

G. F. LEHBERGER & E. VAUGHAN.
SCALING DEVICE.

APPLICATION FILED SEPT. 6, 1911.

1,019,497.

Patented Mar. 5, 1912.

3 SHEETS—SHEET 1.

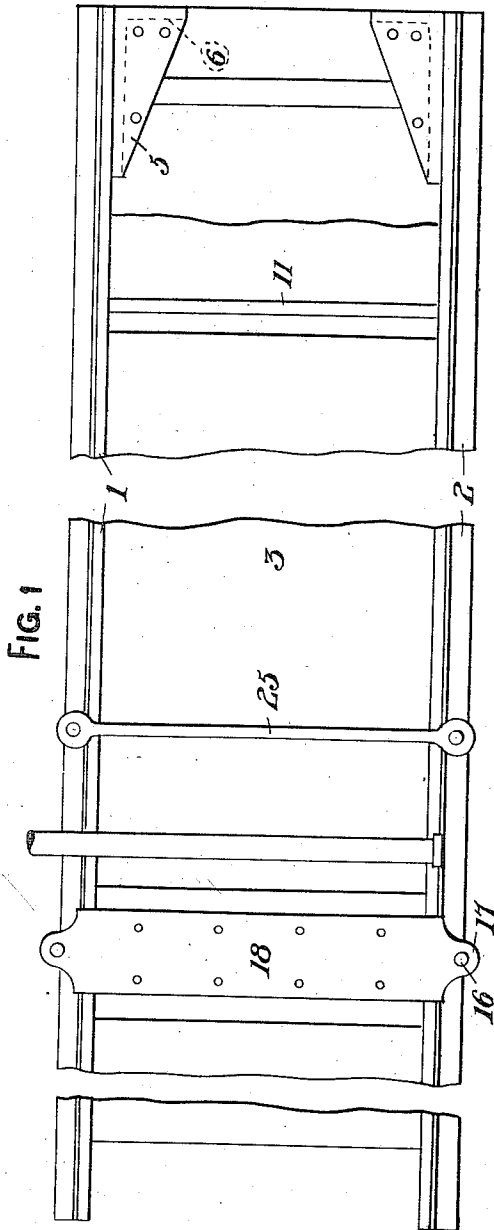


FIG. 1

WITNESSES

J. P. Hoffman,
Ralph C. Evert.

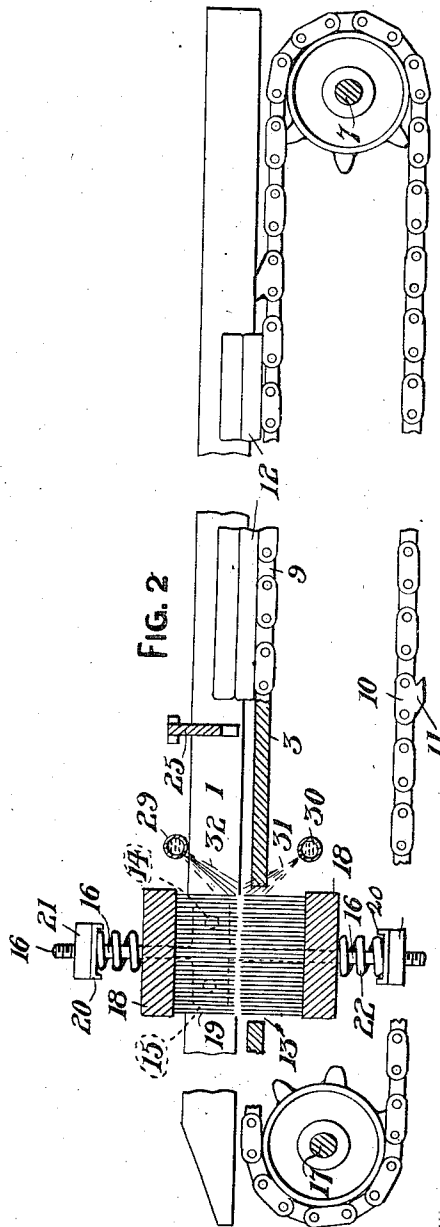


FIG. 2

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3 SHEETS—SHEET 2.

