

No. 610,749.

Patented Sept. 13, 1898.

L. A. TREAT.
BAR PILING MECHANISM.

(Application filed Apr. 22, 1898.)

(No Model.)

3 Sheets—Sheet 1.

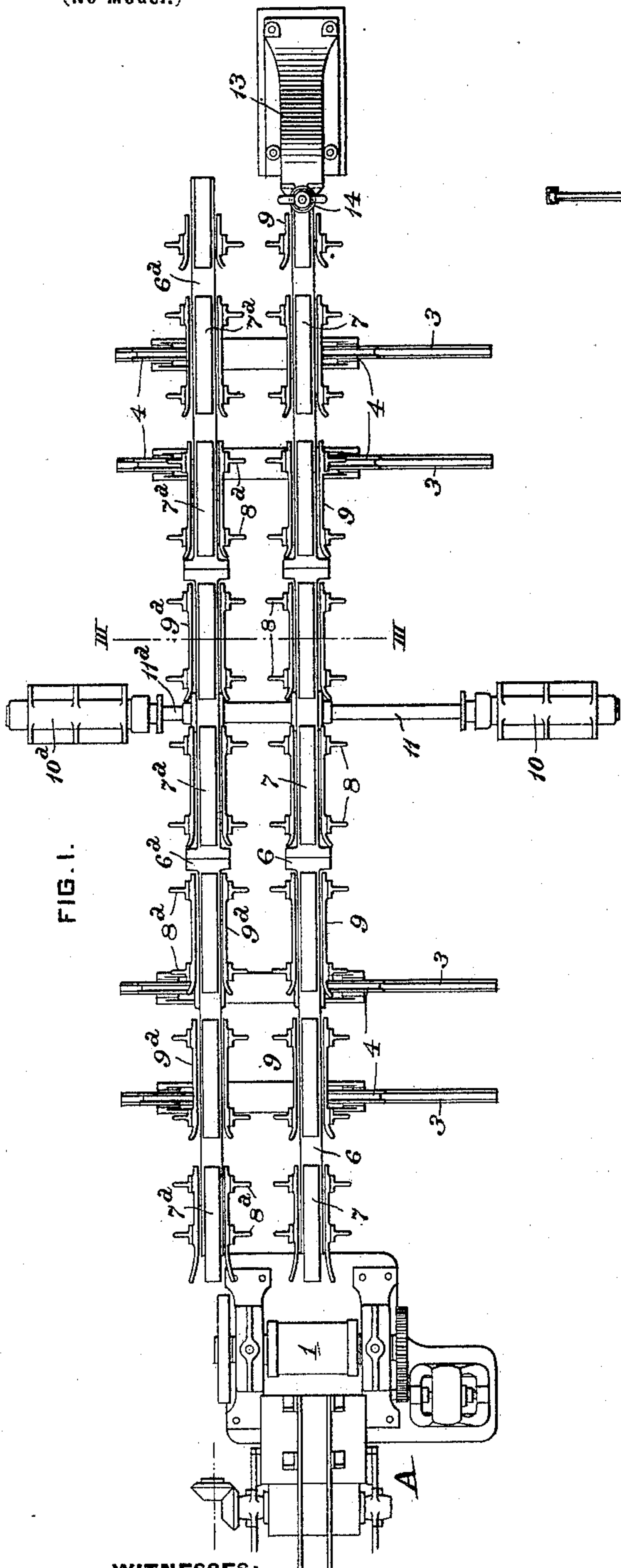


FIG. 1.

