

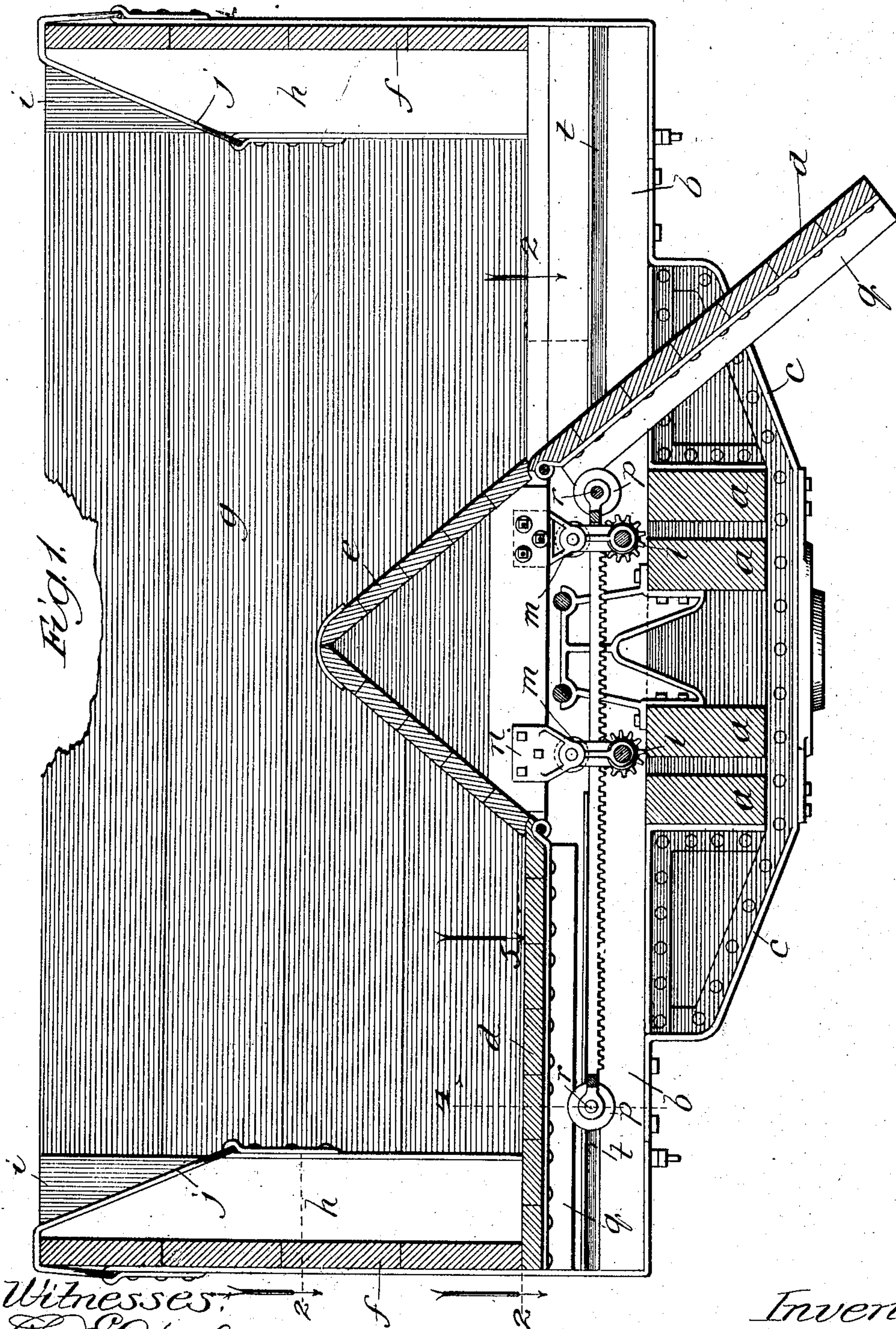
No. 780,759.

PATENTED JAN. 24, 1905.

S. OTIS.
DUMP CAR.

APPLICATION FILED JUNE 18, 1903.

4 SHEETS—SHEET 1.



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No. 780,759.

