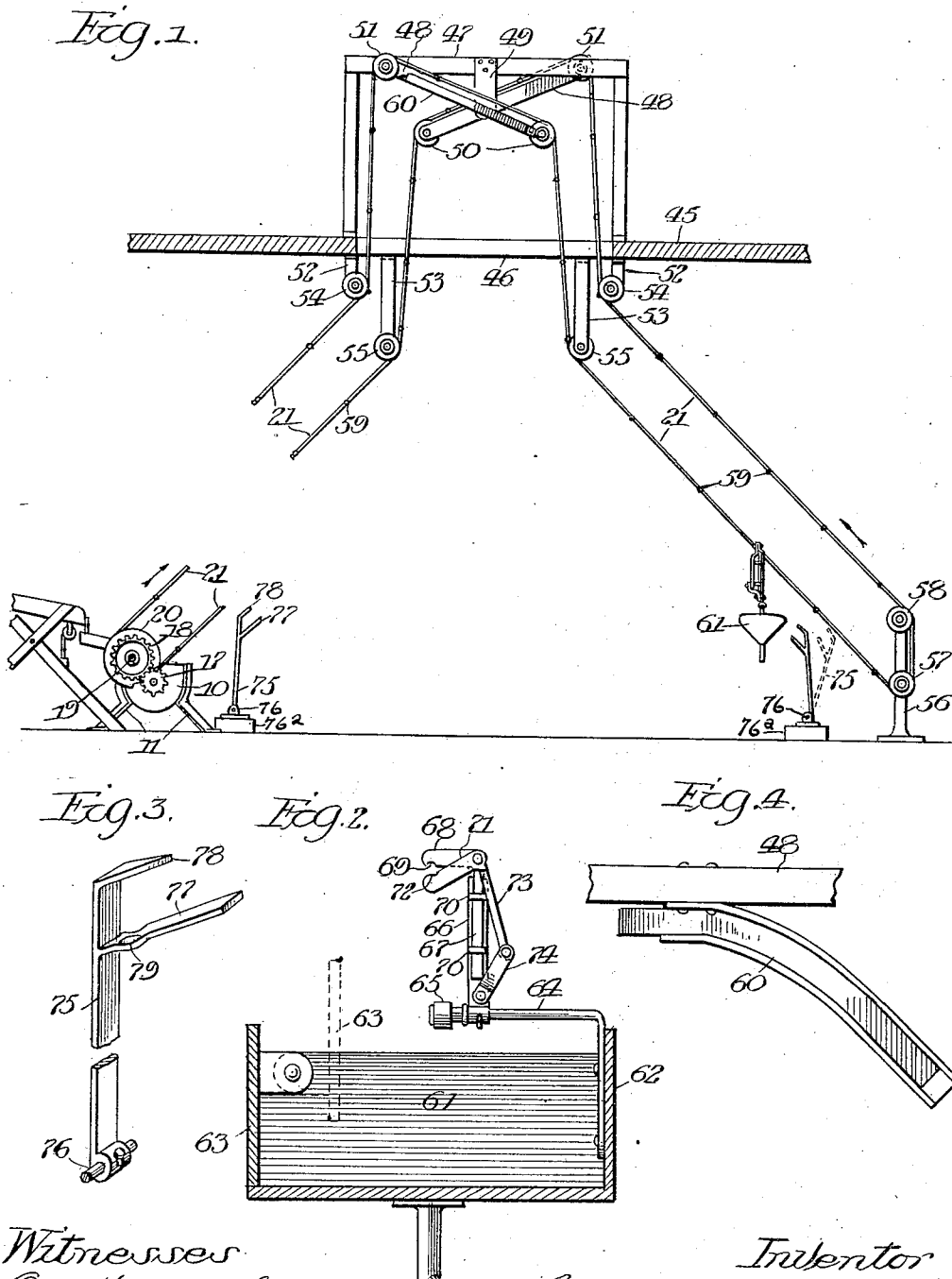


C. ZETTERLUND.
HOISTING APPARATUS.
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Witnesses
O. Hennich
E. Newstrom

Inventor
Carl Zetterlund
by Chase & Killman Attys.

UNITED STATES PATENT OFFICE.

CARL ZETTERLUND, OF CHICAGO, ILLINOIS.

HOISTING APPARATUS.

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To all whom it may concern:

Be it known that I, CARL ZETTERLUND, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hoisting Apparatus, of which the following is a specification.

