

No. 630,854.

Patented Aug. 15, 1899.

C. C. BREUSCHER, Dec'd.

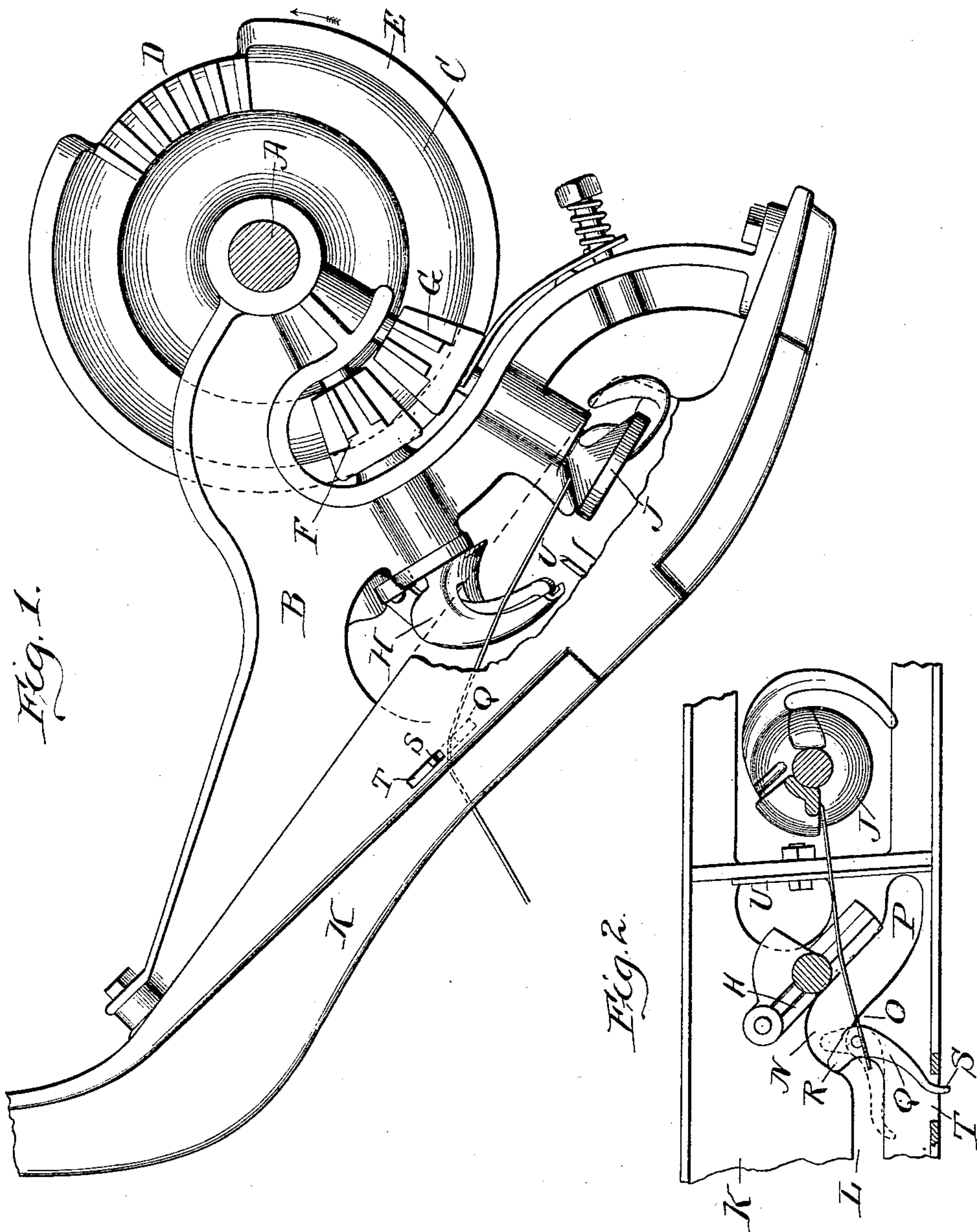
M. BREUSCHER, Administratrix.

SELF BINDING HARVESTER.

