Oct. 19, 1926. 1,603,634

L. D. NELSON

CONVEYER

Filed August 23, 1924 3 Sheets-Sheet 1

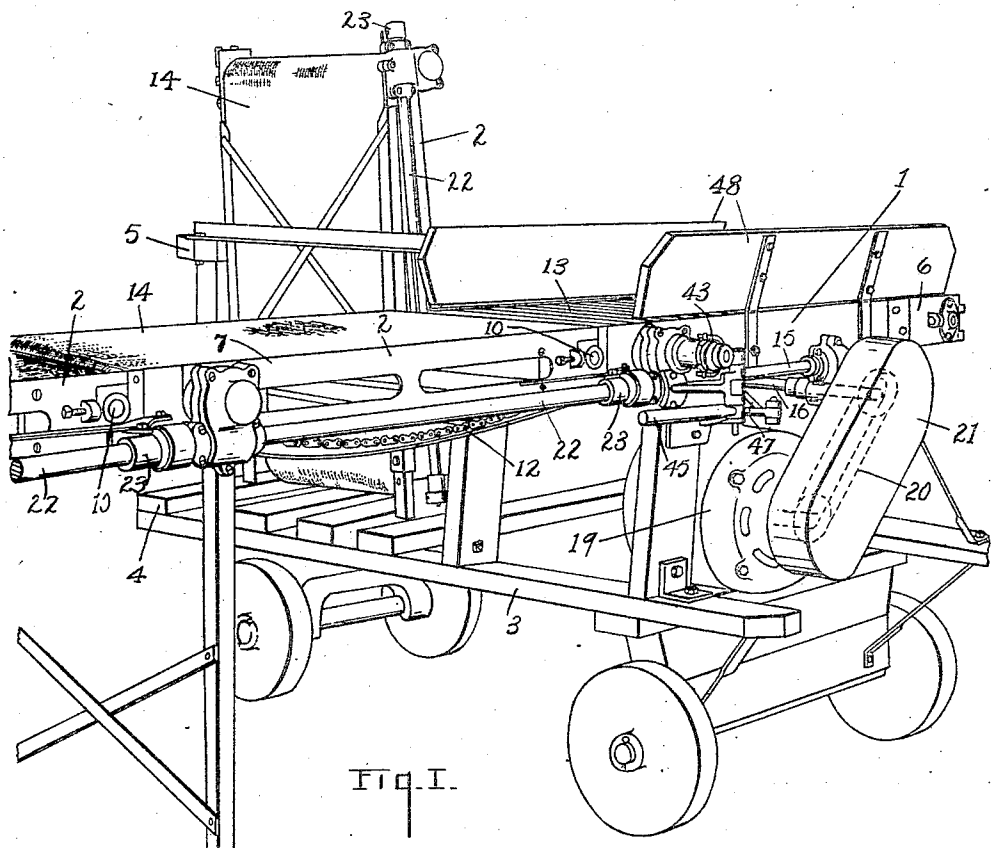


FIG. I.

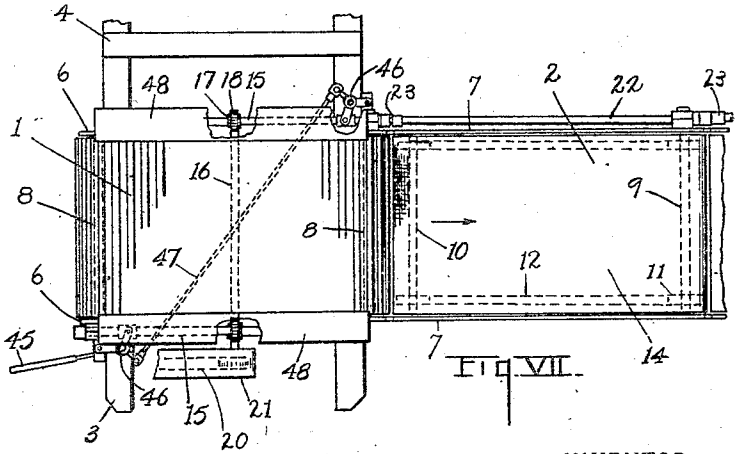


FIG. VII.

