G. SCHLÖSSER & A. LORENZ.

ELEVATOR FOR BUILDING MATERIALS.

APPLICATION FILED MAR. 1, 1911.

1,083,508.

Patented Jan. 6, 1914.

3 SHEETS—SHEET 1.

Fig. 1.

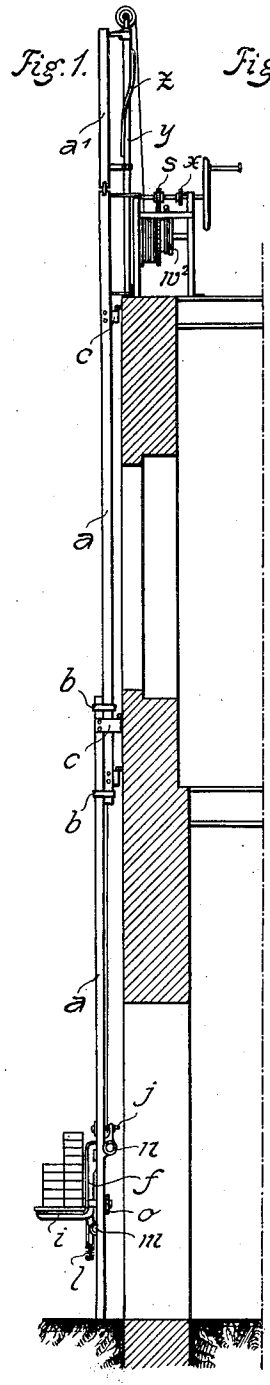


Fig. 2.

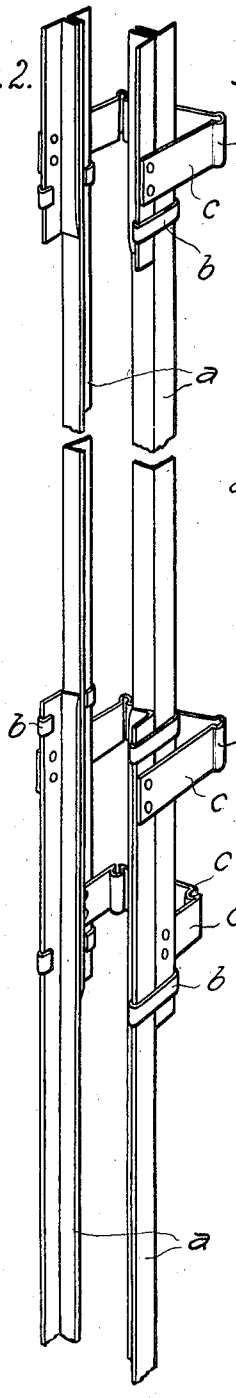


Fig. 3.

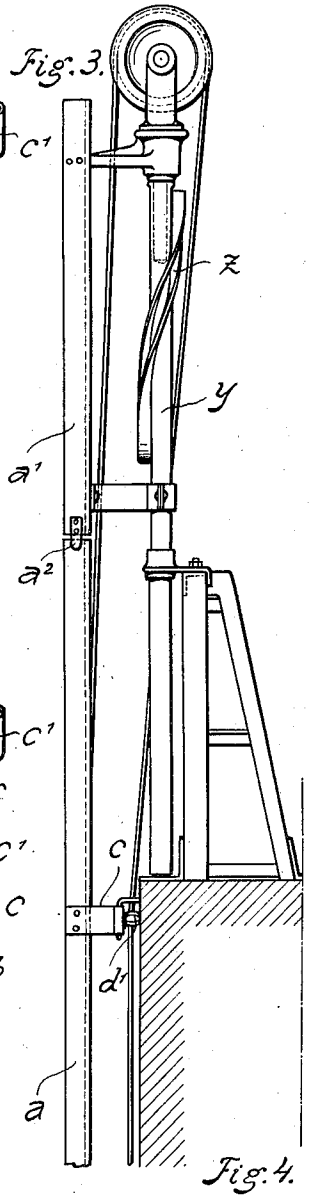
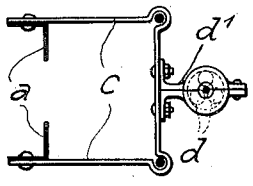


Fig. 4.