(Application filed Nov. 7, 1898.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses
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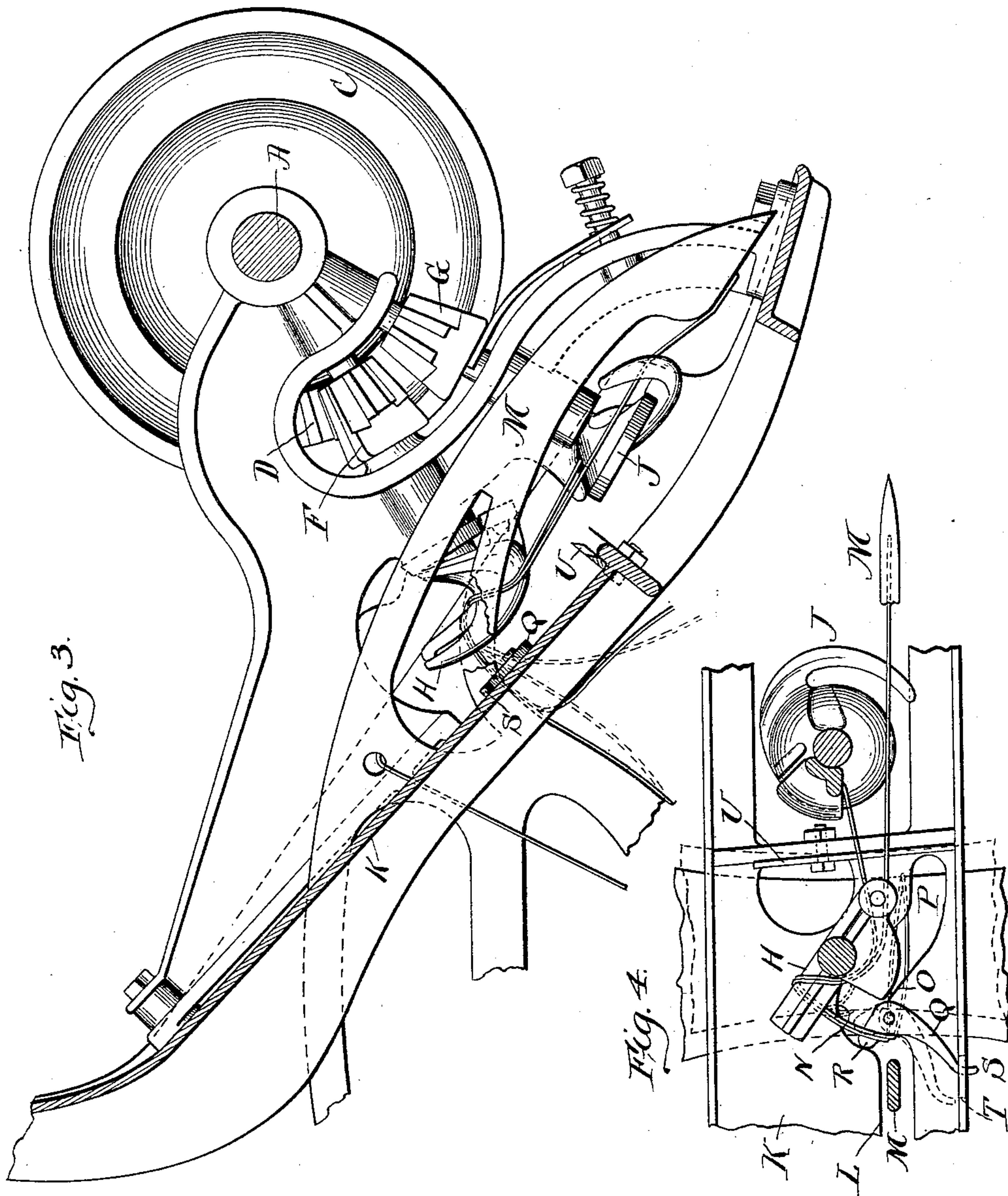
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4 Sheets—Sheet 2.



