

No. 677,098.

Patented June 25, 1901.

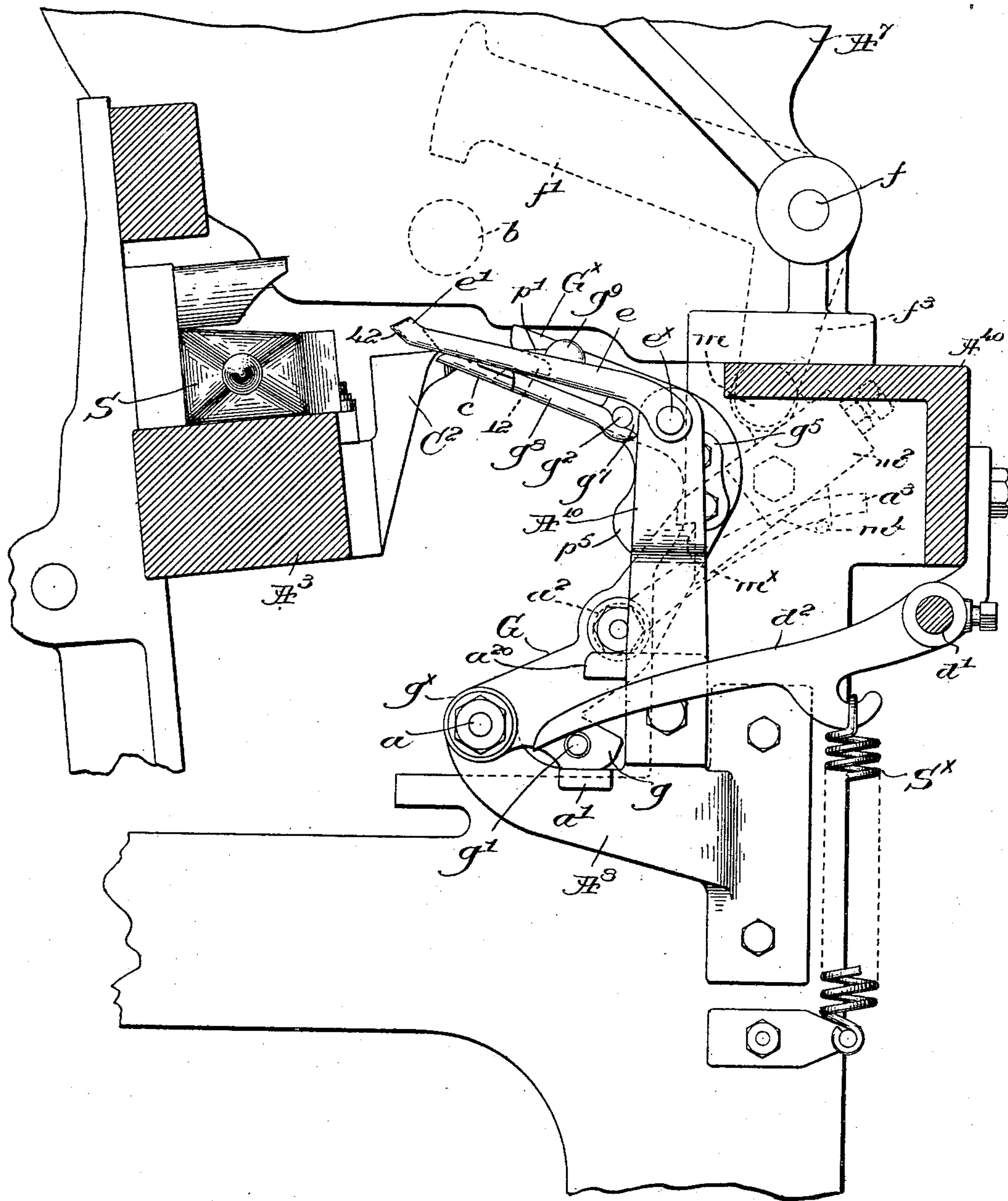
J. H. NORTHROP.
THREAD PARTING MECHANISM FOR LOOMS.

(Application filed Mar. 23, 1901.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



