

No. 831,191.

PATENTED SEPT. 18, 1906.

F. SCHUBERT.
GAGE.

APPLICATION FILED APR. 20, 1905.

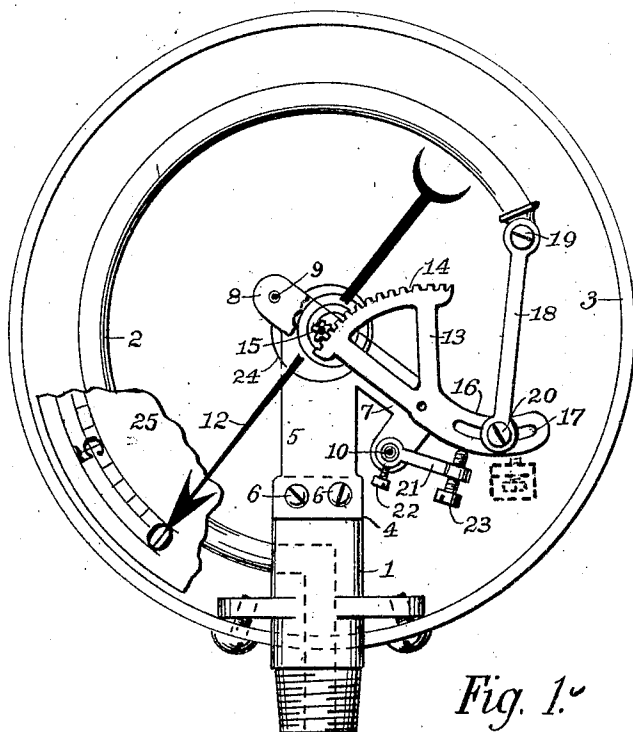


Fig. 1.

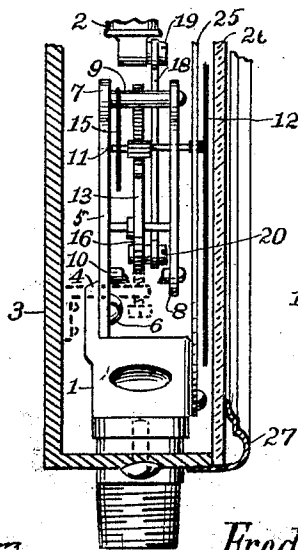


Fig. 2.

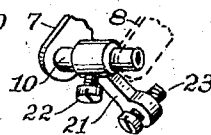


Fig. 3.

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FREDERICK SCHUBERT, OF SELLERSVILLE, PENNSYLVANIA.

GAGE.

No. 831,191.

Specification of Letters Patent.

Patented Sept. 18, 1906.

Application filed April 20, 1905. Serial No. 256,597.

To all whom it may concern:

Be it known that I, FREDERICK SCHUBERT, a citizen of the United States, residing at Sellersville, county of Bucks, State of Pennsylvania, have invented a new and useful Improvement in Gages, of which the following is a specification.

This invention relates to improvements in the movement of steam, air, and other gages, and has for its objects, first, the construction of a movement which is entirely mounted on the "post," so-called, from the front only independent of the case; second, to simplify the construction and assembling of the gage, and, third, to provide a stop for the segment and dispense with the use of a stop-pin, which under certain conditions is fatal to the movement and to the correct calibration of the gage. I accomplish these purposes by my improved gage, which is fully shown in the accompanying drawings, in which—

Figure 1 is a front view of a gage, the dial and center of pointer being broken away to show the mechanism. Fig. 2 is a side view of the lower part of Fig. 1, the case being shown in central section and partly broken away. The Bourdon spring is removed to more clearly illustrate the movement. Fig. 3 is a perspective view of the lower movement-post and adjustable arm broken away in Fig. 2.

Similar reference characters indicate like parts in the several views.

