

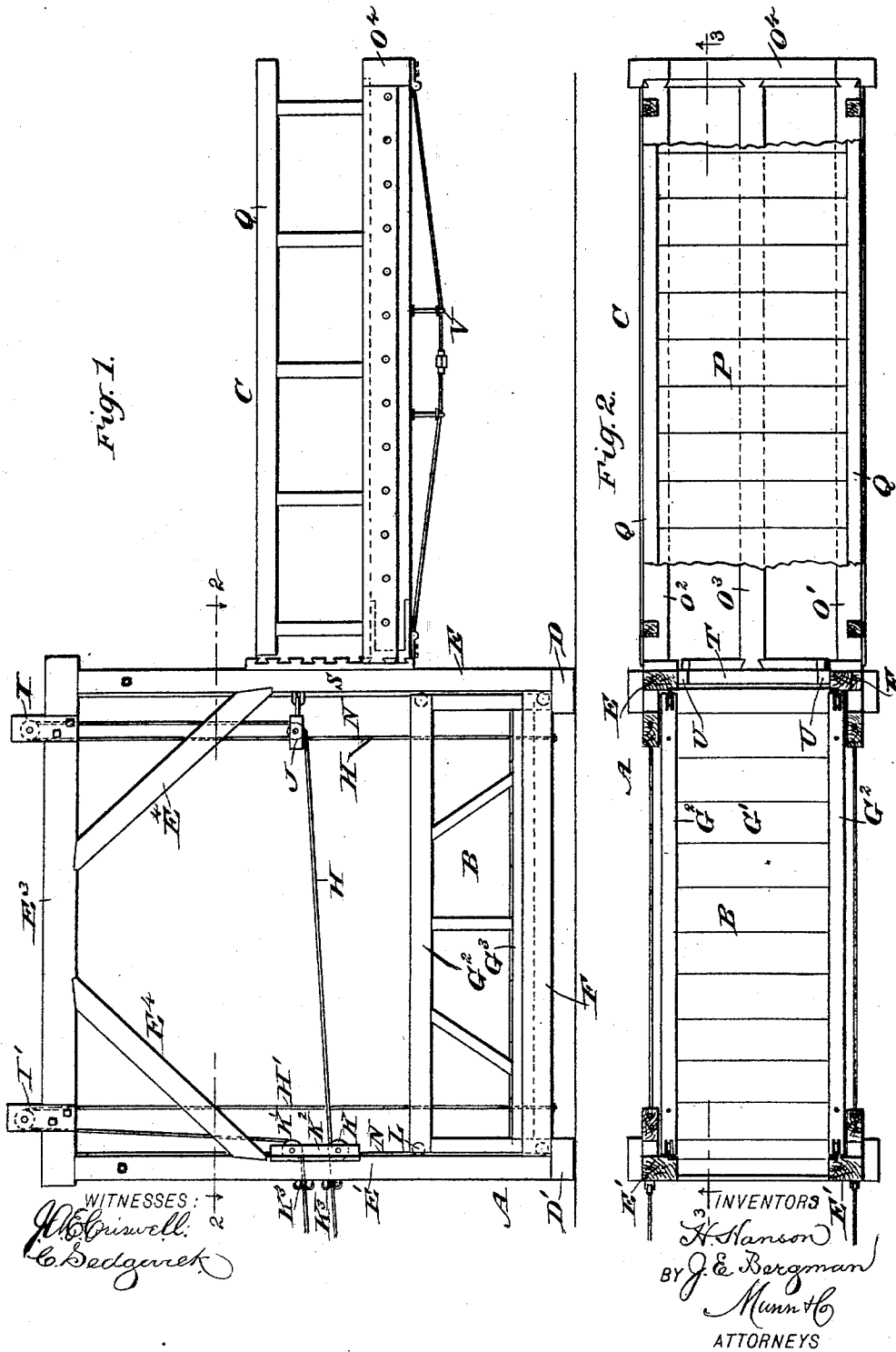
(No Model.)