FIG. 4

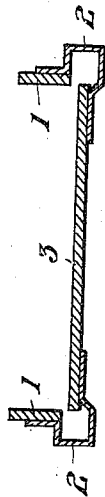


FIG. 5

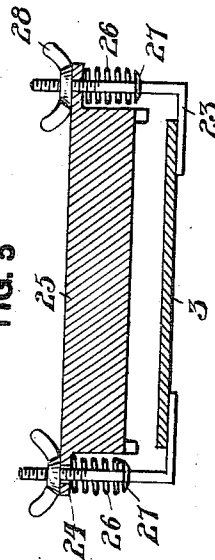
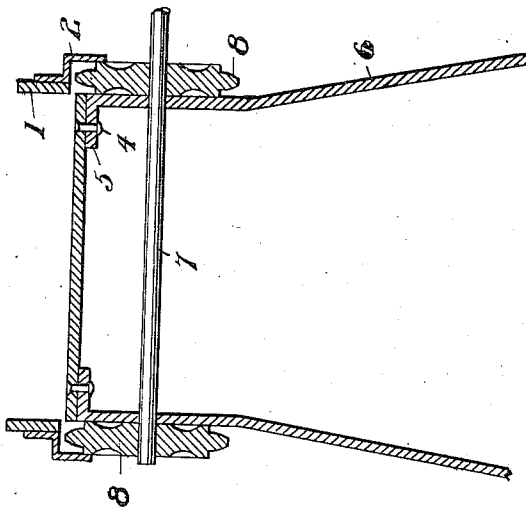


FIG. 3



WITNESSES

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3 SHEETS—SHEET 3.

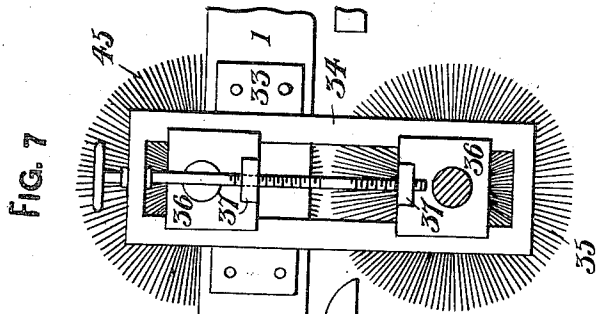


FIG. 7

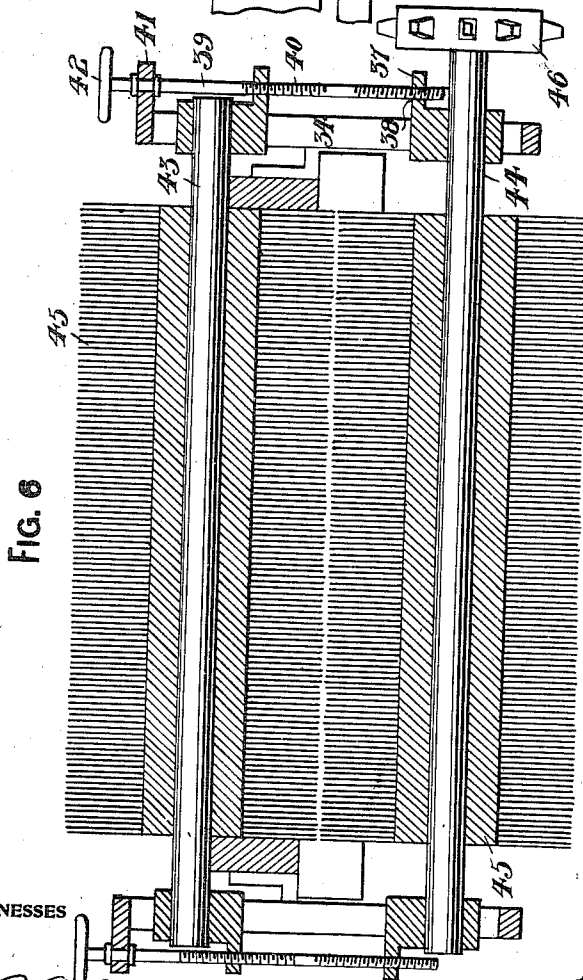


FIG. 6

WITNESSES

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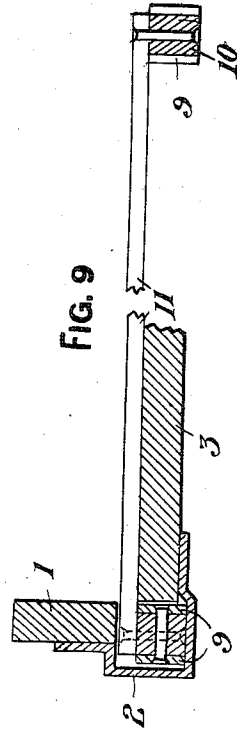


FIG. 9

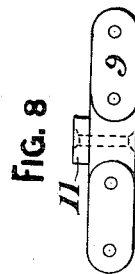


FIG. 8

INVENTORS
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UNITED STATES PATENT OFFICE

GEORGE F. LEHBERGER, OF WEIRTON, WEST VIRGINIA, AND EDWARD VAUGHAN, OF
NEW CASTLE, PENNSYLVANIA.

