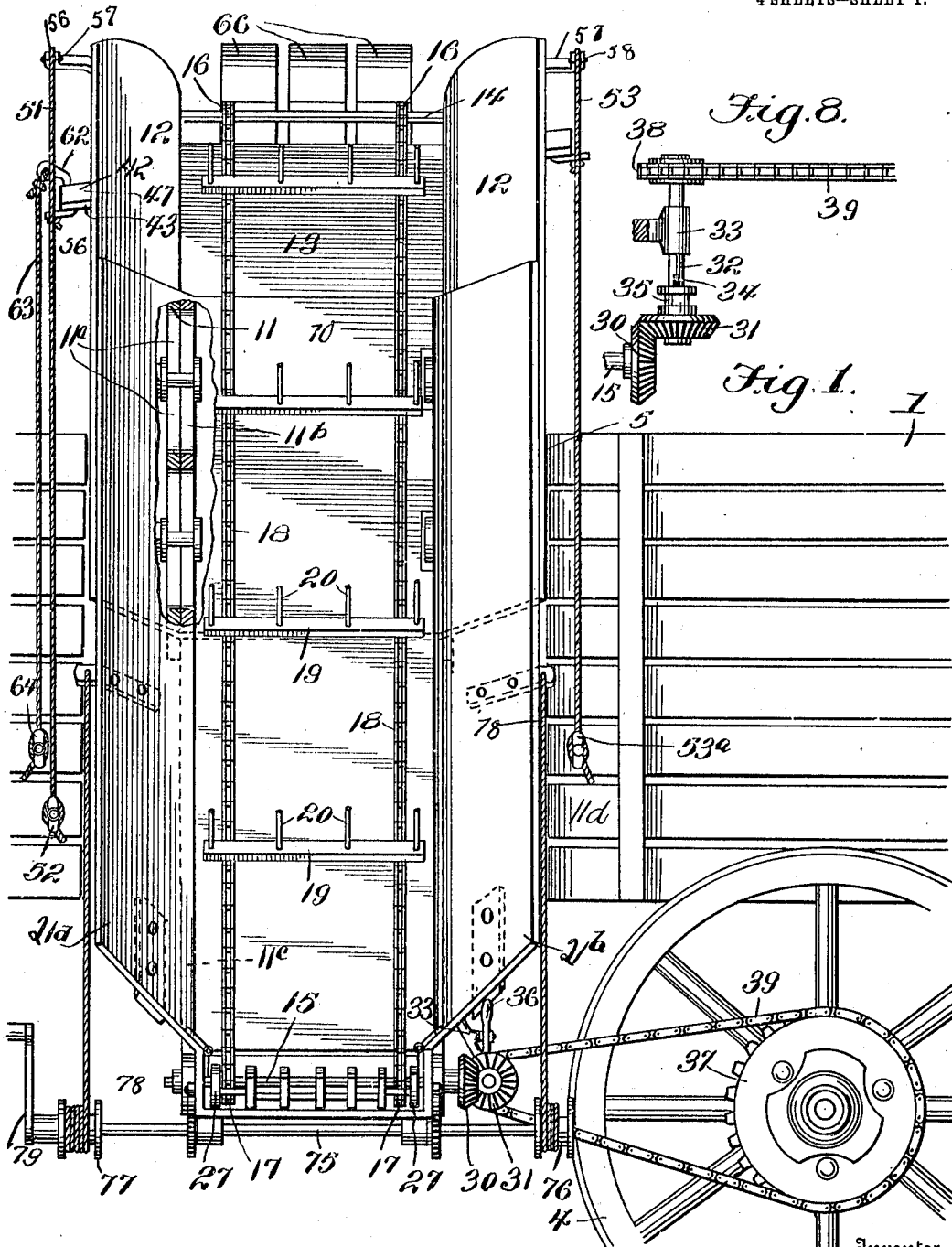


H. T. SHIPLEY.
LOADING APPARATUS.
APPLICATION FILED MAR. 26, 1909.

952,954.