3 Sheets—Sheet 1.

H. HANSON & J. E. BERGMAN.
ELEVATOR.

No. 485,034.

Patented Oct. 25, 1892.



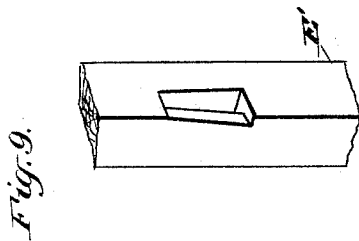
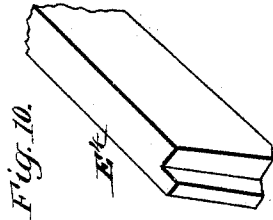
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3 Sheets—Sheet 2.

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WITNESSES :

J. H. Griswold.
C. Sedgwick.

INVENTORS

H. Hanson
BY J. E. Bergman
Munn & Co.
ATTORNEYS

(No Model.)

3 Sheets—Sheet 3.

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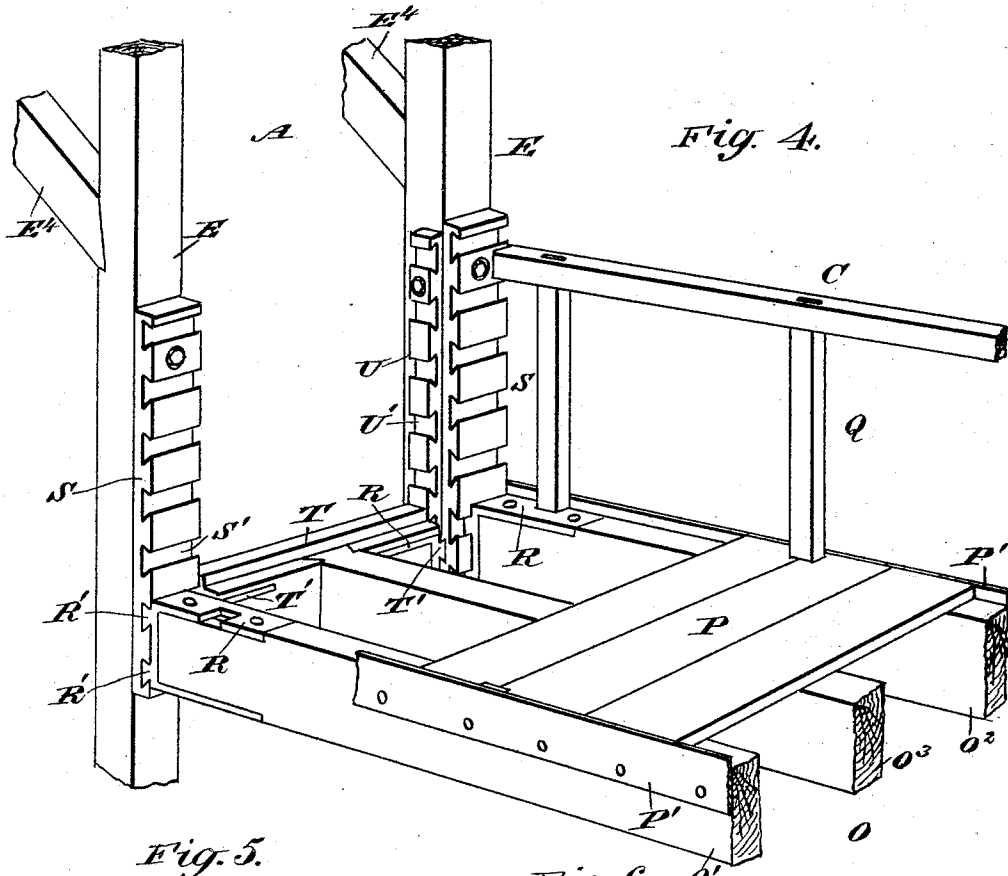


Fig. 5.