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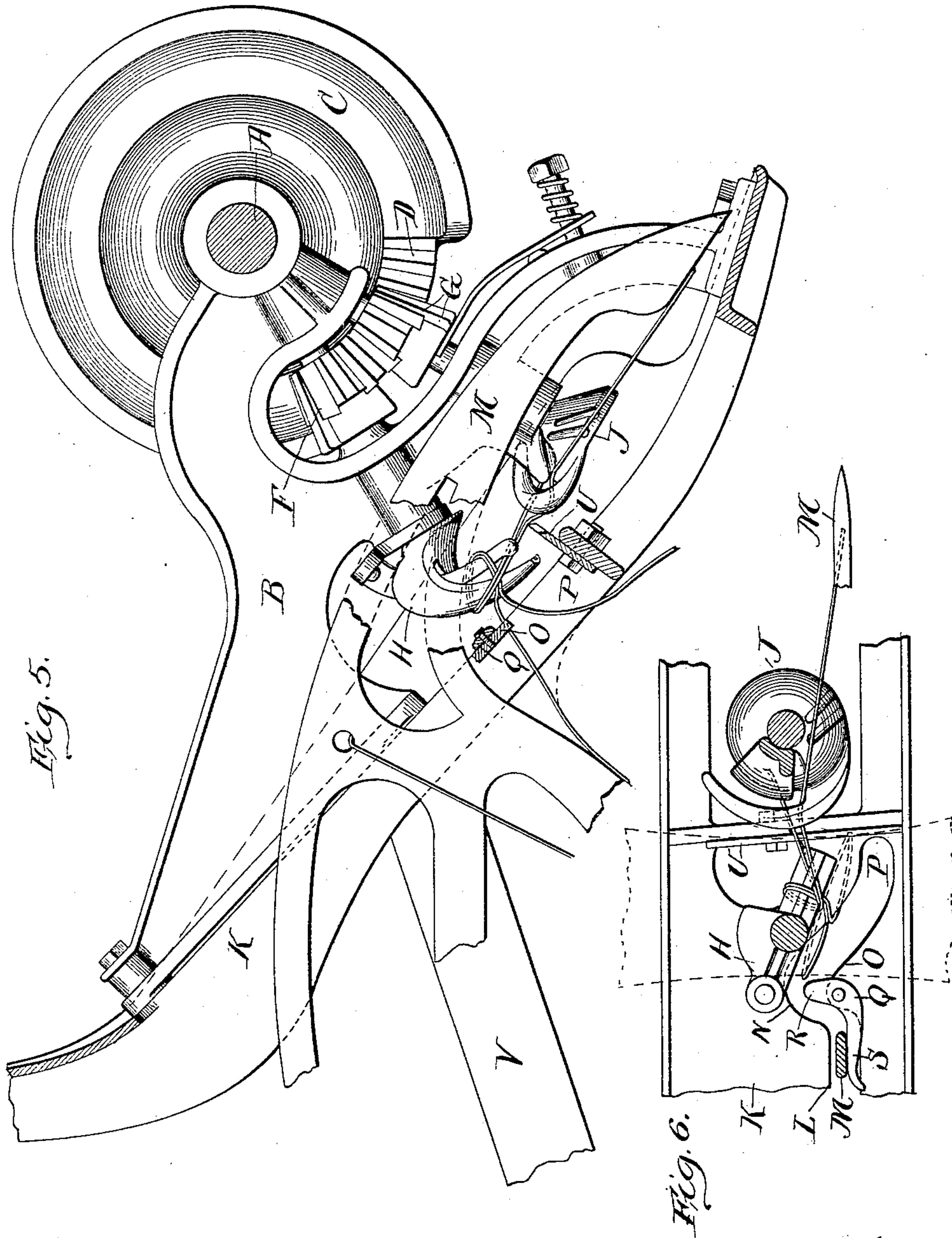
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4 Sheets—Sheet 3.



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(No Model.)

