

No. 724,724.

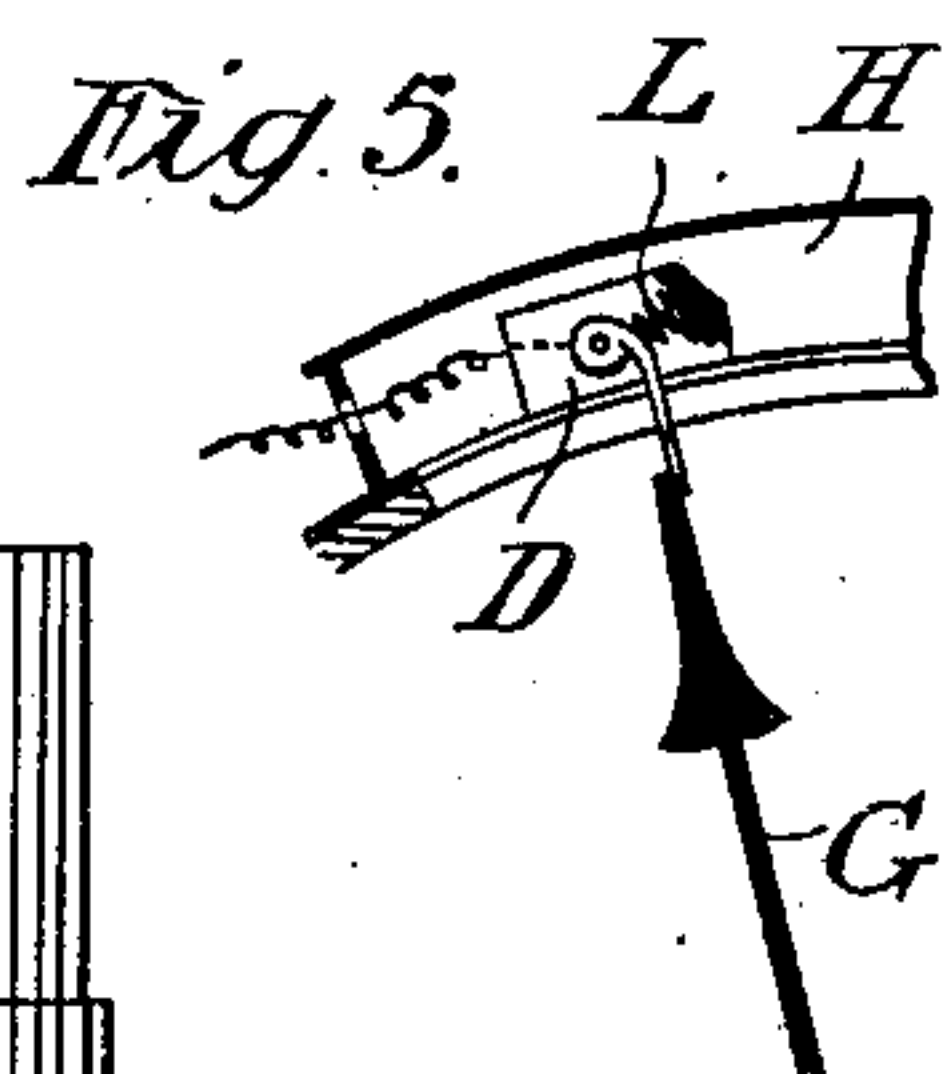
