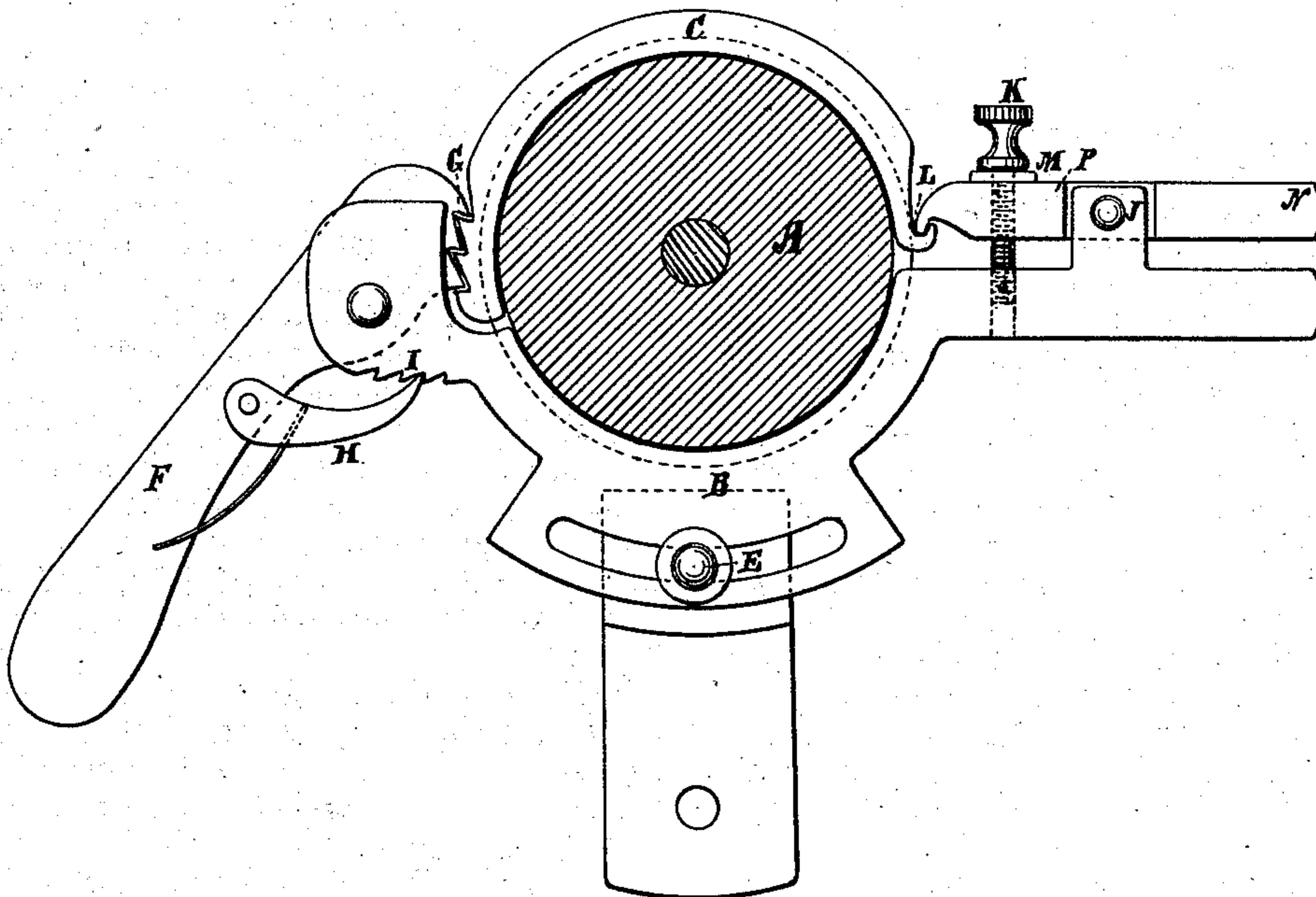


**E. C. SANDERS.**  
**Friction-Brakes.**

No. 155,467.

Patented Sept. 29, 1874.



**WITNESSES:**

*A. Benneken & Co.*  
*Alex F. Roberts*

**INVENTOR:**

*E. C. Sanders*

**BY**

*Wm. H. [Signature]*

**ATTORNEYS.**

# UNITED STATES PATENT OFFICE.

ELISHA C. SANDERS, OF WESTERLY, RHODE ISLAND.

## IMPROVEMENT IN FRICTION-BRAKES.

Specification forming part of Letters Patent No. **155,467**, dated September 29, 1874; application filed September 12, 1874.

*To all whom it may concern:*

Be it known that I, ELISHA C. SANDERS, of Westerly, Washington county, Rhode Island, have invented a new and Improved Friction-Brake, of which the following is a specification:

My invention consists of a friction-clamp or band of two independent parts, one of which is stationary and has contrivances whereby the other part is fastened to it, so as to hold the drum or beam against being turned by the strain to which it is subject, and one of said fastening devices is so contrived that by the revolving of a tappet or cam-wheel against it the pressure is relaxed so as to let the drum turn a little. The pressure is varied by a screw and a spring, so as to subject the drum to more or less resistance, and the tappet-wheel or cam employed for relaxing the pressure will become fast or slow, and otherwise varied to suit the requirements of the case.

The invention is especially intended to be employed as a let-off attachment for looms, in which case the relaxing holder will be raised once for each beat of the loom by the tappet-wheel.

The drawing is a side elevation of my improved friction-brake and a section of the drum.

A is the drum; B, the stationary part of the friction-brake; and C, the movable part. Part B is, by preference, arranged below the drum, and C above; but they may be otherwise arranged, if preferred. Part B is also attached to the frame of the machine by a bolt, E, which is fitted in a slot to allow the said part to be shifted about as may be required. F is a pawl-lever, pivoted to part B at one end, and engaging one end of part C by the notches G to press it down on the drum, the lever being held by the pawl H and ratchet I when so holding the part C of the brake. P is a clamp holding the other end of part C, being pivoted to the stationary part

at J, and having an adjusting-screw, K, for pressing it down to hold part C by hooking into its hook-shaped notch L. Under the head of the screw K is an elastic washer, M, of rubber or other suitable material, to allow the clamp to be raised a little for relaxing the pressure of the spring without shifting the screw. The end N of the clamp is designed to be acted on by a cam or tappet wheel, for raising the other end to relax the pressure of the spring to allow the cam to be turned.

For using this apparatus for a let-off contrivance for looms, the cam will be geared and otherwise arranged to lift the clamp once for each beat of the loom, and for other uses the arrangement of the cam will be modified, according to the nature of the case.

If it is required to hold the brake for letting a bucket down a shaft, or the like, a lever will be combined with the clamp suitably therefor.

The holder F may be modified or another substituted for it, if desired; but it is considered particularly favorable, because it is so readily connected and disconnected, and so readily changeable to vary the pressure.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of the stationary friction-brake B, detachable brake C, and a clamp, P, the clamp being pivoted and provided with an adjusting-screw and a spring, substantially as specified.

2. The combination of the holding-lever F, pawl H, and ratchet I with the friction-brake B C, substantially as specified.

3. The combination of the friction-brake B C, holder F, and the clamp P, substantially as specified.

E. C. SANDERS.

Witnesses:

T. B. MOSHER,  
ALEX. F. ROBERTS.