

991,355.

Fig. 5.

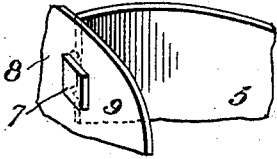


Fig. 1.

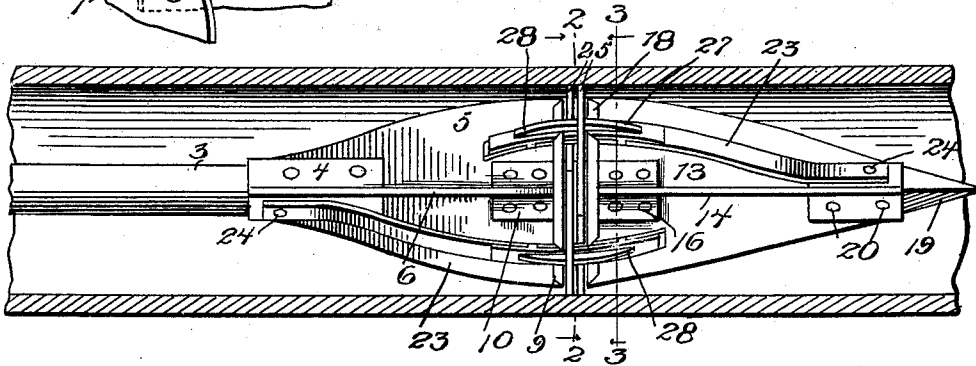


Fig. 3.

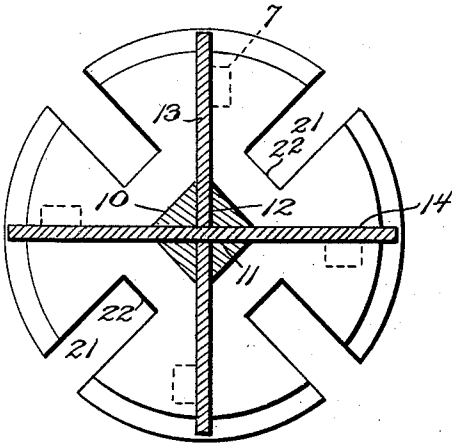


Fig. 2.

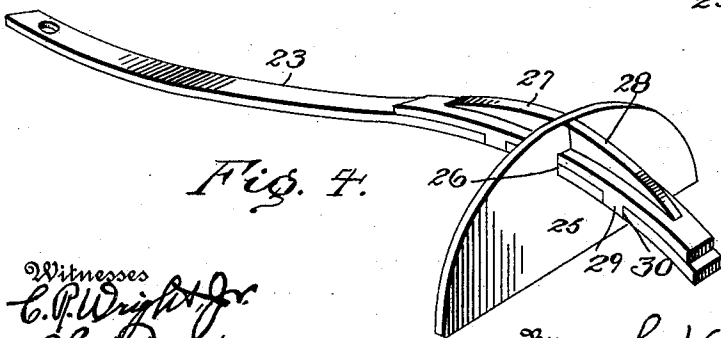
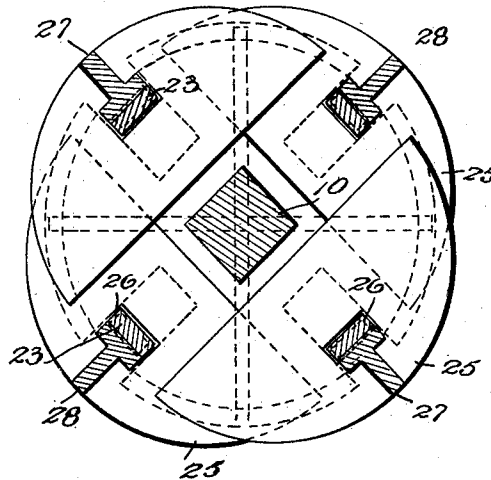


Fig. 7.

Witnesses
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UNITED STATES PATENT OFFICE.

JOHN S. PARK, OF ROCKPORT, INDIANA.

FLUE-SCRAPER.

991,355.

Specification of Letters Patent.

Patented May 2, 1911.

Application filed December 1, 1910. Serial No. 595,051.

To all whom it may concern:

Be it known that I, JOHN S. PARK, a citizen of the United States, residing at Rockport, in the county of Spencer and State of Indiana, have invented new and useful Improvements in Flue-Scrapers, of which the following is a specification.

My invention relates to improvements in a flue scraper.

10 The object of my invention is to provide a flue scraper of the character described which is provided with a pointed outer end whereby it may be forced into flues that are nearly closed by soot etc.

15 Another object of my invention is to provide a scraper in which the outwardly spring pressed scraper blades work between guide plates carried by the scraper proper and whereby the scraper plates have a limited amount of longitudinal and lateral movement, yet are prevented from being twisted or broken by reason of the guide plates.

20 Another object of my invention is to provide a scraper of this character in which the several parts are more readily assembled and separated whereby any part thereof may be replaced when broken thus producing a simple, cheap and effective scraper.

