

No. 818,867.

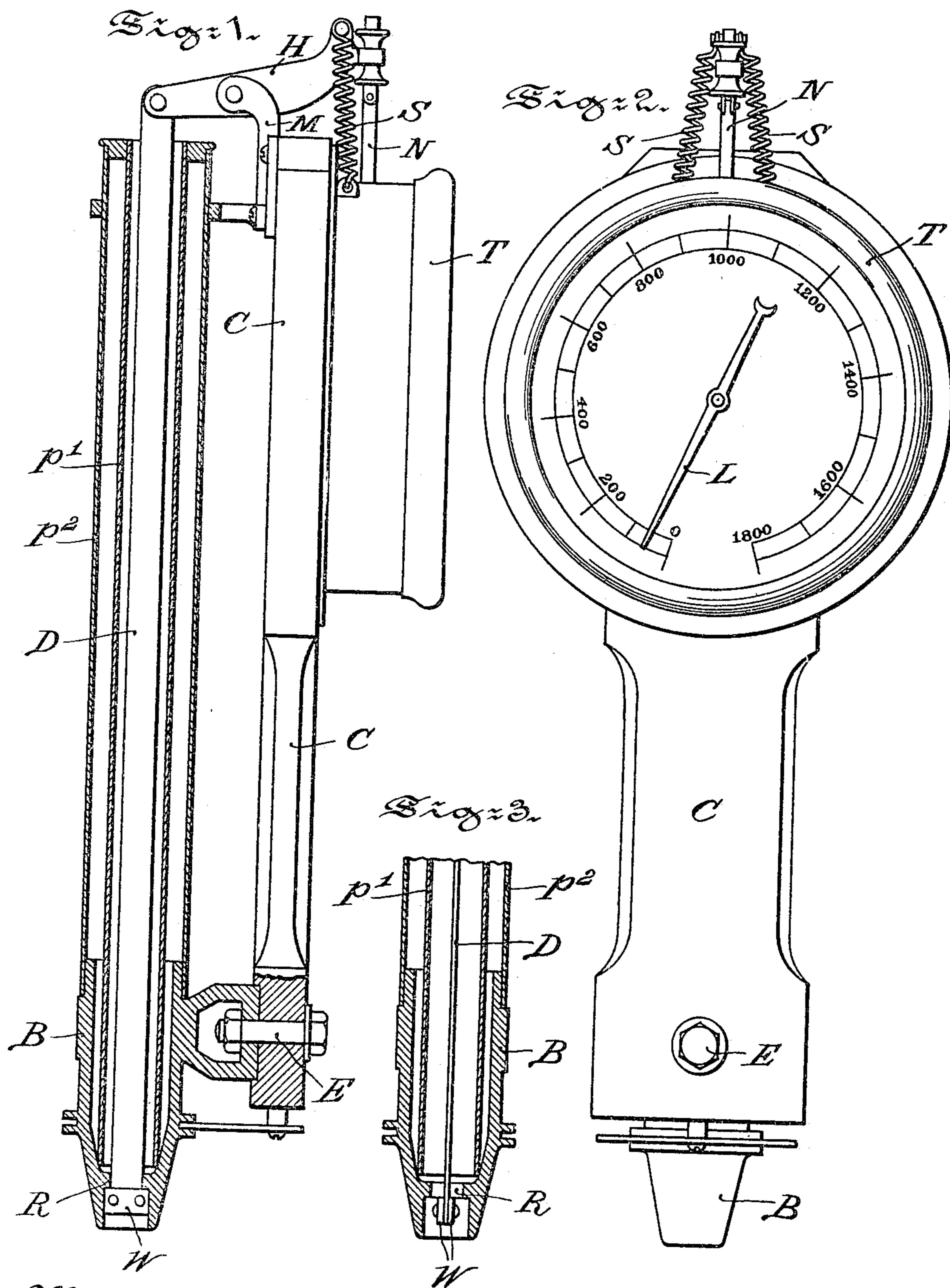
PATENTED APR. 24, 1906.

E. BROWN, DEC'D.

THE PROVIDENT LIFE & TRUST COMPANY OF PHILADELPHIA, ADMINISTRATOR.

PORTABLE HOT BLAST PYROMETER.

APPLICATION FILED JAN. 20, 1905.



Witnesses:
Jas. C. Robinson
John F. Grant

Inventor:
Edward Brown

UNITED STATES PATENT OFFICE.

EDWARD BROWN, OF PHILADELPHIA, PENNSYLVANIA; THE PROVIDENT LIFE & TRUST COMPANY OF PHILADELPHIA, ADMINISTRATOR OF SAID EDWARD BROWN, DECEASED.