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3 SHEETS—SHEET 2.

Fig. 5.

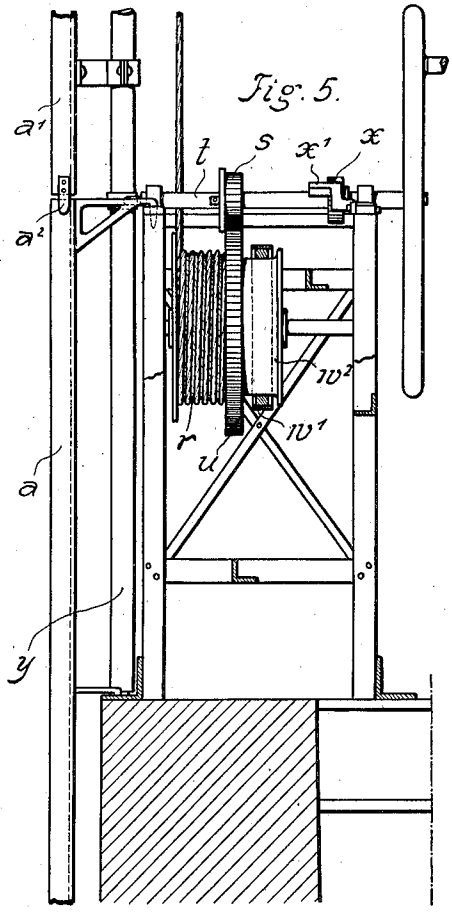


Fig. 7.

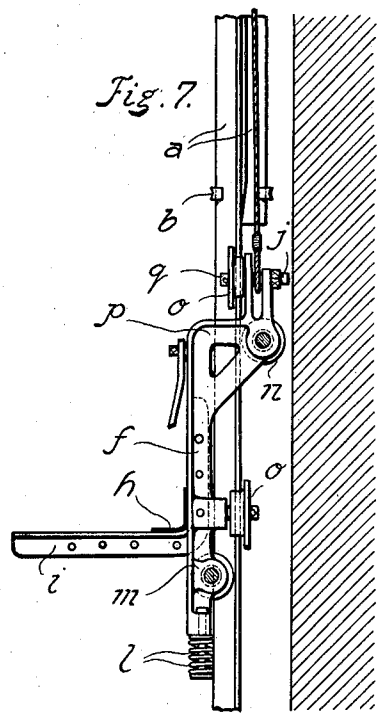


Fig. 8.

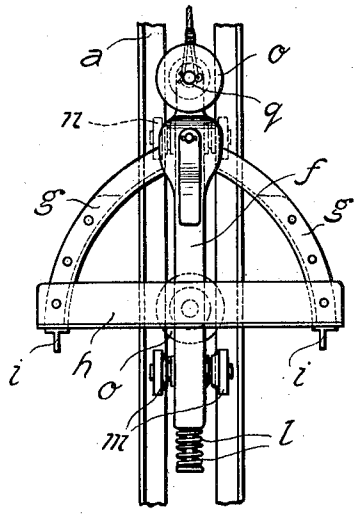
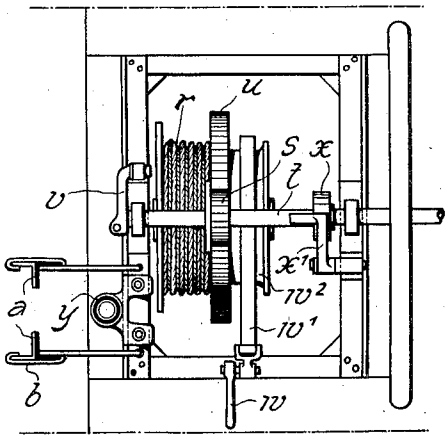


Fig. 6.



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3 SHEETS—SHEET 3.

Fig. 9.

