Sheet 1. 2 Sheets.

D. Hussey.

Brake for Cotton Lapper.

No. 58,945. Patented Oct. 16, 1866.

Fig. 1.

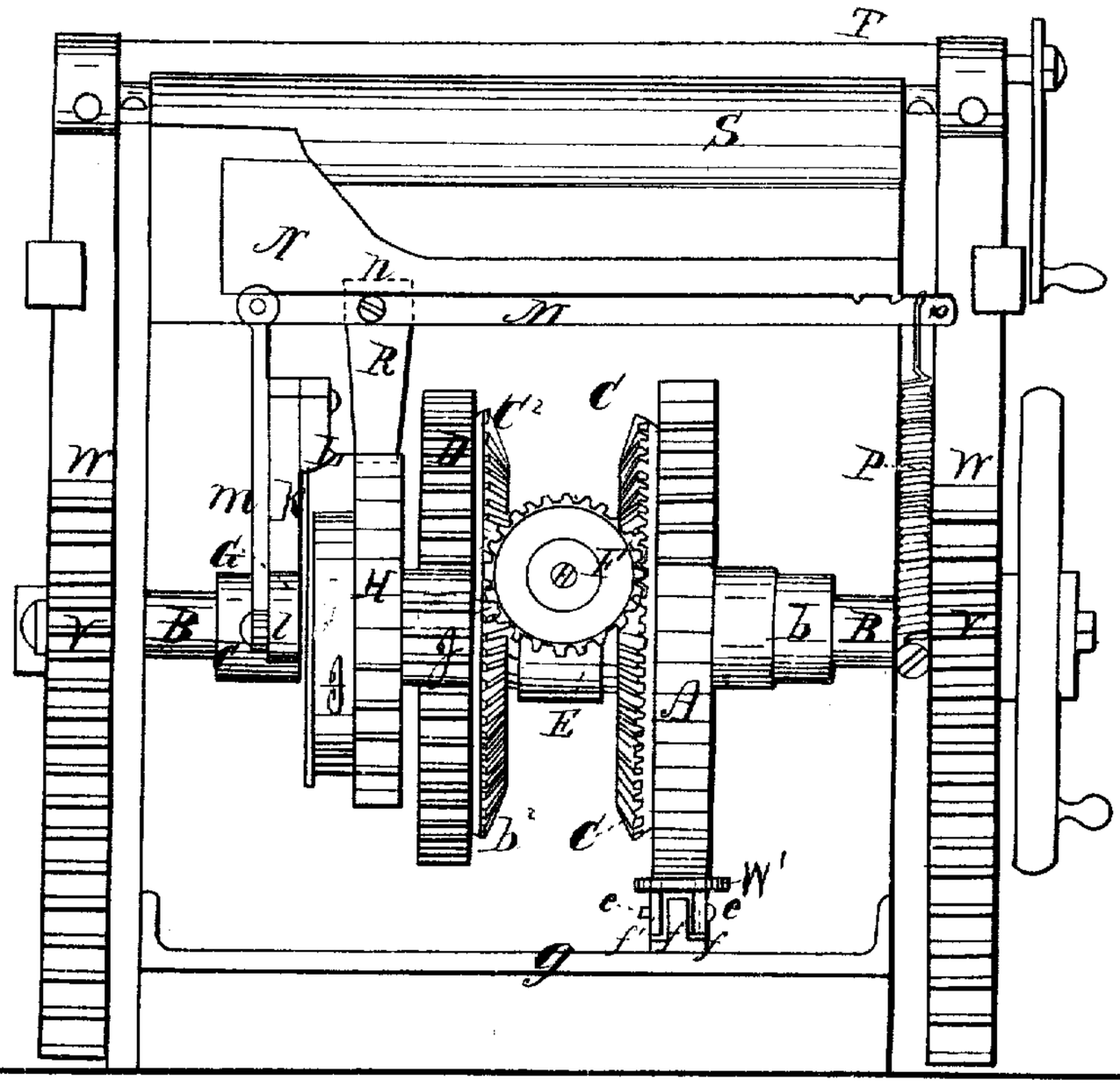
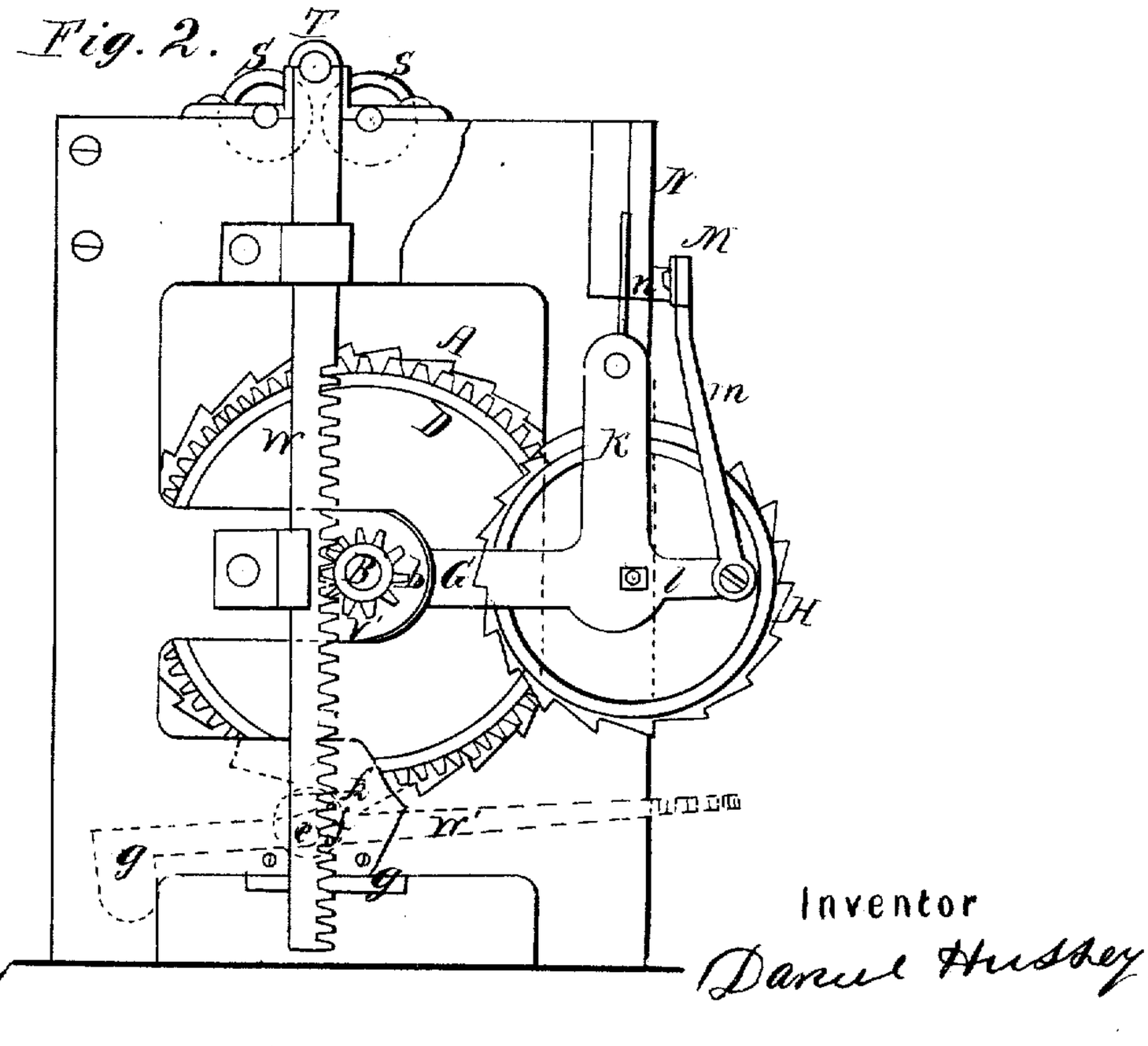


Fig. 2.



