

July 25, 1950

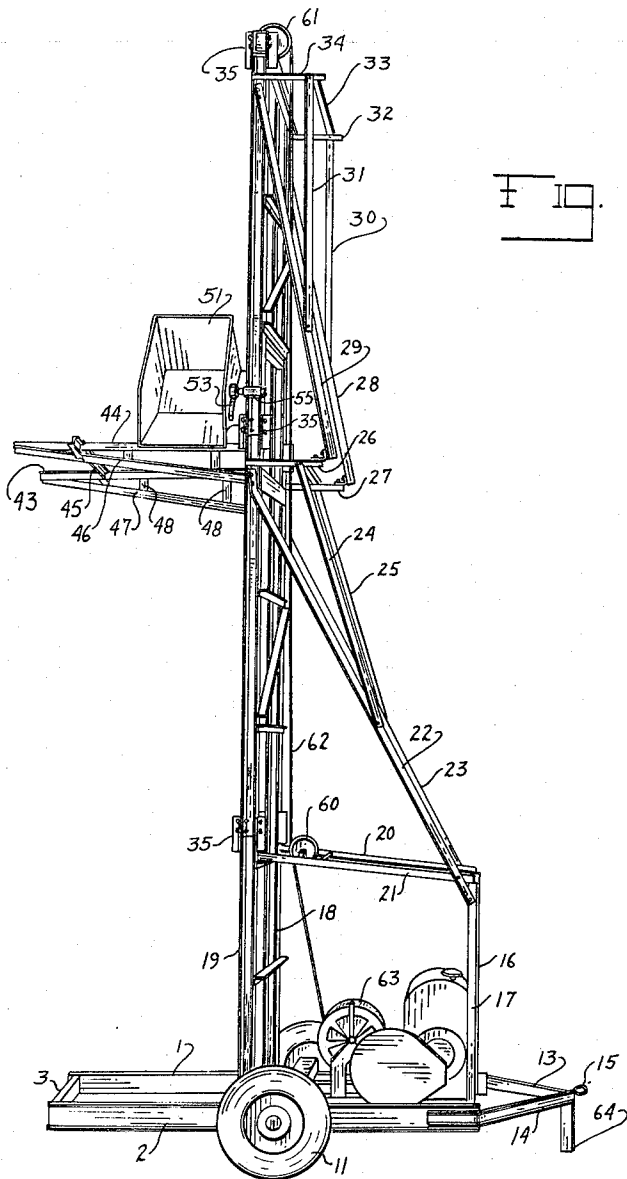
H. DRUSCHEL

2,516,686

PORTABLE ELEVATOR DUMP

Filed Dec. 18, 1946

3 Sheets-Sheet 1



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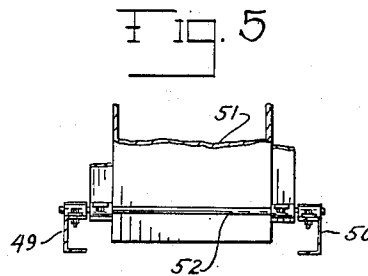
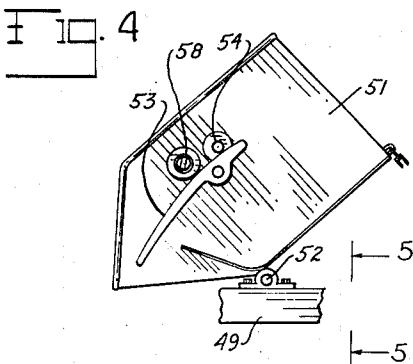
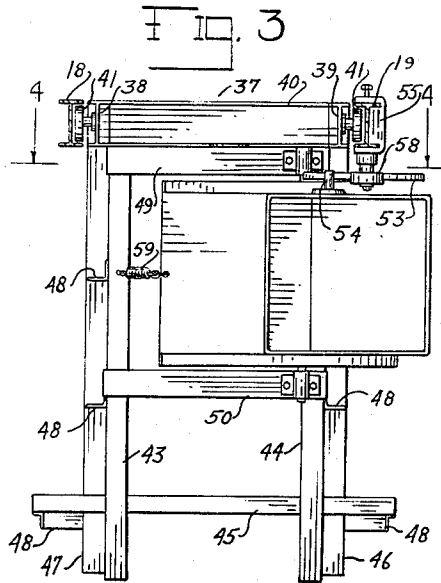
