No. 877,314. PATENTED JAN. 21, 1908.

P. FEE.

REGISTERING ATTACHMENT FOR PRESSURE GAGES.

APPLICATION FILED APR. 20, 1906.

Fig. 1.

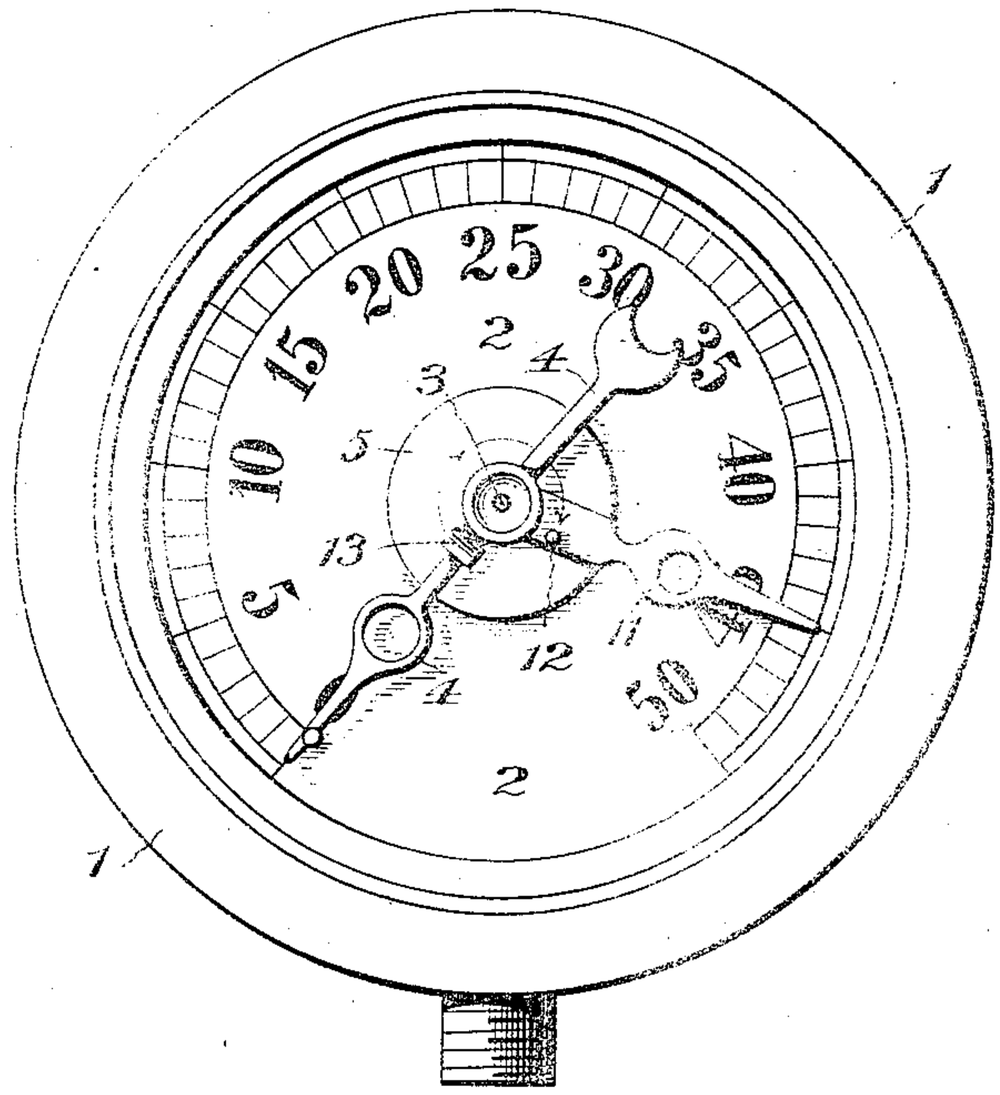


Fig. 2.