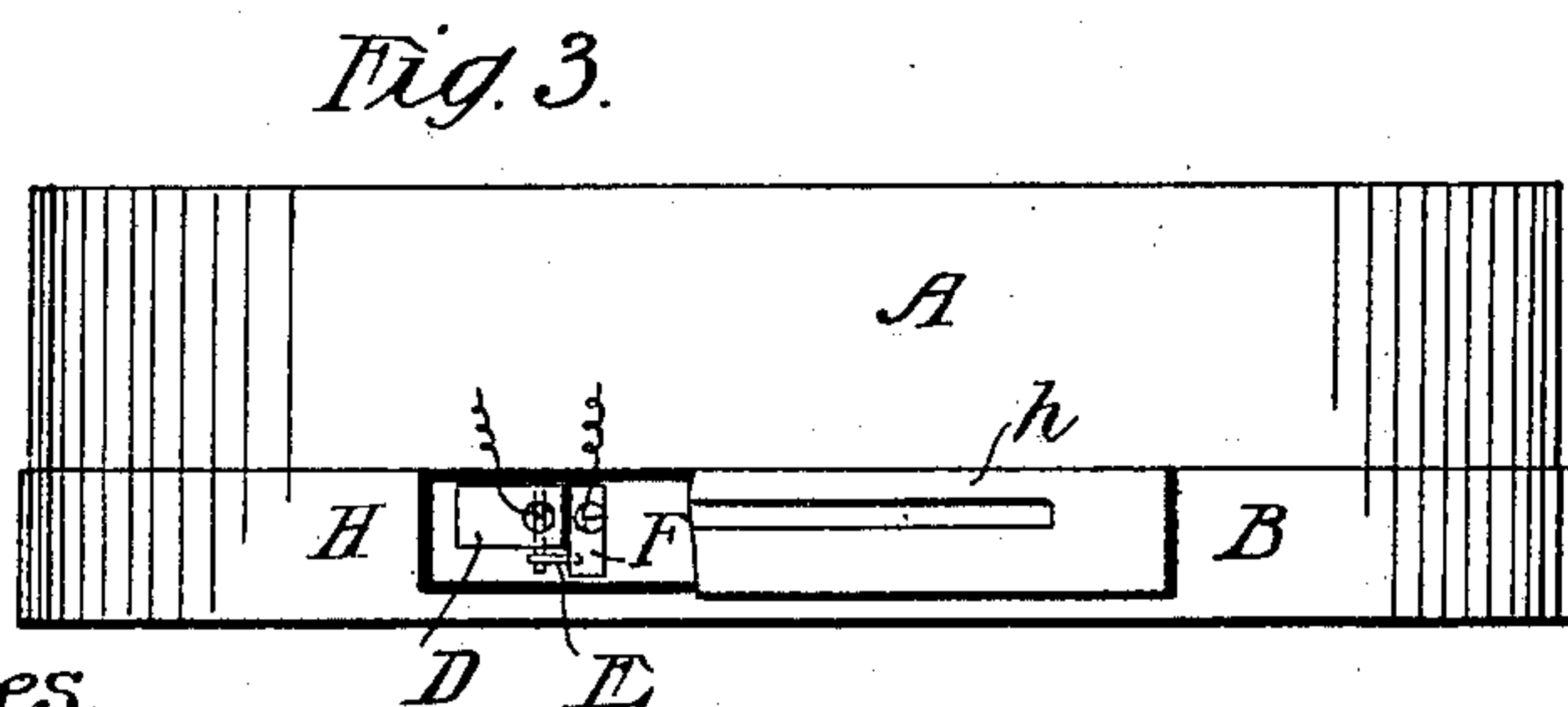
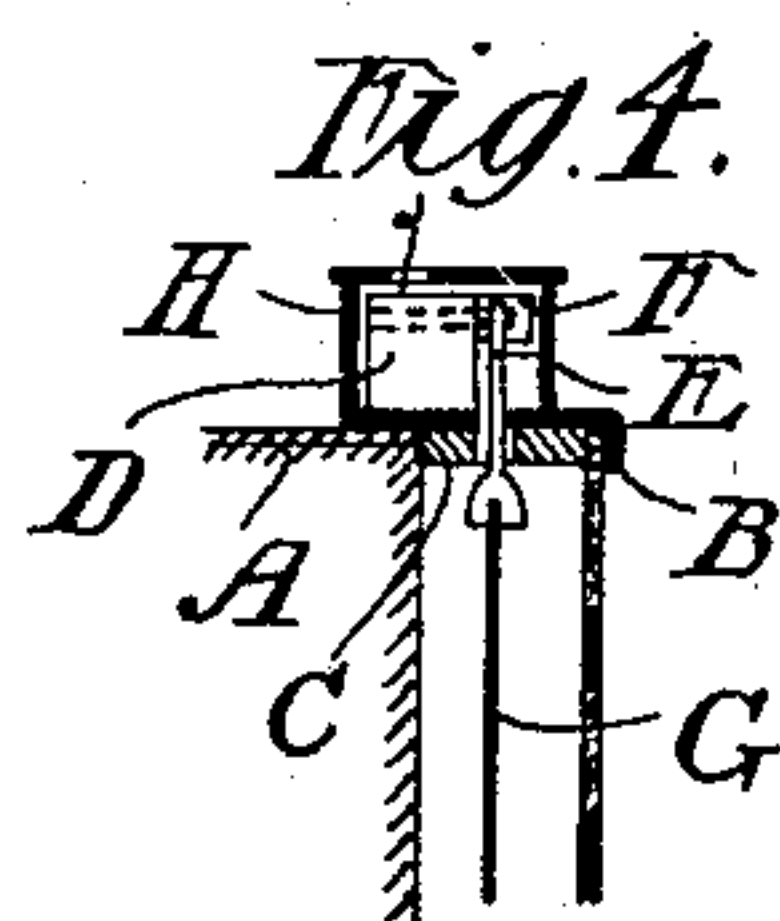
