

No. 679,067.

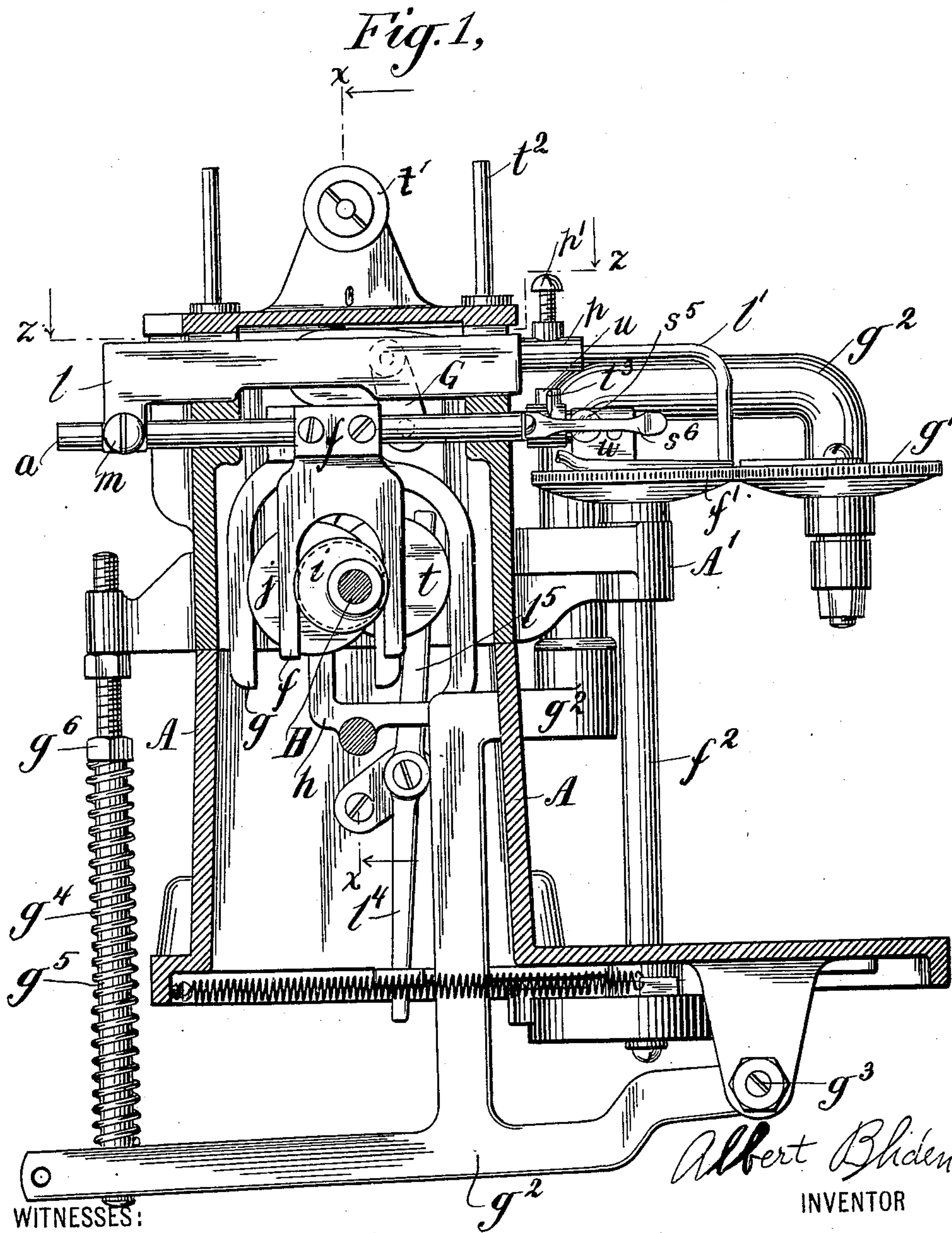
Patented July 23, 1901.

A. BLIDEN.
OVERSEAMING SEWING MACHINE.

(Application filed Aug. 1, 1900.)

(No Model.)

3 Sheets—Sheet 1.



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3 Sheets—Sheet 2.