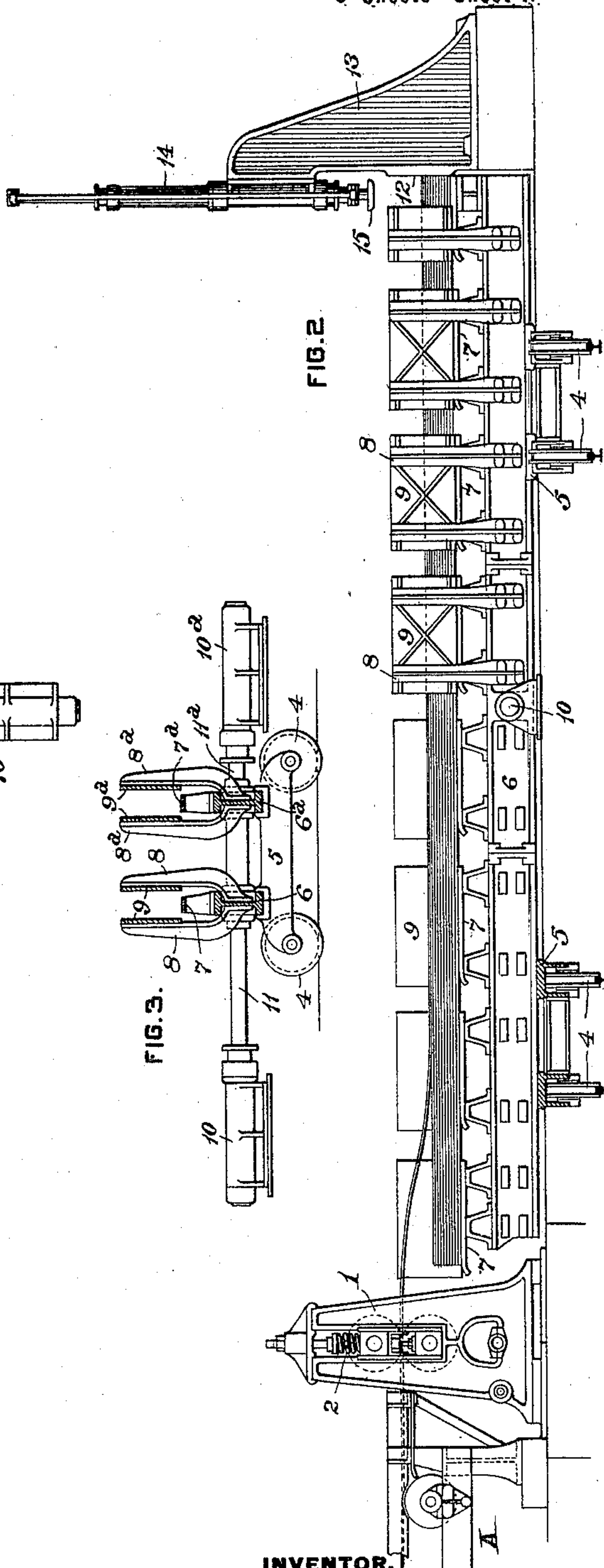


FIG. 2.

