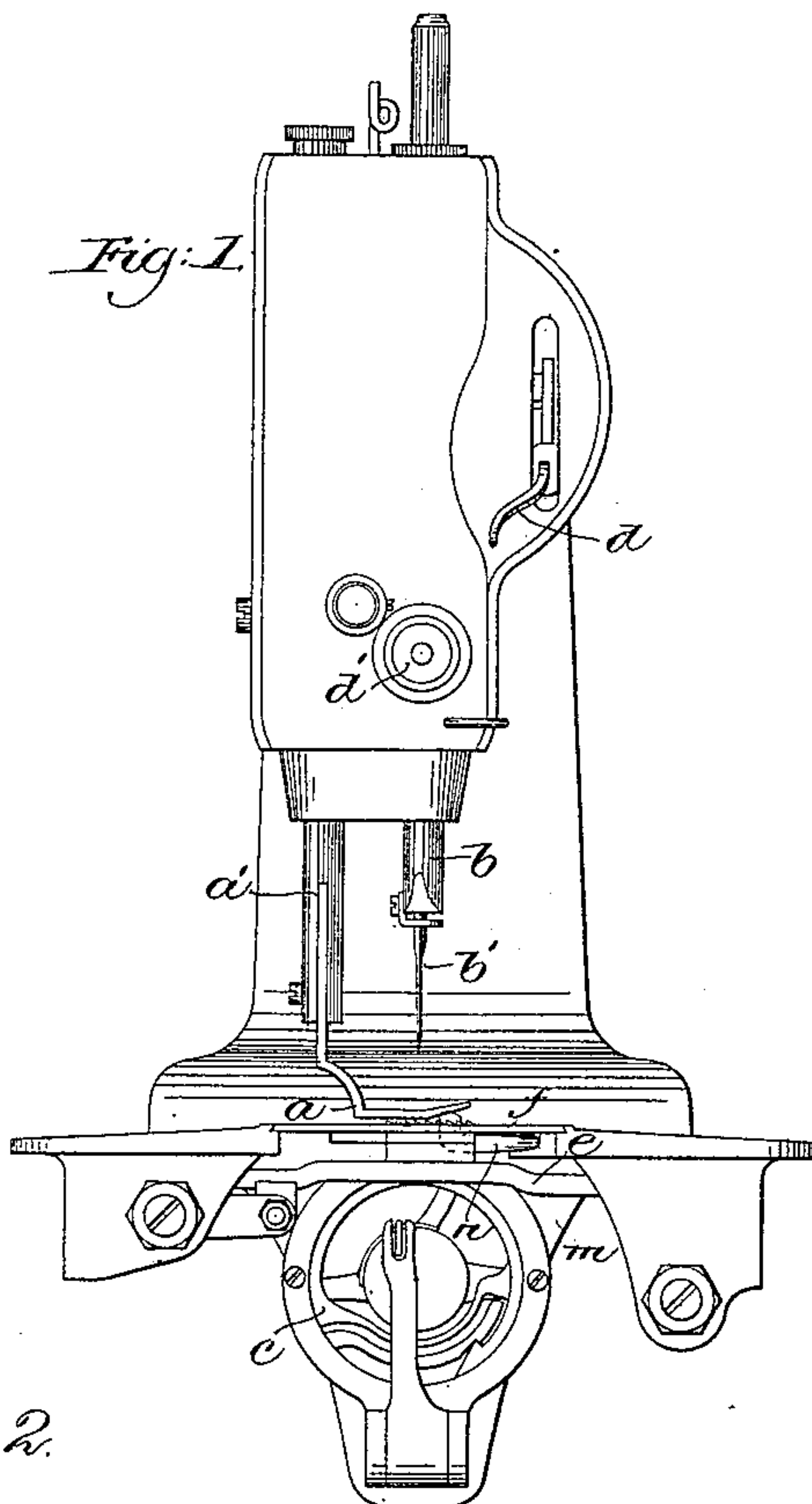


(No Model.)

W. F. DIAL.  
FEEDING MECHANISM FOR SEWING MACHINES.

No. 436,053.

Patented Sept. 9, 1890.



*Witnesses.*

Frederick L. Emory-  
Fred. L. Grunleaf

*Inventor.*

Wilbur F. Dial,  
by Leroy Longo  
Attys.

# UNITED STATES PATENT OFFICE.

WILBUR F. DIAL, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE  
WHEELER & WILSON MANUFACTURING COMPANY, OF SAME PLACE.

## FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 436,053, dated September 9, 1890.

Application filed May 31, 1889. Serial No. 312,758. (No model.)