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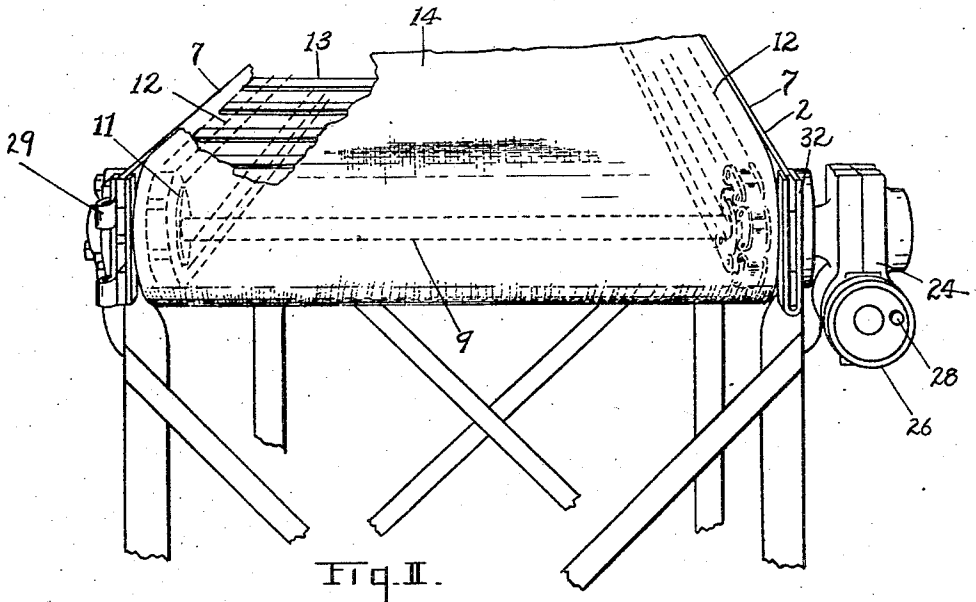


Fig. II.

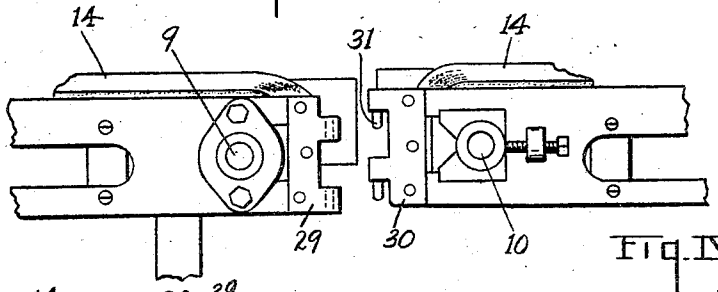


Fig. IV.

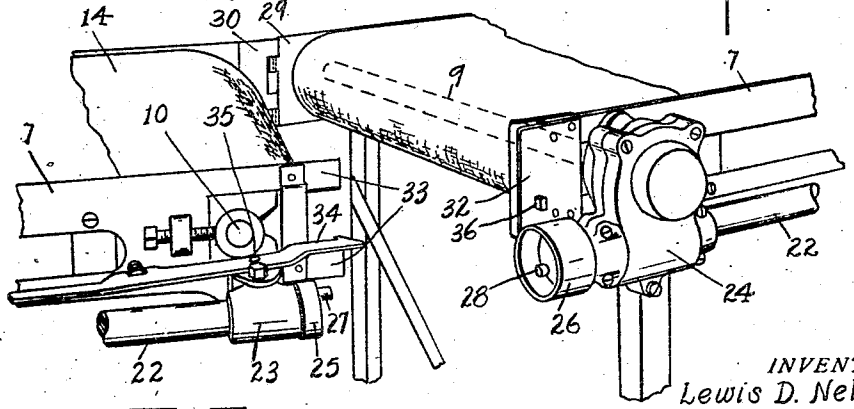


Fig. III.