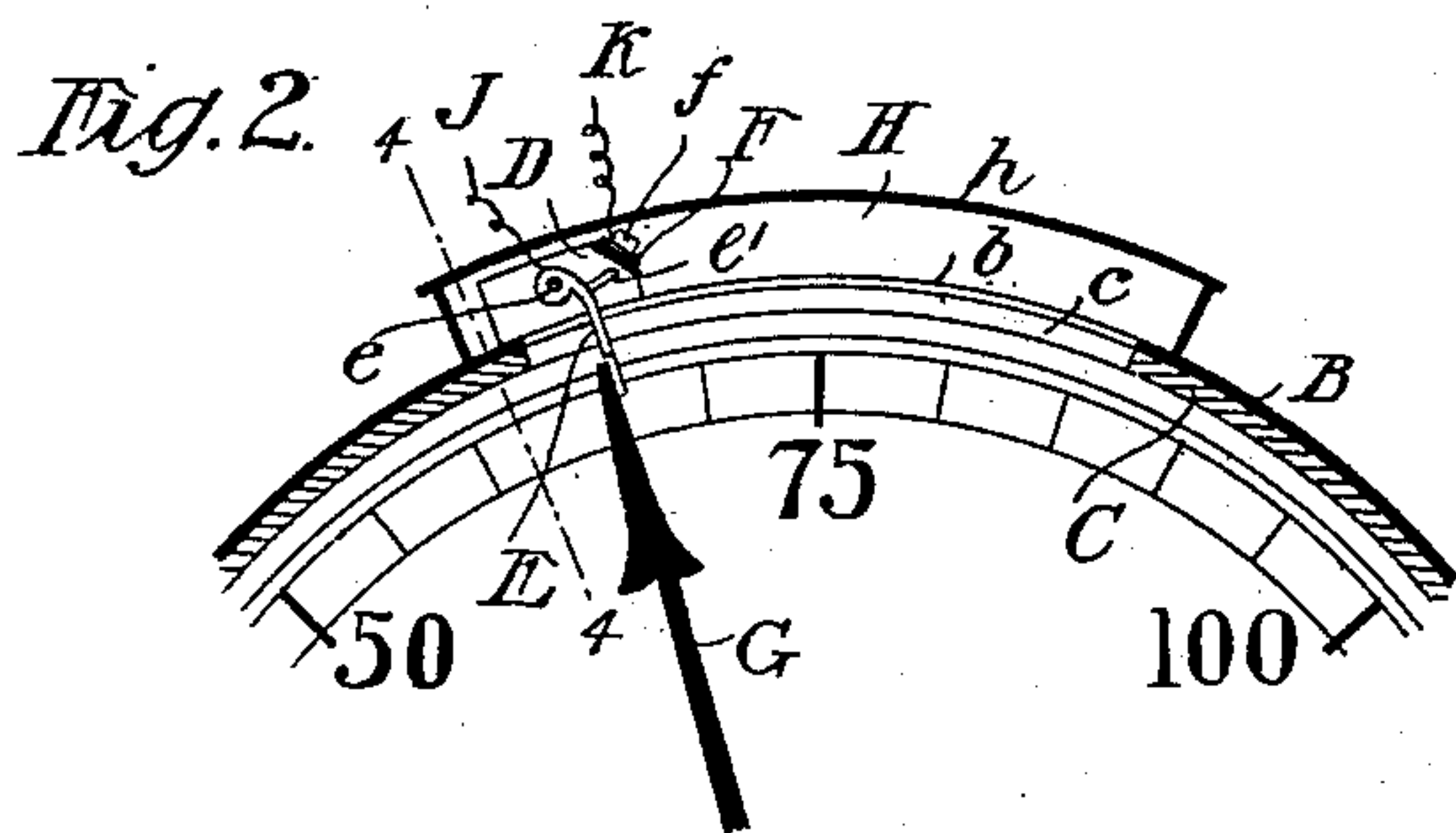
