

(No Model.)

H. A. PISCHKE  
SASH BALANCE.

No. 598,574.

Patented Feb. 8, 1898.

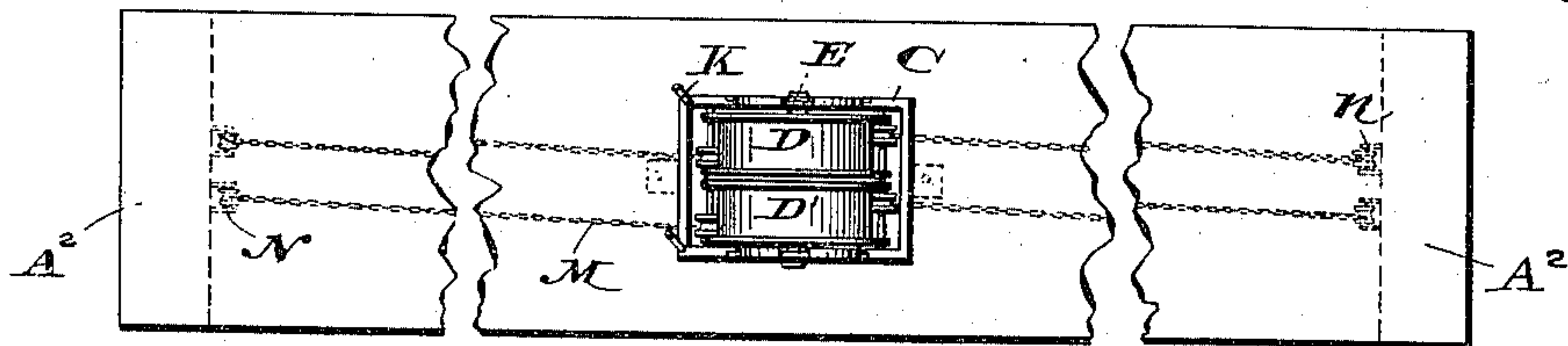