Witnesses

J. H. Baldwin

W. P. Hussey

Inventor

Daniel Hussey

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Sheet 2. 2 Sheets.

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Fig. 3.

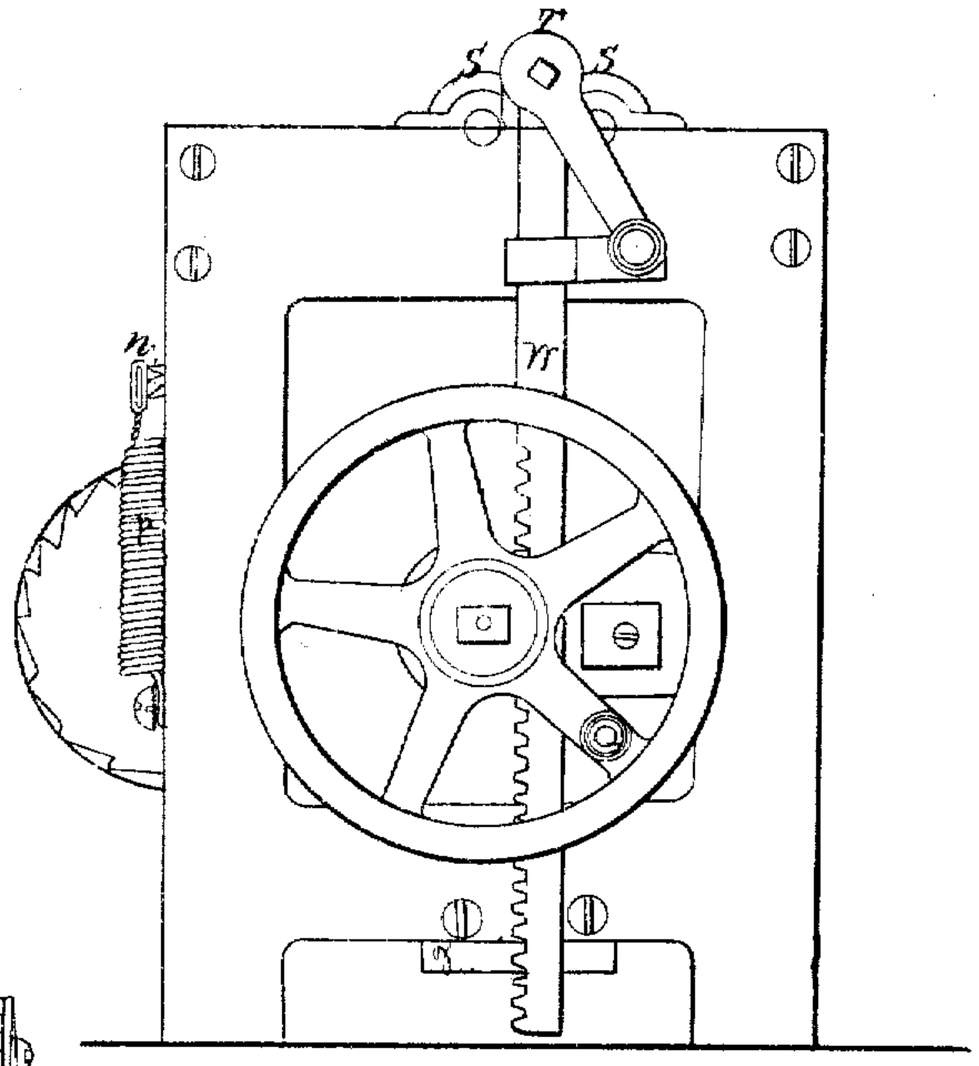
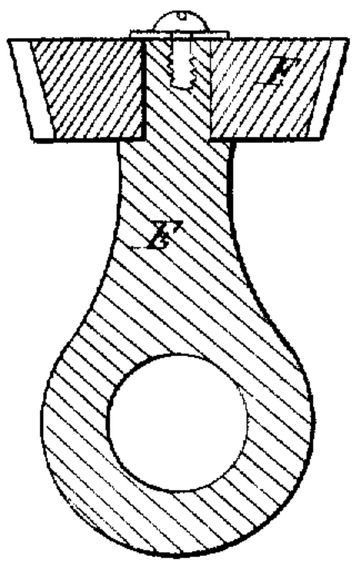


Fig. 4.