*To all whom it may concern:*

Be it known that I, WILBUR F. DIAL, of Bridgeport, county of Fairfield, State of Connecticut, have invented an Improvement in Sewing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention is intended as an improvement on that described in application Serial No. 312,770, filed on the 31st day of May, 1889, by myself and F. W. Ostrom, the machine herein to be described being especially devised to intermittently stretch the material to be sewed in the line of the seam and directly in advance of and close to the stitch-making point. This present invention differs, however, from that contained in application Serial No. 312,770, filed by myself and the said Ostrom, in that the retarding device, the subject of this invention, is made movable toward and from the material, it being borne against the material while the usual feeding device acts to move the material for a new stitch, the retarding device being retracted or moved away from the material while the feeding device is being moved backward to re-engage the material or while the feed-points are out of contact with the material. The contact of the retarding device, herein to be described, with the material is governed as to its force by a spring, thus providing for a yielding contact to thereby provide for crossing seams and variations in the thickness of the material being stitched.

Figure 1, in front elevation, represents a sewing-machine of the Wheeler & Wilson type with my improvement added; Fig. 2, a plan view of the forward part of the bed-plate with the covering-slides omitted to show the parts below them. Fig. 3 is a section in the line  $x$ , Fig. 2, looking toward the front of the machine.

Referring to the drawings,  $a$  represents a presser-foot;  $a'$ , a presser-foot bar;  $b$ , a needle-bar;  $b'$ , an eye-pointed needle;  $c$ , a rotating shuttle or under-thread carrier;  $d$ , a take-up;  $d'$ , a tension device;  $e$ , a feed-bar;  $e'$ , a rock-shaft for moving the feed-bar longitudinally;

$e^2$ , a rock-shaft for raising and lowering the feed-bar;  $f$ , a throat-plate having a needle-hole 2 and a feed-slot 3.

The parts so far described are as common to the Wheeler & Wilson sewing-machine; but instead of the particular stitch-forming and feed mechanism referred to I may employ any other usual stitch-forming mechanism.

The throat-plate  $f$  has usual slots, through which rise the points of the usual feed-block, and a needle-hole 2 and a slot 3, through which rises the retarding device, to be described.

Below the throat-plate  $f$  and in suitable bearings in the frame-work, and, as herein shown, in the bracket  $m$ , which serves as the bearing for the usual shaft  $B^2$  for rotating the loop-taker  $c$ , I have mounted a retarding device, herein shown as composed of a finger  $n$  on a rock-shaft  $n'$ , having an arm  $n^2$ , represented as extended down behind the bracket  $m$ , (see Fig. 3,) where it is acted upon by a spring  $n^3$ , attached to an adjusting device shown as a block  $n^4$ , adapted to be adjusted on a rod or other guide or way 12, forming part of the frame-work, the adjustment of the spring varying the force exerted by the finger of the retarding device on the under side of the material lying between it and the presser-foot.

The shaft  $B^2$  is represented as provided with a cam  $p$ , which in its rotation acts on the arm  $n^2$  of the rock-shaft and causes the retirement of the retarding device from contact with the material, as when the feed-bar is on its return stroke below the material.

The spring acts, when the cam permits, to elevate the retarding device through a slot in the throat-plate and against and to act in holding the material between it and the presser-foot or other equivalent opposed holder or holding-surface, while the usual feeding device acts to pull the material between the said retarding device and presser, thus stretching the material intermittently a little at a time directly in the line of the seam and between a stitch previously made and one to be made.

The cam and spring permit the retarding devices to yield to any seam or inequality in



the material, and by adjusting the block the force by which the material is to be held may be varied as desired.

I am aware that it has been proposed to  
5 distend woven goods while being stitched, the devices used for such purpose being two feed-wheels located at one side of the line of stitching; but herein the retarding device holds the knitted material close to the stitch-  
10 making point and directly in the line of stitching and between the needle and the operator.

I do not claim two feeding devices, one moving at a different rate of speed from the other  
15 or one moving farther than the other.

I claim—

1. The combination, with stitch-forming mechanism, feed mechanism, and throat-plate having a slot 3 between the needle-hole and  
20 the operator, and presser-foot or holder, of a retarding device, a spring to normally move the said retarding device in one direction, and a cam to move it intermittingly in an opposite direction, whereby the said retarding device  
25 is thrown up through the slot 3 to contact with the material being stitched, while the feeding mechanism acts to feed the knitted

material to thus stretch the same in the line of the seam and between a previously-made stitch and a stitch to be made, the retarding  
30 device being depressed when the feed-bar is on the return-stroke, substantially as described.

2. The combination, with stitch-forming mechanism, feeding mechanism, throat-plate  
35 having a needle-hole, slots for the feeding-points, and a slot 3, and presser-foot or holder, of a retarding device, a cam and a spring acting thereon to move the said retarding device to compel it to rise and fall in the said slot 3,  
40 and with means to adjust the said spring, the said retarding device holding the material in the line of the stitching and between the needle and operator only when the feeding mechanism is feeding the material, substantially  
45 as described.

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

WILBUR F. DIAL.

Witnesses:

ISAAC HOLDEN,  
LOUIS H. BAKER.