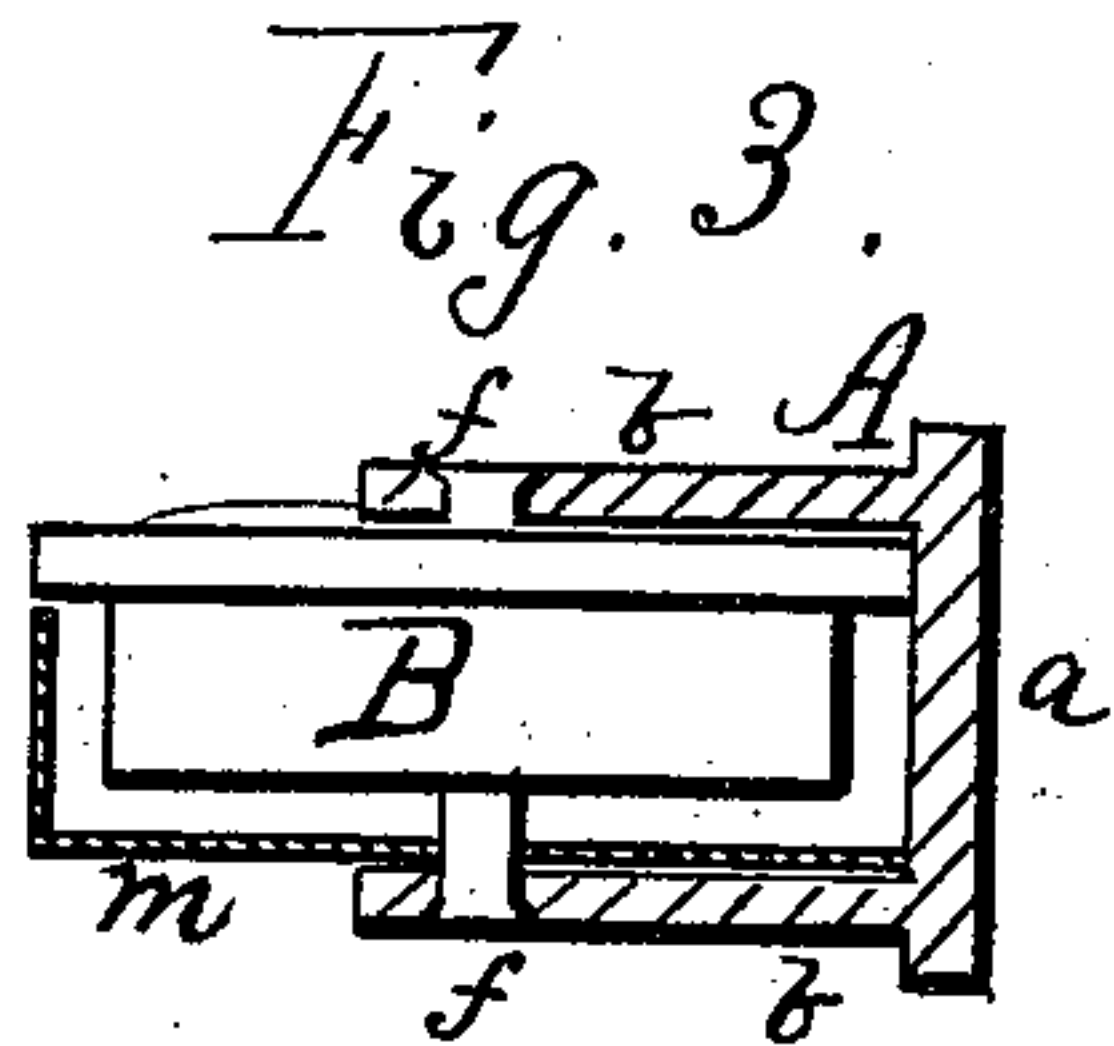
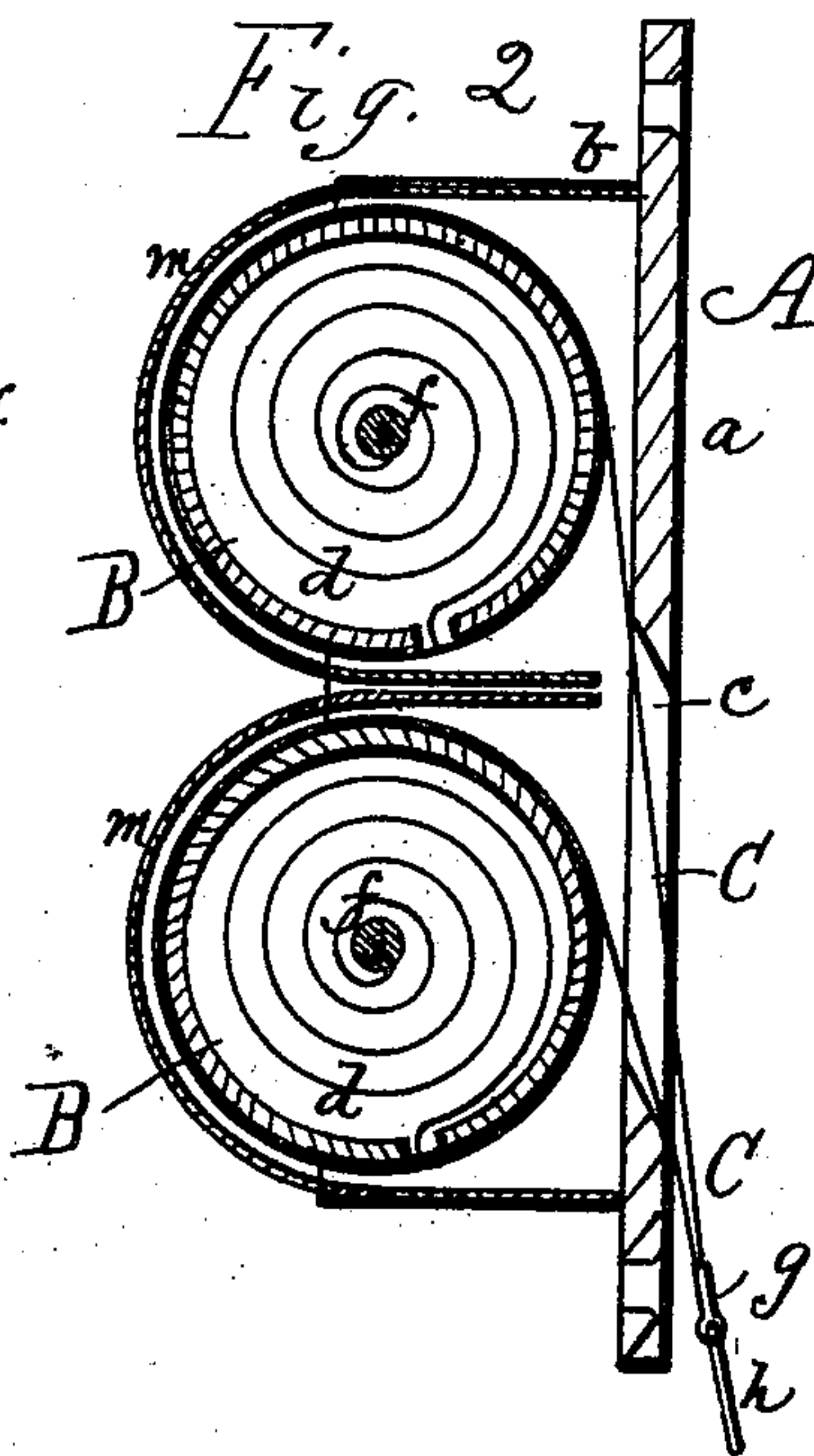
