

(No Model.)

E. F. SMITH.  
SASH BALANCE.

No. 522,624.

Patented July 10, 1894

Fig. 1

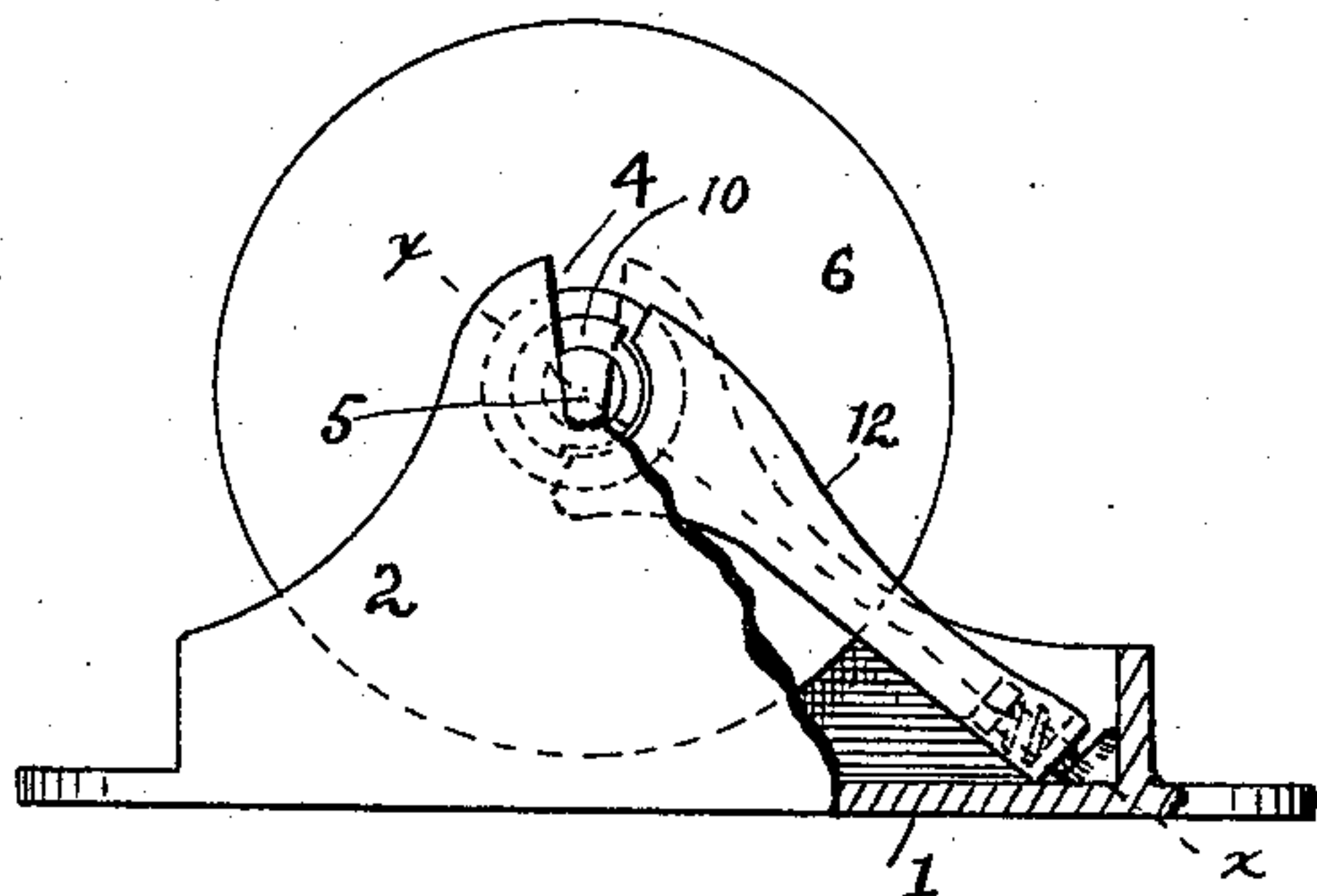


Fig. 2.