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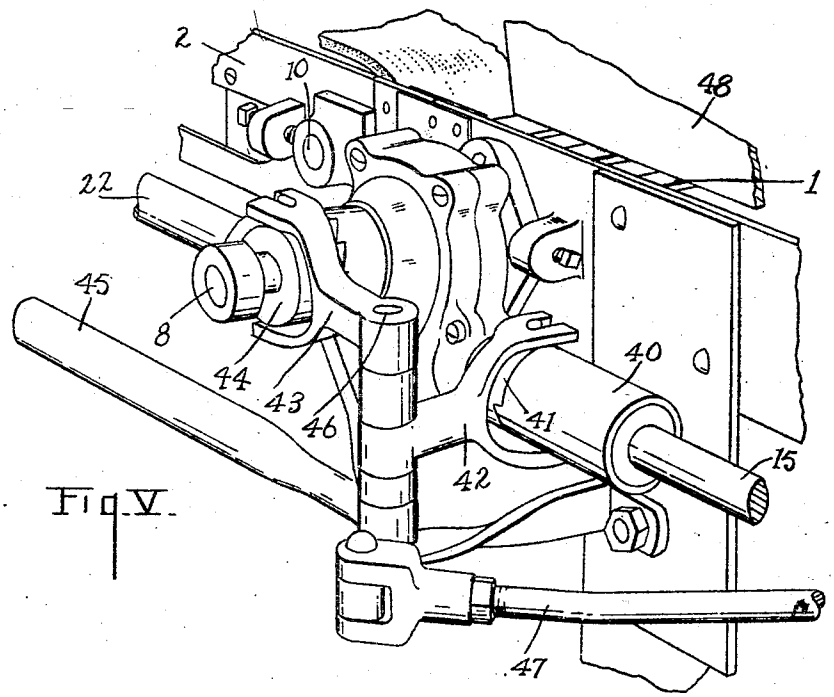


Fig. V.

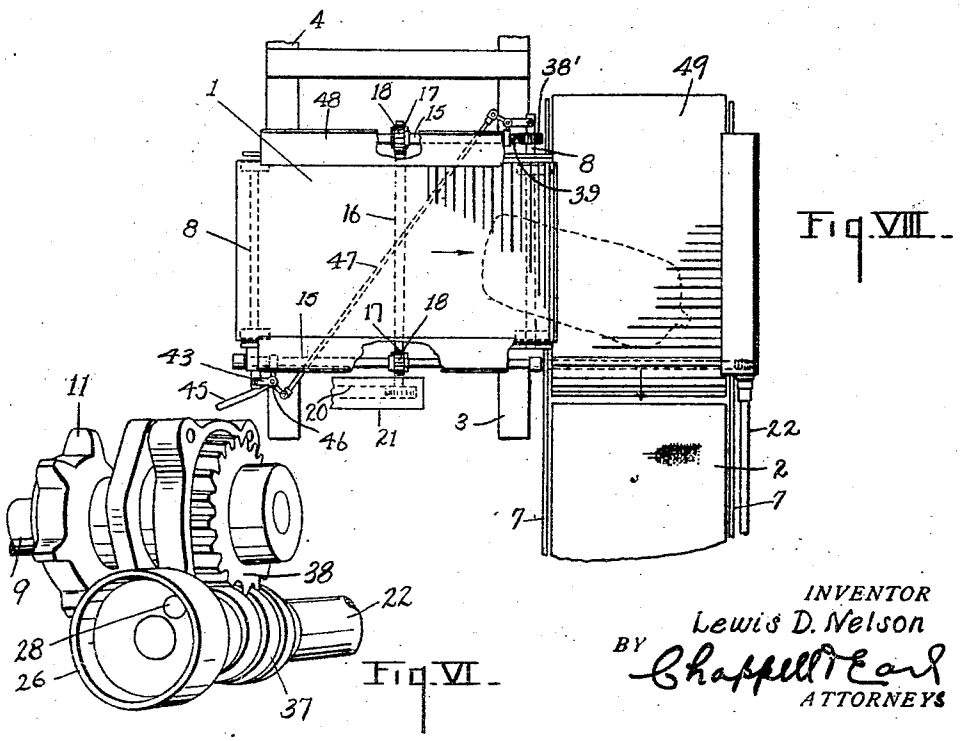


Fig. VIII.

Fig. VI.

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Patented Oct. 19, 1926. 1,603,634

UNITED STATES PATENT OFFICE.

LEWIS D. NELSON, OF COLDWATER, MICHIGAN, ASSIGNOR OF ONE-HALF TO ROBERT M. NEALE, OF UNION CITY, MICHIGAN.

CONVEYER.

Application filed August 23, 1924. Serial No. 733,776.

This invention relates to improvements in conveyers.

The main objects of this invention are:

First, to provide an improved conveyer which is well adapted for the loading and unloading of cars and which may be readily set up or adapted for the particular requirement or conditions.