4 Sheets—Sheet 4.

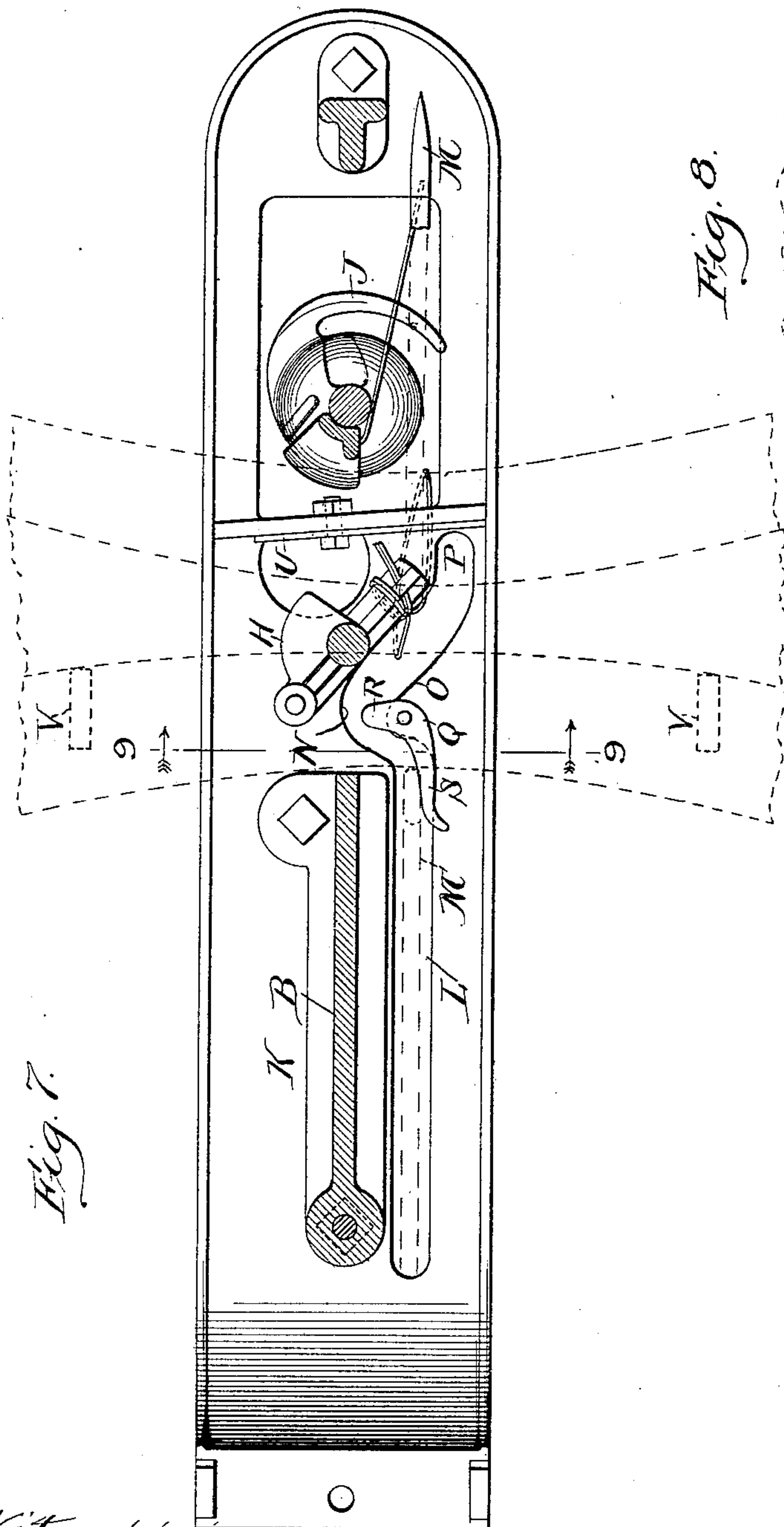


Fig. 7.

Fig. 8.