This invention relates to improvements in an apparatus to be used for hoisting and conveying mortar as well as other materials such as brick, laths and the like, and as it is especially applicable for hoisting and conveying building materials, I have shown it in connection with a mortar mixer and sand screen or sifter, which latter device forms no part of my present invention, and is illustrated in connection therewith as a convenient means of demonstrating the utility of the apparatus.

The invention consists in certain peculiarities of the construction, novel arrangement and operation of the parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The principal object of the invention is to provide a hoisting apparatus for mortar, brick and other materials, which shall be simple and inexpensive in construction, strong, durable and efficient in operation.

Another object of the invention is to provide means for conveying mortar from a mortar mixer and other material, for instance, brick or laths from a pile of the same to an elevated point, which conveying means shall be of such construction and operation as to readily grasp or engage the conveying cable and be easily removed therefrom at the desired point or points.

Various other objects and advantages of the invention will be disclosed in the subjoined description and explanation.

In the accompanying drawings which serve to illustrate an embodiment of the invention:—Figure 1 is a side view partly in elevation and partly in section of a mortar mixer, part of a sand screen or sifter, and a hoisting apparatus embodying the invention, showing the cables thereof shortened for the convenience of illustration; Fig. 2 is an enlarged longitudinal vertical sectional view of a hod or receptacle used for holding mortar, brick or other material while being elevated, illustrating the means for suspending the hod or receptacle on the cable of the apparatus; Fig. 3 is a perspective view of one of the releasing uprights or de-

vices employed to assist in releasing the hod or receptacle in its descent at or near the mortar mixer or pile of brick or other material, and Fig. 4 is a plan view of a portion of the pulley supporting horse used at an elevated point, showing one of the deflectors or releasing arms for the hod or conveying receptacle, attached thereto.

Like numerals of reference refer to corresponding parts throughout the different views of the drawings.

The reference numeral 10 designates a mortar mixing receptacle, which may be of any suitable size, form and material, but preferably of sheet metal and circular in cross section as is clearly shown in Fig. 1 of the drawings. The receptacle 10 is mounted on suitable legs 11, located on each side thereof, and near each of its ends, and has journaled on its front portion a gear 17, which may be suitably geared to an engine or motor of any suitable kind (not shown) used for operating the apparatus. This gear meshes with a gear 18, mounted on a pulley shaft 19, which is journaled longitudinally with respect to the receptacle 10, and preferably on the upper portion thereof, as shown. Mounted on the shaft 19, is a grooved pulley 20, over which a cable or conveyer 21, passes.

Mounted on a suitable elevated support 45, such as one of the upper floors of a building which is provided with an opening 46, is a horse or supporting frame of any desired construction, which extends over said opening and is provided on each of its sides with an arm 48, these arms being downwardly inclined in opposite directions, as is clearly shown in Fig. 1 of the drawings. Each of the arms 48, is secured at its upper end to the horizontal portion 47, of the horse, and is supported on said portion by means of a depending bracket 49, so that the lower end of said arm will be free. Journaled on the free end of each of the arms 48, is a grooved pulley 50, and journaled on the horizontal portion 47, of the horse and on opposite sides thereof at the upper end of each of the arms 48, is a grooved pulley 51. Journaled on suitably supporting depending hangers 52, and 53, at or near each side of the opening 46, in the support 45, are grooved pulleys 54 and 55, respectively. On the opposite side of the opening 46, from that on which the mortar mixer is located is mounted a stand-

ard 56, on which is journaled grooved pulleys 57 and 58, which are employed for holding the cable 21, at or near the pile of brick or other material to be hoisted.

Extended around the pulley 20, on the main or driven pulley shaft is an endless cable 21, which by preference is provided with a transverse series of enlargements 59, to afford means for preventing the grip or clamping device of the hod or conveying receptacle slipping on said cable, which cable is extended with its upper member from the pulley 20, under one of the pulleys 54, over the pulleys 50 and 51, on one side of the horse, under one of the pulleys 55, and around the pulleys 57 and 58, from whence the cable will pass under the other pulley 54, and over the pulleys 50 and 51, on the opposite side of the horse, and under the other pulley 55, and from thence around the pulley 20, on the pulley or driven shaft. Thus it will be seen that in the operation of the apparatus the cable 21, will afford an endless conveyer, and that by placing a hod or receptacle on the upper strand of the cable at or near the mixing receptacle or pulley or driven shaft 19, the said hod will be carried up to the pulley 51, on one side of the horse, and after it passes the same it can be taken from the cable and discharged of its contents. This same operation can be performed by placing a hod on the upper strand of the cable at or near the upright 56, which, as before stated, will be located near the brick pile or pile of other material. To facilitate the removal of the hod when it has reached the elevated point or points on the horizontal portion 47, of the horse, each of the arms 48, has attached thereto one end of a releasing arm 60, each of which is longitudinally channeled or grooved on its upper surface to act as a guide for a roller carried by the hod, which roller will be presently referred to, and each of the arms 60, is deflected from its arm 48 so as to direct the movement of the hod laterally or outwardly from the horse or support, as will be readily understood by reference to Fig. 4 of the drawings.

