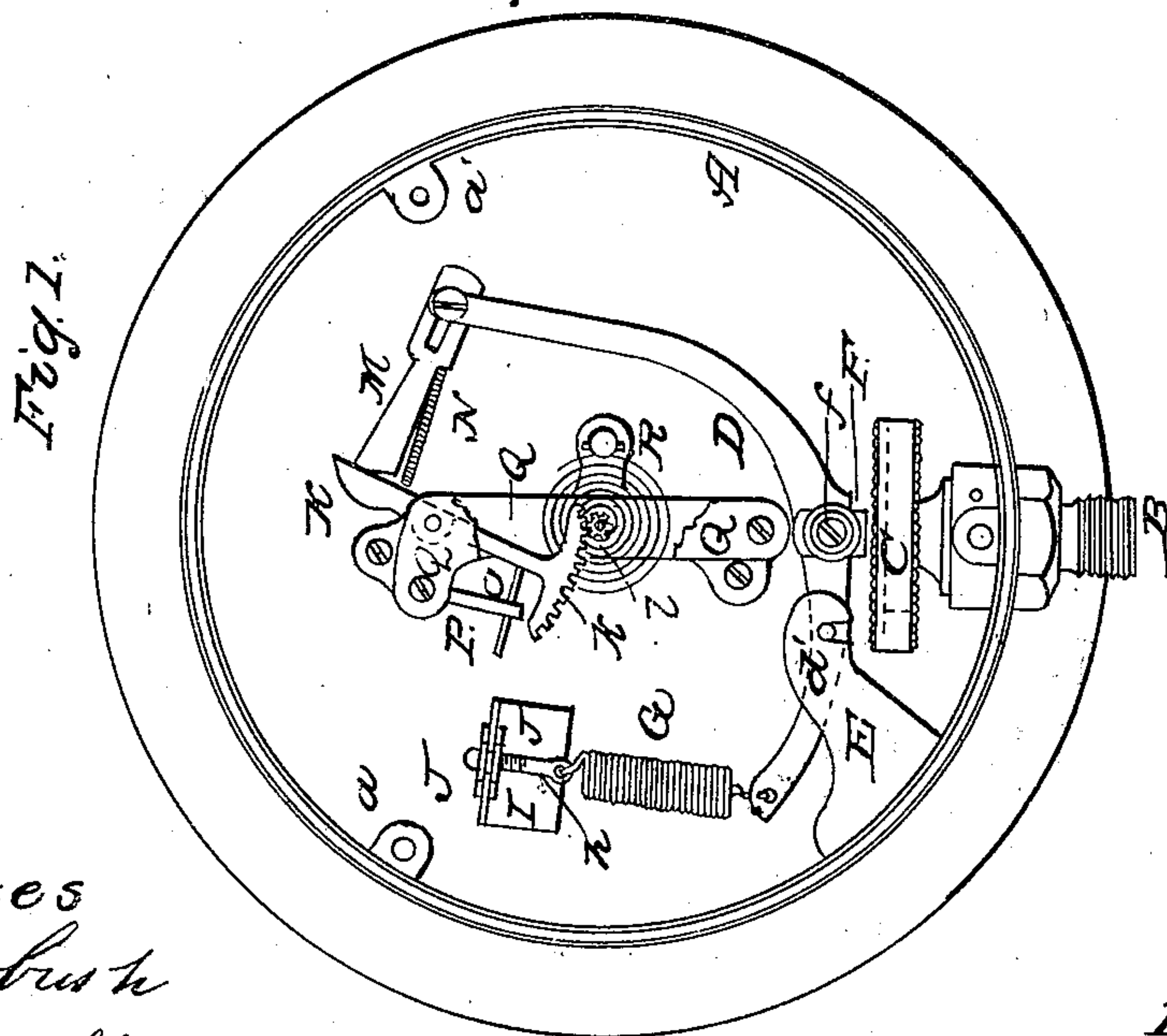
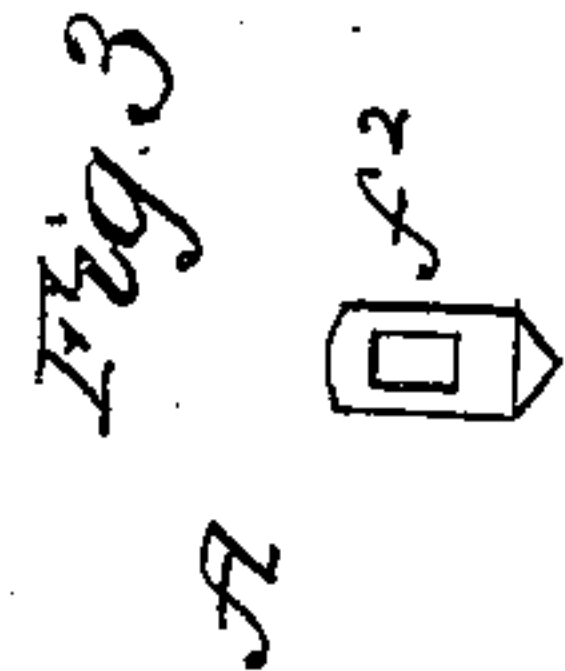
