June 10, 1941. G. D. SMITH 2,244,899

APPARATUS FOR DRIVING FENCE POSTS AND THE LIKE

Filed Feb. 23, 1940 3 Sheets-Sheet 1

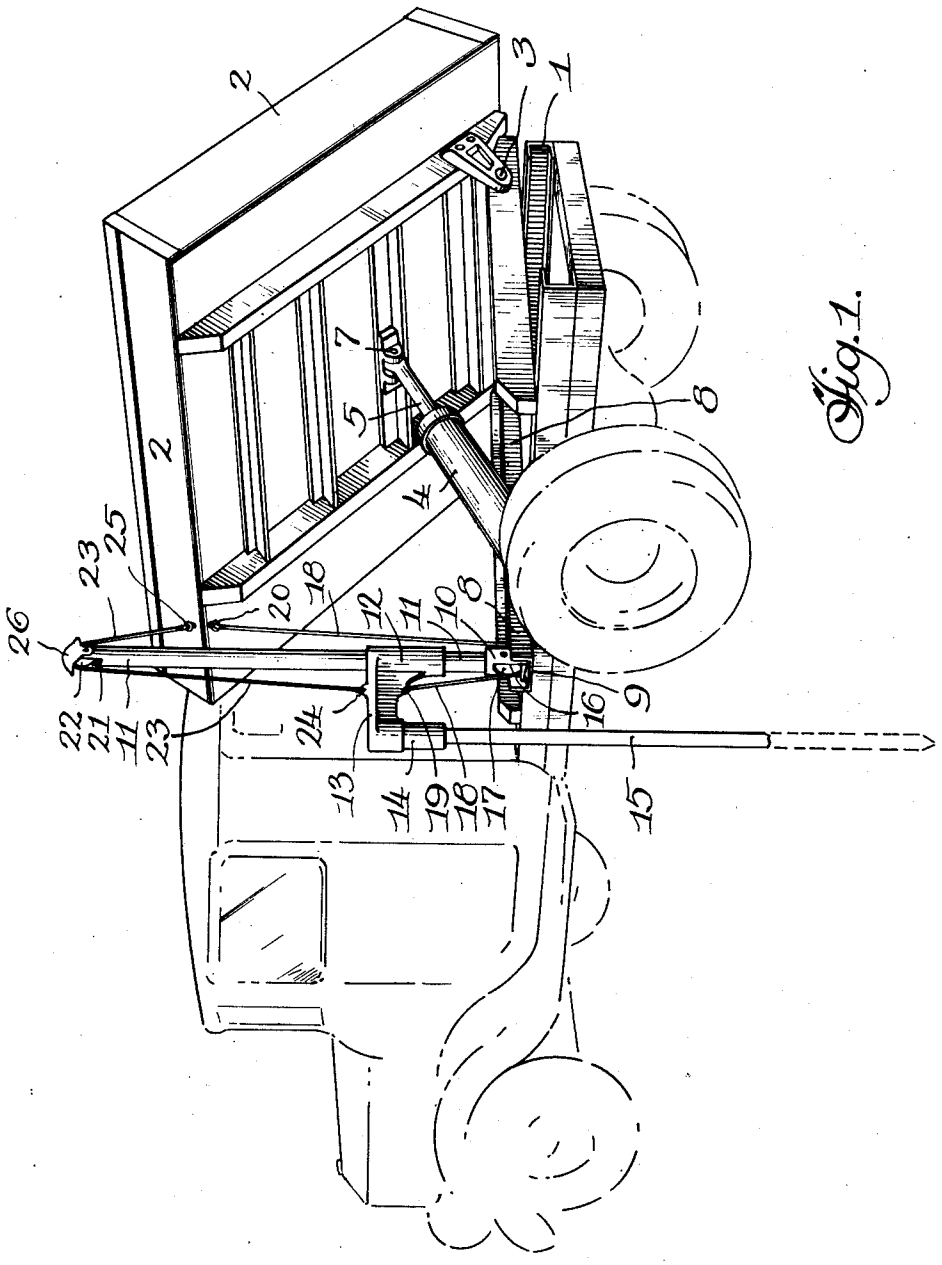


Fig. 1.

