No. 616,010. Patented Dec. 13, 1898.

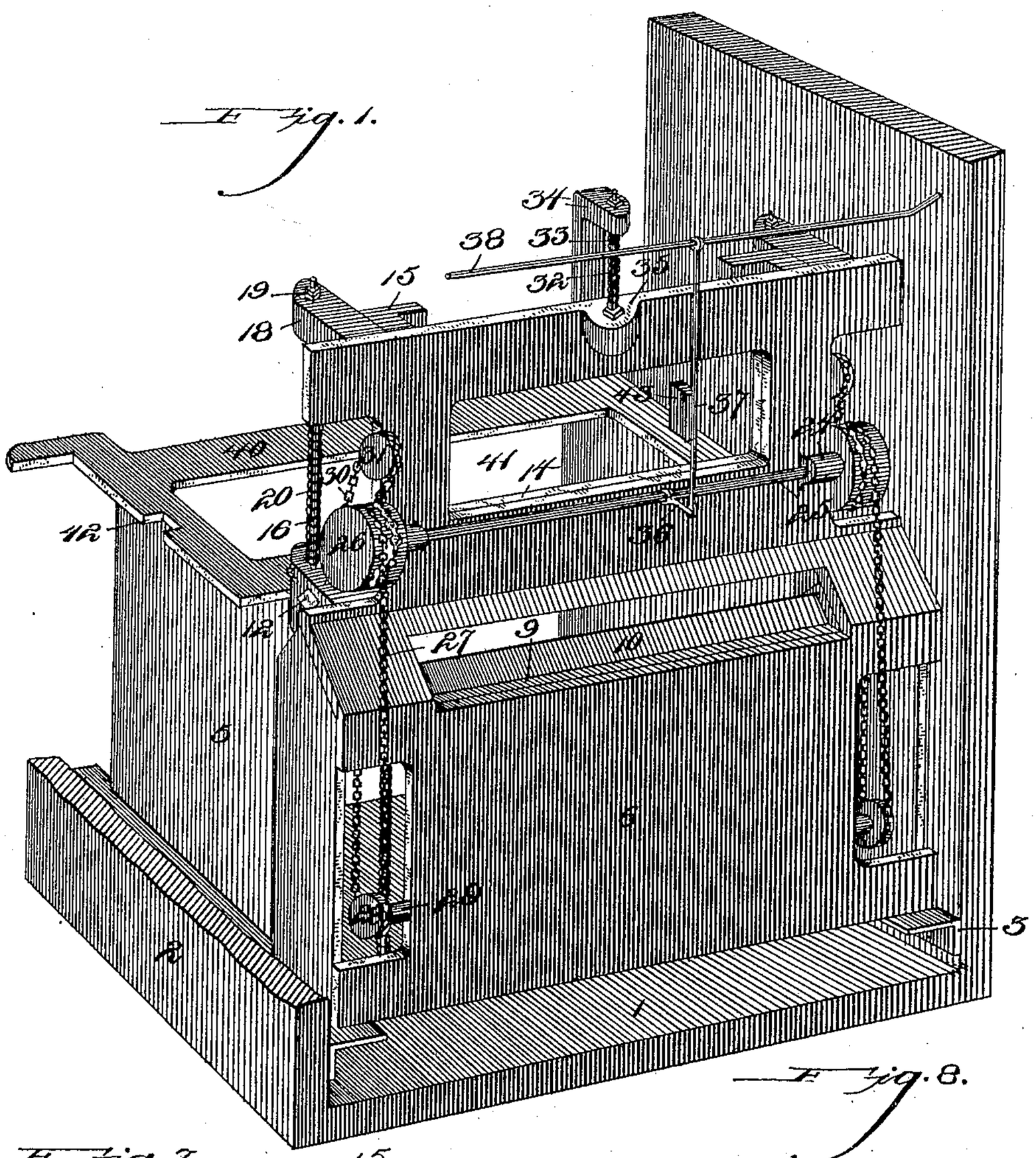
W. M. REED.

SCALE SCRAPING DEVICE.

(Application filed Jan. 14, 1898.)