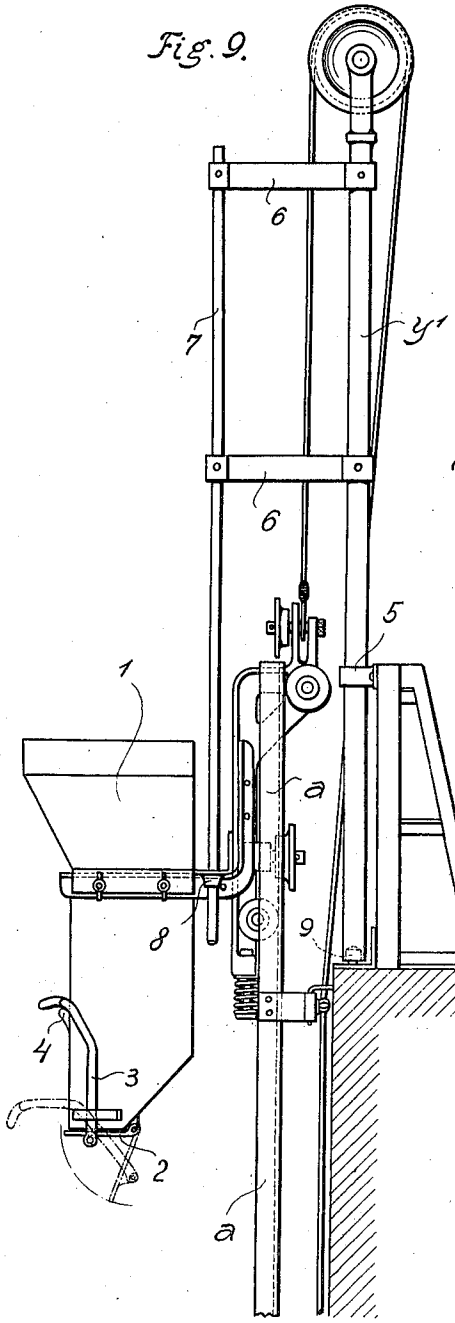
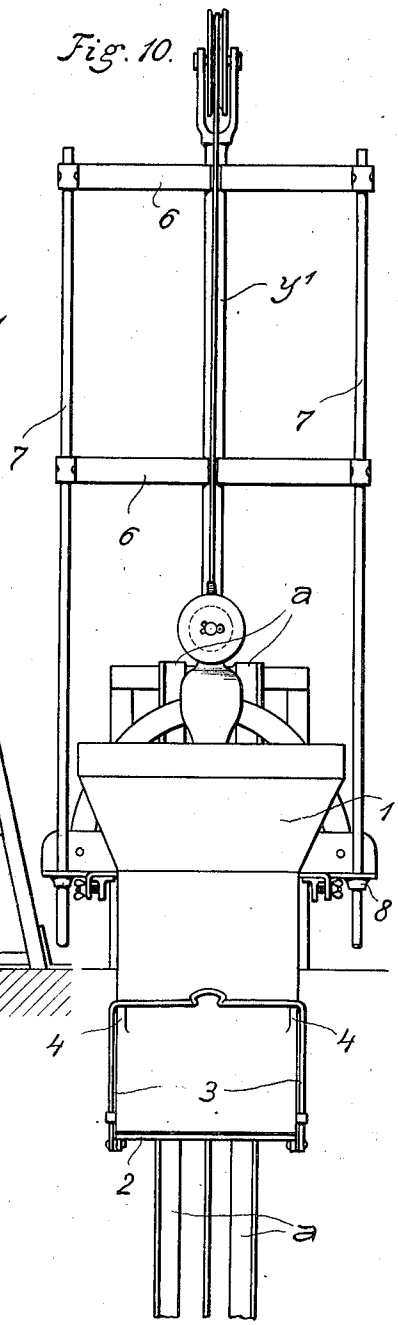


Fig. 10.



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UNITED STATES PATENT OFFICE.

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ELEVATOR FOR BUILDING MATERIALS.

1,083,508. Specification of Letters Patent. Patented Jan. 6, 1914.

Application filed March 1, 1911. Serial No. 611,723.

To all whom it may concern:

Be it known that we, GUSTAV SCHLÖSSER and AUGUST LORENZ, citizens of Germany, the former residing in Dusseldorf-Holthausen, the latter in Essen-on-the-Ruhr, Germany, have invented new and useful Improvements in Elevators for Building Materials, of which the following is a specification.