Second, to provide an improved portable conveyer which may be quickly set up or disassembled and when set up is capable of carrying heavy loads, such as bags of cement or the like.

Objects pertaining to details and economies of construction and operation of my invention will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification. The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing forming a part of this application, in which:

Fig I is a fragmentary perspective view of a conveyer embodying the features of my invention.

Fig. II is a fragmentary perspective view showing structural details of the conveyer units and the conveyer.

Fig. III is a fragmentary perspective view illustrating details of the couplings for the conveyer units, the coupling members at one side being engaged and those at the other side separate.

Fig. IV is a fragmentary perspective view showing further details of the unit coupling.

Fig. V is a fragmentary perspective view showing details of the driving means.

Fig. VI is a fragmentary perspective view of parts of the driving means.

Fig VII is a fragmentary plan view showing the auxiliary conveyers adjusted or connected to the right hand side of the main unit.

Fig. VIII is a fragmentary plan view of a modified form or embodiment of my invention.

In the drawing similar reference characters refer to similar parts in all of the views.

Referring to the drawing, I provide a main unit designated generally by the numeral 1 and a plurality of auxiliary or supplementary units designated generally by the numeral 2. Only sufficient of the supplementary units are shown as are deemed necessary to show an embodiment and the use of my improvements.

The main unit 1 is mounted upon a truck 3 extended at one end to provide a platform 4, this platform having an upright frame 5 thereon constituting a support for the suplemental units when not in erected position, thereby providing storage and transportation facilities.

The main and supplementary units are quite similar in structure, the terms "main" and "supplementary" being largely matters of convenience in description.

The main unit is provided with side members 6 while the supplementary units have corresponding side members 7. Each unit has a carrier comprising carrier shafts, both carrier shafts 8 of the main unit being driven shafts. The supplementary units have carrier shafts 9 and 10 corresponding to the shafts 8 of the main unit, the shafts 9 being driven shafts.

The carrier shafts are provided with sprocket wheels 11 disposed within the side members of the units and carrying the sprocket chains 12 which have slats 13 secured thereon, the conveyer belt 14 being disposed over these slats.

The main unit is provided with a pair of driving shafts 15 disposed at the sides and longitudinally thereof and connected to the power shaft 16 by worm gears 17 and 18, the power shaft being connected to the motor 19 mounted on the truck by means of the sprocket chain 20 arranged in the housing 21.

The supplementary sections are provided with longitudinally disposed driving shafts 22 carried by the bearings 23 and the gear boxes 24 which are provided with suitable bearings for the shafts. At the outside of the bearings 23 and the gear boxes 24 are coacting shaft coupling members 25 and 26, the coupling member 25 being adapted to enter the coupling member 26 and having a lug 27 adapted to coact with the lug 28 so that these shaft couplings may be engaged by a longitudinal movement and

there is little likelihood of the lugs interfering with the engagement.

The units are provided with couplings, the couplings being mounted on the ends of the side members, those at one side consisting of the knuckle coupling member 29 and the coacting pintle coupling member 30 having pintles or pivots 31 disposed vertically. The knuckle coupling member 29 is provided at diagonally opposite corners of the main unit and at the outer ends of one of the side members of the supplementary units, the coupling members 30 being provided at the inner ends of one of the side members of the supplementary unit. At the opposite side the units are provided with telescoping couplings consisting of the saddle members 32 and the projecting lugs 33 adapted to enter the same. Latches 34 pivoted at 35 engage the keepers 36 on the sides of the coupling members 32.

With the parts thus arranged the pintles 31 are engaged with the coacting coupling member and the unit swung sidewise engaging the coupling members 32 and 33 and at the same time engaging the shaft coupling members 25 and 26.

The shafts 22 are provided with worms 37 coacting with the worm gears 38 on the carrier shafts 9, these parts being enclosed in the gear boxes 24. The shafts 8 are provided with gears 38′ coacting with driving worms 39 on the shafts 15 in the same manner as worm 37 and gear 38 in Fig. VI. The shafts 15 are provided with clutch members 40, coacting clutch 41 being controlled by the shifting yoke 42. A second shifting yoke 43 controls the clutch member 44 which controls the connection to the shaft 8. The details of these clutches are not illustrated as I employ a well-known type of jaw clutch satisfactorily.

