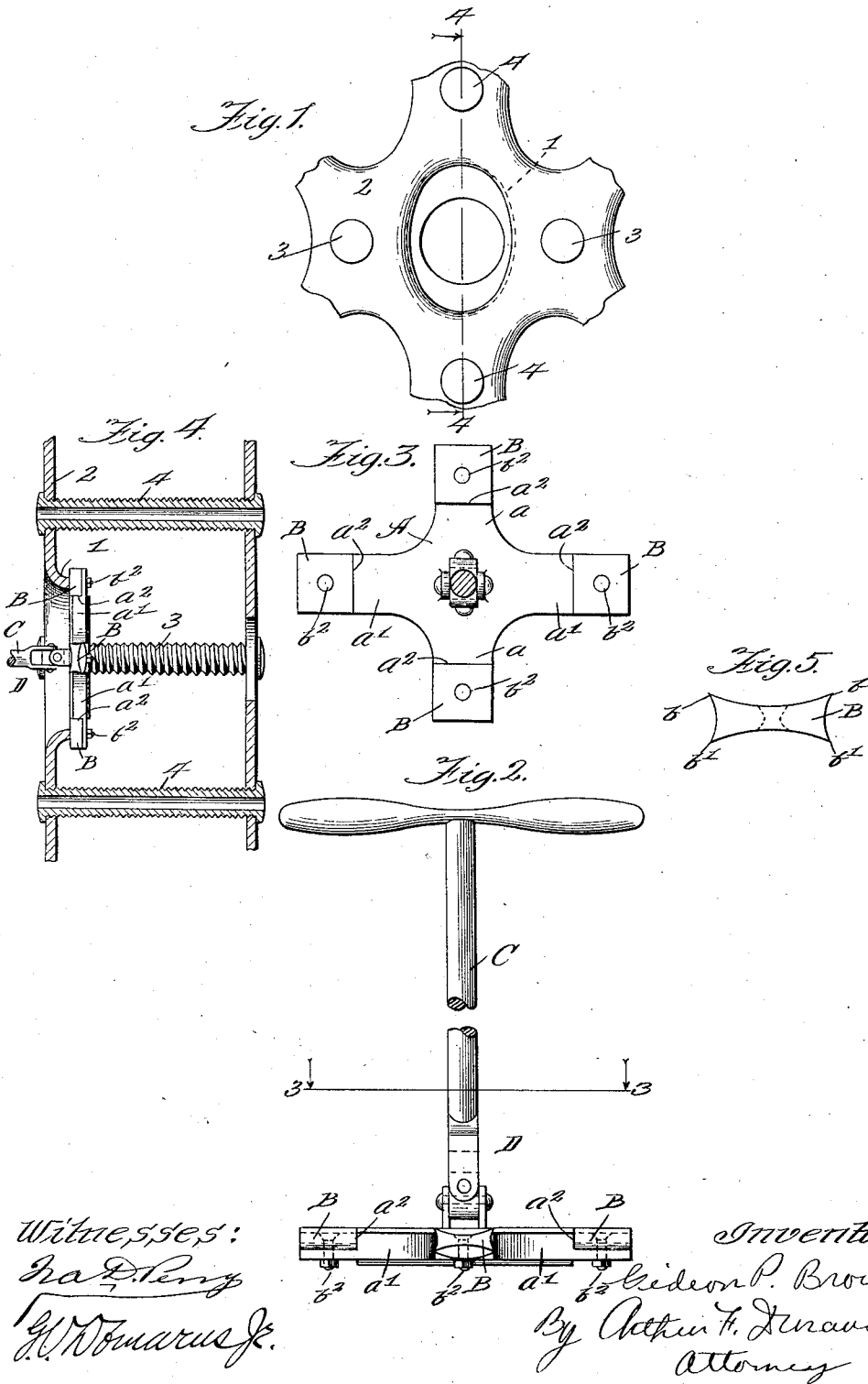


G. P. BROWN.
HAND HOLE SCRAPER.
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Witnesses:

W. H. Perry

G. W. Warner Jr.

Inventor:

Edison P. Brown
By Arthur F. Druant
Attorney

UNITED STATES PATENT OFFICE.