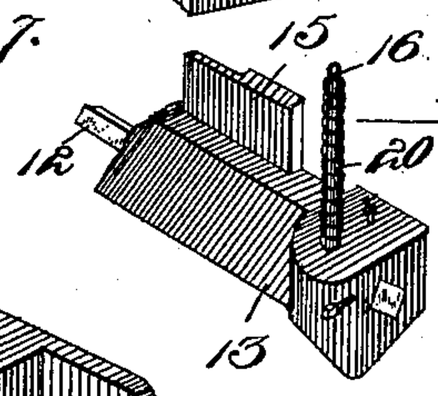
(No Model.) 2 Sheets—Sheet 1.

F Fig. 1.

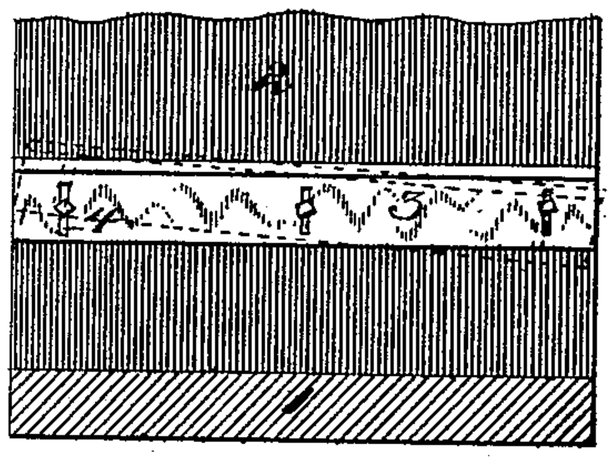


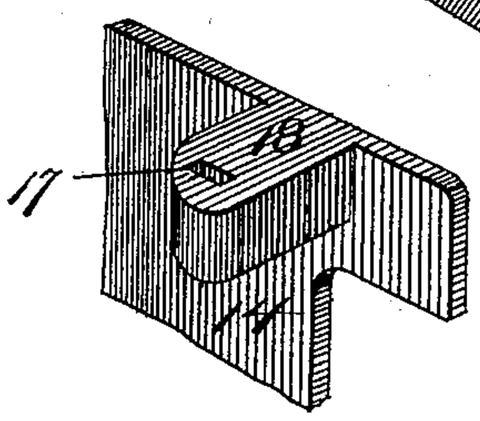
F Fig. 8.

F Fig. 7.



F Fig. 6.





F Fig. 9.

F Fig. 10.

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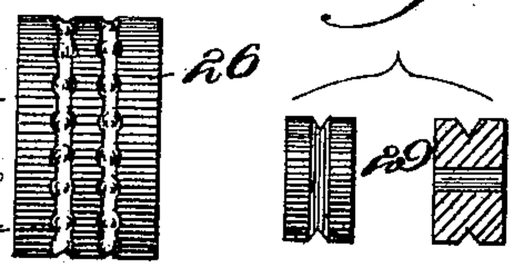

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No. 616,010. Patented Dec. 13, 1898.

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Fig. 2.

