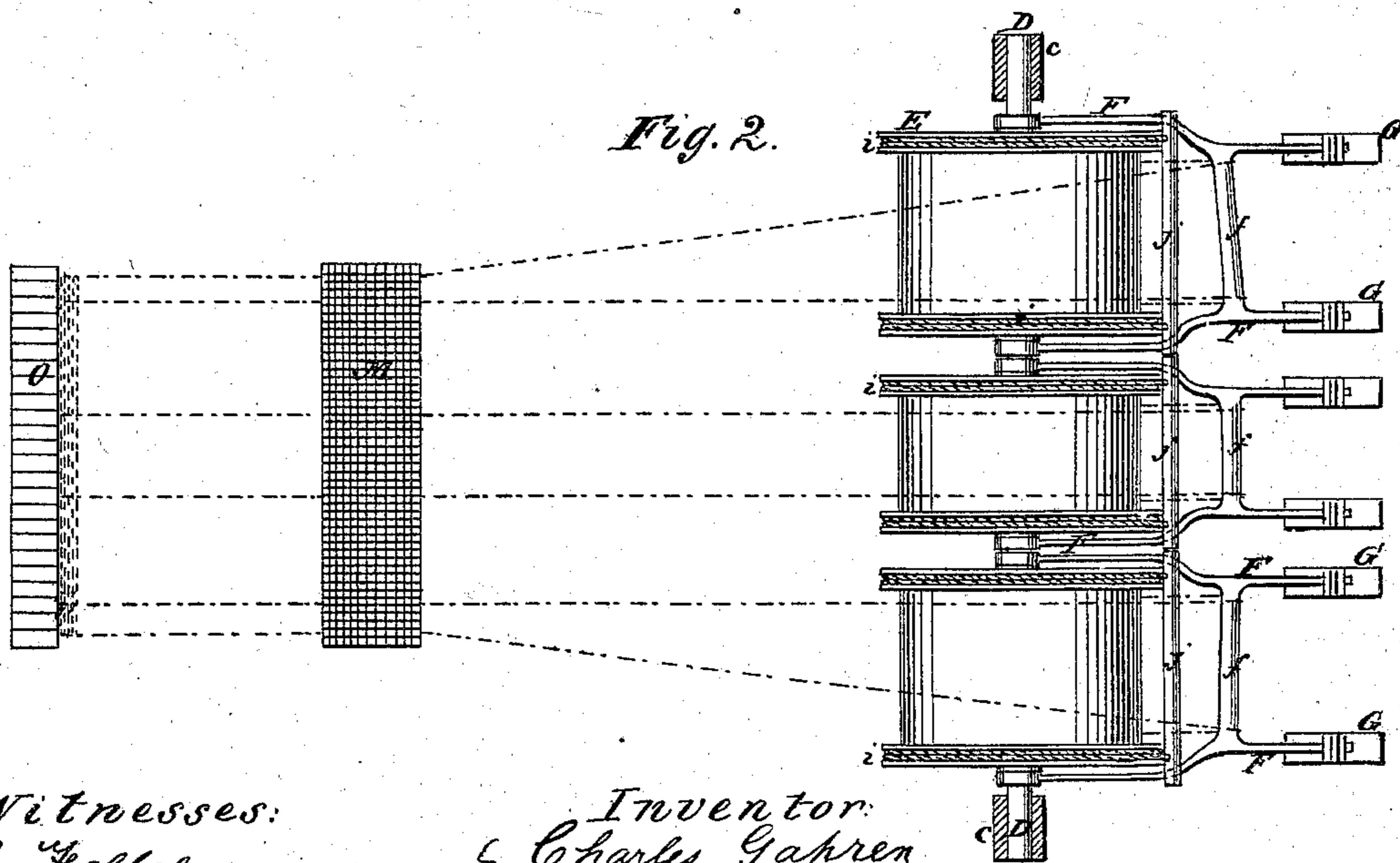
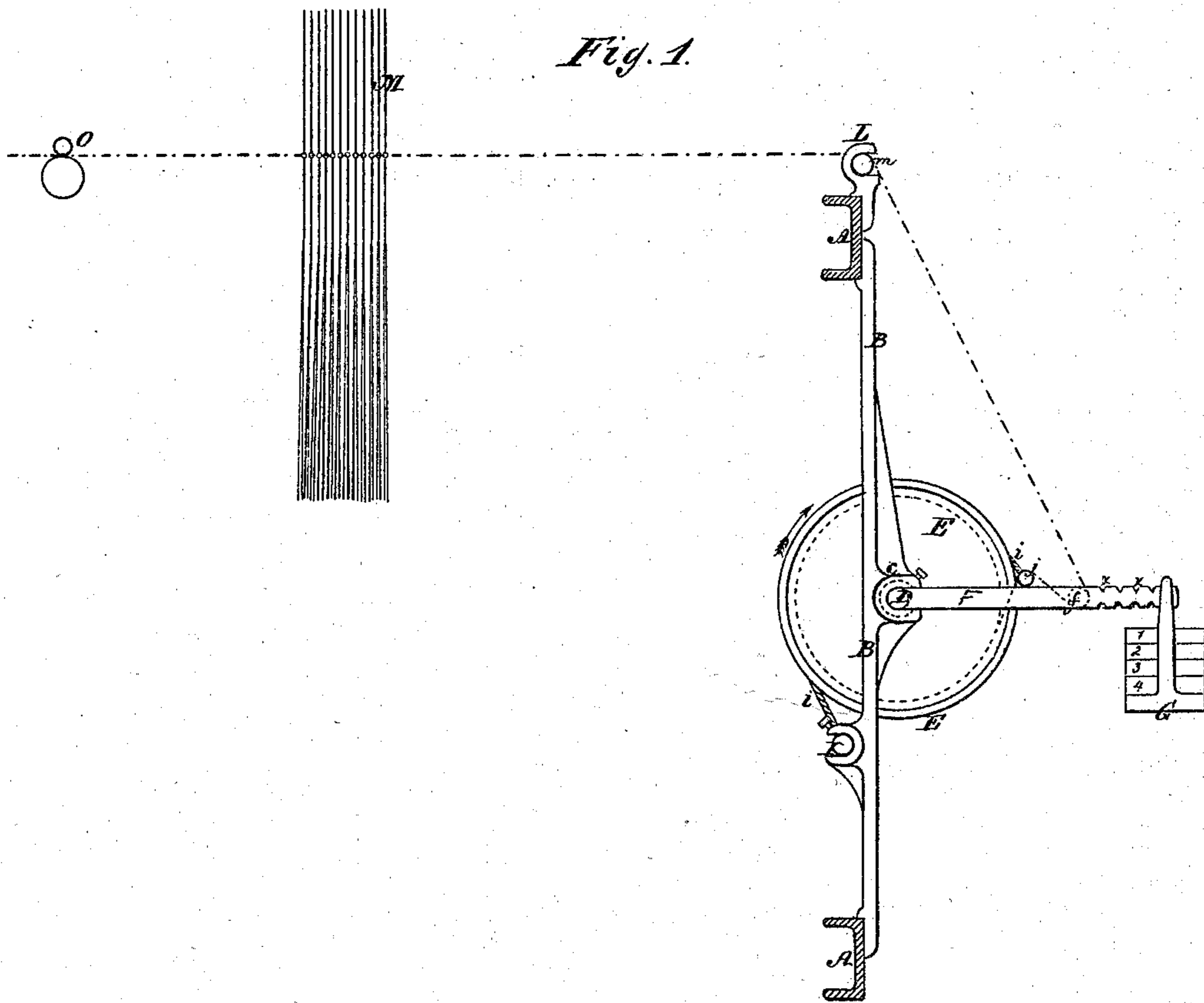


