No. 883,204. PATENTED MAR. 31, 1908.

S. R. KIMBALL.

ATTACHMENT FOR STABLES.

APPLICATION FILED MAR. 26, 1907.

2 SHEETS—SHEET 1.

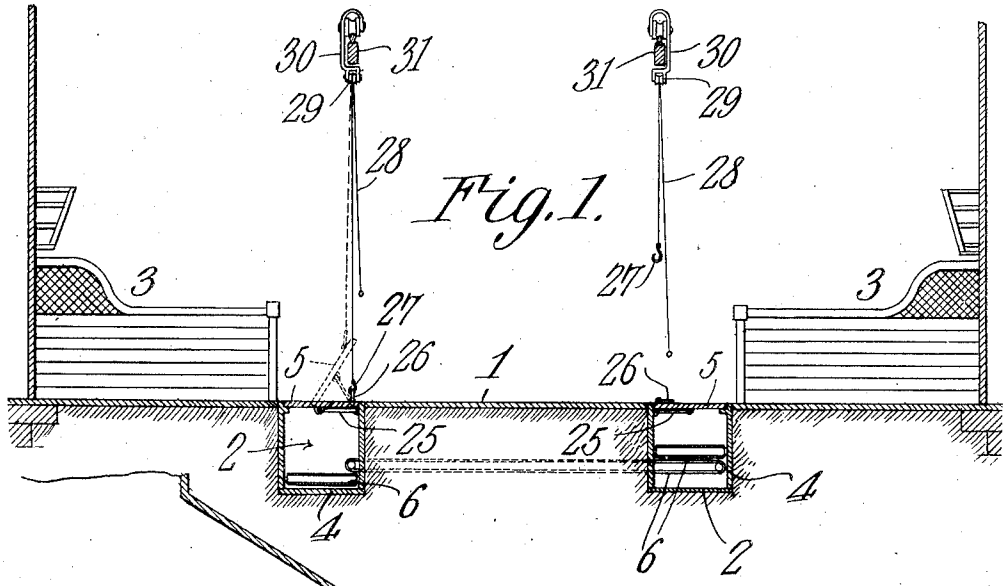


Fig. 1.

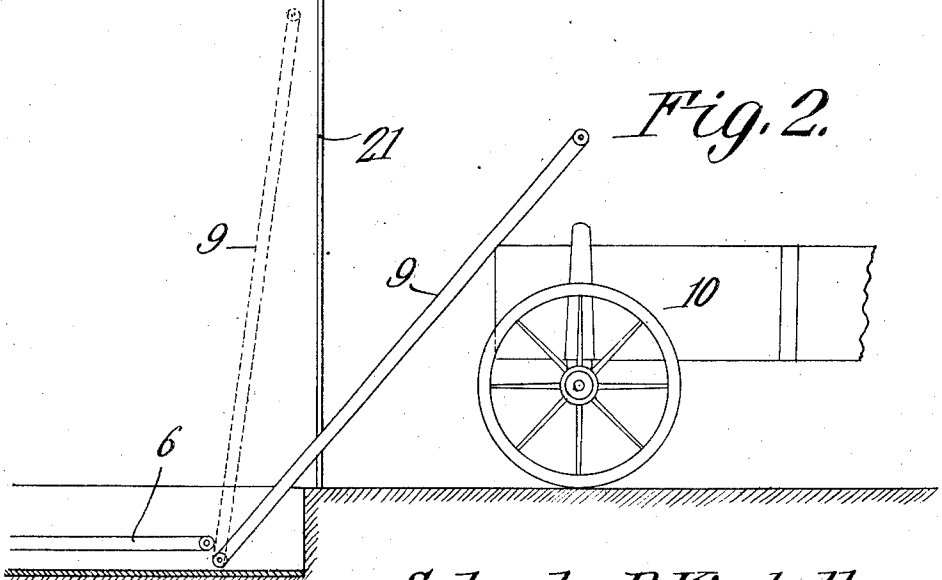


Fig. 2.

WITNESSES:

E. J. Stewart

F. J. Chapman

Sylvester R. Kimball, INVENTOR.

By C. A. Snow & Co.

ATTORNEYS

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2 SHEETS—SHEET 2.

Fig. 3.