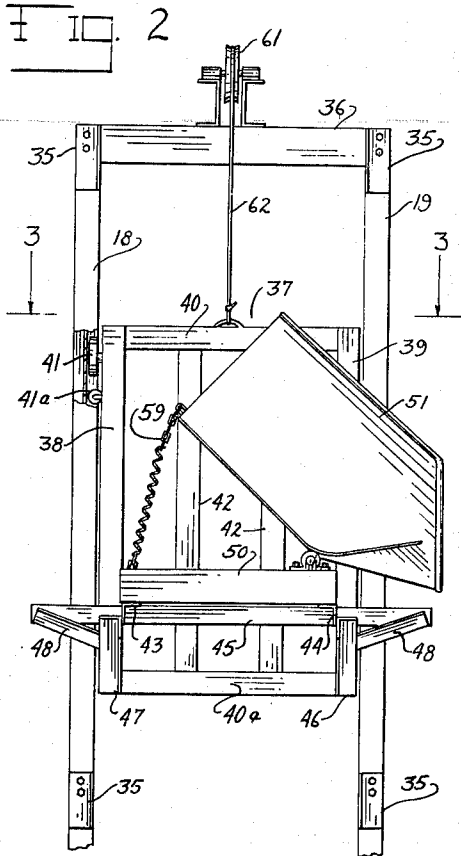
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3 Sheets-Sheet 2



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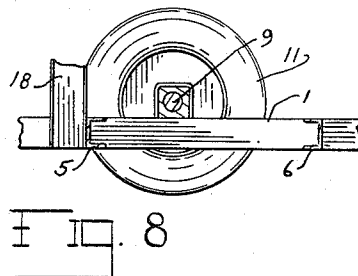
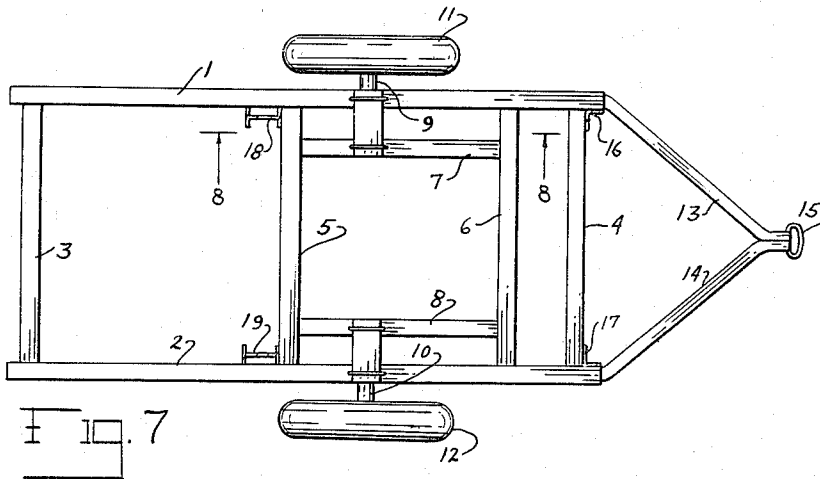
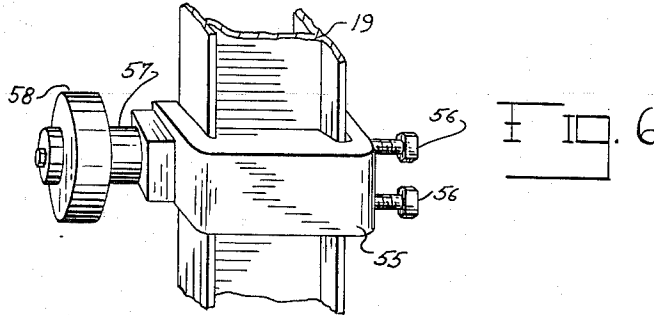
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

