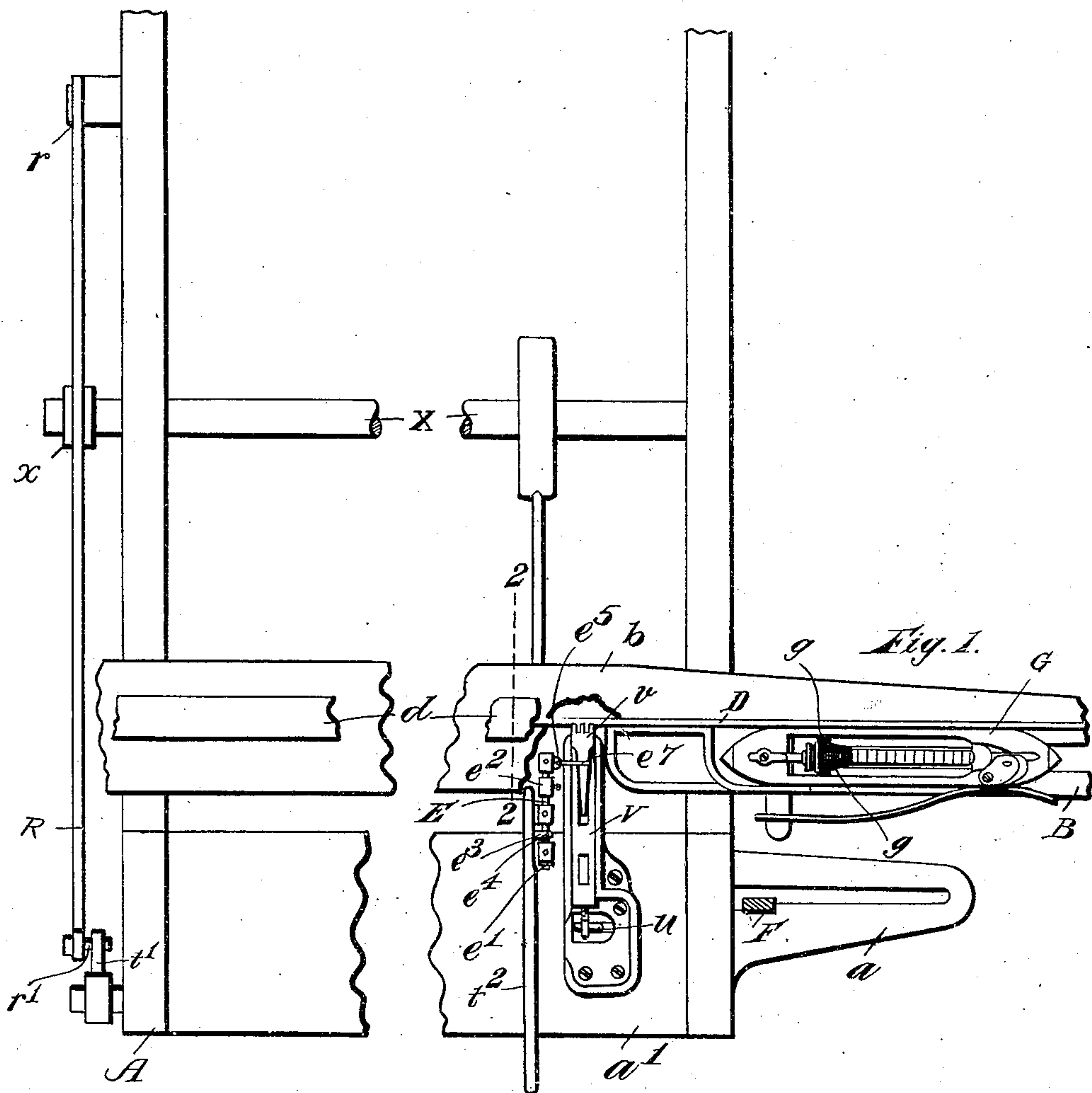
