

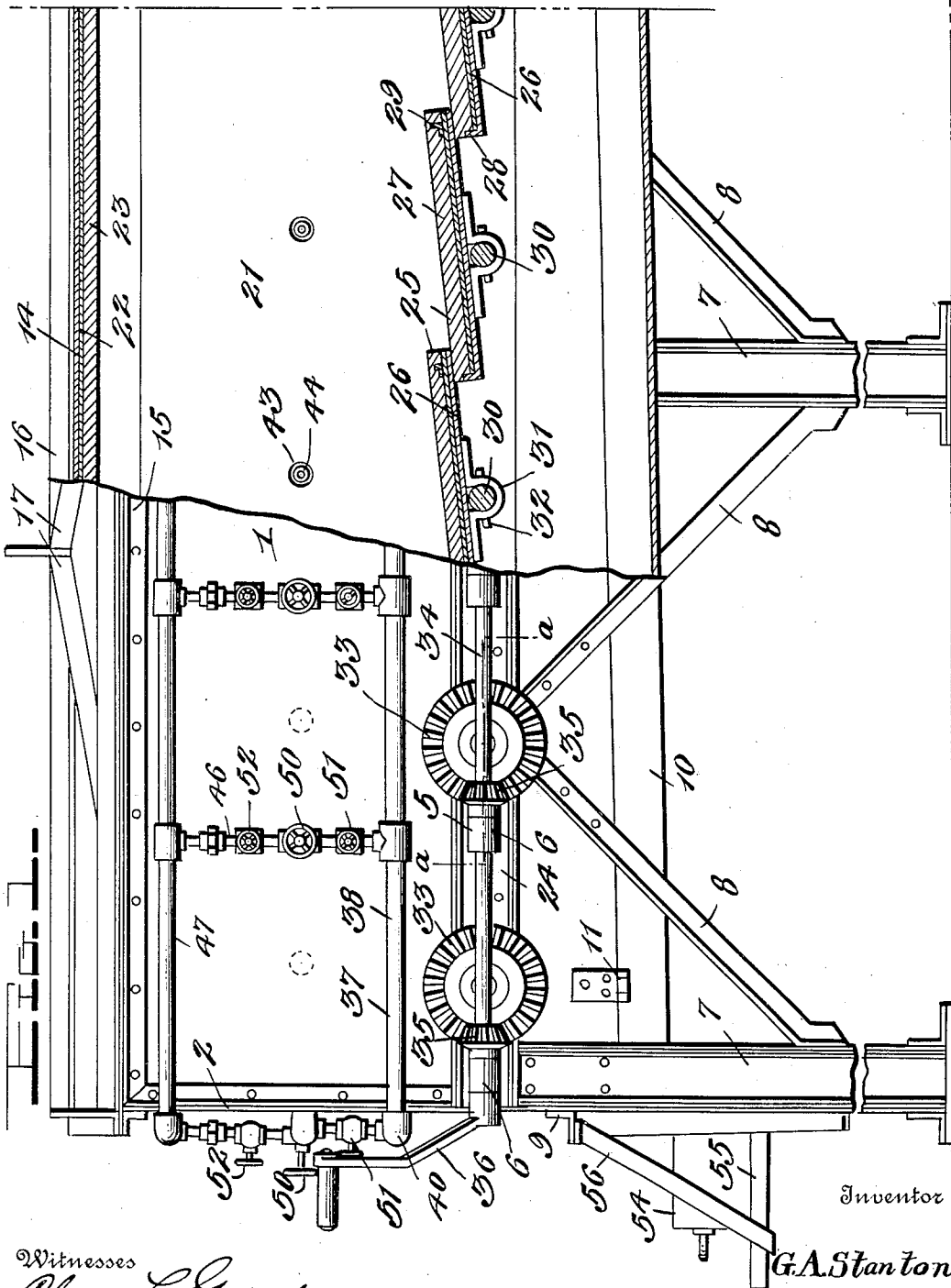
G. A. STANTON.
ORE ROASTER.

APPLICATION FILED NOV. 4, 1911. RENEWED JAN. 27, 1913.