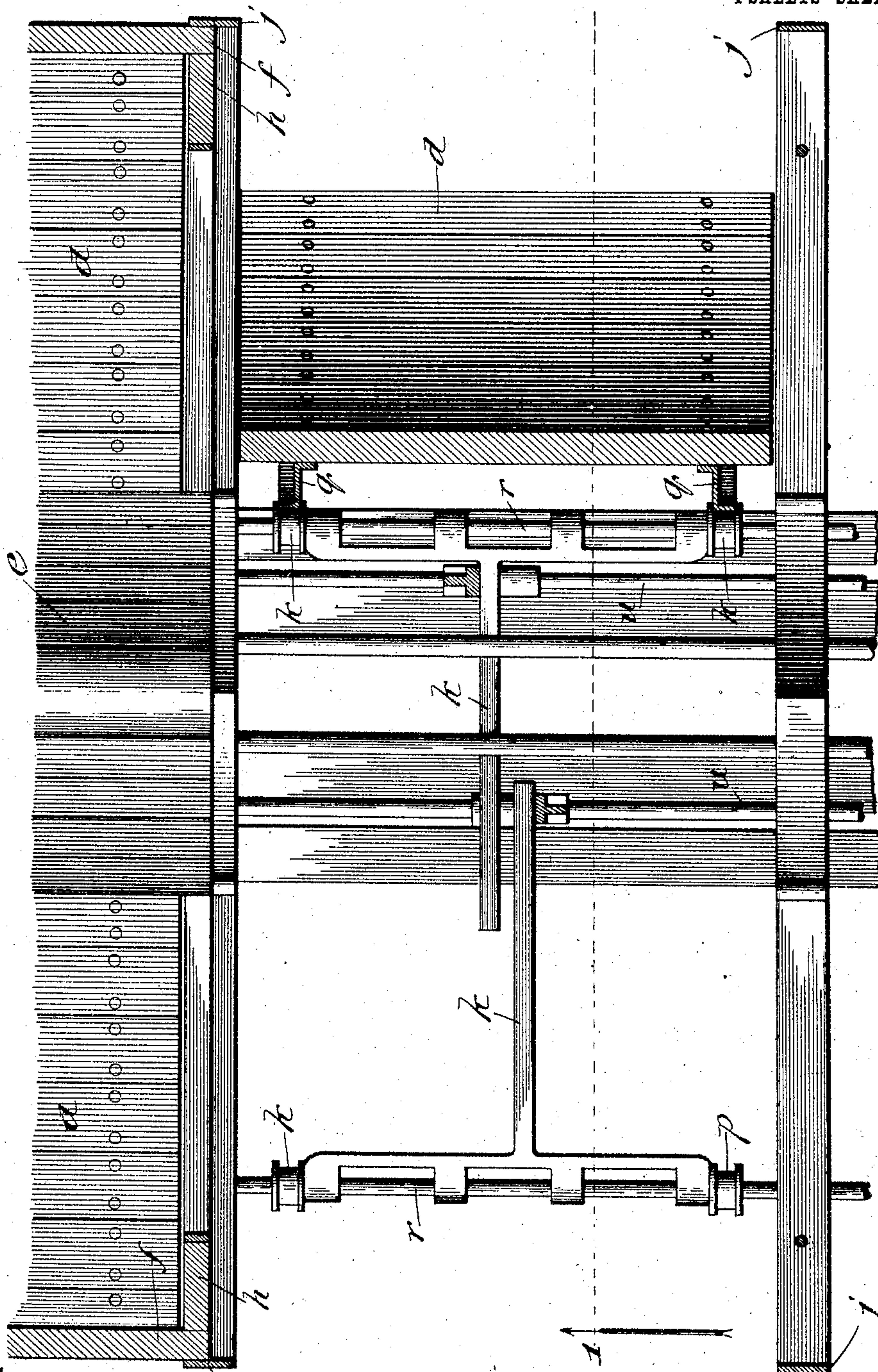
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4 SHEETS—SHEET 2.

Fig. 2.