GIDEON PILLOW BROWN, OF CHICAGO, ILLINOIS.

HAND-HOLE SCRAPER.

1,058,406.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GIDEON PILLOW BROWN, a citizen of the United States of America, and resident of Chicago, Cook county, Illinois, have invented a certain new and useful Improvement in Hand-Hole Scrapers, of which the following is a specification.

My invention relates to hand hole scrapers of the kind in which the cutting means are mounted at the end of a handle by which the scraper is manipulated against the inner edge of the hand hole.

Objects of my invention are to provide a hand hole scraper of this kind in which the blades are removable and thus adapted to be easily renewed when worn out; to provide an improved construction whereby the blades are reversible, each blade having four cutting edges; to provide an improved construction whereby the scraper may operate either inside or outside of a hand hole, depending on the character of the latter; and to provide certain details and features of novelty tending to increase the general efficiency of a hand hole scraper of this particular character.

It is also an important object of my invention to provide a scraper that can be used for cleaning the edges of an oval hand hole.

To these and other useful ends, my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings—Figure 1 is a front view of a fragment of the front plate of a boiler having oval hand holes. Fig. 2 is a side elevation of a hand hole scraper embodying the principles of my invention. Fig. 3 is a section on line 3—3 in Fig. 2. Fig. 4 is a section of the said boiler plate on line 4—4 in Fig. 1, showing the said scraper (on a smaller scale) in position to clean the inner edge or rim of the hand hole, and showing also the bolts which connect the said plate with an inner plate of the boiler. Fig. 5 is an end view (on a larger scale) of one of the reversible blades of the said scraper.

As thus illustrated, my invention comprises a head A with radial arms a and a' , the arms a' being somewhat longer than the

arms a , whereby the head can be inserted endwise through an oval hole, as will hereinafter more fully appear. These arms are rounded on the opposite surfaces of the end portions thereof, whereby straight shoulders a^2 are formed thereon. The cutting blades B are all alike, and are made from short pieces of steel having the desired cross sectional shape. As shown, these blades are made from stock having the cross section shown in Fig. 5, it being seen that this makes the blade hollow on both surfaces, and that four cutting edges b and b' are provided. Each blade has four sides or surfaces, and two of these are broader than the other two, as shown. Thus the blades can be secured upon either the top or the bottom of the arms on the head A, each blade being removably held in position by a bolt b^2 , or by any other suitable means. When in place, the inner ends of the blades engage the shoulders a^2 and are thus held against displacement. As the blades are hollow on their faces, it follows that only the edges of the blades make contact with the surface to be scraped or cleaned, whereby these edges project forward or beyond the plane or face of the blade, and are thereby self-sharpening in character. Moreover, these blades can be turned over or reversed, and can be turned end for end, in addition to being shifted from one side of the head to the other. When one pair of cutting edges becomes worn so that the face of the blade is flat, then the blade can be turned over to present the other pair of edges. Only short pieces of metal are necessary for the blades, as they do not form a frame or body for the scraper, and thus a considerable saving in material is accomplished.

The handle C may be of any suitable character, and is connected by an ordinary universal joint D with the top of the head A, whereby the latter may be turned to enter the hand hole, and whereby the blades automatically adjust themselves to the edge of the hand hole.

The scraper is used, for example, for cleaning the inner edges 1 of the hand hole in the boiler plate, as shown in Fig. 4. It will be seen that these holes are oval, and

that the bolts 3 are, therefore, nearer together than the bolts 4 at top and bottom. Thus the blades on the arms $a-a$ must work on the sides of the holes, as they are shorter and can pass the bolts 3, while the blades on the longer arms $a'-a'$ will work at the top and bottom of the hole. As the head of the scraper is longer one way than the other, it follows that the scraper can be readily inserted and withdrawn through the oval hand hole. A slight twisting motion of the handle C serves to move the blades over the edges of the hole and clean the same preparatory to applying the usual closure or cover therefor.

