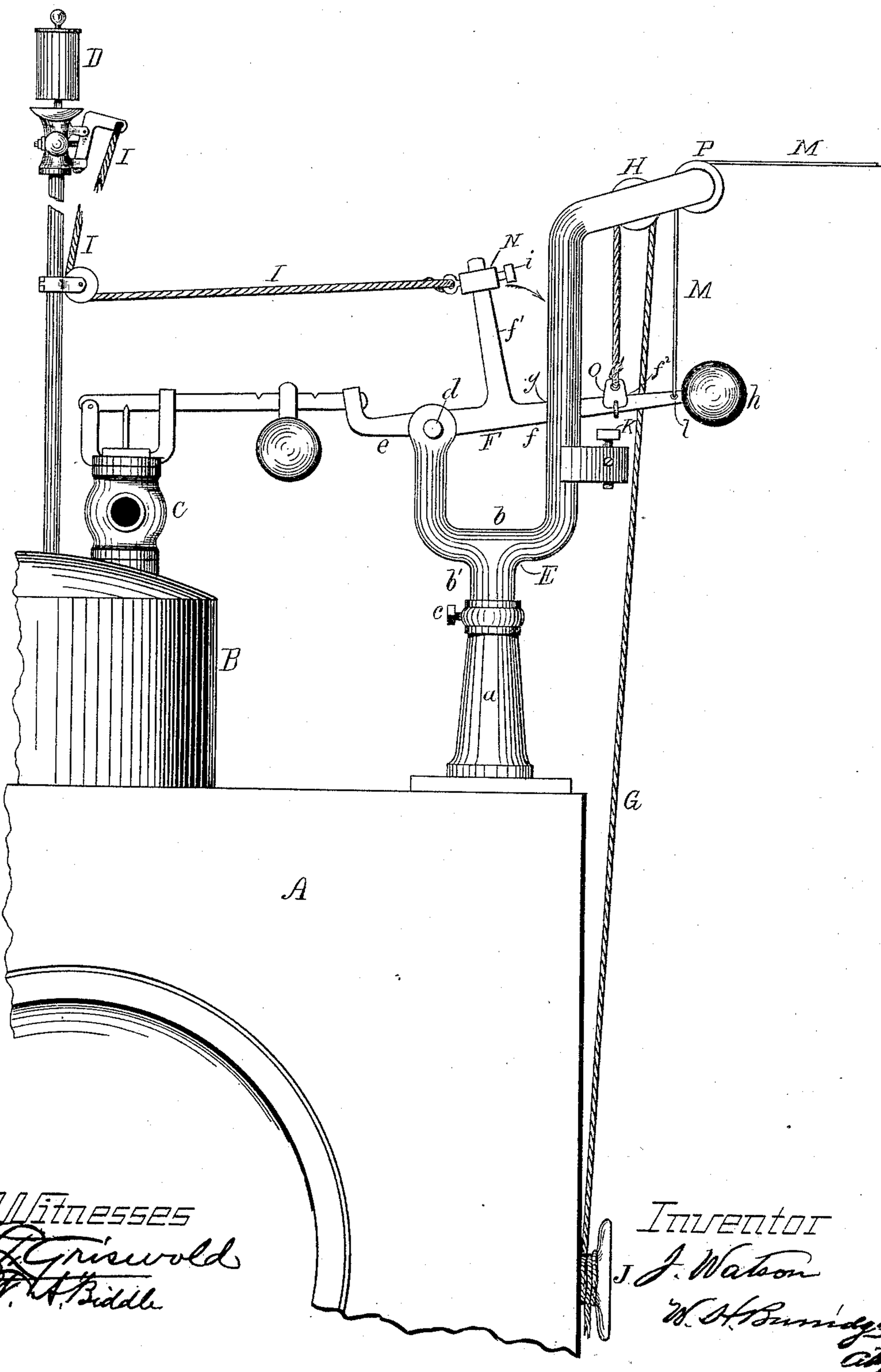
(No Model.)

J. WATSON.

SAFETY APPARATUS FOR STEAM BOILERS.

No. 436,449. Patented Sept. 16, 1890.



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UNITED STATES PATENT OFFICE.

JOHN WATSON, OF CLEVELAND, OHIO.

SAFETY APPARATUS FOR STEAM-BOILERS.

SPECIFICATION forming part of Letters Patent No. 436,449, dated September 16, 1890.

Application filed May 17, 1890. Serial No. 352,257. (No model.)

To all whom it may concern:

Be it known that I, JOHN WATSON, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new Improvements in Safety Apparatus for Steam-Boilers, Fire Alarms and Extinguishers, of which the following is a complete description.

My invention relates to certain appliances to be used in connection with those described in Letters Patent No. 423,098, granted to me, John Watson, March 11, 1890, and arranged, in connection with the safety-valve and whistle of a steam-boiler or a safety-valve attached to a radiator, to cause alarm in case of fire and simultaneous opening and closing of the safety-valve signalizing.