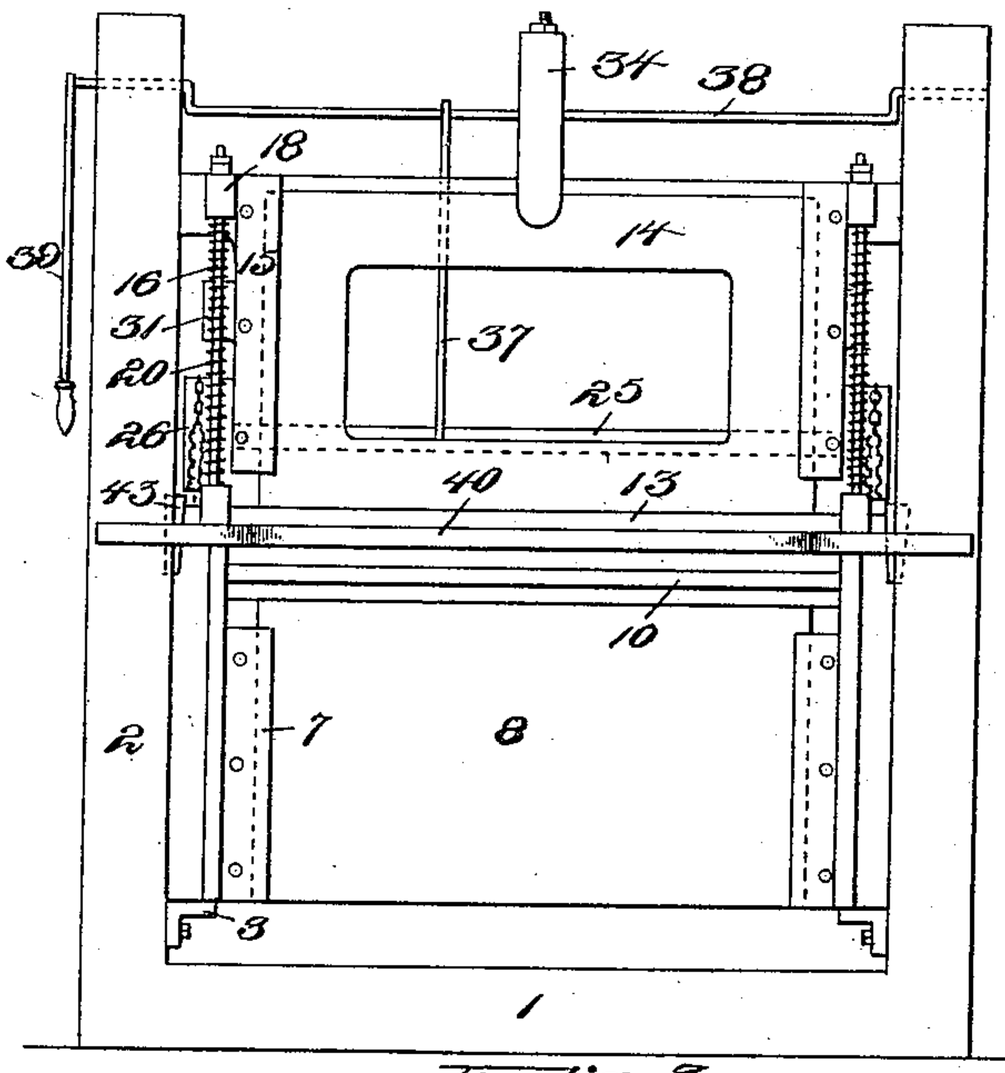


Fig. 3.

Fig. 4.