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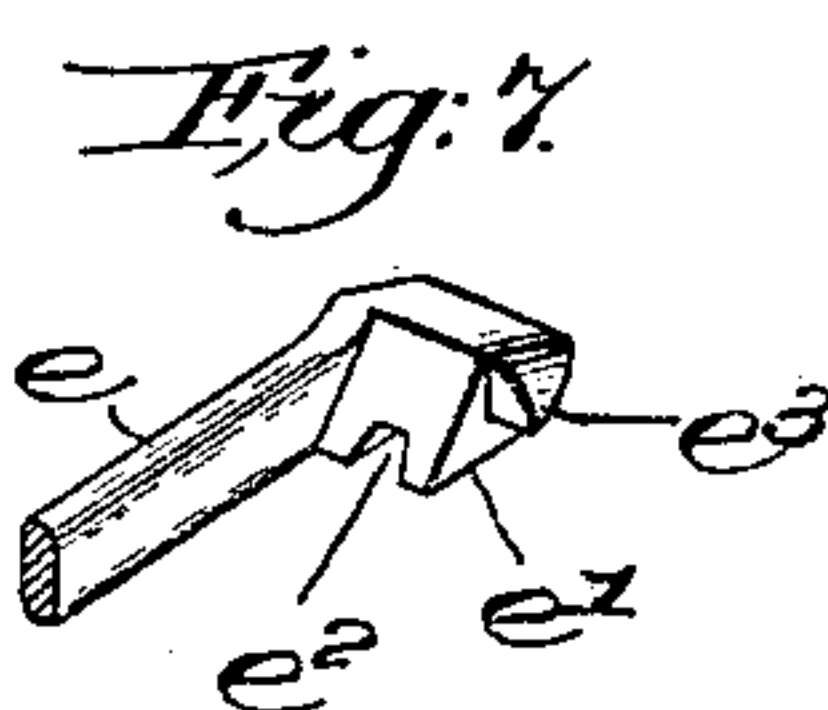
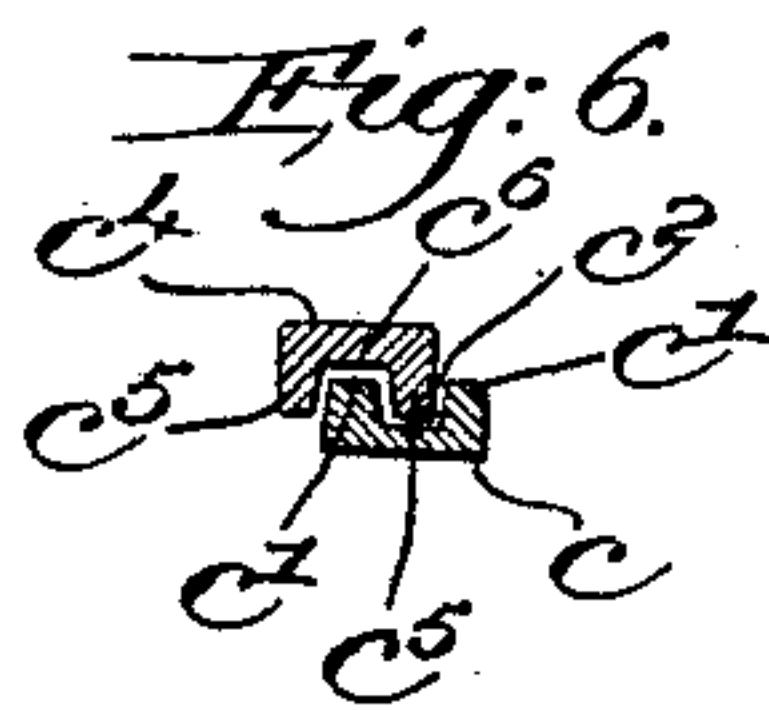
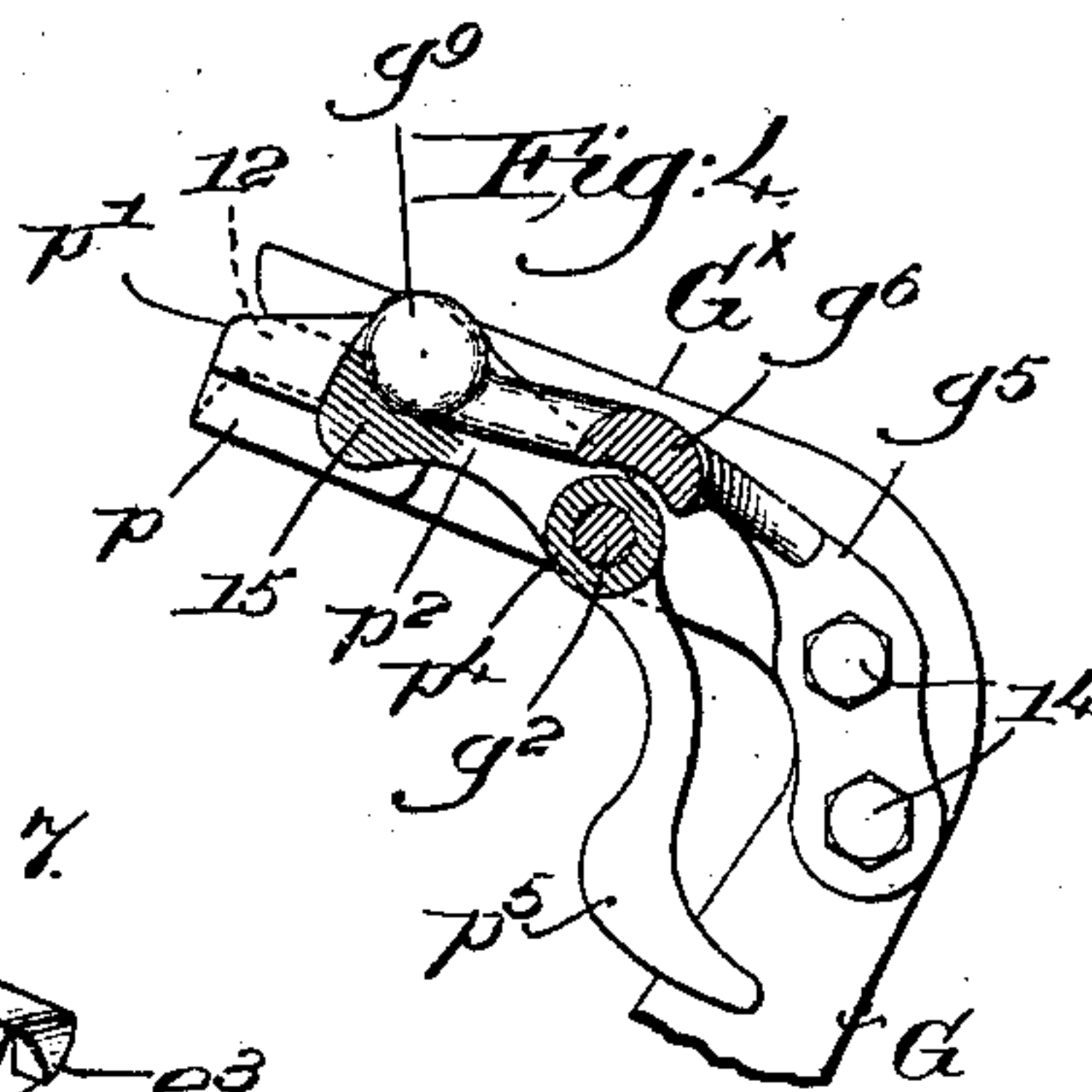
