T. H. & H. James.

Let-Off Motion.

No. 34,255. Patented Jan. 28, 1862.

Fig. 1

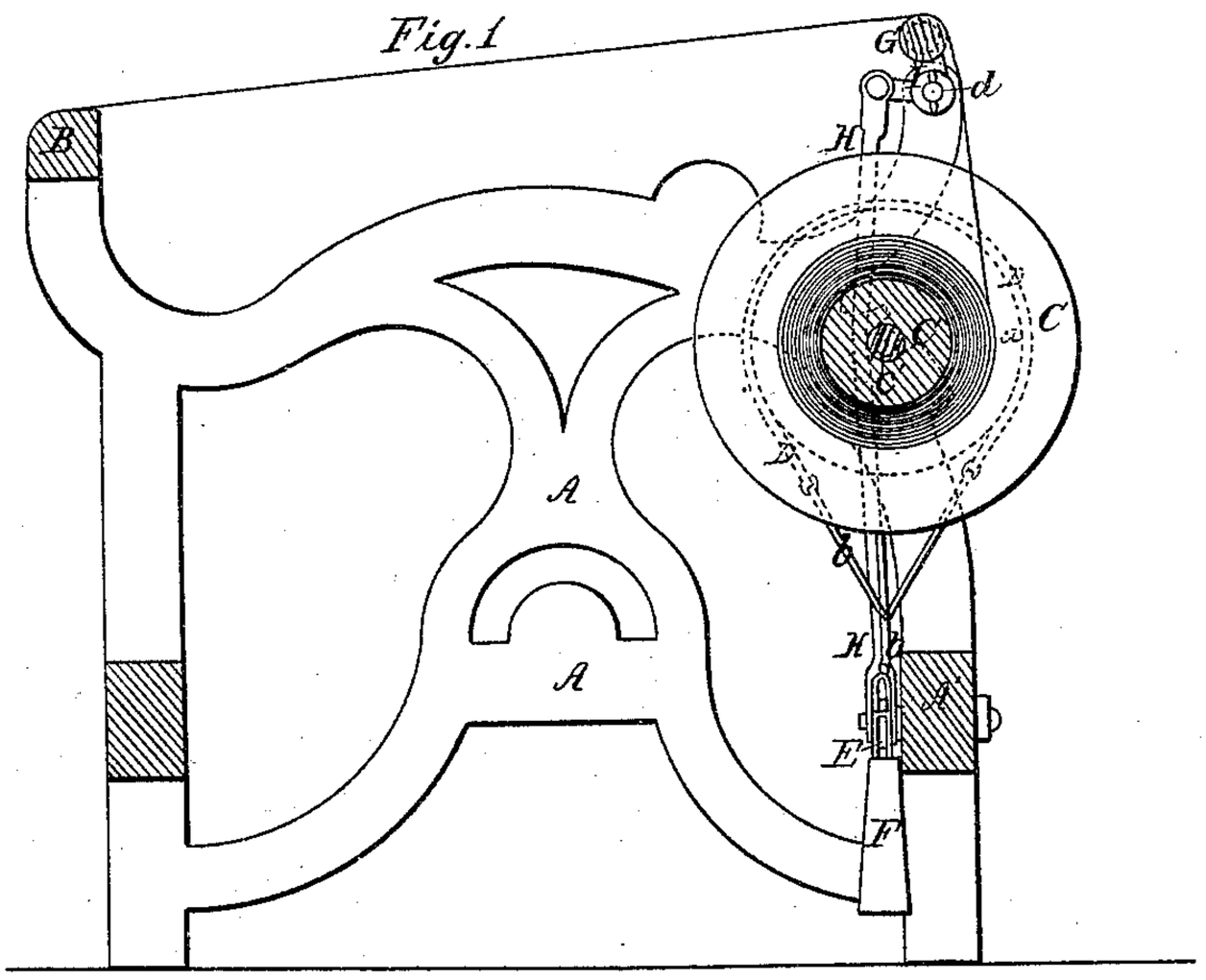
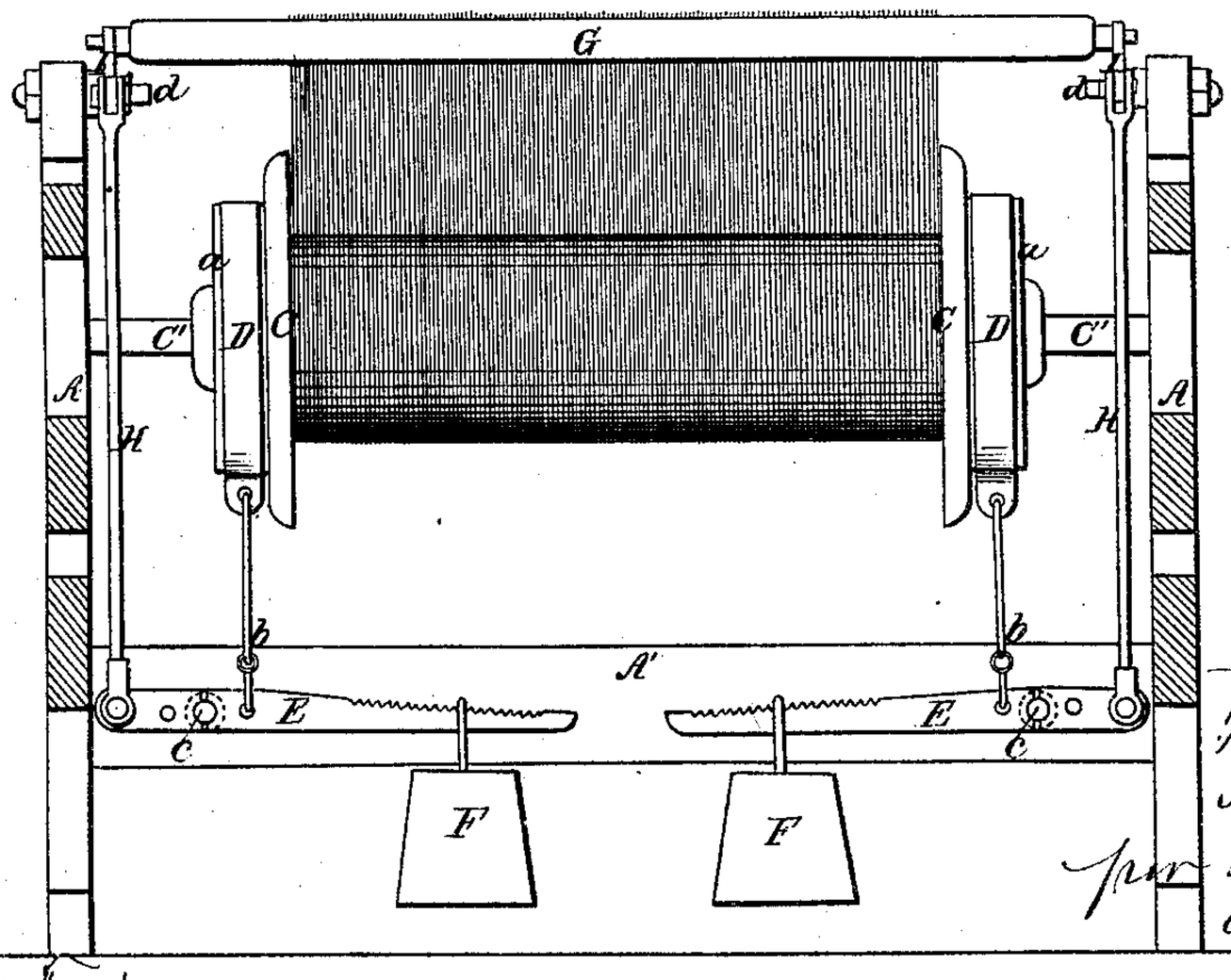