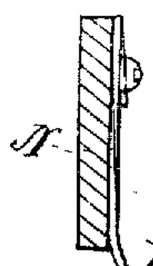
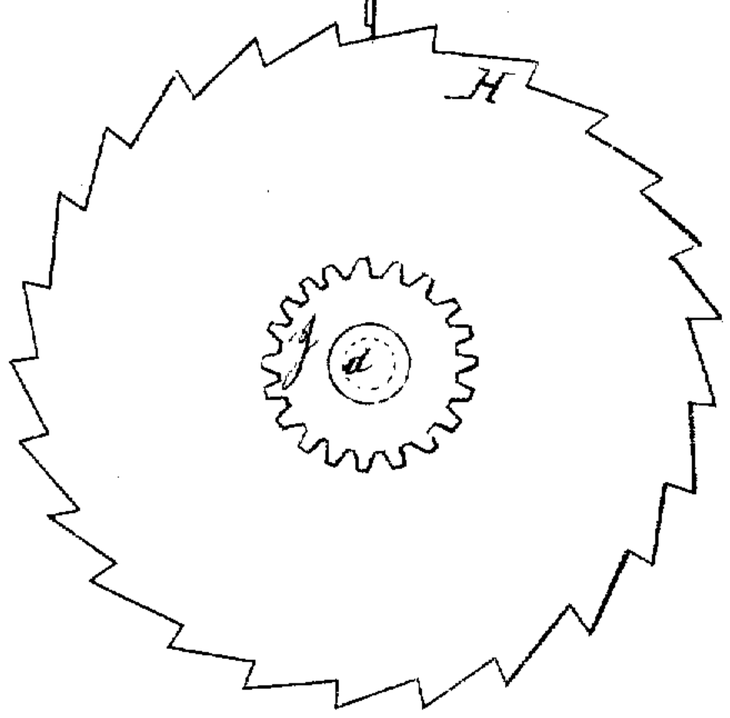


Fig. 6.