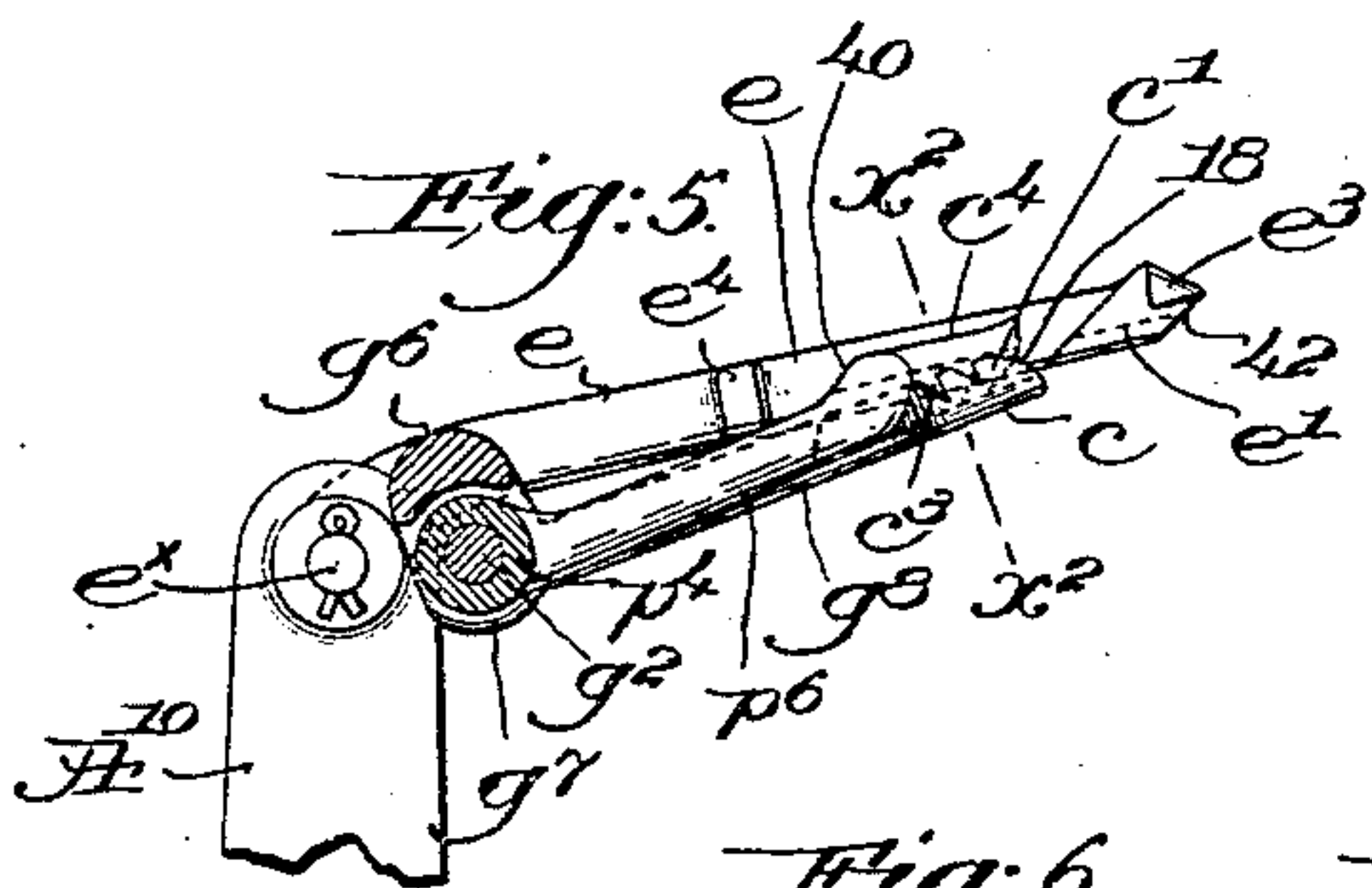
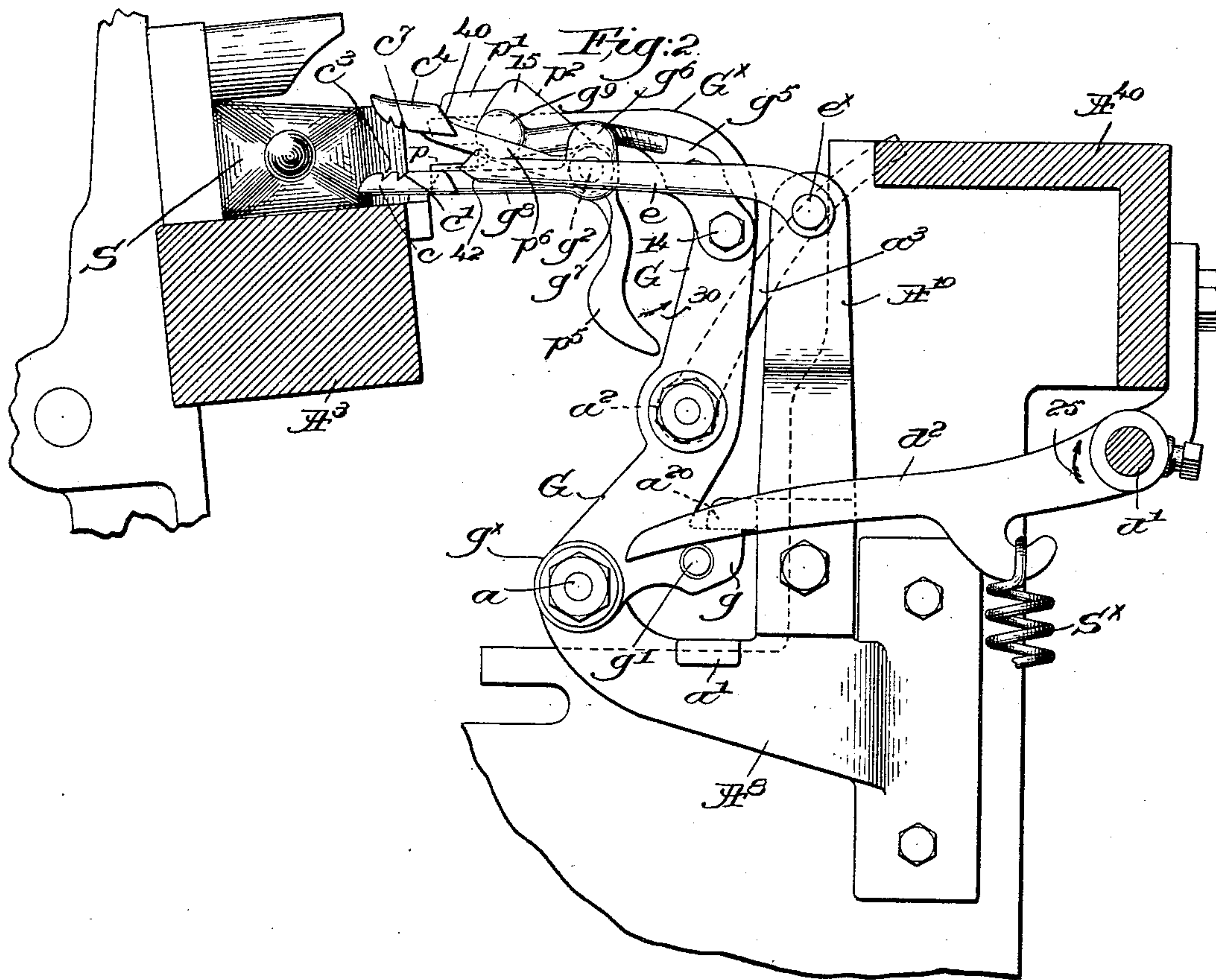
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3 Sheets—Sheet 2.



