R. Reynolds.
Let-Off Motion.

No. 36,529. Patented Sept 23, 1862.

Fig. 3.

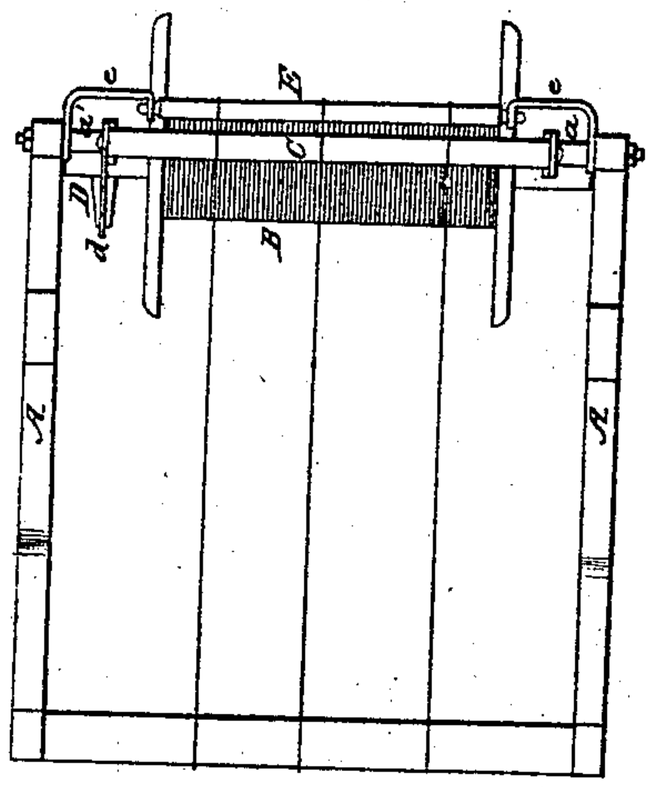


Fig. 2.

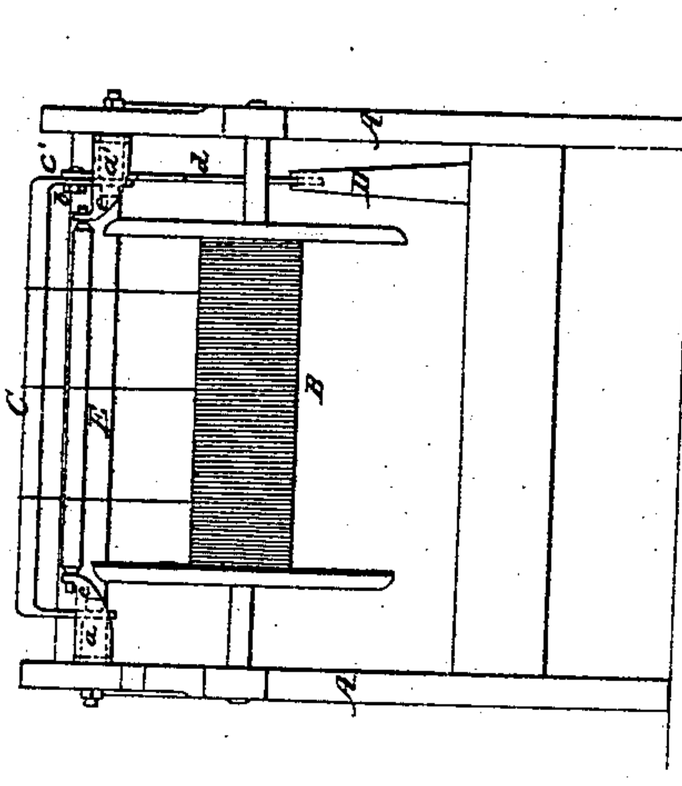


Fig. 4.

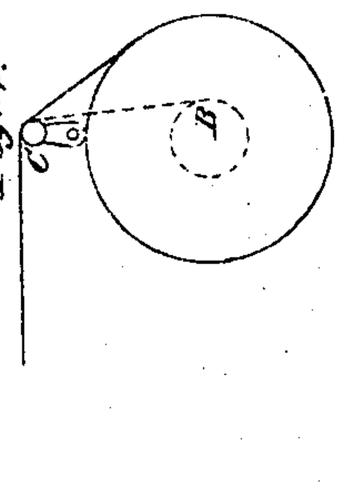
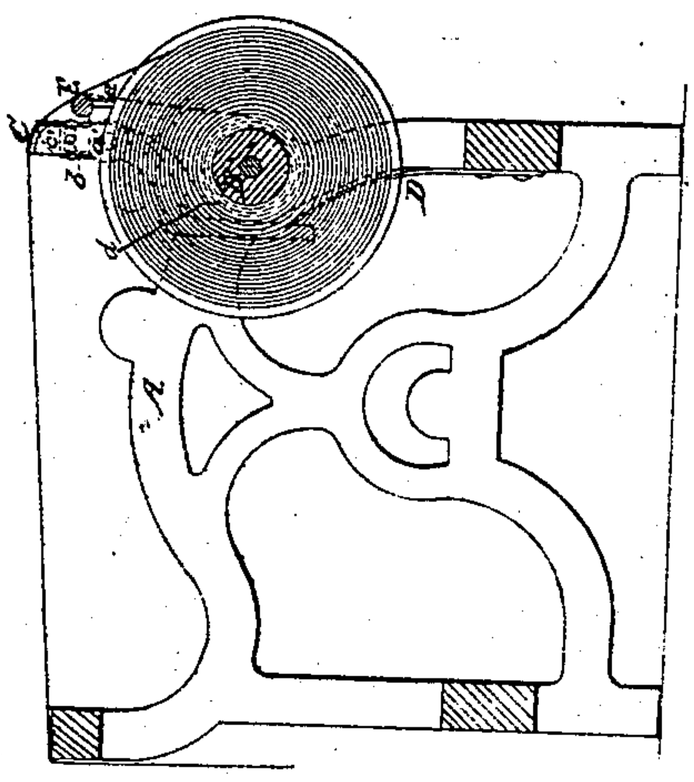


