

(Model.)

G. W. ARNOLD.

SASH BALANCE.

No. 283,946.

Patented Aug. 28, 1883.

Fig. 1.

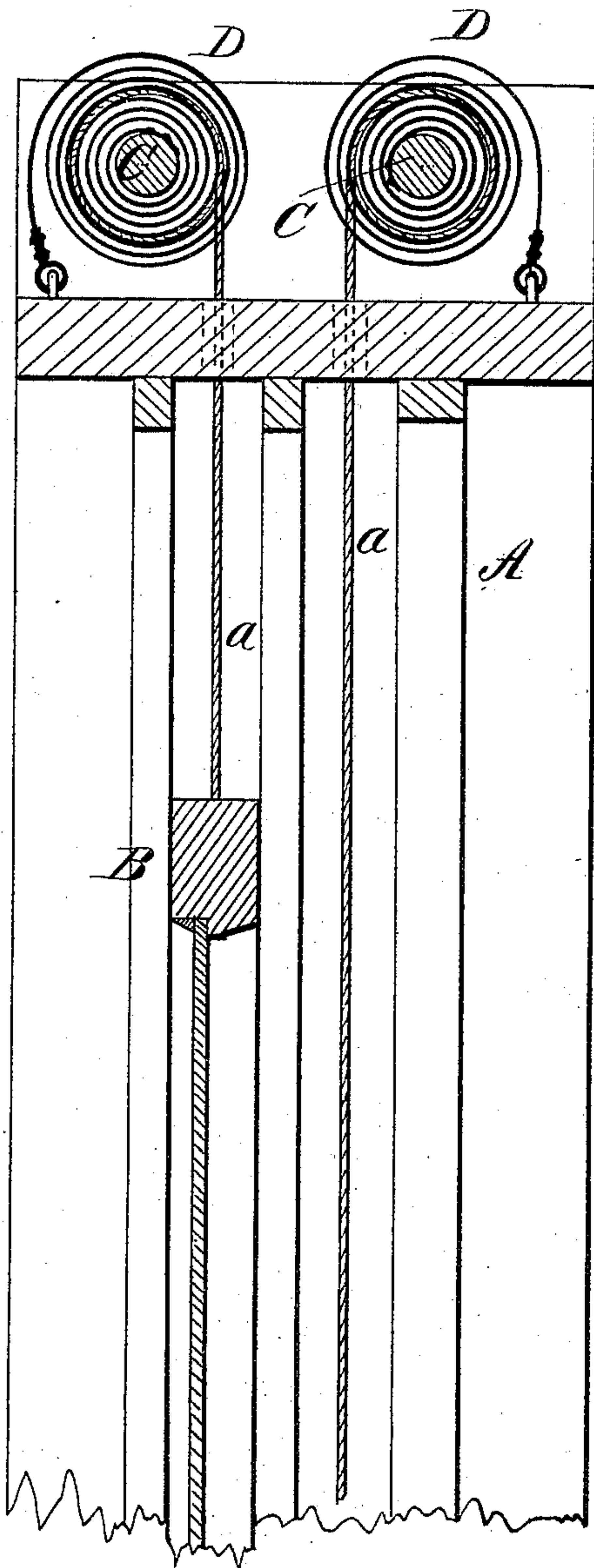
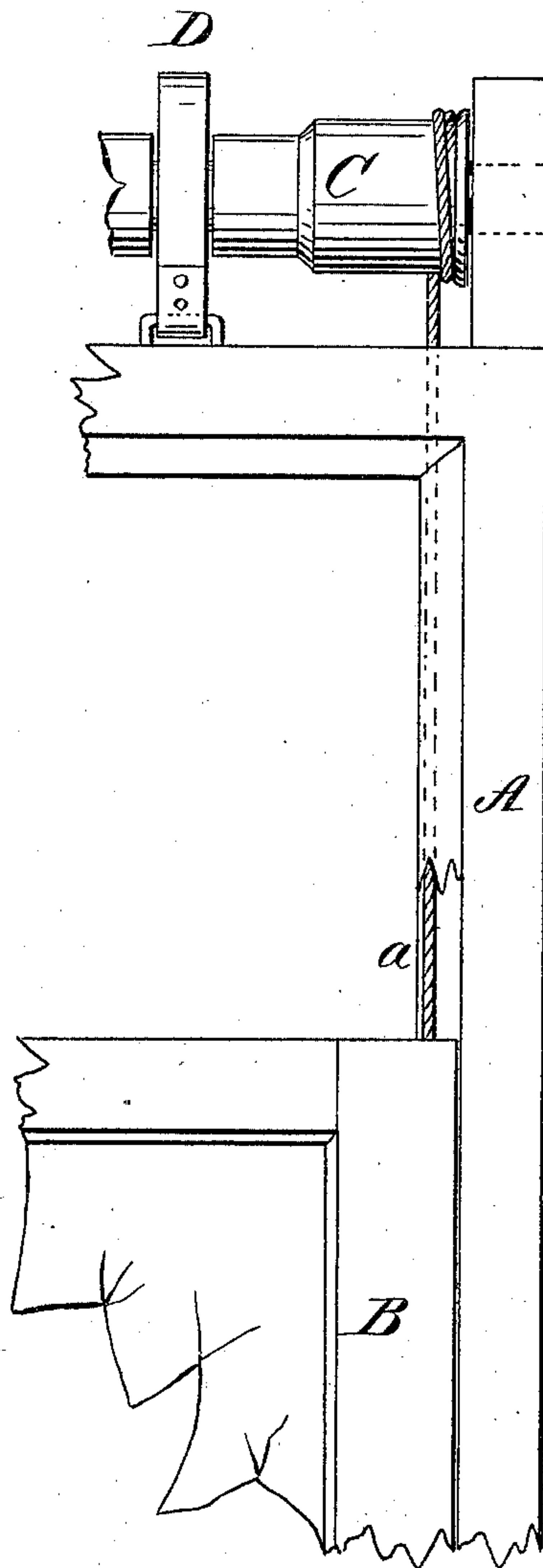