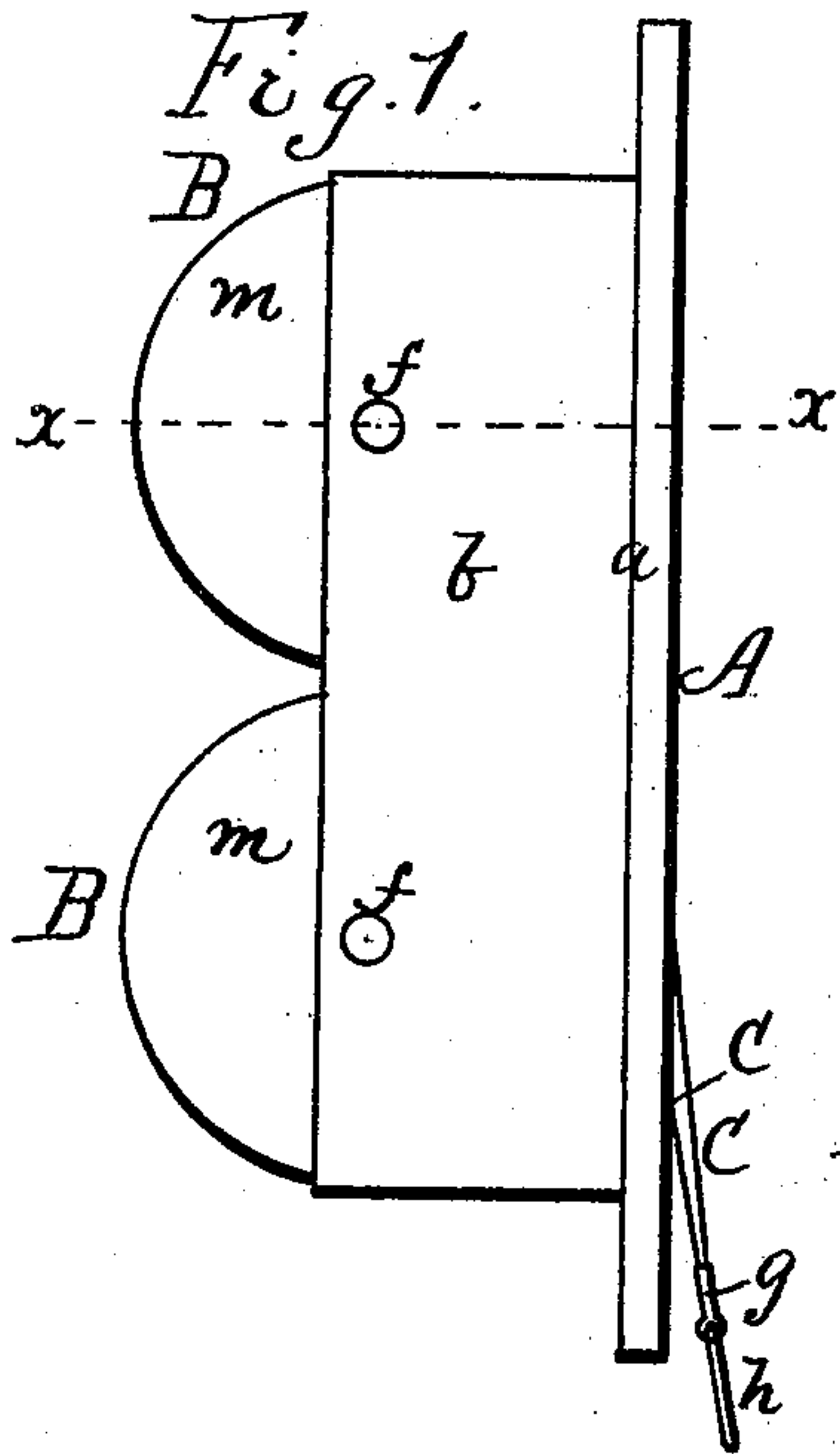