SCALING DEVICE.

1,019,497.

Specification of Letters Patent.

Patented Mar. 5, 1912.

Application filed September 6, 1911. Serial No. 647,864.

To all whom it may concern:

Be it known that we, (1) GEORGE F. LEHBERGER and (2) EDWARD VAUGHAN, citizens of the United States of America, residing at (1) Weirton and (2) New Castle, in the counties of (1) Hancock and (2) Lawrence and States of (1) West Virginia and (2) Pennsylvania, respectively, have invented certain new and useful Improvements in Scaling Devices, of which the following is a specification, reference being had therein to the accompanying drawing. This invention relates to a cleaning apparatus especially designed for tin bar, sheet and plate mills.

The primary object of our invention is to provide an apparatus wherein positive and reliable means are employed, in a manner as will be hereinafter set forth, for removing scale from bars, sheets and plates, thereby cleansing the bars, sheets and plates and increasing the grade of product.

Another object of this invention is to utilize brushes and water for removing scales from metallic surfaces in such a manner that metallic surfaces can be successively and economically operated upon.

A further object of our invention is to provide an endless conveyer for moving bars, sheets and plates through the cleaning devices, the conveyer being simple in construction, durable and highly efficient for the purposes for which it is intended.

With the above and other objects in view, the invention resides in the novel construction, combination and arrangement of parts to be hereinafter specifically described and then claimed.

Reference will now be had to the drawings, wherein there are illustrated the preferred embodiments of the invention, but it is to be understood that the structural elements thereof are susceptible to such changes, in the size, shape and proportions, as fall with the scope of the appended claims.

In the drawings, like numerals denote

corresponding parts throughout the several views, in which:—

Figure 1 is a plan of a portion of an apparatus in accordance with this invention, 50
Fig. 2 is a longitudinal sectional view of the same, Fig. 3 is a cross sectional view of the machine, Fig. 4 is a similar view of the machine, showing the bed plate thereof, Fig. 55
5 is a similar view showing a bar gage, Fig. 6 is an enlarged longitudinal sectional view of rotary cleaning brushes representing a modification of the invention, Fig. 7
8 is an end view of the rotary brushes, Fig. 60
8 is an enlarged side elevation of a portion of the conveyer, and Fig. 9 is a cross sectional view of a portion of the same.

An apparatus in accordance with this invention comprises longitudinal side 65
frames 1 and riveted or otherwise connected to the outer sides of said frames are channel-shaped bars 2. The inner edges of these bars support a horizontal bed plate 3. Riveted or otherwise connected to the under 70-
side of the bed plate 3, as at 4 are the triangular heads 5 of legs 6 adapted to support the horizontal bed plate 3 a prescribed distance above a foundation or floor. 75
It is preferable to arrange the legs 6 at the ends of the bed plate and journaled in said legs are shafts 7 having the outer ends thereof provided with sprocket wheels 8 for endless sprocket chains 9. The bars 2 are cut 80
away to provide clearance for the sprocket wheels 8, whereby the endless sprocket chains 9 can travel in said bars. Oppositely disposed links 10 of the chains 9 are connected by transverse bars 11 and these bars 85
are adapted to move over the bed plate 3 and shift the bars, plates or sheets 12 upon said bed plate.

The bed plate 3, at one end of the apparatus, has a transverse opening 13, and riveted or otherwise connected, as at 14 to 90
inner oppositely disposed sides of the frames 1 are plates 15 provided with upwardly extending and depending bolts 16. Movably arranged upon these bolts are the

apertured lugs 17 of cross heads 18, said cross heads supporting confronting brushes 19. The brushes are preferably made of metal with the confronting faces thereof approximately in a plane with the upper surface of the bed plate 3. Arranged upon the bolts 16 are inverted cup-shaped washers 20 and nuts 21, and encircling the bolts 16, between the washers 20 and the cross heads 18, are coiled compression springs 22. The tension of these springs is sufficient to normally maintain the confronting ends of the brushes together, and the tension of said springs can be increased or decreased by adjusting the nuts 21.

