

No. 870,710.

PATENTED NOV. 12, 1907.

C. VON BECHTOLSHEIM.

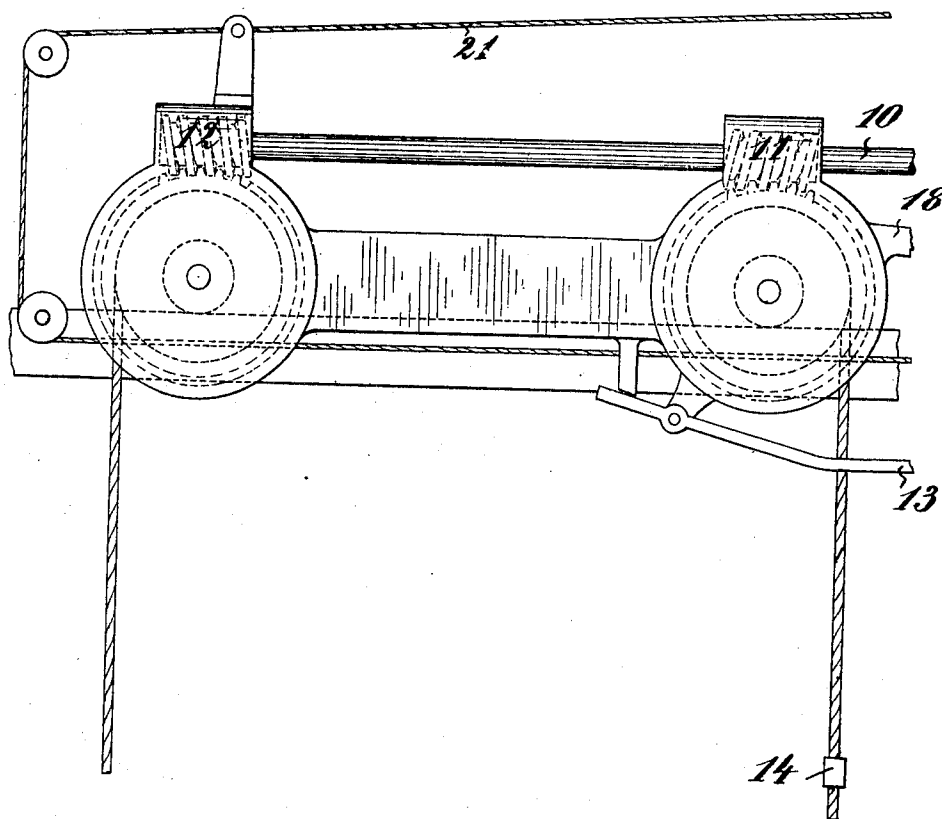
AUTOMATIC UNLOADING AND DEPOSITING DEVICE.

APPLICATION FILED OCT. 2, 1905.

2 SHEETS--SHEET 1.

Fig. 1.

