

(No Model.)

2 Sheets—Sheet 1.

I. E. PALMER.

FRINGE MAKING ATTACHMENT FOR HAMMOCK LOOMS.

No. 605,971.

Patented June 21, 1898.

Fig. 2.

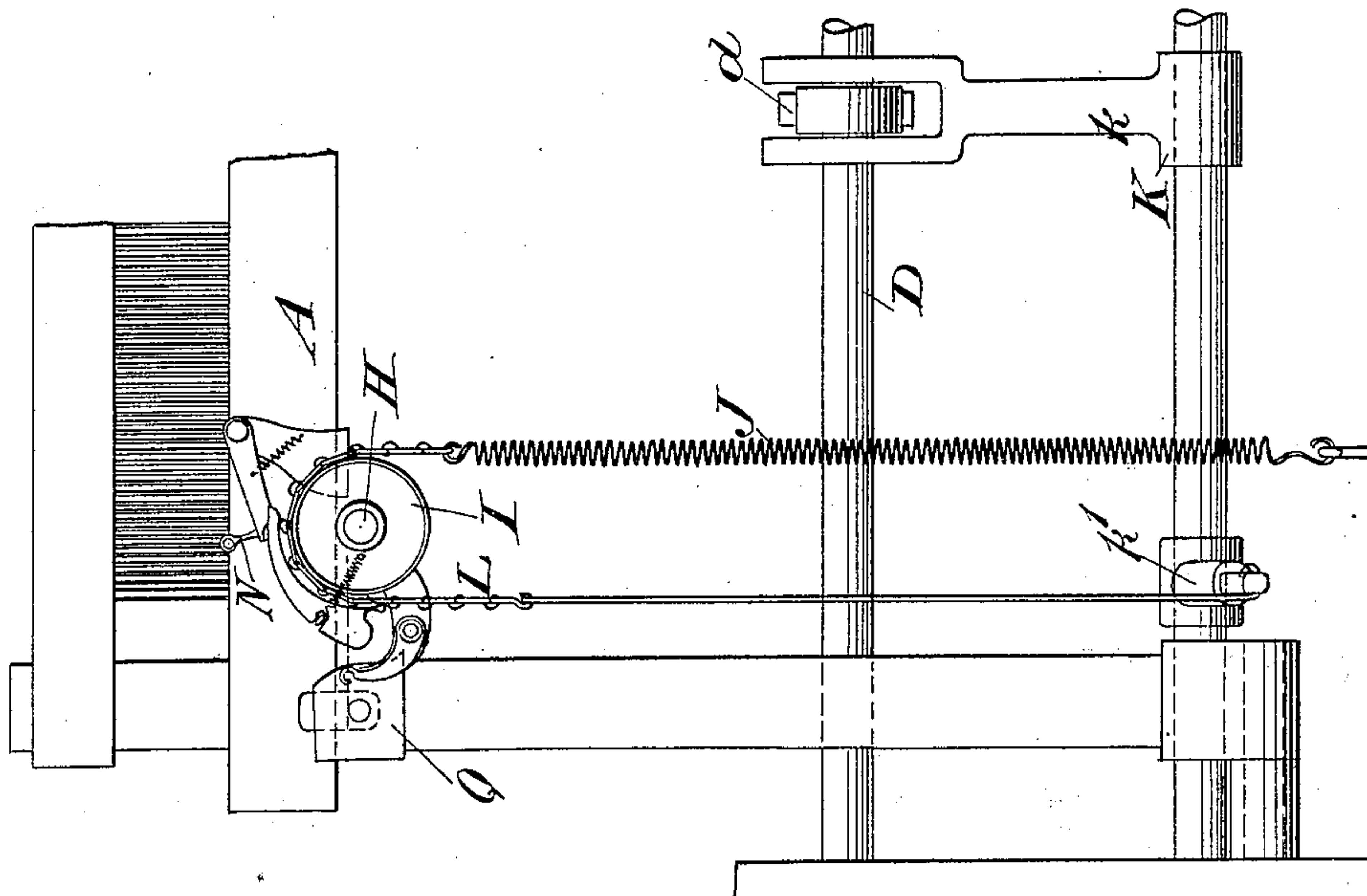
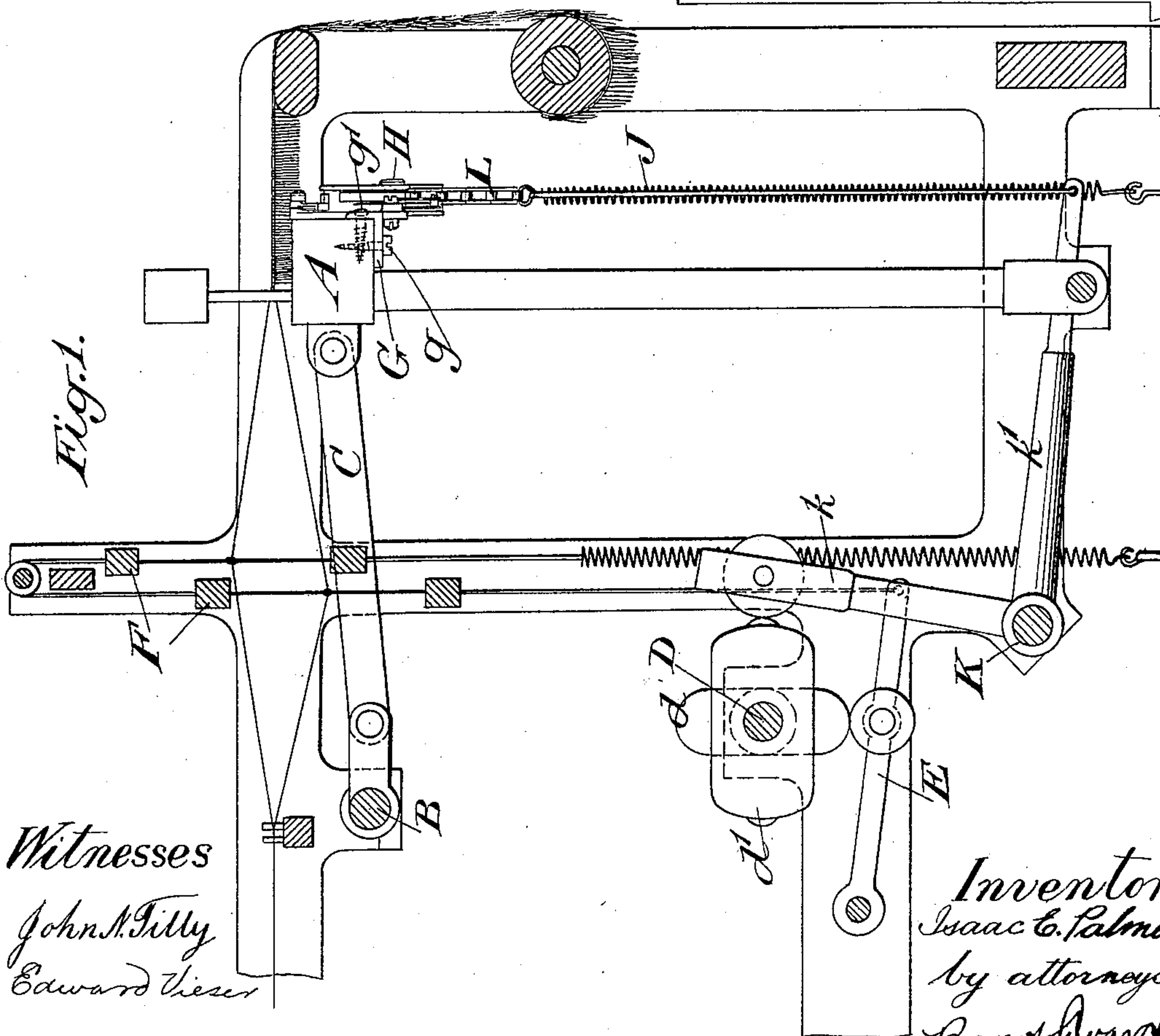