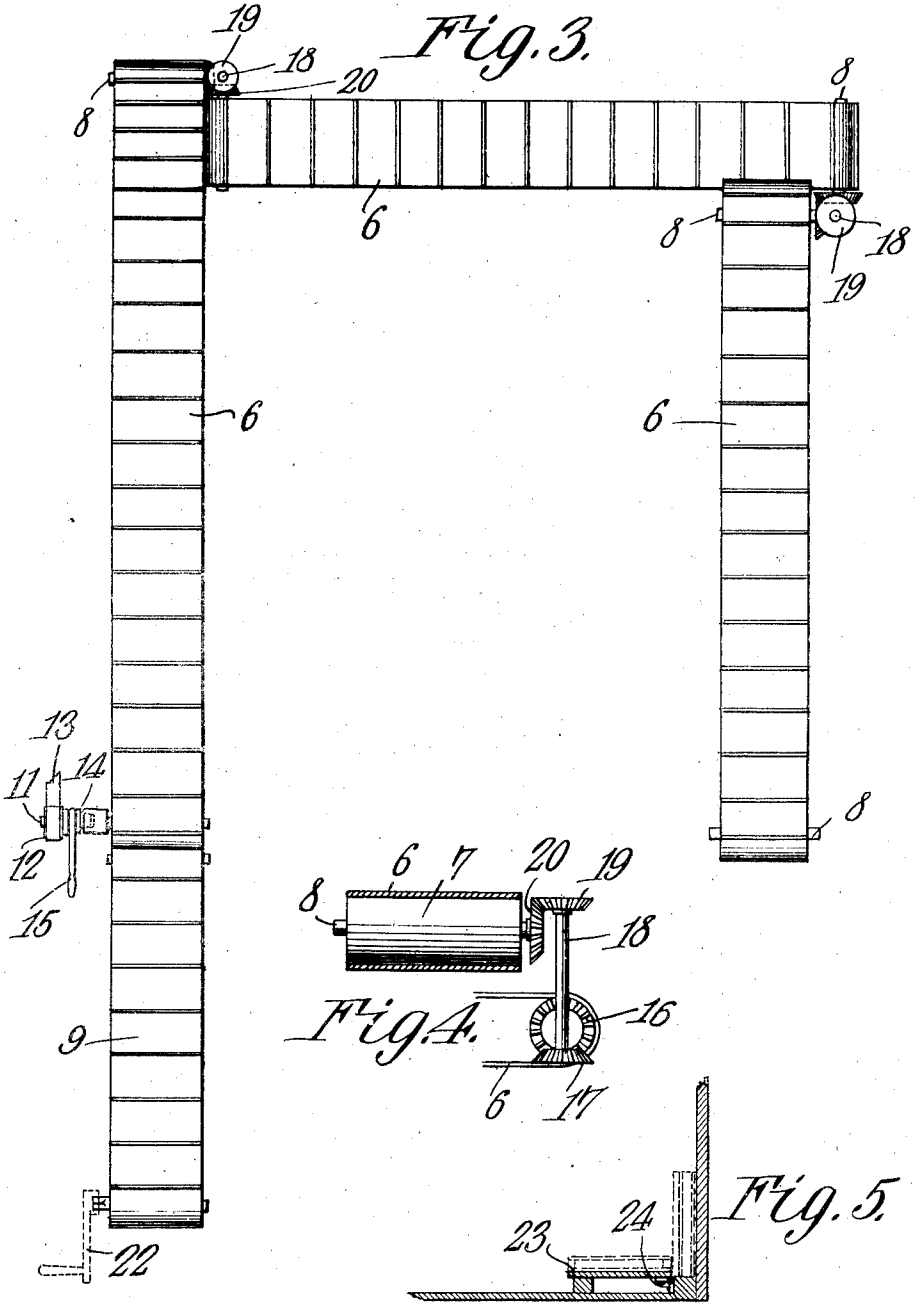


Fig. 4.

Fig. 5.

WITNESSES:

E. P. Stewart

F. T. Chapman

Sylvester R. Kimball INVENTOR.

By Cushman & Co.

ATTORNEYS

UNITED STATES PATENT OFFICE.

SYLVESTER RICHARD KIMBALL, OF SISSETON, SOUTH DAKOTA.

ATTACHMENT FOR STABLES.

No. 883,204. Specification of Letters Patent. Patented March 31, 1908.

