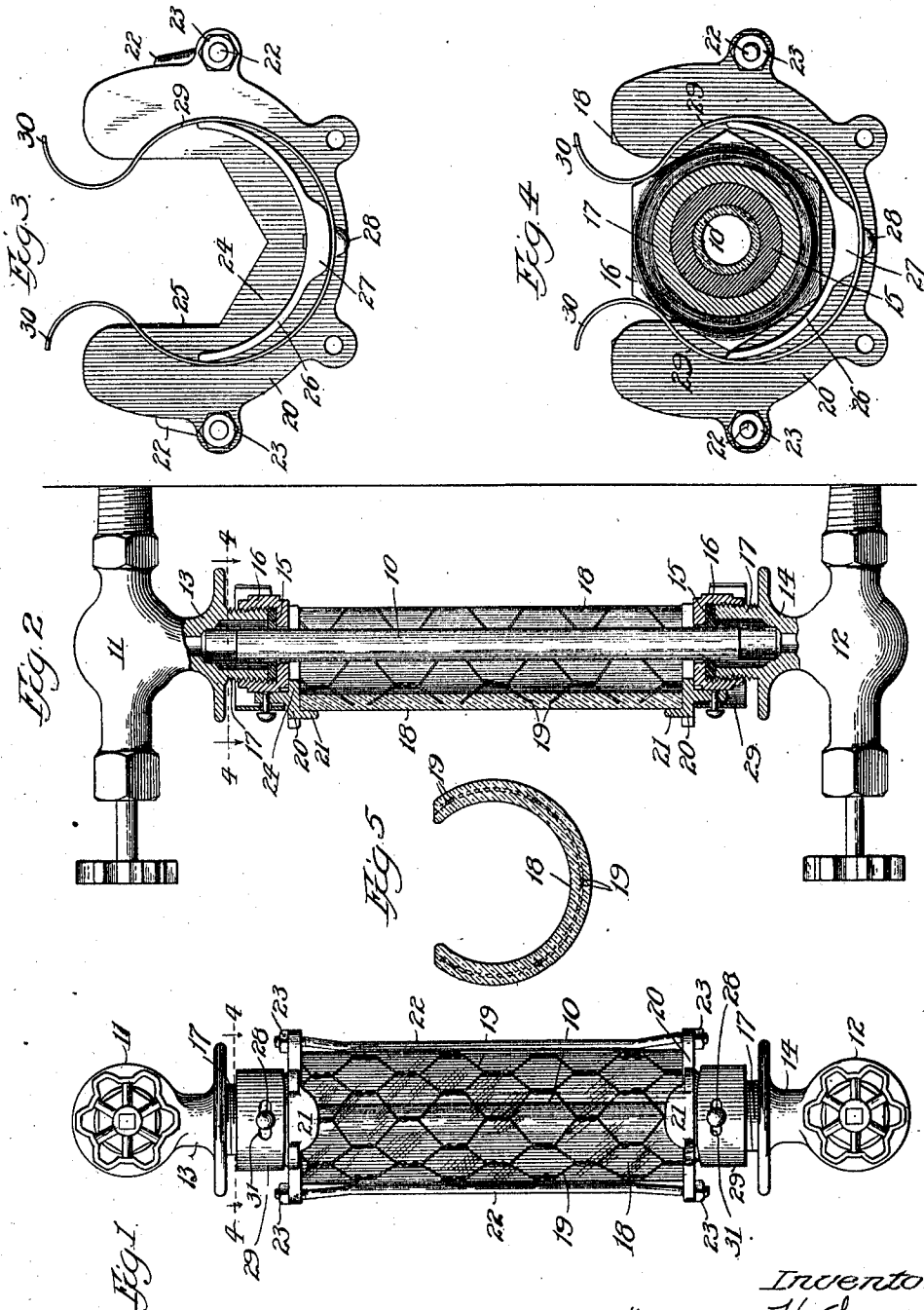


G. H. SARGENT & A. G. HOLLINGSHEAD.
 BOILER WATER GLASS SHIELD.
 APPLICATION FILED JULY 1, 1909.

974,299.

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Witnesses:
 Geo. C. Davis,
 Clara L. Brown.

Inventors:
 George H. Sargent
 Arthur G. Hollingshead
 by Luther C. Bell & Fuller
 Attys.

UNITED STATES PATENT OFFICE.

GEORGE H. SARGENT AND ARTHUR G. HOLLINGSHEAD, OF CHICAGO, ILLINOIS.