Fig. 1.



Witnesses

John A. Tilly
Edward Tieser

Inventor:
Isaac C. Palmer
by attorneys
Brown & Howard

(No Model.)

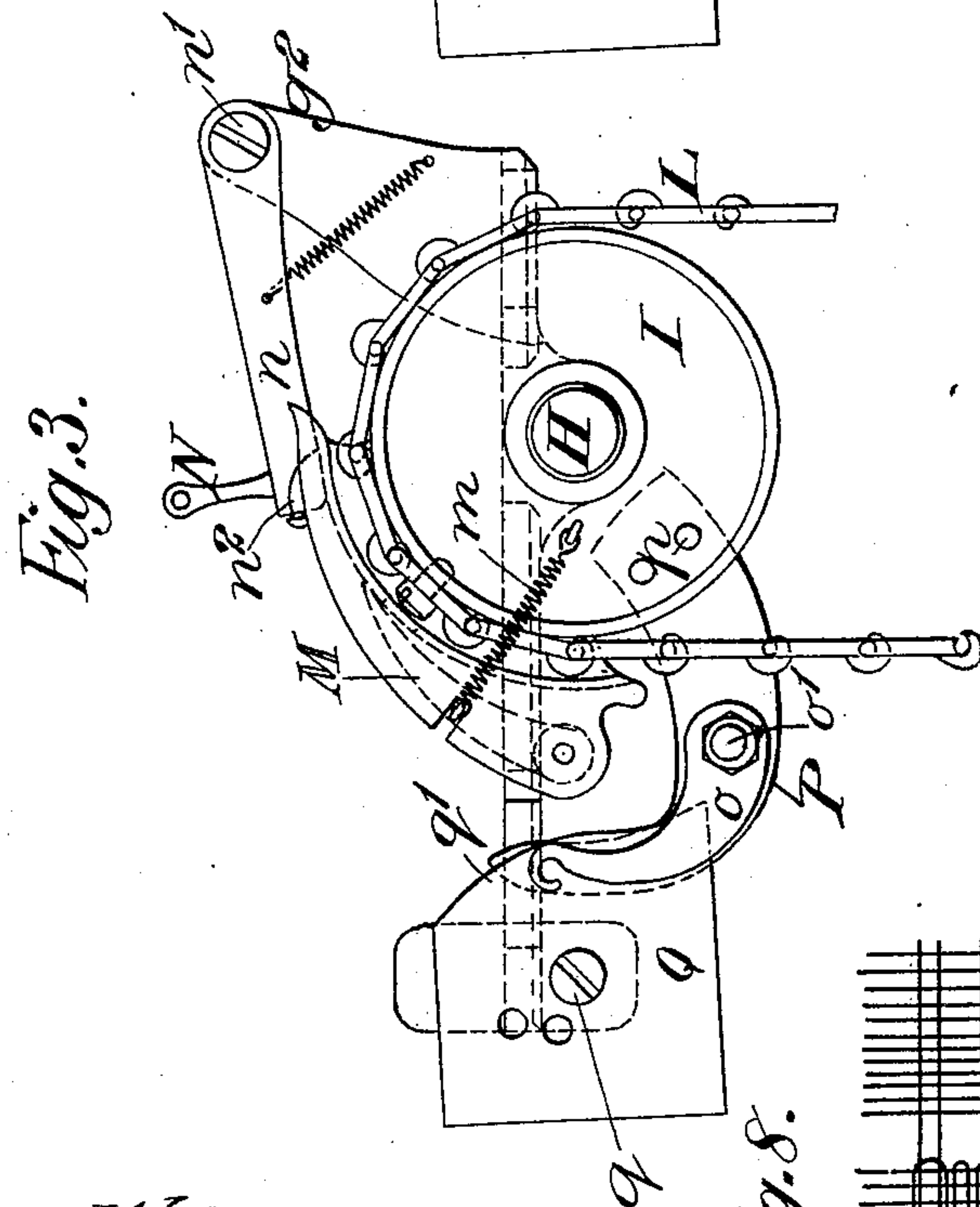
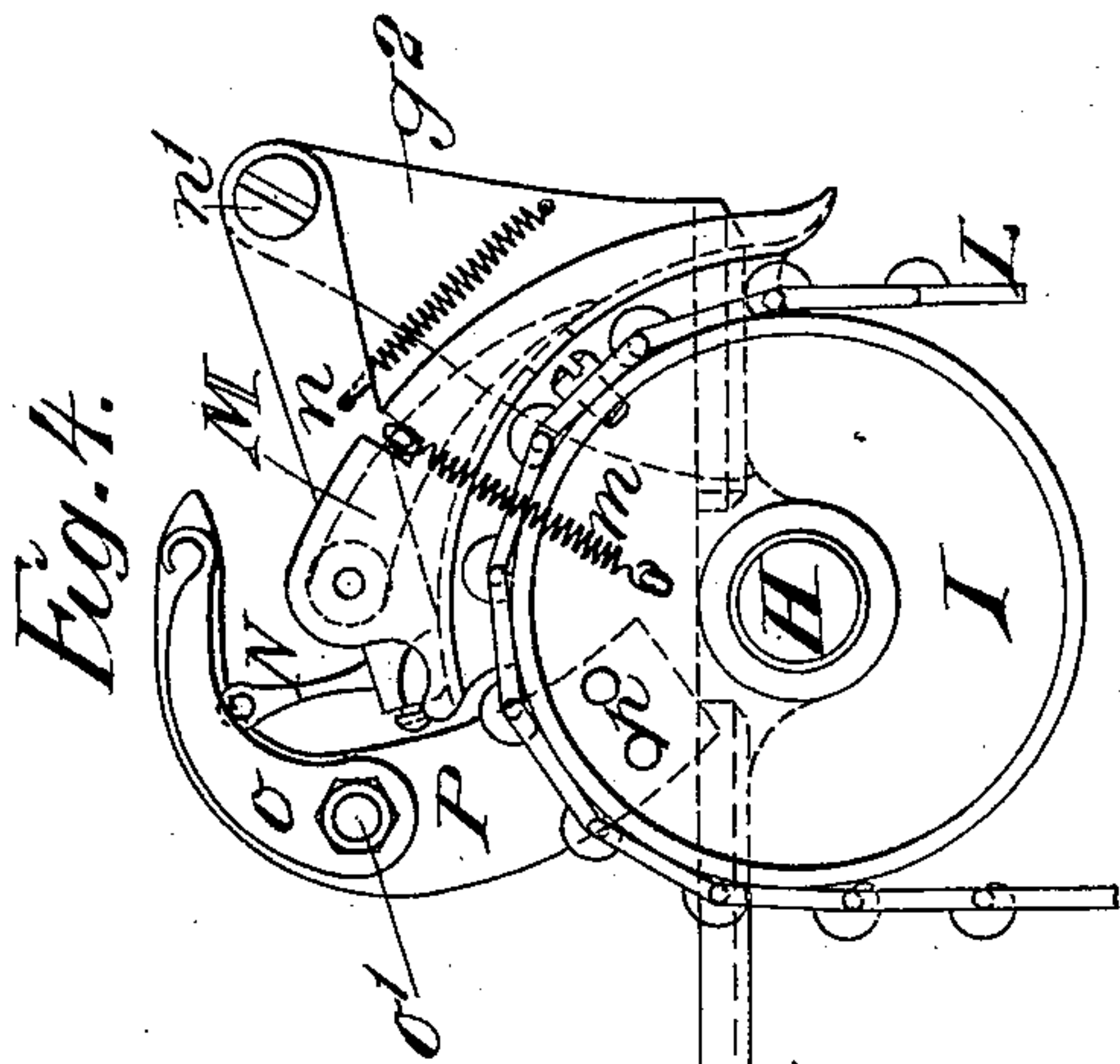
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Fig. 8.