Patented Mar. 22, 1910.

4 SHEETS—SHEET 1.



Witnesses
J. L. Wright,
F. M. Delabar.

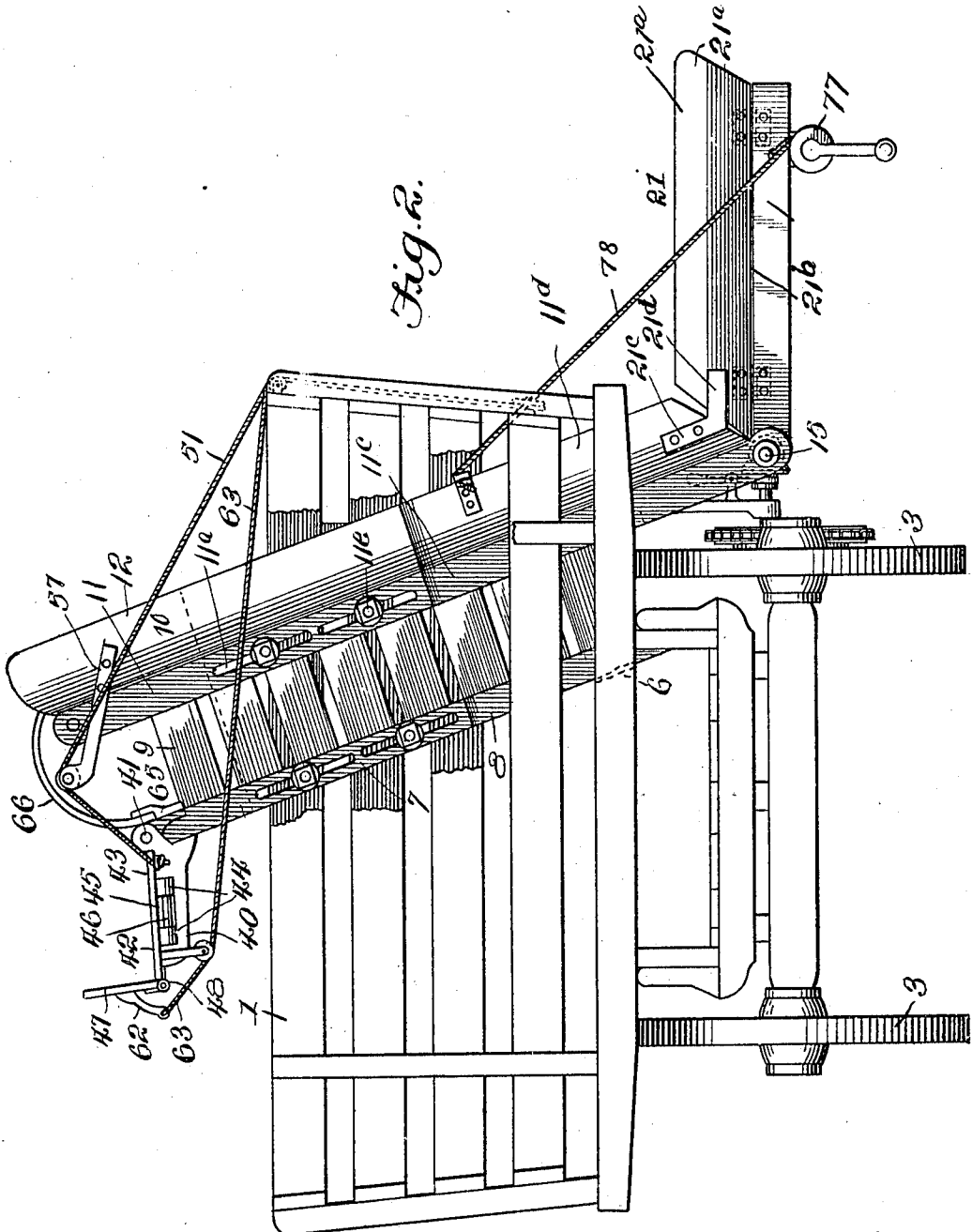
Inventor
Henry T. Shipley
By Victor J. Evans,
Attorney

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4 SHEETS—SHEET 2.