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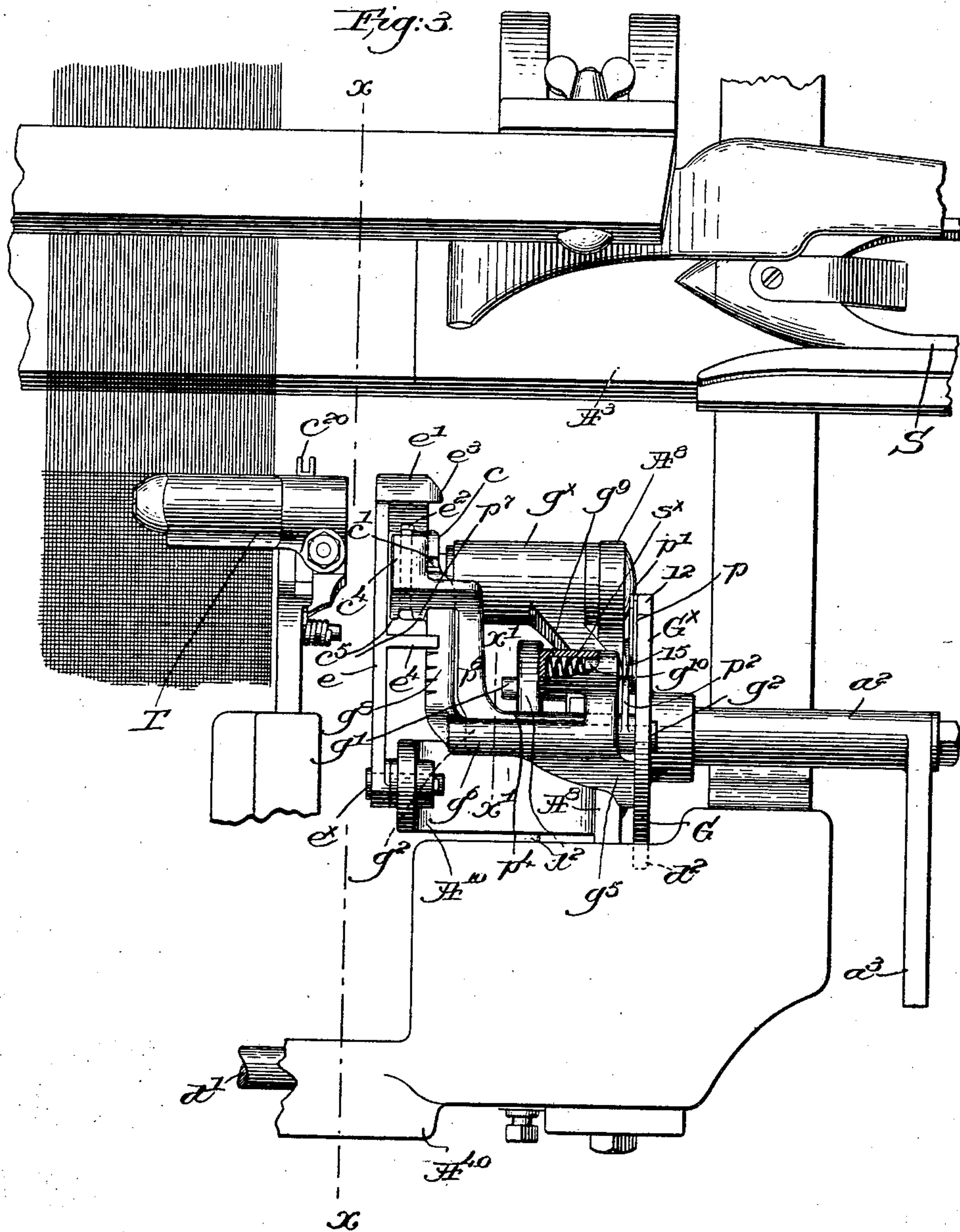
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