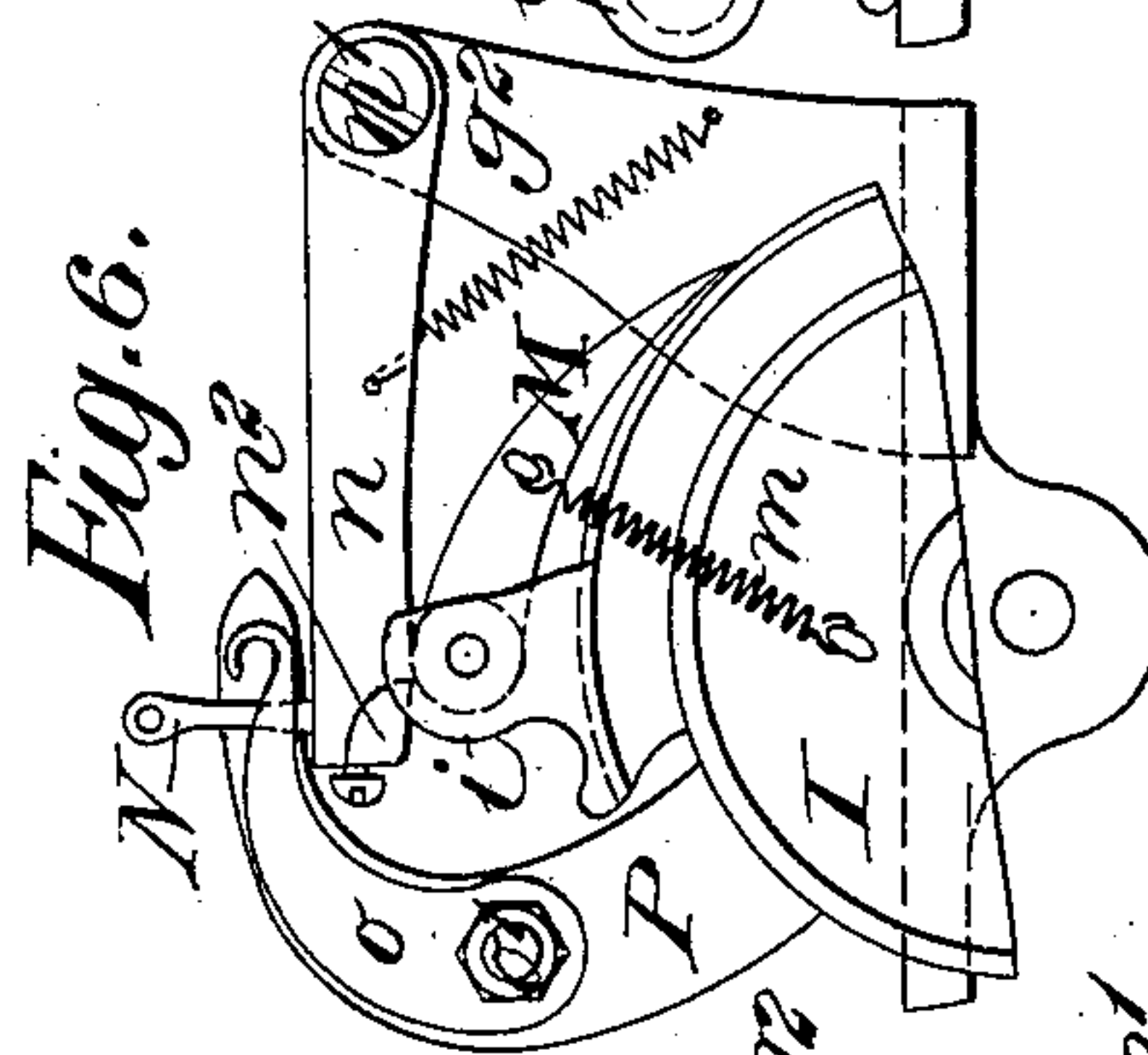