BOILER-WATER-GLASS SHIELD.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, GEORGE H. SARGENT and ARTHUR G. HOLLINGSHEAD, citizens of the United States, both residing at Chicago, in the county of Cook and State of Illinois, have jointly invented certain new and useful Improvements in Boiler-Water-Glass Shields, of which the following is a specification.

Our invention concerns protective means, especially though not exclusively, adapted for use over water glass or gage tubes of locomotive boilers to shield the engineer and fireman from the flying fragments of glass and the escaping hot water and steam in case the water glass accidentally breaks when steam pressure is in the boiler.

One object of this invention is to provide a practically unbreakable transparent shield adapted to fit partially around the water tube to protect the occupants of the engine cab and to shut out the drafts of cold air from the gage tube and hold the boiler heat.

In one embodiment of the invention the shield or protector is made of heavy glass internally reinforced with metal strands so as not to obstruct the view of the water level in the boiler glass, such shield being hollow and open or cut away at one side to permit its ready application over the glass without disturbing the latter. Water glasses or gage tubes of this character ordinarily have at each end a hexagonal or angular nut holding them in proper position and forming parts of stuffing boxes, and in such cases our improved shield is detachably held in position over the water glass by means of spring clips engaging and clasping the sides of such nuts. Inasmuch, however, as these nuts may vary in position and in relation one to the other, the spring clips are adjustable relative to the shield, whereby regardless of the exact positions of the nuts the shield or protector may be placed squarely over the glass in such position as to adequately protect those present in the engine cab. Ordinarily such a shield is made in curved form of tempered plate glass in which woven soft wire is cast, such shield possessing adequate strength for the purpose intended and protecting the water glass from drafts and accidental blows.

A preferred and desirable embodiment of our invention has been illustrated in the accompanying drawing forming a part of this

specification, and throughout the various views of which like reference characters refer to the same parts.

In this drawing—Figure 1 is a face view or elevation of one of our protectors or shields applied to a water glass; Fig. 2 is a longitudinal section of the appliance shown in Fig. 1, certain parts being left unsectioned; Fig. 3 is an end view of our improved shield illustrated on an enlarged scale; Fig. 4 is an enlarged horizontal section on line 4—4 of Figs. 1 and 2, the parts being viewed in the direction indicated by the arrows; and Fig. 5 is a transverse section through the reinforced glass protector.

By reference to the drawings it will be noted that the usual water glass or gage tube 10 is mounted in the ordinary manner in connection with top and bottom valves 11 and 12, the adjacent extensions 13 and 14 of which are supplied with portions of packing 15 forming parts of stuffing boxes and held in tight connection with the exterior surface of the water tube by a pair of hexagonal nuts 16, 16 internally threaded and engaging the exterior threads of the shanks 17 of the valves. This is the usual and ordinary manner of mounting and supporting such water glasses and further description thereof appears to be unnecessary. If such a water glass accidentally breaks the parts or fragments thereof are widely scattered and they together with the hot water and escaping steam are likely to cause serious injury to any persons near the same. Our improved device is intended to shield the engineer and fireman and others present in the engine cab from such disastrous results.

The main body 18 of the shield is made of heavy tempered plate glass which is reinforced by having cast therein woven soft steel wire which renders the glass practically unbreakable and the parts of which are held together even when broken, the shield being at all times transparent and in no way obstructing the view of the water level in the tube which it protects. In the present instance the glass is indicated as being reinforced by wire netting 19 although the form of such reinforcement and its employment or absence is not material to the invention, that is, does not constitute an essential part thereof. The shield 18 is of curved form, as shown in Fig. 5, is hollow, and is open or cut away at one side to permit its appli-

cation over the tube 10. A metallic head 20 with a comparatively small shield-overlapping flange 21 is mounted on either end of the glass, the pair of heads being held there-
 5 to and in proper relation by a plurality of externally bent threaded wires or rods 22, the ends of which pass through apertures in the two heads and have associated therewith the usual nuts 23. Each head has a flat plate
 10 portion 24 overlying the end of the glass shield or protector 18, such plate part being centrally recessed at 25 for the accommodation of the water glass or gage tube 10. Each head has an outwardly extended external flange 26 to the outer face of a central
 15 thickened portion of which is riveted at 28 the middle of a substantially U-shaped curved leaf spring 29 having diverging ends 30, 30, the rivet 28 passing through a slot
 20 31 in the spring.