The hod or conveying receptacle used in connection with the apparatus is shown in Fig. 1 as being mounted on the cable and descending near the upright 56, which, as before stated, may be located near the pile of brick, and in Fig. 2 in detail. This hod consists of a box 61, preferably V-shaped in cross section, with its upper portion open. One end of the hod or box is closed by a fixed end piece 62, and the other end has pivotally mounted thereon a door 63, which may be tilted as shown by dotted lines in Fig. 2, to allow the contents of the hod to be discharged. Fixed to the end piece 62, and extending longitudinally with respect to the box or body 61, to about its middle

portion, is an arm 64, which has journaled thereon near its free end a roller 65, to travel a very slight distance on the channeled releasing arms 60, when the hod shall have reached the same. That portion of the arms 60, which is secured to the inclined arms 48, is extended in parallelism with the latter named arms and with the cable 21, so as to permit the travel thereon for a short distance of said roller, but the releasing arms are laterally deflected and downwardly inclined from points near their secured portions. Extended upwardly from the inner portion of the arm 64, of the hod is a bar 66, which is mounted on said arm so as to have a slight yet restricted rocking movement thereon transversely of the box 61, but without any longitudinal movement with respect to said body. This restricted movement is provided to permit the box or hod to hang vertically on the cable when the cable is traveling in inclined position, and is accomplished by means of a pin projected from the arm 64, through a slot in that portion of the bar 66, which surrounds said arms. Slidably mounted on the bar 66, is another bar 67, which has at its upper end an extension 68, provided on its lower surface with a recess 69, to receive the cable. The bar 67, is preferably held in sliding contact with the bar 66, by means of straps 70, secured to the bar 66, and around the bar 67, as shown in Fig. 2, of the drawings. Pivotaly connected to the upper portion of the bar 67, is a bell crank lever, the shorter arm 71, of which, extends along side of the extension 68, and has in its upper surface a recess 72, to receive the lower surface of the cable. The longer arm 73, of said lever is connected by means of a link 74, to the lower portion of the bar 66, so that when the extension 68, is placed on the cable 21, the weight of the hod will cause the arm 71, to be raised at its free end and to clamp the cable between it and the extension 68, thus securely supporting the hod on the cable, so that it may travel with the same, the enlargements 59, on the cable assisting in preventing the gripping device of the hod from slipping as is apparent. As the hod is carried up on the cable from either side of the opening 46, of the elevated support 45, as indicated by the arrows, it will be understood that it will be transversely suspended on the cable and it is apparent that the gripping device will pass over one of the pulleys 51, and just after it has done so the roller 65, on the arm 64, will contact with the upper portion of one of the channeled releasing arms 60, which lies directly under the cable and has its upper end rounded or beveled, thus slightly raising the hod and permitting the members 68, and 71, to be released from the cable so that the hod may be removed, when it may be dis-

charged of its load, after which the gripping device of the hod may again be placed in engagement with the cable, thus permitting the hod to be carried down either toward the mortar mixer or the upright 56, at or near each of which may be located a releasing upright, which consists of a standard 75, loosely mounted at its lower end on the horizontal rod 76, secured on a base 76^a for restricted pivotal movement and provided at its upper portion with an inclined platform 77, and above the same with an angular arm 78, which is extended in the same direction with the arm 77, but is shorter than the latter. The restricted movement of the standard 75, is accomplished by means of a pin projected from the rod 76, through a slot in that portion of the standard 75, which surrounds said rod. As the hod in a sidewise movement approaches the releasing upright 75, the roller 65, on the arm 64, of the hod, will strike the upper surface of the platform 77, and travel thereon toward said upright, in which operation the beveled portion of the arm 78, will strike the bar 66, and deflect the same, so that the roller 65, will be moved into the depressed portion 79, of the arm 77, so that the hod will be automatically detached from the cable, for it is apparent that in the downward movement of the hod and in its engagement with the platform 77, the standard 75, will be moved rearwardly to about the position shown by dotted lines in Fig. 1 of the drawings, and there stopped by reason of its restriction. At about the time the hod is thus released it can be taken hold of by workmen and filled with brick or other material, and then placed on the upper strand of the cable to be again elevated. It will be understood that the depressed portion 79, of the platform 77, is located at a sufficient distance from the standard 75, to receive the roller 65, on the arm 64, of the hod before the side of the latter has a chance to strike said standard, and also that the platform or arm 77, will pass between the arm 64, and the upper portion of the hod, said arm acting somewhat like a bail for the same.

