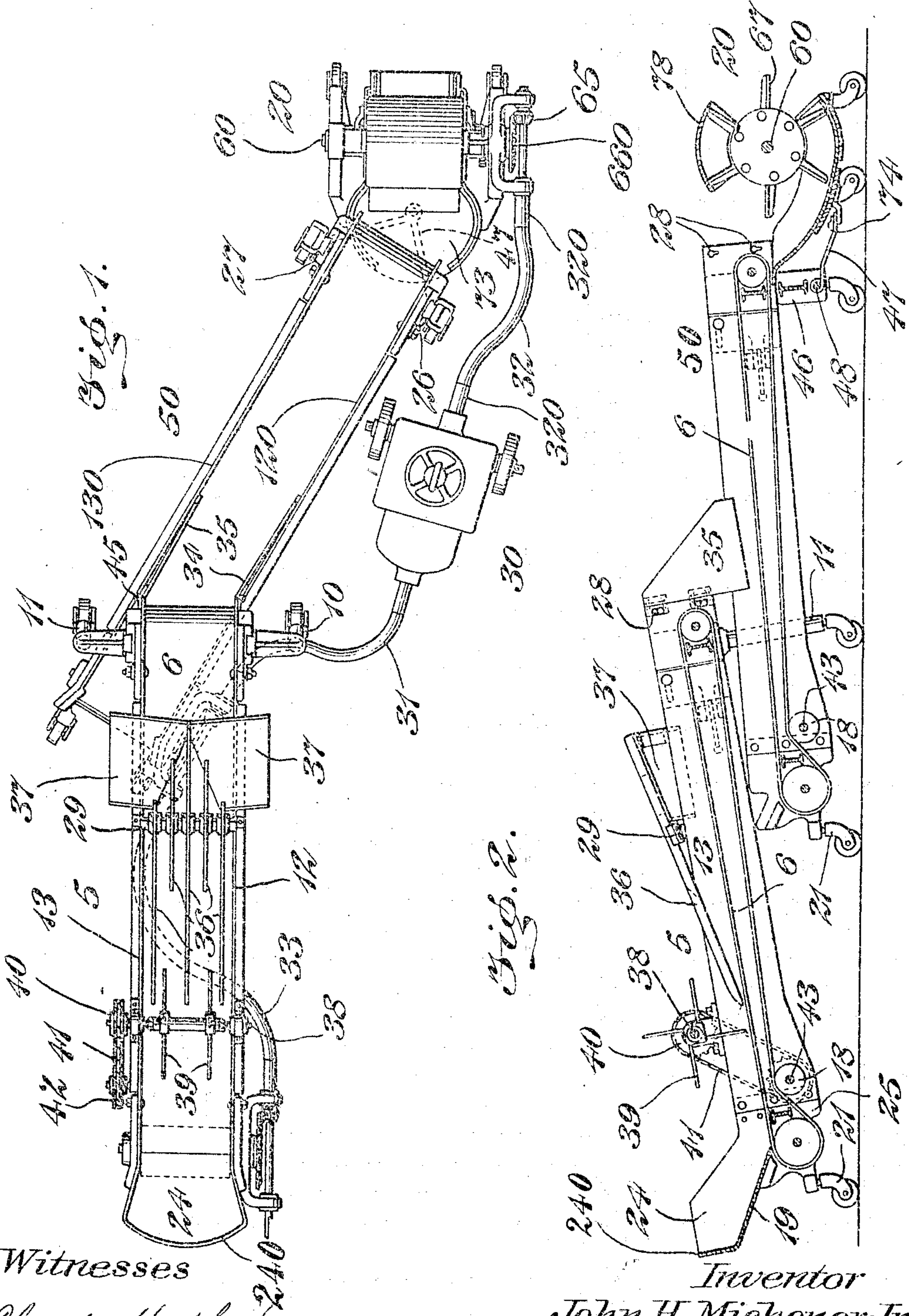


J. H. MICHENER, JR.
 TRIMMING MECHANISM.
 APPLICATION FILED MAY 28, 1908.

929,619.