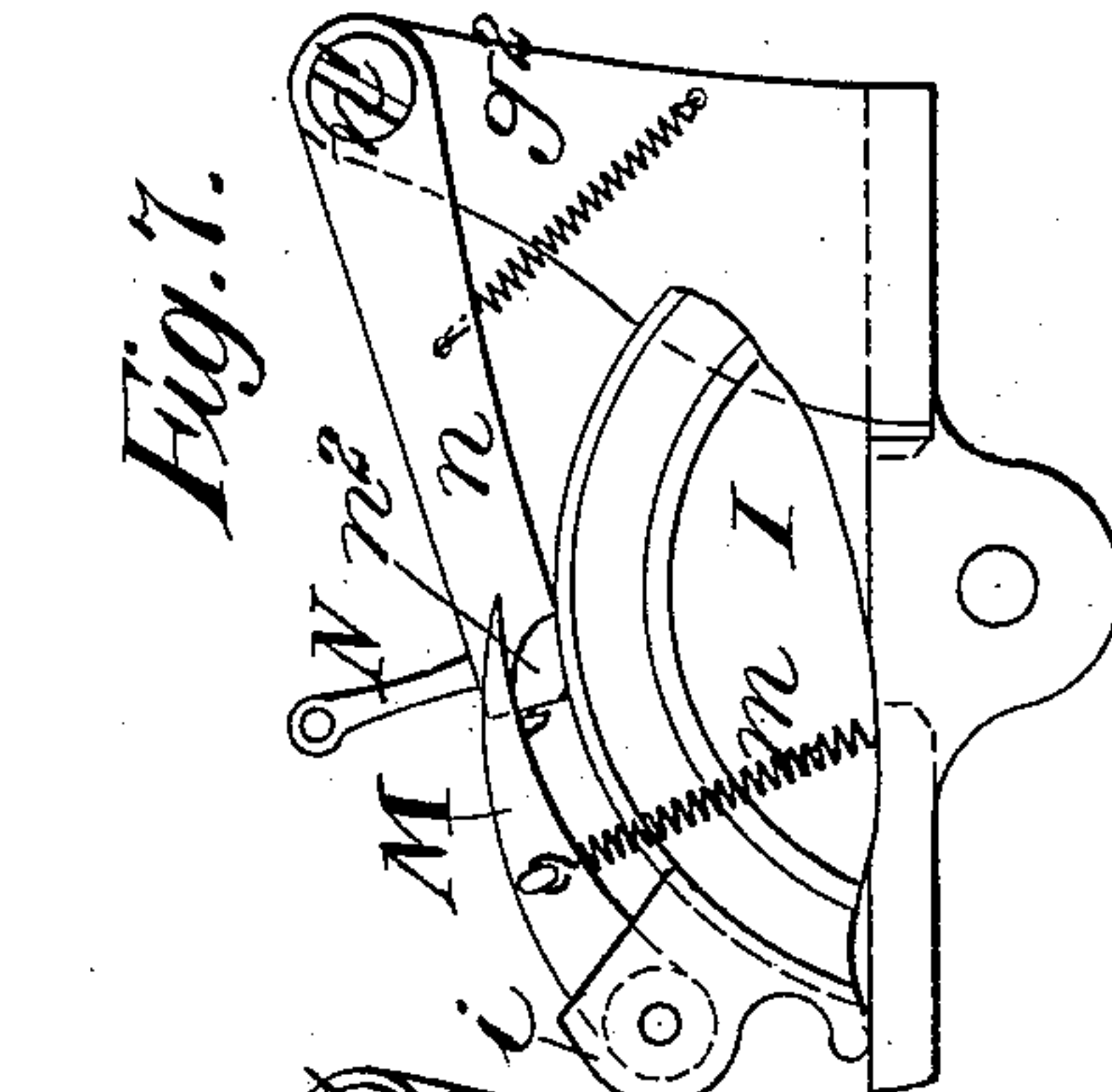
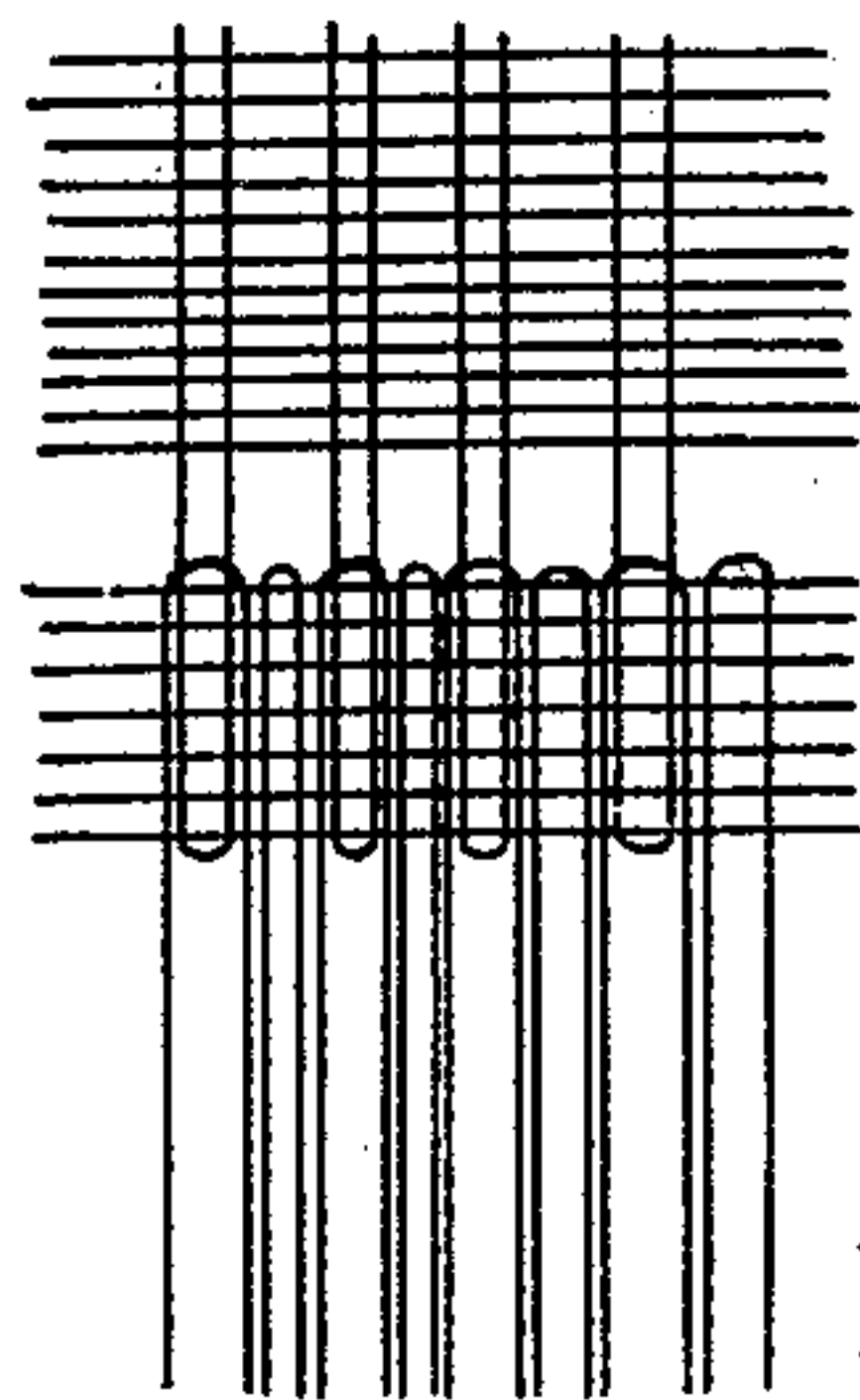