Witness:
Chas. E. Houck.

INVENTOR.
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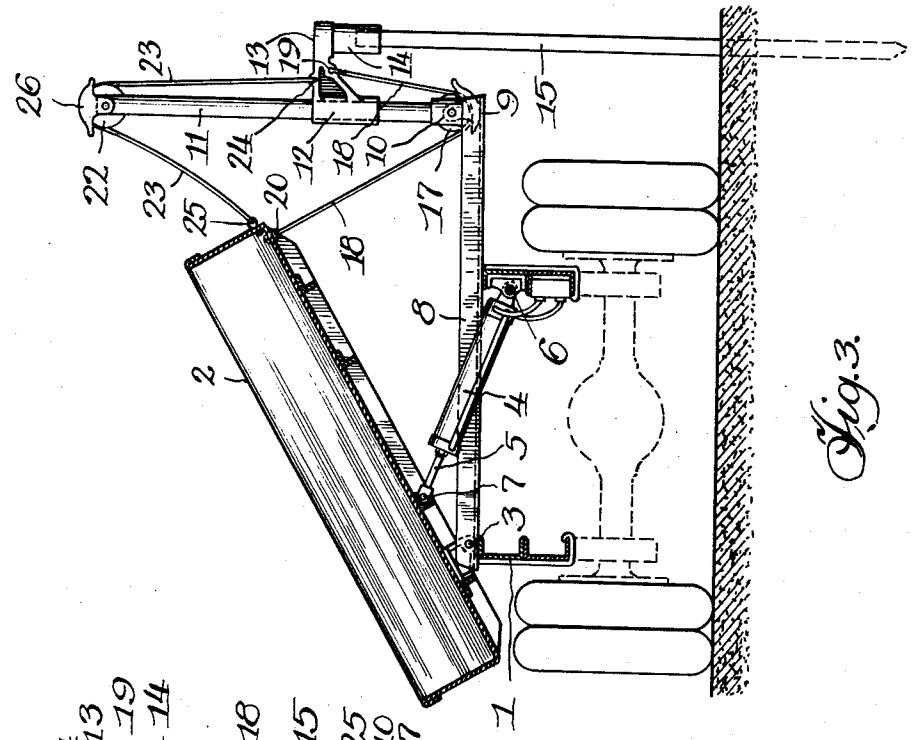


Fig. 3.