L



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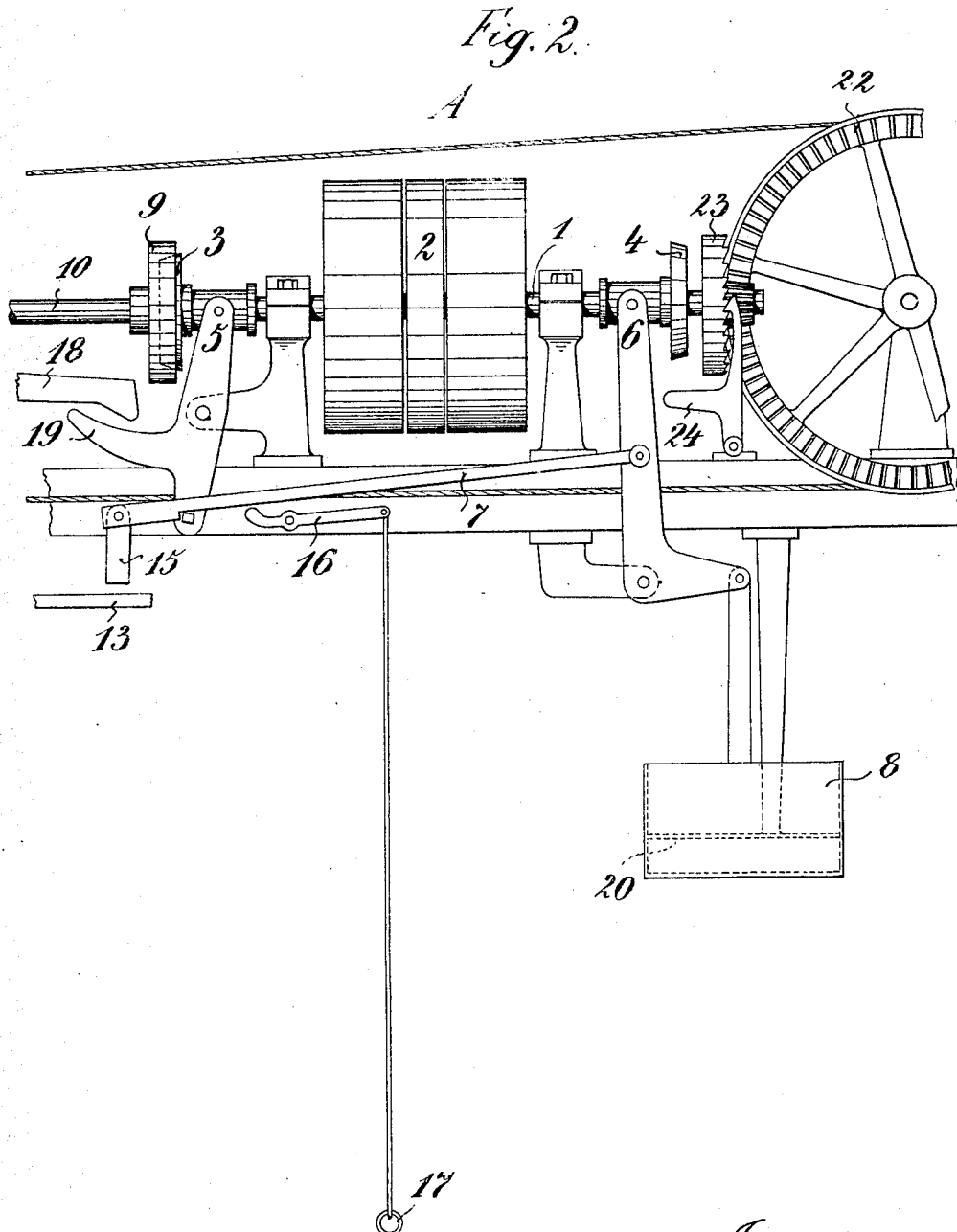
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UNITED STATES PATENT OFFICE.

CLEMENS VON BECHTOLSHEIM, OF MUNICH, GERMANY.

AUTOMATIC UNLOADING AND DEPOSITING DEVICE.

No. 870,710.

Specification of Letters Patent.

Patented Nov. 12, 1907.

Application filed October 2, 1905. Serial No. 281,096.

To all whom it may concern:

Be it known that I, CLEMENS FREIHERR VON BECHTOLSHEIM, a subject of the German Emperor, and resident of Munich, Germany, have invented certain new and useful Improvements in Coupling Mechanism for Conveyers, of which the following is a specification.

The present invention relates to a coupling mechanism for conveyers and consists chiefly of a traveler which always effects the hoisting of the load at the same place, travels to the unloading place when the hoisting is completed, uncouples the mechanism which effected the horizontal travel when again arriving at the hoisting place and couples itself to the driving mechanism.

In the drawing Figures 1 and 2 are side elevations of two adjacent portions of my invention.

The traveler L is shown coupled to the driving mechanism A while the drum 22, which effects the forward movement of the traveler, is uncoupled.