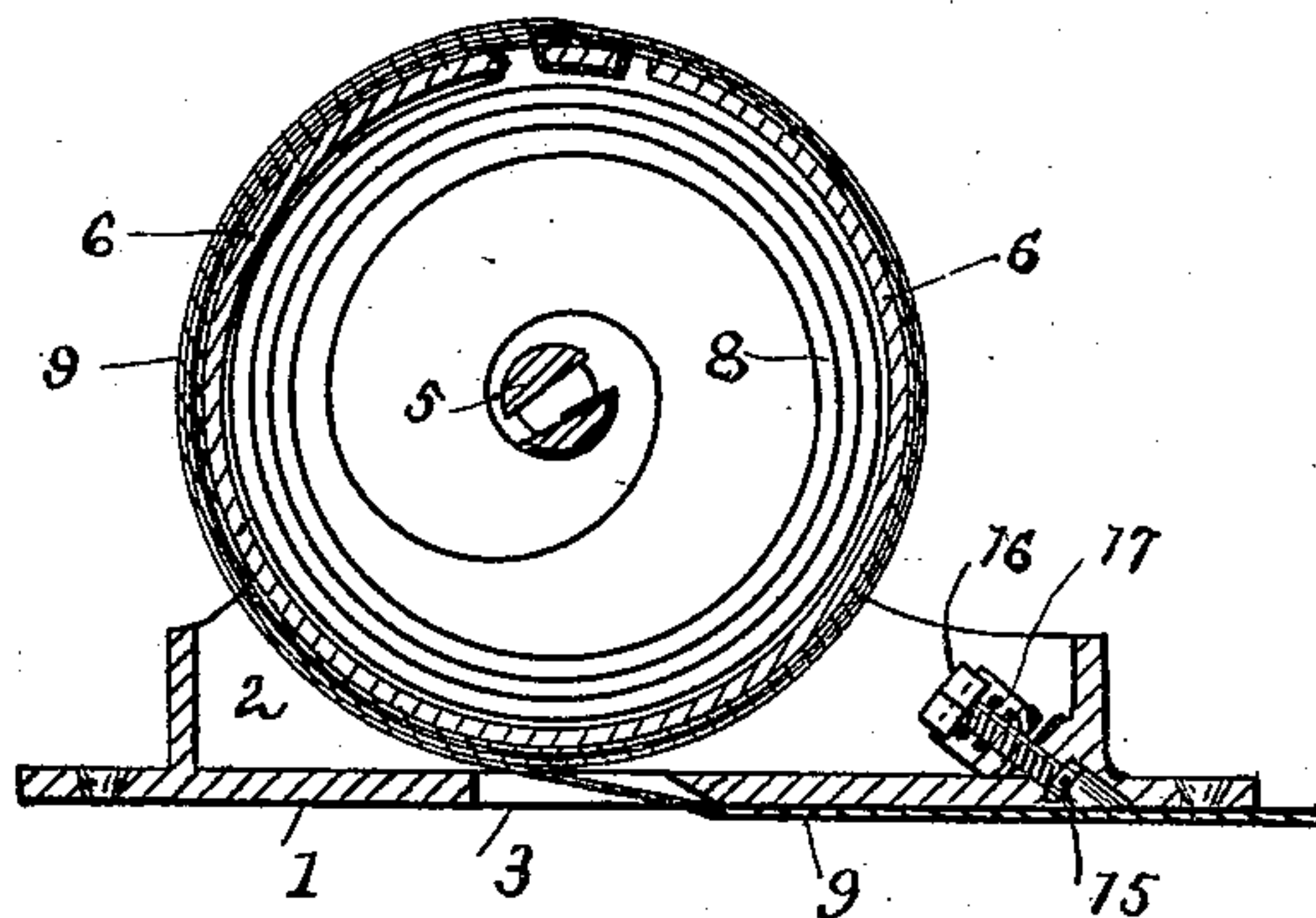


Fig. 3.