By shifting the blades B to the backs of the arms a and a' , the scraper becomes operative to clean the outside edge of a hand hole of a different character than the one shown. In such case the scraper is held to its work by a forward push on the handle, as distinguished from the pull necessary when doing the work shown in Fig. 4. Various methods of use, however, will suggest themselves, and I do not limit myself to any particular way or manner of using my invention.

What I claim as my invention is:

1. A hand hole scraper comprising a plurality of blades, a head on which said blades are removably mounted, said blades being all rigidly and fixedly connected together by said head, with the longitudinal cutting edges of the blades all in the same plane, and a handle having a universal joint connection with the said head.

2. A hand-hole scraper comprising four blades, a head on which said blades are removably mounted, and a handle, the outer ends of two oppositely disposed blades being a certain distance apart, and the outer ends of two other oppositely disposed blades being a less distance apart, together with a universal joint connecting said handle centrally with said head.

3. A hand-hole scraper comprising a plurality of blades, a head on which said blades are removably mounted, and a handle, each of said blades being removable and having four sides and four corners, and each blade being reversible and having four cutting edges, the cutting edges disposed in position for use at any time, being all in the same plane, together with a universal joint connecting said handle centrally with said head.

4. A hand-hole scraper comprising a plurality of blades, a head on which said blades are removably mounted, and a handle, each of said blades being hollow on the face thereof, between the cutting edges thereof, whereby only the edges and not the faces of the blades bear against the edges of the hand-hole, together with a universal joint

connecting said handle centrally with said head.

5. A hand-hole scraper comprising a plurality of blades, a head on which said blades are removably mounted, and a handle, each of said blades being a separate piece, and the said head having four radial arms to the ends of which said blades are fastened, together with a universal joint connecting said handle centrally with said head.

6. A hand hole scraper comprising a head having four blades disposed thereon in pairs, the members of each pair being opposite, and means for manipulating the head with the longitudinal cutting edges of said blades against the edges of the hand hole, the outer ends of two oppositely disposed blades being a certain distance apart, and the outer ends of two other oppositely disposed blades being a less distance apart.

7. A handhole scraper comprising a plurality of blades, a head on which said blades are removably mounted, and a handle attached to said head, each blade being removable and having four sides and four corners, and each blade being reversible and having four longitudinal cutting edges, the two cutting edges of each blade which are disposed in position for use at any time being all in the same plane.

8. A handhole scraper comprising a plurality of blades, a head on which said blades are removably mounted, and a handle attached to said head, each blade being hollow on the face thereof, between the opposite cutting edges thereof, whereby only the edges and not the faces of the blades bear against the edges of the hand hole.

9. A hand hole scraper comprising a plurality of blades, a head on which said blades are removably mounted, and a handle for said head, each of said blades being a separate piece, and the said head having four radial arms to the ends of which said blades are fastened, with the cutting edges of said blades all disposed in the same plane.

10. A hand hole scraper provided with a removable and reversible blade having four sides and four longitudinal cutting edges, a head for said blade, and means including a handle for manually operating said blade against the edges of the hand hole.

11. Means for scraping an oval hand hole of a boiler, comprising a rotary scraper having means disposed a distance from the axis of rotation for operating on the edges of the oval hole at the ends thereof, and separate means disposed nearer said axis for operating on the edges of the hole at the sides thereof.

12. A hand hole scraper comprising a plurality of blades, a rotary head on which said blades are removably mounted, said blades being all rigidly and fixedly connected to-

gether by said head, with the longitudinal cutting edges of the blades all in the same plane, the axis of rotation being at right angles to the said plane, and a handle having a
5 connection with the said head.

13. A hand hole scraper comprising a rotary head, a handle for rotating the said head, and a plurality of blades removably mounted on said head, each of said blades

having four cutting edges and being reversible end for end and side for side.

Signed by me at Chicago, Illinois, this 21st day of October, 1911.

GIDEON PILLOW BROWN.

Witnesses:

GEO. F. SCHMIDT,
R. E. WEHNEM.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."