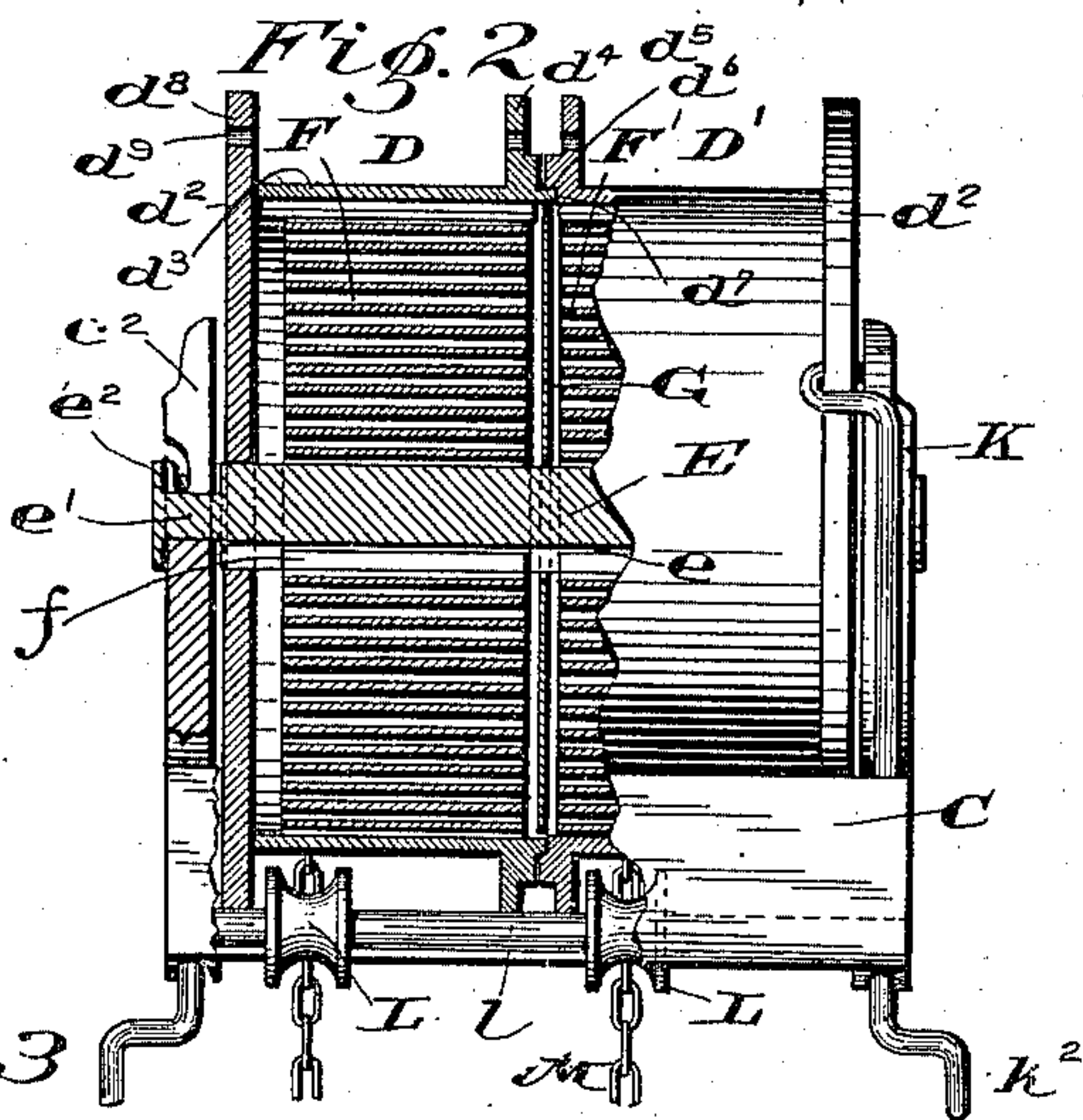
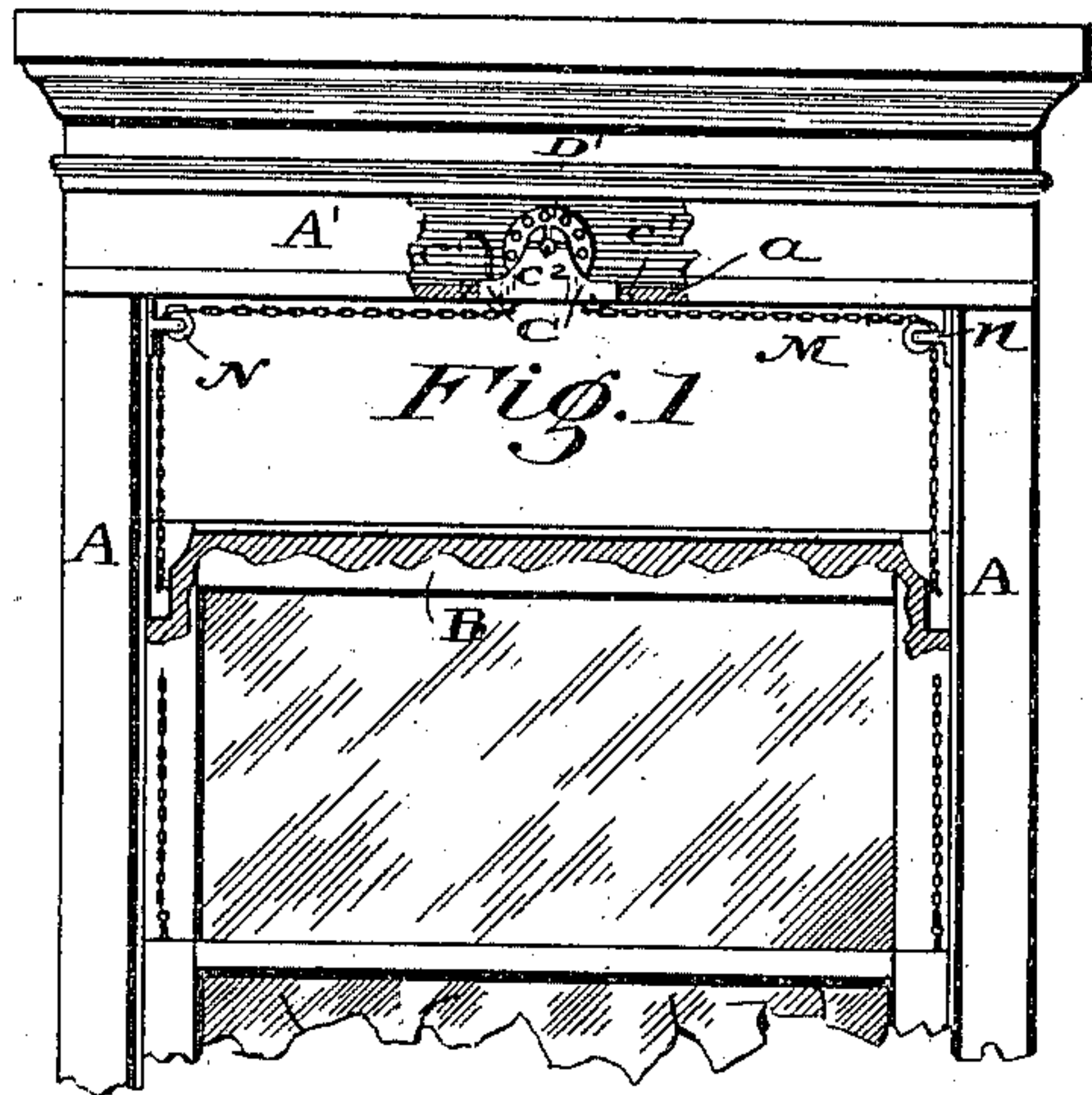