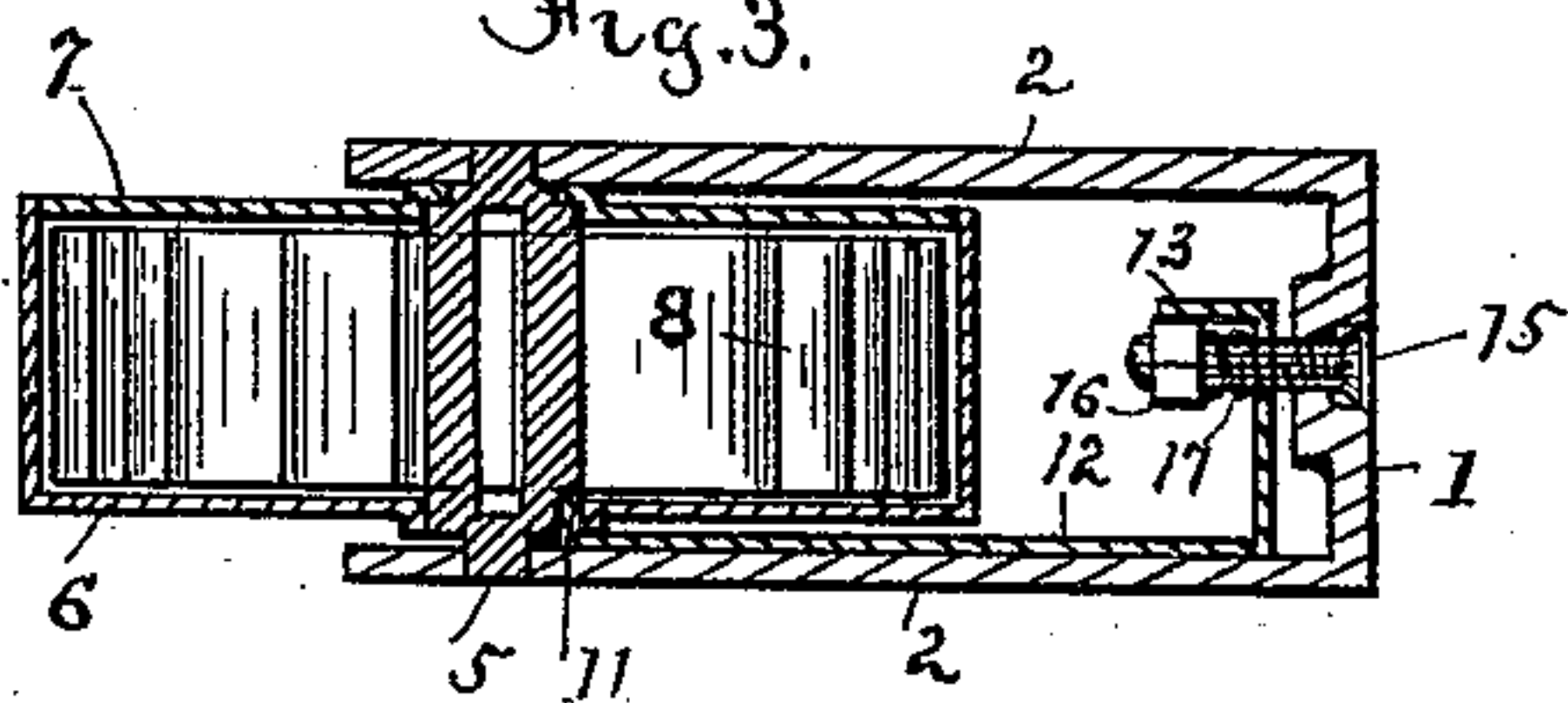


Fig. 4.