(No Model.)

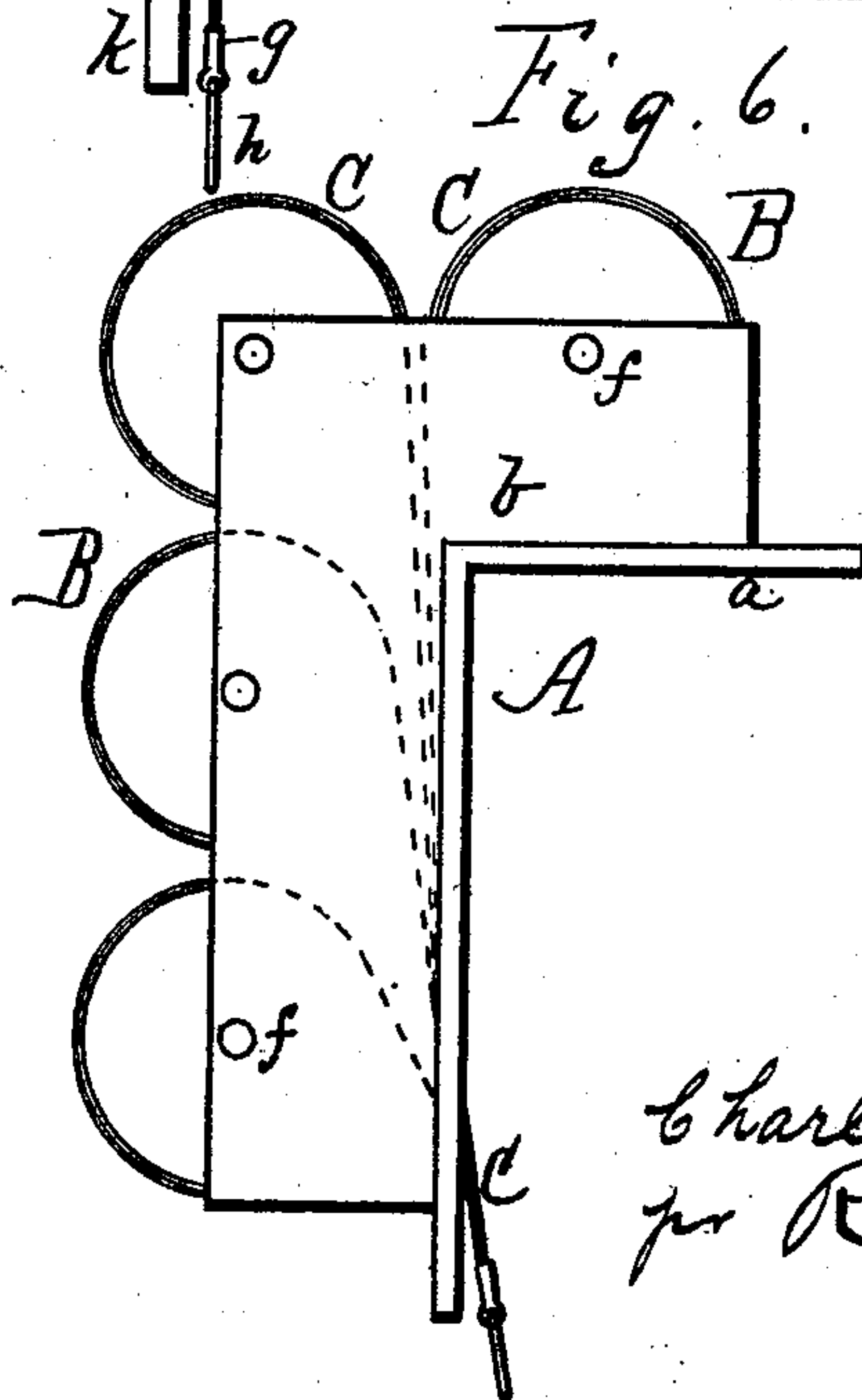