C. GAHREN & L. LANGLOTZ.
Let-off Mechanism for Looms.

No. 138,391.

Patented April 29, 1873.



Witnesses:
J. Felbel
Jno Smith

Inventor:
Charles Gahren
and Louis Langlotz
 By attorney
J. M. Intire

UNITED STATES PATENT OFFICE.

CHARLES GAHREN AND LOUIS LANGLOTZ, OF NEW YORK, N. Y., ASSIGNORS
TO MORITZ COHN, OF SAME PLACE.

IMPROVEMENT IN LET-OFF MECHANISMS FOR LOOMS.

Specification forming part of Letters Patent No. **138,391**, dated April 29, 1873; application filed
February 24, 1873.

To all whom it may concern:

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

Our invention is particularly adapted for use in looms for weaving corsets and other goods, or irregularly-woven goods, in the weaving of which the warp-threads are separated into sections, some one or more of which are taken up, while others are not drawn or fed off from the warp beams or reels, but may be applied to any sort of loom with advantage.

Previous to our invention, where the warp-threads have been separated into several lots or reeled off from a series of independently-moving warp-beams, it has been found difficult to regulate the tension of all the threads of a single beam, because it was necessary that the threads of the outer reels pass convergently toward the heddles, and these obliquely-arranged threads would naturally draw over the tension-bar with a different action from that which influenced those threads which passed off at about right angles to the bar and its reel axis. Our improvement has for its main object to overcome these difficulties, and to provide means by which the tension of all the threads drawn off convergently from a single reel or warp-beam may be made the same.