Fig. 2.



WITNESSES:

Down Twitchell.
L. Sedgwick

INVENTOR:

G. W. Arnold
BY *Mumford*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

GEORGE WILT ARNOLD, OF KNOXVILLE, ILLINOIS.

SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 283,946, dated August 28, 1883.

Application filed April 11, 1883. (Model.)

To all whom it may concern:

Be it known that I, GEORGE W. ARNOLD, of Knoxville, in the county of Knox and State of Illinois, have invented a new and Improved Sash-Balance, of which the following is a full, clear, and exact description.

My invention is an improvement in the class of sash-balances consisting of springs and pulleys, which are so constructed and arranged that the former coil or uncoil, according as the sashes are raised or lowered.

The special object of my improvement is to provide a simple and inexpensive balance of this kind which shall be adapted for convenient application to any ordinary window-frame, and also readily accessible for repair, &c., when required.

In carrying out the invention I secure one end of the coil-spring directly to the body of a roller, and provide the other end of same with a loop and staple, which latter is driven into the top cross-bar of the window-frame. The cord for rotating the roller for uncoiling the spring is also attached directly to the body of the roller, as hereinafter described.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a vertical transverse section of a window-frame and sashes provided with my improved balance, and Fig. 2 is a front view of the same.

A is the window-frame, of any ordinary construction, and B the sashes.

Above the top of the frame, in suitable bearings, is a roller, C, extending the whole width of the frame; or, in place of one long roller, one short roller at each side may be used.

To the roller C or rollers are connected the cords *a a*, that are attached to the edges of the sashes in any usual manner.

D D are coiled springs of suitable strength wound around the rollers, and connected at

one end thereto, while their outer ends are looped and permanently attached to a staple, E, that is driven into the window-frame, as shown. By thus securing the spring directly to the roller and its outer end to the frame by means of the staple, I attain obvious advantages in facility and rapidity of construction, attachment, and repair. In avoiding the use of the metal casing or pulleys heretofore used to inclose the spring, I also economize space, which is in some cases important. This construction and combination of parts also reduces the cost of the sash-balance to a minimum.

There is one set of rollers and springs to each sash, and the springs serve to sustain the sashes in any position to which they may be raised or lowered. As the sashes move down the cords unwind from and turn the rollers, thereby winding the springs, so that they wind up the cords when the sashes are again raised. The portion of the rollers on which the cords are attached is to be properly proportioned in diameter, according to the strength of the springs, and may be made conical, so as to increase and decrease the leverage in proportion as the tension of the spring varies by the winding.

I am aware that it is not new to use a spring or a roll spirally grooved or conical in form for a sash-balance; but

What I do claim as new and of my invention is—

The combination, with the window-frame A and sashes B, of the roller C, the springs D, attached directly to the latter, and their outer ends provided with a staple, E, which is driven into the frame, and the cord *a*, also applied directly to the roller and supporting the sashes, all as shown and described.

GEORGE WILT ARNOLD.

Witnesses:

F. R. BOGGESS,
J. W. SHEELY.