The shift lever 45 carries the pin 46 to which both these yokes are connected. This shift lever is connected by the link 47 to the pin 46 of a duplicate clutch mechanism for controlling the connections for the other driving shaft of the main unit, the connections being arranged so that when one is engaged the other is disengaged, thereby providing means for driving the conveyer of the main unit in either direction, and also driving the shafts 22 of the supplementary units when disposed at either end of the main unit, thereby permitting the arrangement of the supplementary units for the loading or unloading of either end of the railway car or the like.

The main unit is preferably provided with side boards 48 which assist in retaining the articles thereon when thrown upon the conveyer of the main unit or when discharged thereto from a supply or delivery conveyer.

In the modification shown in Fig. VIII the main unit is arranged to discharge at right angles to a similar unit 49, the supplementary units 2 being associated with the unit 49 as has been described.

I have not attempted to illustrate or describe other modifications or adaptations of my improvements as I believe the disclosure made will enable those skilled in the art to embody or adapt the same as may be desired.

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

1. In a conveyer, the combination of a main unit and a plurality of supplementary units, a carrier for each unit comprising shafts disposed at the ends thereof so that when the units are assembled the carriers are brought end to end both carrier shafts of the main unit and the carrier shafts at the outer ends of the supplementary units being driven shafts, a driving shaft disposed longitudinally at each side of said main unit and at one side of each supplementary unit and having driving connections to said driven carrier shafts, the said driving shafts being provided with telescoping male and female shaft coupling members having internal driving lugs whereby the same are engaged when the units are brought end to end, a power shaft on said main unit having driving connection with both of its said driving shafts, clutches for connecting said driving shafts of said main unit to said driven carrier shafts thereof, clutches for connecting said main unit driving shafts to said supplementary unit driving shafts, operating connections for said clutches whereby the clutches associated with said driving shafts of said main unit are alternately engaged and disengaged, and coupling means for said units.

2. In a conveyer, the combination of a main unit and a plurality of supplementary units, a carrier for each unit comprising shafts disposed at the ends thereof so that when the units are assembled the carriers are brought end to end, both carrier shafts of the main unit and the carrier shafts at the outer ends of the supplementary units being driven shafts, a driving shaft disposed longitudinally at each side of said main unit and at one side of each supplementary unit and having driving connections to said driven carrier shafts, the said driving shafts being provided with couplings engageable when the units are brought end to end, a power shaft on said main unit having driving connection with both of its said driving shafts, clutches for connecting said driving shafts of said main unit to said driven carrier shafts thereof, clutches for connecting said main unit driving shafts to said supplementary unit driving shafts, operating connections for said clutches whereby the clutches

associated with said driving shafts of said main unit are alternately engaged and disengaged, and coupling means for said units.

3. In a conveyer, the combination of a main unit and a plurality of supplementary units, a carrier for each unit comprising shafts disposed at the ends thereof so that when the units are assembled the carriers are brought end to end, both carrier shafts of the main unit and the carrier shafts at the outer ends of the supplementary units being driven shafts and provided with driven worm gears, a driving shaft disposed longitudinally at each side of said main unit and at one side of each supplementary unit, said driving shafts being provided with driving worms meshing with said driven gears on said driven carrier shafts, the said driving shafts being provided with telescoping male and female shaft coupling members having internal driving lugs whereby the same are engaged when the units are brought end to end, driving means whereby either of said driving shafts of said main unit may be driven, and coupling means for said units.

4. In a conveyer, the combination of a main unit and a plurality of supplementary units, a carrier for each unit comprising shafts disposed at the ends thereof so that when the units are assembled the carriers are brought end to end, both carrier shafts of the main unit and the carrier shafts at the outer ends of the supplementary units being driven shafts and provided with driven worm gears, a driving shaft disposed longitudinally at each side of said main unit and at one side of each supplementary unit, said driving shafts being provided with driving worms meshing with said driven gears on said driven carrier shafts, the said driving shafts being provided with couplings engageable when the units are brought end to end, driving means whereby either of said driving shafts of said main unit may be driven, and coupling members for said units.