Patented July 27, 1909.

4 SHEETS—SHEET 1.



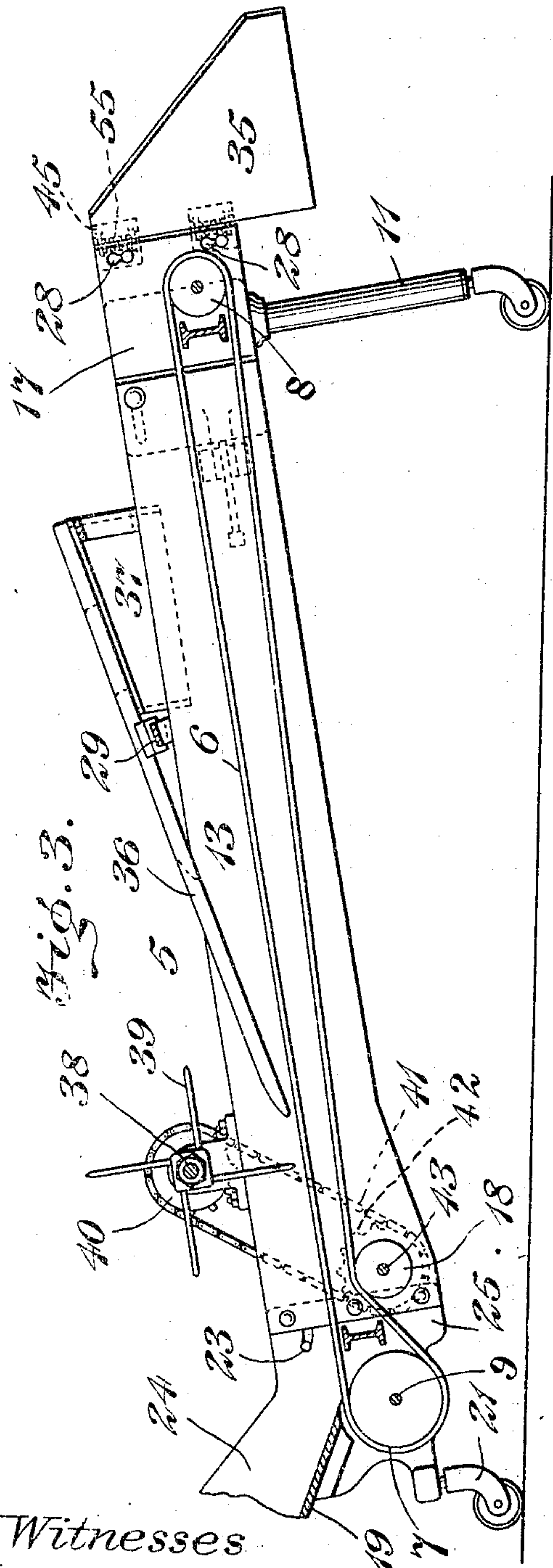
Witnesses
 Claude Hartford
 Chas. W. La Rue