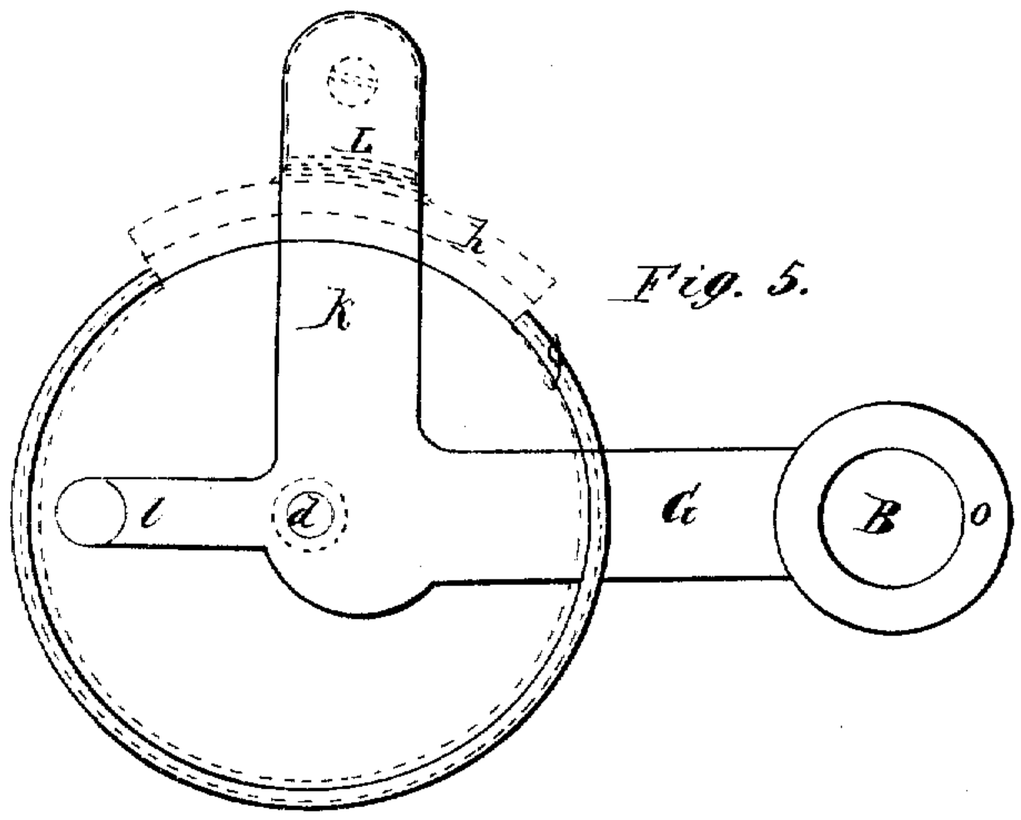


Fig. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

DANIEL HUSSEY, OF NASHUA, NEW HAMPSHIRE, ASSIGNOR TO RICHARD KITSON, OF LOWELL, MASSACHUSETTS.

IMPROVEMENT IN BRAKES FOR COTTON-LAPPERS.

Specification forming part of Letters Patent No. **58,945,** dated October 16, 1866.

To all whom it may concern.

Be it known that I, DANIEL HUSSEY, of Nashua, in the county of Hillsborough and State of New Hampshire, have invented a new and useful Improvement in Brakes for Cotton-Lappers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a rear-side elevation of a cotton-lapper having my improvement applied thereto. Fig. 2 is an end view after a portion of the frame has been removed, and Fig. 3 the opposite end. Fig. 4 is a central longitudinal section of a detached arm and gear; Fig. 5, a side view of a detached lever, friction-weight, and the rim of a friction-pulley; Fig. 6, a side view of a detached ratchet-wheel, having a pinion-gear connected therewith, and a transverse section of a top girt, N, with a regulating spring, R, fastened to the inside of the girt, all of which pertain to the said invention.

In the drawings, A is a ratchet-wheel, fitting loosely on the shaft B, and a bevel-gear, C, is fastened to the inner side of said ratchet. A spur-gear, D, fits loosely on the shaft B, and a bevel-gear, C^2, like the first, is fastened to the inner side of the gear D. An arm, E, fits on the shaft B between the bevel-gears, and is held firmly to the shaft by a set-screw or other suitable device. A bevel-pinion gear, F, rotates on the outer end of the arm E, and engages with both of the bevel-gears C and C^2. The ratchet-wheel A is held up against the hub of the arm E by a collar, *b*, fitted on the shaft B. A lever, G, fits loosely on the shaft B, the hub *o* of which comes against the outside of the gear D. A collar, *c*, on the shaft B holds the lever G up against the outside of the gear D, and also holds the latter up against the hub of the arm E.

A ratchet-wheel, H, having a friction-pulley, I, on one side, turns freely on a stud, *d*, projecting from one side of the lever G, and a pinion-gear, J, on the opposite side of the ratchet-wheel H, gears into the larger gear D.

A vertical arm, K, rises from the top edge of the lever G, and an adjustable friction-weight, L, is hung to the arm K, near its top end. This friction-weight rests on the top of the friction-pulley I, and a spring or other device may be applied to the top of the friction-weight to increase the friction on the pulley I.

An arm, *l*, projects from the outer end of the lever G, and the lower end of a connecting-rod, *m*, connects with the outer end of said arm. The top end of this rod connects with the end of a cross-lever, M, which swings on a fulcrum, *n*, projecting outward from the top girt N of the machine.

A weight or a spring, P, acts upon the long end 10 of the lever M and holds the lever G and its connections up in their place. A regulating-spring, R, is fastened to the inside of the girt N, and the lower end of said spring engages with the teeth of the ratchet-wheel H.