2,516,686

PORTABLE ELEVATOR DUMP

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9 Claims. (Cl. 214—121)

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This invention relates generally to a portable elevator and hoist which is particularly adapted for elevating and transmitting building materials to workmen engaged in constructing a building. Heretofore it has been customary to erect a scaffold adjacent the building, which includes an elevator which is either manually or power operated to lift and transfer building materials to the level at which the workmen are working. The building material usually includes such things as steel, lumber, hardware, piping, electrical fixtures, bricks, mortar, cement and other material such as plumbing and electrical fixtures and the like. Such practice has proven costly and impractical because the workmen necessarily have to move about different areas of the building to perform their work.

I have invented and designed a portable elevator and hoist which is mounted on wheels so as to be readily and easily moved about and around the building in order to deliver the building materials to a point adjacent the workmen which will result in a great saving in time, labor and expense.

My improved apparatus consists essentially of a base frame member which is mounted on wheels so as to be readily moved around to different sides of the building with a minimum effort so that a considerable saving is accomplished.

One of the main objects of my invention is to provide a portable electric elevator and hoist which can lift and transfer building material to workmen constructing a building which will result in a great saving in time and labor and which at the same time is practical and well adapted for production at a minimum cost and which can also be moved to other buildings and used again and again.

Another object of the invention is to provide a combination elevator and hoist which can be used to transfer and to lift large and bulky building materials such as steel, pipe, bricks and other like materials, and which also can be used to lift a cement or mortar bucket which is automatically tipped and dumped when it reaches the desired predetermined elevation.

A further object of the invention is to provide an elevator and hoist which is portable and self contained and which has a pair of carriage guides which are made in a plurality of sections and to which additional sections may be added as the construction proceeds, such carriage guides being preferably formed of I-beams which serve to support and to guide the elevator, the elevator com-

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prising a platform of sufficient size and area as to transport both bulky building materials and a cement or mortar bucket which is automatically dumped when the same reaches a certain predetermined level. When it is desired to transport only heavy, bulky and large materials, the cement bucket may be readily removed and the entire elevator platform used for that purpose.

A still further object of the invention is to provide a combination elevator and hoist having the above described distinguishing features and characteristics which is well adapted for quantity production at a low cost.

Further and more limited objects of the invention will appear as the description proceeds and by reference to the accompanying drawings in which:

Figure 1 is a perspective view of the preferred embodiment of my improved portable elevator and hoist.

Figure 2 is a fragmentary view in front elevation of the upper end of the elevator and showing the dump bucket in its tilted or dumping position.

Figure 3 is a horizontal sectional view taken on the line 3—3 of Figure 2.

Figure 4 is a fragmentary view taken substantially on the line 4—4 of Figure 3.

Figure 5 is a fragmentary view partly in section and partly in elevation and taken on the line 5—5 of Figure 4.

Figure 6 is a fragmentary perspective view showing the adjustable stop for automatically tipping the dump bucket when it reaches a predetermined elevation.

Figure 7 is a top plan view of the base frame of the apparatus and

Figure 8 is a vertical sectional view taken on the line 8—8 of Figure 7.

Referring now to the drawings, particularly Figures 1 and 7; the apparatus comprises a base frame member which is generally rectangular in shape and consists of side members 1 and 2 and end pieces 3 and 4. Extending transversely of the frame are reinforcing bars 5 and 6 which are connected together by angle bars 7 and 8. Disposed at either side of the frame are a pair of axles 9 and 10 on which are mounted wheels 11 and 12.

Secured to the front end of the frame are a pair of angle bars 13 and 14 which are welded at one end to the frame members 1 and 2 and to each other at their outer ends. The reference character 15 designates a ring by means of which the vehicle may be attached to another vehicle

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so as to be towed. Welded to the front end of the frame are a pair of vertically disposed angle irons 16 and 17 which serve to reinforce the structure. Arranged at each side of the frame and extending vertically upward therefrom are a pair of I-beams 18 and 19. All of the members which form the base frame are formed of steel channels or angle irons which are welded in place. Secured to the upper ends of the angle irons 16 and 17 are a pair of reinforcing angle irons 20 and 21, the opposite ends of which are welded to the I-beams 19 and 18, respectively. Also secured to the angle irons 16 and 17 are a pair of reinforcing angle irons 22 and 23, the opposite ends of which are welded to the I-beams 19 and 18, respectively. Secured to the angle irons 22 and 23 are a pair of angle bars 24 and 25, the opposite ends of which are secured to reinforcing bars 26 and 27 and the opposite ends of which are welded to the I-beams 19 and 18, respectively.