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THREAD-PARTING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 677,098, dated June 25, 1901.

Application filed March 23, 1901. Serial No. 52,495. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. NORTHROP, a citizen of the United States, and a resident of Tustin, in the county of Orange and State of California, have invented an Improvement in Thread-Parting Mechanism for Looms, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates more particularly to looms provided with mechanism for automatically replenishing the filling when necessary; and it has for its object the production of novel means for parting the filling end between the edge of the cloth and the shuttle when a change of filling is to be effected.

The novel features of my invention will be hereinafter described, and particularly pointed out in the following claims.

Figure 1 is a transverse sectional view on the line xx , Fig. 3, of a portion of a loom with one embodiment of my invention applied thereto in normal position, the transferrer and some of the controlling means for the filling-replenishing mechanism being shown in dotted lines. Fig. 2 is similar view, but showing the thread parting and clamping means in position to act upon the thread when the lay completes its forward stroke. Fig. 3 is a top or plan view, partly broken out, of the thread parting and clamping mechanism in the position illustrated in Fig. 1. Fig. 4 is a detail of the thread-parter closed, taken on the line $x'x'$, Fig. 3, looking toward the right. Fig. 5 is an inner side view of the thread-clamp looking to the left of the line $x'x'$, Fig. 3. Fig. 6 is a cross-section of the thread-clamp jaws on the line x^2x^2 , Fig. 5; and Fig. 7 is a perspective detail of the head of the device for opening and clearing the thread-clamp.