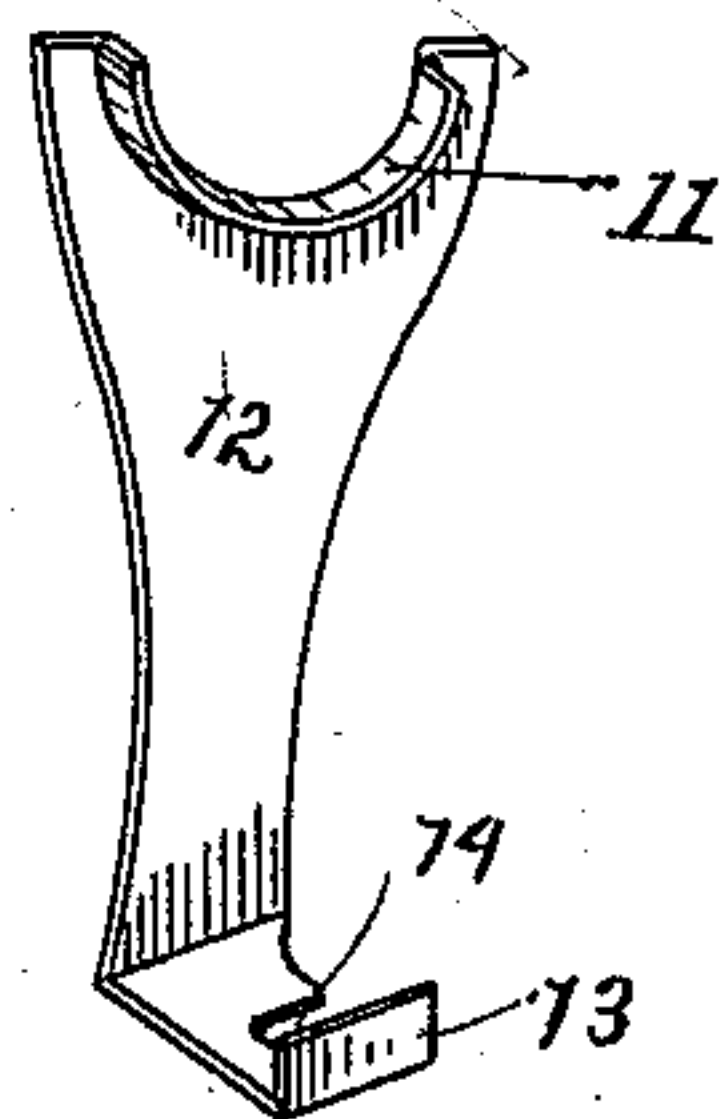


Fig. 5.