This invention relates to an elevator for building material, the winding frame of which is capable of rotation at the end of the lift. Means are provided for adjusting the elevator easily and accurately to any required level, and for giving to the winding frame such a guide as to operate without shocks.

In the accompanying drawing: Figure 1 is a longitudinal section of a lift embodying our invention; Fig. 2 a perspective view of the guide frame; Fig. 3 a side view of a modification of the lift; Fig. 4 a cross section of Fig. 3; Fig. 5 a front view of the winch shown in Fig. 1; Fig. 6 a plan thereof; Fig. 7 a side view of the carriage; Fig. 8 a front view thereof; Fig. 9 a side view of a further modification of the lift, and Fig. 10 a front view of Fig. 9.

For guiding the winding frame or carriage two guides *a*, set in parallelism, are provided. In the shown construction, each guide consists of a plurality of angle-iron rails having overlapping chamfered ends connected by clamps *b* that may be forced by hammer blows in a longitudinal direction over the overlapping parts of the rails. The rails so overlap alternately that the one placed to the right fits against the rail beneath, whereas the latter fits at the left against the rail beneath respectively. By shifting the rails *a*, after the clamps *b* have been slackened, the guides can be lengthened or shortened thus allowing the top of the lifting mechanism to be adjusted to a higher or lower level. The opposed rails of the two guides *a* have fastened thereto U-shaped bows or clips *c* by which such rails are connected and retained at their given distance apart. At the same time, the clips may be used for strutting the guides or for connecting the same to the scaffold or wall. To this effect the clips carry lugs *c'* engaged at the scaffold or at the wall by hooks driven in or fixed in other convenient manner. Of the clips *c*, attached to the rails, which are placed in superposition, the one is fitted with inwardly, and the other with outwardly directed lugs *c'* while adjoining clips are made of different size, so that when the rails are shifted to a considerable extent, the clips can be slipped lengthwise over one another.

The winding frame or carriage used for carrying the materials to be raised is provided with a member *f* preferably entirely or partly of steel casting; this member has fixed thereon arms *g*, consisting of profile or flat iron. These arms carry at their base a cross rail *h* with which the arms or rails *i*, used for receiving the cargo are connected and which may be supported by struts. At the bottom of member *f*, a strong buffer-spring *l* is arranged in order to lessen the shock of the winding frame when the charge is put down. The carriage has mounted at either side of its bottom, rolls *m* bearing against the front of the guide rails. At the top the member *f*, is provided with an outrigger *p* extending between and across the guides and carrying rolls *n*, which fit rearwardly against the guide-rails. At right angles to rolls *m*, *n*, member *f* carries rolls *o* engaging between the guides and bearing against the flanges of the same, which face each other. Due to this arrangement, the winding frame is secured to the guide in each direction against tilting, while permitting at the same time an easy up and down movement. Due to the beveling of the overlapping rail ends, the winding frame rolls practically without any shock from one rail to the other.

The moving up and down of the winding frame is carried out in the form of embodiment shown in Fig. 1, by a winch situated at the upper end of the lifting mechanism, the cable of which is connected with a hook or bolt *q*, attached to the winding frame. The drum *r* is driven by means of the toothed wheel *s*, the shaft *t* of which can be rotated by hand or by a prime mover, such as an electromotor. The toothed wheel *s* engages a toothed wheel *u* fixed on the shaft of the drum. The axle *t* is shiftable to the left, checked however by an arm or stop *v* pivoted to the winch frame and bear-

ing against one end of axle t. By shifting the axle to the left, after arm v is raised, wheel s can be brought out of engagement with wheel u. Thus, as the drum can rotate independently of the driving agent, the lowering of the winding frame can be effected by the actual weight of the load. The descent is regulated by a brake comprising a steel strap w', which may be provided with wooden shoes and may be forced against a brake-disk w^2 carried by the drum shaft. In addition, the drum-shaft has fitted thereon, a ratchet-wheel x engaged by a pawl x'. This pawl is of such a size that it remains in engagement with the ratchet wheel while the shaft s is being shifted, so that the lowering of the winding frame can only take place after the pawl has been disengaged. The rotation of the arm v is limited, and the arm is so loaded, that after being released, it will resume its horizontal position, so that when axle t is shifted into the position in which the gears are in mesh, the arm will again become lodged automatically forward of the axle, thus preventing the displacement of the axle to the left.