An improved shield and protector of this character is readily and easily applied to the water glass by merely forcing the spring clips 29 over the hexagonal or other angular
 25 nuts 16, the springs engaging a plurality of flat surfaces of the latter, as indicated in Fig. 4. The curved flanges or ribs 26 also strike against these nuts and are held thereto by the springs. During such application
 30 the gage tube 10 is received in the interior of the glass protector or shield 18 due to one side of the latter being open, as is clearly indicated. The two hexagonal nuts at the top and bottom of the water glass may not
 35 be in exactly the same angular position and may not hold the protector exactly in front of the gage glass but the former may be readily brought to such position by turning the same relative to the holding spring clips
 40 29, such turning being permitted by the rivet and slot connections 28 and 31. The rivets 28, however, hold the spring sufficiently tight so that this turning can not take place unintentionally, and after the shield has
 45 been once rotated or shifted into proper position it will maintain such position due to the friction between the parts. A shield or bracket of this kind can therefore be readily attached to and detached from the ordinary
 50 forms of water glasses or gage tubes and because of their transparency and the structure employed will not obstruct a free view of the water level in the internal tube. If such tube should become accidentally broken this
 55 glass shield is sufficiently strong to withstand the impact of the flying pieces of glass, the shield acting to protect the fireman and engineer from injury. The shield also protects the tube from external drafts and as-
 60 sists in preventing radiation of the boiler heat from the tube.

This invention while illustrated in connection with one particular embodiment thereof is nevertheless susceptible of a con-
 65 siderable variety of embodiments, and for

that reason it is not limited or restricted to the precise and exact structural features of the component parts of the device herein set forth in detail. It will therefore be readily understood that various minor mechanical
 70 changes may be made in such structure without departure from the heart of this invention and without the sacrifice of any substantial benefits.

We claim:

1. In a boiler water glass shield, the combination of a transparent protector adapted to partially surround a water glass, a plurality of laterally projecting spring clips adapted to detachably maintain the shield in
 75 protecting position over the water glass, and means for adjustably securing said shield to said spring clips, whereby the shield may be angularly adjusted relatively to said clips and retain the same relative position
 80 with relation to the water glass, substantially as described.

2. In a boiler water glass shield, the combination of a transparent protector adapted to partially surround a water glass, nuts for said water glass, a plurality of clips adapted to engage the water glass nuts, and to detachably maintain the shield in protecting
 90 position over the said water glass, and means for adjustably securing the clips to said shield whereby the shield may be adjusted relatively to the nuts to bring it into proper angular relation with the water
 95 glass, the shield maintaining the same distance from the water glass in any adjusted position, substantially as described.

3. A water glass shield comprising the combination of a hollow glass member open at one side for application to the water
 100 glass, nuts for said water glass, a head at each end of the shield, an outwardly extended external flange on each head, and a curved leaf spring clip adjustably attached to each of said flanges and bearing on the
 105 ends of the same, said clips connecting with the nuts of the water glass, the adjustable attachment of said clips to said flanges permitting rotation of said shield to a desired position while maintaining the shield at a
 110 constant distance from said water glass, substantially as described.

4. A water glass shield comprising a semi-tubular shield member, a water glass having stuffing boxes therefor, terminal heads having semi-tubular upright flanges
 120 to embrace said stuffing boxes and permit rotation of the shield about the glass, the lower head having an internal substantially horizontal shoulder to rest upon the lower stuffing box of the water glass, and means to
 125 hold the heads upon the stuffing boxes and permit adjustable rotation of the shield about its longitudinal axis and upon said holding means, substantially as described.

5. A water glass shield comprising a semi- 130

tubular member, a water glass having stuffing boxes therefor, terminal heads having semi-tubular upright flanges to embrace said stuffing boxes and permit rotation of the shield about the glass, the lower head having an internal substantially horizontal shoulder to rest on the lower stuffing box of the water glass, substantially U-shaped spring clips embracing the respective flanges with their free ends projecting beyond the ends of the flanges to embrace the stuffing boxes and retain the shield in place, and a connection between each spring and the adjacent flange to permit rotatable adjustment of the shield about its longitudinal

axis and upon the spring clips, substantially as described.

6. A water glass shield comprising a semi-tubular shield member, means to hold the shield upon a water glass, and an adjustable connection between the shield and holding means to permit adjustable rotation of the shield on said holding means and about the axis of the water glass, substantially as described.

GEORGE H. SARGENT.

ARTHUR G. HOLLINGSHEAD.

Witnesses:

WALTER M. FULLER,

M. A. KIDDIE.