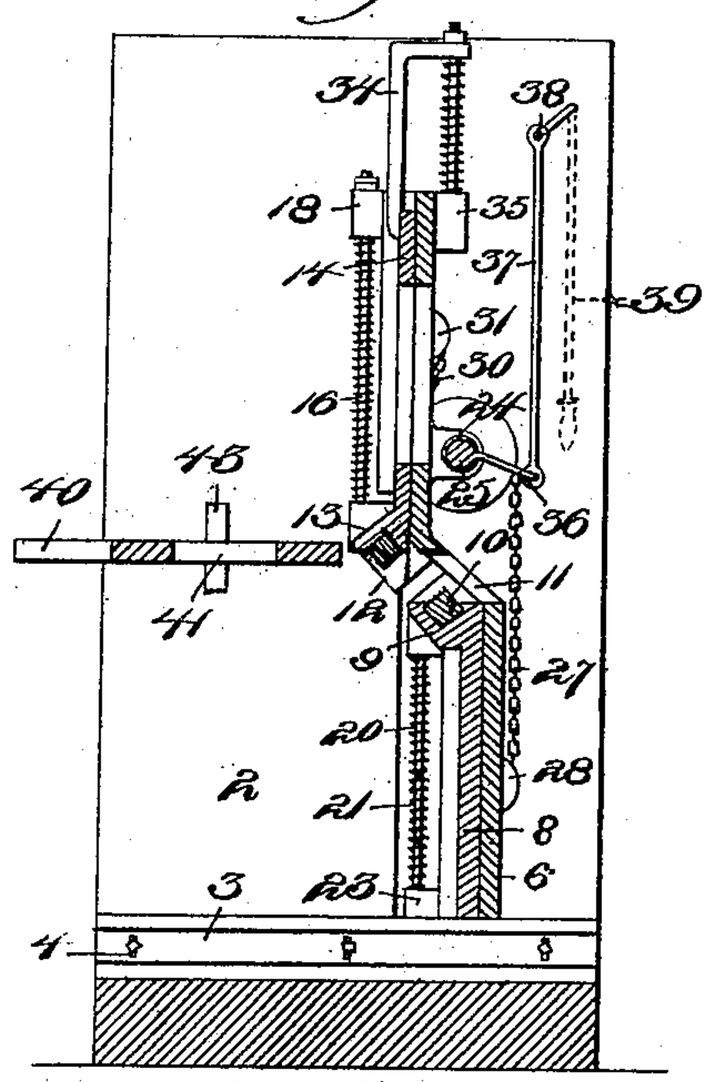
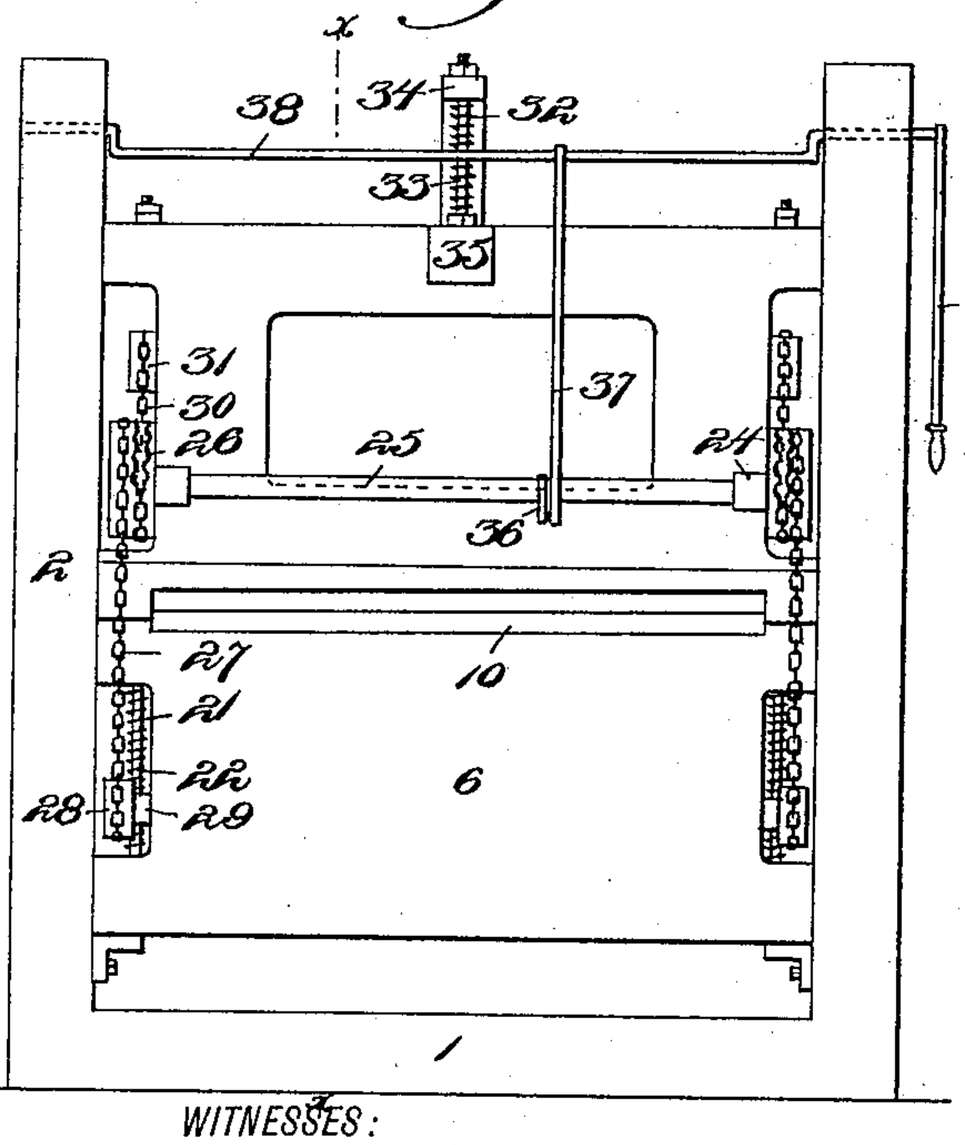