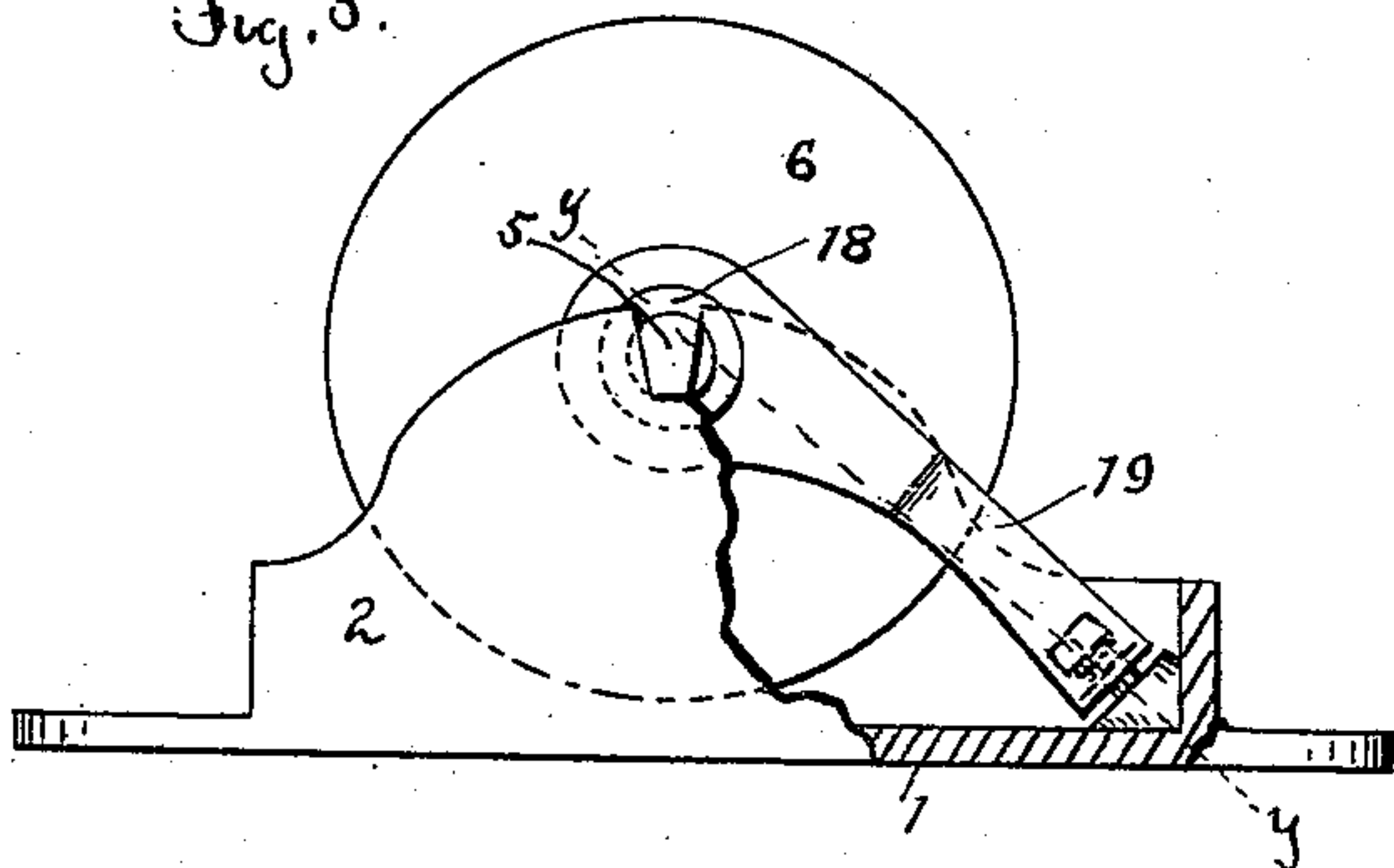
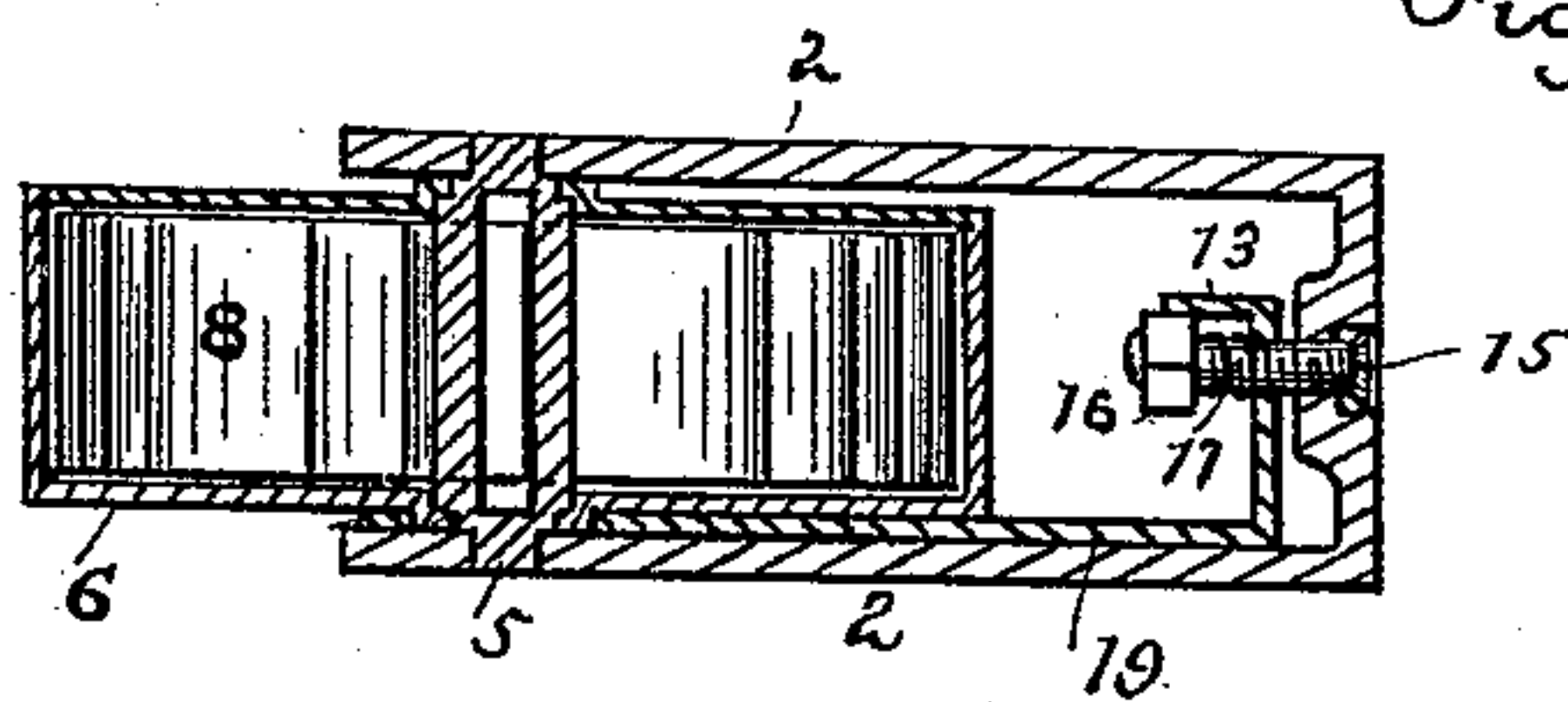