Inventor
 John H. Michener Jr.
 By *Walter M. Stone*
 Attorney

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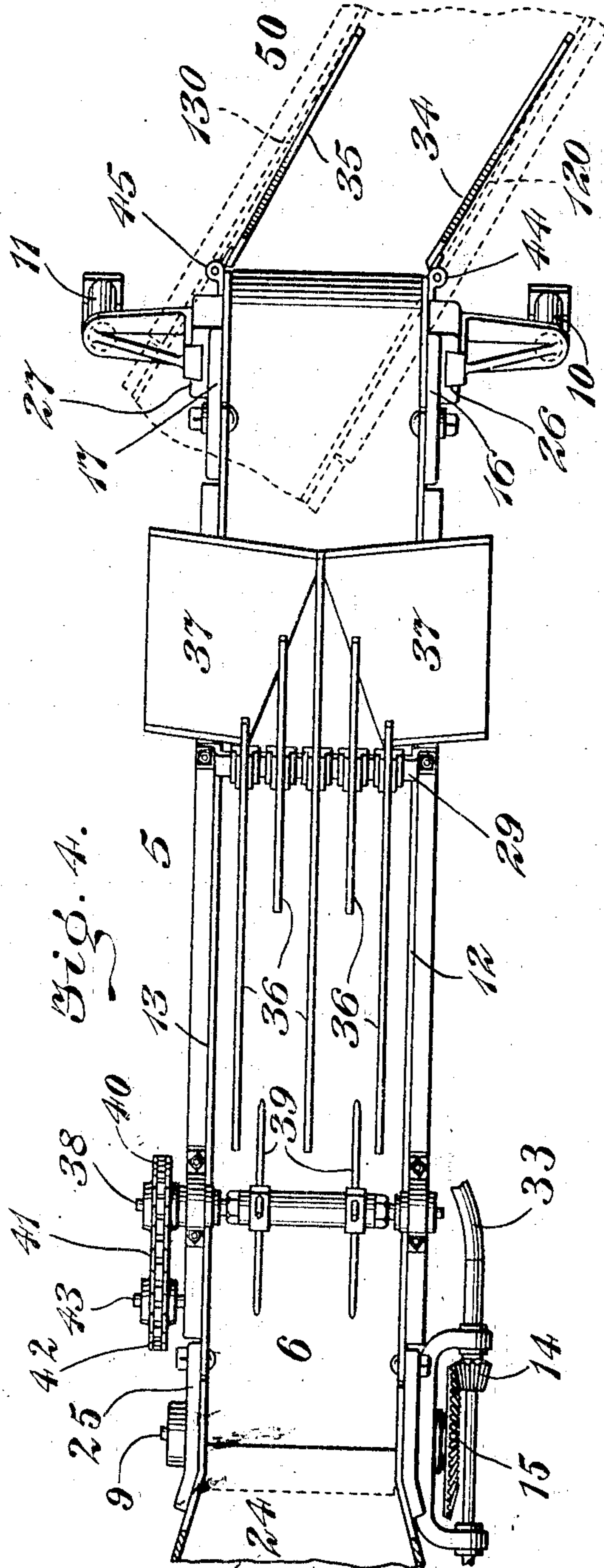
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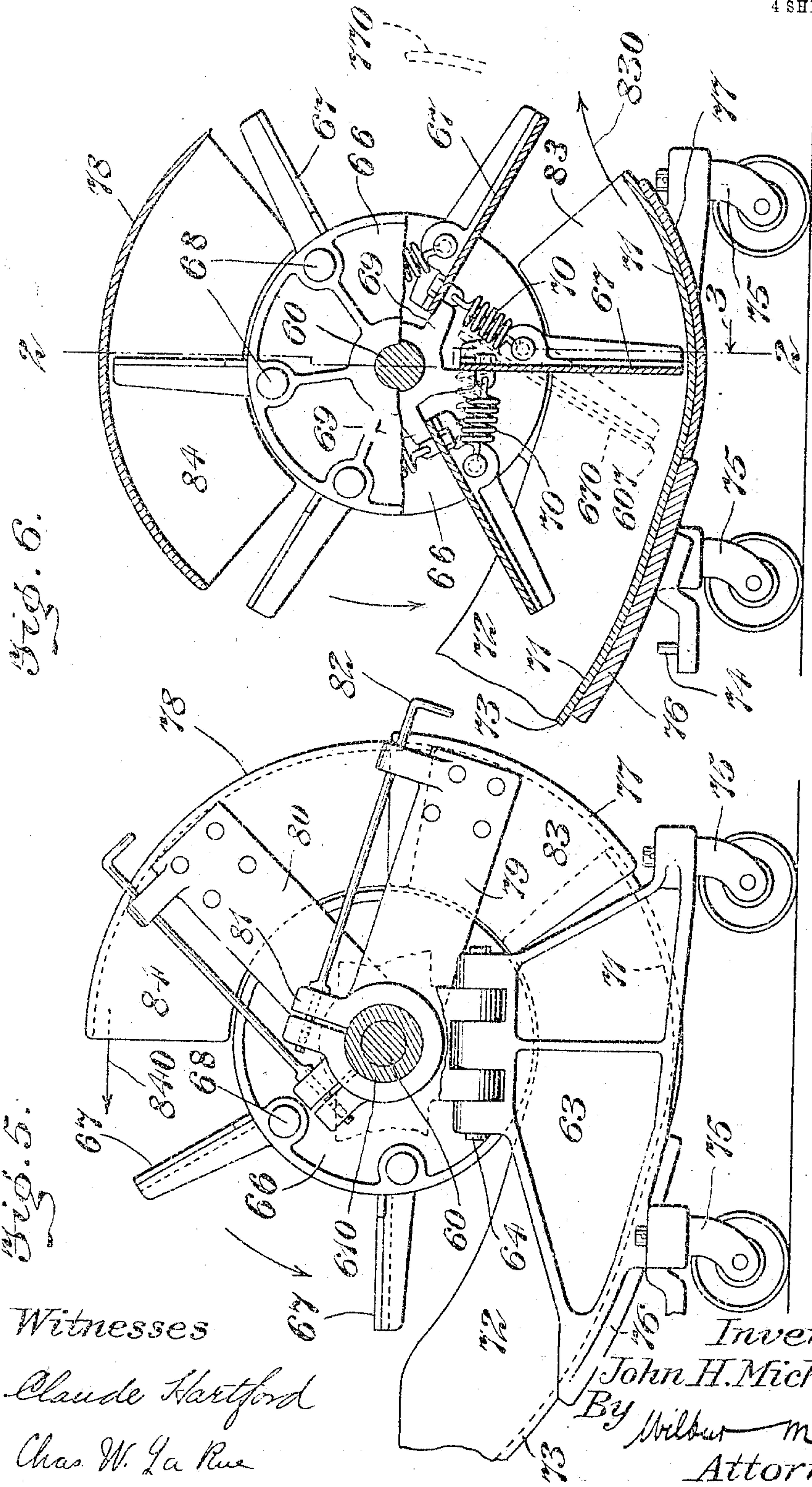
Inventor
 John H. Michener Jr.
 By *Wilbur M. Stone*
 Attorney

