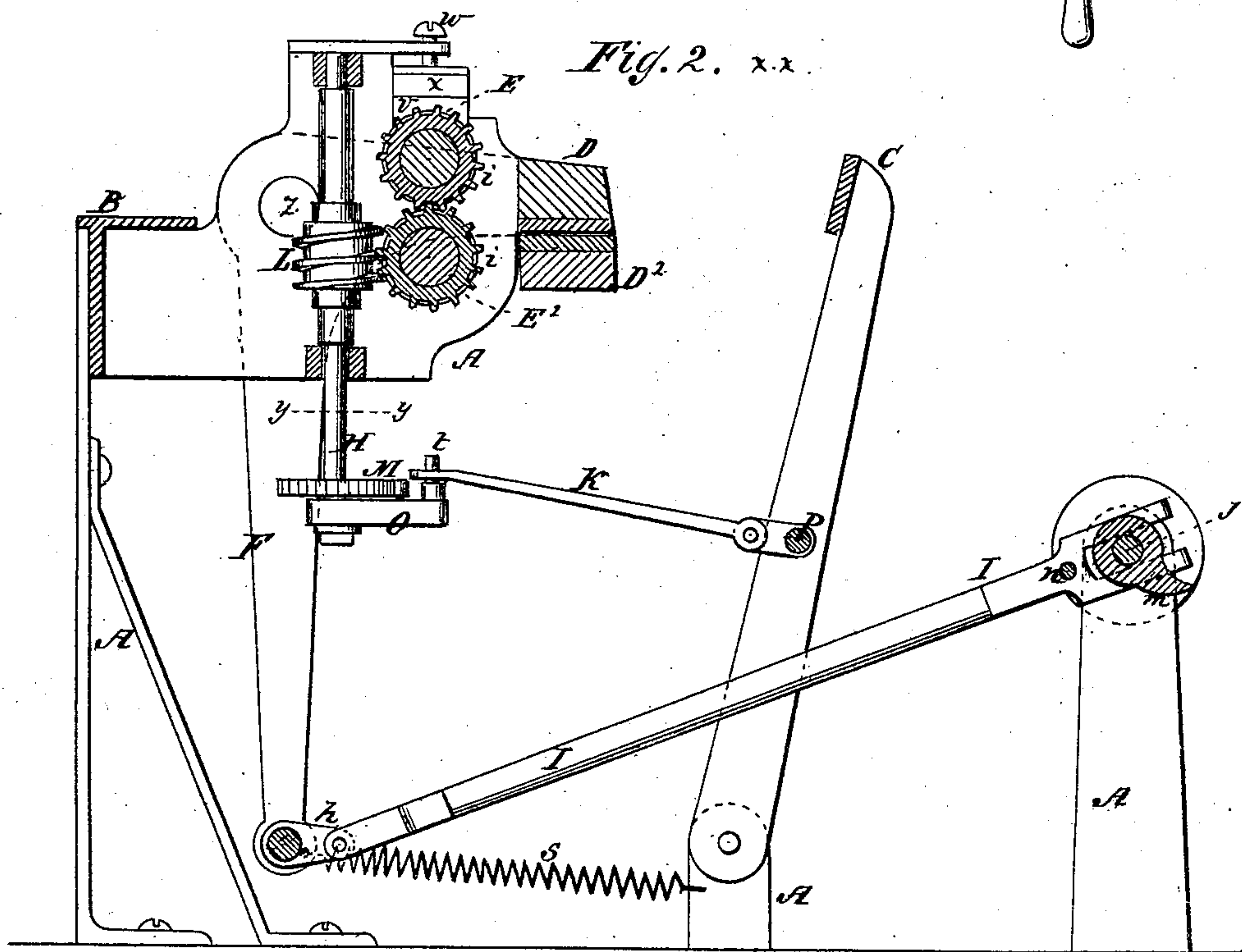
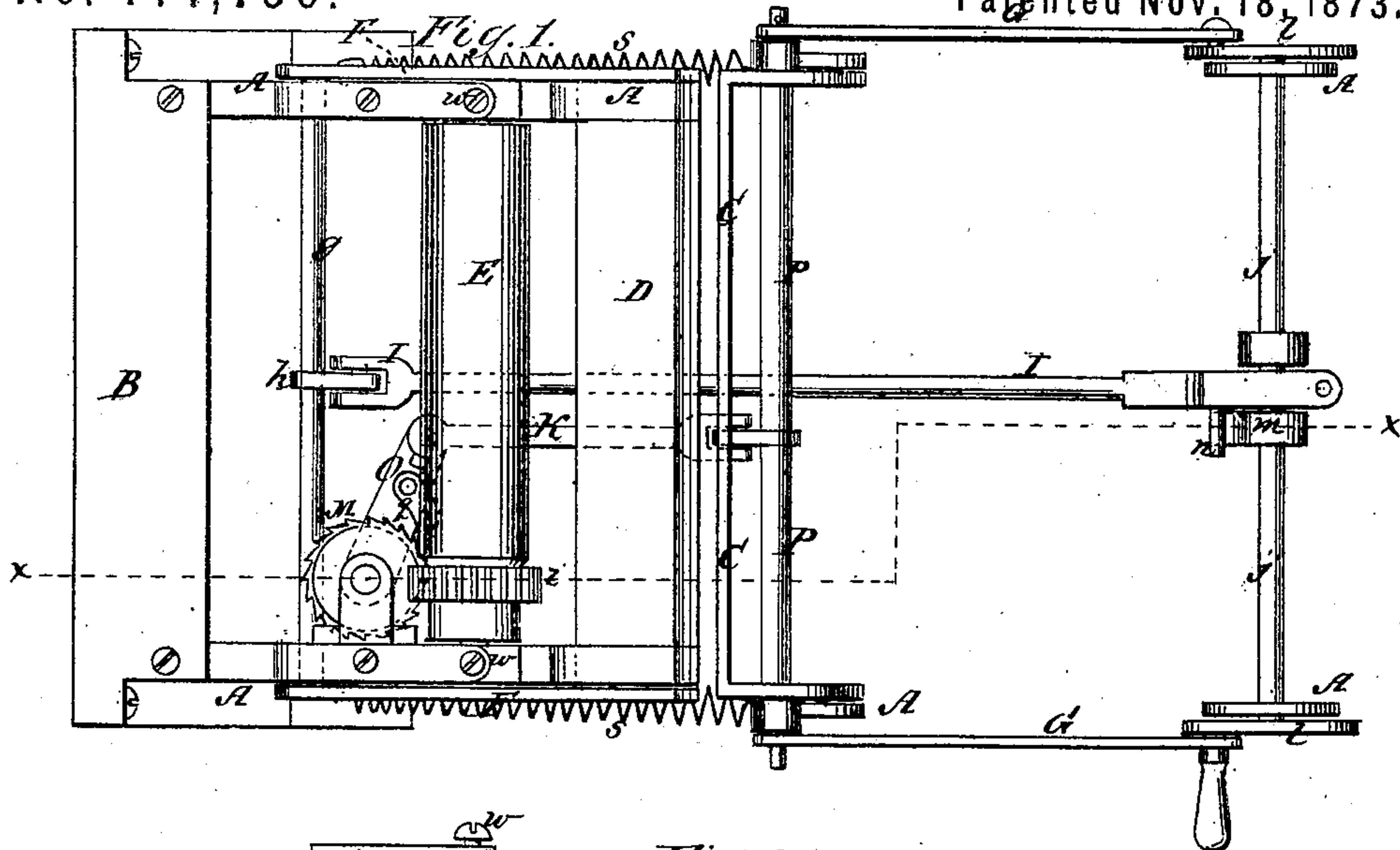