Fig. 2,

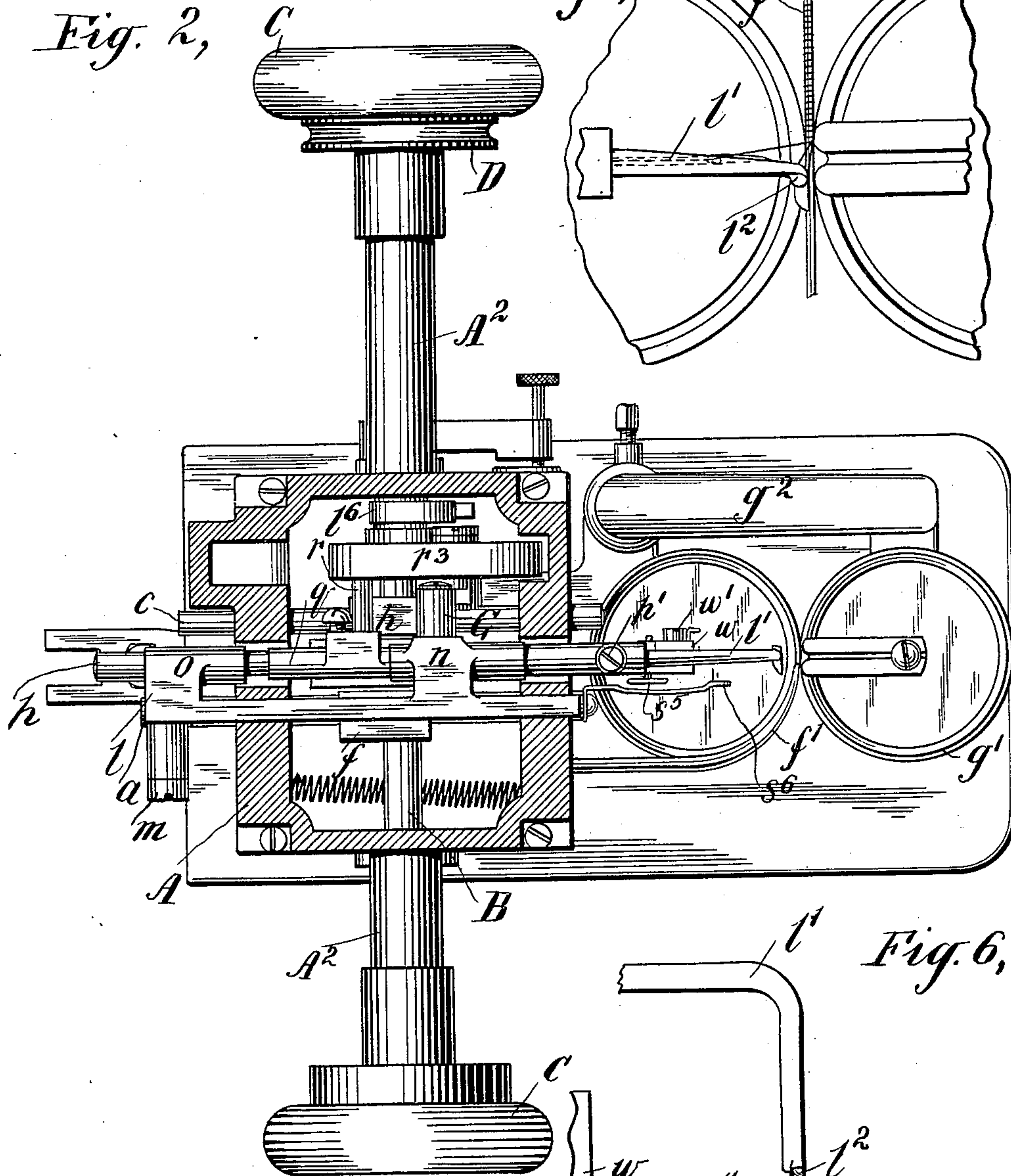


Fig. 5,

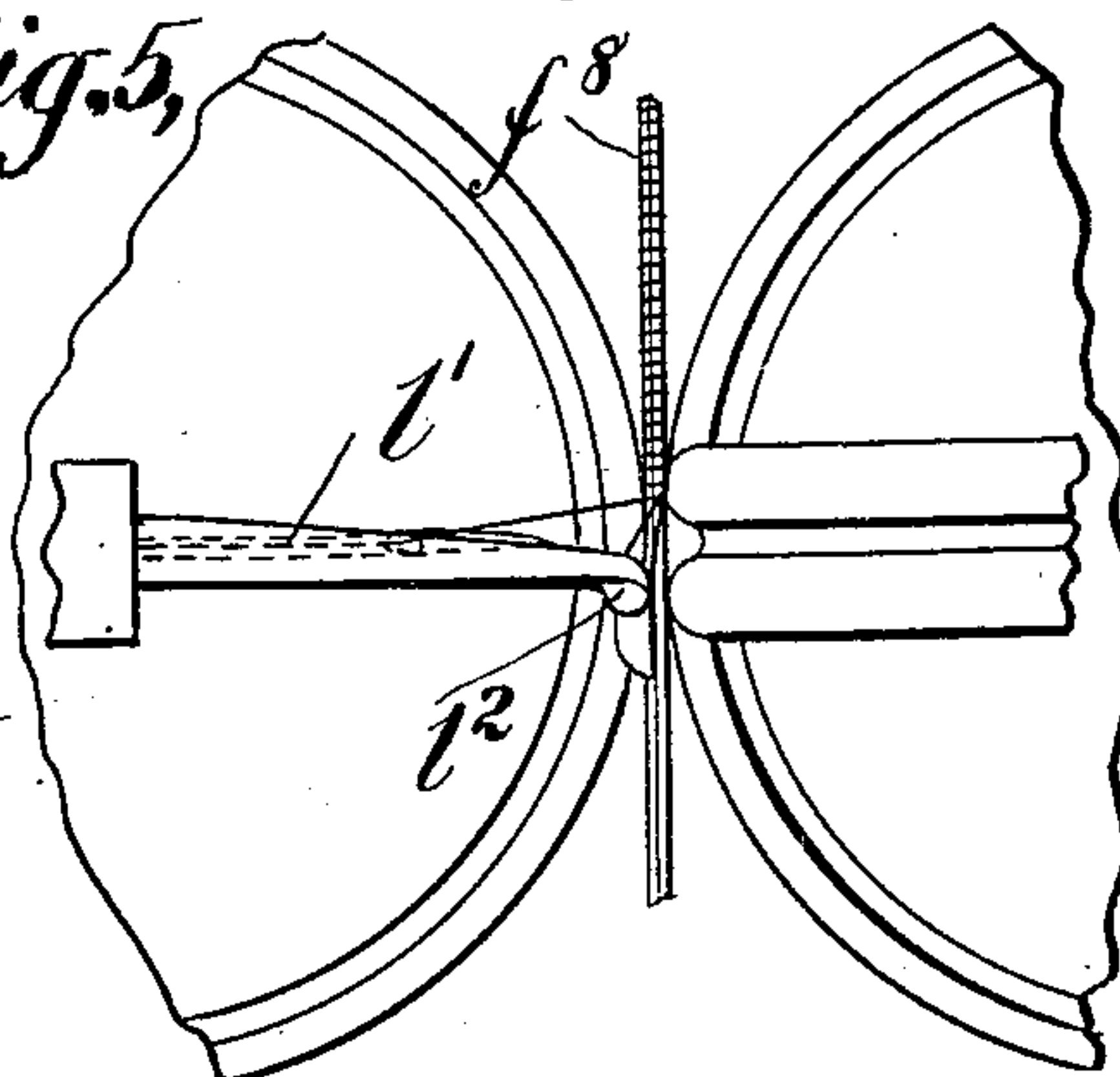