Referring to Fig. 1, the breast-beam A^{40} has mounted thereupon a stand A^7 for the filling-replenishing mechanism, comprising a rotatable feeder (not shown) for the filling-supplies b and a transferrer f' , mounted on a stud f and having a depending end f^3 , the operation of said mechanism being controlled by a rock-shaft d' , which is partly turned when the filling is broken or exhausted in the shuttle

to a predetermined extent, all as in United States Patent No. 628,288, dated July 4, 1899, and operating as therein described. The end b^3 of the transferrer has mounted thereupon a spring-controlled rocker-stud m , having an attached arm m^2 , provided with a notched dog m^x , the said arm also having the laterally-extended lug m^4 , the dog being moved into the path of the bunter C^2 on the lay A^3 when a change of filling is to be effected, as in said patent.

The loom-frame has mounted upon it a bracket A^8 , on which is fulcrumed at a a hub g^x of the bent arm or support G , the upper end of the said arm being bent rearwardly to form a shuttle-feeler G^x , the extremity of the feeler being notched or recessed at 12 (see dotted lines, Fig. 4) to permit the entrance of the filling-thread when the thread-parter and thread-clamp are in operative position. The arm is provided near its fulcrum with a toe g , which normally rests against a lug a' of the bracket A^8 , the arm or support G being maintained in such position by a finger d^2 , fast on the rock-shaft d' , extended over a lug g' on the swinging support, the finger being held in engagement with the lug by means of a strong spring S^x , as in the patent referred to. The tubular head a^2 of an arm a^3 is rigidly secured to the rocking support G in such manner that the arm will be in a substantially parallel plane thereto, it being extended upward and forward to extend over the lug m^4 on the arm m^2 , the support G and the parts carried thereby being normally held in the position shown in Fig. 1, and the arm m^2 and dog m^x will be maintained in inoperative position by or through the engagement of the arm a^3 with the lug m^4 , all substantially as in the patent hereinbefore referred to. Upon the swinging support G , I have mounted a thread-parter and a thread-clamp arranged side by side, although separated sufficiently to bring said device into proper position to operate upon the filling-thread between the edge of the cloth and the self-threading shuttle S .

The thread-parter comprises a blade p , rigidly secured to the inner face of the feeler G^x at the lower edge of the recess 12, and a co-operating movable blade p' , herein shown as

secured to a blade-carrier p^2 , having a lateral hub p^4 , mounted to rock on a stud g^2 , rigidly secured to the shuttle-feeler and extended laterally therefrom. A bracket g^5 , secured in
 5 suitable manner to the feeler, as by bolts 14, is provided with a lateral arm g^6 , which is extended above the hub p^4 , and at its outer end the arm g^6 is bent down to form a bearing g^7 for the adjacent end of the stud g^2 , and it is
 10 then bent toward the back of the loom, as at g^8 , and supports the fixed member or jaw of the thread-clamp. The movable jaw or member of the thread-clamp is rigidly secured to or forms a part of the elongated hub p^4 , so it
 15 will be manifest that the rocking movement of the movable members of the thread-parter and thread-clamp will be effected simultaneously, inasmuch as the said hub forms a connection therebetween. The hub is provided
 20 with a rigid depending dog p^5 for a purpose to be described, and the bracket g^5 also carries a tubular housing g^9 , (see Fig. 3,) wherein the housing is partly broken out, the housing receiving a spring s^x and a sliding bolt
 25 or friction-shoe g^{10} , the rounded end of which projects beyond the open end of the housing and bears against the side of the adjacent part of the blade-carrier p^2 , and preferably such part of the blade-carrier will be convexed
 30 from its upper to its lower edge, as at 15, so that the spring-pressed detent g^{10} will act as a friction-detent to hold the movable blade p' of the thread-parter in open or closed position until positively moved therefrom, the
 35 rocking movement of the blade-carrier to open or close the parter presenting one or the other of the low portions of the cam-face 15 to the action of the detent. The part g^8 of the bracket g^5 , which carries the fixed jaw member of the clamp, is at its extremity longitudinally grooved to leave two parallel ribs or
 40 ridges c' , separated by a groove c^2 , in the widened outer end or jaw proper, c , and also (see Fig. 2) it is provided with transverse and forwardly-inclined notches c^3 for a purpose to be described. The end of the hub p^4 adjacent the extension g^8 is provided with an arm
 45 p^6 , extended rearwardly and in parallelism with said extension, the said arm at its end being laterally extended and offset, as at p^7 , to form the movable member or jaw c^4 of the thread-clamp, and, referring to Fig. 6, such jaw in cross-section is practically the reverse of the lower jaw, as it has on its under face
 50 two longitudinal ribs c^5 , separated by a groove c^6 , one of the ribs of the lower jaw entering the groove of the upper jaw, and vice versa, so that a filling-thread caught between the jaws will be pressed into a sinuous path, and
 60 thereby properly held by the closing of the clamp.