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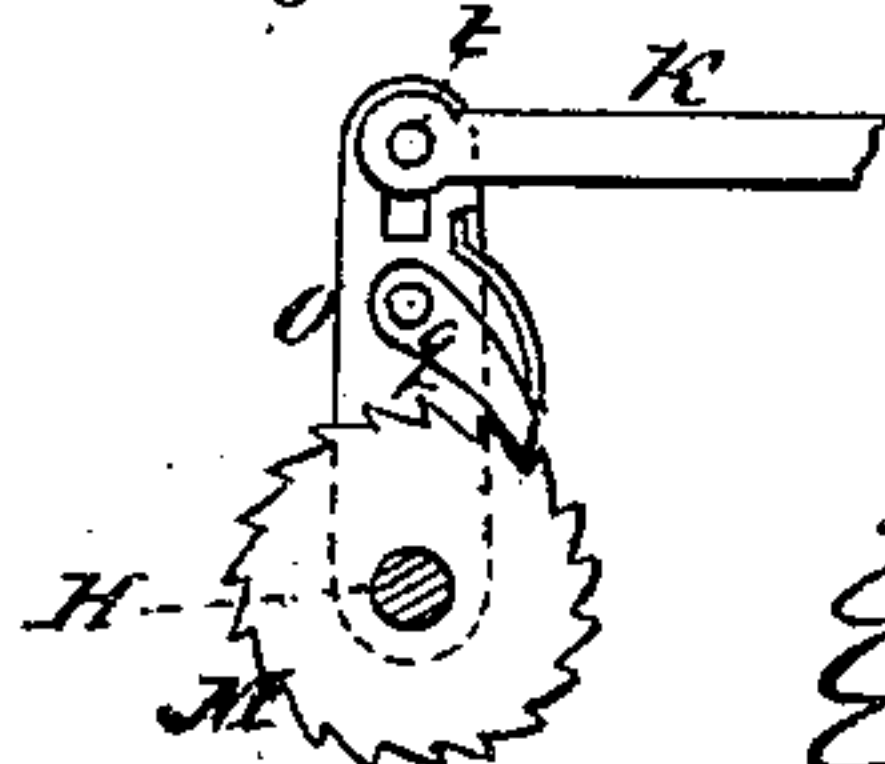
Take-up Mechanisms for Looms.