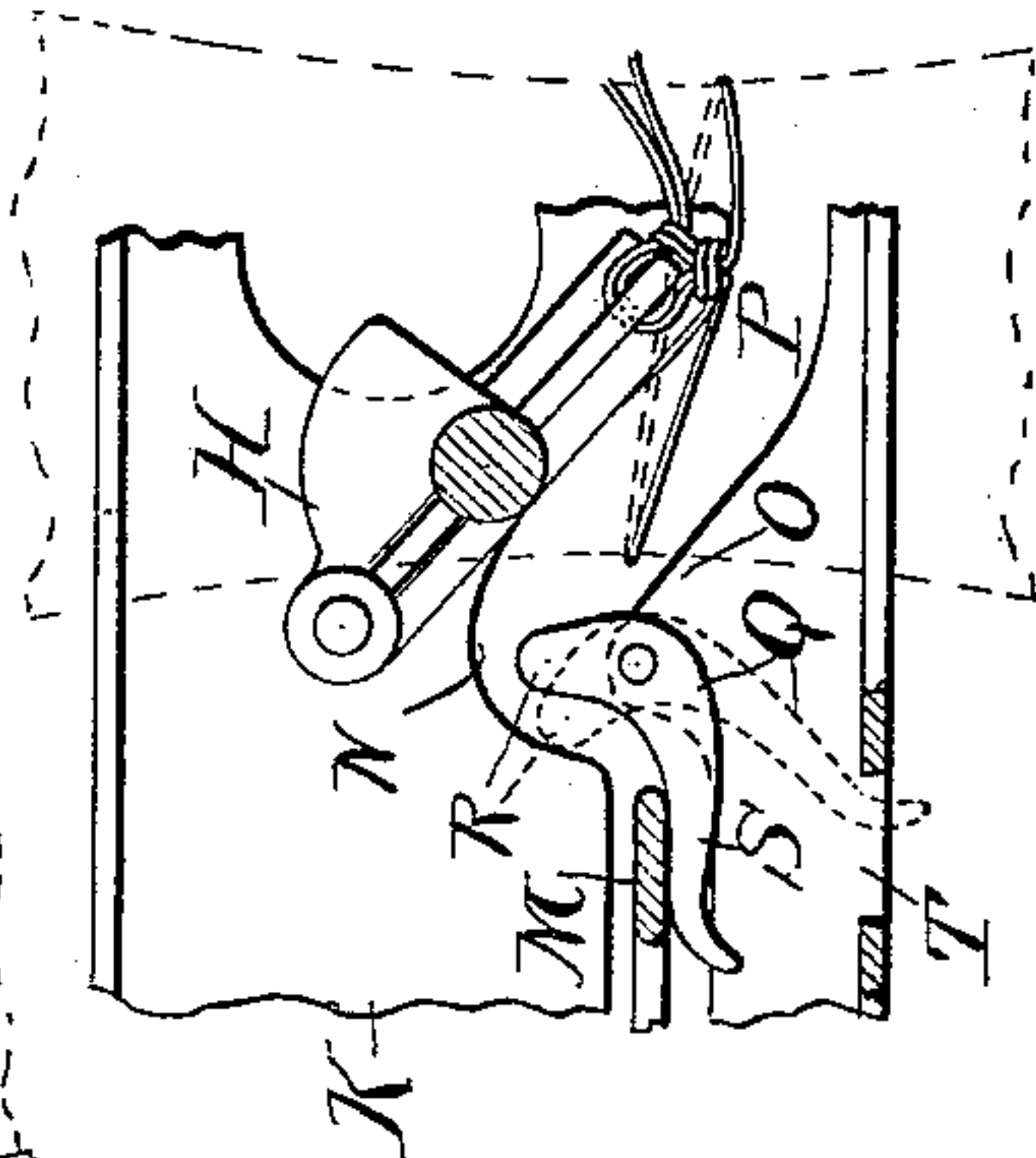


Fig. 9.