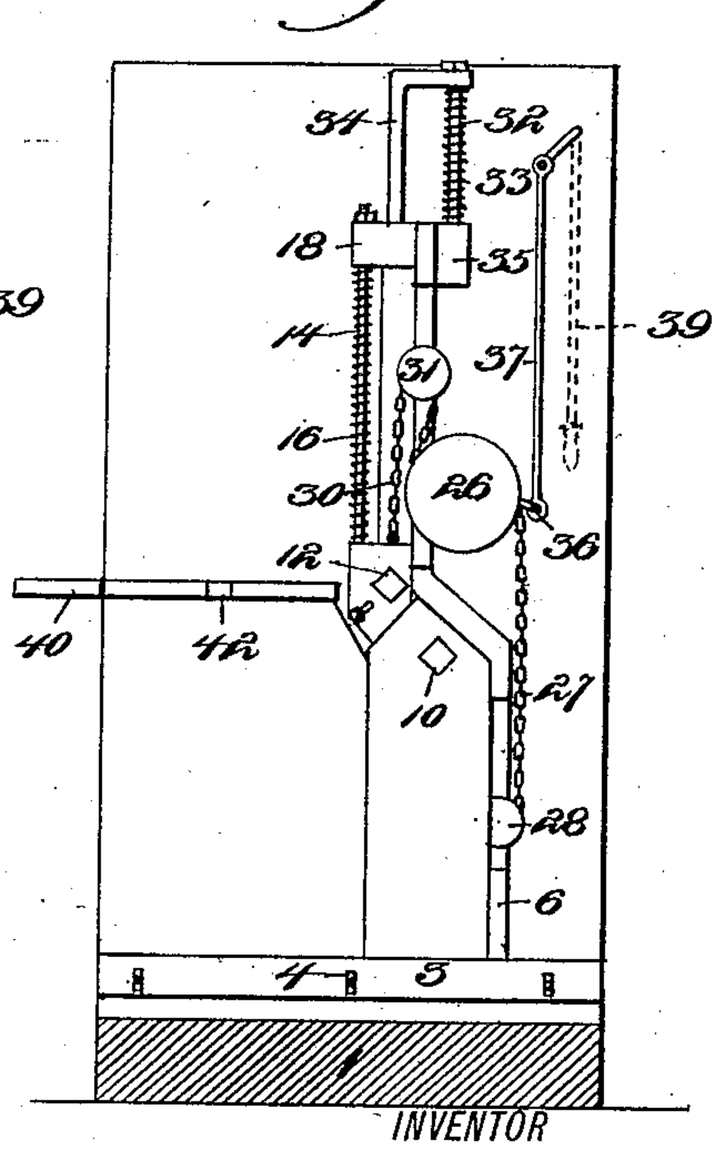