Fig. 6,

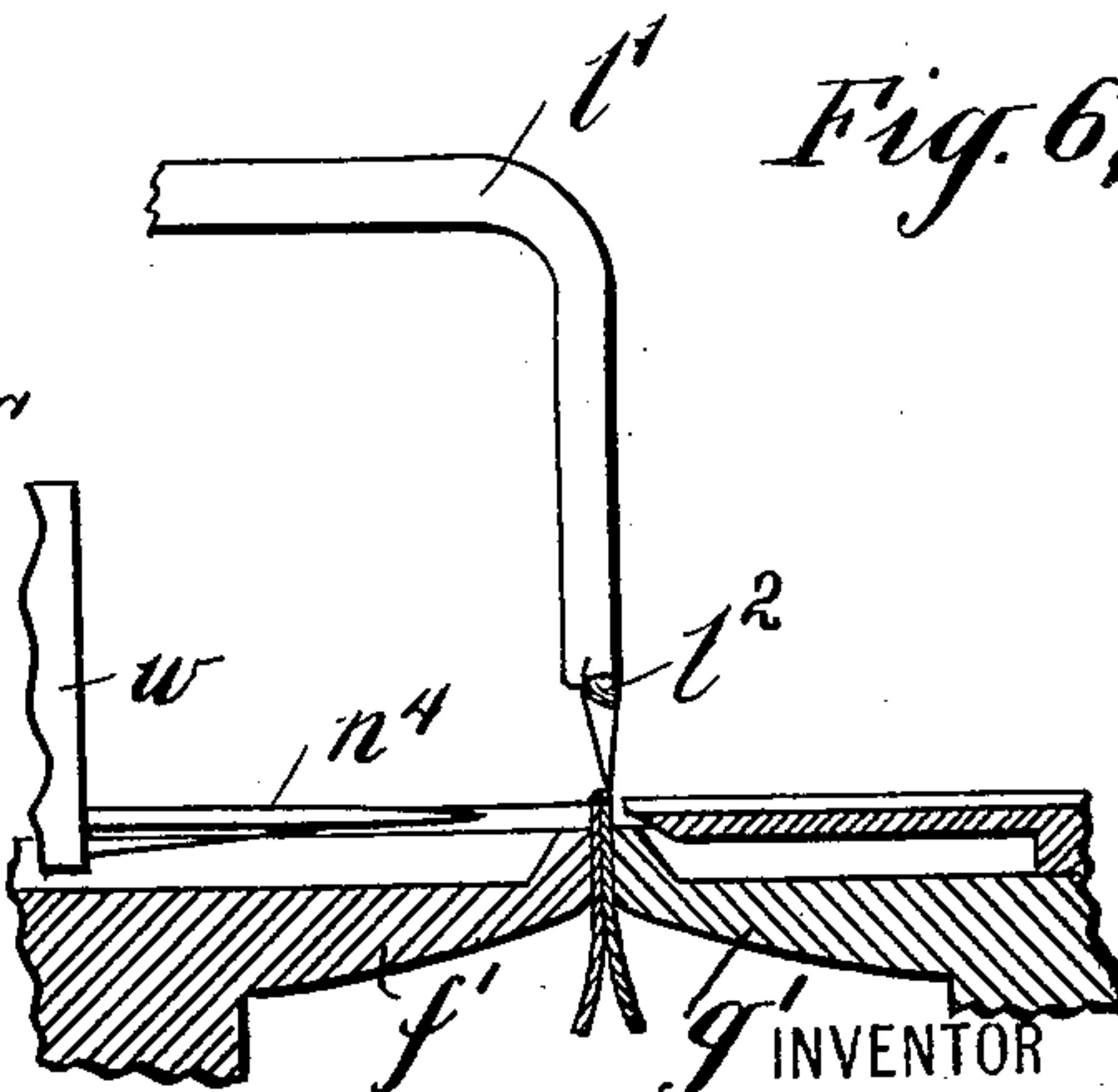
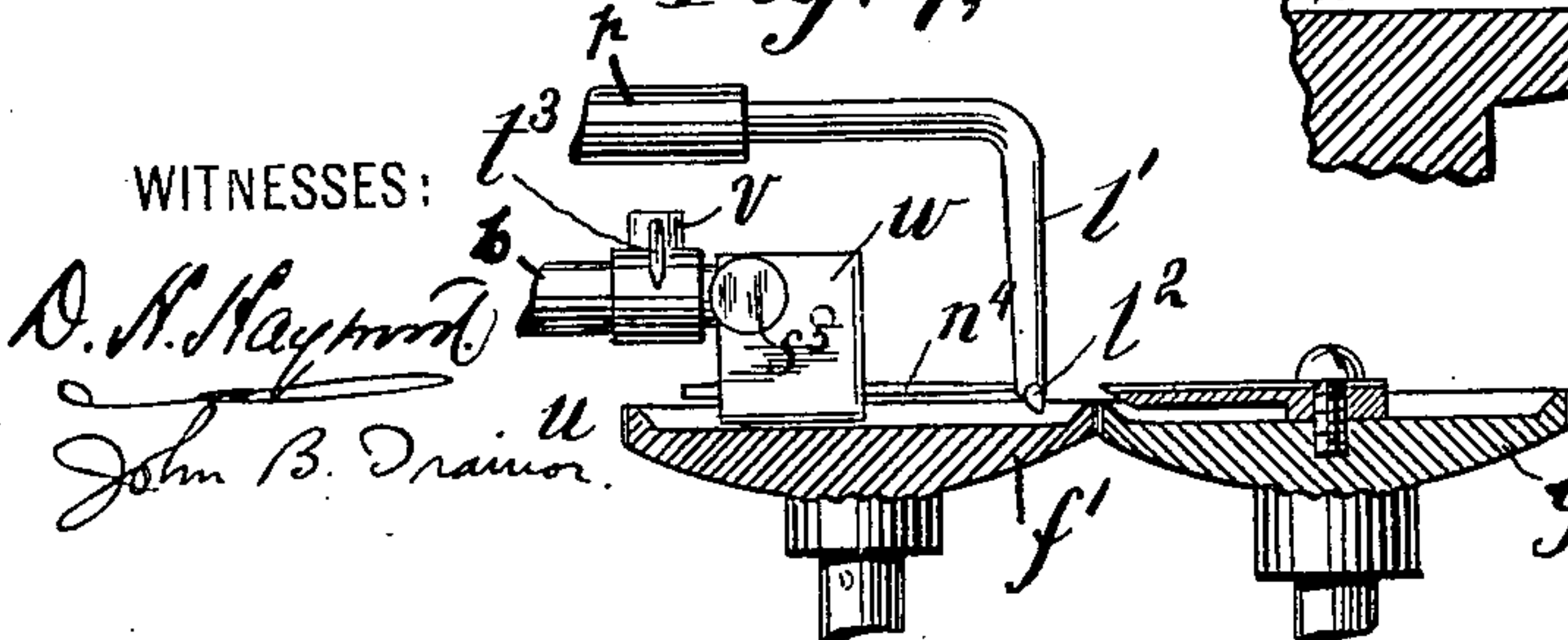