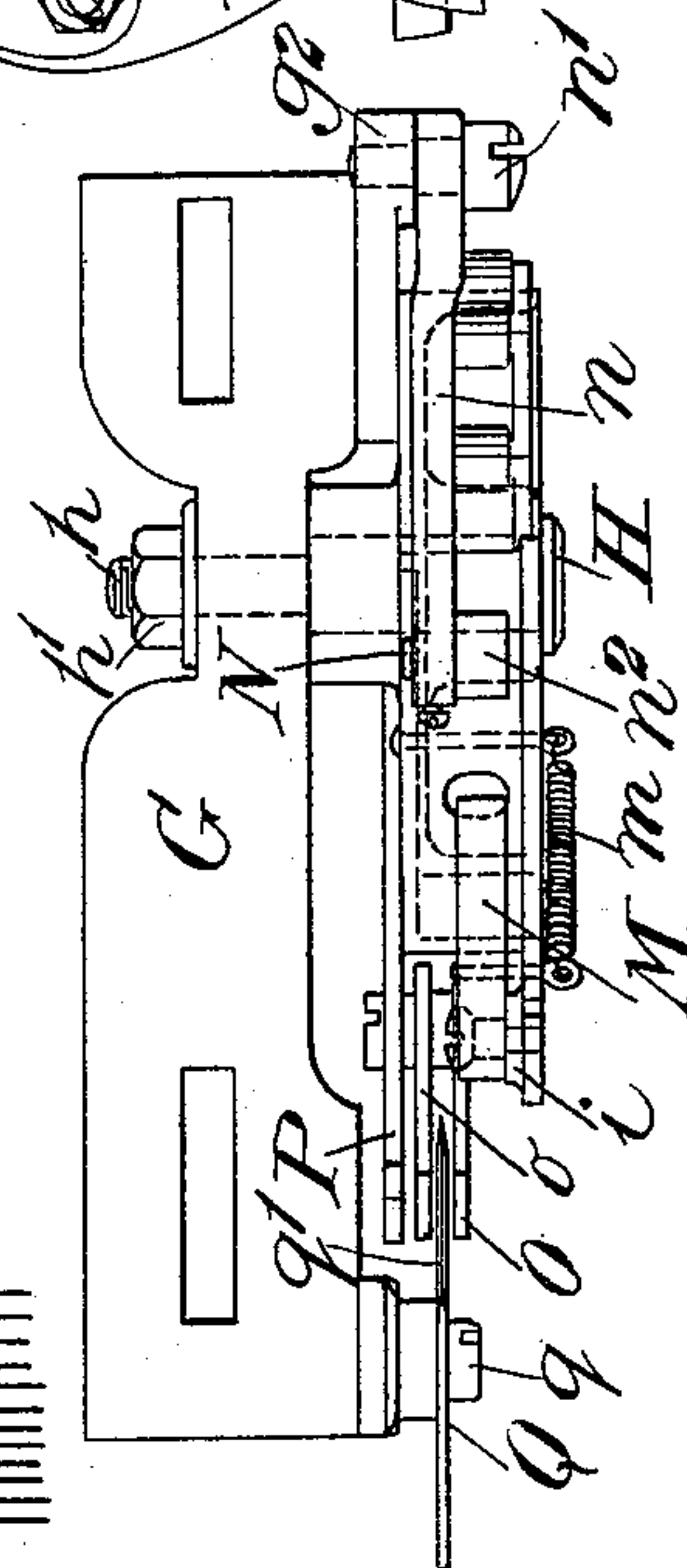