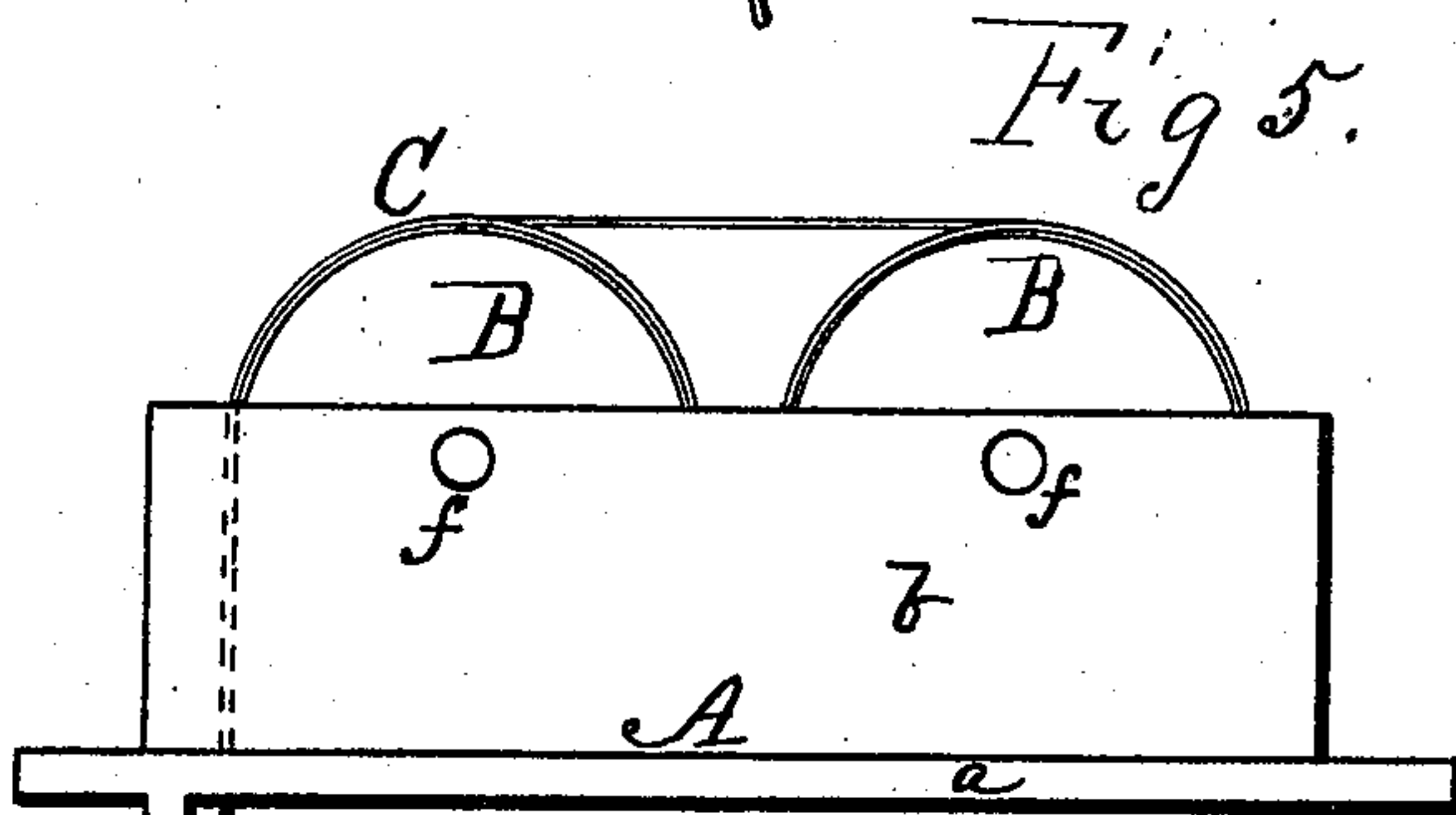
