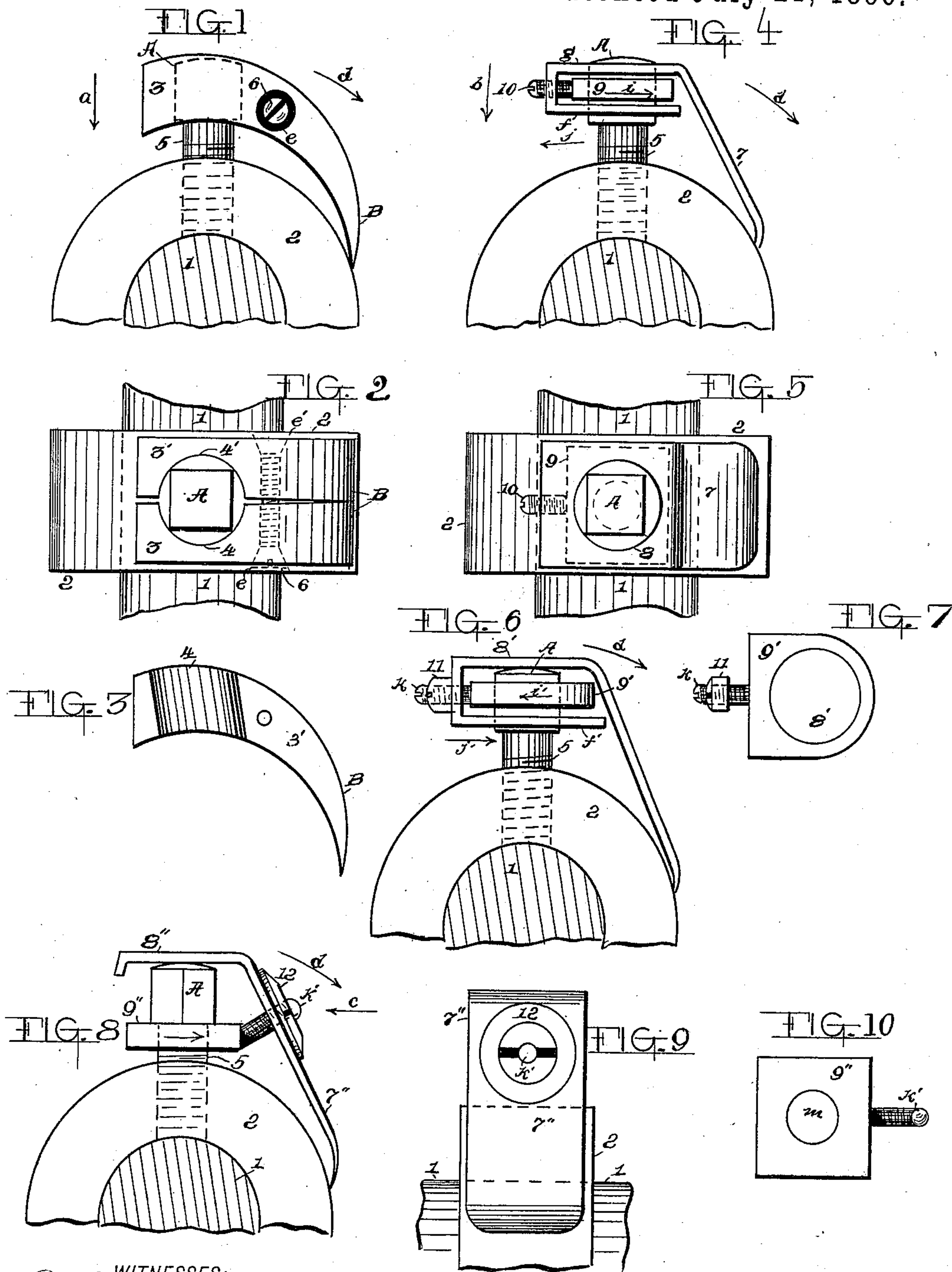


(No Model.)