Fig. 5.



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UNITED STATES PATENT OFFICE.

ISAAC E. PALMER, OF MIDDLETOWN, CONNECTICUT.

FRINGE-MAKING ATTACHMENT FOR HAMMOCK-LOOMS.

SPECIFICATION forming part of Letters Patent No. 605,971, dated June 21, 1898.

Application filed January 2, 1897. Serial No. 617,730. (No model.)

To all whom it may concern:

Be it known that I, ISAAC E. PALMER, of Middletown, in the county of Middlesex and State of Connecticut, have invented a new and useful Improvement in Fringe-Making Attachments for Hammock-Looms, of which the following is a specification.

My invention relates to an improvement in fringe-making attachments for hammock-10 looms, with the objects in view of providing a mechanism to be carried by the lay-beam of the loom in position to weave a fringe into the edge of the hammock simultaneously with the weaving of the hammock-body, the weav-15 ing of the warp and weft threads of the hammock-body serving to secure the fringe in position.

A further object is to provide a mechanism in which the weaving of the fringe may be so20 timed relative to the weaving of the hammock as to make the fringe considerably thicker than the weft of the hammock, the said fringe, if so desired, being of a distinguishing color from the weft-threads of the25 hammock, the said fringe being formed by the weaving of a single thread into the edge of the hammock-body by looping the same and severing the loops at their outer ends.

A practical embodiment of my invention30 is represented in the accompanying drawings, in which—

Figure 1 represents a vertical section through a portion of a hammock-loom from front to rear, the fringe-making attachment35 being shown applied thereto. Fig. 2 is a front view of a portion of the loom and hammock-fringe attachment. Fig. 3 is an enlarged front view of the fringe-forming mechanism proper, the several parts being shown40 in the positions which they assume as the outer end of the loop of the fringe is being severed. Fig. 4 is a similar view, the parts being shown in the position which they assume when the hooks are about to engage the45 thread which forms the fringe to draw it out to form the loop. Fig. 5 is a top plan view of the loop-forming mechanism, the parts being shown in the same positions as in Fig. 3. Figs. 6 and 7 represent a front view of the50 upper portions of the fringe-forming mechanism with certain portions broken away to more clearly show the operation of the spring-

actuated swinging cam, the parts being shown in two positions intermediate of those shown in Figs. 3 and 4; and Fig. 8 is an exaggerated55 view of a portion of the hammock-body and fringe, showing the manner in which the fringe is secured along the edge of the hammock-body.

In the accompanying drawings I have only60 shown so much of a hammock-loom as is necessary to illustrate the practical operation of my improved fringe-making attachment.

The lay-beam is denoted by A, and it is given its usual forward and back-swinging65 movement by the crank-shaft B through a suitable connection C.

The main drive-shaft is denoted by D, and it is provided with a suitable cam *d* in position to engage a tappet E for controlling the70 up-and-down movement of the heddles F.

The fringe-making attachment is constructed as follows:

A suitable supporting-plate G is provided, which supporting-plate is adapted to be secured to the lay-beam A, so as to rock there-75 with. The said supporting-plate G is shown in the accompanying drawings as being secured to the lay-beam A by means of suitable screws *g g'*.80

A stub-axle H is secured to the plate G and projects forward therefrom. The stub-axle H is preferably removably secured to the plate G. This result is obtained in the present instance by screw-threading the end of the axle,85 which projects through the plate G, as shown at *h*, and providing a clamp-nut *h'*.

A rocking plate I is mounted upon the stub-axle H, so as to rock in a plane at right angles to the rocking movement of the lay-beam A.90 The rocking movement of the plate I is controlled by the following mechanism:

A retracting-spring J is connected to the rocking plate I, tending to rock it to the limit of its inward movement relative to the hammock-body. The plate I is rocked to the limit95 of its outward movement against the tension or the spring J by means under the control of the main drive-shaft D. The particular means which I have shown in the accompanying100 drawings for positively rocking the said plate outwardly are a cam *d'*, fixed to rotate with the shaft D, a two-armed lever K, the upper arm *k* of which is located in position to be en-

gaged by the cam d' and its other arm k^2 having a flexible connection L with the plate I, so that as the arm k' is rocked downwardly it will rock the plate I outwardly.

5 The rocking plate I is provided with a suitable spring-actuated swinging cam M, pivoted at one end to a suitable ear or lug i on the plate I, its spring m tending to keep the free end of the swinging cam M down into engagement with the periphery of the plate.

10 The needle through which the fringe-thread passes is denoted by N, its spring-actuated swinging needle-bar by n , which bar is pivoted at its inner end, as shown at n' , to an up-
15 rising ear or lug g^2 upon the supporting-plate G. The swinging needle-bar n is provided with a laterally-extended projection n^2 , which projection is adapted to travel around the
20 spring-actuated swinging cam M as the plate I is reciprocated for the purpose of bringing the needle N with its thread first up into the path of the warp and weft threads of the ham-
mock-body and then allowing it to drop down out of the way of said warp and weft threads
25 at proper intervals.

The rocking plate I also carries a pair of hooks O o and a guard P. In the present instance the guard is shown as secured to the plate I, as at p , and the pair of hooks O o are
30 secured, as shown at o' , to the guard P, the said hooks being spaced a sufficient distance apart to enable them to pass freely upon opposite sides of the cutting-blade, to be hereinafter described, as the rocking plate I is recip-
35 rocated. The hooks are located in position to engage the fringe-thread upon one side of the needle and draw the said thread outwardly as the plate I is rocked in one direction to form the loops of the fringe. A suit-
40 able cutting-blade Q is secured, as shown at q , to the supporting-plate G, with its cutting edge q' in position to enter the space between the ends of the hooks O o when the hooks are rocked outwardly for the purpose of severing
45 the outer end of the loop to form the fringe.