Witnesses
J. L. Wright,
F. M. Helmer.

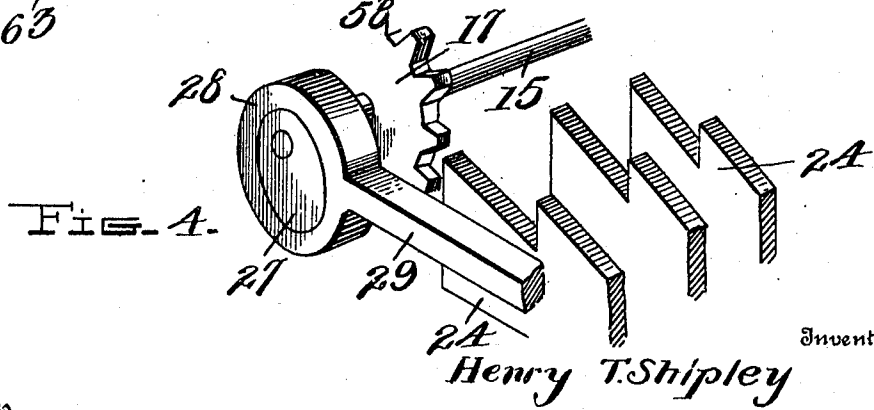
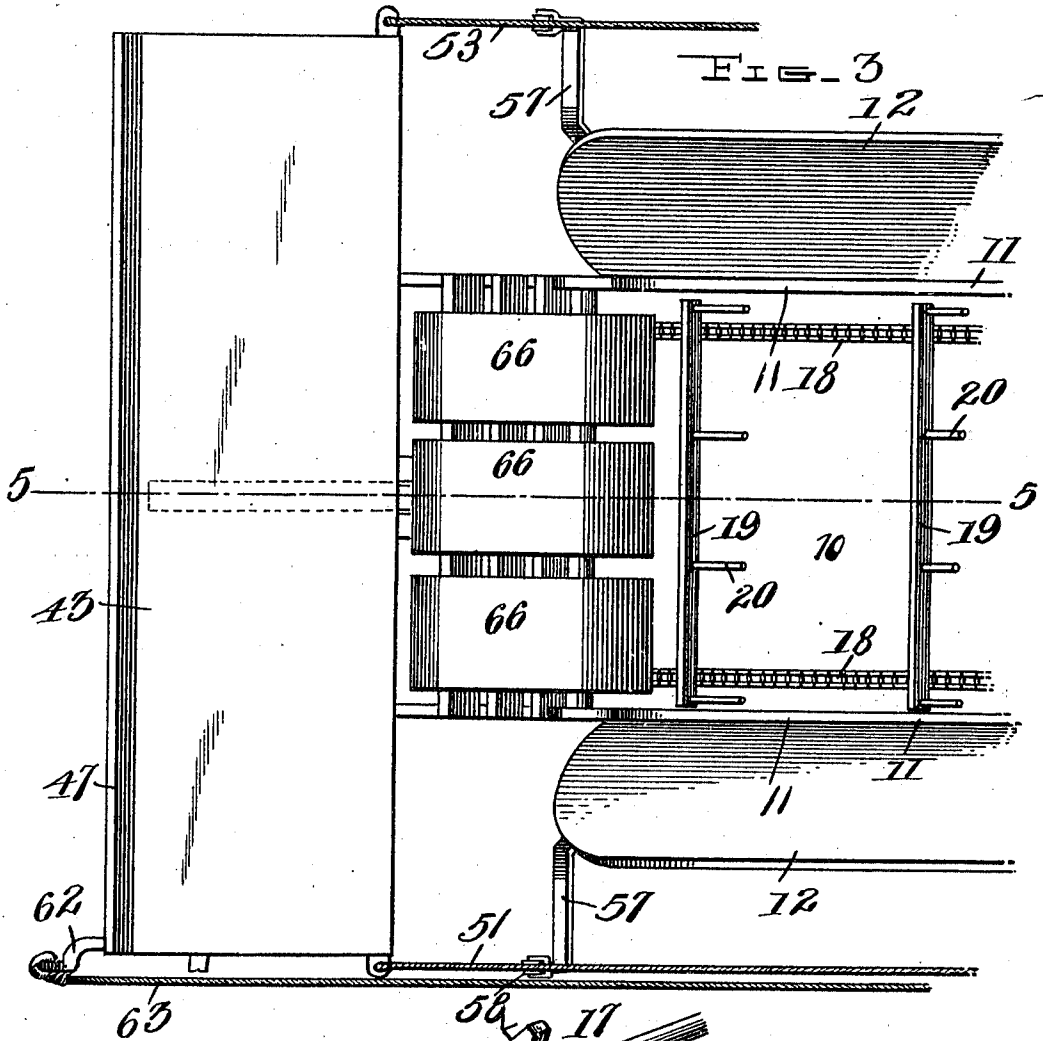
Inventor
Henry T Shipley
By *Victor J. Evans,*
Attorney