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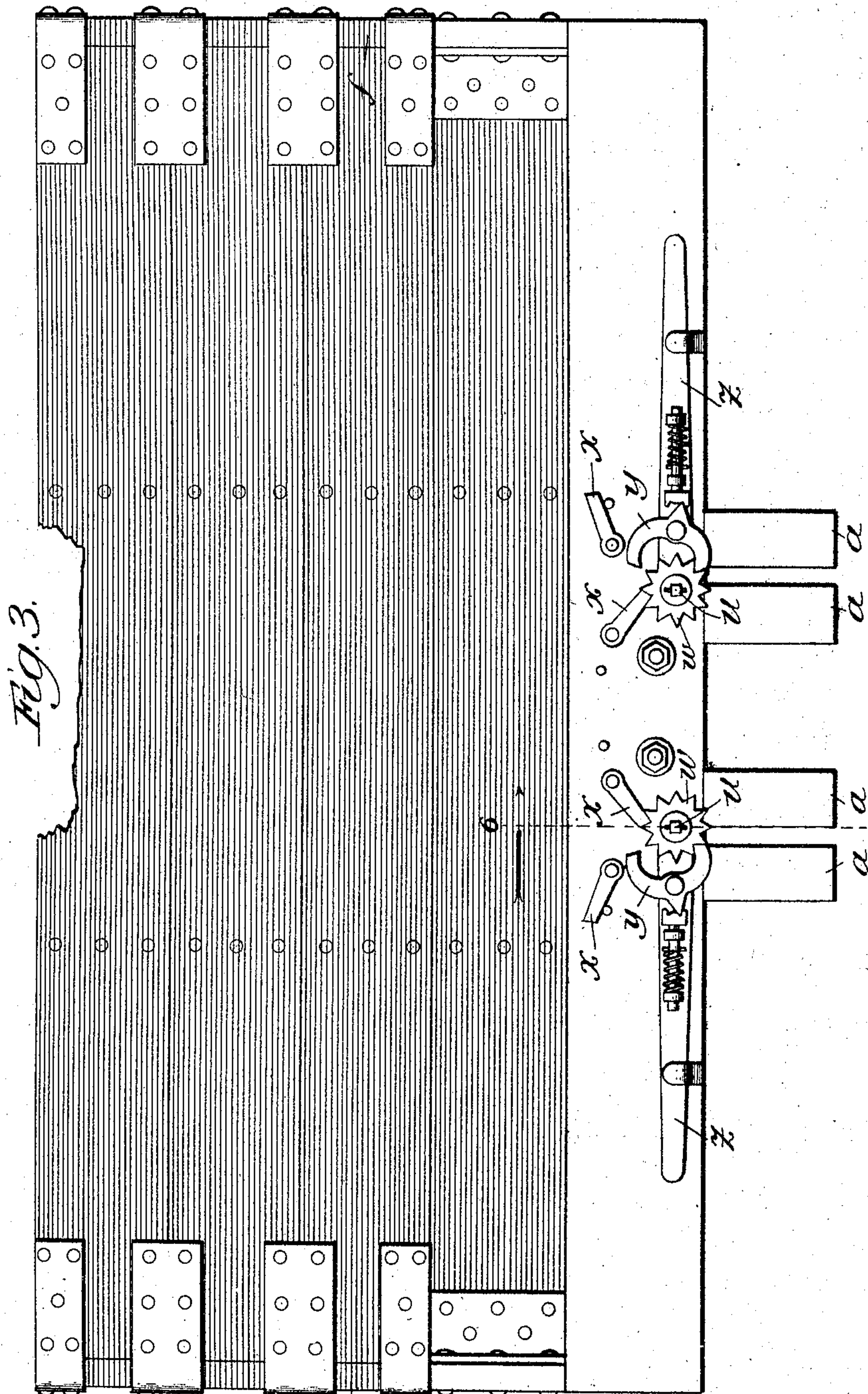
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4 SHEETS—SHEET 3.



