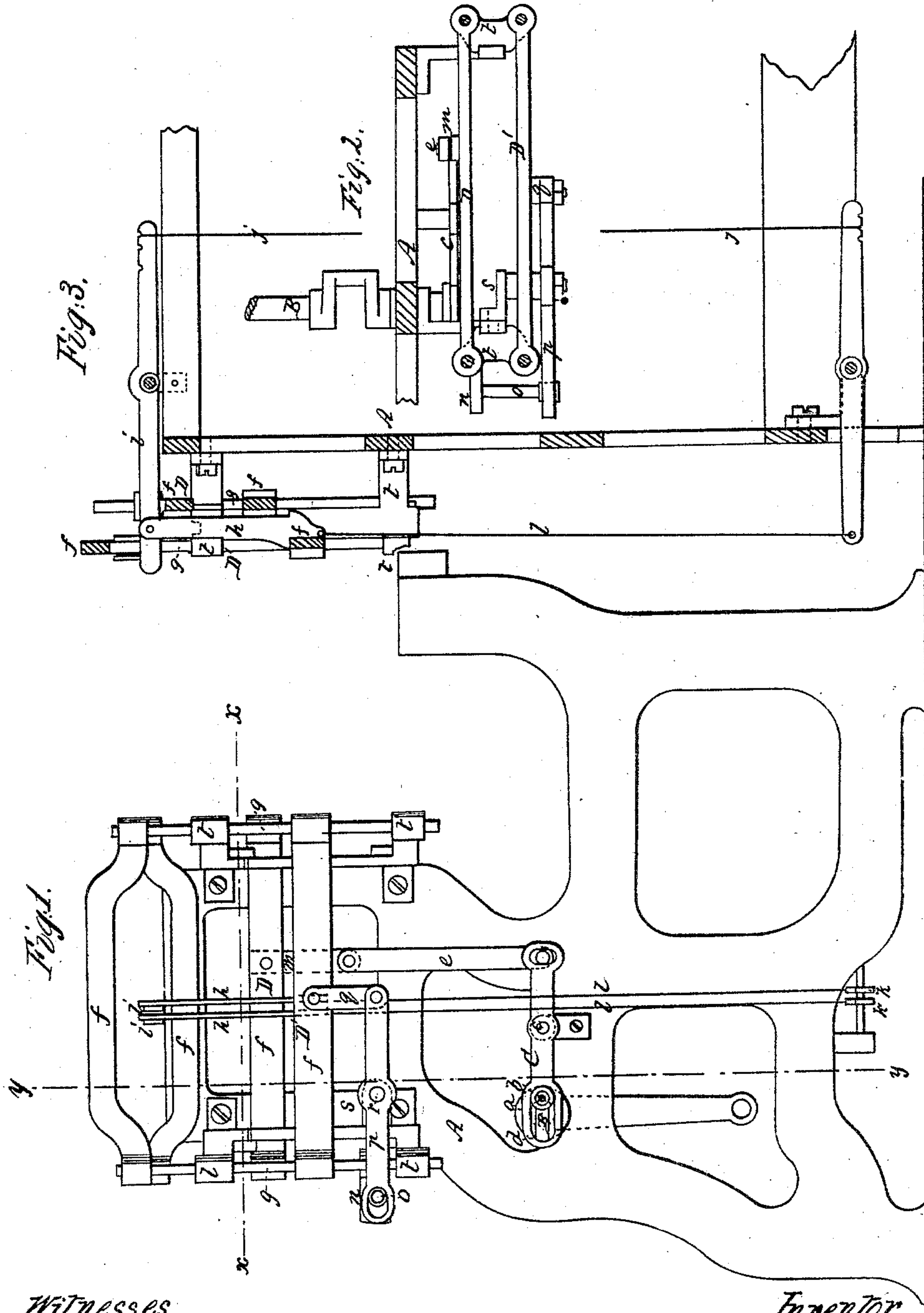


# J. Braun. Loom.

No. 49,369.

Patented Aug. 15, 1865.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN LOOMS.

Specification forming part of Letters Patent No. 49,369, dated August 15, 1865.

*To all whom it may concern:*

Be it known that I, JOHN BRAUN, of the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Looms; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of this invention. Fig. 2 is a horizontal section of the same, the line *xx*, Fig. 1, indicating the plane of section. Fig. 3 is a transverse vertical section of the same, taken in the plane indicated by the line *yy*, Fig. 1.