The reference characters 28, 29, 30, 31, 32, 33, and 34, designate additional reinforcing angle bars which serve to reinforce the entire structure. The I-beams 18 and 19 are made up of a plurality of sections which are secured together by splice plates 35. The upper ends of the I-beams 18 and 19 are connected together by a cross bar 36 which preferably is in the form of a channel.

Disposed between and slidably mounted with respect to the I-beams 18 and 19 is a slide or carriage indicated generally by the reference character 37. This slide is made up of a pair of longitudinally extending channels 38 and 39, connected together at their opposite ends by channels 40 and 40a. The reference character 42 designates additional reinforcing bars. Carried by each of the bars 38 and 39 and disposed at opposite sides thereof are a pair of rollers 41 which fit neatly within the I-beams, shown most clearly in Figures 2 and 3. Also carried by the channels 38 and 39 are a pair of rollers 41a which also engage within the I-beams 18 and 19, as will appear most clearly from Figure 2. The slide or carriage is also provided at its lower end with rollers similar to the rollers 41 and 41a which also fit within the I-beams 18 and 19.

Carried by the carriage slide 37 is an elevator platform which comprises a pair of horizontally disposed channels 43 and 44 which are connected together at their outer ends by a reinforced channel 45. The inner ends of the channel 43 and 44 are welded to the slide. The reference characters 46 and 47 designate additional reinforcing channels which are welded to the channels 43 and 44, respectively at their outer ends and to the slide 37 at their inner ends. The reference character 48 designates additional reinforcing members which serve to strengthen the elevator platform.

Extending transversely of the platform and bolted thereto are a pair of channels 49 and 50 on which is pivotally secured the dumping bucket 51 which is supported by an axle 52 journaled in brackets which are secured to the channel members 49 and 50. Pivotally secured on one side of the bucket 51 is a dumping dog 53. Also secured to the same side of the bucket 51 is a stop pin 54 which is disposed adjacent one end of the dumping dog 53, and overlies the same, as will appear most clearly from Figure 4.

Slidably and adjustably mounted on the I-beam 18 is a U-shaped yoke 55 which is secured in the adjusted position by set screws 56. Carried by

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the yoke 55 is a shaft 57 on which is mounted a roller 58, the purpose of which will hereinafter appear.

The reference character 59 designates a spring, one end of which is secured to the lower end of the dump bucket and the other end of which is secured to the elevator platform, the purpose of which is to return the dump bucket to its normal position after it has been emptied. Disposed between the bars 20 and 21 is a pulley 60 and journaled on the top of the channel 36 is a pulley 61. The reference character 62 designates a rope, one end of which is connected to the carriage slide 39. The rope extends over the pulley 61 and thence downwardly over the pulley 60, and is connected with the hoist indicated by the reference character 63. The hoist 63 and the mechanism for driving it are of conventional construction and form no part of this invention. The reference character 64 designates a prop which supports the front end of the apparatus when it is in use.

It will be noted from an inspection of Figure 1 that the dump bucket is detachably secured to the elevator platform and is disposed at one side thereof.