Fig. 5

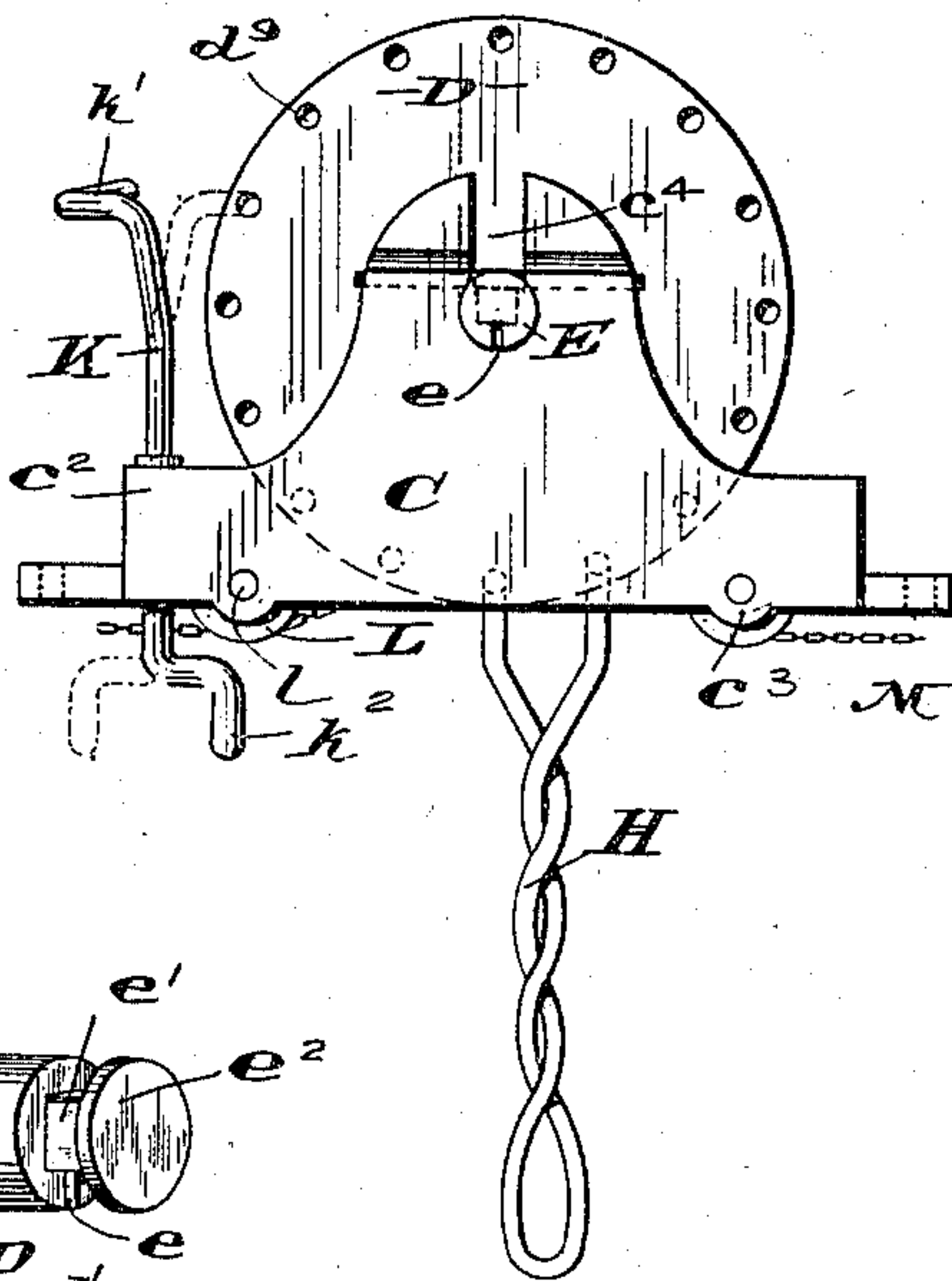