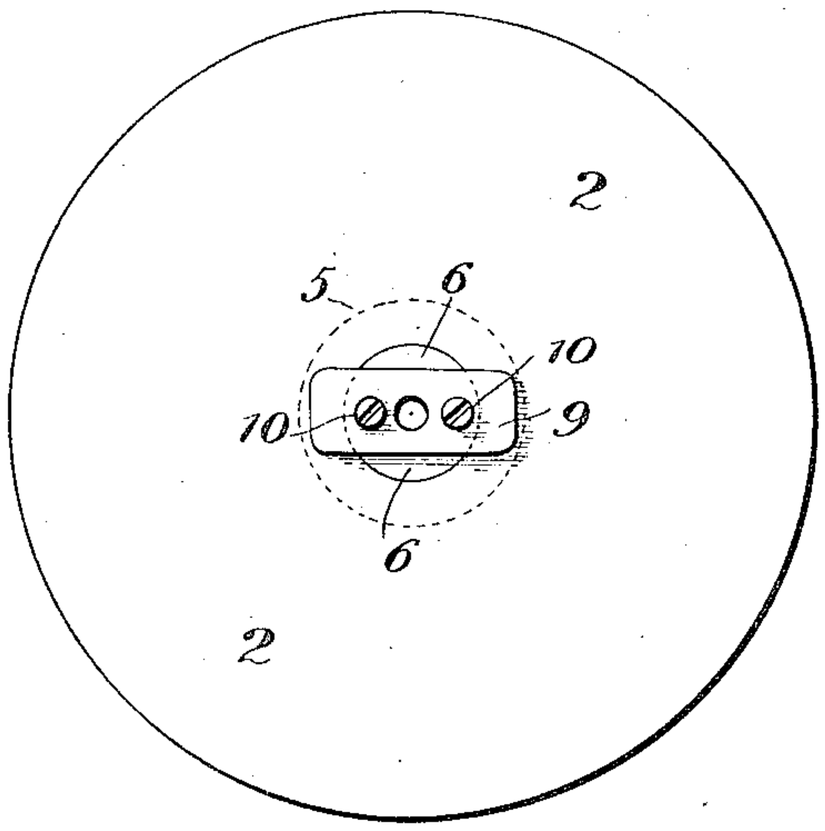


Fig. 3.

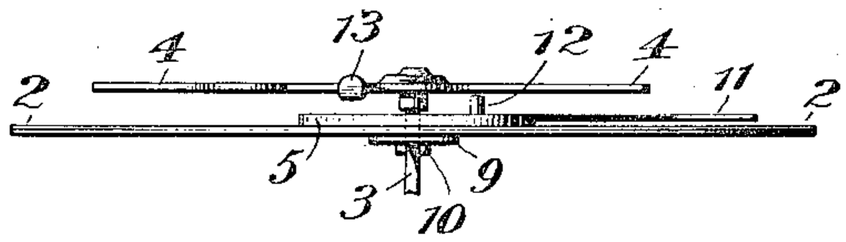
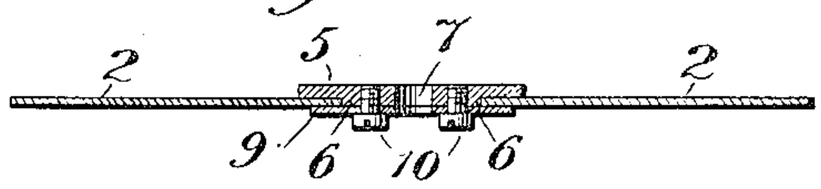


Fig. 4.



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UNITED STATES PATENT OFFICE.

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REGISTERING ATTACHMENT FOR PRESSURE-GAGES.

No. 877,314. Specification of Letters Patent. Patented Jan. 21, 1908.

Application filed April 20, 1906. Serial No. 312,859.

To all whom it may concern:

Be it known that I, PHILIP FEE, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Registering Attachments for Pressure-Gages; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in pressure gages, and more particularly relates to registering attachments therefor.

The object of the present invention is the provision of means whereby the highest pressure may be registered upon a gage, and such registration maintained notwithstanding decrease of the pressure, thus indicating at all times the highest point of pressure attained, and serving as a guide to prevent pressure being carried beyond the point of safety, or if the pressure should exceed the safety point, to indicate such fact.

It is highly desirable in the use of steam boilers to know whether or not a certain predetermined pressure that can be carried with safety has been exceeded, but in the ordinary form of gage commonly used this is impossible, no means being employed therein to register the maximum pressure indicated, and thus it frequently occurs that in explosions due to excessive pressure the true causes never become known. The present invention, however, provides means whereby any pressure in excess of that which can be safely carried will be registered, as well as providing means to guide the attendants in regulating the pressure, thus enabling the latter to be confined within limits of safety, and preventing the pressure passing beyond the point previously determined as the safety point.

Having these general objects in view, and others which will appear as the nature of the improvements is better understood, the invention consists substantially in the novel construction, combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the appended claims.

In the drawings—Figure 1 is a face elevation of a pressure gage embodying the herein-described invention. Fig. 2 is a rear elevation of the dial plate, illustrating the means for retaining the registering hand thereon. Fig. 3 is an edge elevation of the dial plate disclosing the relative positions of the indicating and registering hands. Fig. 4 is a transverse sectional view taken at the point of connection of the registering hand with the dial plate.

Referring in detail to the drawings, the numeral 1 designates the casing of a pressure gage of ordinary type, which casing incloses the actuating mechanism. The casing 1 is provided with the usual dial plate 2 having the customary graduations arranged thereon for indicating the various degrees of pressure, and passing through said dial plate is the arbor 3 of an ordinary indicating hand 4, which latter coacts with the graduations of the dial plate to indicate the amount of pressure. As stated, these elements of construction are those commonly employed.

Centrally arranged upon the dial plate 2 is a disk 5, said disk being formed of any suitable material, such as brass, steel, etc., and the rear face of said disk is provided with a hub 6 of less diameter than the diameter of said disk, which hub snugly fits a circular opening at the center of the dial plate 2. The hub 6 is preferably of substantially the same thickness as the dial plate 2 so that the inner face of the hub 6 will be flush with the inner face of said plate 2, and by reason of the hub 6 fitting within the opening of the dial plate in the manner stated, it will be seen that the disk 5 is free to rotate upon said plate. The disk 5, it will be noted, is provided with a central opening 7 through which the arbor 3 of the indicating hand 4 projects.