Fig. 5.





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UNITED STATES PATENT OFFICE.

WILLIAM M. REED, OF BELLAIRE, OHIO.

SCALE-SCRAPING DEVICE.

SPECIFICATION forming part of Letters Patent No. 616,010, dated December 13, 1898.

Application filed January 14, 1898. Serial No. 666,598. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. REED, a citizen of the United States of America, residing at Bellaire, in the county of Belmont and State of Ohio, have invented certain new and useful Improvements in Scale-Scraping Devices, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in scale-scraping devices and is adapted to be employed in connection with ordinary rolls, by which the scale may be scraped from the slabs or plates during the process of rolling.

The principal features of my invention comprise the spring-pressed scraping-bars that are operated so as to open and admit the slab or plate from the rolls and comprise the means by which the scale is removed from the slabs or plates during the rolling. These bars are of a peculiar form of construction, and they are also arranged in a manner to remove the scale from both the upper and lower face of the slab or plate, which construction, together with the details throughout, will be hereinafter more specifically described, and particularly pointed out in the claims.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like figures of reference indicate similar parts throughout the several views, in which—

Figure 1 is a perspective view of the device with one of its sides or housing broken away. Fig. 2 is a rear view of the machine. Fig. 3 is a front view of the same. Fig. 4 is a transverse vertical sectional view. Fig. 5 is a transverse vertical sectional view taken on the line X X of Fig. 3. Fig. 6 is a perspective view of a portion of the cross-head for the upper scraping-bar. Fig. 7 is a perspective view of a portion of the top cross-head. Fig. 8 is a side view of a portion of the housing, showing the adjustable support. Fig. 9 is a detail view of one of the double pulleys. Fig. 10 is a detail and sectional view of one of the single pulleys.

This invention should be considered in connection with Letters Patent granted to me August 31, 1897, No. 589,370, and is an improvement thereon.

Referring now to the drawings by reference-figures, 1 denotes the bed-plate, which has the side frames or housing 2 formed integral therewith or rigidly secured thereto. Secured to the inner face of the housing or side frames 2, near the base of the same, are adjustable supporting-brackets 3, which may be formed of angle-iron bolted to the side frames or housing through oblong slots 4, which permit the inclining of the supporting-brackets 3 for the purpose of inclining the scraping-bars which remove the scale from the metal. By this construction the faces of the scraping-bars are caused to assume different angles in relation to the surface of the slab or plate, thereby causing the scraping-bars to remove the scales easier and more effectually.

Resting upon the adjustable brackets or supports 3 are auxiliary side frames or housing 5, to which are attached a frame 6, by means of which the mechanism which operates the two vertically-sliding plates is supported, as will be hereinafter more fully described. This frame 6 has attached to its rear face angle-straps 7, which form guides that hold the lower plate 8 in close engagement with the lower portion of the frame 6, the said plate 8 being provided at its upper end with a cross-head 9, having a V-shaped groove extending the length of its upper face, which receives the lower scraping-bar 10.

The frame 6 is inclined inwardly, and is provided at its point of incline with an opening 11 to permit the slab or plate to pass between the scraping-bars.

The upper scraping-bar 12 is secured in a cross-head 13, which is carried on the lower edge of the upper slide-plate 14, which is retained in engagement with the upper portion of the frame 6 by means of the guides 15, secured thereto, and which are of similar construction to the guides 7, provided for the lower plate.

The inclining of the plate 6, it will be observed, places the scraping-bars out of alinement with each other, and in order to keep the said scraping-bars in proper engagement with their work I make the same spring-pressed and independent of one another, the

upper plate being adapted to have sufficient lateral movement to allow the same to accommodate an uneven slab or plate.

The cross-head 13 has arranged therein at its rear end a guide-rod 16, which passes upwardly and engages through slots 17, provided therefor in the heavy lugs 18, that are formed integral with the frame 6 at its upper end, said guide-rods 16 being retained in position in a slot 17 by means of the nut 19, and having arranged on the same between the cross-head 13 and the lug 18 a stiff coil-spring 20. The lower slide-plate is similarly spring-pressed by means of springs 21, that are arranged on the guide-rods 22, secured in the cross-head 9 and engaging in slots provided therefor in lugs 23, carried near the base of the frame 6.

In order to simultaneously operate the slide-plates, the pressure is removed from the springs operating against the upper and lower plates, and through the tension of the springs the bars are forced tightly into engagement with the plate or slab. I provide suitable bearings 24, which are attached to the face of the frame 6 at a point above the scraping-bars and have journaled therein a shaft 25, which has secured on each end a double pulley 26. To each of these pulleys is attached a chain 27, which is given a half-turn around the pulley and passes downward over a single pulley 28, that is supported on a short shaft 29, carried by the lower portion of the frame 6, the said chain being then carried upward and attached to the ends of the cross-head 9. Also connected to the double pulleys 26 and at a point that is opposite to the side of the pulley on which the chain 27 is connected is a similar chain 30, which is given a half-turn around the double pulley in the opposite direction from that in which the chain 27 is passed over the pulley, said chain 30 being then carried upwardly over a pulley 31, carried by similar shafts secured to the upper portion of the frame 6, and again passed downwardly, where it is attached to the ends of the upper cross-head 13. The upper slide-plate is also spring-pressed by means of the central coil-spring 32, arranged on the rod 33 between a bracket 34, secured to the said slide-plate, and a lug 35, formed on the upper end of the frame 6.