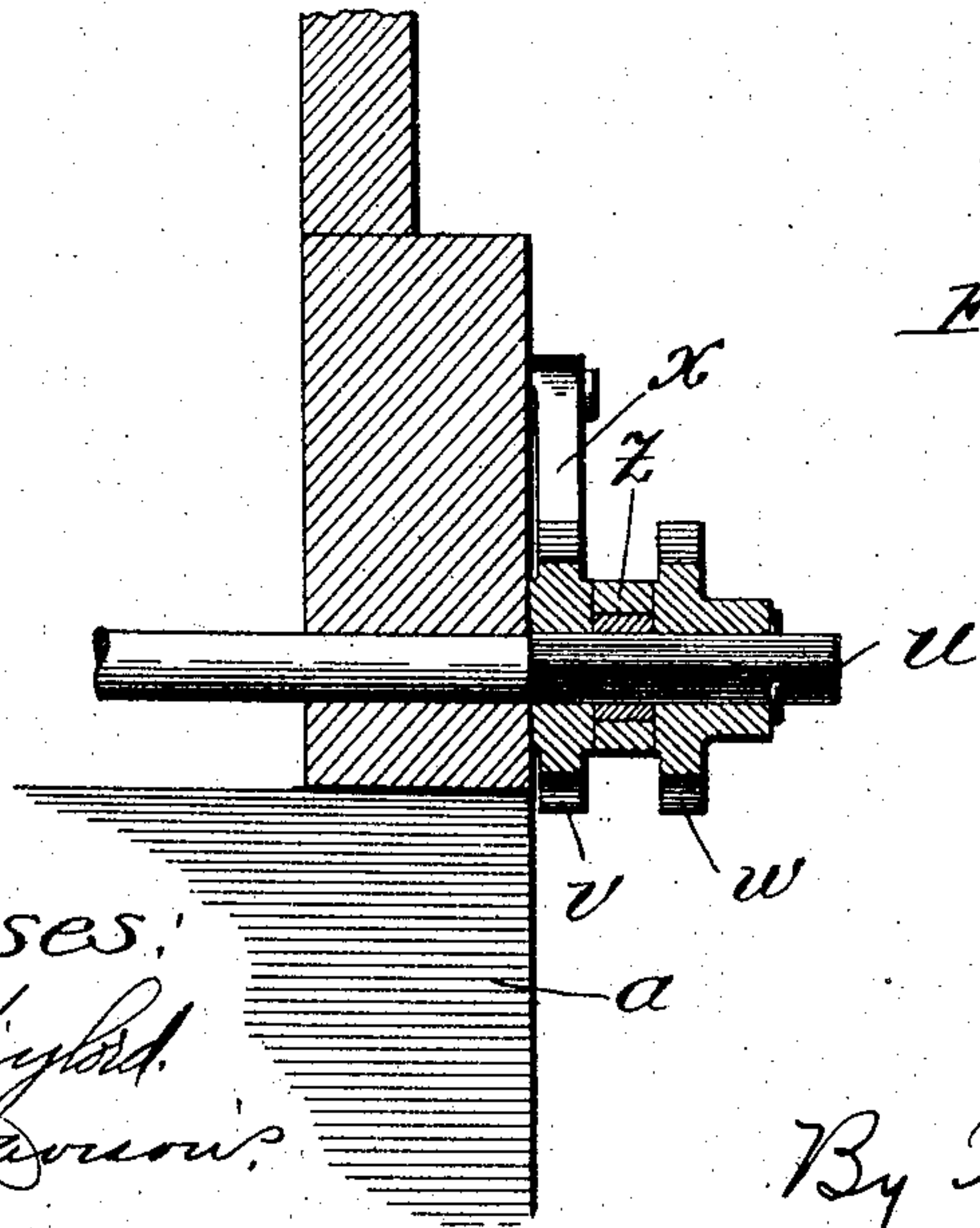
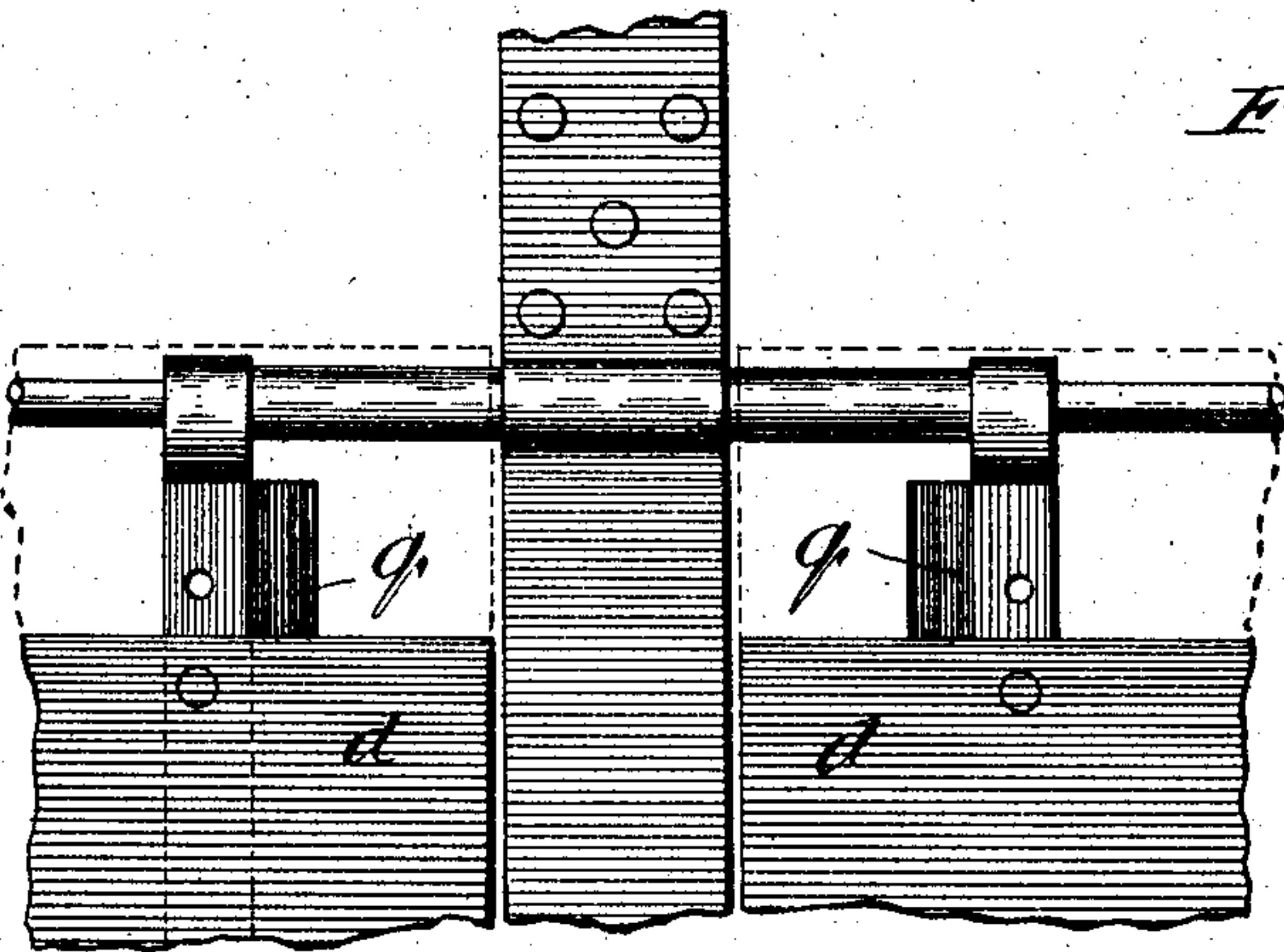