Fig. 7,



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Fig. 3,

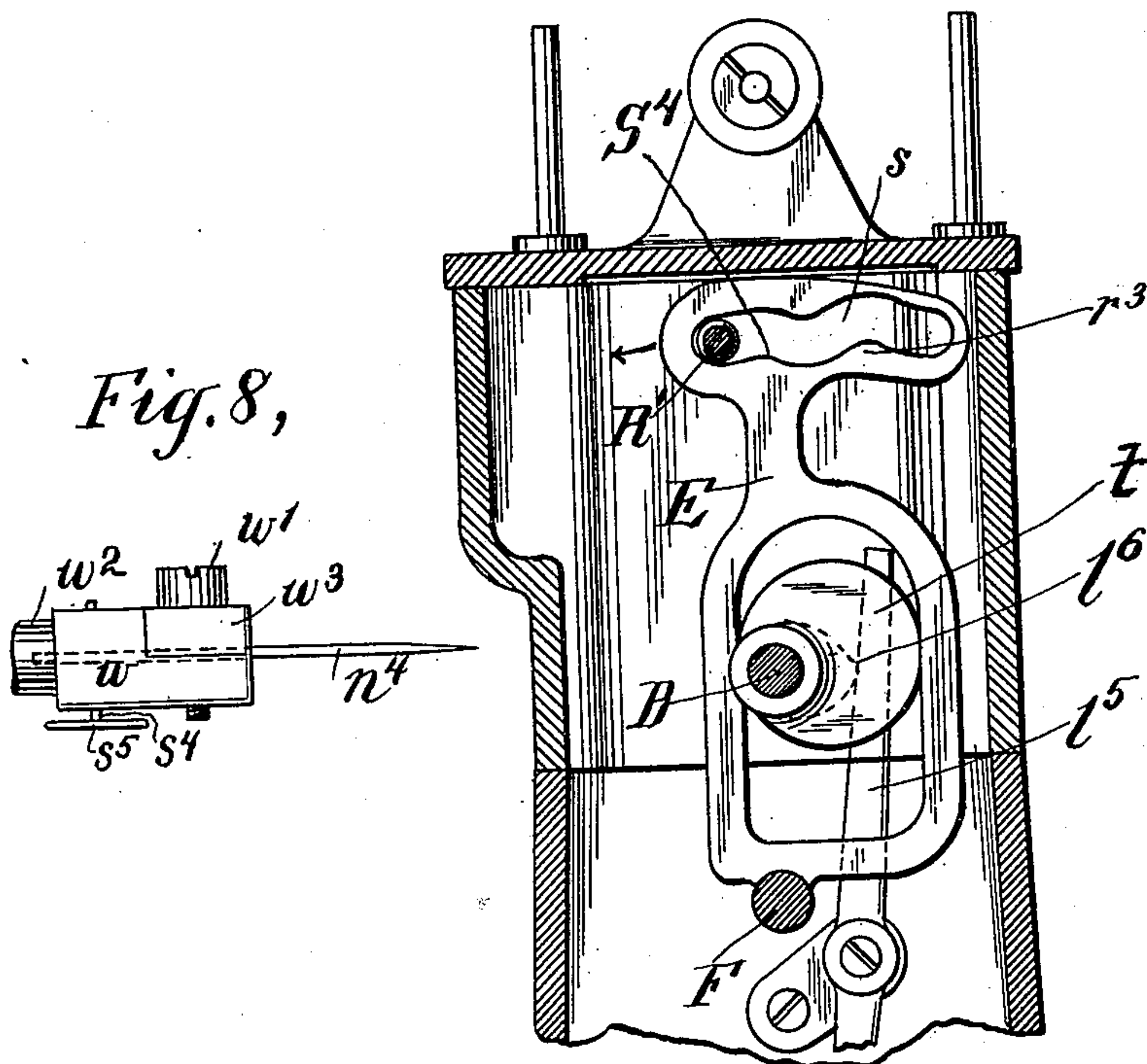