When it is desired to use the apparatus, it is moved to a point closely adjacent the building being repaired or constructed. As hereinbefore explained, the frame of the machine is made-up of a plurality of sections. The height to which the materials are to be lifted determines the number of sections to be used. The elevator platform is moved to its lowermost position and the dump bucket is filled with mortar, cement or other material to be lifted. The elevator platform is then moved upwardly by means of the hoist. The yoke 55 is adjusted to a position on the I-beam 18 where it is desired to have the bucket dumped and is locked in place by the set screws 56. The roller 58 projects outwardly in direct vertical line with and overhangs the dumping dog 53. When the bucket is elevated, the dumping dog reaches a point where it is engaged by the roller 58 which moves the dumping dog to the position, shown most clearly in Figure 4, in which position, one end of the dumping dog 53 is in engagement with the stop pin 54. The upward movement of the elevator platform causes the bucket to move to the position, shown in Figure 4. When the bucket has been emptied, the spring 59 serves to return it to its normal position. Should the elevator platform be accidentally moved too high, the roller 58 will roll off of the end of the dumping dog and no harm will be done as the dumping dog is pivotally secured to the side of the bucket. Should it be desired to use the elevator to move heavy or bulky materials or to make use of the entire elevator platform, the bucket 51 may be readily removed. It will thus be seen that the apparatus can be used to lift either mortar or cement or similar materials or to lift heavy or bulky materials, such as steel, lumber or other materials.

It will now be clear that I have provided a combination elevator and hoist which will accomplish the objects of the invention as hereinbefore stated. Various changes may be made in the details of construction and arrangement of parts without departing from the spirit of the invention. The embodiment of the invention herein disclosed and described is, therefore, to be considered merely as illustrative and not in a limiting sense as the invention is limited only

in accordance with the scope of appended claims.

What is claimed is:

1. A portable elevator and hoist capable of serving as a platform hoisting elevator and as a material dumping bucket comprising a base frame, a pair of I-beams secured to said base frame and extending upwardly therefrom in vertical parallel relation, a platform slidably supported by said I-beams, said platform having a roller at each side thereof fitting within and guided by said I-beams respectively, a dump bucket carried by said platform and detachably secured thereto and pivotally mounted adjacent one side thereof, means for dumping said bucket at the desired elevation comprising a dumping dog pivotally secured to one side of said bucket, a stop carried by said bucket and projecting over said dog adjacent one end thereof, a stop roller slidably mounted on the adjacent I-beam and adjustable to different vertical positions thereon, and projecting over said dog and adapted to engage the same and to move the bucket to dumping position when the bucket reaches a predetermined elevation.

2. A portable elevator and hoist comprising a base frame having a pair of rubber tired vehicle wheels mounted thereon and a tow bar disposed at the front of the frame, a pair of vertically disposed carriage guides carried by the base frame, an elevator platform supported in said carriage guides and extending outwardly therefrom at one side, a dump bucket pivotally mounted on said platform, an elongated dog pivotally secured on one side of said bucket, a stop secured to said bucket adjacent one end of said dog and projecting there-over, a roller mounted on one of said carriage guides and normally projecting on the path of movement of the dog on said bucket, means for adjustably securing said roller at different vertical positions so as to move said bucket to a dumping position at any desired height and means for raising and lowering said platform and bucket.

3. A portable elevator and hoist comprising a base frame member having a pair of wheels secured thereto, a tow bar disposed at the front of said base frame, a pair of carriage guides extending upwardly from said base frame, an elevator platform supported on and guided by said carriage guides, a dump bucket pivotally mounted on said platform, a dumping dog pivotally secured to one side of said bucket, a stop pin secured to one side of said bucket and over-lying said dumping dog adjacent one end, a stop slidably and adjustably secured to one of said carriage arms and projecting over said dumping dog and adapted to engage the same to tilt said bucket to dumping position at any desired height and means for raising and lowering said platform and bucket.

4. A portable elevator and hoist comprising a base frame, a pair of vertically disposed carriage guides carried by the base frame, an elevator platform mounted in said carriage guides and extending outwardly therefrom at one side, a dump bucket pivotally mounted on said platform, trip means on one of said carriage guides adapted to cooperate with trip means on said bucket at a predetermined elevated position, and means on said platform for raising and lowering it.

5. A portable elevator and hoist comprising a base frame, a pair of vertically disposed carriage guides carried by the base frame, an elevator platform mounted in said carriage guides and extending outwardly therefrom at one side, a dump bucket pivotally mounted on said plat-

form, trip means on one of said carriage guides adapted to cooperate with trip means on said bucket at a predetermined elevated position, means on said platform for raising and lowering it, and means attached to said bucket for returning it to non-dumping position on being lowered.