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4 SHEETS—SHEET 3.



Witnesses

J. T. Wright,
James A. Koch

Inventor
Henry T. Shipley

Victor J. Evans,

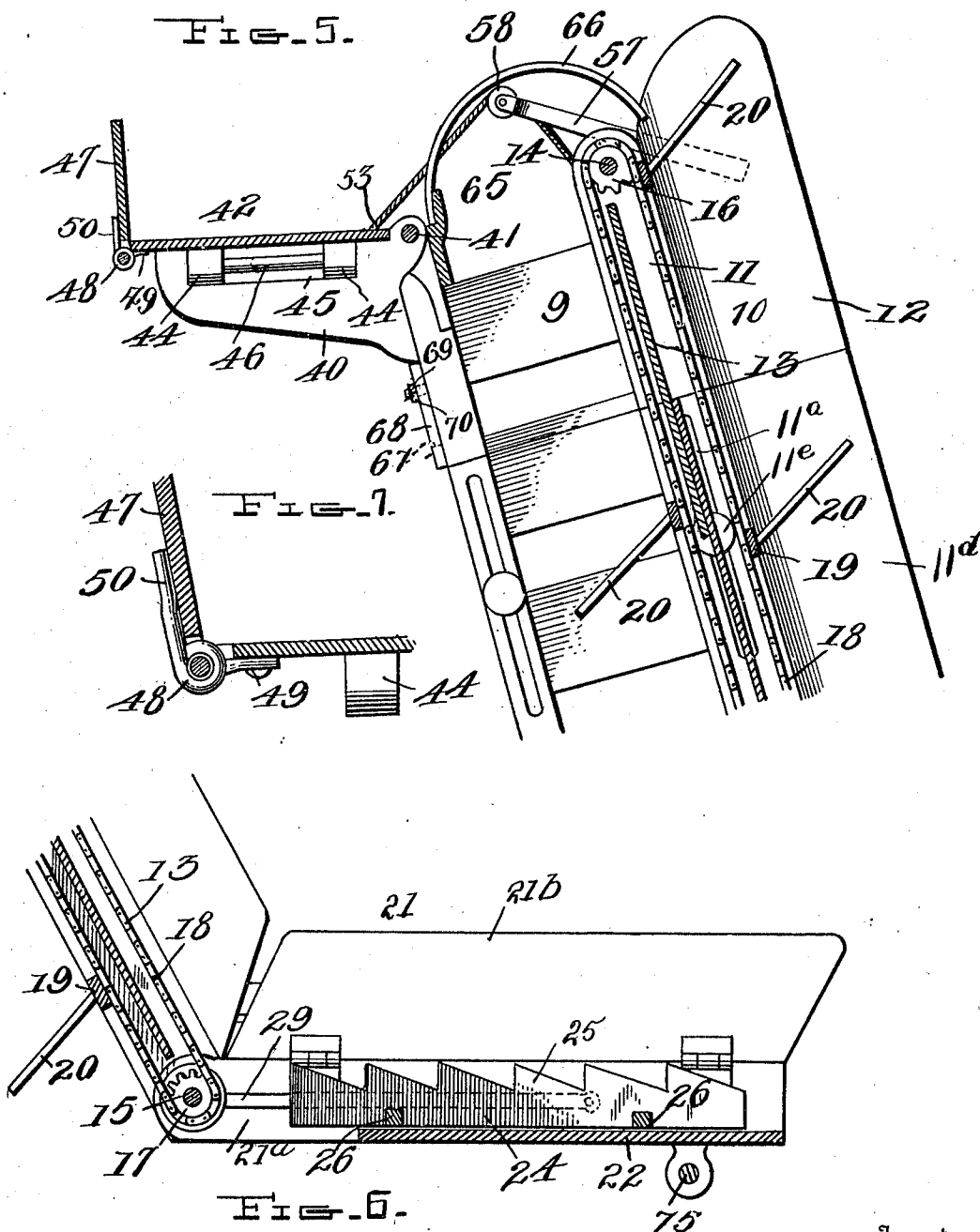
Attorney

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4 SHEETS—SHEET 4.



Witnesses
J. T. Wright
James A. Schell

Inventor
Henry T. Shipley
354 Victor J. Evans
Attorney

UNITED STATES PATENT OFFICE.

HENRY T. SHIPLEY, OF OSHKOSH, WISCONSIN, ASSIGNOR OF ONE-FOURTH TO
CLARENCE R. BLAKELY, OF OSHKOSH, WISCONSIN.

LOADING APPARATUS.

952,954.

Specification of Letters Patent.

Patented Mar. 22, 1910.

Application filed March 26, 1909. Serial No. 435,935.

To all whom it may concern:

Be it known that I, HENRY T. SHIPLEY, a citizen of the United States, residing at Oshkosh, in the county of Winnebago and State of Wisconsin, have invented new and useful Improvements in Loading Apparatus, of which the following is a specification.

This invention relates to loading apparatus, and more particularly to that class of apparatus particularly adapted for use in loading hay on a portable rack, and has for an object to provide an apparatus of this character which can be readily attached to a portable hay rack of the well known construction, and which will be so arranged upon the rack that hay or material can be effectively carried upwardly and dumped into said rack.

Another object of this invention is to provide an endless conveyer arranged to receive material from a hopper arranged beneath the rack in such position with relation to the ground upon which the rack is traveling that material may be conveniently deposited therein with but little exertion or labor.

A still further and particular object of my invention is to provide an apparatus of this character that can be operated by a single man.

A still further object is to provide a novel form of table at the upper end of the endless conveyer arranged with respect to said conveyer to receive material therefrom, and to provide simple, novel and effective means for tilting said table so that material can be distributed to a plurality of points upon the rack to effectively load the same to its capacity.

A further object is to provide a conveyer for the loader which will carry a plurality of tines or fingers to effectively carry material upwardly, and which will be so arranged that they will travel between the reciprocatory rack elements in the hopper.

Other objects and advantages will be apparent as the nature of the invention is better set forth, and it will be understood that changes within the scope of the claims may be resorted to without departing from the spirit of the invention.