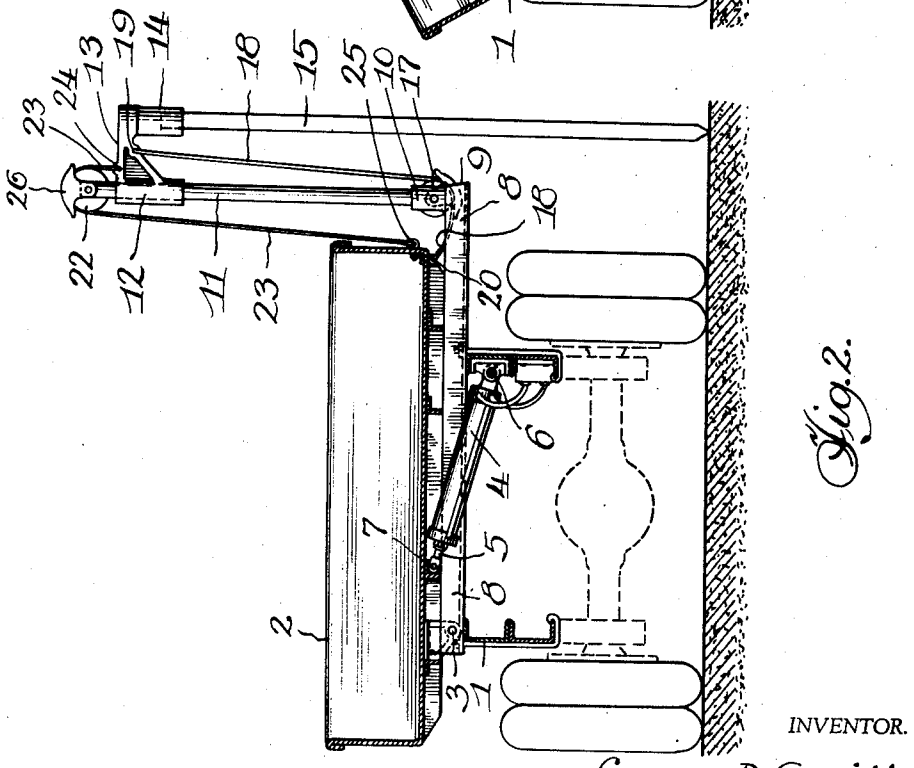


Fig. 2.

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Witness:
Chas. R. Kourse.

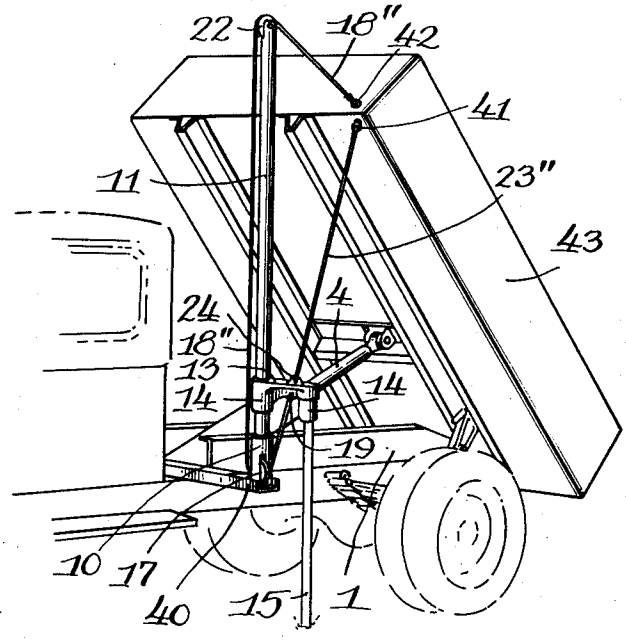
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Filed Feb. 23, 1940 3 Sheets-Sheet 3

Fig. 5.