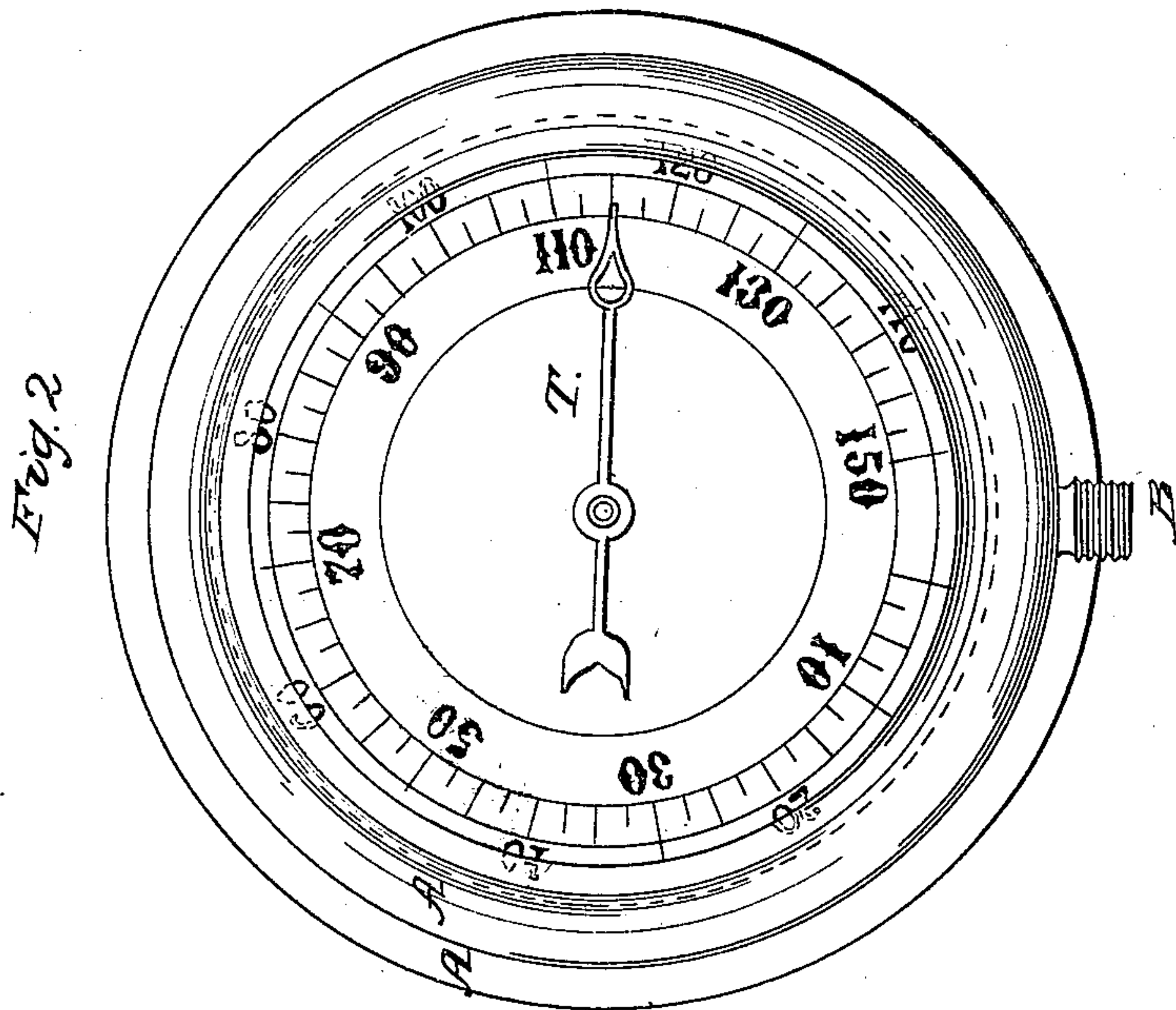