Fig. 2



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UNITED STATES PATENT OFFICE.

THOMAS H. JAMES AND HENRY JAMES, OF STOCKPORT, NEW YORK.

IMPROVEMENT IN POWER-LOOMS.

Specification forming part of Letters Patent No. **34,255**, dated January 28, 1862.

To all whom it may concern:

Be it known that we, THOMAS H. JAMES and HENRY JAMES, both of Stockport, in the county of Columbia and State of New York, have invented a new and useful Improvement in the Let-Off Motion of Power-Looms; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figures 1 and 2 are vertical sections at right angles to each other of a loom with our invention applied.

Similar letters of reference indicate corresponding parts in both figures.

This invention consists in a certain novel and very simple mode of combining the whip-roll with the weighted levers employed to produce friction upon the yarn-beam, whereby the letting off of the yarn is controlled by the tension of the warp and the said tension kept nearly uniform whatever may be the quantity of yarn on the beam.

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

A A′ is the framing of the loom.

B is the breast-beam.

C is the yarn-beam having the journals of its shaft C′ fitted to fixed bearings in the framing in the usual manner.

D D are friction-straps fitted one to each of two drums *a a*, secured to or formed upon the heads of the yarn-beam. *b b* are links each connecting one of the straps *a a* with one of the two weighted levers E E, which work on fulcrum-pins *c c* at the back of the front rail A′. The weights F F, suspended on these levers, are adjustable for the purpose of varying the friction of the bands D D.

G is the whip-roll having its journals fitted to bearings in the upwardly-projecting arms of two similar elbow-levers I I, working on fulcrum-pins *d d*, secured in the side frames of the loom. The backwardly-projecting arm of each of these levers is connected by a rod H with one of the two weighted levers E E on the opposite side of its fulcrum-pin *c* to that on which the weight and the connection with the friction-strap are connected.

The effect of the above-described connection of the levers I and E is to cause the weights F F to exert a tendency to hold back the whip-roll, and consequently the said weights act in opposition to the tension of the warp, which tends to pull the said roll forward. The said weights are so adjusted, according to the tension desired in weaving, that they will just balance the tension of the warp and hold back the whip-roll as far as permitted by the friction-straps D D, which prevent the descent of the weighted arms of the levers E E beyond a certain position, and the points of connection of the friction-straps with the said levers are at such relative distances from the fulcrum-pins *c c* that the weights, so adjusted, produce such a degree of friction on the yarn-beam as would act as a positive stop if the whip-roll occupied a fixed position independent of the yarn-beam, as it does in most looms.

While the warp has no more than the desired degree of tension, the friction of the bands D D prevents the turning of the beam; but a very slight increase of tension beyond that degree draws forward the whip-roll, and by that means causes the depression of the lower arms of the elbow-levers I I, and causes the latter arms to act through the rods H H on the levers E E in such manner as to raise the weighted arms thereof, and so relieve the friction-straps D D of the weight and the yarn-beam of friction, and permitting the beam to turn and let off more yarn until the proper tension of the warp is restored, when the weighted levers again overcome the action of the tension of the warp on the whip-roll and come into operation again upon the yarn-beam to prevent any further letting off.

We do not claim, broadly, the use of a movable or yielding whip-roll to control the let-off; but

What we claim as our invention, and desire to secure by Letters Patent, is—

The arrangement of the elbow-levers I I, rods H H, and weighted levers E, with the whip-roll G, straps D D, and yarn-beam C, in the manner herein shown and described.

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Witnesses:
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