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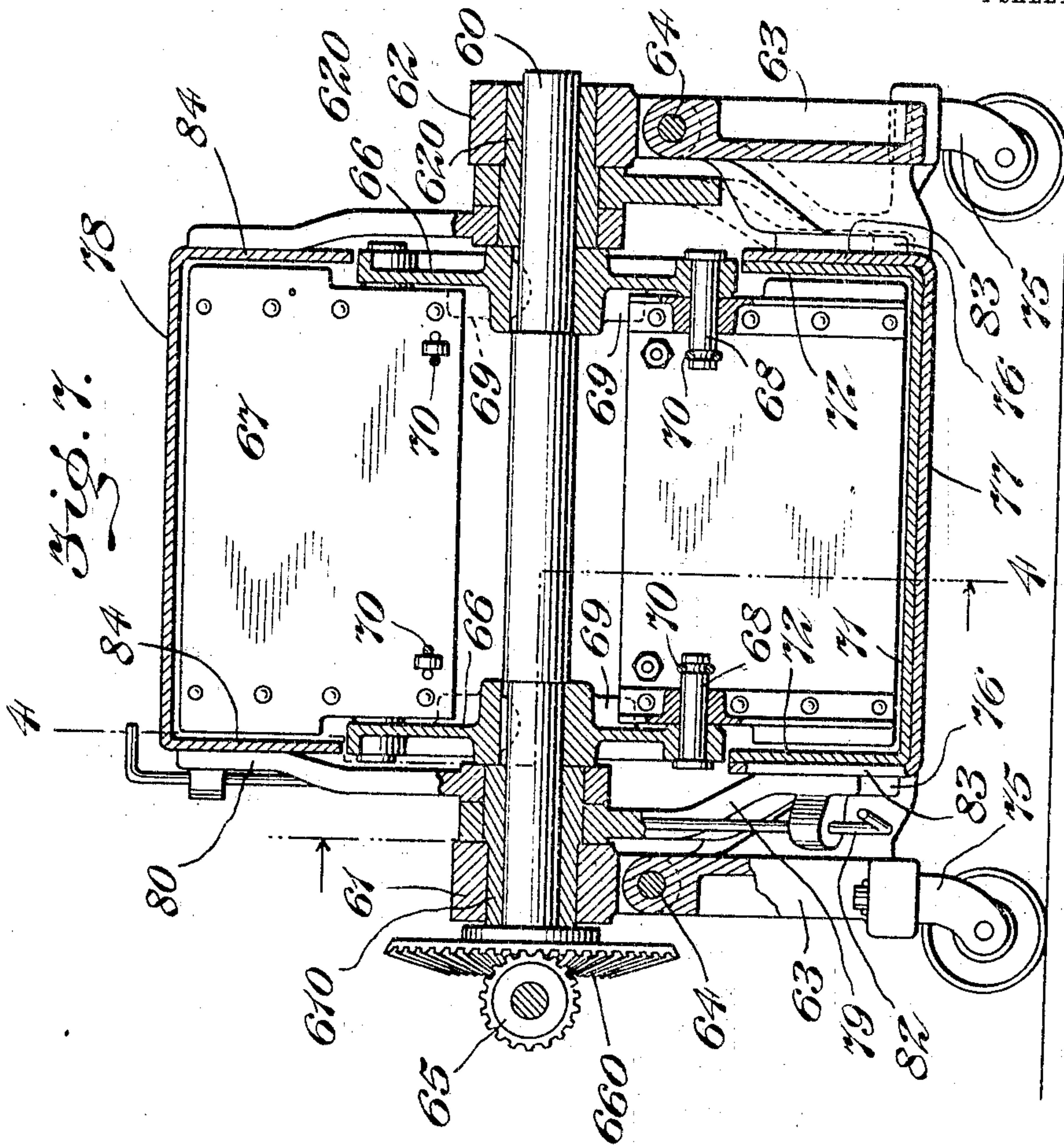
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Chas. W. La Rue