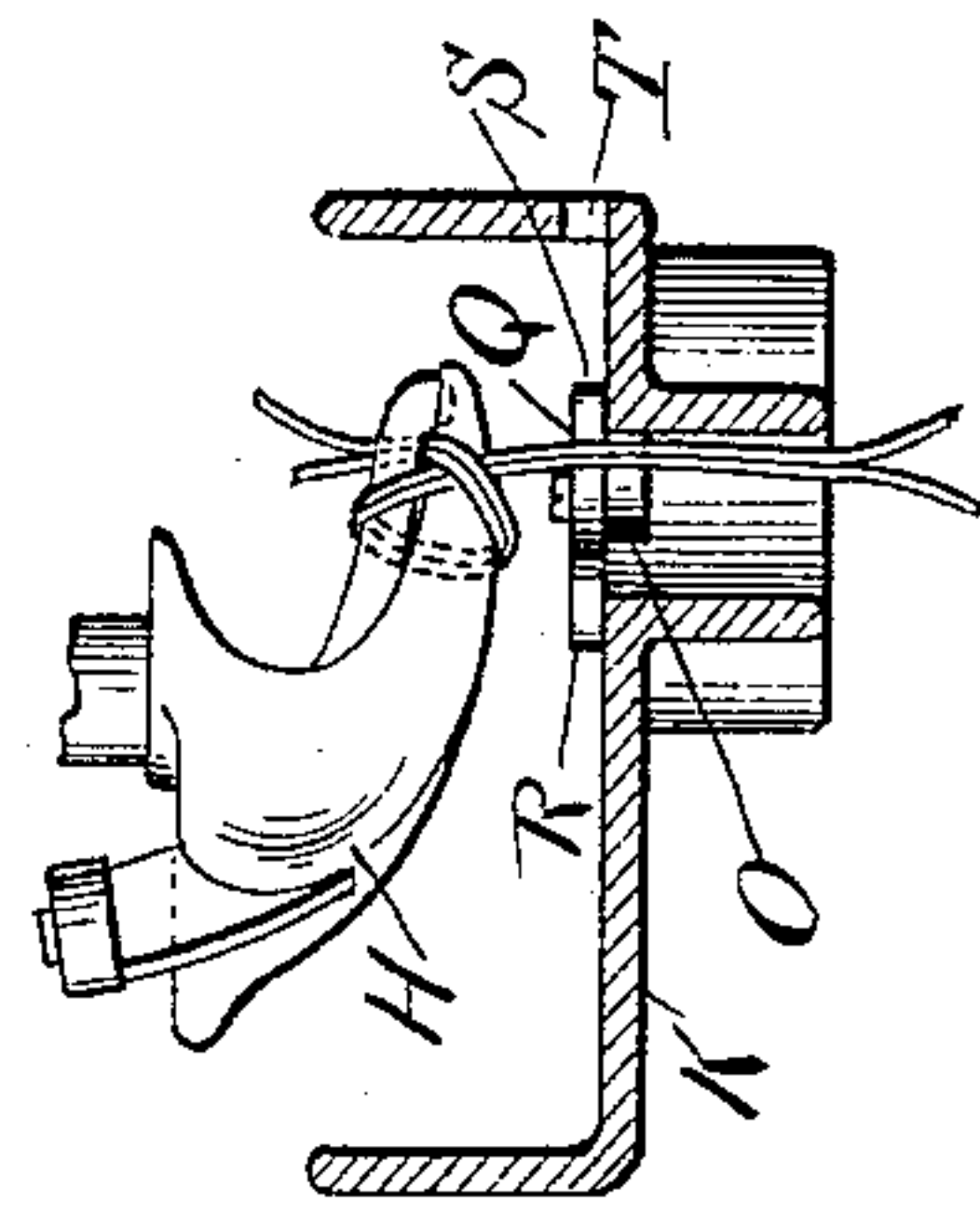
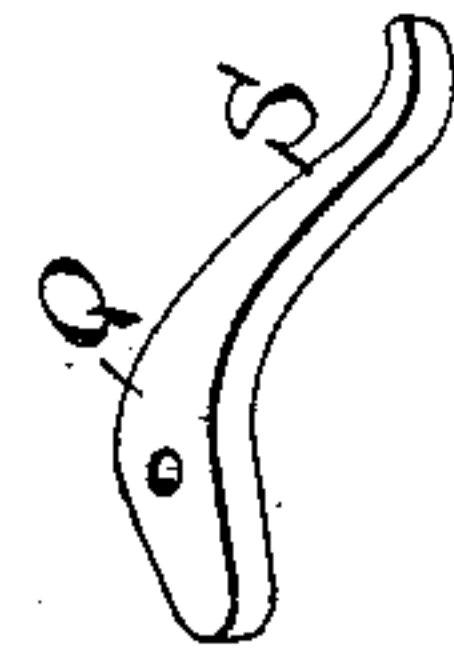


Fig. 10.