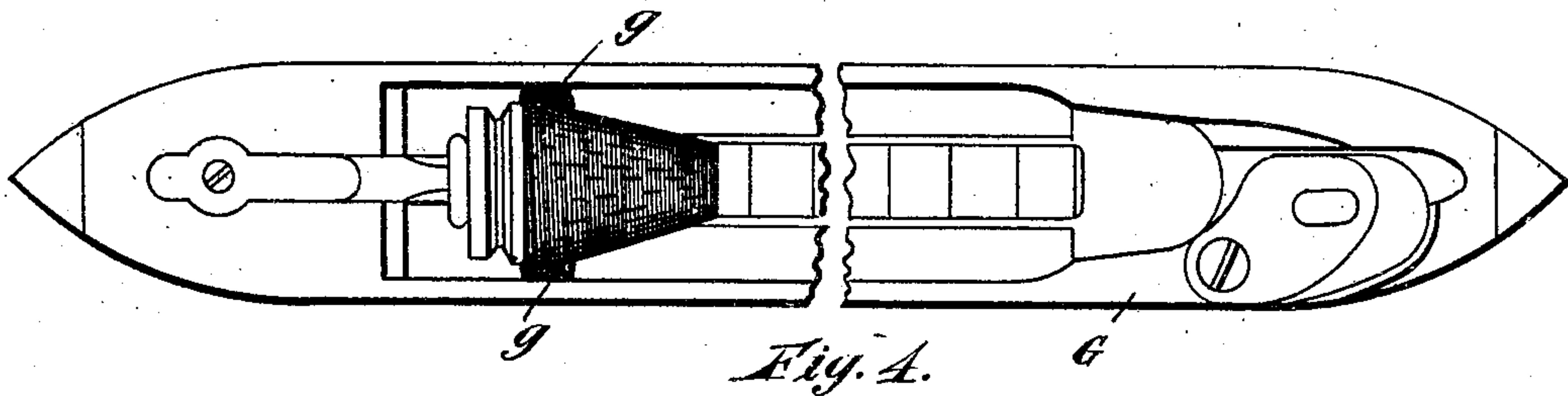