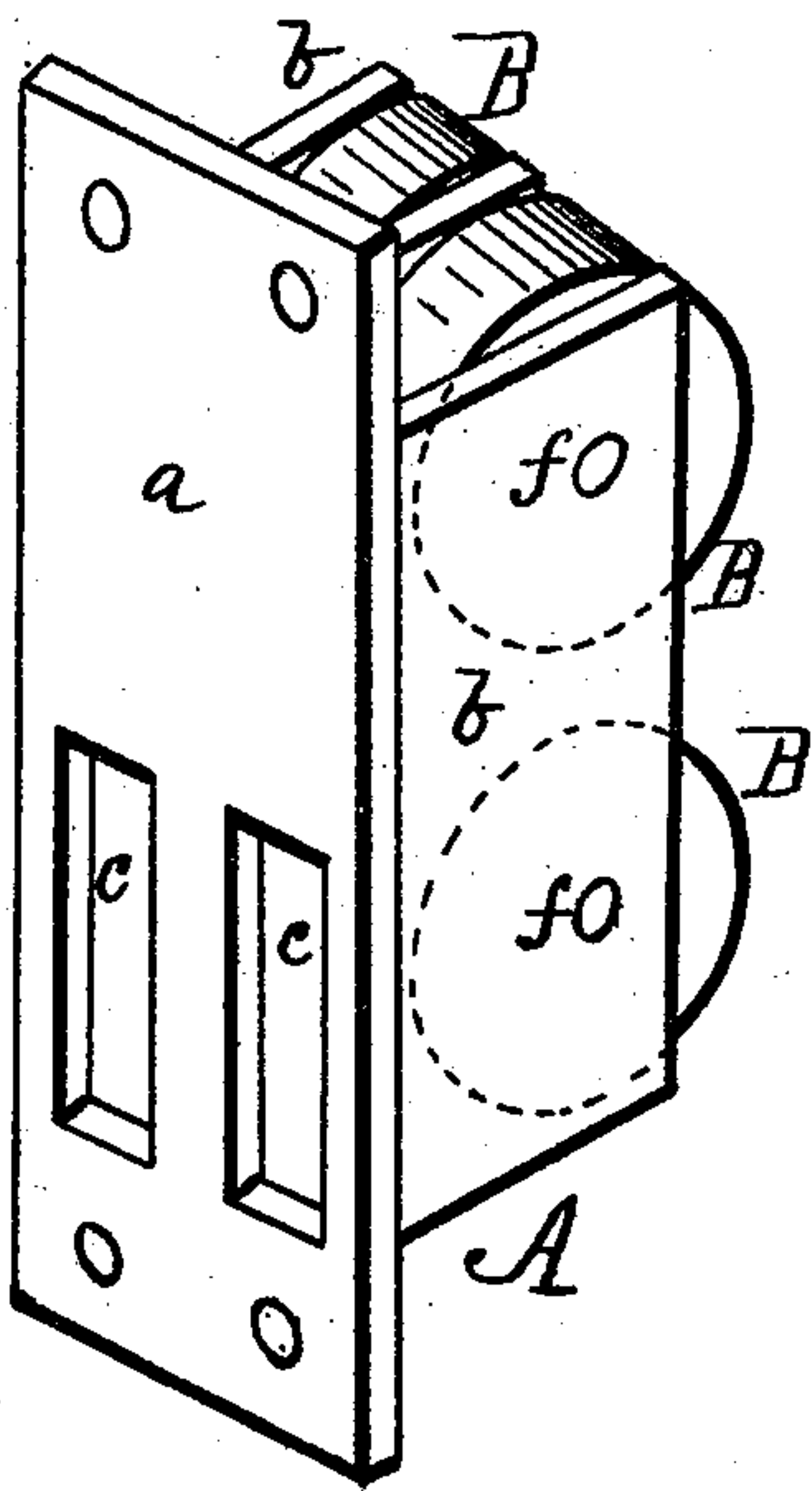
C. H. OCUMPAUGH.  
SASH BALANCE.