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

1. In an apparatus of the class described, the combination with a suitably mounted driving pulley, of a support mounted above said pulley and having an opening or passageway therein, a horse or frame mounted on said support over the opening therein, an arm on one side of said frame and inclined downwardly therefrom, a channeled releasing arm connected near one of its ends to the first named arm and deflected laterally therefrom, a pulley journaled near one of the ends of the first named arm, an-

other pulley journaled at a point below the elevated support and at a distance from said driven pulley, another pulley journaled on the free end of the inclined arm, an endless conveyer extended around said pulleys, a conveying receptacle having gripping means to detachably connect it to said conveyer, and means on said conveying receptacle to travel on said channeled releasing arm for releasing said gripping means.

2. In an apparatus of the class described, the combination with a suitably mounted driving pulley, of a support mounted above said pulley and having an opening or passageway therein, a horse or frame mounted on said support and extended above the opening therein, an arm on each side of said support and inclined in opposite directions, a channeled releasing arm connected near one of its ends to each of the first named arms and deflected laterally therefrom, a pulley journaled near the end of each of the first named arms, another pulley journaled at a point below the elevated support and at a distance from said driven pulley, a pulley journaled on the free end of each of the inclined arms, a pair of pulleys journaled below the elevated support on the opposite side of the opening therein from that on which the driving pulley is located, an endless conveyer extended around said pulleys, a conveying receptacle having gripping means to detachably connect it to said conveyer, and means on said conveying receptacle to travel on said channeled releasing arms for releasing said gripping means.

3. In an apparatus of the class described, the combination with a suitably mounted driving pulley, of a support mounted above said pulley, a horse or frame mounted on said support, an arm on each side of said support and inclined in opposite directions, a channeled releasing arm connected near one of its ends to each of the first named arms and deflected laterally therefrom, a pulley journaled near the secured end of each of the first named arms, another pulley journaled on the free end of each of the inclined arms, a pair of pulleys journaled beneath the elevated support near each end of the horse or frame, another pair of pulleys journaled below the elevated support near the opposite end of the horse or frame from that on which the driving pulley is located, an endless conveyer extended around said pulleys, a conveying receptacle having gripping means to detachably connect it to said conveyer, and means on said receptacle to travel on the channeled releasing arms for releasing said gripping means.

4. In an apparatus of the class described, the combination with a suitably mounted driving pulley, of a support mounted above said pulley, a horse or frame mounted on said support, an arm on each side of said

- support and inclined in opposite directions, a channeled releasing arm connected near one of its ends to each of the first named arms and deflected laterally therefrom, a pulley journaled near the secured end of each of the first named arms, another pulley journaled on the free end of each of the inclined arms, a pair of pulleys journaled beneath the elevated support near each end of the horse or frame, another pair of pulleys journaled below the elevated support near the opposite end of the horse or frame from that on which the driving pulley is located, an endless conveyer extended around said pulleys, a conveying receptacle having gripping means to detachably connect it to said conveyer, means on said receptacle to travel on the channeled releasing arms for releasing said gripping means, and a releasing standard mounted near the driving pulley and near the last named pair of pulleys for restricted movement and each having means at its upper end to disengage the conveying receptacle from the conveyer.
5. In an apparatus of the class described, the combination with a suitably mounted driving pulley, of a support mounted above said pulley, a horse or frame mounted on said support, an arm on each side of said support and inclined in opposite directions, a channeled releasing arm connected near one of its ends to each of the first named arms and deflected laterally therefrom, the upper portion of each of the last named arms being rounded or beveled, a pulley journaled near the secured end of each of the first named arms, another pulley journaled on the free end of each of the inclined arms, a pair of pulleys journaled beneath the elevated support near each end of the arm or frame, another pair of pulleys journaled below the elevated support near the opposite end of the arm or frame from that on which the driving pulley is located, an endless conveyer extended around said pulleys and above the upper portions of the channeled arms, a conveying receptacle having gripping means to detachably connect it to said conveyer, means on said receptacle to travel on the channeled releasing arms for releasing said gripping means, and a releasing standard mounted near the driving pulley for restricted movement and having means at its upper portion to disengage the conveying receptacle from the conveyer.

CARL ZETTERLUND.

Witnesses:

CHAS. C. TILLMAN,
E. NEWSTROM.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."