Fig. 6.



Witnesses

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# UNITED STATES PATENT OFFICE.

EDWARD F. SMITH, OF ROCHESTER, NEW YORK.

## SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 522,624, dated July 10, 1894.

Application filed January 23, 1894. Serial No. 497,783. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD F. SMITH, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Sash-Balances; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference-numerals marked thereon.

My present invention relates to sash-balances and particularly that class embodying a spring-operated drum on which the tape for suspending the sash is adapted to be wound, and it consists in certain improvements in construction and combinations of parts, all as will be hereinafter fully described and the novel features pointed out particularly in the claims at the end of this specification.

In the drawings: Figure 1 is a side elevation of a sash-balance constructed in accordance with my invention with a portion of the side casing broken away; Fig. 2, a longitudinal sectional view; Fig. 3, a section on the line  $x-x$  of Fig. 1; Fig. 4, a detail perspective view of the brake; Fig. 5, a side view similar to Fig. 1 of a modification; Fig. 6, a section of the same on the line  $y-y$ .

Similar reference numerals in the several figures indicate similar parts.

The supporting frame or casing of the device is preferably composed of a single casting embodying the face plate 1 and the two side plates 2, 2, the former provided with an aperture 3 for the passage of the supporting tape and the latter having at the rear two open slots 4 for the accommodation of the arbor or pintle 5 on which the rotary drum 6 is mounted. The drum 6 is provided with a cover-plate 7 for holding in place the spring 8, one end of which is attached to the central pintle and the other to the flange or face of the drum, as shown, serving to rotate the latter in a direction to cause the supporting tape 9 to be wound thereon, the other end of said tape being attached to the sash in the usual manner. The extreme ends of the arbor or pintle 5 are preferably fitted to the slots 4 in the rear plates or flanges 2 of the supporting frame so as to be held from rotation thereby and at one end said pintle is re-