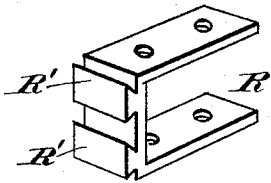


Fig. 6.

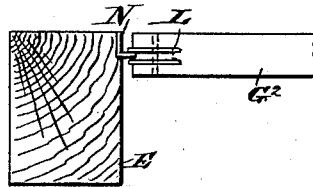
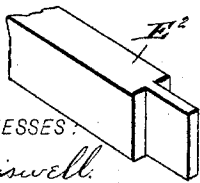


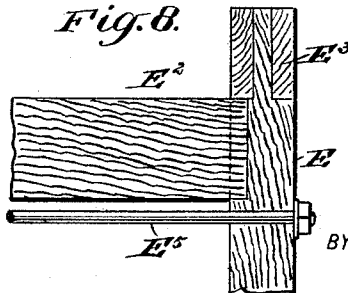
Fig. 7.



WITNESSES:

J. W. Griswell.
C. Sedgwick

Fig. 8.



INVENTORS

H. Hanson

BY J. E. Bergman

Munn & Co.
ATTORNEYS

UNITED STATES PATENT OFFICE.

HARRY HANSON AND JOHN EDWARD BERGMAN, OF CHICAGO, ILLINOIS.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 485,034, dated October 25, 1892.

Application filed December 29, 1891. Serial No. 416,484. (No model.)

To all whom it may concern:

Be it known that we, HARRY HANSON and JOHN EDWARD BERGMAN, both of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Elevator, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved elevator designed for use in excavations to raise or lower teams, material, &c., and which is simple, durable, and portable in construction and can be readily taken apart for storage or for transportation and set up in any desired place without the aid of skilled labor.

The invention consists of a frame, an elevator-cage held to slide in the said frame, and a bridge held adjustable on the said frame and projecting therefrom.

The invention also consists of certain parts and details and combination of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement. Fig. 2 is sectional plan view of the same on the line 2 2 of Figs. 1 and 3. Fig. 3 is a sectional side elevation of the same on the line 3 3 of Fig. 2. Fig. 4 is an enlarged perspective view of part of the frame and bridge, with parts removed and parts broken out. Fig. 5 is a perspective view of one of the bridge-irons for attaching the latter to the frame. Fig. 6 is a sectional plan view of one of the frame-posts and guideways for the bridge. Fig. 7 is a perspective view of one of the cross-beams for the frame. Fig. 8 is a transverse section of part of the frame on the line 8 8 of Fig. 3. Fig. 9 is a perspective view of one of the frame-posts, showing the notch for attaching a stay; and Fig. 10 is a like view of one end of one of the stays for the frame.

The improved elevator consists principally of three parts, the frame A, the cage B, fitted to slide in the said frame, and a bridge C, supported on one end of the said frame and projecting therefrom to form an entrance or exit to or from the said frame at the time the elevator-cage B is in line with the said

bridge, to permit teams to pass directly upon the elevator-cage over the said bridge or from the elevator-cage to the said bridge, as the case may be. The frame A, as well as the cage B and the bridge C, are so constructed that the several parts composing each of the three can be readily taken down for storage and transportation, and can be also readily put together in setting the device in any desired place.

As illustrated in the drawings, the frame A is provided with two bottom cross-pieces D and D', on which are doweled the lower ends of the front and rear posts E and E', respectively, the two front posts being connected with each other by a cross-beam E² and a similar cross-beam being employed to connect the rear posts with each other at their upper ends. The corresponding front and rear posts are in turn connected with each other by longitudinal beams E³, and each longitudinal beam is braced by stay-rods E⁴, extending to the respective front and rear posts. The stay-rods E⁴ are formed with tongues fitting in correspondingly-shaped grooves or recesses in the posts, as indicated in Figs. 9 and 10, so that the said stay-rods can be conveniently taken apart in knocking down the frame. In order to hold the front and rear posts together, bolts E⁵ are employed, connecting the two front or the two rear posts with each other at the cross-beams E², as is plainly illustrated in Figs. 3 and 8.