The operation of my invention is as follows: Suppose the parts to be in the position shown in Fig. 3, with the cutting-blade just severing the outer end of a loop. The
50 rocking plate I in this view is shown as being rocked to the limit of its outward movement by the engagement of the cam d' with the rocking lever K. As the cam d' releases its engagement with the lever K the retracting-
55 spring J will swing or rock the plate I inwardly. As the plate I is swung inwardly the free end of the needle-bar n will ride up along the top of the spring-actuated swing-
60 ing cam M, thereby raising the needle with its thread up into position to cause the said thread to be woven into the selvage or edge of the hammock-body. At the same time the hooks O o are being caused to rock rear-
wardly to a point beyond the needle, the
65 guard P serving to prevent the said hooks from catching in the hammock-body. The latter part of the inner swinging movement

of the plate I will cause the free end of the needle-bar to drop down onto the periphery of the rocking plate, thereby withdrawing the
70 needle from the hammock fabric and at the same time drawing the fringe-thread down into position to be engaged by the hooks O o. The engagement of the cam d' with the rocking lever K will then cause the plate I to
75 rock outwardly. As the plate is rocked outwardly the free end of the swinging needle-bar n will travel along the periphery of the plate I between it and the inner wall of the
80 spring-actuated swinging cam M, the free end of the said cam being caused by the lateral projection n^2 upon the needle-bar to allow the needle-bar to escape between the free end
85 of the swinging cam and the plate bringing the said swinging arm into position to again ride up the top of the cam when the plate is rocked inwardly. As the plate is rocked out-
wardly the needles carry the thread along with them, and after it has been drawn out to the proper length the cutting-blade or knife
90 Q engages the thread between the hooks and severs it, thereby forming the fringe.

The knife may be so adjusted as to cut the thread at the proper time and the rocking movement of the plate I may be so arranged
95 as to form any depth of fringe which may be desired. Furthermore, the said plate may be rocked twice to every back-and-forth movement of the weft-thread, so as to form a fringe twice as thick as the weft of the ham-
100 mock, if so desired.

The parts of the fringe attachments are so timed relative to the weaving of the ham-
mock-body that the needle will be caused to swing upwardly into the path of the warp
105 and weft threads which are being woven to form the hammock-body at the proper time to secure the thread which is to form the fringe before the hooks are caused to engage the thread to pull it outwardly to form the
110 loop, so that when the knife or cutting-blade Q severs the outer end of the loops the rear end of the loop is securely fastened into the edge or selvage of the hammock-body, so that the said hooks are free to swing back into
115 position to again engage a new portion of the fringe-thread to draw out another loop.

It is evident that slight changes might be made in the structure and arrangement of the several parts without departing from the
120 scope of my invention. Hence I do not wish to limit myself strictly to the structures herein set forth; but

What I claim is—

1. The combination with means for weav-
125 ing a strip of fabric, of means for introducing a separate thread into the edge of the strip as it is being woven and means for looping the separate thread in the body of the fabric at a distance from the edge of the fabric in-
130 dependently of the weft-threads of the fabric, substantially as set forth.

2. The combination with means for weav-
ing a strip of fabric, of means for introducing

a separate thread into the weave to form a fringe, comprising a swinging needle, a rocking plate for moving the thread-carrying needle into and out of engagement with the edge of the strip of fabric, hooks carried by the rocking plate in position to engage the said thread and draw it out into looped form as the plate is rocked and means for rocking the plate, substantially as set forth.

3. The combination with means for weaving a strip of fabric, of means for introducing a separate thread into the edge of the fabric to form a fringe, comprising a swinging thread-carrying needle, a rocking plate for moving the needle into and out of engagement with the fabric, hooks carried by the rocking plate in position to engage the thread and draw it out into looped form as the plate is rocked, a cutting-blade in position to sever the thread which forms the loops, and means for rocking the said plate, substantially as set forth.

4. The combination with means for weaving a strip of fabric, of means for introducing a separate thread into the edge of the fabric to form a fringe, comprising a suitable supporting-plate, the thread-carrying needle hinged thereto, a rocking plate, a spring-actuated cam carried by said plate in position to move the said needle into and out of engagement with the fabric, a cutting-blade carried by said supporting-plate, hooks carried by the rocking plate in position to engage the thread and draw it out into looped form as the plate is rocked, the said hooks bringing the thread into engagement with the cutting-blade as the thread is drawn out-

wardly to sever the thread and means for rocking the said rocking plate substantially as set forth.

5. The combination with means for weaving a strip of fabric, of means for introducing a separate thread into the edge of the strip of fabric to form a fringe comprising a swinging thread-carrying needle, a rocking plate for moving the needle into and out of engagement with the strip of fabric, hooks carried by the rocking plate in position to engage the thread and draw it out into looped form as the plate is rocked, a guard located in position to protect the fabric from being engaged by the hooks, and means for rocking the said plate, substantially as set forth.

6. The combination with means for weaving a strip of fabric, of means for introducing a separate thread into the edge of the strip of fabric as it is being woven, to form a fringe, comprising a swinging thread-carrying needle, a rocking plate in position to move the said needle into and out of engagement with the fabric, a pair of hooks in position to engage the thread upon one side of the needle to draw it outwardly into a loop as the plate is rocked, a cutting-blade in position to enter the space between the pair of hooks as they are swung outwardly to sever the thread at the outer end of the loop and means for rocking the said plate, substantially as set forth.

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Witnesses:

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