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UNITED STATES PATENT OFFICE.

MARY BREUSCHER, OF CHICAGO, ILLINOIS, ADMINISTRATRIX OF CHRISTOPH C. BREUSCHER, DECEASED, ASSIGNOR TO THE PLANO MANUFACTURING COMPANY, OF SAME PLACE.

SELF-BINDING HARVESTER.

SPECIFICATION forming part of Letters Patent No. 630,854, dated August 15, 1899.

Application filed November 7, 1898. Serial No. 695,785. (No model.)

To all whom it may concern:

Be it known that CHRISTOPH C. BREUSCHER, deceased, lately a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, invented a new and useful Improvement in Gates for Self-Binding Harvesters, of which the following is a specification.

This invention relates to what is known as the "gate," a latch or trip which is employed to temporarily obstruct the needle-slot in the breastplate of a self-binding harvester, especially in that class of machines in which the tying-bill rests in a position with its beak tending toward the cord-holder. In such constructions it is necessary to have this temporary obstruction adjacent to the tying-bill in order that the holder-strand may lay over the tying-bill while the gavel is forming. If this obstruction were not employed and the cord were free to move forward, the forming-gavel would pull the cord off of the tying-bill. After the tying-bill has been rotated and the knot formed the gate is opened or the obstruction removed, so that the bundle may be discharged. As these gates have been previously constructed a spring has been employed to hold them in position, and they have been moved against the stress of the spring to open the gate by some part of the machinery positively contacting therewith, such as one of the discharge-arms. In this improved construction the use of the spring to hold the gate normally in position is entirely dispensed with and the pressure of the strand or strands of the cord is made to open the gate and also to close it.

Referring to the drawings, in which the same letters of reference are used to designate identical parts in all the views, Figure 1 is a side elevation of the tying mechanism in its normal position of rest and with a part of the breastplate broken away to more clearly disclose the positions of the cord-holder and tying-bill. Fig. 2 is a plan view, partly in section, showing especially the position of the needle-slot, the gate, tying-bill, and cord-holder at a position of rest the same as that shown in Fig. 1. Fig. 3 is a view similar to Fig. 1, but with the needle advanced and with

the tying-bill rotated through an angle of about one hundred and eighty degrees from its position of rest. Fig. 4 is a view similar to Fig. 2, but with the parts in the same position as in Fig. 3. Fig. 5 is a view similar to Fig. 3, but with the tying-bill rotated still farther to nearly its position of rest and with the cord-holder rotated through an angle of about one hundred and eighty degrees. Fig. 6 is a view similar to Fig. 4, but with the parts in the position shown in Fig. 5. Fig. 7 is a plan view similar to Fig. 6, but with the rotation of the tying-bill and cord-holder completed and with the cord cut and the bundle ready to be discharged. Fig. 8 is a view similar to Fig. 7, but only showing the tying-bill and gate and with the bundle in the act of being discharged. Fig. 9 is an elevation of the tying-bill and gate, with the breastplate in section on the line 9 9 of Fig. 7; and Fig. 10 is a perspective view of the gate.

A is the shaft operating the binding mechanism, suitably mounted in the customary S-shaped frame B.

C is the customary disk, having the bevel-gear teeth D and the delay-flange E, cooperating with the bevel-pinions F and G, which are secured to the tying-bill H and cord-holder J, respectively, the tying-bill and cord-holder being of the customary construction and journaled in the customary bearings in the S-shaped frame B.

K is the breastplate, which has therein the needle-slot L. (Best shown in Fig. 7.) The main portion of this slot L is parallel with the line of the breastplate and located a little to one side of the axis of the shaft of the tying-bill. As will be understood, the needle M is brought up through the slot L to lay the needle-strand over the tying-bill and the hook of the cord-holder, as seen in Fig. 3. With the slot continued uniformly, as is the main portion, the cord would not be brought upon the tying-bill in its position of rest, so that the curved portion N of the slot is introduced, the curved portion N resulting in the formation of the projecting portion O of the breastplate. This curve N necessitates the bringing of the cord nearer to the axis of