In Fig. 5 the clamp is shown as closed, and in Fig. 4 the closed position of the thread-parter is clearly illustrated. The ribs c^5 may
 65 also be provided with transverse and inclined notches, as c^7 , (see Fig. 2,) the purpose of the

notches being to provide additional means of preventing accidental withdrawal of the thread from the clamp. The extremities of the jaws c c^4 are rounded or slightly beveled,
 70 as shown in Fig. 5, to present a flaring entrance 18 when the jaws are closed.

I have provided a novel device for positively opening the thread-clamp and the parter as they are bodily moved into position
 75 to act upon the thread, said opening device also acting as a clearer for the clamp, as will be described. A bent standard A^{10} is secured to the loom-frame above and adjacent the bracket a^8 , (see Figs. 1, 2 and 3,) the stand
 80 having pivoted on its upper end at e^x an arm e , which is extended rearwardly, and at its free end, which is normally beyond the clamping-jaws, the said arm is provided with a wedge-like laterally-offset head e' , having in
 85 its under face a longitudinal groove e^2 , said head being located in front of the clamping-jaws. An offset ear e^3 is mounted on the side of the wedge-like head e' , the said head being normally held in the position shown in Figs.
 90 3 and 5 by means of a lateral stop e^4 on the arm e , which rests upon the fixed member or part g^8 of the clamp. The relative positions of the various parts are also shown in Fig. 1 when in normal position. Supposing now
 95 that a change of filling is to be effected and that the shaft d' is rocked in the direction of the arrow 25, the raising of the finger d^2 will permit the spring-controlled stud m to turn the dog m^x into operative position, and at
 100 the same time the lug m^4 , acting on the arm a^3 , will swing the support G rearwardly to bring the shuttle-feeler in position (see Fig. 2) to feel for the shuttle as the lay beats up. While the arm G is moving from its normal
 105 position, Fig. 1, to the position shown in Fig. 2, however, the wedge-like head e' of the opening device will have entered between the ends of the clamping-jaws c c^4 and will separate or open them as the clamp is bodily
 110 moved forward, the groove e^2 in the bottom of the head e' receiving the outer rib of the lower jaw, and by the time the clamping-jaws have been moved beyond the head of the opening device the said jaws will have been fully
 115 opened, as shown in Fig. 2, and at the same time the parting-blades p p' will have been opened by or through the connection between the movable members of the clamp and the parter. As the lay beats up the fill-
 120 ing-thread between the side of the cloth and the shuttle passes between the blades and the clamping-jaws, and as the lay completes its forward movement it will strike the dog p^5 and will move it in the direction of the ar-
 125 row 30, Fig. 2, to simultaneously close the blades and the clamp, severing the filling-thread adjacent the shuttle and at the same time clamping it. The change of filling having been effected, the support G returns to
 130 its normal position, and as it does so the thread held by the clamp will be drawn into

the field of action of a cutter c^{20} of a thread-cutting temple T, (shown only in Fig. 3, and it may be substantially as shown in United States Patent No. 585,465,) the thread being
5 severed by the temple-cutter at the next forward beat of the lay.

The clamping-jaws do not bear upon the thread so tightly that it cannot draw through as much as may be necessary as the clamp
10 returns to normal position, and upon such return the head e' of the opening device will ride up over a cam-face 40 at the end of the jaw c^4 and will drop off the extremity of said jaw into the position shown in Fig. 5
15 when the parts have assumed normal position, the under side of the head preferably being beveled slightly, as at 42, to assist the head in riding up over the jaw. When the clamp has been moved into the position
20 shown in Fig. 2, the stop e^1 can no longer bear upon the extension g^8 , and at such time the offset ear e^3 rests upon said extension and prevents the opening device from dropping down, and as the clamp returns to normal
25 position the ear will slide on the extension g^8 until the head rides over the upper clamp-jaw, as described.

From the foregoing description it will be manifest that a piece of filling-thread is cut
30 out from the ejected filling between the edge of the cloth and the shuttle, and this piece of filling will hang in the clamp until the next operation of the apparatus, and as the head of the opening device then passes between
35 and opens the jaws of the clamp it will also clear this piece of filling from the clamp, so that it will fall to the floor out of the way. There is thus no opportunity for the severed piece of filling to be woven in at the selvage
40 of the cloth nor to bunch up in any part of the mechanism.

When the support G is moved to bring the thread-parter and thread-clamp into position to act upon the filling-thread, the toe g brings
45 up against a fixed stop a^{20} , (see Fig. 2,) and the movement of the shuttle-feeler and the parter and clamp toward the lay is stopped positively.

My invention may be varied or rearranged
50 in different ways, which will readily present themselves to those skilled in the art, without departing from the spirit and scope of my invention, as I have herein shown only one practical embodiment thereof.

55 Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a loom provided with filling-replenish-
60 ing mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a thread-parter and a thread-clamp, bodily movable by or through the operation of the controlling means into position to act upon the thread of the filling-supply to be ejected,
65 means to close the parter and clamp simultaneously upon a change of filling, and means

to open the clamp, as it is moved into position to act upon the thread and to also clear therefrom a previously-parted filling end.