6. A portable elevator and hoist capable of serving as a platform hoisting elevator and as a material dumping bucket comprising a base frame, a pair of I-beams secured to said base frame and extending upwardly therefrom in vertical parallel relation, a platform slidably supported by said I-beams, said platform having a roller at each side thereof fitting within and guided by said I-beams respectively, a dump bucket carried by said platform and detachably secured thereto and pivotally mounted adjacent one side thereof, means for dumping said bucket at the desired elevation comprising a dumping dog pivotally secured to one side of said bucket, a stop carried by said bucket and projecting over said dog adjacent one end thereof, a stop roller slidably mounted on the adjacent I-beam and adjustable to different vertical positions thereon, and projecting over said dog and adapted to engage the same and to move the bucket to dumping position when the bucket reaches a predetermined elevation, and spring means connecting said bucket and said platform to return the bucket to non-dumping position as it is being lowered.

7. A portable elevator and hoist capable of serving as a platform hoisting elevator and as a material dumping bucket comprising a base frame, a pair of I-beams secured to said base frame and extending upwardly therefrom in vertical parallel relation, a platform at one side of and slidably supported by said I-beams, said platform having a roller at each side thereof fitting within and guided by said I-beams respectively, power means for raising and lowering said platform along said I-beams, a dump bucket carried by said platform and detachably secured thereto and pivotally mounted adjacent one side thereof, means for dumping said bucket at the desired elevation comprising a dumping dog pivotally secured to one side of said bucket, a stop carried by said bucket and projecting over said dog adjacent one end thereof, a stop roller slidably mounted on the adjacent I-beam and adjustable to different vertical positions thereon, and projecting over said dog and adapted to engage the same and to move the bucket to dumping position when the bucket reaches a predetermined elevation, and spring means connecting said bucket and said platform to return the bucket to non-dumping position as it is being lowered.

8. A portable elevator and hoist capable of serving as a platform hoisting elevator and as a material dumping bucket comprising a base frame, a pair of I-beams secured to said base frame and extending upwardly therefrom in vertical parallel relation, a platform at one side of and slidably supported by said I-beams, said platform having a roller at each side thereof fitting within and guided by said I-beams respectively, power means for raising and lowering said platform along said I-beams, a dump bucket carried by said platform and detachably secured thereto and pivotally mounted adjacent one side thereof, means for dumping said bucket at the desired elevation comprising a dumping dog pivotally secured to one side of said bucket, a stop carried

by said bucket and projecting over said dog adjacent one end thereof, a stop roller slidably mounted on the adjacent I-beam and adjustable to different vertical positions thereon and projecting over said dog and adapted to engage the same and to move the bucket to dumping position when the bucket reaches a predetermined elevation, and spring means connecting said bucket and said platform to return the bucket to non-dumping position as it is being lowered, the dumping of said bucket being controlled entirely by the power means for raising and lowering said platform.

9. A portable elevator and hoist capable of serving as a platform hoisting elevator and as a material dumping bucket comprising a base frame, a pair of I-beams secured to said base frame and extending upwardly therefrom in vertical parallel relation, a platform slidably supported by said I-beams at one side thereof, said platform having a roller at each side thereof fitting within and guided by I-beams respectively, power means for raising and lowering said platform along said I-beams, a dump bucket carried by said platform and detachably secured thereto and pivotally mounted adjacent one side thereof, means for dumping said bucket at the desired elevation comprising a dumping dog pivotally secured to one side of said bucket, a stop carried by said bucket and projecting over said dog adja-

cent one end thereof, a stop roller slidably mounted on the adjacent I-beam and adjustable to different vertical positions thereon, and projecting over said dog and adapted to engage the same and to move the bucket to dumping position when the bucket reaches a predetermined elevation, said dumping dog adapted to freely swing upwardly on the downward movement of said bucket, and spring means connecting said bucket and said platform to return the bucket to non-dumping position as it is being lowered, the dumping of said bucket being controlled entirely by the power means for raising and lowering said platform.

HENRY DRUSCHEL.

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