No. 582,305.

Patented May 11, 1897.



*Fig. 4.*



Witnesses:

Charles R. Osgood

E. T. Lewis

Inventor.

Charles H. Ocumpaugh,  
per R. F. Osgood

Attorney.



# UNITED STATES PATENT OFFICE.

CHARLES H. OCUMPAUGH, OF ROCHESTER, NEW YORK.

## SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 582,305, dated May 11, 1897.

Application filed December 1, 1896. Serial No. 614,142. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES H. OCUMPAUGH, of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Sash-Balances; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the drawings accompanying this application.

Spring sash-balances are made in a great number of sizes to adapt them to different weights of sashes.

The object of my invention is to reduce the number of sizes by the special construction of the balance, as hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation of my improved balance. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a cross-section in line  $xx$  of Fig. 1. Fig. 4 is a perspective view showing a duplex form of the balance. Fig. 5 is a side elevation showing a modification. Fig. 6 is a side elevation showing another modification.

In my invention I use a right-angled case with a plurality of spring winding-drums therein, the tapes or cords of which are united at the bottom and connected with the sash, so that each drum acts independently and gives its whole force to raise the sash independently of the other drum or drums.

A indicates the case, which is usually made in a single piece of cast metal, and consists of the face-plate  $a$  and two side flanges  $b\ b$ . In the face-plate is made a single slot  $c$  for the passage of the tapes, or, if desired, a second slot may be made for the passage of the upper tape. This casing is made of greater length than ordinary cases of the kind.

B B are two or more winding-drums pivoted in this case, as shown in the drawings, and operated by the usual coil-springs  $d\ d$ , attached at one end to the stationary rivets  $f\ f$  and at the other end to the periphery of the drums.