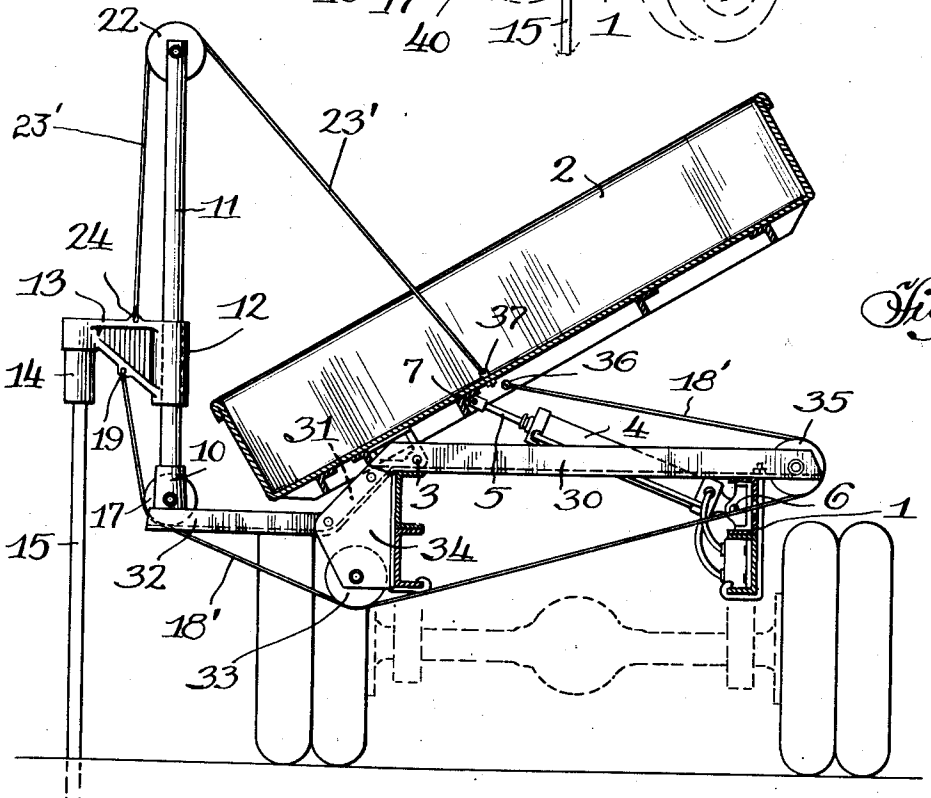


Fig. 4.

Witness:
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Patented June 10, 1941 2,244,899

UNITED STATES PATENT OFFICE

2,244,899

APPARATUS FOR DRIVING FENCE POSTS AND THE LIKE

George D. Smith, Mount Pleasant, Iowa, assignor of one-fourth to W. A. Griffith, Mount Pleasant, Iowa

Application February 23, 1940, Serial No. 320,302

11 Claims. (Cl. 254—29)

This invention relates to apparatus for driving fence posts and the like, and more particularly to apparatus of the class described capable of being readily moved along adjacent the line of the proposed fence and driving the fence posts one after the other, quickly, easily and effectively.

While not specifically limited thereto, my invention is of great value in driving snow-fence posts with power applied by a tilting dump truck which can be driven along close to the line of the fence about to be erected, and the posts driven into the ground one at a time by the tilting of the truck, the truck carrying in suitable arrangement a driving head, and associated means operable upon the tilting of the truck for moving the driving head vertically in the desired direction. The truck may be tiltable either sidewise or endwise as desired. Also by applying to the driving head a chain or any desired form of clamping jaws, and reversing the operation, such posts after being driven may be pulled upwardly out of the ground.

In highway work, in order to prevent snow from piling up on the highway, it is necessary to erect at frequent intervals along the highway or along adjacent land, snow-fences, which involves the driving of many posts. In accordance with my present invention, I make possible the easy and quick driving of such posts by means of tiltable dump trucks to which my apparatus is readily applied and, when desired, is easily removable therefrom.

Among the objects of my invention is to carry into effect and make available the above mentioned advantages in both driving posts when the fence is to be erected as well as removing them from the ground when the fence is to be removed, it being kept in mind that while my invention is of especial value in connection with tiltable trucks it is capable of use with other sources of power.

Another object is to provide an improved method of driving and removing fence posts.

Other objects, advantages and capabilities will later more fully appear and are inherent in the invention.

My invention further resides in the combination, construction and arrangement of parts illustrated in the accompanying drawings, and while I have shown therein preferred embodiments I wish it understood that the same are susceptible of modification and change without departing from the spirit of my invention.

In the drawings:

Fig. 1 is a perspective view partly in diagrammatic showing of a tiltable truck with my invention applied thereto, the truck shown being of the sidewise tiltable dumping type, the adjacent side of the dump body being up and the post driven into the ground.

Fig. 2 is a vertical transverse section of the truck and post driving apparatus of Fig. 1, taken on a plane just in front of the driving apparatus looking toward the rear, but showing the dump body of the truck in lowered position just prior to the driving of the post or just after the post has been pulled out of the ground.

Fig. 3 is a view similar to Fig. 2 but showing the dump body with the side adjacent the post-driving apparatus in its elevated position and the post driven into the ground.

Fig. 4 is a view similar to Fig. 3 but with the post-driving apparatus arranged on the side of the dump body away from the side that elevates during dumping action, and the post driven from the downwardly moving side, and with the post driven into the ground.

Fig. 5 is a modification in which the post-driving apparatus is arranged at the elevating end of a dump body of the endwise tiltable type.