It is understood that the several parts of the frame A mentioned are provided with dowels or tongues fitting into corresponding grooves, the said dowels and tongues being formed in any desired manner that is well known in joinery-work. The two cross-beams D and D' are also connected with each other by longitudinal beams F, extending between the two corresponding front and rear posts, as is plainly illustrated in the drawings.

The cage B is provided with a bottom frame G, made of two sides and ends joined together to be readily taken apart, the joint being made in any suitable manner. On this frame G are placed boards G' to form a bottom for the cage, and on the said beams of the frame G is arranged a railing G², the posts, top rail, and stays of which can be taken apart in knocking down the cage. In order to hold

the boards G' in position to prevent their sidewise displacement, metallic strips G³ are provided, screwed on the outside of the sides of the frame G, the upper ends of the said

5 metallic strips extending upon the ends of the boards, as is plainly shown in Fig. 1.

On the side beams of the frame G are secured upwardly-extending ropes or cables H and H', passing over pulleys I and I', held in
10 suitable frames bolted to the longitudinal beams E³ of the frame A. The front ropes or cables H, after passing over the pulleys I, extend downward and pass over sheaves J, secured on the inside of the front posts E, about
15 at their middle, as is plainly shown in Figs. 1 and 3. The ropes or cables H then extend rearward and pass over pulleys K, held in a frame K², bolted or otherwise secured to the rear posts E'. The frame K² also supports
20 double guide-pulleys K³, between which passes the rope H, so that the latter after leaving the frame A can be readily passed upward or downward or straight out to connect with a suitable hoisting-machine or other means employed for hoisting the cage. The rear ropes
25 or cables H', after passing over the pulleys I', extend downward and pass over the pulleys K', also held in the frame K² above the pulleys K. These ropes or cables H', after passing under the pulleys K', pass between a double set of pulleys K³, which permit the rope or cable to be extended upward, downward, or straight out to connect with the
30 hoisting-machine in a similar manner to the rope or cable H. It is understood that the several ropes H and H' are wound upon or unwound from the hoisting-machine at the same time, so that an equal pull is exerted to raise or lower the cage B.

40 On the ends of the frame G of the cage B and on the ends of the top rails of the railing G² are arranged pulleys L, engaging tracks or guideways N, secured on the inside of the posts E and E', so that the cage B can readily travel up and down on the frame A when
45 the ropes or cables H and H' are pulled on or slackened up, as the case may require.

The bridge C is provided with a frame O, having side beams and ends joined together to be readily taken apart, and on this frame
50 O are placed boards P, forming a platform for the bridge. Railings Q are arranged on the sides of the said bridge and are made of posts and detachable top rails, the posts being set into the side beams O' and O² of the frame O.

In order to prevent sidewise displacement of the boards forming the bottom for the bridge, metallic strips P' are screwed or
60 bolted to the outside of the side beams O' and O², the upper edges of the said strips projecting upon the ends of the boards, as is plainly shown in Fig. 4, so as to prevent the same from sliding off the frame O. The plates P' further project at their inner ends beyond the
65 beams O' O², as shown best in Fig. 2, and thus form stops for limiting the inward lat-

eral movement of the said beams in their supporting-plates S S and promote convenience in putting the bridge together. The latter is
70 also provided with a longitudinal middle beam O³, which, with the side beams O' and O², is joined at the outer end of the bridge to the end O⁴ by means of dovetails, as is plainly indicated in Fig. 2.