T. S. RAY.
Steam Gage.

No. 42,873.

Patented May 24, 1864.



witnesses
C. B. Forbush
B. H. Muehle

Inventor
T. S. Ray

UNITED STATES PATENT OFFICE.

THOMAS S. RAY, OF BUFFALO, NEW YORK.

IMPROVEMENT IN STEAM-GAGES.

Specification forming part of Letters Patent No. 42,873, dated May 24, 1864.

To all whom it may concern:

Be it known that I, THOMAS S. RAY, of the city of Buffalo, county of Erie, and State of New York, have invented new and useful Improvements in Steam-Gages; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure I is a vertical section showing the working parts. Fig. II is a front view. Fig. III is a plan view of bearing-piece F.

Letters of like name and kind refer to like parts in each of the figures.

The nature of this invention relates, first, to the application and use of a coil-spring to insure an even bearing of the lever upon the capsule, and to aid in the adjustment of the gage; second, in an adjustable bearing-piece placed upon the operating-lever and bearing or resting upon the capsule; third, in an adjustable push-piece in connection with the operating-lever and bearing upon and pushing against the upper end of the segment-arm; fourth, in an adjustable stop.

The case which contains the working parts is of ordinary construction and is represented at A.

The pipe which admits steam into the capsule is shown at B.

C represents the capsule, which is of ordinary construction and use.

D is the main operating lever, which works upon appropriate fulcrum-bearings in the hangers E, as shown at *d'*.

F is a bearing-piece, which is placed upon the operating-lever, and is made adjustable thereon by means of a slot, *f*², as shown in Fig. III, therein and the screw *f'*, as that its purchase upon the lever may be varied as required for adjusting the gage. This piece bears upon the capsule and communicates the steam-pressure to the operating-lever.

G is a spiral spring, which is so placed as to act upon the short end of the operating-lever D. One end of this spring hooks on the end of the lever and the other end connects with the screw-pin *h*, which pin passes through the elbow-support I and takes two nuts, J, (one nut on either side of the support,) so that by means of the screw pin and nuts the tension of the spring may be regulated,

and a constant and uniform pull is exerted upon the lever, so as to hold it steady and prevent it from jumping.

K represents a segment, which meshes with pinion *l*, which pinion is properly fitted on the shaft of the index-needle.

K' is the segment-lever.

M is a push-piece, which is connected to the long end of the operating-lever, and is made adjustable thereon by means of a slot and screw, and, projecting laterally, it pushes against the segment-lever and operates it. The end of this push-piece is made beveling or slanting, so that the leverage on the segment-lever will shorten as the pressure and movement is increased by an increase of steam-power, and an equal movement of the index-needle in distance upon the index-face is insured for each additional pound of steam-pressure, although the proportional movement of the capsule lessens as the steam-power increases.

N is a coil-spring which connects the operating lever D with the segment-lever, and is for the purpose of holding the segment-lever in contact with the push-piece through all the variations of steam-pressure.

O is an adjustable screw-stop placed in the post P, so as to prevent the segment-lever from receding far enough to ungear with the pinion *l*.

Q are frame-pieces for the support of the segment-lever, needle-shaft, and other parts.

R is a hair-spring operating upon the needle-shaft.

S is an index-face which is fastened to the case A by means of screws passing into the eyes *a'*.

T is the index-needle supported and operating upon the top of needle-shaft.

By means of the improvements I have described I am enabled more quickly, easily, and perfectly to adjust and set the parts so that the index-needle will correctly indicate the exact steam-pressure by an equal movement of the needle for each increased pound of steam-pressure.

All the parts work free and securely, and are not liable to get out of order.

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

1. The coil-spring G, so arranged and placed

as to pull upon the short end of the lever D, for the purposes and substantially as described.

2. Making the bearing-piece F adjustable, in combination with the lever D and capsule C, substantially as described.

3. The adjustable push-piece M, in combination with the lever D, spring N, and seg-

ment K K', for the purposes and substantially as described.

4. The adjustable pin O, in combination with the post P and segment K, as set forth.
THOS. S. RAY.

Witnesses:

B. H. MUEHLE,
E. B. FORBUSH.