No. 144,756.

Patented Nov. 18, 1873.



*Fig. 3. y y.*



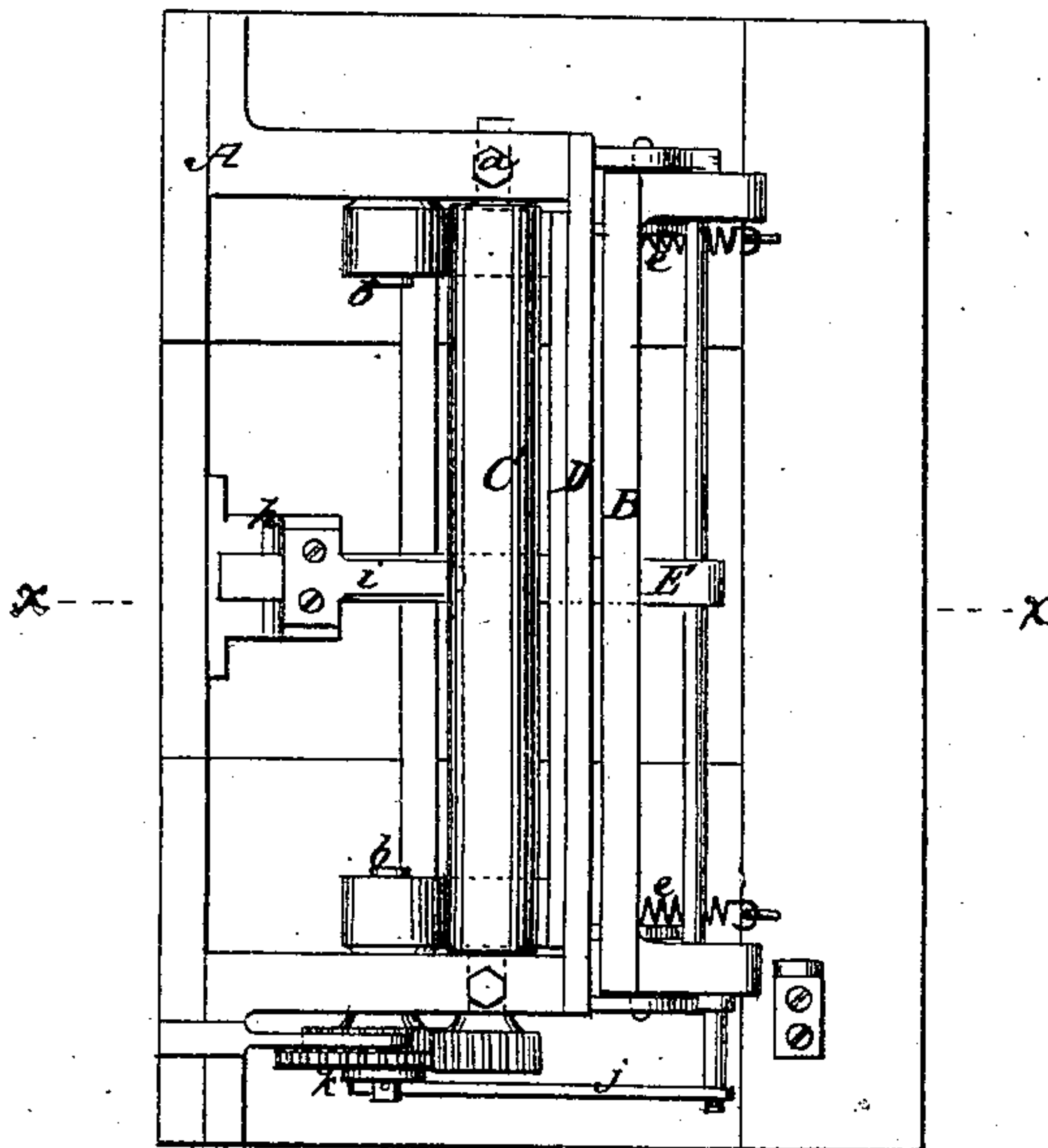
Witnesses:

J. Felber  
E. Woff

Inventor:  
Charles Gahren  
By atty. J. H. Moore.

**C. GAHREN.**  
**Take-up Mechanisms for Looms.**  
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*Fig. 3.*



*Witnesses:*

*E. Wolff.*

*Jacob Felbel*

*Inventor.*

*Charles Gahren*

*By atty. J. N. McEntire*



# UNITED STATES PATENT OFFICE.

CHARLES GAHREN, OF NEW YORK, N. Y.

## IMPROVEMENT IN TAKE-UP MECHANISMS FOR LOOMS.

Specification forming part of Letters Patent No. **144,756**, dated November 18, 1873; application filed October 21, 1873.

*To all whom it may concern:*

Be it known that I, CHARLES GAHREN, of New York city, in the State of New York, have invented new and useful Improvements in Looms for Weaving Corsets; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

Previous to my invention it has been customary, in looms for weaving corset and other irregularly-woven fabrics, to employ, among other means for holding and taking up the web or fabric, a clamp or pair of clamping-jaws, and some sort of take-up rolls or device, the clamping-jaws being arranged between the take-up mechanism and the reed or beat-up; but in all such means for taking up the irregularly-woven fabric the take-up mechanism has operated while the clamping-jaws were open, and the latter simply closed on the web after it had been taken up, to hold it while another pick (or picks) was inserted.

I have discovered that by reversing the relative times of operation of the holding-clamp and take up, so that the clamp shall open to permit the beating up of the pick by the reed, and then close on and hold the portion beaten up while the take-up gathers up the slack thus occasioned between it and the clamp, I am enabled to weave irregular fabrics, or fabrics with fullnesses, (like corset stuff,) with greater facility, evenness, and perfection, and am enabled to very much simplify the mechanism by which such desirable result is attained; and my invention, to these ends and objects, consists in the combination, in a loom, of a clamping device or jaws, and a take-up mechanism, so operated, by any suitable devices, that the jaws or clamp shall open as the reed beats up, and then close on the web, while the take-up operates, after such closing of the clamp, to take up the slack between it and the clamp, all as hereinafter more fully described.

To enable those skilled in the art to make and use my invention, I will proceed to more fully describe it, referring by letters to the accompanying drawings, in which I have represented, in a top view at Figure 1, a vertical section at Fig. 2, and a detail view at Fig. 3, so much of a loom for weaving corsets as is

necessary for the full illustration of my invention.

In these several figures of the drawings, A represents a portion of the frame-work of a loom. B is the breast-beam; C, the lay or beat-up, which carries the usual reed; D and D<sup>2</sup>, the upper and lower jaws of the clamp; and E E<sup>2</sup>, the two take-up rolls. The upper one, D, of the clamp-jaws is permanently secured to the frame-work A, and the lower one, D<sup>2</sup>, is attached to the upper ends of two angle levers or arms, F F, which are pivoted to the frame-work at Z, (see Fig. 2;) and the two take-up rolls E E<sup>2</sup> are geared together by pinions *i i*, by which they are caused to rotate always together, in opposite directions. The lower ends of the rocking angle-levers F are connected by a cross-bar, *g*, to the middle of which is coupled one end of a connecting-rod, I, the other end of which is bifurcated, so as to straddle the shaft *j*, and carries a stud or pin, *n*, projecting sidewise, and acted upon by a cam-like tappet, *m*, in such a manner (as will be presently explained) as to cause a vibration or movement in one direction of the lower ends of the angle-levers F, while two springs, *s s*, secured (each of them) at one end to said levers, and at the other to a stationary portion, A, of the machine, cause the return movement, or a vibration in the other direction, of the lower ends of said levers F. Connecting the arms or swords of the lay is a cross-bar or small shaft, P, to the outer ends of which are connected the pitmen G G, by which motion is imparted to the lay from the crank *l l* of the driving-shaft *j*, and to the middle of this bar P is coupled one end of a pitman or rod, K, the other end of which is pivoted, by a pin, *t*, to the bar O, and gives to said bar O (as the lay vibrates vertically) a vibratory motion, as and for a purpose to be presently explained. The take-up rolls E E<sup>2</sup> are mounted in suitable bearings in about the usual manner, provided with caps *v*, set-screws *w*, and interposed elastic blocks *x*, whereby the said rolls may be set and held toward each other so as to gripe the web with any desired tenacity, and at the same time be capable of yielding for the passage between them of thickened portions of the material, and with the pinion *i* of the lower roll E<sup>2</sup> engages a worm,