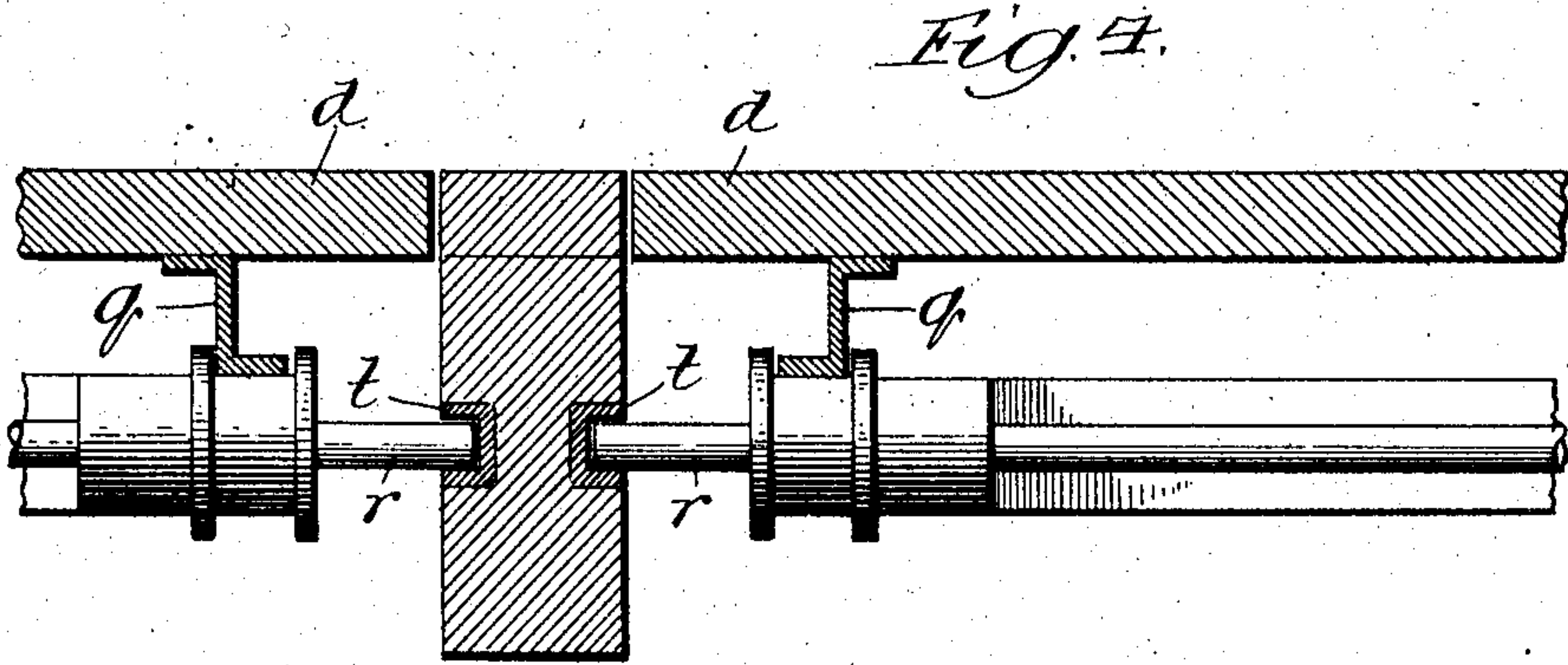
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S. OTIS.
DUMP CAR.