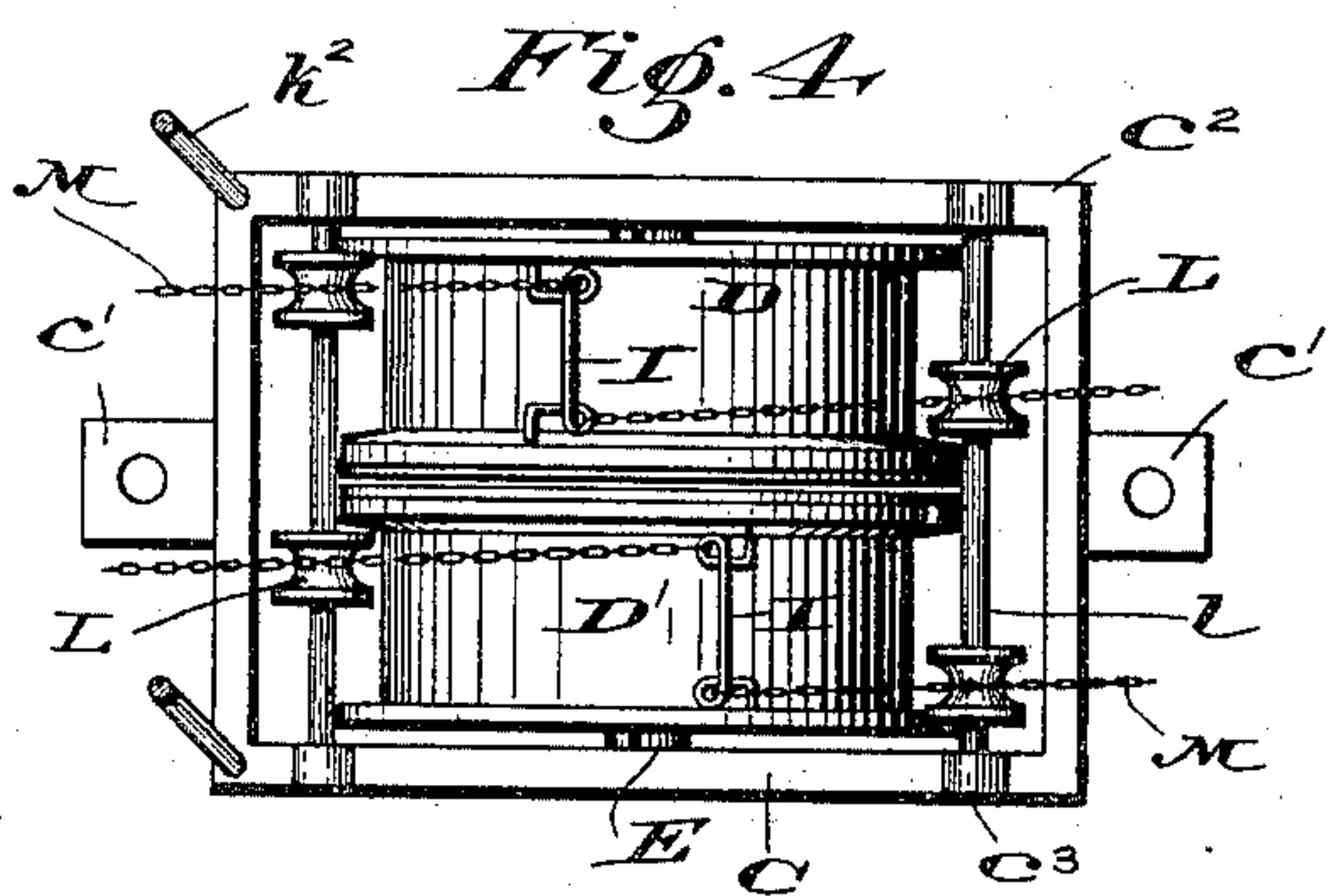
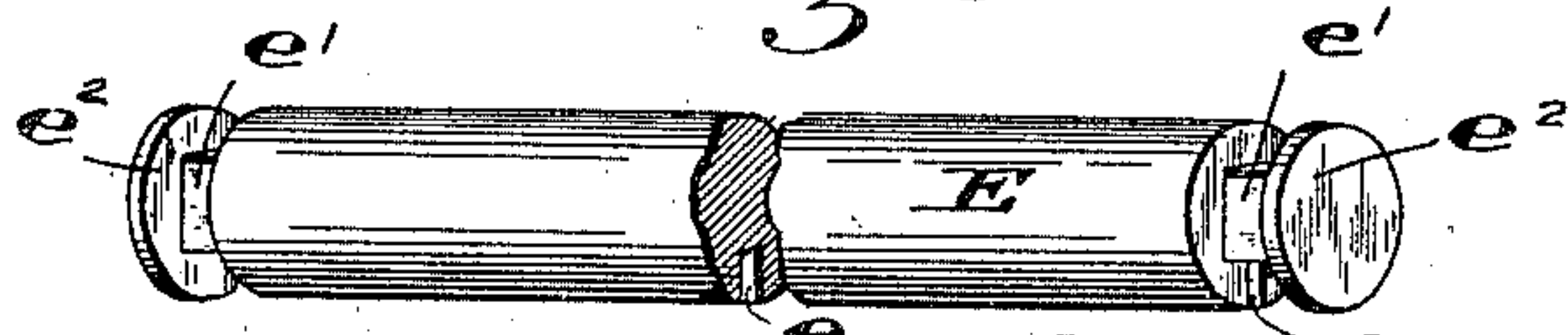