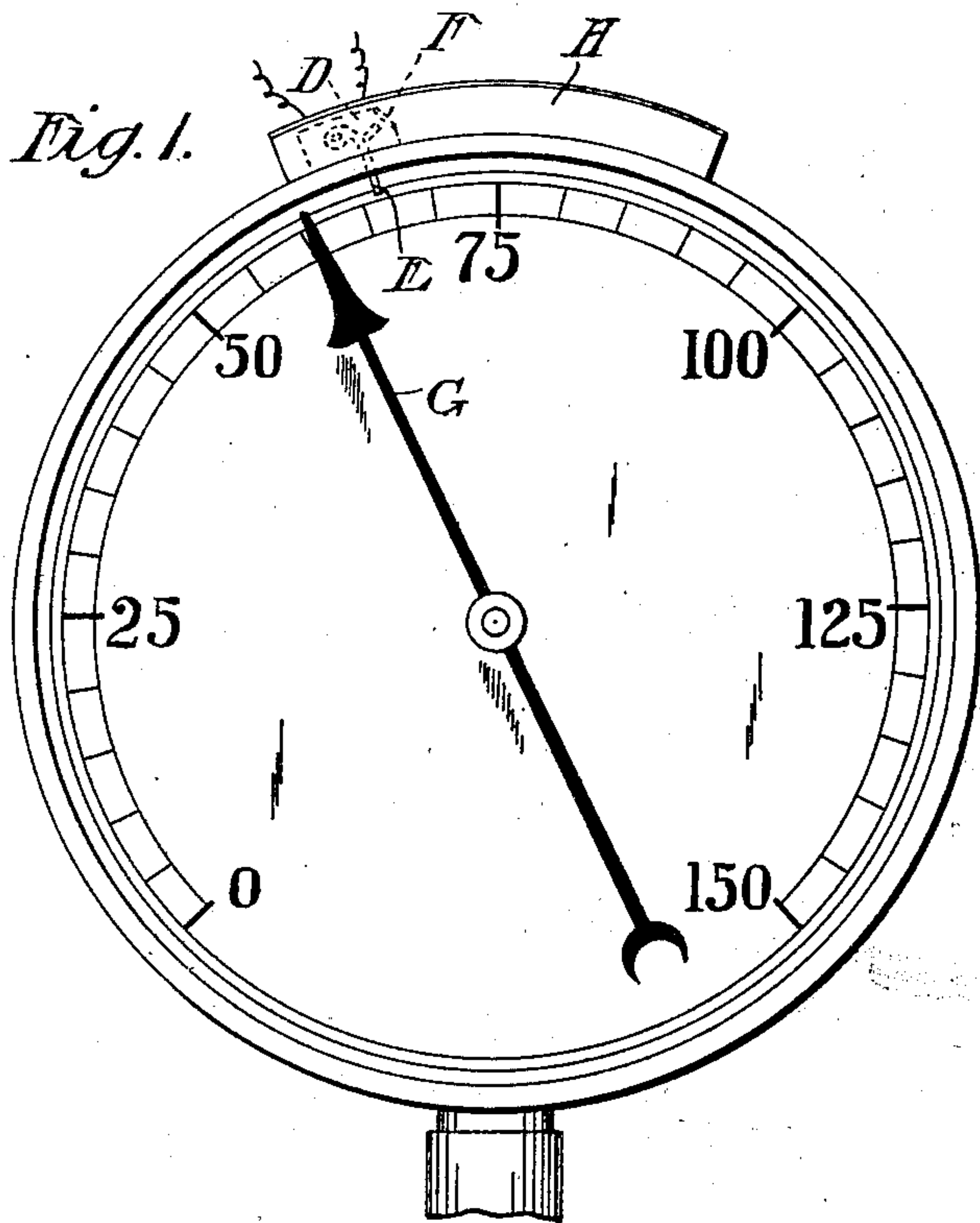
PATENTED APR. 7, 1903.