APPLICATION FILED JUNE 18, 1903.

4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

SPENCER OTIS, OF CHICAGO, ILLINOIS, ASSIGNOR TO NATIONAL COAL DUMP-CAR COMPANY, OF RAPID CITY, SOUTH DAKOTA, A CORPORATION OF SOUTH DAKOTA.

DUMP-CAR.

REISSUED

SPECIFICATION forming part of Letters Patent No. 780,759, dated January 24, 1905.

Application filed June 18, 1903. Serial No. 162,002.

To all whom it may concern:

Be it known that I, SPENCER OTIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have
5 invented certain new and useful Improvements in Dump-Cars, of which the following is a specification.

This invention relates to that class of freight-cars having a supporting-frame portion with
10 upwardly-extending side and end boards; and it relates more particularly to the parts which go to form a drop-bottom portion therefor with the means for opening and closing such drop-bottom portion, as will more fully hereinafter appear.

The principal object of this invention is to provide an efficient drop-bottom dump-car with simple mechanism for opening and closing the same.

20 Other objects of the invention will appear from an examination of the drawings and the following description and claims.

The invention consists principally in a car of this type in which there are combined a
25 supporting-frame portion, a drop-bottom portion therefor formed of a plurality of swinging sections pivotally secured thereto at each side of the longitudinal center of the car, a movable bar for and in engagement with each
30 of said swinging sections, and means reciprocating said bar mechanism to open and close said sections, substantially as described.

The invention consists, further, in the features, combinations, and details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a vertical cross-sectional elevation of one type of car as it appears when constructed in accordance with these improvements; Fig. 2, a
40 plan detail taken on the irregular lines 2, 2, and 2 of Fig. 1; Fig. 3, an end elevation of an end of the car; Fig. 4, a parti-sectional elevation taken on line 4 of Fig. 1; Fig. 5, a plan detail taken on line 5 of Fig. 1; and Fig. 6
45 a sectional detail in elevation, taken on line 6 of Fig. 3.