That the invention may be seen and fully understood, reference will be had to the following specification and accomwanying drawing, in which is illustrated a partial exterior view of a steam-boiler provided with the attachment herein referred to.

Like letters of reference denote like parts in the specification and drawing.

That the improvement may be more clearly understood, I will describe the appliance to which it is attached.

A indicates the exterior brick-work of a steam-boiler, B the dome, C the safety-valve, and D the whistle thereof. The appliance or apparatus is arranged in connection with both the valve and whistle, and both are simultaneously effected by the same, in the manner as hereinafter set forth.

Substantially, the appliance consists of the stand E, lever F, cord G, and wire M. The stand E is of two parts, the part *a* and the bracket *b*. The bracket *b* is adjustably arranged in the socket of the pedestal *a* by means of the neck *b'* and the set-screw *c*, according to the required height for suspending the lever F in relation to the lever of the safety-valve C. The lever F, pivoted at *d*, has a short arm *e* and a long arm *f*, with a branch arm *f'*. The short arm extends under the free end of the safety-valve lever, and the long arm through a slot *g*, with a weight *h* at the free end thereof. The cord G is attached to the arm *f*, as seen at f^2, and is withdrawn over the pulley H, as shown in the drawing, from where it extends to some convenient point or points of access, as J.

From the lever *f'* connection is made with the lever of the whistle D, by means of the non-fusible cable I, one end of which is attached to the lever and the other end to the sleeve N, which is adjustable on the arm *f'* by means of the set-screw *i*. Thus on the depression of the arm *f* both the safety-valve and whistle come into use—that is, when the cord is released from the cleat or hook J. The lever F, being held in the position shown in the drawing by means of the cord G, relieves both the safety-valve and whistle of the weight *h* on the arm *f*. In order to blow the whistle the cord must be released at J to allow the lever F to descend, which draws the cable I in the direction of the arrow, and also causes the arm *e* to lift the safety-valve lever, which results in a simultaneous blowing off of the steam through said valve whenever the whistle is used.

As shown in the drawings, the arm *f* will when relieved bear upon the cap K, by which means the movement of said lever can be governed as required for blowing the whistle and lifting the safety-valve lever. Aside from the simultaneous operation of the whistle and safety-valve, the appliance is devised to serve as a safeguard in case of conflagration about the premises in which the boiler is situated. For this reason inflammable material is used for the rope G and easily-fusible material for the cap K. Thus before the boiler could be seriously endangered by fire the rope would burn off and disconnect from the lever F, so that the same would fall and give alarm through the whistle, relieving the safety-valve. The heat would also melt the fusible cap K, allowing the lever to drop still farther, thereby opening the safety-valve to an extent sufficient to relieve the boiler from external pressure and danger of explosion.

The improvements which I have added to the apparatus are as follows: In the place of attaching the cord G directly to the lever F, a link O is interposed, said link being a compound of lead, bismuth, tin, and cadmium, or their equivalents, and so proportioned or com-

bined as to fuse at from 208° to 212°, thereby increasing the utility of the appliance in case of fire. Attached to the lever F at *l* is a wire or cable M, which passes over the pulley P, and is extended to some convenient place outside the building, said wire or cable serving to control the whistle and safety-valve after the cord G has burned off or the link O has fused. A sleeve N having an eye *m*, by means of which the cable I is attached thereto, is adjustably attached to the branch arm *f'* by means of the set-screw *i*. By this arrangement the adjustment of the cable I so that the whistle will blow simultaneously with the opening of the safety-valve is facilitated.

For attaching the appliance hereinbefore described to a radiator, a small safety-valve can be attached to the induction-pipe by means of a T-fitting, the appliance connected therewith placed on the floor or on a shelf near by. The same appliance can be used in dry-kilns or any place where there is steam and danger of fire. In dry-kilns and radiators it is not necessary to have the whistle attachment.

Should a "puppet-valve" be used on the boiler to which my invention is to be applied, a pu'ley can be attached to the bed-plate and the cord passed over said pulley, whereby the lever is pressed down instead of being raised up.

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

1. In a safety attachment for steam-boilers and radiators, a link composed of metal, or a compound of metals of a character to fuse at from 208° to 212° of heat, in combination with the lever F and cord G, arranged whereby the fusion of said link will cause the lever F to drop and open the safety-valve and a sequent alarm rendered thereby, in the manner and for the purpose substantially as described.

2. In a safety attachment for boilers and radiators, a wire or cable passing over a pulley P and connected with the lever F, operating conjointly with the lever F, the safety-valve, and whistle-lever, substantially as and for the purpose specified.

3. In a safety attachment for boilers and radiators, the combination of a sleeve with the whistle-lever, cable, lever F, fusible link, and inflammable cord, arranged in the manner and for the purpose described.

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

JOHN WATSON.

Witnesses:
W. H. BURRIDGE,
JOHN J. HARPER.