PORTABLE HOT-BLAST PYROMETER.

No. 818,867.

Specification of Letters Patent.

Patented April 24, 1906.

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To all whom it may concern:

Be it known that I, EDWARD BROWN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Portable Hot-Blast Pyrometers, of which the following is a specification.

This invention is an improvement on my patent of September 20, 1881, No. 247,157, in which patent the metal expansion-strip of the pyrometer is shown secured at its lower end by a bolt, which said bolt is on the same horizontal plane as that which secures the hollow casting to the non-expanding frame of the instrument. The indication by the pointer is caused by the difference of elongation between the expansion-strip and the non-expanding frame or bar.

In the improvement now described I bolt the hollow casting as previously done to the non-expanding bar; but the bearing-point of the thin expansion-strip is placed at the end of the said casting at a point below that of the aforesaid bolt, the object of which is to bring the indicating-pointer to a definite stand in much less time than heretofore. The high-blast pressure now used, sometimes twenty-five pounds, makes it difficult to hold the instrument against it long enough to take the indication, because the pointer rises very slowly just at the termination of the test—that is, during the last ten or twenty degrees. This causes some uncertainty as to the actual indication.

By making the bearing of the expansion-strip near the point of the hollow casting I avail myself of the expansion of the said casting to bring the pointer quickly to a definite stand in much less time, thus lessening the oxidation of the expansion-strip and the general wear of the instrument. The expansion-strip of the instrument rapidly deteriorates with constant use at a temperature of 1,500°, and this mode of construction also greatly facilitates its removal and replacement.

In the accompanying drawings, forming part of this specification, and in which similar letters of reference indicate similar parts throughout the several views, Figure 1 is a side elevation, partly in section, of my improved portable hot-blast pyrometer; Fig. 2, a front elevation of the pyrometer; Fig. 3, a

central sectional elevation of the casting B, the lower end of the expansion-strip, and the lower end of the pipe surrounding the strip, the view being at right angles to that shown in Fig. 1.

The hollow casting B terminates in a tapering nozzle which is formed to enter the twyer of the blast-pipe. This casting is bolted by the bolt E rigidly to a non-expanding bar C, removed from the influence of the heat, which bar carries the gage T with its pointer L. This pointer is moved over the dial by the rod N, which actuates a rack and pinion, as is in common use in steam-gages.

The lower end of the casting B has a ring R, and the lower end of this expansion-strip D has on it a cross-bar W, which catches upon or bears against the ring R and is held in contact therewith by the spring S, acting through the lever H upon the other end of the expansion-strip.

The lever H is fulcrumed upon the fork M, which is secured firmly to the non-expanding bar C.

The blast is confined around the strip D in its passage through the instrument by one or more tubes p' p^2 , secured to the casting B. The tube p' is of thin metal and is surrounded by the tube p^2 , the intermediate air-space serving to maintain the temperature of the blast upon the expansion-strip.

When the instrument is in use, the thin expansion-strip D rapidly acquires the temperature of the blast, excepting, however, that the pointer moves very slowly during the last ten or twenty degrees.

At the end of the test when the temperature of the expansion-strip is nearly at its maximum the heavy casting B continues to heat, and its expansion, acting in a contrary direction, brings the pointer promptly to a definite stand.

I claim—

1. In a hot-blast pyrometer, in combination, a hollow casting terminating in a tapering nozzle, a non-expanding bar the lower end of which is secured to one side of said casting, a lever pivotally carried by the upper end of said bar, an indicating-pointer operated through the movement of said lever, and an expansion-strip the lower end of which has a bearing in the hollow casting and the upper end of which is secured to the end of

said lever opposite to the end operating the pointer-actuating means.

2. In a hot-blast pyrometer, in combination, a hollow casting terminating in a tapering nozzle, a non-expanding bar the lower end of which is secured to one side of said casting, a lever pivotally carried by the upper end of said bar, an indicating-pointer operated through the movement of said lever, an expansion-strip the upper end of which is in operative connection with the end of said lever opposite to that operating the pointer and the lower end of which carries a cross-bar adapted to engage and hold said lower end of said expansion-strip to the lower end of said casting, and a spring for keeping said expansion-strip in tension.

3. In a hot-blast pyrometer, in combination, a hollow casting adapted to be brought in contact with the blast, an expanding-strip the lower end of which is secured near the lower end of said casting, a lever pivoted upon a stationary support, one end of said lever being in operative connection with said expanding-strip and the other end of said lever with mechanism for operating an indicating-pointer, said stationary support, and said mechanism and pointer.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD BROWN.

Witnesses:

E. H. BAILEY,
GEORGE A. FORD.