Inventor

John H. Michener Jr

By Wilbur M. Stone

Attorney

UNITED STATES PATENT OFFICE.

JOHN H. MICHENER, JR., OF NEW YORK, N. Y., ASSIGNOR TO MICHENER STOWAGE COMPANY,
OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

TRIMMING MECHANISM.

No. 929,819.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed May 28, 1908. Serial No. 435,545.

To all whom it may concern:

Be it known that I, JOHN H. MICHENER, Jr., a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Trimming Mechanism, of which the following is a specification.

This invention relates to trimming mechanism and particularly to that class thereof which is portable and adapted for introduction through the coaling ports of ships for use in the bunkers thereof.

In the drawings accompanying this specification is illustrated one embodiment and which may be the preferred embodiment, of my invention. Therein—

Figure 1 is a plan view showing the whole apparatus with the parts thereof in operative position relative to each other. Fig. 2 is a side elevation with front plates removed, corresponding approximately with Fig. 1. Fig. 3 is a side elevation, with front plate removed, on a larger scale, of one element of the conveyer portion of my apparatus and Fig. 4 is a plan view corresponding with Fig. 3. Fig. 5 is a side elevation, with the front frame removed, of the rotary shovel element of my apparatus and Fig. 6 is a vertical section on line 4, 4 of Fig. 7. Fig. 7 is a vertical section on line 2, 2 of Fig. 6 and looking in the direction of arrow 3.

While my improved apparatus is applicable to the handling of a variety of materials within a wide range of environment, I have chosen to illustrate it as applied to the particular use of handling coal such as is commonly used for stoking steamships and which comprises all sizes from large lumps to dust. I will therefore describe my improvements in their relation to this particular application.

