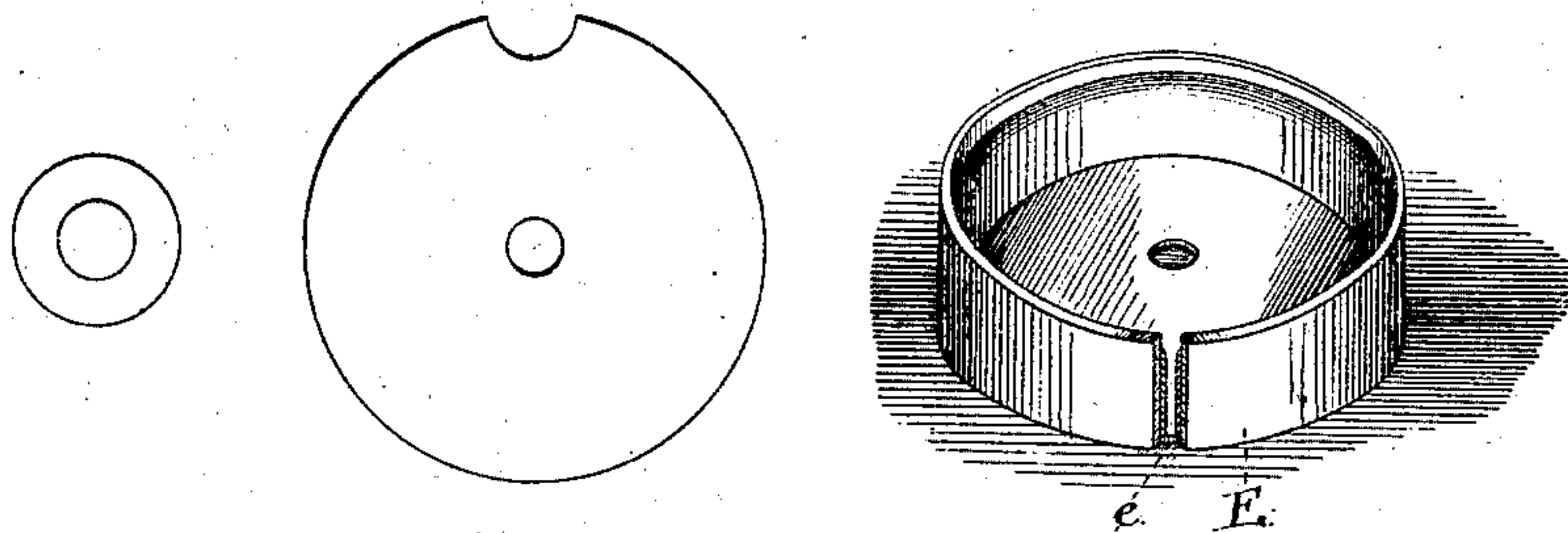


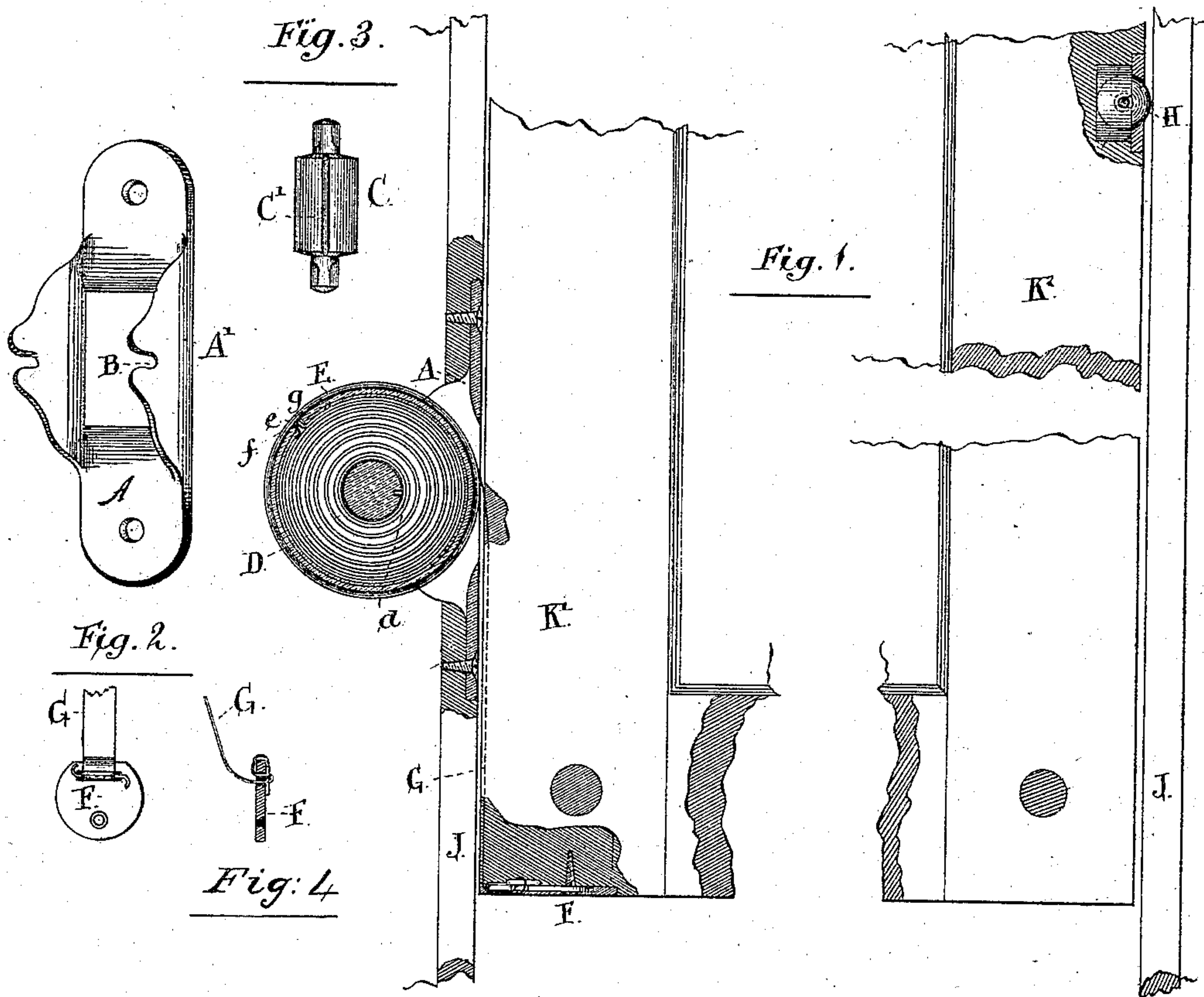
F. MUNN.  
Sash-Balance.