1 is the usual post, upon which the Bourdon spring 2 is mounted. 3 is the case. The post is provided with an upwardly-extending flange 4, positioned at the rear side, against which the movement-supporting upright 5 is fastened in position by screws 6 6. The upright 5 has an arm 7 near its upper end where it forms a back plate, the front plate 8 being of the same outline, the two plates 7 and 8, together with the upper and lower movement-posts, respectively, 9 10, forming the housing for the movement proper. The two plates are pierced with holes to form bearings for the pinion-shaft 11 and for the novel segment 13.

12 is the hand or pointer.

The segment has teeth 14 on its periphery which mesh with the pinion 15. On the free end of the segment is an extension, which I term a "sector," 16, having a curved slot 17.

The free end of the Bourdon spring has a link 18, pivotally connected by means of a screw 19, the lower end of the said link also

being provided with a screw 20; which is adjustably set in the slot 17 of the sector.

On the lower post 10 I mount an arm 21, which is fastened in a predetermined position by means of a set-screw 22 or otherwise. In the end of this arm there is an adjustment-screw 23, which limits the downward movement of the sector or extension.

24 is a hair-spring to return the hand to the zero-mark.

Such being the construction, the operation is as follows: All the parts of the movement are made interchangeable and in quantities by suitable tools and assembled by unskilled hands. The Bourdon spring is fastened on the post 1 in the usual manner, the post being secured to the case 3 by screws. The operation of the movement can be tested in the hand, and the stop-arm is so set that the toothed section of the segment will stand in position as shown in Fig. 1, the extension or sector striking the screw 23. The movement is then set in the case and mounted on the flange 4 of the post by screws 6 6, and the link 18 is connected with the sector 16, the adjustment being made in the slot 17, so that there will be no lost motion of the Bourdon spring. Any required delicate adjustment to bring the segment in its proper place is made by means of the screw 23. The dial 25, hand-glass 26, and ring 27 can then be put on the gage-case and the gage is ready for use. It will be noticed that, owing to the absence of the usual stop-pin on the dial-plate, any sudden variation in the pressure or vacuum which would have a tendency to throw the hand beyond the zero-mark does not affect the position of the pointer or hand, nor does it injure the movement as described. Where a stop-pin is used on the dial, the strain is on the segment and pinion as well as on the hand, and when the hand suddenly flies back and strikes the pin the delicate teeth of the pinion or segment are injured, or else the hand is bent and loosened from the shaft and a false indication is had when gage is in operation. In the use of my improved gage this cannot happen. By mounting the movement on one side of the post it is easily placed or removed, besides permitting an air-space between the housing and the case, so that any variation in temperature does not affect the movement.

The stop for limiting the travel of extension-arm or sector in one direction may be fastened to the case as shown by the angle-

plate and screw (indicated by dotted lines in Figs. 1 and 2) without departing from the spirit of my invention.

I believe that I am the first inventor to use
5 an adjustable limit-stop to prevent strain on the movement, and therefore desire to claim it broadly.

Such being my invention, what I claim as new is—

- 10 1. In a movement for gages, the combination of a curved Bourdon spring, a pinion-wheel and a pointer pivoted substantially centrally of said spring, a segment having teeth on its periphery engaging said pinion,
15 an integral sector carried upon the free end of said segment and having a curved slot in the sector, a link pivotally connected to said spring, a screw passing through said link and through the curved slot in the sector, an adjustable stop-pin engaging said sector to
20 limit the movement thereof and an independently-adjustable bracket carrying said stop-pin.

2. In gages, the combination of an upwardly-extending flanged post, an upright 25 mounted on said post, said upright having a laterally-extending arm near its upper end, a shaft mounted in said upright, a segment having an integral sector with a curved slot, said segment being pivotally mounted on said 30 arm, a Bourdon spring, a link attached to one end of said spring, a screw carried by the other end of said link and passing through the curved slot in the sector, an arm carried by said first-named arm and adjustable 35 thereon, and an adjustment-screw carried by the adjustable arm and serving as a stop for said sector.

In testimony whereof I have signed my name to this specification, in the presence of 40 two subscribing witnesses, this 15th day of April, 1905.

FREDERICK SCHUBERT.

Witnesses:

MATTHEW M. LAWLER,
WILSON C. LAUB.