2. In a loom provided with filling-replenish- 70
ing mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a thread-parter and a thread-clamp, bodily movable by or through the operation of the controlling means into position to act upon 75
the thread of the filling-supply to be ejected, means to actuate the clamp and parter upon a change of filling to clamp and part the filling end, and means to pass between and open the members of the clamp as it is moved into po- 80
sition to act upon the thread and to also clear therefrom a previously-parted filling end.

3. In a loom provided with filling-replenish-
ing mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a 85
thread-parter and a thread-clamp, each having a pivotally-mounted member, a connection between said members, means operating through said connection upon a change of fill- 90
ing to positively close the clamp and parter in unison, and a device to pass longitudinally between the cooperating members of the clamp as it is moved into position to act upon the thread, said device acting to open the
95 clamp, and thereby the parter, and to clear the clamp of any filling held thereby, as the clamp and parter are moved into operative position.

4. In a loom provided with filling-replenish-
ing mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a 100
thread-parter and a thread-clamp, a support upon which they are mounted side by side and laterally separated, said support being bodily movable by or through the movement 105
of the controlling means to place the parter in position to act upon the thread of the filling-supply to be ejected, the clamp and parter each including a movable member, a connection between said members to move 110
them in unison, means to pass between and open the members of the clamp as the latter and the parter are moved into position to act upon the thread, said means as it passes be- 115
tween the members of the clamp clearing the same of any filling end carried thereby, and means to positively close the movable members of the clamp and parter upon the filling-thread.

5. In a loom provided with filling-replenish- 120
ing mechanism, controlling means therefor, a thread-cutting temple located at the same side of the loom, a shuttle adapted to carry a supply of filling, a thread-clamp, and a thread-parter, a support therefor, actuated by or through 125
the operation of the controlling means to bodily move the clamp and parter into position to act upon the thread of the filling-supply to be ejected, means to positively and simul-
130 taneously close the clamp and parter when they are in operative position, the return of the clamp into normal position bringing the

filling end thereby into position to be severed by the temple cutter, and means to open the parter and clamp and to clear the latter of the filling end held thereby prior to the next
5 change of filling.

6. In a loom provided with filling-replenishing mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a thread-clamp and a thread-parter, a pivotal
10 support upon which both are mounted, and which is governed as to its position by the said controlling means and movable into operative position upon a change of filling, the thread-clamp comprising fixed and movable
15 jaws, one of which has a longitudinal rib and a groove located opposite a groove and a rib of the other jaw, a clamp-opener adapted to enter between the jaws as the clamp is moved into position to act upon the thread, and the
20 said opener having upon its under face a groove and rib to cooperate respectively with the rib and groove on the lower jaw to clear the latter of a previously clamped and severed filling end, a thread-parter, the movable mem-
25 ber of which is opened by or through the opening of the clamp, and means to close the parter to sever the thread and also to close the clamp upon the thread when said parter and clamp are in operative position.

30 7. In a loom provided with filling-replenishing mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a thread-parter, and a thread-clamp, bodily movable by or through the operation of the
35 controlling means into position to act upon the thread of the filling-supply to be ejected, the clamp and parter each including a pivotally-mounted member, a connection between said members to effect their movement
40 in unison, the cooperating members of the clamp having transverse holding-teeth, a wedge-like opening device adapted to enter between and open the members of the clamp and thereby the parter as the clamp and
45 parter are moved into position to act upon the thread, an arm upon which the opening

device is mounted, said arm having a fixed fulcrum and a cam-face on the outer end of the movable member of the clamp to engage the opening device and lift the same to per- 50
mit the passage thereunder of the clamp on the return of the latter to normal position.

8. In a loom provided with filling-replenishing mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a
55 swinging support, a thread-parter, and a thread-clamp mounted thereupon, and bodily movable by the operation of the controlling means into position to act upon the thread of the filling-supply to be ejected, means to close 60
the clamp and parter when in position to operate, a pivotally-mounted clamp-opener to pass between and open the members of the clamp as the latter is moved into position to act upon the thread, and means to reset the 65
clamp-opener by or through the return of the clamp to normal position.

9. In a loom provided with filling-replenishing mechanism, controlling means therefor, a cutter to cut the thread adjacent the edge of 70
the cloth at the same side of the loom, a shuttle adapted to carry the supply of filling, a thread-parter and a thread-clamp bodily movable by the operation of the controlling means into position to act upon the thread between 75
the edge of the cloth and the shuttle, means to close the clamp and parter simultaneously upon change of filling, and a device to open the parter and the clamp as they are moved into operative position, said device also act- 80
ing to clear the clamp of filling-thread, the return of the clamp to inoperative position bringing the filling end clamped thereby into position to be cut adjacent the edge of the 85
cloth.

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

JAMES H. NORTHROP.

Witnesses:

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J. G. QUICK.