Referring more in detail to the drawings, my invention is shown in Figs. 1, 2 and 3 as applied to a tiltable truck in which the dump body is of the type that tilts sidewise. The truck is mounted upon the usual wheels and comprises the frame 1 upon which the dump body 2 is pivotally mounted at 3 (there being a similar aligned pivotal mounting near the front end of the dump body), there being provided a suitable hydraulic cylinder 4 and piston rod 5, the former being pivotally connected at 6 to the frame 1, and the latter at 7 to the body 2, with suitable connections to control the supply of oil or other liquid, to enable the raising or lowering (tilting) of the body 2 about its pivotal axis 3, these parts being shown with the body in elevated position in Figs. 1 and 3 and in lowered or normal position in Fig. 2.

As shown in Fig. 1, I have provided a laterally extending support member 8 resting upon the upper side of the frame 1 and with one end 9 projecting laterally a sufficient distance to form a support for a supporting foot 10 to which is secured an upstanding rod or guide member 11 upon which is slidably mounted a sleeve 12 carrying the bracket 13, upon the free end of which is formed a driving head 14 the lower end of which may be formed to press downwardly on the top of the fence-post 15 when the bracket 13 moves downwardly to drive the post into the

ground, or formed with a gripping jaw of any desired construction to remove the post from the ground when the bracket 13 moves upwardly when such removal is desired. When erecting the fence the post removing gripping jaws will be omitted from the driving head 14 and the latter used only for driving the posts. When the fence is to be removed the gripping jaws may be used in the driving head and the posts removed by a reverse operation from that of driving the posts.

Supporting foot 10 is formed with a slot or suitable opening 16 in which is rotatably mounted a sheave or pulley 17 formed with a circumferential groove to receive a cord or cable 18 which at one end is fixed at 19 to the lower side of bracket 13 and at its other end is fixed at 20 to a suitable part of the dump body 2. At the top end of rod 11 is formed a similar slot 21 to rotatably receive a circumferentially grooved sheave or pulley 22 over which runs a cord or cable 23 which is fixed at one end to the upper side of bracket 13 at 24 and at the other end to a suitable point 25 on the body. If desired, an inverted trough-shaped hood 26 may be mounted over and spaced from pulley 22 and cable 23 to help prevent entry of rain, dirt and the like thereinto.

As seen in Fig. 1, the cables 18 and 23 and their points of attachment with the tiltable body 2 and the bracket 13 of the driving head 14 are so arranged and positioned that when the adjacent edge or side of the truck body 2 moves upwardly during the tilting action the driving head 14 will move downwardly by virtue of the movement of the cables 18 and 23 and drive the post 15 into the ground. A reverse or downward movement of the adjacent edge of the truck body 2 will move the head 14 upwardly away from the post or, as stated earlier, if gripping jaws are used in head 14 said reverse movement will serve to pull the post out of the ground if a previously erected fence is to be removed.

Fig. 2 shows the hollow head 14 in position over the top end of the post and ready to drive the post into the ground upon tilting of the near side of the dump body 2 upwardly. Fig. 3 is a view similar to Fig. 2 but shows the post-driving side of the dump body moved upwardly and the post driven into the ground. As will be understood, when the desired number of posts are driven, the fence may be erected thereon or the fence continuously erected as the posts are driven as desired. Also the points of attachment of the ends of the cables 18 and 23 do not have to be precisely where indicated but can be varied, just so they give the desired up and down movement of the driving head. The arrangement should be such that when the side of the truck body adjacent to the post-driving device moves upwardly (in Figs. 1, 2 and 3) the cable 18 will pull downwardly on the bracket 13, with cable 23 sufficiently loose, and when said adjacent side of the truck body moves downwardly the cable 23 will pull upwardly on bracket 13, with cable 18 then sufficiently loose. The fastening points 20 and 25 of the cables with the truck body can be varied within any limits desired to accomplish the above results.