Fig. 8,

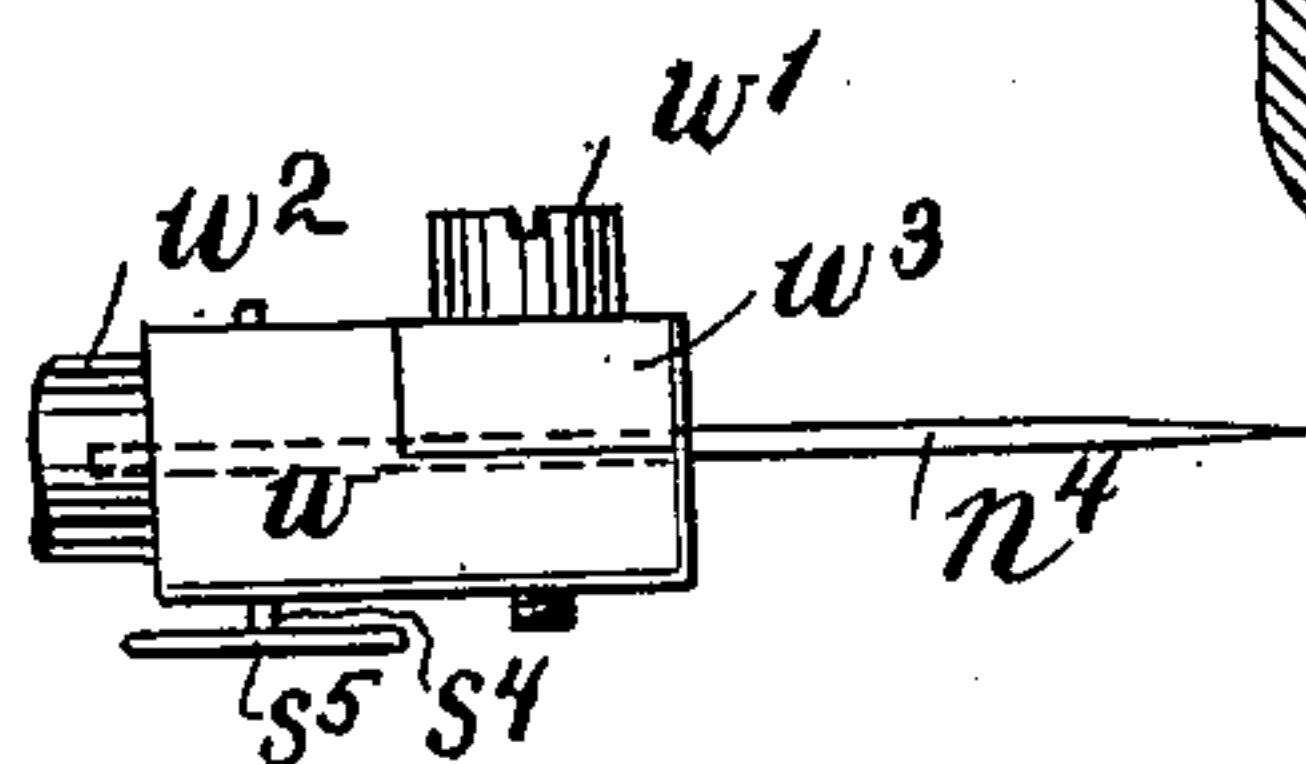
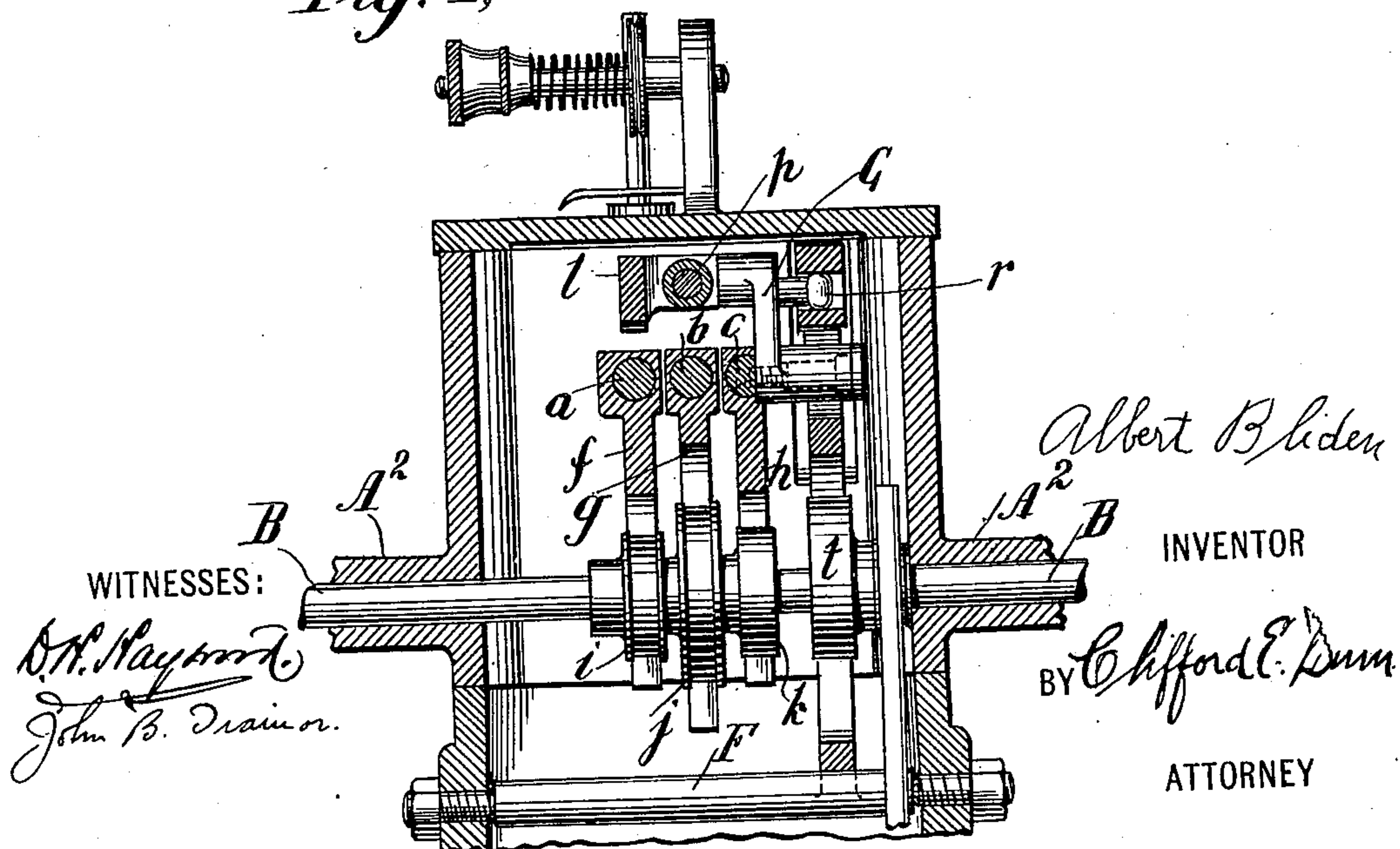