C C are the tapes or cords winding on the drums and serving to raise the sash. The lower ends of these tapes pass through the slot  $c$  and are connected by the ordinary clip  $g$ , having a loop  $h$ , that attaches at the edge of the sash.

Fig. 4 shows a duplex form in which the

casing is made wider and two sets of spring-drums are used resting side by side.

The balance shown in Figs. 1, 2, and 3 is adapted to be attached at the side of the window-casing in the runway in which the sash rests.

Fig. 5 shows a balance adapted to be attached at the top of the window-casing over the sash, in which condition it lies horizontally, with the winding-drums standing upright, the face-plate being sunken in the wood and the end next to the corner resting in a hole in the side of the window-casing. In such case a vertical flange  $k$  may be used resting against the side of the wood and sunken therein, through which flange a screw passes horizontally into the wood to hold the parts in place. The opposite end of the balance is secured by a screw passing up vertically into the wood. The winding tapes pass down vertically through the case to connect with the sash, and the tape of the farthest drum extends horizontally over the tape of the nearest drum and the two roll in contact.

Fig. 6 shows a case of right-angled form with spring-drum attached to each branch. In such case the vertical part fits the side of the window-casing and the horizontal part fits the top of the same. The tapes of all the drums pass out together through the slot at the bottom of the case. This is a convenient form where great power is required.

Heretofore a single balance has been used with a given number of different weights of sashes, and succeeding numbers of balances have been used with succeeding grades of weights of sashes. Sash and like structures, including stall and shop fronts, vary in weight from a few pounds to six hundred or more; but a spring-balance has a range of about four pounds only. Dealers therefore are compelled to keep in stock very many grades of springs to meet the needs of the public without any hope of commensurate sales. This adds to the final cost of the article. The present improvement will when introduced obviate this and other evils now everywhere existing in the trade.

The necessity of using very heavy springs to balance heavy sash or fronts involves many objectionable features. Heretofore it has frequently happened in connection with



heavy sashes that the balance was necessarily made so wide as not to fit in the runway, requiring the removal of extra wood, and in many cases the depth of the balance is greater  
5 than the depth of the mortise in the wood, causing the rollers to strike the masonry before the face-plate is seated. This is avoided in my invention, as the balance need never with the heaviest sashes exceed the ordinary  
10 depth. By the construction above set forth the balance can also be made narrow to fit any runway and still have great power by reason of the plurality of winding-drums employed.

15 By the improvement it is possible that increased spring-power can be obtained without varying the width or depth of the case, so that cases of a particular or standard width or depth have a much wider range of use and  
20 capacity without involving the necessity of widening or deepening the case-receiving opening, thereby lessening the cost and labor of putting them on.

With balances as now made it is necessary  
25 in case of very heavy sash to make the sash unnecessarily thick merely to provide for a case and balance-spring wide enough to perform the required work. The improvement provides for the strongest balance required  
30 without widening the face-plate of the case.

It will be noticed that each spring-drum is independent in its action and is unhampered by the others. Hence any inequality in one is not imparted to the others, but both exert  
35 their force to their fullest extent in raising the sash. By uniting the ends of the winding tapes at the bottom they are kept in aline-

ment and move in unison, and in stretching one the other is stretched at the same time.

The inertia of a sash and of several springs  
40 arranged and operating as herein specified can be more easily overcome than in the case of a sash of the same weight balanced by a single spring, the latter offering much more resistance. The sash is therefore more easily  
45 started when balanced according to the present improvement.

Springs made comparatively light and thin, as by this improvement, are less liable to break and are every way more durable than  
50 ordinary sash-balance springs.

Each of the spring-drums is inclosed on the back side by a hood *m*, consisting of a side plate and a rim, which extends across to meet the rim of the spring-drum, as shown in Fig. 3.  
55

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

In a sash-balance, the combination of a casing consisting of a face-plate and two side  
60 flanges, a plurality of spring-drums pivoted within said casing and a separate winding strap or cord extending from each drum through the face-plate and devices for connecting both straps to the sash at a common  
65 point, substantially as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

CHARLES H. OCUMPAUGH.

Witnesses:

CHAS. R. OSGOOD,  
GEORGE A. GILLETTE.