Fig. 6



Witnesses:-

B. Knapp

C. H. Schafer

Inventor:

Hugo A. Pischke

By his Atty.

C. H. Pischke



# UNITED STATES PATENT OFFICE.

HUGO A. PISCHKE, OF SOUTH BEND, INDIANA.

## SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 598,574, dated February 8, 1898.

Application filed June 7, 1897. Serial No. 639,688. (No model.)

*To all whom it may concern:*

Be it known that I, HUGO A. PISCHKE, a citizen of the United States, and a resident of South Bend, county of St. Joseph, and State of Indiana, have invented certain new and useful Improvements in Spring Sash-Balances, of which the following is a specification.

My invention relates to sash-balances in which the cords or other flexible connection attached to the sash are wound upon a spring-barrel secured to the cap of the frame and made to counterbalance the weight of the sash to enable it to be easily raised and lowered.

The object of my invention is to attach the devices to the frame of the window in such manner that they may be easily adjusted, fitted, or removed when required, to provide improved means for adjusting the spring within the barrel, and also to connect a pair of spring-barrels and provide certain novel details of construction connected therewith, as will hereinafter appear.

In the accompanying drawings, Figure 1 is a front elevation of the upper part of a window-frame and parts of two sash supported therein and broken away to show the connection between the spring-balance and sash; Fig. 2, an enlarged longitudinal elevation of the spring-balance broken away upon one side in the line of the axis of the barrels; Fig. 3, a plan of the cap-piece of the window-frame upon a scale larger than that of Fig. 1, showing my improved spring-balance and its connections; Fig. 4, an enlarged plan of the under side of the spring-balance barrels and block-casing; Fig. 5, a side elevation thereof; Fig. 6, an enlarged perspective detail of the split shaft for supporting the barrels and holding the end of the spring, and Fig. 7 a transverse sectional detail of the barrel and the fastening for the end of the spring therein.

When sliding sash are used, two sash are to be supported in the frame, and consequently two barrels are employed in spring-balance devices upon which the cords, chains, or tapes are wound, which thus connect separately each barrel with one of the said sash, and as my device is constructed upon this principle the description of one of the spring-barrels and its connection with the sash will

answer for the other similar and corresponding devices unless otherwise specified.

The window-frame A and sash B may be of any pattern, either old or modern, my device being especially designed to admit of its being applied to any old-style window-frame without marring its appearance, as shown in Fig. 1, the only work or alteration required being to cut a rectangular hole in the bottom board *a* of the cap A' of the window-frame of the exact size required to receive and closely fit the exterior sides of the barrel-block C, the latter being securely held thereon by end lugs *c'*, which project under the bottom board *a* and are secured thereto by wood-screws, the spring-balance block and barrels D supported thereon being thus easily placed and held within the boxing of the window-frame cap-piece.

The spring-barrels D D' are made to abut one against the end of the other between the side standards *c*<sup>2</sup> of the block C, and are supported upon a slotted shaft E, fitted and held in slot-bearings *c*<sup>4</sup> in said standards and each connected with said shaft by a spring F F', bent radially at one end *f* to engage with the slot *e* of said shaft, the outer ends of said springs being bent at *f'* to receive the flange *d'* of a lug *d*, cast upon the inner side of the spring-barrel to project transversely within and across the same and will take secure hold of the free end of the spring-plate and by the relation of the barrel will wind the said spring around the stationary slotted shaft. The shaft E is provided with a longitudinal slot *e* to receive the radially-bent end *f* of the spring F and F', and has squared shoulders *e'* and disks *e*<sup>2</sup> at the ends thereof, the said shoulders being fitted in the slot-bearings *c*<sup>4</sup> of the block C, the disks serving to hold the edges of slot-bearing securely and the springs, shaft, and spring-barrels thus being held securely upon the block. A very strong connection between the spring and both the shaft and barrel is thus insured, the connections being such that the springs may be readily removed or replaced from the barrels when desired. The barrels D D' are made separate and each comprises an outer face-plate *d*<sup>2</sup>, a barrel *d*<sup>3</sup> either formed integral or secured thereto, an inner flange *d*<sup>4</sup>, and two abutting inner shoulders or bearing-rings *d*<sup>5</sup>,



which hold the flanges  $d^4$  separated from each other and provide a solid end bearing or abutment for the spring-barrels, one of the said barrels D being provided with a projecting rim  $d^6$ , and the barrel D' being provided with a corresponding annular recess  $d^7$  to receive the said rim and thus hold the inner ends of the barrels squarely upon the shaft E without the employment of inner face-plates. As the separate springs are liable to bulge or rub one against the other at their inner sides, a thin metal disk G is placed upon the shaft E to separate them and provide a smooth partition or abutment-plate between the springs.