duced to enter a corresponding aperture in the cover-plate of the drum and at the other end it is provided with a segmental flange or portion 10 cut away on one side, on which flange the drum has a bearing, while the cut away portion serves to admit the entrance of the inwardly turned flange 11 formed on a brake-plate 12 operating on the inner side of the aperture of the drum. This plate 12 extends parallel with the side of the drum toward the front plate of the supporting frame and its end is bent at right angles to the main portion and then preferably upward again forming the flange 13; a slot 14 is formed in said plate for the accommodation of the bolt or screw 15 provided on its inner end with a nut 16 between which and the plate is inserted a small spiral spring 17, while the head of the screw passes through the front plate 1 of the main frame and is accessible when the balance is placed in position in the window casing, to permit the adjustment of the brake by means of a screw driver, if desired. The flange 13 formed on the brake co-operates with the edge of the nut 16 and prevents its turning when the screw is operated and the open slot in said plate permits the insertion of the drum and brake into the main frame after the adjusting screw is in position.

From the above it will be seen that the brake plate not only has a bearing on the inner side of the aperture in the drum, serving by the adjustment of the screw to increase or diminish the friction on the latter and regulate the movement of the drum caused by the spring, but also that said plate serves to hold the drum and pintle in the main frame.

While I prefer to employ the small spring 17 between the adjusting screw and the brake plate it is obvious that it could be dispensed with and the resiliency of the brake plate itself, which is preferably composed of steel, relied upon for giving the elastic pressure on the drum.

It will be noted that the end of the brake plate is in proximity to the face plate of the main frame so that only a sufficient amount of brake pressure can be applied to the drum to cause the proper operation and then said



plate will engage the frame preventing the complete arrest of the drum.

In the modification shown in Figs. 5 and 6, instead of extending the end of the brake plate 19 inside the drum it is provided with a circular aperture at its end passing around a boss 18 formed upon the side of the drum and it will be noted that it serves the same purpose, operating as a brake near the center of the drum and of holding the drum and pintle in the main frame. Both the devices shown are simple and cheap in construction and as I have found in practice admirably adapted for the purpose.

While I prefer to make both the slots 4 in the main frame open, it will be understood that substantially the same result would be obtained if only one of them were open, the pintle being inserted endwise into one, and sidewise into the open slot, but I prefer the arrangement shown as the pintle is more readily inserted and I find that it is held properly by the brake-plate.

I claim as my invention—

1. In a sash-balance, the combination with the main frame having the rear flanges, at least one of them having an open slot, the spring-operated drum and its pintle arranged in the slot, of the brake-plate arranged at the side of the drum and engaging the latter near its center, the engaging surfaces of the plate and drum being at an angle to the open side of the slot, whereby the pintle and drum will be held in position, substantially as described.

2. In a sash balance, the combination with the main frame, the spring-operated drum and its supporting pintle, of the brake plate arranged at the side of the drum engaging the drum near its center, the cooperating faces of the brake and drum extending parallel and

concentric with the pintle, substantially as described.

3. In a sash-balance, the combination with the main frame, the spring-operated drum and its supporting pintle, of the brake-plate arranged at the side of the drum and engaging the latter near its center, the cooperating faces being parallel and concentric with the pintle, and the adjusting screw for moving the plate at right angles to the supporting pintle, substantially as described.

4. In a sash-balance, the combination with the main frame, the spring-operated drum and its supporting pintle, of the brake-plate arranged at the side of the drum having the inwardly turned flange engaging the drum near its center said flange and the surface it engages being concentric with the pintle, and the adjusting screw engaging the plate and adapted to move it at an angle to the pintle, substantially as described.

5. In a sash balance, the combination with the main frame, the spring operated drum and its supporting pintle, of the brake-plate arranged at the side of the drum having the inwardly turned flanges at each end, one engaging the drum near its center and the securing screw engaging the other flange, substantially as described.

6. In a sash balance, the combination with the main frame, the spring-operated drum and its supporting pintle, of the brake plate arranged at the side of the drum and engaging the latter near its center, having the slotted flange at the other end, the spring and the adjusting screw, substantially as described.

EDWARD F. SMITH.

Witnesses:

W. E. WARNER,  
F. F. CHURCH.