Fig. 4,



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UNITED STATES PATENT OFFICE.

ALBERT BLIDEN, OF NEW YORK, N. Y.

OVERSEAMING SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 679,067, dated July 23, 1901.

Application filed August 1, 1900. Serial No. 25,559. (No model.)

To all whom it may concern:

Be it known that I, ALBERT BLIDEN, a subject of the Czar of Russia, and a resident of New York, in the county and State of New York, have invented certain new and useful Improvements in Overseaming Sewing-Machines, of which the following is a full, clear, and exact specification.

My invention relates particularly to that class of machines which make what may be called "overhand stitching," and is adapted to all kinds of work where that character of sewing can be employed, the object being to produce a sewing-machine of the character described which will produce more accurate and regular stitching than those heretofore in use.

Machines for overhand stitching consist, essentially, of a needle which carries the thread through the fabric to be sewed and a looper which then picks up the loop of thread that has been passed through the fabric and carries it back over said fabric into a position where it permits the needle upon its next forward movement to pass through said loop to form the next stitch. The looper in machines heretofore in use after picking up the loop, as aforesaid, has followed substantially a direct course backward over the fabric, and it will be readily seen that in so doing the loop will inevitably be allowed to become slack, and the result is that it often fails to open again properly to permit the needle to pass through the loop and a misstitch takes place.

My invention has for one of its objects the prevention of this difficulty, and by giving the looper after it has picked up the loop a peculiar arching movement around the base of the loop I maintain the loop open at all times during its backward movement.

In the accompanying drawings, illustrating my invention, Figure 1 is a vertical side sectional view, and Fig. 2 a top view, of the machine with the cap removed, as indicated on lines *z z* in Fig. 1. Fig. 3 is a side sectional view showing part of the means for imparting the peculiar motion to the looper, and Fig. 4 is a front sectional view taken on lines *x x* in Fig. 1. Figs. 5 and 6 are enlarged top and side sectional views, respectively, showing the relative positions of the needle and looper at different times in the operation of

the machine; and Figs. 7 and 8 are respectively side sectional and top views of the needle and needle-carrier, hereinafter more fully described.

Similar letters of reference indicate like parts in all the drawings.