the tying-bill, and consequently over the bill. To prevent the passage of this portion or abutment O by the cord, which passage would result in the cord entirely leaving the tying-bill as it passed into the portion P of the slot, which is continued in the direction of the beak of the tying-bill, so as to permit the knot being pulled off of the bill when the bundle is discharged, the gate or latch Q is pivotally mounted at the tip of the abutment O. The general shape of this latch is shown in the various figures and the perspective in Fig. 10. The nose R of the latch in the position of rest, as seen in Fig. 2, rests directly across the needle-slot, and the gate or latch is held in this position by the cord from the holder passing thereover and pressing on the latch at the side of the pivot toward the tail S of the latch, which passes through the slot T, which may be formed in the side of the breastplate to furnish the necessary play for the latch. As the gavel is formed the pressure of the strand on the latch increases, so that when the needle-arm returns to place the needle-strand across the tying-bill and in the cord-holder the latch is held very firmly in place by the tension produced on the cord by the expansive action of the gavel, so that there is no possibility of the cord being thrown off of the tying-bill. The gate will remain in this position of rest until the tying-bill has made about one-half of its rotation, (to the position shown in Fig. 4,) when the twist given to the strands will tend to pull the cord off of the nose of the gate, having pulled it past the central point at which it is pivoted. Fig. 4 shows the position of the gate just at the moment that this tendency to trip the latch becomes very pronounced, and the dotted-line position of the gate and of the gavel in the figure shows the position of the parts when the gate has been moved sufficiently to permit the escape of the two strands therefrom. As the movement of the parts is continued to the position of Fig. 6 the strands are entirely freed from the gate, which swings around to the position shown, with its tail S resting against the needle, so as to prevent its swinging too far and possibly getting the tail across the slot or the parts otherwise disarranged. Fig. 6 represents the tying-bill after the cord has been gripped and with the cord-holder just at the position when the needle-strand is about to be clamped, so as to secure the strands and strain them over the knife U to cut the strands. In Fig. 7 the position of the parts is shown after the movement of the tying-bill and cord-holder has been completed and the strands severed by being strained across the knife U. The gavel (represented by the dotted lines) is now ready to be dis-

charged by the movement of the discharge-arms, (represented in section by the dotted lines at V V,) and as this movement takes place the knot is drawn to the position shown in Fig. 8, where it is just about to be pulled off of the tying-bill. The further movement of the discharge-arms completely discharges the bundle and the retreating movement of the needle-carries its strand across the tying-bill and gate, as seen in Fig. 2, where the movement of the forming-gavel presses the cord sharply against the side of the gate toward the tail thereof, so as to swing it from the dotted-line position of Fig. 2 back to the full-line position, when the cycle of movement is completed and the parts are ready for another operation.

While the invention is shown as embodied in the form believed by the inventor to be best adapted for its embodiment, it will be understood that it is capable of modifications and that the claims are not limited to the exact structure shown and described, but only so far as may be necessitated by the state of the art.

What is claimed, and desired to be secured by Letters Patent of the United States, is—

1. In a device of the class described, the gate Q pivotally mounted at one side of the needle-slot and having the nose R adapted to obstruct said slot and the tail S located in the path of the needle and cord whereby the position of the gate is controlled.

2. In a device of the class described, the breastplate K having the needle-slot L therein with the curved portion N, the opposed projecting portion O, and the gate Q pivotally mounted on the projecting portion O and having the nose R adapted to obstruct said slot and the tail S located in the path of the needle and cord whereby the position of the gate is controlled.

3. In a device of the class described, the combination of the needle, with the breastplate having the slot, the tying-bill located at one side of said slot, the cord-holder cooperating therewith, and the gate Q pivotally mounted at the side of the needle-slot and having the nose R adapted to obstruct said slot and retain the strands upon the tying-bill, and the tail S located in the path of the needle and cord whereby the position of the gate is controlled.

In witness whereof I have hereunto set my hand, at Chicago, Illinois, this 4th day of November, 1898.

MARY BREUSCHER,
Administratrix of the estate of Christoph C. Breuscher, deceased.

In presence of—

L. M. FOOTE,
J. I. KELLEY.