The barrels should be made very thin and may consist of several parts of sheet metal properly secured together. The outer flange  $d^8$  and the inner flange  $d^4$  of each of the barrels are provided with a series of holes  $d^9$ , arranged in a circle at equal distances apart, and are used for several purposes—viz., to lock the barrels by dogs K on the barrel-block, to provide holes to receive the points of a double-pin wrench H, as shown in Fig. 5, and also to receive the ends of a bail I by which the cords, chains, or straps of the window-sash connections are secured to the barrel, as shown in Fig. 4. The dogs K for holding the barrels are each formed of wire rods supported uprightly in bearings  $c^2$  of the blocks C and have hooks  $k'$  at their upper ends which engage with any one of the holes  $d^9$  and with cranks  $k^2$  at their lower ends which project below the barrel-block to be easily reached, the wrench H also extending below the barrel-block when in use, as shown in Fig. 5, thus permitting the tension of the spring within the barrel to be nicely adjusted by the revolution of the barrel without having to remove the spring-barrels or barrel-block from each other or from their place upon the casing, the bail I being placed in any suitable holes of the flanges to suit the tension of the spring.

The lower edges of the sides of the barrel-block C have bearings  $c^3$  to receive spindles  $l$ , placed, respectively, across the ends of the block C, upon each of which is freely journaled a separate grooved pulley L for each roller, the peripheries of said rollers projecting slightly below the edge of the block upon or closely to the plane of the under side of the window-frame. The said rollers thus carry chains or other like flexible connections M, which are carried closely along the under side of the window-frame to corner-pulleys N, secured by brackets  $n$  to the upper ends of the side posts  $A^2$  of the window-frame in close proximity to the cap, the chains M being then conducted downwardly alongside the said posts to the sash and secured to mortises in said sash, the said mortises serving to receive

the pulleys N when the sash are raised to their full height. The edges of the sash at the top are also recessed, as shown in Fig. 1, to receive the chains or cords which extend beneath the cap of the window-frame.

The spring-barrels, block, flexible connections, and pulleys are all easily accessible at all times for adjustment or repair and may be easily connected to any old-fashioned window not provided with sash-balances at small cost. The spring adjustment is an important feature, as it will readily be seen that by means of the wrench H the barrels may be revolved to any desired degree to place the necessary degree of tension upon the springs contained therein, and if the bails I, which are first removed, be replaced thereon and the wrench removed the sash can be balanced in the frame at any point in the height of the frame irrespective of the weight of the sash.

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

1. A spring-balance for window-sash comprising a barrel-block, a shaft fixedly secured thereto, two independently-rotating drums arranged upon the shaft, a flange extending outwardly from each end of each drum, perforations in each flange, removable bails arranged longitudinally of each drum having their ends secured in the perforations in the flanges, springs contained within the drums, and flexible connections between the bails and the window-sash, substantially as described.

2. A spring-balance for window-sash comprising a barrel-block, a shaft fixedly secured thereto, drums arranged to rotate upon the shaft, springs interposed between the drums and the shaft, perforated flanges projecting from the drums, vertical rods journaled to rotate in the barrel-block, one end of each rod extending below the same and bent at right angles forming a handle, the opposite end projecting upwardly in alinement with the perforated flange, the upper end of the rod being bent at an angle to the body of the rod, the extreme upper end formed with a horizontally-arranged hook, whereby when the rod is rotated the hook is either engaged or disengaged with one of the perforations in the flange and flexible connections between the drums and the window-sash, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name in the presence of two subscribing witnesses.

HUGO A. PISCHKE.

Witnesses:

GUSTAV CUTKOSKY,  
JNO. I. DE WITT HAMER.