A is the main frame, in which are provided bearings A^2 for the main shaft B, provided with hand-wheel C and pulley D. Above the main shaft B and at right angles thereto are the three shafts or rods *a*, *b*, and *c*, which have a limited longitudinal sliding movement in suitable bearings in the main frame and to which are respectively secured the forks *f g h*, whose downward prongs engage cams *i*, *j*, and *k*, secured to the main shaft and by means of which the said rods *a*, *b*, and *c* receive their movement when the shaft B is rotated. Above these rods in suitable bearings in the frame is the looper-frame *l*, which has a similar longitudinal sliding movement and whose rearward L-shaped end is pivotally secured to the rod *a* at *m* and from which it derives its longitudinal movement. Side arms *n* and *o* of the looper-frame are hollowed out and form sleeves or bearings, in which the looper-bar *p* has a slightly rocking movement imparted to it by means of the sleeve *q*, secured thereto, which sleeve is provided with the stud *r*, having the head *R'*, adapted to engage and follow the slot *s* in the upper end of the rock-frame E, the lower end of which is secured to the oscillating shaft F, and which rock-frame engages and is operated by cam *t* on the main shaft.

A link G, having its ends pivotally connected to the arm *n* of the looper-frame and the rod *c*, respectively, serves to give a slightly vertical oscillation to the looper-frame around its pivot *m* when the looper and rod *c* perform their longitudinal movement in the operation of the machine, the cams on the main shaft being so placed as to give a forward movement to the looper-frame when the rod *c* is moving backward. The forward end of the rod *b* is provided with a collar *u*, into which may be secured, by means of the nut *v*, a needle-carrier *w*, and in like manner the looper *l'*, having the looper-hook *l''*, is secured to the looper-bar *p* by means of screw *p'*. The feed-disks *f'*, secured to the shaft *f''*, journaled in suitable bearings in the main frame

A, and g' , mounted on the rock-frame g^2 , pivoted at g^3 , are held together and so clamp the material to be stitched by means of a spring g^4 , bearing against the rock-frame g^2 , and an adjustable nut g^6 on rod g^5 in the well-known manner. n' is a guide for the needle, secured to disk g' . The feed-disks are operated to feed the material by any well-known means, such as the lever l^4 , whose upper end l^5 is operated by cam l^6 on the main shaft, but which is unnecessary to fully describe here, as that forms no part of my invention.

The needle-carrier w consists of the L-shaped piece, the upper end of which is provided with a stud w^2 , adapted to fit in the collar u on the needle-bar, as already described. A hole through the lower part is provided for the insertion of the needle, (see Figs. 7 and 8,) while a flat plate w^3 , secured thereto by nut w' , serves to clamp the needle in place. The needle-carrier is also provided with a hole in which is loosely fitted the tension-stud s^4 , having the flat head s^5 , which is periodically forced home during the operation of the machine by means of the flat spring s^6 , secured to the rod a .

Having described the several parts of my invention, I will now proceed to explain the operation thereof, and in so doing it will be assumed that we are looking at the machine from the right-hand side of Fig. 1. The machine having been threaded by passing a thread through the tension t' , guide t^2 , hook t^3 , around the tension-stud s^4 , and so through the needle, the fabric is then placed in position between the feed-disks with the edge which is to be sewed projecting slightly. Beginning from the position shown in Fig. 2, as the main shaft revolves the cam j , acting on fork g , forces the needle-bar b forward and the needle carries the thread through the fabric. At the same time rod a , and with it the looper-frame l , together with the looper-bar p and the looper l' , is also moved forward by means of cam i and fork f , the looper-hook passing over the edge of the fabric as the rod c is moving backward, raising the looper-frame, &c., by means of link G . When the looper in this forward movement reaches a point just beyond the edge of the fabric, the cam t is forcing the rock-frame E in the direction of the arrow, Fig. 3, so that the head R' of the stud r , passing at this point over the rise r^3 in the slot s , rocks the looper-bar p and swings the looper-hook to one side and into a position to engage the loop made by the needle in its backward movement on continuing the rotation of the main shaft. The cam k is so placed on said shaft that the rod c is still moving backward as the looper-frame continues this forward movement, which drops said frame and looper-bar by means of link G , so that the looper-hook is immediately in front of and adapted to engage the opening loop on continuing the movement. The looper-hook is now forced through the loop by the rocking of the looper-bar p ,

caused by the head R' of the stud r riding down off of the rise r^3 as the rock-frame E now moves back in the direction opposite to that of the arrow, (see Fig. 3,) and by means of the peculiar shape of the slight rise S^4 in the back portion of the slot s the peculiar arching motion of the looper-point is obtained, by means of which the loop is kept open and tight as the looper-hook carrying the thread is rocked to the left, and moves, substantially, in an arc around the base l^8 of the loop, as shown in Fig. 5. The rod c at this time being moved forward and the looper-frame moving backward, the link G again lowers said looper-frame and looper, so that the loop is now brought into such a position that the needle may pass through it to form the chain-stitch. To be more specific, the looper performs the following movements: a movement across the path of the needle to take up the loop, an upward and at the same time outward and backward movement, and then a downward and slightly-inward movement along one side of the needle's path while carrying the loop, an outward and upward movement away from the needle, a diagonal movement across the needle's path to shed the loop, and a forward and then a downward movement along the opposite side of the needle's path to the point of starting. On continuing the rotation of the main shaft the above-described operation is repeated. It will be seen that while the needle-bar and carrier are retreating and in every position except that of their extreme outward position the thread is merely retained by means of the usual tension t' ; but when it has reached its extreme forward position, having drawn out sufficient thread for the loop, the spring s^6 , bearing against the flat base of the stud s^5 , prevents any looseness.