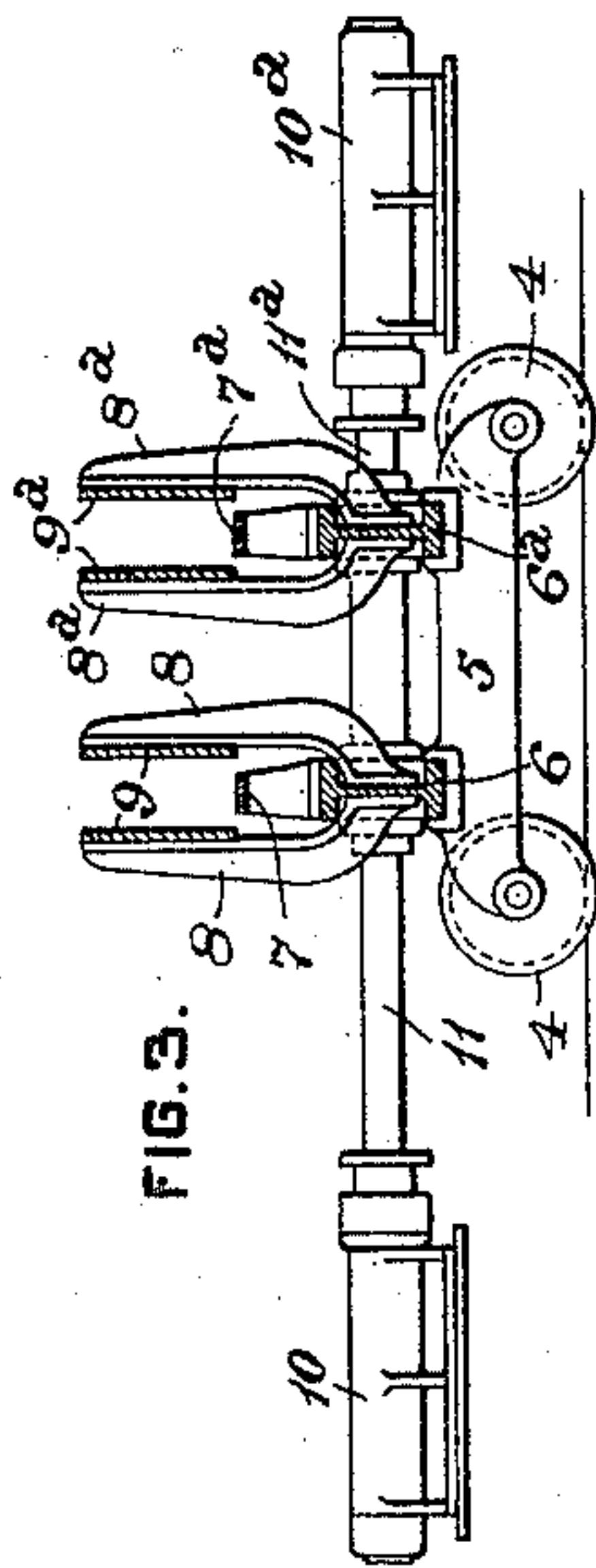


FIG. 3.

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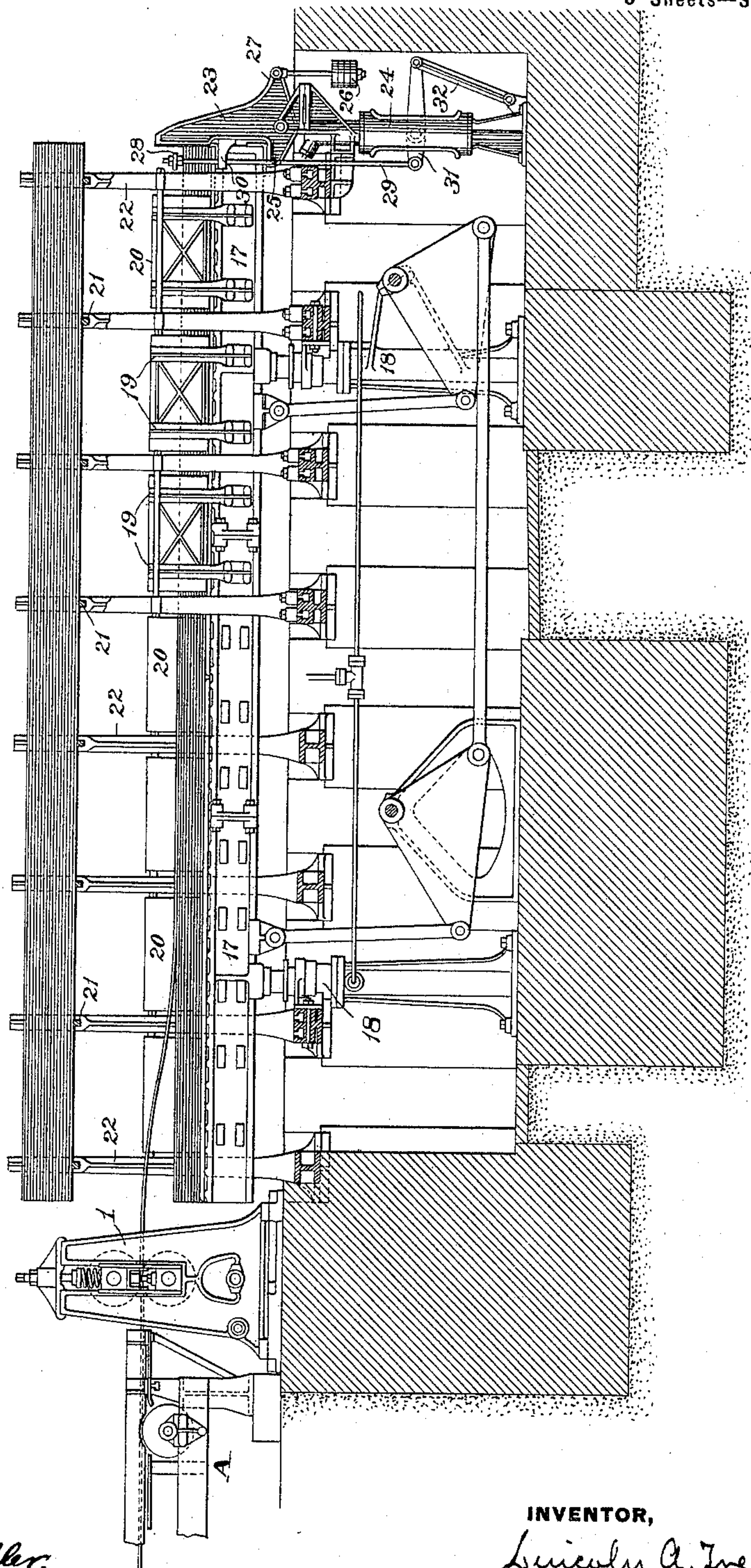
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3 Sheets—Sheet 2.