The upper part a' of guides a is disconnected therefrom and is rotatable on a vertical spindle y, so that the load may be swung sidewise toward the helper, who may thus take the materials with ease away from the carriage. This rotation is effected automatically by a helical guide z composed of a U-shaped iron bar. On moving into the upper extreme position or downwardly therefrom, the winding frame engages guide z with a pin or roll j, so that the frame together with the upper part of the guide is turned around spindle y by 180°, in one or the other direction. The movement of the part a' is limited by a stop a^2 with which it impinges against the fixed guides a.

In the form of construction shown in Figs. 3 and 4, the winch is adapted to be located on a lower part of the scaffold or on the ground. Here the rope is passed over a sheave mounted on the upper frame section and is guided between anti-friction balls d mounted in lateral bearings d' of clips c. Balls d, by surrounding the rope, give a perfect guide to the same and thus permit its ready play.

The guide rails instead of being formed of angle iron, may be of U-, Z- or other form in cross section. The connection of the overlapping parts of the rails can also be effected by screw bolts passed through holes of the rails. The arrangement may also be such, that at both sides of the guides, winding frames are displaceably guided, one winding frame being moved upwardly while the other is lowered.

In the type illustrated in Figs. 9 and 10, the carriage is made box shaped as at 1 and is provided with a bottom 2. Bottom 2 is connected by hinges with box 1 while a bow 3 of the bottom is adapted to be projected over a tooth 4 of the box so as to maintain the bottom in its closed position. The box is specially intended for lifting chalk, mortar, concrete or similar material. The guides for the winding frame are preferably projected into the ground, so that the box can be lowered in such a way, that its upper edge is flush with the surface of the earth. Thus the material to be hauled and which is delivered in barrows or the like, can be filled by tilting it directly into the boxes. For emptying the box, the bow 3 is pressed back, so that the bottom is released and drops the material into a barrow or other device placed under the box. The upper rotatable section of the guide frame is provided with a spindle y' turning on pivot 9 and mounted in a neck journal bearing 5. Spindle y' has attached thereto arms 6 carrying guide bars 7. The winding frame is provided with eyes 8 adapted to receive rods 7 and preferably flaring on top. At the upper part of rod y' is mounted the guide-roller for the winding rope while rod y' with arms 6 and rods 7 is arranged in such a manner that the guides a for the winding frame project on top to a greater or less extent above the lower ends of the rods 7. On hauling, the winding frame before leaving guides a, engages with its eyes 8 over rods 7. The winding frame now moves upwardly to such an extent, that it clears guides a, when spindle y' with the rod 7 and the winding frame can be turned.

The winding frame may carry in place of eyes rather long and upwardly enlarging sockets.

The upper revoluble part of the guides or the special pivotally mounted frame is preferably so constructed that it can be easily removed in order to be replaced by a revoluble outrigger carrying guides for the lift rope and permitting the hauling of long objects, such as wood-beams, girders and similar articles.

We claim:

1. In a device of the character described, a hoisting frame composed of a pair of parallel flanged uprights each composed of a plurality of overlapping and lengthwise adjustable members combined with a carriage suspended from the frame and having a first set of rolls engaging the front of the uprights, a second set of rolls engaging the rear of the uprights and a third set of rolls engaging the laterally extending flanges of the uprights.

2. In a device of the character described, a hoisting frame composed of two parallel sectional uprights, means for connecting adjoining members of the same upright and a plurality of U-shaped clips connecting corresponding members of different uprights,

adjoining clips being of different size so that they may be slipped through one another.

3. In a device of the character described, a hoisting frame composed of two parallel uprights, U-shaped clips connecting said uprights and having laterally extending bearings, anti-friction balls within said bearings, a hoisting rope engaging said balls, and a carriage suspended from the rope.

4. In a device of the character described, a hoisting frame provided with an upper rotatable section, guide rods on said section, a carriage adapted to engage the hoisting frame, and additional means on the carriage adapted to engage the guide rods.

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