To hold the disk 5 upon the dial plate, to permit the same freely rotating thereon, a retaining plate 9 is fastened to the rear face of the hub 6, as by screws 10, the ends of said retaining plate 9 projecting beyond the edges of the opening in the dial plate, and thereby overlapping said plate. The plate 9 therefore holds the disk 5 in position upon the dial plate and retains the hub 6 within the central opening thereof. This plate 9, if so desired, may be formed of resilient material so as to bind slightly against the inner face of the dial plate, and thus preclude the registering hand 11 being moved accidentally from the

point to which it is moved by the indicating hand.

Associated with the disk 5, is a registering hand 11, and said hand projects to a point in proximity to the graduations of the dial plate so that as the hand 11 is moved over the plate the same will register the point of maximum pressure to which it is moved. To effect movement of the registering hand 11 a stud 12 projects from the face of the disk 5, which stud lies in the path of movement of a contact 13 carried by the indicating hand 4. As clearly seen in Fig. 3, the contact 13 projects at the inner side of the indicating hand 4, or that side which is nearest the dial plate. It will thus be seen that as the indicating hand 4 is moved forwardly under the influence of the pressure the contact 13 will engage the stud 12, and consequently the indicating hand 4 and the registering hand 11 will move together until the maximum degree of pressure is reached, when such movement will cease, and both hands remain at such point so long as this pressure is maintained. As soon as the pressure falls the indicating hand 4 will return towards the zero point, but the registering hand 11 being independent of the indicating hand 4 will remain at the point to which it has been moved by said indicating hand.

The registering hand 11, therefore, shows at a glance the maximum pressure indicated by the gage.

It will be noted, however, that the relative positions of the indicating hand 4 and the registering hand 11, are such that while the point of the indicating hand, upon forward movement of the latter, will move the registering hand, the tail of the indicating hand will not disturb the position of the registering hand. This is due primarily to the fact that the stud 12 is only sufficiently long to be engaged by the projecting contact 13, but not by the tail of the indicating hand, so that should the maximum pressure be such as to force the registering hand to a point beyond the position occupied by the tail of the indicating hand when the latter is at the zero point, the tail of the indicating hand will readily pass over the stud 12, and return to the zero point, thereby enabling the registering hand to remain at the point of maximum pressure.

By the use of the herein-described invention it is obvious that the registering hand, after it has been moved to the point of maximum pressure, will always indicate the same. This serves as a guide to the attendants, whereby to prevent excessive pressure being carried, and in the event that excessive pressure beyond a predetermined point is created, the registering hand denotes at a glance such fact. The invention is therefore useful especially upon steam boilers as a guard against excessive pressure being carried. When used in this relation a gage equipped with the herein-described invention may be placed in a concealed position accessible only by the responsible parties, and inspection periodically will serve to show whether or not pressure beyond the safety point has been placed upon the boiler or boilers.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is:

1. In a pressure gage, the combination with the dial plate, and the indicating hand, of a registering hand associated with the indicating hand but independent thereof, said registering hand adapted to be moved by the indicating hand, a stud carried by the registering hand, a contact carried by the indicating hand and projecting at the inner side thereof for engaging said stud on the forward movement of the indicating hand to move the registering hand to the point of maximum pressure reached, said registering hand remaining at the point to which it is moved by the indicating hand, and a retaining plate connected to the registering hand at the rear of the dial plate and overlapping the contiguous portions of the dial plate to hold the registering hand upon the dial plate independently of the indicating hand.

2. In a pressure gage, the combination with the dial plate, and the indicating hand, said dial plate being provided with a centrally-arranged opening, of a disk provided with a hub seated in said opening of the dial plate, a registering hand carried by said disk and adapted to be moved by the indicating hand, a stud carried by said disk, a contact carried by the indicating hand and projecting at the inner side thereof for engaging said stud on the forward movement of the indicating hand to move the registering hand to the point of maximum pressure reached, said registering hand remaining at the point to which it is moved by the indicating hand, and a retaining plate connected to said hub at the rear of the dial plate and overlapping the contiguous portions of the dial plate to hold the registering hand upon the dial plate independently of the indicating hand.

3. As an improved article of manufacture, a register for pressure gages comprising a disk provided with a hub adapted to fit an opening formed in the dial plate of a gage, the hub of said disk being of a thickness whereby its inner face will lie substantially flush with the inner face of the dial plate, a retaining plate associated with said hub and adapted to overlap the portions of the dial plate contiguous to the opening in which said hub is placed for holding the disk upon the

dial plate, means for securing said retaining plate to said hub, a hand carried by said disk and coöperating with the graduations of the dial plate to indicate the point of maximum pressure reached, and means whereby the disk is operated by the forward movement of the indicating hand of the gage.

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

PHILIP FEE.

Witnesses:
GEORGE A. FISHER,
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