L, by means of which an intermittent rotatory motion is imparted to said pinion *i*, and through it to the two rolls, to effect the take-up of the material. The worm L is fast on a vertical shaft or spindle; H, near the lower end of which is secured a ratchet-wheel, M, with which engages a pawl, *q*, hung on the bar O before alluded to, and as the said bar O is vibrated by the lay, through the medium of the connecting-rod K, the said pawl *q* turns the ratchet-wheel M as it moves in one direction, and slips over it as it moves in the other direction, and thus the ratchet-wheel, the shaft H, and the worm L, are together intermittently rotated. The cam *m* is so made and so placed on the shaft *j*, and the pin *n* on the pitman I is so located relatively to the said cam, that during the operation of the machine the said cam, operating on the said pin *n* and moving the pitman I, will cause the jaws of the clamp D D<sup>2</sup> to open just as the lay is about finishing its forward or beat-up motion, and to close again before, or just as, the lay begins to recede, and as the backward vibration of bar O, by which the ratchet-wheel M is turned to give motion to the take-up rolls, begins only when the lay begins to recede, it follows that the take-up rolls do not begin to operate until the clamping-jaws shall have closed on the material just beaten up between them by the reed and lay.

From the foregoing description of the parts and their operations the general operation of the machine will be understood to be as follows: When the reed and lay beat up the inserted weft thread or pick in the usual manner, the clamping-jaws open to receive the stuff beaten up, then close on and hold it securely while the lay recedes for the insertion of another pick, and while the lay thus recedes it effects the movement, as described, of the take-up rolls, which, pulling on the web, take up or draw in between them any slack portion of the web between their bite and the bite of the clamp, permitting such parts as are already taut to remain unaffected by slipping thereon, in the manner well known.

It will be seen that in a machine constructed and operating as described the picks will be always beat up parallel to the holding-clamps, the latter opening and closing each time on

the same point in that portion of the warp which may not be receiving any filling, and on a new portion of that part of the warp which may be having the picks or filling inserted, (as, for instance, in forming the gussets of corsets,) and that no strain is brought on the warp or its tension mechanism by the action of the take-up, because the latter only operates upon the web between itself and that point at which it is held fast throughout its entire width by the clamping-jaws. And it will be understood that in a machine embodying the described mode of operation no nicety of operation or complexity of construction are necessary in the take-up, because, as the stuff beaten up is held between the clamping-jaws (which may be made to hold with any desired degree of tenacity) at the time of the operation of the take-up rolls, they have simply to pull on the woven stuff sufficiently to take up the slack, slipping on the portion in line with that part of the warp which is receiving no filling, and keeping the material taut between the rolls and the clamp.

I do not, of course, wish to be understood as limiting my claim of invention to any of the details of construction, or to the particular devices employed as the instrumentalities for effecting the necessary movements of the clamping and take-up mechanisms, as in these respects my machine may be varied without changing the principle on which it works, and in which rests the gist of my invention; but

Having so described my invention, and the best mode of carrying it out known to me, as that others skilled in the art can understand and practice it, what I claim as new in a loom for weaving irregular work, and desire to secure by Letters Patent, is—

The combination, with the reed or beat-up, of a clamping device or mechanism and a take-up device or mechanism, arranged to operate in substantially the manner described, for the purpose set forth.

In testimony whereof I have hereunto set my hand and seal this 4th day of October, 1873.

CHARLES GAHREN. [L. S.]

In presence of—

JAMES HARRIS,

ORLANDO P. SMITH.