O. A. SAWYER.
STOP MOTION FOR LOOMS.
APPLICATION FILED FEB. 13, 1909.

938,712.

Patented Nov. 2, 1909.
2 SHEETS—SHEET 1.



WITNESSES:

Ludger A. Nicol.

Grace Crowley.

INVENTOR

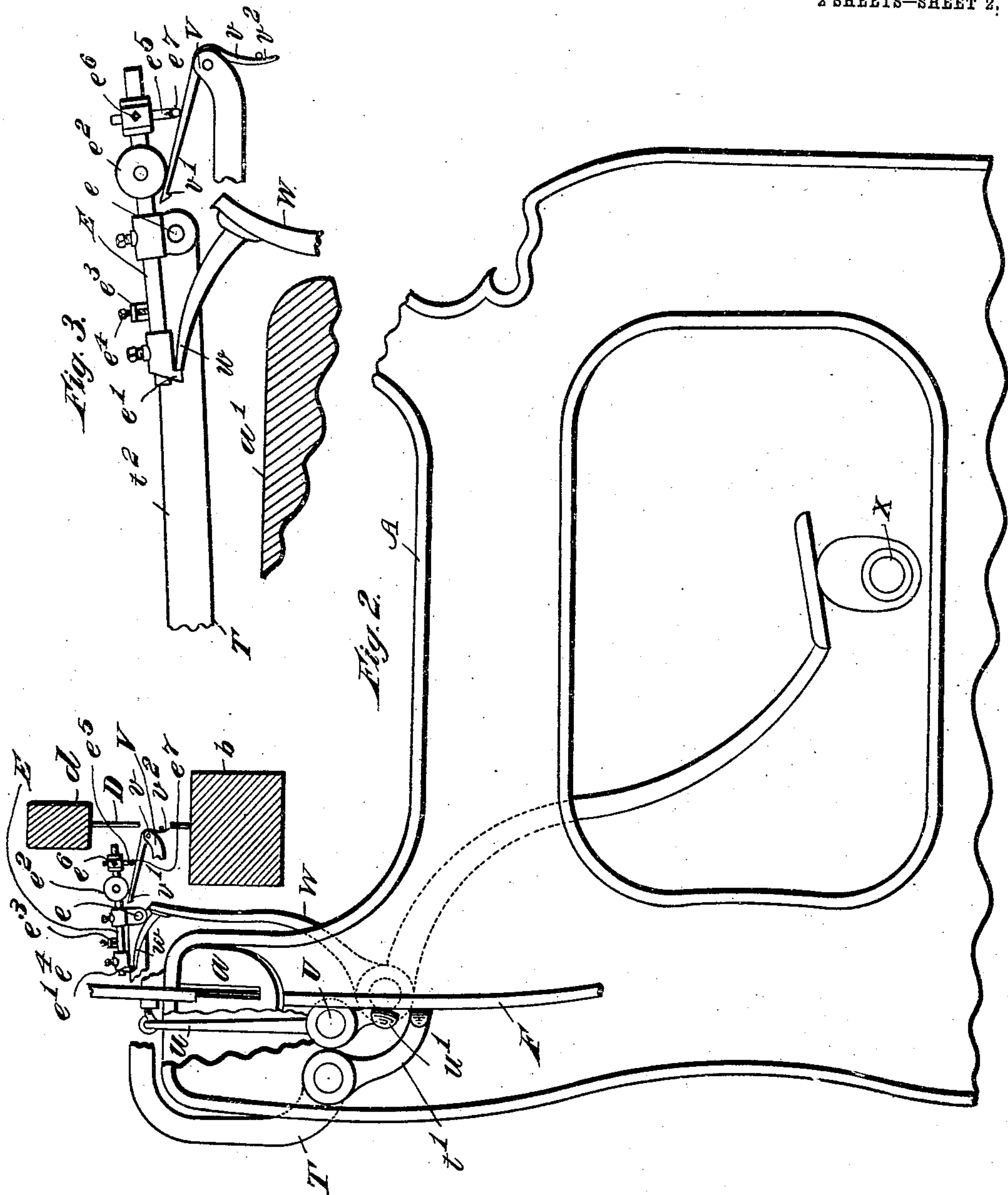
Orrin A. Sawyer,
By Albert M. Moore,
His Attorney.

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UNITED STATES PATENT OFFICE.

ORREN A. SAWYER, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO EARL A. THISSELL,
OF LOWELL, MASSACHUSETTS.

STOP-MOTION FOR LOOMS.

938,712.

Specification of Letters Patent.

Patented Nov. 2, 1909.

Application filed February 13, 1909. Serial No. 477,503.

To all whom it may concern:

Be it known that I, ORREN A. SAWYER, a citizen of the United States, residing at Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and useful Improvement in Stop-Motions for Looms, of which the following is a specification.

This invention relates to looms of that class which are known as "plain looms", in which the filling supply is renewed by hand by removing the empty shuttle and inserting a shuttle with a full bobbin or cop and the object of said invention is to stop the loom before the filling is exhausted, in order that the last pick or stretch of filling may extend entirely across the cloth, to avoid the necessity of removing the deficient pick in goods of the better quality. Such looms, by means of a stop-motion mechanism controlled by a stop-motion fork or filling-fork, are usually automatically stopped when the filling breaks or is exhausted, but usually the last pick or stretch of filling does not extend across the cloth and must be removed by hand and a new filling-thread substituted therefor, that is, in either case the shuttle must be taken out and the same shuttle or a new shuttle containing filling must be introduced at the side of the loom where the deficient pick commenced. In either case, unless the work is of the simplest kind as "two harness" work, the loom must be "turned over" or worked by hand without filling until the harnesses are in the same position, as at the beginning of the defective pick, before the defective pick can be replaced. Failure to find the proper pick before re-starting would cause an obvious defect in figured or napped goods.

