

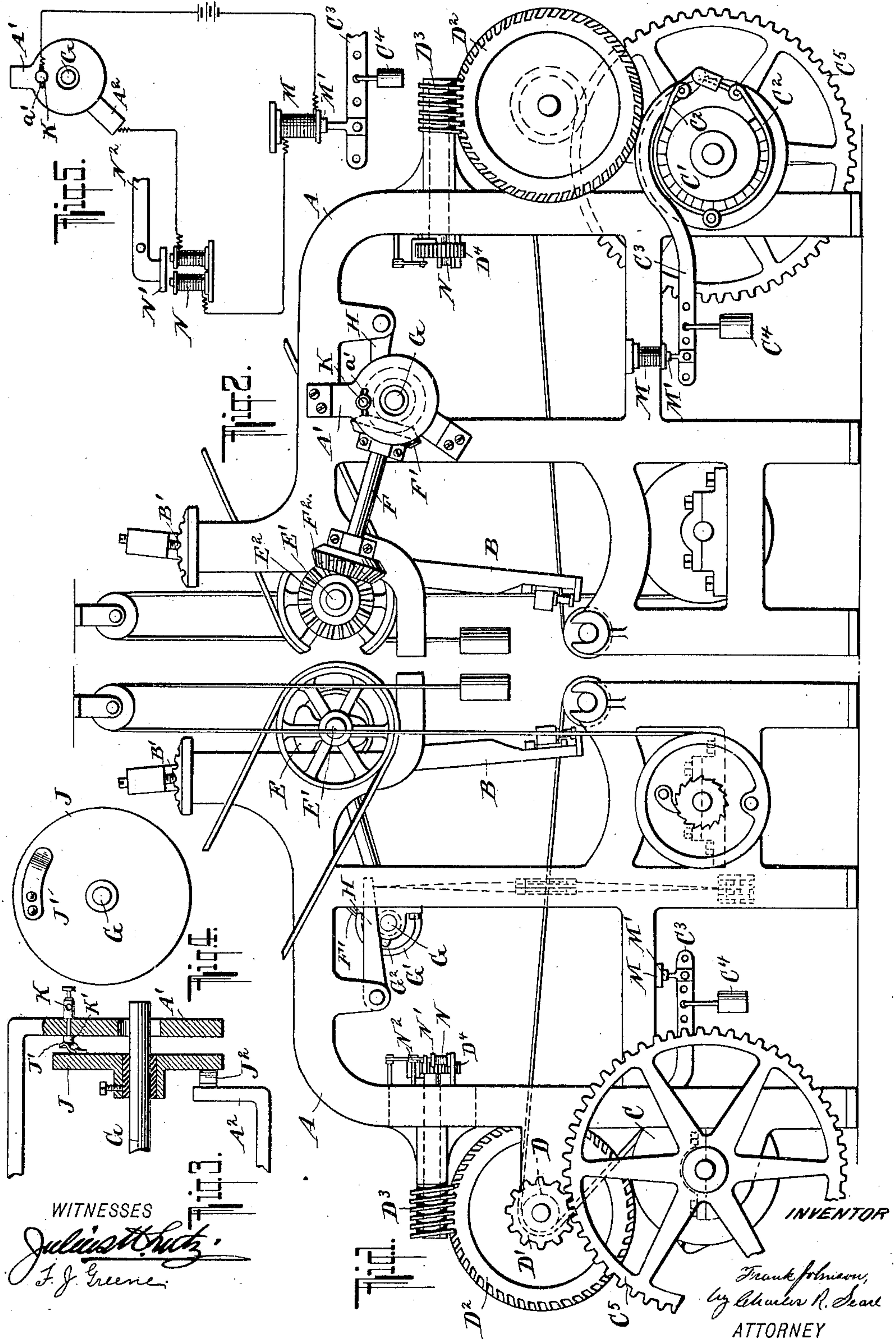
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F. JOHNSON.

BRAKE MECHANISM FOR LOOM WARP BEAMS.

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UNITED STATES PATENT OFFICE.

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BRAKE MECHANISM FOR LOOM WARP-BEAMS.

No. 871,278.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed February 26, 1907. Serial No. 359,357.

To all whom it may concern:

Be it known that I, FRANK JOHNSON, a citizen of the United States, residing in the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Brake Mechanism for Loom Warp-Beams, of which the following is a specification.

The invention relates more particularly to looms for weaving wire fabrics and to the let-off mechanism for such looms.

The object of the invention is to provide simple and positively-acting brake mechanism for automatically letting-off a predetermined length of warp-wires at proper intervals.