No. 215,281.

Patented May 13, 1879.



*Fig. 5*



Witnesses:-

*L. Whitehead.*

*H. Curren.*

Inventor:

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*per Ridout, Aird & Co.*  
*Attorneys.*



# UNITED STATES PATENT OFFICE.

FRANCIS MUNN, OF STRATHROY, ASSIGNOR TO WILLIAM THOMSON AND  
WILLIAM CULVERT, OF TORONTO, ONTARIO, CANADA.

## IMPROVEMENT IN SASH-BALANCES.

Specification forming part of Letters Patent No. **215,281**, dated May 13, 1879; application filed  
May 25, 1878.

*To all whom it may concern:*

Be it known that I, FRANCIS MUNN, of the town of Strathroy, in the county of Middlesex and Province of Ontario, Canada, carpenter, have invented certain new and useful Improvements in Spring-Regulators for Supporting Window-Sashes, which improvements are fully set forth in the following specification and accompanying drawings.

The object of the invention is to provide a suitable substitute for the weights now commonly used to balance window-sashes; and it consists in the construction and combination of the several parts, as hereinafter specified, and definitely pointed out in the claim.

The center end of the clock-spring fits into a longitudinal slot in the spindle referred to, and its outer end is attached to the periphery of the cylindriform case. One end of a metallic tape of suitable length is similarly attached to and wound around the periphery of this case. The other end is provided with a buckle or clip, which is secured, as shown in the drawings, to the window-sash, the whole being arranged in such a manner that the weight of the sash will be sustained by the spring.

Figure 1 exhibits application of my sash-regulator to a window. Fig. 2 is a detail of bracket. Fig. 3 is a detail of spindle. Fig. 4 shows details of the clip, and Fig. 5 details of the case and cover.

In my invention I make the bracket A of malleable or cast iron, and having the ends of its base-plate rounded, as shown. The jaws A' of this bracket are gracefully formed, and the slotted bearings B cut in them are the proper size to receive the squared or flattened ends of the spindle C. The main diameter of this spindle C should not be less than half an inch; as a suitable spring can then be more easily attached to it. The inside end, *d*, of the clock-spring D is bent in toward the end of the said spring, forming the connection between it and the spindle C by entering the longitudinal slot C' in said spindle.

The spring D fits into the cylindrical case E, which is centrally pivoted upon the spindle C, the ends of which only project outside the case E. The rim of the case E has a slotted opening, *e*, into which the outside end, *f*,

of the spring D fits, as does also the end *g* of the metallic tape G, the other end of which is provided with a buckle or clip, F, applied for the purpose of connecting the said metallic clip to the window-sash.

Having inserted the spring D and spindle C into the case E, and adjusted these within the bracket A, I wrap the metallic tape G around the case E, to which it is also connected. The regulator is now ready for application, and can in this form be sold to the trade.

The window-frame is cut out to receive the regulator, which is inserted as shown on the right-hand side of Fig. 1, and placed at or about the center of the window-frame. The tape G is wrapped around the case E, and the clip F is screwed to the bottom of each sash K, as shown in Fig. 1, so that the weight of the sash K<sup>1</sup> is supported by the strength of the spring, and as the sash is moved the case revolves and the tape unwinds.

As any practical man will understand, two or more regulators can be attached to each window-sash; but in most cases one will be found sufficient, provided a friction-roller, H, is applied.

Fig. 1 represents portions of a window-sash and frame to which my attachments are connected. In this figure K<sup>1</sup> is the bottom corner-piece of the sash, and K<sup>2</sup> a portion of the sash near the top corner, diagonally opposite to K<sup>1</sup>, showing how the roller H is applied when only one regulator is used.

I do not confine myself to any specific dimensions, as the size will be regulated to suit the style of window, whether it be for a house or railway-car.

What I claim as my invention is—

The cylindrical case E, having the slot *e* to receive the outer end, *f*, of the spring D and the inner end of the tape G, the spindle C, having the longitudinal slot C' and squared ends, and the bracket A, provided with the slotted bearings B to receive the squared ends of the spindle C, combined with the said spring and tape, substantially as specified.

Dated 11th day of April, A. D. 1878.

FRANCIS MUNN.

Witnesses:

DONALD C. RIDOUT,  
JOHN G. RIDOUT.