In the drawings, forming a portion of this specification and in which like numerals of reference indicate similar parts in the several views:—Figure 1 is a side view of a portion of a hay rack showing the applica-

tion of my improved loading apparatus thereto. Fig. 2 is a front end view of a hay rack showing the application of my improved loading apparatus thereto. Fig. 3 is a top plan view of a portion of the loading apparatus. Fig. 4 is a detail perspective view of one of the conveyer shafts showing the connections carried by the shaft for reciprocating the rack bars in the hopper. Fig. 5 is a sectional view taken on the line 5—5 of Fig. 3. Fig. 6 is a longitudinal section taken through the hopper and through a portion of the endless conveyer. Fig. 7 is a detail section of a portion of the material receiving and distributing table. Fig. 8 is a detail horizontal sectional view taken on the line 8—8 of Fig. 1.

Referring now more particularly to the drawings, there is shown a hay rack 1 consisting of the usual slatted body mounted upon trucks having front wheels 3 and rear wheels 4. One side of the rack is cut away as shown at 5, and the bottom of the rack is correspondingly cut away as shown at 6 and receives a frame 7 which preferably consists of diagonally disposed beams 8 and outwardly extending slats 9.

The loading apparatus is indicated at 10 and comprises longitudinally extending and upwardly and angularly disposed side bars 11 which are spaced properly from each other and which have secured thereto guards or side boards 12. A bottom 13 is connected at its sides to the bars 11 as clearly shown in Fig. 5 of the drawings. The side bars 11 receive at their upper ends a transversely extending and horizontally disposed shaft 14. The side bars 11 are provided with elongated slots 11^a which aline with similar slots 11^b in side bars 11^c having side boards 11^d slidably mounted upon the boards 12. The said slots 11^a and 11^b receive clamping bolts 11^e adapted to hold the frame 7 in its extended position. The bars 11^c carry a shaft 15 which has secured thereto sprocket gears 16. The sprocket gears upon each shaft are arranged in such position with respect to each other so that a relatively large space between the gears is provided, and as shown, the gears 16 and 17 respectively receive endless chains 18. The chains 18 have secured thereto in any suitable manner a plurality of spaced horizontally disposed finger carrying bars 19 from

which extend fingers or tines 20. As shown in the drawings, four fingers or tines are provided for each bar 19, but it is obvious that I may use any desired number of said tines or fingers. The construction and arrangement of the shafts 14 and 15 and the gears and chains described form with the finger carrying bars an effective conveyer of the endless type.

A hopper 21 is provided and comprises side bars 21^a pivoted at their inner ends to the shaft 15. The just described construction effectively forms a hopper, and for carrying the material to be loaded upon the rack I provide said hopper with a plurality of rack bars 24 having toothed upper edges 25. The inner end of the bottom 22 terminates short of the shaft 15, and the bars 24 are spaced from each other in such manner that the fingers or tines 20 can pass between said bars to effectively lift material therefrom and carry the same upwardly. To provide a substantial structure I preferably connect the bars 24 by transversely disposed elements 26, and to reciprocate said bars simultaneously I provide the shaft 15 with fixed eccentrics 27 which receive straps 28 having arms 29 which are pivoted at their outer ends to the outermost bars 24 as shown at 29. The shaft 15 is provided at one end thereof with a bevel gear 30 which meshes with a bevel gear 31 upon a shaft 32 which is supported by a bracket 33 which depends from one of the side boards 11^a of the conveyer. The shaft 32 is slotted longitudinally as indicated at 34, and the gear 31 is provided with a grooved collar 35 which may be provided with the usual form of key for sliding movement in the slot 34. An operating lever 36 is engaged with the grooved collar 35 so that the gear 31 can be moved upon the shaft 32 and thrown into or out of operation with the gear 30. One of the rear wheels 4 of the rack 1 is provided with a fixed sprocket wheel 37, and the shaft 32 is provided with a sprocket wheel 38 which is greatly less in diameter to the diameter of the sprocket wheel 37. The sprocket wheels 37 and 38 receive an endless chain 39 of the usual type. From the construction herein described it will be seen that the rack may be driven through a field for instance, and while in motion, the sprocket 37 will be revolved to the extent that sufficient power is transmitted to the shaft 32 to operate the conveyer and to also simultaneously operate the rack bars 24 in the hopper.