Application filed March 26, 1907. Serial No. 364,728.

To all whom it may concern:

Be it known that I, SYLVESTER RICHARD KIMBALL, a citizen of the United States, residing at Sisseton, in the county of Roberts and State of South Dakota, have invented a new and useful Attachment for Stables, of which the following is a specification.

This invention has reference to improvements in attachments for stables and is designed to provide a means whereby the contents of the stalls may be received in suitable receptacles and then removed from time to time at one single point.

The invention consists essentially in a series of conveyers arranged in pits at the back of the stalls, which conveyers lead ultimately to a loading conveyer arranged to carry the material deposited on the other conveyers to a wagon or other means of removal. Provision is made whereby the contents of the stalls may be thrown into the pits adjacent thereto upon the conveyers for a considerable period of time until the conveyers are practically all loaded, and then these conveyers may be operated to carry the load thereon to a single point of delivery, whence another conveyer may carry the material to wagons, but in order that the last-named conveyer may not become choked by an excess of material coming from the other conveyers, said conveyer may be provided with means for operating it when the other conveyers have been slowed down or stopped.

The invention will be fully understood from the following detailed description taken in connection with the accompanying drawings forming part of this specification, in which,—

Figure 1 is a cross section through a portion of a stable showing the stalls and the conveyers adjacent thereto; Fig. 2 is a view, partially diagrammatic, showing the arrangement of the delivery end of the conveyer; Fig. 3 is a top plan view of the conveyer system; Fig. 4 is a partially sectional view of the transmission gear between two conveyers arranged at right angles to each other; and Fig. 5 is a detail view of a modification.

Referring to the drawings, there is shown a suitable floor 1 beneath which are pits 2 arranged along rows of stalls 3 which, as contemplated by the system shown in Fig. 3, will extend along two parallel sides of the stable and across one end thereof. These pits may be provided with a suitable lining 4, and, if desired, may be properly drained, although the means for draining the pits is not shown. Each pit is provided with doors or hinged covers 5 which may be so arranged that there is one door or cover for each stall, and these doors may be kept normally closed and only raised when it is desired to deposit the contents of the stall in the pit. In each pit is arranged a conveyer 6 which may be of the ordinary endless type passing at each end over rollers 7 provided with suitable journals 8 properly mounted in the walls of the pits or otherwise supported. The conveyers are each arranged to deposit their contents upon a conveyer running at right angles thereto, as indicated in Fig. 3; that is, there is one conveyer 6 extending along the line of stalls 3 through the stable and this is arranged to deposit its contents upon another conveyer 6 running along behind the line of stalls across one end of the stable, and this latter conveyer 6 is arranged to deposit its contents upon still a third conveyer 6 running along back of the line of stalls on the side of the stable opposite to the first-named conveyer 6. At the delivery end of the last-named conveyer 6 there is arranged a supplemental conveyer 9, to be hereinafter referred to, and which is designed to convey the contents of the last conveyer 6 to a wagon or other receptacle 10. Power to drive the several conveyers 6 may be applied by means of a shaft 11 carrying a pulley 12 which receives motion through a belt 13 from any suitable source of power, and this shaft may carry one member of a friction clutch 14, the other member of which is carried by the journal 8 of the roller 7 over which the delivery end of the last conveyer 6 of the series passes. This clutch may be manipulated by means of a suitable handle 15 within reach of an operator. Power being applied through the belt 13, the conveyer 6 is made to travel in the proper direction and, acting as a drive belt, will rotate the roller 7 at its other end. Upon the journal 8 of this roller 7 is a bevel gear 16 meshing with another bevel gear 17 on a short transmission shaft 18 carrying a bevel gear 19 at its other end, and this gear 19 meshes with another bevel gear 20 on the journal 8 of the adjacent roller 7 of the intermediate conveyer 6, and at the receiving end of this intermediate conveyer 6 there is another system of transmission gear, similar to that described, by means of which motion is transmitted to the first conveyer of the series most remote from the delivery end of

the series. The transmission gear is best shown in Fig. 4.