F. MITCHELL.

PRESSURE GAGE FOR STEAM BOILERS OR THE LIKE.

APPLICATION FILED MAY 22, 1902.

NO MODEL.



Witnesses.
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UNITED STATES PATENT OFFICE.

FREDERICK MITCHELL, OF REDCASTLE, VICTORIA, AUSTRALIA.

PRESSURE-GAGE FOR STEAM-BOILERS OR THE LIKE.

SPECIFICATION forming part of Letters Patent No. 724,724, dated April 7, 1903.

Application filed May 22, 1902. Serial No. 108,530. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK MITCHELL, a subject of the King of Great Britain, residing at Staffordshire Flat, Redcastle, in the State of Victoria, Australia, have invented certain new and useful Improvements in or Connected with Pressure-Gages for Steam-Boilers or the Like, of which the following is a specification.

10 This invention has been devised to provide improvements in connection with that class of pressure-indicators wherein a hand is caused to move upon the graduated face of a dial, the said improvements being designed
15 to serve as a check upon or an indication to the man in charge of the boiler should he carelessly allow the steam-pressure to rise above the maximum predetermined height. The invention also while putting on record
20 the degree of pressure reached by the gage will cause an alarm to be sounded at any spot desired (in the neighborhood of the works in which the improvements are employed) in such a manner as to call the attention of the
25 man in charge or the proprietor, manager, or superior officer that an unduly high pressure has been or is being generated in the boiler or like receptacle. Where my improvements are in use and the safety-valves of the boiler
30 become stuck or inoperative and the stoker or attendant is temporarily absent, an increased factor of safety will be given to the steam-boiler in connection with which the improvements are effected.

35 I will now describe the invention with reference to the accompanying sheet of drawings.

Figure 1 shows the face of a steam-gage with a box containing my invention applied
40 to it. Fig. 2 shows a longitudinal section through the box. Fig. 3 shows a plan of gage with part of box removed. Fig. 4 shows a section taken on line 4 4 of Fig. 2. Fig. 5 is a longitudinal section through box, showing
45 modified arrangement.

A represents casing of the steam-gage at present in general use. In the outer band or cover B, I cut a segmental slot *b*, preferably, but not arbitrarily, of a sufficient length to
50 take in the indicator-marks from, say, ten to twenty pounds—that is to say, beginning a few points below the predetermined maxi-

mum-pressure point at which the boiler is intended to work and proceeding along the higher figures of the dial. The drawings 55 illustrate the slot extending from approximately the sixty-five to the eighty-five pounds mark; but the position can be varied by moving the cover around. C represents the ordinary metal ring that holds the dial-face in 60 position. This is provided with a slot *c*, which corresponds with the slot *b* in the cover. I provide a button or sliding block D, which is arranged to freely and evenly slide with a minimum of friction. In front of this block 65 I provide a small wire or finger E, preferably of platinum, that hangs from a spindle *e*, and from the block D is led away an insulated wire J (which connects with the spindle) to an electric alarm-bell apparatus hereinafter 70 referred to. The block carries also a spring-plate F, with which the finger E or a projection *e'* on it is arranged to contact. From the plate F is led away the other wire K of the electric circuit. This wire is held by screw *f*. 75 The indicator-hand G of the gage is so arranged that on arriving at the maximum height or pressure numeral it will meet the finger E and cause its pin *e'* to contact with the plate F, so as to complete the electrical 80 circuit and ring the bell. It will then carry forward the sliding block, and which will not automatically return, but will remain exactly at the point that the pressure of the indicator-hand G has moved it to. The finger 85 E, which proceeds down to and over the graduated marks of the dial, will point to the excessive degree to which the pressure has been allowed to rise. Should the steam-pressure be excessive and greater than the pressure-mark 90 to which the block may travel, the indicator-hand G when the block has reached its limit will by means of the finger E press up the spring-plate F and pass the finger. The finger E and the plate F are suitably insulated from 95 each other, as by making the block D of insulating material.

In lieu of employing the moving finger E and the plate F the finger may in some cases be fixed to the block or pivoted and with a 100 spring L at back, as in Fig. 5, and the indicator-hand of the gage in either such case be put into the electrical circuit by means of an insulated wire connected with one pole of

the electric bell apparatus. The bell apparatus being in circuit with an electric battery will sound the alarm immediately the indicator-hand of the gage, which in this case is provided with a platinum tip, touches the corresponding platinum tip of the finger E' on the sliding block. The alarm-bell apparatus may be placed, for instance, in the manager's private house, office, or other similar convenient position, so that his attention may be aroused and a possible accident averted.

As the apparatus forms a check or telltale upon the boiler attendant, the box H or its cover may be secured in place by a suitable lock.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In combination with a pressure-gage, a finger located in the path of movement of the indicator-hand and freely movable in said path whereby it may be set at a predetermined position on the gage and with which the indicator-hand of the gage will come in contact when the predetermined steam-pres-

sure is attained, and an electrical circuit adapted to be completed by said contact to ring an alarm, substantially as and for the purposes described.

2. In combination a pressure-gage, a box mounted on same, a sliding block, a finger projecting from the block and through a slot in the gage-cover and with which the indicator-hand of the gage is arranged to contact and so complete an electrical circuit to ring an alarm-bell substantially as and for the purposes described.

3. In combination a pressure-gage, a cover B with slot *b* a box H on the cover, a sliding block D in the box, a finger E pivoted to the block and carrying pin *e'*, a plate F on the block, an electrical wire connection with the finger E and plate F substantially as and for the purposes described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FREDERICK MITCHELL.

Witnesses:

A. O. SACHSE,
A. HARKER.