Similar letters of reference indicate like parts.

This invention relates to certain improvements in a loom of that class in which the shed is produced by the action of rising and falling gates or eveners on a series of oscillating levers or heddle-shafts which connect with the harness and control the position of the warp-threads.

The invention consists in the arrangement of an oblong slot in the end of the working-beam, which transmits the motion of the crank-shaft to the eveners in such a manner that the eveners remain stationary at the extreme ends of their stroke for short intervals, while the crank-shaft continues to revolve with a uniform speed, and by these means the shed is held open for a short time and the shuttle allowed to travel through it without obstruction.

The invention consists, also, in connecting the rods which operate the eveners in the center, instead of at the ends, in such a manner that the weight of the eveners is evenly balanced and the motion is effected with less power and less wear to the working parts than by the ordinary arrangement. In order to facilitate the motion of the eveners, they are guided by two pairs of boxes, one pair on either side.

A represents a portion of the frame of a loom, to the working parts of which motion is imparted by a crank-shaft, B, which has its bearings in the frame, and to which motion is imparted in the usual manner. On one end of this shaft is mounted a disk, *a*, from the face of which projects an adjustable wrist-pin, *b*, and by the action of this wrist-pin an oscillat-

ing motion is imparted to the working-beam C. This working-beam has its fulcrum on a stationary stud, *c*, which projects from the frame, and that end of said beam which engages with the eccentric wrist-pin *b* is provided with a curved oblong slot, *d*, whereas its other end connects by a rod, *e*, with one of the eveners D. Two such eveners, D and D', are used to produce the shed, and they are composed of flat top and bottom bars, *f*, which are secured to upright round side bars, *g*, and which may be made adjustable by set-screws or any other suitable means. The eveners act on hooked catches *h*, the upper ends of which are pivoted to the outer ends of the top levers or heddle-shafts, *i*, while their lower ends connect by means of wires *l* with the foot-levers *k*. The inner ends of the top and foot levers connect by means of wires with each other and with the harness, so that by each wire extending from one of the top levers to the harness and to the corresponding foot-lever the position of one division of the warp-threads is controlled. By throwing one of the hooked catches in gear with the outer and the other with the inner eveners when the crank-shaft B is in motion, the action of said levers will be made apparent. The connection between the rod *e* and bottom bar of the eveners D is effected by a hanger, *m*, secured to said bottom bar at about the middle of its length, or somewhat nearer to that side which points toward the yarn-beam; and from its vertical bar on the opposite side extends an arm, *n*, with a stud, *o*, which catches into the slotted end of a working-beam, *p*, and the opposite end of this working-beam connects by a link, *q*, with the bottom bar of the eveners D'. The working-beam *p* has its fulcrum on a stud, *r*, extending from one of the standards *s*, which are rigidly attached to the side piece of the frame A, and to which are secured the boxes *t*, which form the guides for the side bars of the eveners.

By using four guide-boxes for each eveners, one piece on either side, said eveners are guided up and down straight, and they are prevented from wearing and from absorbing an unnecessary amount of power.

By applying power to the eveners at or near their center the force required to raise them is equalized and reduced, and neither side is exposed to an undue strain. The reason why the



power is not applied directly in the center of the bottom bar of the evener D is because in throwing off some of the levers or shafts *i k* the weaver always selects those nearest to the yarn-beam, and the point of connection is so situated that the evener will be balanced when the average number of levers or shafts are in operation.

By the action of the short curvature in the oblong slot *d*, which curvature coincides with the arc of the circle described by the wrist-pin *p*, the eveners are caused to stop for a short space of time at each end of their stroke, and the shed is held open for a sufficient length of time to allow the shuttle to pass through without catching in the warp-threads.

I claim as new and desire to secure by Letters Patent—

1. The oblong slot *d* in the end of the working-beam C, in combination with the eveners D D' and levers *i k*, constructed and operating substantially as and for the purpose set forth.

2. The manner described of supporting and operating the eveners by connecting them at or about the centers, the one with the working-beam C and the other with the working-beam *p*, which receives its motion from the one connected to the main beam, substantially as described.

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Witnesses:

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