The conveyer 9 is hinged at its lower end so that it may be placed upright in the stable near one wall thereof, or inclined at an angle, passing through an opening 21 in the stable wall and having its delivery end arranged to deposit its contents into the wagon 10 or other conveyance. In order to manipulate this conveyer 9, there may be applied to the journal 8 of the roller 7 at its delivery end a suitable handle 22, shown in dotted lines in Fig. 3. Now, suppose that the contents of the stalls have been deposited on the conveyers for two or three days, depending on the size of the stable, and that it is desirable to convey this material to suitable wagons. The system of conveyers is set into motion after the conveyer 9 has been placed in proper relation with the wagon 10. As the contents of each conveyer are deposited upon the next succeeding conveyer and the contents of the last conveyer 6 in the series are deposited upon the conveyer 9, the handle 22, or, if desired, any other means for imparting motion to the conveyer 9, may be started into operation and the conveyer 9 will deposit the material into the wagon 10. Suppose, however, that the conveyer 9 is unable to handle the material as rapidly as it is deposited thereon from the conveyer 6 when running at full speed. This is quickly corrected by a suitable manipulation of the lever 15 so that the speed of the conveyers 6 may be reduced as desired and their delivery proportionately checked until the overload on the conveyer 9 is disposed of, when they may be again speeded up to their normal rate.

In Fig. 5 there is shown a means whereby the pits may be dispensed with and the conveyers are carried upon supports above the floor of the stable next to the side walls thereof, so that when not in use the conveyers may be turned up against the wall out of the way. For this reason these supports, indicated at 23, are hinged at 24 in the stable structure so that they may be turned up against the wall and there held in any suitable manner.

In the drawings the invention has been shown largely diagrammatic and it will be understood that suitable mechanism will be provided for the various parts and supporting means will be provided for the conveyers so that they will not sag between their ends, and any type of conveyer adapted to the purposes of the invention whereby the contents will be maintained on the conveyer until the discharge end is reached, may be utilized in the practical form of the invention.

Referring to the doors or covers 5, it will be seen that they are hinged on a central line to yokes 25 which, in turn, are hinged or pivoted to those sides of the pits remote from the stalls. Each door is provided with an eye 26, arranged to be engaged by a hook 27 on one end of a rope or cable 28 passing over a pulley 29 hung from a truck 30 movable over the pits on an overhead track 31. The doors or covers are located so as to receive most of the material and what is not deposited thereon may be readily scraped or swept on to the doors or covers. Now, by means of the hooks the doors or covers 5 may be engaged in any order and lifted at one end by the ropes and the material thereon be deposited in the conveyers in the pits, the doors or covers being tilted as they are lifted, as indicated by dotted lines, Fig. 1. It will be understood that one pit may extend through the center of the stable, and also that the conveyers will be the type having flexible sides to prevent the material from pressing against the sides or walls of the pits.

I claim:—

1. In a stable, the combination with a series of stalls therein, of pits arranged in operative relation to said stalls, interconnected conveyers in said pits, a discharge conveyer at the discharge end of the interconnected conveyers, and means whereby there may be imparted to the discharge conveyer a higher relative rate of speed than that of the other conveyers.

2. In a stable, pits arranged longitudinally of and in juxtaposition to the rear of the stalls in said stable beneath the floor thereof, conveyers housed in said pits and arranged to convey material deposited thereon to a point of discharge, movable covers for said pits constituting continuations of the floors and stalls of the stable, and pivots for the covers connected to the upper edges of the pits and mounted to swing above the same, about which pivots the covers may be tilted while being raised from the pits, to cause material deposited on said covers to gravitate into the pits.

3. In a stable, pits arranged longitudinally thereof and in juxtaposition to the rear ends of the stalls in said stable, beneath the floor thereof, conveyers housed in said pits and arranged to convey material placed thereon to a point of discharge, movable covers for said pits one located at each stall and constituting continuations of the floor and stalls of the stable, pivotal mountings for the covers, and means whereby the pivots of the covers may be elevated above the floor but still in operative relation to the pits so that the covers may be tilted while being elevated to cause material deposited on them to gravitate into the pits.

4. In a stable, a series of conveyers arranged in operative relation to the stalls and interconnected for simultaneous motion, another conveyer extendible to the exterior of

the stable and receiving material from the discharge end of the series of conveyers, and a friction drive for the series of interconnected conveyers arranged to vary their rate of speed without affecting the speed of the delivery conveyer.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

SYLVESTER RICHARD KIMBALL.

Witnesses:
HENRY HELVIG,
LEO J. LUKANITSCH.