FIG. 4.



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3 Sheets—Sheet 3.

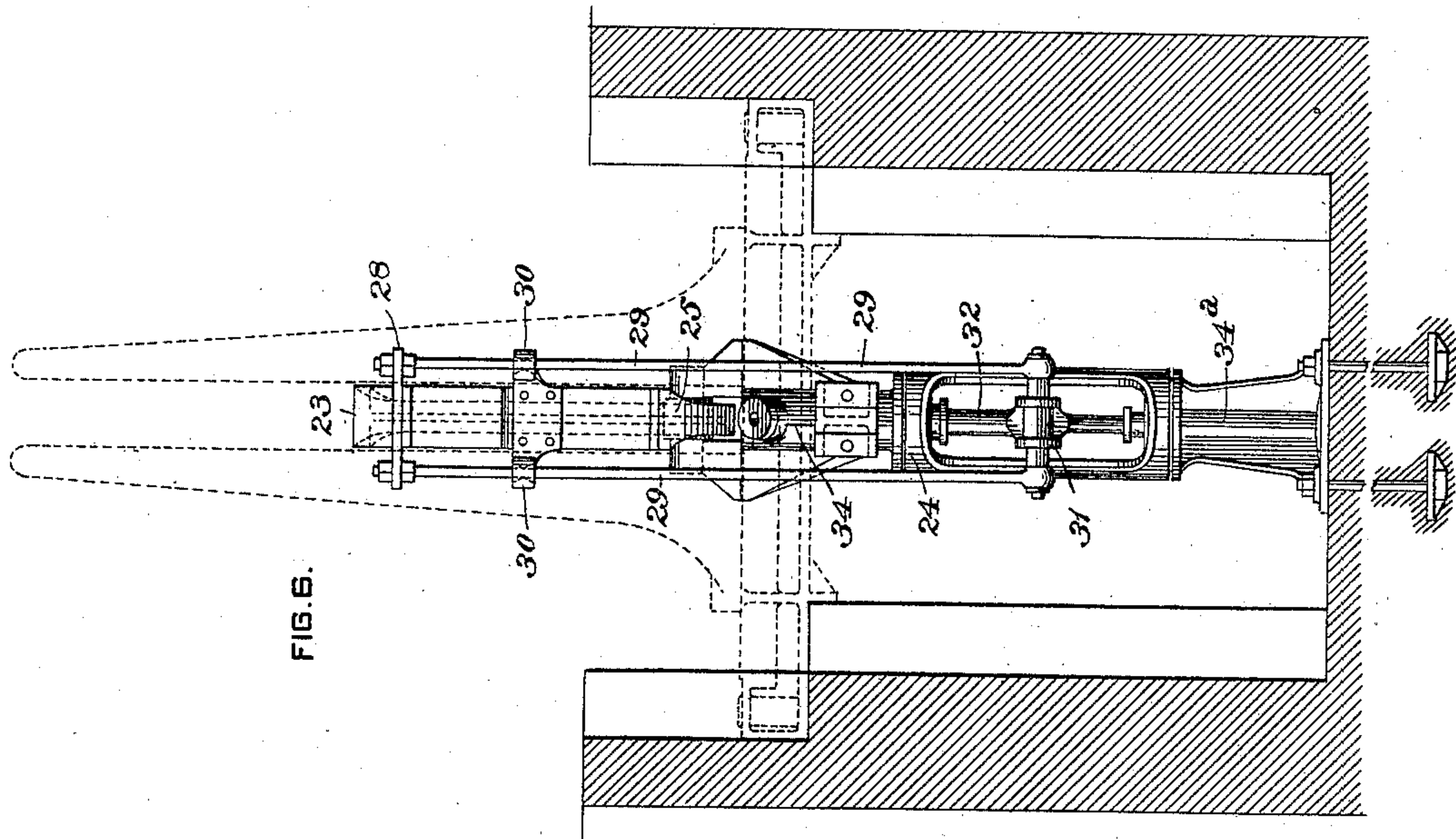


FIG. 6.