In the accompanying drawing, on two sheets, Figure 1 is a plan of such parts of a plain loom provided with my invention as are required for the understanding of the following description; Fig. 2, a vertical section of the same on the line 2 2 in Fig. 1; Fig. 3, an enlarged side elevation of the tilting hook, the weft-fork and adjacent co-operating parts; Fig. 4, a plan of a shuttle having means for producing an increased tension on the filling when the same is nearly exhausted.

The frame A; breast-beam a^1 ; lay B; reed D; reed-cap d ; cam-shaft X, carrying a cam x , the weft-hammer W; the weft-fork

v pivoted on the slide V; the stop-motion rod U; the shipper or stopping and starting lever F; the notched plate a , which holds the shipper in position when the loom is running, are of any usual construction and operation except as hereinafter stated.

The weft-fork v is provided with a hook v^1 at its front end which is normally held out of the path of the upper end of the weft-hammer W as said upper end swings forward, by the pressure of the filling on the rear end v^2 of said fork but when said filling is broken, exhausted or too slack, said hook v^1 falls and is carried forward with the slide V by said weft-hammer and rocks the stop-motion rod U, to the upper arm u of which said slide is connected, causing the lower arm u^1 of said rod U to press the shipper F out of the notch in the holding-plate a , whereupon the shipper is thrown by a spring not shown, in such a manner as to stop the loom in a well-known manner.

The fork v in this invention besides being operated by a failure or slackness of the filling is operated by an excessive tension of the filling to lift its front or hooked end v^1 high enough (see Fig. 3) to strike and lift the rear arm of a tilting hook E which is fulcrumed at e on the upper arm t^2 of a lever T, said arm t^2 reaching up over the breast-beam a^1 as shown, depressing the front or hooked end of said hook E into a position to be engaged by a projection w which I have secured to the upper arm of the weft-hammer W so that when the said upper arm swings forward the hook E and arm t^2 are pushed back, rocking the lever T in such a manner as to press the lower end of the lower arm t^1 of said lever against the front of the shipper, throwing said shipper out of the notch and stopping the loom in the usual manner.

The front end or hook proper e^1 of the tilting hook E is normally held up by a weight e^2 on the shank of said hook in the rear of the pivot e . A stop consisting of a bracket e^3 secured to the arm t^2 and extending over the front arm of the hook E carries a screw e^4 which thrusts down upon said arm and varies the limit of the upward movement of said front arm.

A bunter e^5 adjustably held on the rear arm of said fork E by means of a set-screw e^5 , carries an anti-friction roll e^7 against which the fork v strikes when tilted by the

undue tension of the filling thread. The increased tension of the filling may be caused by any device arranged in the filling-carrier and pressing upon or causing a friction
5 upon the turns of the filling which leave the bobbin or cop-tube just before the exhaustion of said filling. In Fig. 4, I have shown adequate means of producing such increased tension by means of the friction
10 of pieces of cloth *g* secured, as by glue, to the inner faces of the walls of the shuttle *G* and pressing upon the mass of filling below the cop proper, said shuttle *G* being in all respects, except as above stated, of the
15 usual construction and operation.

I claim as my invention:—

1. The combination in a loom, of stop-

motion devices and a controlling device therefor operated by an excessive tension of the filling to stop said loom. 20

2. The combination in a loom, of stop-motion devices, a weft-fork, a weft-hammer, means adapted to be moved into engagement with said weft-hammer by said weft-fork upon an excessive tension of the filling to
25 operate said stop-motion devices, to stop said loom.

In witness whereof, I have affixed my signature in presence of two witnesses.

ORREN A. SAWYER.

Witnesses:

ALBERT M. MOORE,
GRACE CROWLEY.