G. C. HINMAN.
SET SCREW FENDER.

No. 564,197.

Patented July 21, 1896.



WITNESSES:

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SET-SCREW FENDER.

SPECIFICATION forming part of Letters Patent No. 564,197, dated July 21, 1896.

Application filed October 15, 1894. Serial No. 526,000. (No model.)

To all whom it may concern:

Be it known that I, GEORGE C. HINMAN, a citizen of the United States, and a resident of New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Set-Screw Fenders, of which the following is a specification.

My invention relates to a device which operates as a shield or fender to ward off and prevent accidents occurring from projecting set-screw heads on revolving shafts.

The purpose of my invention is to clamp a fender onto either the body or angular head of a set-screw, said set-screw being used to fasten collars, pulleys, &c., to shafting. To accomplish this purpose I have embodied in my invention one or more concave or circular jaws that shall encircle the square or hexagonal head of a set-screw or the round body thereof. I have also embodied in my invention a sloping or inclined fender. These two essentials of my invention and their application for the purpose set forth are described in the accompanying drawings, as follows:

Figure 1 represents a broken section and side elevation of a shaft and collar thereon with my improved fender, consisting of two clamps attached to the set-screw head; and Fig. 2 is a plan view of Fig. 1, looking in the direction of arrow *a*. Fig. 3 is a detail side elevation of one of the sides of the fender. Fig. 4 represents the fender made of sheet metal, and while it embodies the same essentials the result is accomplished by a slight change or modification in the construction of the parts, which consists of a return-bend being formed in one of the free ends of the fender, a hole therethrough to embrace the set-screw head, a clamping-block placed in the recess formed by the return-bend and having a hole therein to embrace the set-screw head, in combination with the hole in the fender, and a tightening-screw in the angle of the fender to crowd against the block. Fig. 5 is an upper plan view of the construction shown in Fig. 4, looking in the direction of arrow *b*. Fig. 6 is a view similar to Fig. 4, except that the pressure on the block is oppositely exerted and the set-screw does not project through the upper horizontal surface of the

fender which, in this case, rests on the top of the set-screw head. Fig. 7 is a detail plan view of the clamping-block and nut therefor. Fig. 8 is a view similar to Fig. 6, except that the return-bend is omitted, while the clamping-block embraces the body of the set-screw under the head, and the clamping-nut for said block is much larger and rests against the outer inclined surface of the fender proper. Fig. 9 is a front elevation looking in the direction of arrow *c*, Fig. 8. Fig. 10 is a plan view of the clamping-block employed in the constructions shown at Figs. 8 and 9.

Its construction and operation are as follows:

1 represents a section of a shaft; 2, section of a collar mounted thereon.

3 3', Figs. 1, 2, and 3, represent the two sides, respectively, of a fender made, to insure cheapness, preferably of cast metal. These two sides or jaws, of which Fig. 3 is one, are provided with the semicircular grooves 4 4', which embrace the head A of the set-screw 5. The tailpiece B or fender proper is curved in the direction of the rotary motion of the shaft, as indicated by arrow *d*, the extremity or free end thereof resting firmly against the outer surface of the collar 2. A hole is drilled and tapped through the two sides or jaws of the fender for the clamping-screw 6. The mouth of this screw-hole is tapered (see *e e'*, Fig. 2) in the outer surfaces of the clamps 3 3' to receive the taper head of screw 6, and they are deep enough to fully hide said head and also permit said screw 6 to be inserted from either side of the collar. I prefer to incline the clamping-grooves 4 and 4' toward the curved tailpieces of the fender-jaws, so that, by the effort made for such grooves to aline themselves perpendicular with the set-screw head A, the extremity or free end of the tailpieces will be drawn firmly against the collar 2.