The invention consists in certain novel features and details of construction by which the above object is attained, to be hereinafter described.

The accompanying drawings form a part of this specification and show a preferred form of the invention as applied to a loom, with so much of the feed and weaving mechanism as is necessary to show the relation of the invention thereto.

Figure 1 is a side elevation of a loom equipped with the improved brake. Fig. 2 is an elevation of the opposite side. Fig. 3 is a vertical section partly in elevation showing the controlling means for the let-off mechanism. Fig. 4 is a face view of a portion shown in the preceding figure. Fig. 5 is a diagram showing the electric circuit.

Similar letters of reference indicate the same parts in all the figures.

A A are the side-frames of the loom, and B is the batten or lay swung from centers B¹ B¹ at the top of the frames and equipped with a reed and shuttle-throwing means, not shown, but which may be understood to be similar to that described in Letters Patent to me dated April 12, 1904, No. 757,121. The lay is caused to swing by double cams E carried on the main shaft E¹ and makes two beats or oscillations to each pick, as in the above patent.

At one end of the shaft E¹ is a bevel gear-wheel E² meshing with a similar wheel F² on the upper end of an inclined shaft F carrying at its lower end a smaller beveled gear-wheel F¹ in mesh with a similar wheel G¹ on a horizontal shaft G extending transversely of the loom parallel with and in rear of the main shaft E¹ and revolving at the same rate.

The shaft G carries cams G² acting on heddle-levers H to which is attached the harness for operating the heddles. The gearing from the main shaft is so proportioned as to induce one change of shed to the above-described two beats of the lay.

J is a controller or commutator carried on the projecting end of the shaft G, consisting of a circular disk of metal insulated from the shaft and having a spring contact-piece J¹ on its outer face adapted to make wiping contact with a fixed contact-point K¹, carried on an arm A¹ of the frame, and connected to a binding-post K. Another fixed arm A² carries a spring J² in continuous wiping contact with the inner face of the disk and serves to complete an electric circuit through the latter and any electric devices connected to the binding-post K. The circuit is shown in Fig. 5.

The warp-beam is marked C and carries the warp-wires as usual. It has a drum C¹ at one end partially encircled by a brake-strap or shoe C² attached to a brake-lever C³ held by a weight C⁴ in position to hold the drum and warp-beam against revolving, and raised to release the warp-beam by the action of a solenoid M fixed to the frame, and receiving a core M¹ attached to the brake-lever.

The solenoid is in the circuit and when the latter is completed through the spring contact-piece, is energized during such short period of contact and draws in its core M¹ to lift the brake-lever and permit a short length of warp-wires to be drawn off. The warp-wires are led over a guide-roller D having at one end a pinion D¹ in mesh with a gear-wheel C⁵ on the warp-beam so as to revolve therewith and at the other a worm-wheel D² engaged by a worm D³ rotated to turn the guide-roller and warp-beam by any suitable feed-mechanism, which may be understood for the purposes of this description to be operated electrically.

The warp-wires are led from the inner face of the warp-beam upwardly beneath and partially around the outer face of the guide-roller so that the opposite rotation of the beam and roller due to their gear and pinion tends to move them in the same direction as the travel of the warp-wires thereover.

The electric feeding-device for the worm D³ is only partially shown; D⁴ is a ratchet-wheel on the end of the worm-shaft, engaged by a pawl, not shown, actuated by connections from a bent-lever N² which is oscillated

by the movement of an armature N^1 toward the cores of an electro-magnet N energized by the current through the binding-post K and forming part of the circuit.

- 5 The binding-post K is set in a concentric-ally curved slot a^1 in the arm A^1 so that it may be adjusted in the path of the spring-contact J^1 , and the action of the brake and feed mechanisms accurately timed relatively
10 to the movements of the heddles and lay.

- Although I have described the brake as released by the action of a solenoid, and the worm as actuated by an electromagnet, it will be understood that the electric energy
15 may be utilized in either of these forms in either or both situations, or the feed mechanism may be otherwise operated if preferred;

and the brake may serve with looms of other types than the wire loom shown.

I claim:—

In a loom of the character set forth, a warp-beam, a brake thereon, an electrically actuated releasing-means for said brake, an electric circuit in which said releasing-means is located, and a controller operated by a
20 moving portion of the loom for making and breaking said circuit.

In testimony that I claim the invention above set forth I affix my signature, in presence of two witnesses.

FRANK JOHNSON.

Witnesses:

CHARLES R. SEARLE,
M. A. BOND.