I employ the usual calender-rolls S and the pressure-roll T, which rotates in bearings near the top of the vertical sliding-racks W. These racks act upon pinions *v* on each end of the shaft B, as usual. I also employ a foot-lever, W′, having a counterbalance-weight, *y*, on one end to bring it into contact with the teeth of the ratchet A. Said lever swings on a pin, *e*, passing through ears *f* of a stand on the top of the cross-girt *g*.

Motion is given to the calender-rolls S by a driving-gear, which engages with a gear or gears on said rolls, and when the cotton-lappers having my improvement thereto applied are in operation the ratchet-wheel A and gear C are prevented from turning by the tooth *h* on the foot-lever W′, held in contact with a tooth on the ratchet-wheel A. The lap of cotton is formed on a small roll between the calender-rolls S and the pressure-roll T, and as the lap is increased in diameter the roll T and vertical racks W are drawn upward. Said racks, acting on the pinions *v*, impart a very slow, strong, and steady rotary motion to the shaft B, the arm E, and pinion F. The latter, acting against the gear C on the ratchet-wheel A, and at the opposite side upon the gear C^2, secured to the gear D, causes the gear D to rotate in the same direction. The gear D engages with the pinion-gear J on one side of the ratchet-wheel H, and turns the pinion J, the ratchet-wheel H, and friction-pulley I in the opposite direction.

The friction-weight L, resting on the rim of the pulley I, or being pressed against the surface of said pulley-rim, prevents any sudden

or rapid rotation of the ratchet-wheel H when the machine is in motion.

The lower end of the spring R comes in contact with the teeth of the ratchet-wheel H, and serves, in connection with the friction-weight L, to regulate the motion or velocity of said wheel, letting off one tooth at a time as the diameter of the roll increases, thereby preserving a uniform tension and pressure on the lap while forming, keeping the same even throughout and at all times.

And as the material of which my improved friction device is made (it being of metal) precludes the possibility of its being affected by damp or dry atmosphere, no change in the weather can have any effect to prevent the certain and harmonious action of the same, and need not be changed in consequence of atmospheric changes, as is usually the case in most other cotton-lappers.

Any slight change in the weather makes the leather more or less adhesive, thereby increasing or diminishing the friction and making the lap very uneven, or breaking or tearing asunder said lap between the delivery-rolls and the calender-rolls, or on the partly-formed lap. Besides, the friction caused by the expansion of this leather is so great at times that the gears of the machine will break before the leather can yield and allow the shaft to turn.

What I claim as of my invention, and desire to secure by Letters Patent, in lap-winding machines, is—

1. The employment of the arm E and pinion-gear F, in combination with the bevel-gears C and C^2 and ratchet-wheel A, all arranged to operate substantially in the manner and for the purpose set forth.

2. The gear D on the shaft B, in combination with the bevel-gears C and C^2, pinion F, and arm E, when the said gear engages with the pinion J to operate said pinion and its connections, substantially in the manner and for the purpose set forth.

3. The ratchet-wheel H, or its equivalent, in combination with the friction-pulley I and friction-weight L, arranged and made to operate substantially in the manner, by the means, and for the purpose set forth.

4. The lever G on the shaft B, when the said lever is formed, arranged, and combined with the pulley I, ratchet-wheel H, and friction-weight L, substantially as and for the purpose specified.

5. The connecting-rod *m*, or the equivalent thereof, in combination with the arm *l*, cross-lever M, and a weight or spring, P, all arranged to operate substantially as and for the purpose specified.

6. The spring R, in combination with the ratchet-wheel H, pulley I, and friction-weight L, and arranged to operate substantially in the manner and for the purpose explained.

7. The combination of the ratchet-wheel A, bevel-gear C, arm E, pinion F, bevel-gear C^2, spur-gear D, lever G, with arms K and *l*, ratchet-wheel H, or equivalent, the pinion J, friction-pulley I, friction-weight L, connecting-rod *m*, lever M, and weight or spring P, with the shaft B, the whole arranged to operate substantially as and for the purpose set forth.

DANIEL HUSSEY.

In presence of—
J. A. BALDWIN,
W. P. HUSSEY.