The cross rod or shaft 25 is operated by means of a crank 36, centrally attached thereto and having pivotally connected to its outer end a vertical rod 37, which is connected to the cross-rod 38, bell-crank in shape at each of its ends, and which is journaled in the side frames or housing 2 and has attached to its one end, outside of the housing, an operating-lever 39.

A receiving-table 40 is also provided at the back of the scraping-bars and is supported upon the auxiliary side frames or housing 5, said receiving-table being provided with a large central opening 41, so that the scraping-bars may be seen by the operator and the slab or plate readily passed into connection therewith. This receiving-table may be readily retained in its position by forming cut-away portions 42 in its sides, in which engage blocks 43, secured to the inner face of the housing. Thus when it is not desired to use the table the same may be readily lifted off its securing-blocks.

In operation the lever 39 is moved so as to operate through the rod 37, crank 36, and shaft 25. The pulleys 26, by means of the chains, owing to their peculiar arrangement and connection with pulleys, serve to open the two slide-gates in order to permit the slab or plate to pass readily between the same, but after which when the lever is released the spring heretofore described will tend to force the scraping-bars tightly into engagement with the slab or plate, so that the latter will in this way during the process of rolling be subjected to the scraping action of the bars and the scale thereby removed from the same.

The slab or plate may be fed between the scraping-bars by any suitable mechanism, as by a pair of powerful feed-rollers arranged in the ordinary way, the slab being carried on a set of double rolls, so as to be guided horizontally over said feed-rolls to the scraping-bars.

Although I prefer to use two scraping-bars arranged as herein shown and set forth, yet it will be observed that the device can readily be arranged so as to use the scraping-bar on but one side of the metal when so desired, a similar spring-pressed arrangement being provided for forcing the scraping-bar into engagement with the metal.

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

1. In a scale-scraping device for rolling-mills, the combination of a suitable frame, vertically-sliding plates mounted on said frame, cross-heads formed on said plates, scraping-bars carried by said cross-head, pulleys carried by said frame, a shaft mounted in suitable bearings secured to said frame, a double pulley mounted on each end of said shaft, chains engaging said pulleys on the frame and shaft whereby the scraping-bars are moved simultaneously away from each other so as to admit the plate or slab between the scraping-bars, and independent spring-operating mechanism for each of said plates whereby the same are forced into engagement with the slab, substantially as shown and described.

2. In a scale-scraping device for use in rolling-mills, the combination of two vertically-sliding plates said plates being provided with cross-heads, scraping-bars carried by said cross-heads, independent spring-actuated mechanism for each of said plates whereby the same are forced into engagement with the slab or plate, a frame, pulleys carried by said frame, a shaft journaled in suitable bearings on said frame, a double pulley mounted

on each end of said shaft, and means engaging said pulleys and double pulleys whereby the plates are simultaneously moved away from each other, substantially as shown and described.

3. In a scale-scraping device for rolling-mills, the combination with a suitable bed-plate and side frame or housing, of a frame arranged therein, brackets supporting said frame, said brackets being adjustable to permit the inclining of the frame, two vertically-sliding plates, scraping-bars secured to said plates, independent spring-operating mechanism for each of said plates whereby the same are forced into engagement with the slab, and means for simultaneously moving said plates away from each other so as to open the scraping-bars and admit the slab or metal between the same, substantially as shown and described.

4. In a scale-scraping device for rolling-mills, the combination with the bed-plate and the side frames or housings, of a receiving-table, two vertically-sliding plates, scraping-bars carried by said plates, pulleys carried by said frame, a shaft journaled in bearings secured to said frame, a double pulley mounted on each end of said shaft, chains connected to said double pulleys and engaging the pulleys carried by the frame whereby the scraping-bars are moved away from each other, and independent spring-actuated mechanism for each of said plates whereby the same are forced into engagement with the slab or plate, substantially as shown and described.

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

WILLIAM M. REED.

Witnesses:
JOHN NOLAND,
WILLIAM E. MINOR.