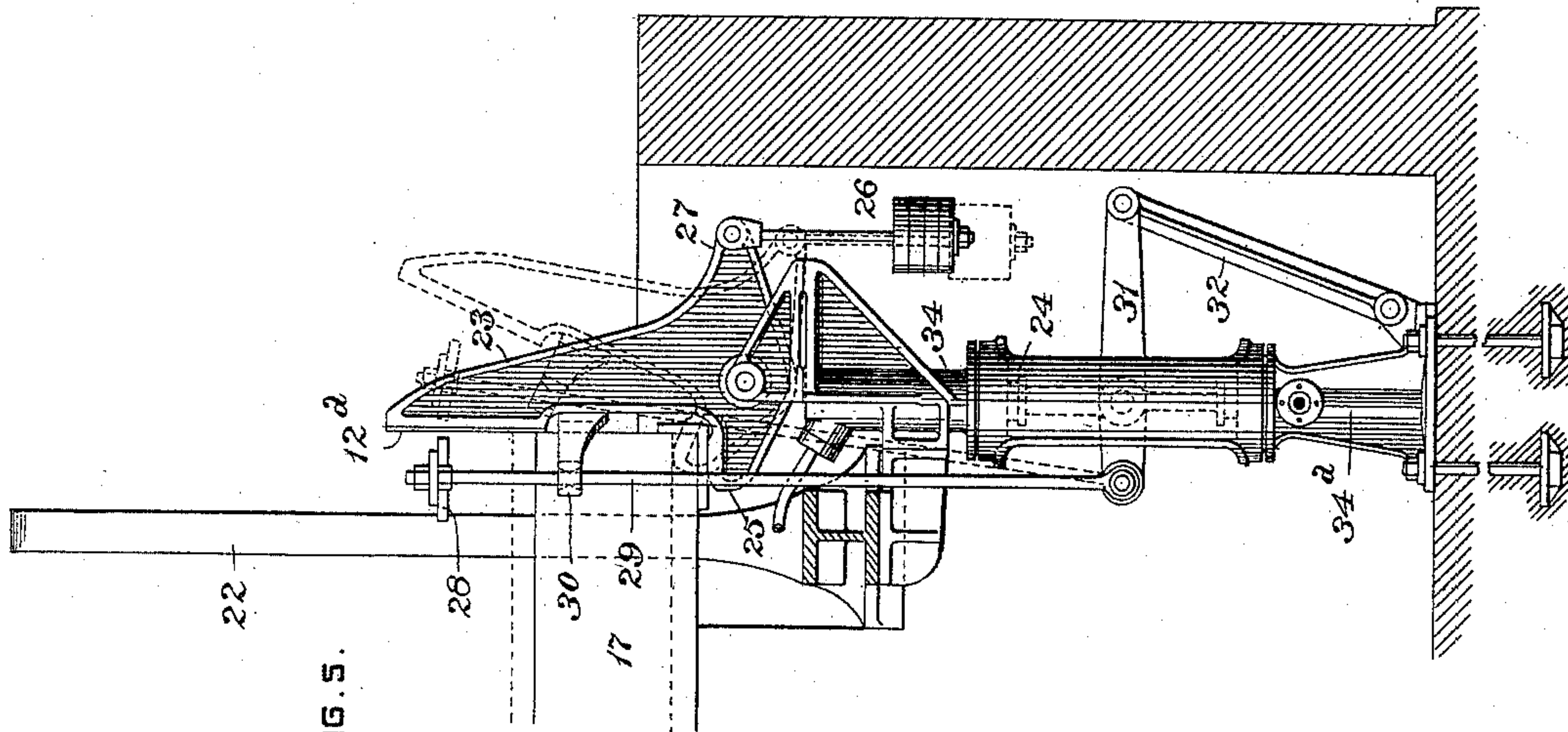


FIG. 5.

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UNITED STATES PATENT OFFICE.

LINCOLN A. TREAT, OF YOUNGSTOWN, OHIO, ASSIGNOR TO THE OHIO STEEL COMPANY, OF SAME PLACE.

BAR-PILING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 610,749, dated September 13, 1898.