5. In a conveyer, the combination of a main unit and a plurality of supplementary units, each comprising side members, a carrier for each unit comprising shafts disposed at the ends of said side members so that when the units are assembled the carriers are brought end to end, both carrier shafts of the main unit and one of the carrier shafts of the supplementary units being driven shafts, a driving shaft disposed longitudinally at each side of said main unit and at one side of said supplementary units, said driving shafts having driving connections with said driven carrier shafts and being provided with telescoping male and female shaft coupling members having internal driving lugs whereby the same are engaged when the units are brought end to end, driving means whereby either of said driven shafts of said main unit may be driven, and coupling members for said unit side members, one of the coupling members of each unit being provided with a vertically disposed pivot and the other with couplings engaged and disengaged by swinging the unit on said pivot coupling thereof, said shaft couplings being also engaged and disengaged by such movement.

6. In a conveyer, the combination of a main unit and a plurality of supplementary units, each comprising side members, a carrier for each unit comprising shafts disposed at the ends of said side members so that when the units are assembled the carriers are brought end to end, both carrier shafts of the main unit and one of the carrier shafts of the supplementary units being driven shafts, a driving shaft disposed longitudinally at each side of said main unit and at one side of said supplementary units, said driving shafts having driving connections with said driven carrier shafts and being provided with coupling members engageable when the units are brought end to end, driving means whereby either of said driven shafts of said main unit may be driven, and coupling members for said unit side members, one of the coupling members of each unit being provided with a vertically disposed pivot and the other with couplings engaged and disengaged by swinging the unit on said pivot coupling.

7. In a conveyer, the combination of a main unit and a plurality of supplementary units, a carrier for each unit comprising shafts disposed at the ends of said units so that when the units are assembled the carriers are brought end to end, both carrier shafts of the main unit and one of the carrier shafts of the supplementary units being driven shafts, a driving shaft disposed longitudinally at each side of said main unit and at one side of said supplementary units, said driving shafts having driving connections with said driven carrier shafts and being provided with telescoping male and female shaft coupling members having internal driving lugs whereby the same are engaged when the units are brought end to end, driving means whereby either of said driven shafts of said main unit may be driven, and couplings members for said units

8. In a conveyer, the combination of a main unit and a plurality of supplementary units, a carrier for each unit comprising shafts disposed at the ends of said units so that when the units are assembled the carriers are brought end to end, both carrier shafts of the main unit and one of the carrier shafts of the supplementary units being driven shafts, a driving shaft disposed

longitudinally at each side of said main unit and at one side of said supplementary units, said driving shafts having driving connections with said driven carrier shafts and being provided with coupling members engageable when the units are brought end to end, driving means whereby either of said driven shafts of said main unit may be driven, and coupling members for said units.

9. In a conveyer, the combination of a main unit and a plurality of supplementary units, a carrier for each unit, a driving shaft disposed longitudinally at each side of said main unit and at one side of said supplementary units and operatively connected to said carriers, said shafts being arranged so that when the units are arranged end to end the unit carriers are brought end to end and being provided with coupling members engageable when the units are brought end to end, and coupling members for said units.

10. In a conveyer the combination of a main unit and a plurality of supplementary units, each provided with carriers which are brought into coacting relation when the units are assembled end to end, and unit coupling members mounted on the ends of said main unit, there being couplings at one side of each unit provided with vertically disposed pivots and couplings at the other side provided with longitudinally telescoping couplings whereby the pivot couplings may be engaged and the units swung thereon to engage the telescoping couplings, the telescoping couplings being provided with latches.

11. In a conveyer the combination of a plurality of units, each comprising side members, a driving shaft at one side of each of said units, said driving shaft being provided with telescoping male and female coupling members adapted to be engaged when the units are brought end to end, and unit coupling members mounted on the ends of said unit side members, the couplings at one side of each unit being provided with vertically disposed pivots and those at the other with longitudinally telescoping couplings whereby the pivoted coupling may be engaged and the units swung thereon to engage the telescoping couplings and said driving shaft couplings, the telescoping couplings being provided with latches.

12. In a conveyer the combination of a pluraliy of units, each comprising side members, a driving shaft at one side of each of said units, said driving shaft being provided with telescoping male and female coupling members adapted to be engaged when the units are brought end to end, and unit coupling members mounted on the ends of said unit side members, the couplings at one side of each unit being provided with vertically disposed pivots and those at the other with longitudinally telescoping couplings whereby the pivoted coupling may be engaged and the units swung thereon to engage the telescoping couplings and said driving shaft couplings.

In witness whereof I have hereunto set my hand.

LEWIS D. NELSON.