1,056,376.

Patented Mar. 18, 1913.

2 SHEETS—SHEET 1.



Inventor

Witnesses

Chas. L. Griebauer.

G. B. Norton.

By

Watson E. Coleman.

Attorney

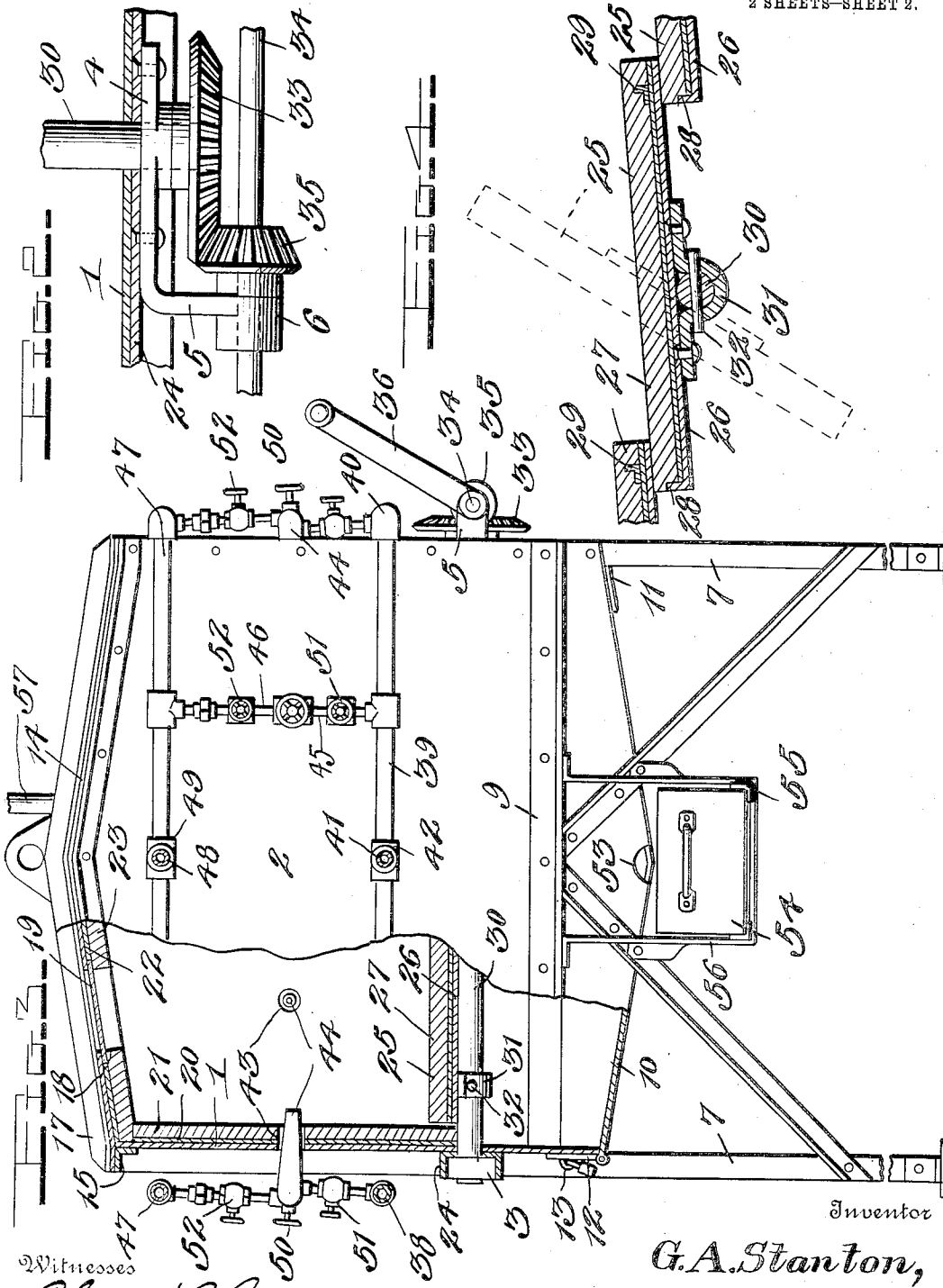
G. A. STANTON.
ORE ROASTER.