Application filed April 22, 1898. Serial No. 678,471. (No model.)

To all whom it may concern:

Be it known that I, LINCOLN A. TREAT, a citizen of the United States, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented or discovered certain new and useful Improvements in Bar-Piling Mechanism, of which improvements the following is a specification.

The invention described herein relates to certain improvements in bar-piling mechanism.

It is now the general practice to arrange bars as they come from the cutting mechanism and while in a hot condition in a pile one upon the other. This arrangement of the hot bars prevents to a very considerable extent the oxidation of the surfaces of the bars. The bar-piling mechanism now in general use is so constructed and arranged with reference to the delivering-table of the cutting mechanism that the bars are slid longitudinally upon preceding bars. As the present mill practice requires a rapid movement of the bars, the latter are moved with considerable velocity, so that when they are stopped by the abutment at the rear end of the piling-frame the forward ends of the bars, which are hot, are buckled and bent. This bending or buckling prevents the bars from lying compactly or closely one upon the other and therefore permits of the access of air and the consequent oxidation of the surfaces.

The object of the present invention is to provide for the straightening of the bent or buckled portions of the bars and also to provide for the easy removal of a pile of bars.

In the accompanying drawings, forming a part of this specification, Figure 1 is a top plan view of a bar-piling mechanism constructed in accordance with my invention. Fig. 2 is a view partly in side and partly in end elevation of the same. Fig. 3 is a transverse section, the plane of section being indicated by the line III III, Fig. 1. Fig. 4 is a side elevation of a portion of a form of bar-piling mechanism having my improved straightening mechanism applied thereto. Fig. 5 is a sectional elevation of the same, showing the position of the parts when the receiving cage or frame is raised; and Fig. 6 is a front elevation of the straightening mechanism.

At the end of the feed-table A leading from the shear mechanism are arranged a pair of rolls 1, one or both of which are positively driven, and the upper roll is forced downwardly by springs 2, so as to obtain a firm grip by the rolls on the bar. The employment of a pair of gripping-rolls at this point is desirable, as the frictional resistance presented by the bar sliding over the surface of the preceding bar is considerable, so that at times the frictional grip of the ordinary feed-rollers on which the article rests would not be sufficient to effect a movement of the bar. In the rear of the feed-rollers 1 and at suitable distances therefrom I arrange one or more rails 3 at right angles to the path of movement of the article as fed by the rollers 1, and on these rolls I place the wheels 4 of the trucks 5. On these trucks are secured supporting frames or beds 6 and 6^a, carrying the cages or frames for the bars. The cages or frames are formed by bottom plates 7 7^a and side plates 9 and 9^a. The bottom plates may be made continuous, if desired; but it is preferred to form them in sections, as shown, the forward end of each section being downwardly curved, so that they will not present any obstruction to the onward movement of the bars.

A series of posts or standards 8 and 8^a are secured to opposite sides of the beds 6 and 6^a and project above the bottom plates 7 and 7^a. The side plates 9 and 9^a are secured to these standards above the bed-plates and serve to laterally retain the bars in position. In order that the forward ends of these side plates may not present any obstacle to the onward movement of the bars, they are curved outwardly, as shown in Fig. 1. These receiving cages or frames can be shifted laterally into and out of line with the feed-rollers 1 by any suitable form or construction of mechanism—such, for example, as that shown, consisting of fluid-pressure cylinders 10 and 10^a, arranged on opposite sides of the cages or frames and having their piston-rods or rams connected to the frames, as shown. In such a construction one of the cages or frames after having received a sufficient number of bars can be shifted out of line of feed of the rollers 1 and the other frame simultaneously

shifted into receiving position. While the second frame or cage is being charged the pile of bars can be removed from the other frame by a crane or any other suitable means.

5 An abutment 12 is arranged in the line of feed of the bars as they come from the feed-rollers 1 to serve as a stop to the onward movement of the bars. As hereinbefore stated, the bars are moved with such velocity into the cages
10 or frames that their forward ends are buckled up by striking against the stop or abutment 12, so that they will not lie closely against or upon the preceding bar, and the succeeding bar will be raised in similar manner. In or-
15 der to flatten out the ends of the bars and cause them to lie closely one upon the other, a power-driven hammer is so arranged with relation to the stop 12 that the ends of the bars when buckled can be easily and quickly
20 hammered down to form a close compact pile.