In illustrating and describing these improvements I have chosen a preferred type of

car—namely, a dump-car—to disclose the same and have only illustrated and will here describe that which I consider to be new taken
50 in connection with so much that is old as will properly disclose the invention to others and enable those skilled in the art to practice the same, leaving out of consideration other and
55 well-known elements, which if set forth herein would only tend to confusion, prolixity, and ambiguity.

In constructing a car in accordance with these improvements I make a supporting-
60 framework having a plurality of center sills *a* extending longitudinally of the car from end to end and on which are laid a plurality of transverse deck-beams *b*, which extend entirely across the car from side to side. This
65 structure dispenses with the usual draft-timbers and provides for a car which may be made lower than the usual type of car. A body-bolster *c* may be provided, as shown in Fig. 1, extending out from and underneath
70 both center sills and transverse deck-beams.

To form a drop-bottom for this type of car, a plurality of swinging sections *d* is provided and pivotally secured to the supporting-framework of the car at their inner edges and at
75 each side of the longitudinal center, which in connection with the central apex portion *e* serves to discharge a load of bulky freight whenever occasion requires.

The drawings show the superstructure of
80 the car as provided with side-boards *f* and end-boards *g*, held in position by means of the side stakes *h* and end posts *i*, and may or may not be provided with the straps *j*, as required by different circumstances and conditions. To open and close the drop-bottom
85 portion whenever desirable or necessary, a plurality of rack-bars *k* is provided and supported partially upon the pinion mechanism *l* and between such mechanism and idler-rolls
90 *m*, both of which parts are rotatably mounted in brackets *n*, that are secured to the supporting-framework of the car. The forward part of these rack-bars is provided at or near
95 each lateral edge with antifriction-wheels which engage with metallic Z-bars *q* on the

under side of each swinging section, so that as the rack-bars are reciprocated the antifric-
 tion-rolls bearing against the Z-bar tracks
 of the swinging sections will act to close such
 5 swinging sections, as shown to the left of Fig.
 1, or permit them to be opened, as shown to
 the right of such figure. To support such
 rack-bars in position, the forward portions
 are preferably provided with shafts or rods *r*,
 10 though they may be formed or cast integral
 with said rack-bars, so that the lateral edges
 of said bars or the ends of the rods engage
 with supporting-tracks *t*, arranged in the side
 faces of the transverse deck-beams, all of
 15 which, as above suggested, acts to support the
 forward part of the reciprocating rack-bars.

The pinions which reciprocate the rack-bars
 are mounted upon shafts *u*, the ends of which
 project from the end sills of the car, as shown
 20 particularly in Figs. 3 and 6, and are squared,
 as therein shown, to receive the end of a socket
 wrench or key by which such shafts and the
 spur-pinions are rotated. The ends of these
 shafts are provided with star-wheels *v* and
 25 *w*, with the first of which a pawl or pawls *x*
 may engage to permit the shafts to be rotated
 in either direction, while with the other a
 spring-pressed click *y* of an operating-lever
z may engage, all of which permits the shafts
 30 to be wound or rotated in the desired direc-
 tion.

I claim—

1. In a car of the class described, the combi-
 nation of a supporting-frame portion, a drop-
 35 bottom therefor formed of a plurality of
 swinging sections pivotally secured thereto,
 a reciprocating rack-bar for and in engage-
 ment with each swinging section, and pinion
 mechanism for reciprocating said rack-bar
 40 and thereby opening and closing the swinging
 sections, substantially as described.

2. In a car of the class described, the combi-
 nation of a supporting-framework provided
 with a drop-bottom formed of a plurality of
 45 swinging sections pivotally secured thereto at
 each side of the longitudinal center, a recip-
 rocating rack-bar having a bearing portion at
 each forward lateral edge in the framework
 of the car and contacting the under side of
 50 each swinging section, and pinion mechanism
 for reciprocating said bar, substantially as
 described.