General description.—In an apparatus for the general use specified, it is highly desirable that said apparatus be self contained including motive power, and that it be so portable as will allow of the various elements being readily shifted from bunker to bunker in a ship through the relatively small portholes usually provided for entrance to said bunkers. Mobility and extensibility of the apparatus are also highly desirable so as to readily de-

liver coal into any part of the bunker even though that bunker be of irregular shape and parts thereof relatively inconvenient of access. Also means for selecting and removing, preferably in the early part of their transit in such an apparatus, the larger lumps of coal so as to minimize the wear and tear on the shovel element thereof, are desirable features. Means for accomplishing these desirable ends are embodied in my improvements and comprise, first, one or more conveyer units indicated in a general way at 5 and 50 in Figs. 1 and 2, and 5 in Figs. 3 and 4. These conveyer units are in general alike and interchangeable from the position of unit 5 to that of 50 by the shifting of a few removable parts and the apparatus may be indefinitely extended by adding further units of the same character. Also unit 50 is arranged to allow its rear or receiving end to slide backwardly under the delivery end of the next rearward unit as 5 whereby the apparatus has a lengthwise mobility beyond that attained by adding or removing a conveyer unit as a whole. Also by providing sufficient room between forward supports 10, 11 of unit 5, the rearward end of unit 50 may be swung at a horizontal angle to said unit 5. Also by means of wings 34, 35, to be hereinafter more fully described, said unit 50 is constrained to swivel at some point in its length under the delivery end of unit 5.

The discharge element of my apparatus comprises a rotary shovel indicated in a general way by 20 and preferably having a plurality of blades and said shovel is mounted for free horizontal movement about a pivot carried by the last unit as 50 of my conveyer means. Power is preferably supplied from a portable motor of some convenient type and indicated in a general way at 30. Said power may be transmitted to the several elements of my device by means of flexible shafts as 31, 32. Said shafts may be provided with couplings as 328 so that the whole apparatus may be readily separated into handleable units. Power may be conveyed to said motor in the usual way by wires if the motor is electric or by flexible hose if the motor is a steam or compressed air motor.

Conveyer units.—I will first describe in de-

tail those features of the conveyer units which they have in common and in doing so will direct attention to unit 5 as best illustrated in Figs. 3 and 4. Therein an endless belt 6 is mounted on pulleys or drums 7, 8 between side plates 12, 13 of frame 25. Power may be supplied to drum 7 from flexible shaft 33 through bevel gear 14 thereon meshing with bevel gear 15 on shaft 9 of said drum 7. For taking up slack in belt 6 drum 8 may be mounted in slidable boxes 16, 17, and idle drum 18 adjacent to drum 7 is preferably supplied under the lower run of said belt for the support thereof. The rear end of said unit is supported on swivel casters as 21, mounted in frame 25 and the delivery end of said unit is provided with sockets 26, 27 for the reception of removable wheeled supports as 10, 11. The rear or receiving end of said unit is provided with seat 19 and latches as 23 for the reception and retention of a hopper as 24. Also the delivery end of said unit is provided with means such as sockets 28, 28 for the reception of the hinge members of swinging guides or wings 34, 35. All the features of the conveyer unit which have just been described are common to all conveyer units in my improved apparatus.

The following parts and devices are used only on the first unit 5. To wit, hopper 24 for the initial reception of the coal from hoisting bucket or elevator; the receiving lip 240 of this hopper may project outwardly from the bunker porthole if desired or delivery of coal thereto may be made through an auxiliary hopper not shown. Removably secured to side plates 12, 13 is cross bar 29 on which are supported blades 36 preferably alternately long and short and which blades serve as a screen for separating the larger lumps of coal from the general mass passing along on belt 6. Said blades are inclined upwardly from their receiving ends and said blades lie in close proximity to belt 6 so as to readily receive thereon such lumps of coal as are conveyed thereto. The central blade of blades 36 preferably extends upwardly and forwardly beyond the upper ends of the other blades 36 and said other blades are shorter and shorter at their upper ends as they near side plates 12, 13 whereby any lumps passing upwardly thereover will be discharged sidewise from said blades. Under the upper or discharge ends of said blades 36 are secured plates 37 inclined downwardly from under the center blade and extending over and beyond side plates 12, 13 whereby lumps discharged by rails 36 will be deflected and discharged sidewise outside of said conveyer. It is obvious that rails or blades may be substituted for plates 37 with equal efficiency. Also mounted on side plates 12, 13 is shaft 38 on which are fixed lifters or spiders 39 for assisting said lumps onto

blades 36 and forcing them upwardly thereover. Shaft 38 may be provided with sprocket 40 thereon and to which power may be communicated by means of chain 41 from sprocket 42 on any convenient rotating shaft as 43 of idle drum 18.