It is evident that many slight changes in mechanical details may be made without departing from the spirit of my invention, and I therefore do not limit myself to the specific mechanism shown.

Having now described my invention and its mode of operation, what I claim, and desire to secure by Letters Patent, is—

1. In a machine of the character described the combination of a main frame, a main shaft, a looper suitably mounted in said frame, means for imparting a longitudinal reciprocation to said looper, a shaft mounted in said frame, means for imparting a longitudinal reciprocation to said shaft, and means connecting said looper and shaft whereby a slightly-vertical motion is imparted to the looper, substantially as described.

2. In a machine of the character described the combination of a main frame, a main shaft, a looper-frame, a looper-bar journaled in said looper-frame, means for imparting a longitudinal reciprocation to said looper and looper-frame, a shaft mounted in the main frame, means for imparting a longitudinal reciprocation to said shaft and means connect-

ing said shaft and looper-frame whereby a slightly-vertical motion is imparted to the said looper-frame, substantially as described.

3. In a machine of the character described
5 the combination of a main frame, a main shaft, a looper-frame, a looper-bar journaled in said looper-frame, means for imparting a longitudinal motion to said looper-bar and looper-frame, a sliding shaft journaled in the
10 main frame provided with a depending yoke adapted to engage a cam on the main shaft whereby a longitudinal reciprocation is imparted to said sliding shaft, and means connecting said looper-frame and sliding shaft,
15 whereby a slightly-vertical motion is imparted to the looper-frame, substantially as described.

4. In a machine of the character described the combination of a main frame, a main
20 shaft, a looper-frame, a looper-bar journaled in said looper-frame, means for rocking said looper-bar on its axis, means for imparting a longitudinal motion to said looper-bar and looper-frame, a sliding shaft journaled in the
25 main frame provided with a depending yoke adapted to engage a cam on the main shaft whereby a longitudinal reciprocation is imparted to said sliding shaft, and means connecting said looper-frame and sliding shaft,
30 whereby a slightly-vertical motion is imparted to the looper-frame, substantially as described.

5. In a machine of the character described, the combination of a needle-carrier, a tension-
35 stud provided with a flat head, therein, of a longitudinally-sliding rod and a spring on said rod, adapted to come into contact with the head of the stud, whereby said tension-stud is periodically pressed home, substan-
40 tially as described.

6. In a machine of the character described, a main frame, a main shaft journaled therein, a slidable rod receiving reciprocation from the main shaft, a looper-frame pivoted thereto, a
45 second sliding rod reciprocated by the main shaft, a connection between said second rod and the looper-frame by which the looper-frame is swung on its pivotal connection with the first-named rod, a looper-bar pivoted in
50 the looper-frame, and a rock-frame operated by the main shaft and having a cam-slot engaging a stud on the looper-bar, substantially as described.

7. In a machine of the character described,
55 a main frame, a main shaft, a looper-frame, a looper-bar journaled in said looper-frame, means for imparting a longitudinal reciprocation to said looper-bar, and looper-frame, means connecting said looper-bar and the
60 main shaft whereby said looper-bar is caused

to oscillate in its bearings in the looper-frame, a shaft suitably mounted in the main frame, means for imparting a longitudinal reciprocation to said shaft, and means connecting the looper-frame and said shaft whereby a
65 slightly-vertical motion is imparted to the looper-frame, substantially as described.

8. In a machine of the character described, a main frame, a main shaft journaled therein, a slidable rod receiving reciprocation from
70 the main shaft, a looper-frame pivoted thereto, a second sliding rod reciprocated by the main shaft, a connection between said second rod and looper by means of which the looper-frame is swung on its pivotal connection with
75 the first-named rod, a looper-bar journaled in the looper-frame and means for giving said looper-bar an oscillating motion in its bearings, substantially as described.

9. In machines for overhand stitching the
80 combination of a main frame, a main shaft, a reciprocating needle, a longitudinally-reciprocating looper-frame and looper-bar, means for imparting a slightly-vertical motion to said looper-frame and looper-bar, a
85 rock-frame pivoted at its lower end, provided with a slot at its upper end and rocked by a cam bearing against an intermediate portion, and means connecting said rock-frame and looper-bar whereby a rocking motion is im-
90 parted to said looper-bar, substantially as described.

10. In machines for overhand stitching the combination of a needle, means for reciprocating the needle, a looper-frame, means for
95 imparting a longitudinal and slightly-vertical motion to said looper-frame, a looper-bar in said looper-frame, a rock-frame pivoted at its lower end, provided with a slot in its upper end and rocked by a cam-bar against its
100 interior intermediate portion, and a stud secured to the looper-bar and engaging the slot in the rock-frame, whereby a rocking motion is communicated to the looper-bar, substantially as described.
105

11. In machines for overhand stitching the combination with a needle-carrier, a tension-
stud provided with a flat head therein, a longitudinally-sliding shaft, and a spring on said shaft adapted to come into contact with
110 the head of the tension-stud, whereby said stud is periodically pressed home, substantially as described.

In testimony whereof I have hereunto affixed my signature in the presence of two
115 witnesses.

ALBERT BLIDEN.

Witnesses:

JULIUS D. TOBIAS,
M. DUNN.