APPLICATION FILED NOV. 4, 1911. RENEWED JAN. 27, 1913.

1,056,376.

Patented Mar. 18, 1913.

2 SHEETS—SHEET 2.



Witnesses

Chas. L. Grubauer. By
G. B. Norton.

G. A. Stanton,

Watson E. Coleman.
Attorney

UNITED STATES PATENT OFFICE.

GEORGE A. STANTON, OF PLACERVILLE, CALIFORNIA.

ORE-ROASTER.

1,056,376.

Specification of Letters Patent.

Patented Mar. 18, 1913.

Application filed November 4, 1911, Serial No. 658,545. Renewed January 27, 1913. Serial No. 744,595.

To all whom it may concern:

Be it known that I, GEORGE A. STANTON, a citizen of the United States, residing at Placerville, in the county of Eldorado and State of California, have invented certain new and useful Improvements in Ore-Roasters, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention relates to improvements in ore roasters and especially to improvements in roasters for treating talc and other finely comminuted ore for recovering metal, especially gold, therefrom, the invention consisting in the construction, combination and arrangement of devices hereinafter described and claimed.

20 This invention is an improvement upon the ore roaster for which Letters Patent of the United States 988,396 were granted to me April 4, 1911.

In the accompanying drawings: Figure 1 is partly a side elevation and partly a vertical longitudinal sectional view of an ore roaster constructed in accordance with my invention; Fig. 2 is a detail vertical sectional view on the plane indicated by the line *a-a* of Fig. 1; Fig. 3 is partly an end elevation and partly a transverse sectional view of my improved ore roaster; and Fig. 4 is a detail view.

35 The body of my improved roaster comprises a pair of vertical side plates 1 and a pair of vertical end plates 2. On one side of the body are a series of bearings 3 and on the opposite side thereof are a series of bearings 4. Each of the bearings 4 has an outwardly extending arm 5 which is bent at right angles thereto and is provided with a bearing 6 as shown in detail in Fig. 2. The body is supported upon legs 7 which are braced by braces 8 that are preferably made of angle iron. Suitable cross bars 9 which are preferably angle irons connect the legs in pairs and are also disposed at the ends of the body.

40 Doors 10 which are disposed in partial overlapped relation with respect only to length are employed to close the bottom of the body of the roaster. The said doors are made of metal plates bent to form downwardly converging sides so that the said plates are substantially trough shaped and each of the said bottom doors or plates is connected to one side of the body of the roaster by means of a hinge 11 and is pro-

vided at the opposite side with a hasp 12 for engagement with a staple 13 which projects from one side of the body of the roaster, said hasps and staples serving to secure the bottom doors in closed position and enabling them to be swung downwardly to open position.

65 A cover or top for the roaster is indicated at 14 and may be removed at will. This cover is made of steel plates and is reinforced at the edges by angle irons 15, is reinforced at the middle by a longitudinal angle iron 16 and is also provided with angle iron braces 17. Observation openings 70 18 are in the said cover at suitable points and each is covered by a pane of isinglass, as at 19. The walls of the body are lined on their inner sides by sheets of asbestos, as at 20, and blocks of steatite as at 21. The under side of the cover is provided with a similar lining indicated at 22, 23. The bearings 3, 4 are disposed and secured in the channels of channel bars 24, which channel bars are secured on the outer sides of the body of the roaster.