The bed plate 3, in front of the brushes 19, is provided with oppositely disposed L-shaped bolts 23 and movably mounted upon said bolts are the apertured lugs 24 of a transverse gage 25. The apertured lugs 24 rest upon the upper convolution of coiled compression springs 26, said springs encircling the bolts and having the lower convolutions thereof resting upon heads 27, carried by said bolts. Screwed upon the bolts 23 are wing thumb nuts 28, and it is through the medium of these nuts that the gage 25 can be raised or lowered, whereby the gage can be adjusted to different thicknesses of bars, plates or sheets.

Arranged transversely of the frames 1 are water supply pipes 29 and 30, the pipe 29 being arranged upon the frames and the pipe 30 below the bed plate 3. These pipes are in proximity to the pass between the brushes 19, and said pipes are perforated or provided with rows of openings 31 whereby water or other liquid 32 will be discharged at the entrance of the pass between the brushes 19.

Before describing the modification of our invention, it is thought best to describe the operation of the preferred form of construction, and then the objects of the modification will be more fully understood. The bars, sheets or plates are placed upon the bed plate 3 in stacks or piles, this operation being performed by the attendant of the machine. As the conveyer continuously moves, one of the transverse bars 11 will engage the stack and move it until the stack impinges the transverse gage 25. This gage is adjusted whereby only one of the bars, sheets or plates can move under the same at one time, and immediately upon one of the bars, sheets or plates passing forwardly from under the stack, the remaining portion of the stack drops on to the bed plate 3 to be engaged by the succeeding bar 11. As the single bar, sheet or plate is carried between the brushes 19, the action of the water 32 and said brushes is such as to remove all scales that adhere to the upper surface of

the bars, sheets or plates, and when the bar, sheet or plate is discharged from the conveyer, it is thoroughly cleaned and produces a higher grade of product.

Reference will now be had to Figs. 6 and 7 of the drawings, illustrating rotary wire brushes that are used in lieu of the brushes 19. Riveted or otherwise connected, as at 33 to the outer sides of the frames 1 are the supporting plates of vertical housings 34, said housings having windows or openings 35 for adjustable bearing blocks 36. The blocks 36 have outwardly extending lugs 37 provided with openings 38, the walls of the lowermost openings being right hand screw threaded and the walls of the uppermost openings left hand screw threaded, or vice versa. Connecting the lugs 37 of the bearing blocks 36 are vertical rods 39 having right and left hand screw threads 40. The rods 39 are revolvably supported by brackets 41, carried by the upper ends of the housings 34, the upper ends of said rods having hand wheels 42, whereby the rods 39 can be rotated to adjust the bearing blocks 36. Journaled in the bearing blocks 36 are transverse shafts 43 and 44 and mounted upon these shafts are brushes 45. The shaft 44 has one end thereof provided with a sprocket wheel 46 and this sprocket wheel can be driven from a suitable source of power, whereby the rotary brushes will revolve against the direction of travel of the bars, plates or sheets to be cleaned, thereby preventing the scale from remaining upon the bars, sheets or plates after the bars, sheets or plates have passed between the brushes.

An important feature of our invention is the use of water prior to the bars, sheets or plates passing between the brushes. As the streams of water contact with hot bars, plates or sheets, the scale is loosened and can be easily removed by the brushes.

Our invention is not confined to stationary brushes, as the rotary brushes shown in Figs. 6 and 7 can be readily used.

Any suitable source of power can be employed for operating the cleaning apparatus and it can be made upon various scales according to the output of the mill in which it is installed.

What we claim is:—

1. A cleaning apparatus comprising longitudinal frames, a bed plate supported by said frames, an endless conveyer for moving bars, sheets or plates upon said bed plate, adjustable brushes supported by said frames and providing a pass for the bars, sheets or plates, an adjustable transverse gage supported by said frames for controlling the movement of bars, plates or sheets upon said bed plate, and pipes arranged transversely of said frames for projecting

water at the forward end of the pass between said brushes.

2. A cleaning apparatus comprising longitudinal frames, confronting brushes adjust-
ably supported by said frames, an endless
conveyer adapted to move bars, sheets or
plates between said brushes, means for projecting
streams of water upon the bars, sheets or plates at the entrance of the pass
between said brushes, and means including

an adjustable transverse spring supported gage for controlling the movement of bars, sheets or plates by said conveyer.

In testimony whereof we affix our signatures in the presence of two witnesses.

GEORGE F. LEHBERGER.

EDWARD VAUGHAN.

Witnesses:

MAX H. SROLOVITZ,

M. E. BERKERT.