It will be understood that the fender need not be made in two separate parts, as shown, but instead they may be cast in one piece and a hole drilled therein to embrace the set-screw head and partially severed by a kerf sawed longitudinally therein sufficient to enable such severed portion to be sprung apart sufficient to embrace such set-screw head.

In Figs. 4 and 5 the fender is made of sheet metal, the inclined face 7 being the fender proper. The return-bend *f* is brought parallel with the horizontal portion *g*, and has the hole 8 therein to receive the set-screw head A, and a hole corresponding thereto is made in the part *f*. The block 9 is also provided with a similar hole which also embraces the set-screw head, and thus making complete the jaw-clamping features before mentioned. The clamping-screw 10 passes through the vertical bend *h* of fender, and its projecting point engages the vertical face of said block. When, therefore, said screw is forced against the block 9, its central hole or opening, before mentioned, will crowd hard against the set-screw head in the direction as shown by arrow *i*, while the holes or openings in the two parts *f g* of the fender will be brought forcibly against the opposite side of such set-screw head in the direction of arrow *j*, and thereby firmly clamp the fender to such head. If necessary, the holes in both the block and fender may be angularly arranged, as before mentioned, to assist in moving the point of the fender hard against the collar 2.

Fig. 6 represents in many respects the same construction shown in Figs. 4 and 5, one exception being that the upper part *g'* has no hole or opening to permit the head of the set-screw to protrude, such part resting on top of such head. The stud *k*, which is integral with the block 9, projects through the fender, and has on its projecting end the nut 11. This arrangement simply reverses the direction of the clamping features of the jaws, as indicated by the arrows *i j'*.

A slight modification of the jaws is shown at Figs. 8 and 9. Here the upper part *g''* of the fender 7 rests on top of the set-screw head A. The block 9, Fig. 10, has the hole *m* therein large enough to admit the body of the set-screw 5 only, while the head A rests against the surface of such block. The angularly-arranged stud *k'* of said block projects through the slot *n* of the fender 7 to receive the large tightening-nut 12, which draws the clamping-block 9 firmly against the body of the set-screw and also forces the end of the fender firmly against the collar.

It will be observed that the clamping-surfaces of all the jaw constructions are of circular form. This enables the fender to be attached to the head of any shape set-screw, either round, square, or hexagon, no matter

in what position the head may be placed, for it can be readily seen that if the clamping-surfaces of the jaws were of an angular construction they would conform to the shape and position of the head, and the fender would not always rest on the collar.

In my construction the fender can be instantly attached to any set-screw, as no extra holes are required either in the screw, collar, or pulley-hub, as the case may be; and the fenders, being arranged in the direction of the shaft's rotation, may be readily changed when the rotary movement is reversed; or, in other words, may be applied to shafts moving in either direction; and the fender is so inclined to the path of rotation that it is impossible for it to catch hold of the clothing, but, on the contrary, will repel anything with which it comes in contact.

It will therefore be observed that in all of the various forms which are shown the same essential feature is carried out by which the fender is attached to the set-screw, viz., by the operation of one or more clamping-jaws whose engaging surfaces are preferably of circular construction and such jaw or jaws brought into engagement by the operation of a single clamping or tightening screw or its equivalent.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A fender, of the character described, for warding off and preventing accidents occurring from projecting set-screw heads, one end of said fender provided with a clamping-jaw, and means whereby it is secured to the set-screw, the other or free end angularly inclined to said set-screw, substantially as set forth.

2. A fender of the character described, comprising in combination clamping-jaws having circular openings arranged to embrace the body of the set-screw, a clamping-screw extending laterally through said jaws for operating the same, and a tailpiece angularly inclined to said set-screw for the purpose described and hereinbefore set forth.

Signed at Bridgeport, in the county of Fairfield and State of Connecticut, this 12th day of October, A. D. 1894.

GEORGE C. HINMAN.

Witnesses:

WM. E. DISBROW,
LEWIS F. PELTON.