75 The bottom of the ore roaster is formed by a series of dump sections 25, each of which comprises a steel plate 26 and a block 27 of steatite which is secured thereon. Each plate 26 has an upturned flange 28 at one side and in the lower portion of each steatite block is an angle iron 29, which is embedded therein and is also secured to the steel plate, the said angle iron co-acting with the flange 28 to secure the steatite block on the plate. Each dump section is supported by a rock shaft 30. The said shafts are mounted in the bearings 3 and 4 and the dump sections are secured on said rock shafts by clips 31, which clips are secured to the bottoms of the plates 26 and are provided with depressed rounded portions which pass around the rock shafts. Pins 32 pass through the said rounded portions of the clips and also through the rock shafts and hence the dump sections are firmly secured on the rock shafts and are prevented from turning independently thereof. It will be observed upon reference to Fig. 1 of the drawings that the rock shafts are disposed to one side of the pivotal axes of the dump sections so that each dump section is heavier on one side of its shaft than on the opposite side thereof. Moreover, the dump sections are disposed, when closed, in partial overlapped relation, the longer, heavier side of each dump sec-

tion partially bearing on the shorter, lighter side, of the next adjacent dump section in series. Hence when the dump sections are in closed position they are kept in such position by their own weight and also by reason of the fact that a greater portion of the weight of the superincumbent mass of the contents of the roaster on the dump sections is on one side of the pivotal axes of the dump sections. Hence there is no liability of the dump sections accidentally opening and discharging the contents of the roaster. Each rock shaft is provided at one end with a beveled gear wheel 33. A longitudinally disposed operating shaft 34 is mounted in the bearings 6 and is provided with beveled pinions 35 which engage the gears 33. The gears 33 are keyed to the rock shafts 30 and the pinions 35 are keyed or otherwise suitably secured to the operating shaft 34. To one end of the operating shaft 34 is secured an operating crank 36.

It will be understood that when the operating shaft is turned in one direction corresponding motion will be communicated to the shafts 30 through the intermeshed gears 33, 35 and hence the dump sections may be inclined to the positions indicated in dotted lines in Fig. 4 to open the spaces between them and cause material thereon to be dumped or discharged by gravity therefrom.

An oil supply pipe 37 extends around the body of the roaster at a suitable distance from the lower side thereof and comprises side sections 38 and end sections 39 which are connected together by angle bends or unions 40. A feed pipe 41 is connected to one of the end sections by means of a T 42. The side and end plates of the body of the roaster are provided with openings 43 at a suitable elevation, and above the dump sections 25 and through each of the said openings extends the inner end of an oil burner 44 which is supplied with oil from the pipe 37 by a branch pipe 45 and is supplied with air by a branch pipe 46, said branch pipe leading from a pipe 47, which is similar to the pipe 37, and is provided at one end of the roaster with an air feed pipe 48 which is connected thereto by a T 49. Each of the burners is provided with a valve which is operated by means of a hand wheel 50. The branch pipes 45, 46 are also respectively provided with valves which are operated by

hand wheels 51, 52. While I have herein termed the pipe 37 an oil pipe it may, in fact, be a pipe to supply oil, gasoline, or other suitable hydro-carbon to the burners. It will be understood that the burners which I employ are of a type which is well known and which serve to mix air and the vapor of liquid hydro-carbon to produce a highly inflammable mixture which is directed, by the burners, through the openings 43 into the body or oven of the roaster. The flame from the burners plays against the body of ore on the dump sections so as to cause the burners to act as blow pipes and melt the metal in the ore. The melted metal flows off through the opening 53 and into a receptacle 54 which is supported by a shelf 55 located at one end of the roaster and held in place by suitable supporting bars 56. The gangue or refuse is discharged from time to time by opening the tilting dump sections.

In practice, an escape pipe 57 is provided at the higher end of the roaster to carry off the gases and prevent them from injuring vegetation.

Having thus described my invention I claim:

1. An ore roaster provided with a floor which is composed of sections, each of which comprises a metallic plate formed at one end with an upturned flange, and a heat-resisting block applied to the upper face of said plate, the flange being partially embedded in the block at one end thereof and stopping short of the upper surface of the block.

2. An ore roaster provided with a floor embodying a plurality of sections arranged in overlapping relation to each other and inclined individually, each of said sections comprising a metal plate which is formed at its lower end with an upturned flange, a block applied to the upper surface of the plate and engaged at one end by said flange, and an angle iron strip secured to the plate near the other end thereof and embedded in the block.

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

GEORGE A. STANTON.

Witnesses:

E. L. ALDERSON,
O. E. BAILEY.