Our invention consists in the arrangement of the tension-bar (in cases where the warp-threads are passed off to the heddle obliquely or convergently) in a position inclined to the axis of the reel, as will be presently more fully explained.

To enable those skilled in the art to make and use our invention, we will proceed to more fully describe its construction and operation.

In the drawing, Figure 1 is an end view, and Fig. 2 a top or plan view, showing our invention.

In these figures, A represents the rear portion of the metal frame of a loom, or that part to which the warp-beams, their brackets, and

the associated tension mechanism are attached. B are bracket-like castings or bars, which are bolted at their upper and lower ends to the frame A, and near the centers of which is hung, in suitable bearing boxes or hubs *c*, the shaft D, on which are loosely mounted, in the usual manner, the warp beams or reels E. Pivoted about the shaft D (as a center of vibration) are the bifurcated or H-shaped levers F, on the outer ends of which are hung scale-like weight-carriers G, which are provided with removable weights 1 2 3 4, and which are adapted to be shifted, in the usual manner, into any one of the several retaining notches *x* of the said bifurcated levers, which are made, as seen, with a cross-bar or shaft, *f*, which rests on the warp-threads, as and for purposes to be presently explained. I is a rod or bar, arranged on the inner sides of the brackets, below the reels, and attached thereto in any suitable manner, and to which is attached one end of each of the friction cords or bands *i*, which pass thence nearly twice round the peripheries of the heads of reels E, as shown, and are secured at their opposite ends to bars *j*, which serve as weights and also as presser-bars to receive and impart to the friction-cords *i* the weight or pressure exerted on them by the weighted lever F operating through the medium of the cross-bars *f* and the warp-threads, as will be presently explained. L are the usual brackets or stands, bolted to the rear upper portion of the loom-frame, and in which are mounted the metal rods *m* or glass bars, over which the thread passes to the heddles or harness at M, and thence onto the "take up" mechanism at O.

As these and other portions of the loom form no part of our improvements, we need not describe them here, nor more fully illustrate them in the drawing. To avoid confusion of lines, we have merely illustrated, by dotted lines, a few of the threads which pass from the warp-beams, in the manner indicated, over the bars *j*, thence under the bars *f*, then up over rod or bar *m*, and off to the heddles or harness.

From the foregoing description of the construction and arrangement of the parts, it will

be seen that the weighted levers *F* are supported by the warp-threads, which pass under the bars *f* of said levers, and that the sustained weight will be thrown onto or partially sustained by the brake-bars *j* of the friction-cords *i*, since the warp-threads pass over these bars *j* after leaving the reel; and that thus the weights will tend to make the cords *i* bind on the peripheries of the reels on which they are arranged, and serve as a sort of friction-brake to prevent the rotation of said reels. And it will be understood that each time the weighted lever is suddenly lifted by the warp-threads, through the action of the lay and the take-up, and strikes and lifts the bar *j*, an opportunity will be afforded the reel to slightly turn and permit the paying out of a small quantity of each thread, the descent of said lever each time again putting on the friction-brake, and that thus a uniform and perfect tension in the warp-threads is effected, while at the same time they are reeled off with ease, with less strain on the threads than the devices now in use, and just to the requisite extent.

Where a series of reels is employed, and the threads have to be converged toward the heddles, as seen at Fig. 2, we arrange the bars *f* in a line, which about coincides with the cord of an imaginary arc of a circle touching the extreme ends of said bar *f*, and having its center in the middle of that section of warp-threads of the reel in conjunction with which the said bar operates. In this manner, it will

be seen, all the threads will pass from the bar *f* in lines very nearly at right angles to said bar, and hence the tendency to crowd and create an undue and uneven tension on some of the threads (which occurs where this bar is arranged parallel with the reel-axis) is entirely overcome. Of course, this part of our invention might be carried out by somewhat different means without a departure from the principle of our invention.

The number of times the cord *i* may be passed round the pulley-face of the reel—or, in other words, the extent of frictional bearing-surface of the band on the reel—may be varied, according to the nature of the band and reel surface, the weight of the levers, and other variable conditions of the machine.

Having so fully explained our improvement as to enable those skilled to make and use a loom embodying it, what we claim as new, and desire to secure by Letters Patent, is—

In combination with the warp-beam *E*, the tension-bar *f*, arranged obliquely to the axis of the beam, and arranged to operate in the manner and for the purpose described.

In testimony whereof we have hereunto set our hands and seals this 19th day of February, 1873.

CHARLES GAHREN. [L. S.]
LOUIS LANGLOTZ. [L. S.]

In presence of—

ORLANDO P. SMITH,
THOS. S. WILLIS.