Fig. 1.



Witnesses.
Charles A. Fiske
Geo. W. Reed

Inventor.
R. Reynolds
by Munn & Co
attys.

UNITED STATES PATENT OFFICE.

RENSSELAER REYNOLDS, OF STOCKPORT, NEW YORK.

IMPROVEMENT IN LOOMS.

Specification forming part of Letters Patent No. **36,529**, dated September 23, 1862.

To all whom it may concern:

Be it known that I, RENSSELAER REYNOLDS, 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 I 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—

Figure 1 is a vertical section of a let-off motion and all the parts of the loom necessary to illustrate the improvement. Fig. 2 is a back view of the same. Fig. 3 is a top view of the same. Fig. 4 is a diagram illustrative of the difficulty which my invention is intended to overcome.

Similar letters of reference indicate corresponding parts in the several figures.

This invention is applicable to the let-off motion which constitutes the subject-matter of my Letters Patent of May 21, 1861, and to all let-off motions in which an oscillating whip-roll or its equivalent is employed. In the ordinary applications of the oscillating whip-roll the yarn, passing directly from the beam over the said roll, passes over the said roll at different angles, according to the quantity of yarn on the beam, as illustrated in Fig. 4, in which figure the beam B is shown with a large quantity of yarn in red color, and a smaller quantity in blue color, and it is shown that the angle, in passing over the whip-roll C, is much greater when the beam is full, and diminishes as the quantity of yarn on the beam diminishes. This causes the forward movement of the whip-roll, by which the letting off of the yarn is effected, to be produced with a less tension of the warp as the quantity of yarn diminishes, and produces a tendency to let off faster.

The object of my invention is to make the angle which the yarn forms, in passing over the oscillating whip-roll or its equivalent, always the same, irrespective of the quantity of yarn on the beam; and to this end it consists in the employment of a roll arranged in fixed bearings, and in a position below and in rear of the whip-roll or its equivalent, where the yarn will pass over it on its way to the latter roll or equivalent.

To enable others skilled in the art to make and use my invention, I will proceed to describe it with reference to the drawings.

A, Figs. 1, 2, and 3, is the framing of the loom.

B is the yarn beam.

C is an oscillating bar, which I prefer to substitute for the oscillating whip-roll, though a roll may be used. This bar has a rounded face to prevent abrasion of the yarn. It is attached securely to two arms, *c c'*, which are arranged to oscillate upon fixed studs *a a'*, secured to the sides of the framing. The arm *c'* has rigidly secured to it by a bolt, *b*, an arm, *d*, which is extended downward below its respective stud *a'*, and a spring, D, secured to the back of the framing, is applied to act upon the same arm, *d*, in such manner as to exert a tendency to throw back the whip-bar C in opposition to the action of the tension of the yarn, which tends to draw forward the said bar. This mode of applying a spring is only one of many that may be adopted to hold or draw back the whip-bar in opposition to the tension of the bar.

I have not thought it necessary to represent the let-off mechanism, as that may be the same as described in my hereinbefore-mentioned Letters Patent, or of any other suitable kind.

E is the roll which constitutes my invention, arranged in a position below and some distance in rear of the whip-bar C, where it is supported by its journals being fitted to fixed bearings in brackets *e e*, secured to the sides of the loom, and where the yarn on its way from the beam to the whip bar C will pass behind and in contact with it, as shown in Fig. 1, in which the yarn is represented in red color coming from a full beam, and in blue color from a nearly-empty beam, and by the aid of which it may be understood that the angle which is formed by the yarn in passing over the whip-bar or whip-roll is the same, irrespective of the quantity upon the beam. This being the case, a given tension of the yarn will always have the same effect upon the whip-bar or whip-roll, and the letting off will be uniform, whatever the quantity of yarn upon the beam.

What I claim as my invention, and desire to secure by Letters Patent, is—

The roll E, applied in fixed bearings entirely independent of the whip-bar or whip-roll, and in relation to the said bar or roll, substantially as herein described, and operating as set forth.

RENSS. REYNOLDS.

Witnesses:

GORDON B. REYNOLDS,

J. E. KENT, Jr.