A frame 40 is pivotally mounted as shown at 41 to the frame 7 and is arranged for vertical movement. A distributing table or rack 42 is provided and comprises a base member 43 having depending ears 44 arranged between the walls of a recess 45 in the frame 40, and these frames, and the ears 44 respectively receive a pivot pin 46 dis-

posed at right angles with respect to the pivot 41 so that said table or rack can be moved angularly as will be readily understood. The base member 43 of the table has pivotally mounted thereto a guard 47, and to provide means for holding said guards normally in a position approximately at right angles with respect to the base member 43 I provide a coiled spring 48 having an arm 49 secured in any suitable manner to the base member 43, and an arm 50 engaged with said guard 47. The base member 43 has secured thereto at one end one end of a flexible connection 51, and the other end of the said connection is wound about a cleat 52 upon the rack. To the other end of said base 43 is secured one end of a connection 53, the other end of said connection being connected to a cleat 53^a upon said rack. Suitable arms 57 are carried by the side boards 12 and support pulleys 58 for guiding the flexible connections 51 and 53 respectively. The guard 47 has secured thereto an arm 62 which receives one end of a flexible connection 63, the other end of said connection being removably engaged with a cleat 64 mounted upon the rack.

The frame 7 is provided at the upper end thereof with a bracket plate 65, and secured in any suitable manner to this plate is a plurality of arcuate members 66 which have their outer ends directed downwardly toward the conveyer. The members 66 are spaced from each other in such manner that the fingers or tines 20 can pass therebetween when the conveyer is in operation.

In operation of the apparatus, hay or material to be loaded is fed to the hopper, and in movement of the apparatus across a field or like place of the hay rack, power will be transmitted to the shaft 15 to simultaneously operate the endless conveyer and the rack bars 24, and through the provision of the latter material will be effectively carried to the former and collected by the fingers or tines 20 and carried upwardly and finally deposited upon the table 42. Should it be desired to dump the material from the table onto the forward part of the rack, the flexible connection 63 may be pulled manually to consequently tilt the table 42 as shown in Fig. 1 of the drawings. Should it be desired to dump the material from the table onto the rear part of the hay rack, the flexible connection 53 is operated so as to change the angular position of the table so that it will lie in a position opposite to that shown in Fig. 1. To thoroughly load the rack at all points, I provide the guard 47, which may be moved downwardly at an angle with respect to the table 42 so that material from said table can be deposited on the rack at one side thereof. In order to hold the table in a vertical position, I provide a sliding dog 67 which is secured in any suitable manner to

the frame 7 so that it may be moved upwardly and engaged with the frame 40 as will be clearly understood. As stated, the dog 67 may be secured to the frame 7 in any suitable manner, but I preferably form in said dog an elongated slot 68, and a suitable bolt 69 is carried by the frame 7 and extends through the slot 68 so that a clamping nut 70 engaged with the bolt may be frictionally engaged with one side of the dog 67 to hold the same securely in its adjusted position.

The side boards 21^b of the hopper are hinged to the bars 21^a so that the said boards 21^b can be folded when it is desired to raise or swing in a vertical plane said hopper to permit the machine to be driven through small barn doors, gates and like places. The side boards 11^a are provided with bracket plates 21^c having outwardly extending portions 21^d against which the said boards 21^a rest when the hopper is in its operative position. To permit the hopper to be raised in a convenient manner, I mount thereon beneath the bars 21^a a shaft 75 upon which is secured drums 76 and 77 having cables 78 wound thereon, the terminal ends of which being secured to the side boards 11^a as shown. A suitable crank handle 79 is carried by the shaft 75 so that the latter can be manually revolved.