The driving shaft 1, which may be rotated by any suitable means such as a belt-pulley 2, carries two conical disks 3 and 4 which rotate with the shaft but are capable of axial movement thereon. The axial movement of the disks 3 and 4 is effected by the levers 5 and 6 which are connected with each other by means of a trip catch 7. The lever 6 is furthermore influenced by a weight 8 depending therefrom. In the relative positions of the parts shown in the drawing the weight 8 forces the cone 3 into a hollow cone 9 which is connected with the shaft 10. The shaft 10 operates the hoisting drums 11 and 12 arranged on the traveler by means of a worm gearing as shown, in dotted lines, Fig. 1. The traveler is provided with a lever 13 which can be moved upwardly by a stop 14 on the hoisting rope so as to release the catch 7 through the medium of the pendulum 15. The catch 7 can furthermore be released from the engineer's cab by means of a lever 16 having handle 17. The traveler is provided with an arm 18 which during the travel of the traveler L actuates the lever 5 through the medium of the curved arm 19, thereby again bringing the catch 7 into engagement.

The weight 8 is formed as a fluid brake and consists of a vessel filled with fluid. In this vessel is located a disk 20, which is immovable. The disk is formed to permit the fluid to pass from one side thereof to the other when the vessel moves up and down, but while doing so it meets with resistance, and the movement of the vessel, therefore, can take place only slowly.

The reciprocation of the traveler is effected by means of a rope 21 moved by a drum 22 which is driven by the hollow cone 23 when the solid cone 4 is forced thereinto. The cone 23 is rotatably arranged on the shaft 1. A detent 24 locks the drum 22 against movement when the coupling 4, 23 is not in effect while, when the coupling is effected, the lever 6 disengages the pawl 24.

The mode of operation of this embodiment is as follows: In the position shown in the drawing the driving shaft 1 is coupled to the shaft 10 through the medium of the coupling 3, 9. The load is hoisted until the operator pulls the handle 17 or until the stop 14 raises the lever 13. In either instance the catch 7 is released and the pressure exerted by the weight 8 on the cone 3 ceases and the driving of the shaft 10 consequently comes to a stop. On the other hand, the weight forces the cone 4 into the hollow cone 23 so as to couple these parts together. The coupling takes place without shock, because the fluid brake only permits a slow movement of the weight 8. The drum 22 now starts turning and the traveler moves towards the left until it reaches the place of unloading where the load is unloaded by any suitable device which may be an automatic one. The driving shaft is now moved in the opposite direction which may be done in any suitable way, preferably automatically. When the traveler moves to the left the curved arm 19 becomes depressed and the catch 7 is again brought into engagement with the lever 5. When the traveler again returns to the driving mechanism, the hollow cone 9 again becomes coupled to the solid cone 3. The traveler, however, is still in motion and moves the effected coupling 3, 9 toward the right and through the medium of the catch 7 and lever 6 disengages the solid cone 4 from the hollow cone 23. The fluid brake again enters into action, during this proceeding, as the weight 8 is again elevated. The fluid brake absorbs the momentum of the traveler so as to cause the traveler to come to rest without shock. The loading ropes now become unwound and when they have reached the bottom, the driving mechanism is stopped which of course may be done in any automatic way.

As a matter, of course, any other releasable couplings may be substituted for the conical friction couplings. Furthermore the reengagement of the catch may be effected in any suitable manner instead of through the medium of the members 18 and 19.

The essential feature of the invention consists in the fact that the couplings 3, 9 and 4, 23 are connected with each other by means of a releasable intermediate member in such a manner that on the return of the traveler the coupling 3, 9 is put into engagement and the coupling 4, 23 out of engagement and on release of the catch 7 the coupling 4, 23 is put into engagement and the coupling 3, 9 out of engagement.

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

1. A mechanism of the class described comprising a driving shaft, a traveler, a hoisting mechanism carried by the traveler, a traveler shifting mechanism, a coupling for effecting connection between the hoisting mechanism and the driving shaft, a coupling for effecting connection between the shifting mechanism and the driving shaft, a connection between the couplings embodying a releasable de-

tent, and means automatically shifting one of said couplings, when the detent is released.

2. A mechanism of the class described comprising a driving shaft, a traveler, a hoisting mechanism carried by the traveler, a pair of couplings one for connecting with the hoisting mechanism, and the other for the traveler driving mechanism, a lever for shifting one of said couplings, a lever for shifting the other coupling, a detent connecting the levers, and means for shifting the traveler coupling upon the release of the detent.