3. In a car of the class described, the combi-
 nation of a supporting-framework provided
 55 with transverse beams, a drop-bottom there-
 for formed of a plurality of swinging sections
 pivotally secured to the framework at each
 side of the longitudinal center, track mechan-
 ism supported in the supporting-framework
 60 of the car, a movable rack-bar having the for-
 ward lateral edges thereof running in the
 tracks on the supporting-framework and con-
 tacting the under surface of each swinging
 section, and pinion mechanism for reciprocating
 65 said rack-bars and thereby opening and

closing the swinging sections, substantially as
 described.

4. In a car of the class described, the combi-
 nation of a supporting-framework provided
 with a plurality of transverse deck-beams, a
 70 drop-bottom portion formed of a plurality of
 swinging sections pivotally secured at their
 inner edges to the supporting-framework at
 each side of the longitudinal center, a rack-
 bar for each and every swinging section pro- 75
 vided with projections at its forward lateral
 edges and antifriction-rollers thereon contact-
 ing the under portion of each swinging sec-
 tion, pinion mechanism for each rack-bar to
 reciprocate the same, and track mechanism on 80
 the deck-beams engaging the forward lateral
 edges of the rack-bar so as to keep the same
 in contact with the under portion of the swing-
 ing sections to open and close the same, sub-
 85 stantially as described.

5. In a car of the class described, the combi-
 nation of a supporting-framework provided
 with a plurality of transverse deck-beams, a
 drop-bottom for such car formed of a plurality
 of swinging sections pivotally secured to the 90
 supporting-framework between the deck-
 beams and at each side of the longitudinal
 center of the car, track mechanism on the un-
 der surface of each swinging section, a rack-
 bar movably mounted in the supporting-frame- 95
 work of the car and provided at its forward
 portion with antifriction-wheels engaging the
 tracks on the under surface of the swinging
 sections, and pinion mechanism for recipro- 100
 cating such racks to open and close the swing-
 ing sections, substantially as described.

6. In a car of the class described, the combi-
 nation of a supporting-framework provided
 with a plurality of transverse deck-beams, a
 drop-bottom for such car formed of a plurality 105
 of swinging sections pivotally secured to the
 supporting-framework between the deck-
 beams and at each side of the longitudinal
 center of the car, track mechanism on the un- 110
 der surface of each swinging section, a rack-
 bar movably mounted in the supporting-
 framework of the car and provided at its for-
 ward portion with antifriction-wheels engag-
 ing the tracks on the under surface of the
 swinging sections, pinion mechanism for re- 115
 ciprocating such racks to open and close the
 swinging sections, roll mechanism between
 which and the pinion mechanism the rack-bars
 are movably mounted and held in position,
 and track mechanism secured to the trans- 120
 verse deck-beams for holding the forward por-
 tion of the rack-bars in operative position, sub-
 stantially as described.

7. In a car of the class described, the combi-
 nation of a supporting-framework formed of 125
 a plurality of longitudinal center sills, a plu-
 rality of transverse deck-beams laid on the
 center sills and extending entirely across the
 car, floorwork arranged at the upper part of
 the transverse deck-beams, a plurality of doors 130

forming the dumping-bottom portion of such car, and means for operating such dumping-doors, substantially as described.

8. In a car of the class described, the combination of a plurality of center sills extending continuously from end to end of the car, a plurality of deck-beams laid thereon, extending continuously across the car from side to side, a floor portion at the upper part of the deck-beams, sides frames mounted upon the outer ends of and supported by such deck-beams, a dumping-bottom portion formed of a plurality of swinging sections, and means for operating such swinging sections, substantially as described.

9. In a car of the class described, the combination of a supporting-framework provided with a plurality of center sills extending longitudinally of the car from end to end, a plurality of transverse deck-beams laid on the upper part of such center sill and extending entirely across the car from side to side there-

of, a drop-bottom or floor portion formed of a plurality of swinging sections pivotally secured to the supporting-framework of the car at each side of the longitudinal center and at or near the upper part of and between the transverse deck-beams, metal bars secured to the under side of each swinging section so as to form track mechanism, rack-bars reciprocatingly mounted in the supporting-framework of the car and provided with antifriction-roll mechanism engaging the tracks of the swinging sections, pinion mechanism for reciprocating such rack-bars, and track mechanism secured to the side faces of the transverse deck-beams to hold the forward portion of the rack-bars and thereby the antifriction-rolls in operative engagement with the swinging sections, substantially as described.

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Witnesses:

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