From the construction herein set forth and described it will be seen that a simple and novel form of hay loader is provided that can be applied to the well known form of portable hay rack, and it will further be seen that power from a driven wheel of the rack effectively serves as means for sliding the various parts of the loader, that is the hopper rack bars 24, and the endless conveyer which is arranged to receive from said rack bars. The apparatus is such that the driver of the hay rack may also operate the loader in view of its extreme simplicity. Should it be desired to stop the operation of the conveyer and the rack bars 24, the lever 36 may be actuated to throw the gear 31 out of engagement with the gear 30.

While I preferably employ the reciprocating rack bars 24 in the hopper, it will of course be understood that broadly the said rack bars form feeding mechanism, and I therefore do not desire to limit myself to the specific form of reciprocating bars, but can resort to the use of other well known feeding mechanism.

I claim:—

1. In apparatus of the class described, a wheeled rack, an endless conveyer carried by the rack, a hopper at the lower end of the conveyer having means for discharging material onto the conveyer, and a distributing table at the other end of the conveyer adapted to distribute material to a plurality of points upon the rack.

2. Apparatus of the class described comprising a conveyer, conveyer feeding mechanism, an angularly adjustable distributing table located adjacent to the conveyer to receive material therefrom, and means for holding the table in its adjusted position.

3. Apparatus of the class described comprising an upwardly inclined conveyer, a horizontally disposed hopper, means located within the hopper for feeding material to the conveyer, an angularly adjustable distributing table located adjacent to the conveyer for receiving material therefrom, and an angularly adjustable guard located at one side of the table.

4. Apparatus of the class described comprising an endless conveyer, a hopper, reciprocating rack bars located in the hopper for delivering material onto the conveyer, and a distributing table arranged to receive material from the conveyer.

5. Apparatus of the class described comprising a conveyer disposed at an upward angle, a hopper carried by the conveyer, mechanism within the hopper for discharging material upon the conveyer, a distributing table for receiving material from the conveyer, and means for simultaneously operating the conveyer and the mechanism within the hopper.

6. Apparatus of the class described comprising a conveyer having parallel spaced and horizontally disposed slats, fingers carried by the slats, a hopper, a plurality of reciprocating rack bars located in the hopper and spaced from each other to receive therebetween the fingers during operation of the conveyer to collect material from the hopper, and a distributing table arranged to receive material from said conveyer.

7. The combination with a wheeled rack of the class described, of a conveyer carried by the rack, a hopper carried by the conveyer, mechanism in the hopper for feeding material to the conveyer, and an angularly adjustable distributing table disposed above the rack to receive material from the conveyer and distribute material to a plurality of points upon the rack.

8. The combination with a rack having a portion cut away at one side, an endless conveyer carried by the rack and disposed between the walls of the cut away portion, material feeding mechanism for the conveyer, and material distributing means arranged to receive material from the conveyer and distribute the same to a plurality of points upon the rack.

9. The combination with a portable wheeled rack of the class described, of a conveyer carried by the rack and disposed at an upward angle, a hopper located beneath a portion of the rack at one side thereof, means located in the hopper feeding material onto the conveyer, and means for re-

ceiving material from the conveyer and distributing the material upon the rack.

5 10. A conveyer provided with parallel horizontally disposed shafts; endless sprocket chains operated by the shafts, finger carrying bars carried by the chains, a shaft geared to one of the first named shafts, and means for throwing the shafts into or out of operation.

10 11. The combination with a wheeled rack of the class described, of a conveyer, a hop-

per, material feeding mechanism located in the hopper, and means operable upon movement of the rack for supplying power to the conveyer and to the feeding mechanism. 15

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

HENRY T. SHIPLEY.

Witnesses:

A. J. BARBER,
TILLIE HANSON.