3. A mechanism of the class described comprising a driving shaft, a traveler, a hoisting mechanism carried by the traveler, a pair of couplings one for connecting with the hoisting mechanism, and the other for the traveler driving mechanism, a lever for shifting one of said couplings, a lever for shifting the other coupling, a detent connecting the levers, and a weight for shifting the traveler coupling upon the release of the detent.

4. A mechanism of the class described comprising a driving shaft, a traveler, a hoisting mechanism carried by the traveler, a pair of couplings one for connecting with the hoisting mechanism, and the other for the traveler driving mechanism, a lever for shifting one of said couplings, a lever for shifting the other coupling, a detent connecting the levers, and a weight for shifting the traveler coupling upon the release of the detent, said weight being formed as a vessel, and a disk working in said vessel to retard the movement of the vessel.

5. A mechanism of the class described comprising a driving shaft, a traveler, a hoisting mechanism carried by the traveler, a pair of couplings one for connecting with the hoisting mechanism, and the other for the traveler driving mechanism, a lever for shifting one of said couplings, a lever for shifting the other coupling, a detent connecting the levers, means for shifting the traveler coupling upon the release of the detent, and means for retarding the movement of said shifting means.

6. A mechanism of the class described comprising a drive shaft, a traveler, a hoisting mechanism carried by the traveler, a traveler shifting mechanism, a coupling for effecting connection between the hoisting mechanism and the driving shaft, a coupling for effecting connection between the shifting mechanism and the driving shaft, a connection between the couplings embodying a releasable detent, means for shifting one of said couplings upon the release of the detent, and means operated by the traveler to restore the connection between the couplings.

7. A mechanism of the class described comprising a drive shaft, a traveler, a hoisting mechanism carried by the traveler, a traveler shifting mechanism, a coupling for effecting connection between the hoisting mechanism and the driving shaft, a coupling for effecting connection between the shifting mechanism and the driving shaft, a connection between the couplings embodying a releasable de-

tent, operated by the hoisting mechanism when the latter reaches a certain position, means for shifting one of said couplings upon the release of the detent, and means operated by the traveler to restore the connection between the couplings.

8. A mechanism of the class described comprising a driving shaft, a traveler, a hoisting mechanism, a coupling for effecting connection between the hoisting mechanism and the driving shaft, a coupling for effecting connection between the traveler driving mechanism and the driving shaft, a connection between the couplings embodying a releasable detent operated by the hoisting mechanism when the latter reaches a certain position, and means for automatically shifting the traveler coupling upon release of the detent.

9. A mechanism of the class described comprising a driving shaft, a traveler, a hoisting mechanism carried by the traveler, a pair of couplings one for connecting with the hoisting mechanism, and the other for the traveler driving mechanism, a lever for shifting one of said couplings, a lever for shifting the other coupling, a detent connecting the levers, a pendulum carried by the detent and engaged during the hoisting, manually operated means for releasing the detent, and means for shifting the traveler coupling upon release of the detent.

10. A mechanism of the class described comprising a driving shaft, a traveler, a hoisting mechanism carried by the traveler, a pair of couplings one for connecting with the hoisting mechanism, and the other for the traveler driving mechanism, a lever for shifting one of said couplings, a lever for shifting the other coupling, a detent connecting the levers, automatic means for releasing the detent, manually operated means for releasing the detent, and means for shifting the traveler coupling upon release of the detent.

11. A mechanism of the class described comprising a driving shaft, a traveler, a hoisting mechanism carried by the traveler, a pair of couplings one for connecting with the hoisting mechanism, and the other for the traveler driving mechanism, a lever for shifting one of said couplings, a lever for shifting the other coupling, a detent connecting the levers, an arm extending from the lever which shifts the hoisting coupling, an arm moving with the traveler and adapted to engage the coupling lever arm to move the coupling lever, so that the latter may be engaged by the detent, and means for shifting the traveler coupling upon release of the detent.

The foregoing specification signed at Munich, Bavaria, this twelfth day of September, 1905.

CLEMENS VON BECHTOLSHEIM.

In presence of—

ULYSSES J. BYWATER,
ABRAHAM SCHLESINGER.