25 In the accompanying drawings, Figure 1 is a longitudinal sectional view of a flue of a steam boiler showing my scraper therein. Fig. 2 is a transverse sectional vertical view taken on the line 2—2 of Fig. 1. Fig. 3 is a transverse vertical sectional view taken on the line 3—3 of Fig. 1, showing the spring members removed. Fig. 4 is a perspective view of the scraper blades, attaching and holding means. Fig. 5 is an enlarged perspective view of the guide plate attaching means.

30 Referring now to the drawings 1 represents my improved scraper which as shown in Fig. 1 is in position within a tube 2 of a steam boiler furnace. The scraper 1 consists of a rod 3 which is of any desired length according to the flue to be scraped and has formed integral therewith the head 4. The said head as shown is of a rectangular form and provided with intersecting slots arranged from corner to corner and extending longitudinally with the head. Within said slots are the plates 5 and 6 which are made of sheet iron and interlocked by having central slots all of which will be more fully described hereinafter. The ends of the plates are flush and are each provided with an out-

wardly extending lug 7 which passes through an opening 8 in the guide plates 9. The guide plates 9 and 18 as shown are of a circular form fitting against the central head 10. The head 10 is of an elongated rectangular form solid at the center and having at each end the transverse slots 11 and 12 which extend from corner to corner of the head 9 adapted to receive the plates 5 and 6. The slots 11 and 12 at the opposite end of the head receive the plates 13 and 14 in a similar manner to the plates 5 and 6. The said heads as shown are secured to the plates by rivets or bolts 16. The slots in the heads being of such a length that the guide plates 9 and 18 are spaced a distance apart the purpose of which will be hereinafter more fully described.

35 The outer end of the plates 13 and 14 is provided with a pointed head 19 which is secured in slots arranged in the same manner as the heads 4 and 6 and secured thereby by bolts 20.

40 The plates 5, 6, 13, and 14 as shown taper slightly toward the outer ends whereby the scraper may be more readily inserted into a flue which has a large coating of soot and by turning the same it can be bored out, the guide plates 9 and 18 serving as scrapers.

45 The guide plates 9 and 18 are provided with radially arranged slots, which are midway between the plates 5 and 6 the lower walls 22 being parallel with the outer surface of the heads 10 and 16 as shown in Fig. 3.

50 The scrapers proper as shown are composed of spring arms 23, which are bolted to the heads 4 and 19 by means of bolt screws or rivets 24. These arms as shown are arranged in pairs, that is the head 4 has two arms secured thereto, on opposite sides, while the head 19 has two arms secured thereto on opposite sides and on sides at right angles to that of the head 4 so that there is an inwardly extending arm on all four sides of the scraper. These arms as shown are of a curved form and extend through the slots 21 of each guide plate. The arms are loosely mounted thereon between the guide plate and the scraper plates 25. The plates are provided with openings 26 through which the arms pass and said openings being of a size slightly larger than the arm whereby the scraper will be allowed to have a slight twisting action on the arm. The scraper plates as shown are between the

guide plates 9 and 18 and rest against the turned end of the lug 7 and thus but a small portion of the scraper plate can engage any portion of the guide plate and thus prevent
5 the same from rusting together.

The scraper plates are held upon the spring arms 23 against longitudinal movement by means of the members 27 and 28 on either side thereof. These members as shown
10 are of an elongated form of malleable metal (iron) and the same width of the spring arms and are provided on each side with the downwardly extending lugs 29 which pass into the openings 30 in the arms and are
15 turned inwardly against the edge of the arms, whereby they may be moved for replacing the scraper plates.

The spring arms as shown normally hold the scraper plates out beyond the guide
20 plates in a position to scrape the flue, but should the flue be so clogged with soot, etc., the guide plates 9 and 18 prevent the scraper plates from being forced inwardly so that they cannot be injured and neither can the
25 arm be forced inwardly to injure the spring thereof, so it would not at all times have the desired outward tension.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is—
30

1. A flue scraper, comprising longitudinal tapering plates arranged in pairs and interlocking with each other, heads interlocking with the outer ends of said plates, means
35 fastening the plates to the heads, a central head interlocking with the inner ends of the plates and holding them apart, means for securing the central head to the plates, lugs carried by the inner ends of the plates, guide
40 plates extending at right angles to the first

mentioned plates and having openings through which the lugs pass, said lugs being turned upon the inner face of the said guide plates, spring arms carried by the end heads and extending inwardly through the guide
45 plates, and scraper plates between the guide plates having openings through which the spring arm passes.

2. A flue scraper, comprising longitudinal tapering plates arranged in pairs and
50 interlocking with each other, heads interlocking with the outer ends of said plates, means fastening the plates to the heads, a central head interlocking with the inner ends of each pair of plates and holding the plates
55 separated, means securing the said heads to each pair of plates, lugs carried by the inner ends of the plates, circular guides having openings through which the lugs pass and arranged transversely in the longitudinal
60 plates, said lugs being turned upon the inner face of the guide plates, and the guide plates having radially arranged slots, spring arms secured to the end heads and extending inwardly through the slots in the guide plates
65 through which the spring arms loosely pass, the spring arms on each side of the scraper plates having notches in their edges and securing members resting upon the outer face of the arms and having downwardly and inwardly turned lugs in the said notches resting against the inner face of the arms.
70

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN S. PARK.

Witnesses:

CHAS. LIMBERGER,
B. J. BOCKTING.