Removable wheeled supports 10, 11 are fitted to sockets 26, 27 respectively for supporting the delivery end of said unit 5. Removably hinged to the delivery ends of side plates 12, 13 are swinging guides or wings 34, 35 respectively, for deflecting the coal from belt 6 onto the next succeeding belt. Said wings are hinged vertically to the line of travel of the working face of belt 6 and the hinges 44, 45 thereof are provided with springs as 55 for urging the depending portions of said wings outwardly for engagement with side plates 120, 130 respectively. Said wings 34, 35 are also efficient to maintain the receiving portion of conveyer 50 in receiving position under the delivery end of conveyer 5. The only part that is used on the last unit as 50, that is not common to all the conveyer units, is forward wheeled carriage 46 and which carriage is removably attached to said unit 50 by means of sockets 26, 27 thereon. Said carriage 46 is provided with link 47 pivoted at 48 therein for engagement with rotary shovel 20.

Discharging means.—Referring now more particularly to Figs. 5, 6 and 7 the discharge element of my improved apparatus, indicated in a general way by 20 (Fig. 1), comprises a horizontal shaft 60 mounted in suitable bearings 61, 62 removably attached to frame 63 by lock pins 64, 64. Power is communicated from flexible shaft 32 through bevel gear 65 thereon to bevel gear 66 on shaft 60. Fixed to shaft 60 are two disks 66, 66 between which are pivotally mounted a plurality of shovel blades 67, 67. Said blades are pivoted on pins as 68, 68 and are normally held against stops 69, 69 on disk 66, 66 by means of pull springs 70, 70 all respectively. Said yieldable mounting of blades 67, 67 is provided so that when said blades strike lumps or other obstructions or encounter an overload they may yield backwardly relative to their direction of travel and thus temporarily relieve themselves, while springs 70 being thus put under increased tension will promptly restore said blades to their normal positions. Also it will be observed, see dotted position of blade at 670 Fig. 6, that said blades are so pivoted relative to shaft 60 that as they yield as shown and described their outer edges as 607 are lifted away from pan 71 thereby affording additional relief from undue strain both to the individual blades and to the shovel as a whole and to the driving mechanism therefor. If desired said blades 67, 67 may be pivoted by their inner edges directly to axis 60 and spring sustained all within the scope of my

invention, but the arrangement illustrated is preferred by me as having added advantages. Below and extending rearwardly from under shaft 60 and blades 67 thereon is pan 71 having sides 72, 72 upstanding therefrom. Said pan is fixed to cross plate 76 of frame 63. The rearward end 73 (Fig. 1) of said pan 71 is flared out into a receiving portion. Frame 63 is provided with a pivot ear 74 for engagement with link 47 of carriage 46 so that when rotary shovel 20 is swiveled in the horizontal plane, said portion 73 will always be in receiving position under the delivery end of conveyer 50. Carriage 63 may be provided with casters 75, 75 to facilitate said horizontal swiveling and its general movement.