In the construction shown in Figs. 1 and 2 the stop or abutment 12 is formed by a stand-
ard or upright 13, secured upon a suitable foundation in proper relation to the rear ends
25 of the cages when in the line of feed of the rollers 1. A fluid-pressure cylinder 14 is se-
cured to the upper end of the post or stand-
ard, so that its axis will be in line with the rear ends of the bars as they abut against the
30 stop 12. To the piston of this fluid-pressure cylinder is secured a suitably-shaped head 15. It will be readily understood that by the op-
eration of the piston with its hammer-head the ends of the bars may be quickly and eas-
35 ily hammered down straight.

As shown in Figs. 4, 5, and 6, my improved straightening mechanism can be applied to a form of bar-piling mechanism now in use. Generally stated, this bar-piling mechanism
40 consists of a frame 17, supported upon the rams or piston-rods of fluid-pressure cylin-
ders 18, whereby the frame can be raised and lowered as required. This frame is formed
by a series of vertical standards 19, which
45 have side plates secured thereto for the pur-
pose of laterally retaining the bars in posi-
tion. The cage or frame thus constructed is designed to be lowered to receive the bars from the feed-rollers 1 and when a sufficient
50 number has been charged therein to be raised for the removal of the bar-piles, which are held in position by stops 21, mounted upon the guide-standards 22.

At the rear end of the cage or frame a stop
55 or abutment is formed by a bracket 23, piv-
otally mounted in suitable bearings formed on the post or standard 24. On its front side this bracket is provided with a toe or projec-
tion 25, adapted to project under the rear end
60 of the cage or frame, which serves to hold the bracket in a vertical or operative position. The bracket is turned backward when the cage or frame is raised by means of a weight
26, connected to a rearward projection 27 on
65 the bracket. A hammer-head or plate 28 is secured to the upper end of bars 29, which pass through suitable guide-arms 30, secured

to the front of the bracket, and have their lower ends connected to the forked ends of a lever 31, which has its rear end pivotally con- 70
nected to a fulcrum-link 32, having its lower end loosely connected to the base of the frame or standard. This lever is connected at a point midway between its ends to the rod 33, which has its ends connected to the pistons 75
of fluid-pressure cylinders 34 and 34^a, which are formed integrally with or secured upon the frame or standard 24. As the bars are forced against the stop 12^a formed by the upper ends of the bracket their buckled or 80
bent ends can be straightened by the opera-
tion of the hammer-head 28. As soon as the cage or frame has been charged with the proper number of bars it is raised, so that the pile can be removed, as hereinbefore stated. 85
As the cage or frame is raised the bracket and the hammer-head will be moved by the weight 26 out of the line of movement of the rear ends of the bars. As the frame is low-
90 ered to operative or receiving position its rear end will strike against the toe or projection 25 on the bracket, thereby returning the bracket and the hammer-head to operative position.

I claim herein as my invention— 95

1. The combination of a bar-piling mech-
anism and a striking or pressing mechanism arranged in such relation to the bar-piling mechanism as to be operative to straighten
100 and flatten down bars fed into the piling mechanism, substantially as set forth.

2. The combination of a bar-piling mech-
anism, a striking or pressing mechanism ar-
ranged in operative relation to the piling mechanism, and means for shifting one of 105
said mechanisms, substantially as set forth.

3. The combination of one or more bar-re-
ceiving cages or frames, means for shifting the same, and a striking or pressing mech- 110
anism arranged in operative relation to the re-
ceiving cages or frames when in normal posi-
tion, substantially as set forth.

4. The combination of a bar-receiving cage
or frame, means for shifting the cage or frame,
a striking or pressing mechanism and means 115
controlled by the cage or frame for shifting
the striking or pressing mechanism out of
operative position, substantially as set forth.

5. The combination of a bar-receiving cage
or frame, means for raising and lowering the 120
cage or frame, a pivotally-mounted bracket
provided with a toe projecting under the rear
end of the cage or frame and adapted to auto-
matically drop away from the frame, a strik-
ing or pressing head movably mounted on the 125
bracket, an operating-motor and a flexible
connection from the motor to the striking or
pressing head, substantially as set forth.

In testimony whereof I have hereunto set
my hand.

LINCOLN A. TREAT.

Witnesses:

DARWIN S. WOLCOTT,
F. E. GAITHER.