On the inner ends of the side beams O' and O² are secured metallic keepers R, arranged in the shape of caps and formed at their front ends with dovetails R', engaging correspond-
80 ingly-shaped dovetail grooves S' in metallic plates S, bolted or otherwise secured on the outer sides of the front posts E of the frame A. Each of the plates S is provided with a series of dovetail grooves S', so that the keepers R may be engaged with lower or higher
85 grooves, according to the desired position of the bridge above the ground or excavation.

The longitudinal middle beam O³ of the frame O is dovetailed at its inner end on a cross-beam T, also formed at its ends with
90 keepers or caps R, having dovetails T' engaging similarly-shaped dovetail grooves U' in metallic plates U, bolted to the inner sides of the posts E, as is plainly shown in Fig. 4. It will be seen that this cross-beam T sup-
95 ports the inner end of the longitudinal beam O³, while the outer end of the latter is held in the cross-beam O⁴ of the frame O. It is understood that when the bridge C is raised or lowered on the frame A by placing the
100 keepers R in different dovetail grooves on the plates S then the cross-beam T is likewise adjusted on the plates U to have its keepers correspond with the keepers R.

In order to strengthen the frame O, the
105 side beams O' and O² are preferably provided on their under sides with suitably-constructed braces V, as illustrated in Figs. 1 and 3.

In making excavations the frame A is set
110 up in the excavation and the bridge C adjusted on one end of the said frame to extend to the level ground, so that teams can readily pass upon the said bridge and upon the cage B when the latter is drawn into alignment
115 with the bridge—that is, when the two floors P and G' are in the same horizontal plane. When the team is on the cage, the latter can be lowered by slackening the ropes or cables H and H' until the cage rests on the cross-
120 beams D of the main frame A. The team can then drive off the platform or floor G' into the excavation or the wagon can be filled with excavated material. When the wagon is filled with excavated material and again stands on
125 the cage B, the latter is hoisted by pulling on the ropes H and H' until it is in alignment with the bridge to permit the team to pass from the cage upon the bridge and from the latter upon the ground to cart off the exca-
130 vated material.

In order to prevent the team from going too far on the cage B when moving upon the latter from the bridge, transverse bars E⁶ are

provided connecting the two rear posts with each other, as is plainly shown in Fig. 3.

It is understood that the cage B is only used for teams; but it can also be loaded with building or other material when in alignment with the bridge C, or excavated material can be placed on the cage when in a lowermost position and then hoisted to carry the excavated material from the cage off the bridge to the ground.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The combination, with the elevator-frame having transversely-dovetailed vertical plates U on opposed inner faces of two uprights E and two similarly-grooved plates S S on the outer faces of the uprights, of a bridge comprising the longitudinal beams O' O² O³, the side beams O' O² having end caps R on their inner ends, formed with parallel horizontal flanges or members embracing said beams and formed with dovetail projections R', fitting the similar grooves of the plates S, the transverse end bar T, having transverse end dovetails T' entering the grooves of the plates U, and the central beam O³ having a vertical dovetail engaging a dovetail groove in the transverse bar T, substantially as set forth.

2. The combination, with the elevator-frame having transversely-dovetailed vertical plates U on opposed inner faces of two uprights E and two similarly-grooved plates S S on the outer faces of the uprights, of a bridge comprising the longitudinal beams O' O² O³, the side beams O' O² having end caps R on their inner ends, formed with parallel horizontal flanges or members embracing said beams and formed with dovetail projections R', fitting the similar grooves of the plates S' the transverse end bar T, having transverse end dovetails T' entering the grooves of the plates U, and the central beam O³ having a vertical dovetail engaging a dovetail groove in the transverse bar T and longitudinal metallic plates P' on the outer faces of the side beams O' O², the said plates projecting above the upper surface of said beams to form guards for the removable flooring-boards P, said plates also at their inner ends projecting beyond their beams, and thus forming stops for limiting the inward lateral movement of the latter in their supports, as set forth.

HARRY HANSON.

JOHN EDWARD BERGMAN.

Witnesses:

WM. WEHMHOFER,
ROBERT JONS AGNEW.