For directing the discharge of shovel 20, I have supplied one or more shiftable deflector as 77, 78 pivotally mounted concentric with shaft 60, by means of arms as 79, 80 on sleeves 610, 620 unreaching from bearings 61, 62 all respectively. Said deflectors may be provided with sides as 83, 84 and may be secured in any desired position by means of clamps as 81 operated by levers as 82. By means of my improved arrangement including fixed pan 71 and shiftable deflectors 77, 78 the stream of material delivered by blades 67, 67 may be directed in the vertical plane from a forward direction slightly above the horizontal, see arrow 830 Fig. 6, to a rearward horizontal direction, see arrow 840 Fig. 5. When used as shown in Fig. 6 or with the front edge of deflector 77 raised to the position indicated by dotted lines at 770, deflector 78 is maintained in an idle position as shown in said Fig. 6. When it is desired to discharge rearwardly, deflector 78 is moved into operative position for coaction with deflector 77 and pan 71, as shown for instance in Fig. 5. By withdrawing lock pins 64, 64 the rotary portion of shovel 20 and the deflectors therefor may be removed from frame 63 and pan 71, to facilitate handling and the introduction to and removal from the bunker.

Having now described my improved apparatus, I claim:

1. The combination of an endless conveyer having sides thereon, a second conveyer having sides thereon and slidable under the first conveyer, wings pivoted to the delivery ends of the sides of the first conveyer and adapted for engagement with the sides of the second conveyer, all respectively, for maintaining a receiving portion of said second conveyer swivelably located under the delivery end of the first conveyer.
2. The combination of a substantially horizontal conveyer, a revoluble shovel mounted on a horizontal axis, said shovel being in substantially the same horizontal plane as the conveyer, a receiving pan under the shovel, said pan extending under the point of deliv-

ery of said conveyer and being so pivotally connected to said conveyer for horizontal movement as to maintain said pan always in receiving position relative to the delivery end of said conveyer.

3. The combination of a revoluble shovel, a fixed pan thereunder, a lower shiftable deflector for coaction with the fixed pan for varying the direction of discharge from said shovel, means for shifting the deflector and means for holding it in position, an upper shiftable deflector for coaction with said lower deflector and means for shifting said upper deflector and means for holding it in position.

4. The combination of a revoluble shovel, a fixed pan thereunder, a lower deflector shiftable about the axis of the shovel for coaction with the fixed pan for varying in the vertical plane the direction of discharge from said shovel, means for shifting said deflector and means for holding it in position, an upper deflector shiftable about the axis of the shovel for coaction with the lower deflector, means for shifting said lower deflector and means for holding it in position.

5. The combination of a revoluble shovel comprising a plurality of blades each so pivotally mounted near the axis of the shovel that as they swing on said pivots the outer edges of said blades will move inwardly from their normal path of revolution about the axis of the shovel and means for urging said blades to their normal positions all respectively; a fixed pan under said shovel, a lower shiftable deflector for coaction with the fixed pan for varying the direction of discharge from said shovel, means for shifting the deflector and means for holding it in position, an upper shiftable deflector for coaction with said lower deflector and means for shifting said upper deflector and means for holding it in position.

6. In a portable trimming mechanism an endless conveyer, a second endless conveyer shiftable lengthwise under the delivery end of the first conveyer and swivelable in the horizontal plane relative thereto, means for maintaining a receiving portion of said second conveyer under the delivery end of said first conveyer, means for guiding the material from the first conveyer onto the second conveyer, a revoluble shovel having a receiving pan thereunder, said pan extending under the delivery end of the last conveyer, means for maintaining said pan swivelably under said delivery end, means for actuating the conveyer and means for rotating the shovel.

7. In a portable trimming mechanism an endless conveyer, a second endless conveyer shiftable lengthwise under the delivery end of the first conveyer and swivelable in the horizontal plane relative thereto, means for maintaining a receiving portion of said sec-

ond conveyer under the delivery end of said
first conveyer, means for guiding the mate-
rial from the first conveyer onto the second
conveyer, a revoluble shovel having a sta-
5 tionary receiving pan thereunder, said pan
extending under the delivery end of the last
conveyer, means for maintaining said pan
swivelably under said delivery end, a deflec-
tor for coaction with the stationary pan, a
10 second deflector for coaction with the first

deflector, means for actuating the convey-
ers and means for rotating the shovel.

Signed this 25th day of May, 1908, in the
Park Row Building, New York, before two
subscribing witnesses.

JOHN H. MICHENER, JR.

Witnesses:

WILBER M. STONE,
CHAS. W. LA RUE.