In Fig. 4 my post-driving apparatus is shown as applied to the side of the truck body opposite to that shown in Figs. 1, 2 and 3. In Fig. 4 there is provided a special arrangement of laterally extending supporting member comprising the portion 30 resting upon and secured to the frame 1, the left-hand end being bent downwardly to form the angular portion 31, and then horizontally to form the portion 32 upon the outer end of which is mounted the post-driving apparatus which is like that shown in Figs. 1, 2 and 3, except for some differences in proportions and differences in the connection of the cables with the tilting truck body. In Fig. 4 the post is driven when the adjacent side of the truck body moves downwardly, which necessitates passing cable 18' at an angle downwardly from sheave 17, then over sheave 33 carried by bracket 34, then over pulley 35 and to the fastening point 36 on the bottom of the truck body, which point moves upwardly during the time the post is being driven into the ground, thus pulling downwardly on bracket 13 and post-driving head 14. This action occurs during the normal dumping movement of the sidewise tiltable truck body 2 and is accompanied by a pull upon the cable 18' such as to pull downwardly on the bracket 13 and head 14. The cable 23' at its right-hand end is fastened to the upper side of the truck body bottom at the point 37, which arrangement, when the truck body lowers to its normal horizontal position, will exert a pull on cable 23' and an upward pull on bracket 13 and head 14 to raise the head into position to drive another post.

Fig. 5 shows a similar arrangement of parts but applied to an endwise tiltable truck, in which the parts are the same except for change in location, proportions and points at which the ends of the cables are attached to the dump body. In this arrangement I have provided a transverse beam 40 upon one end portion of which is mounted the post-driving apparatus which is positioned at one end of the dump body for operation as shown in Fig. 5. In this arrangement the lower cable 23'' is fastened to the dump body at 41 and the upper cable 18'' is fastened to the dump body at 42. It is thus seen that as the front end of the endwise tiltable dump body 43 moves downwardly, the cable 18'' will pull downwardly on bracket 13 and head 14 and drive the post 15 into the ground. Conversely when the front end of the dump body moves upwardly the cable 23'' will pull upwardly on the bracket 13 and head 14 and move the head into position to drive another post.

By simply attaching a chain or clamping jaws to head 14, posts may be pulled out of the ground as easily as they may be driven thereinto. While I have for illustrative purposes shown several embodiments of my invention, I wish it understood that other forms of power-applying means may be used without departing from the spirit of my invention. When it is desired to use the dump truck without the post-driving attachment, the latter may be easily detached and removed from the truck.

Having now described my invention, I claim:

1. Post-driving apparatus comprising a substantially vertical guide, a driving head slidably mounted on said guide, a cable secured to said head to exert a downward pull thereon to drive a post into the ground, a second cable secured to said head to exert an upward pull thereon, a truck having a movable body, one end of each of said cables being fastened to said body for alternately exerting a pull first on one of said cables and then on the other to move said head as said body moves.

2. Post-driving apparatus comprising a substantially vertical guide, a driving head slidably

mounted on said guide, a cable secured to said head to exert a downward pull thereon to drive a post into the ground, a second cable secured to said head to exert an upward pull thereon, a truck having a movable body, one end of each of said cables being fastened to said body for alternately exerting a pull first on one of said cables and then on the other to move said head as said body moves, the movement of said body being in a tiltable direction.

3. Post-driving apparatus adapted to be detachably mounted upon and operated by a tiltable dump truck, comprising a substantially vertical upright guide, a driving head slidably mounted on said guide, a cable fastened to said head for exerting a pull thereon in one direction, a second cable fastened to said head for exerting a pull on said head in the opposite direction, a sheave for each of said cables, each of said cables being fastened at its end opposite to the head to the body of said dump truck, whereby tilting the truck body in one direction will drive a post into the ground, and tilting said body in the other direction will tend to move the head away from said post.

4. Post-driving apparatus adapted to be detachably mounted upon and operated by a tiltable dump truck, comprising a substantially vertical upright guide, a driving head slidably mounted on said guide, a cable fastened to said head for exerting a pull thereon in one direction, a second cable fastened to said head for exerting a pull on said head in the opposite direction, a sheave for each of said cables, each of said cables being fastened at its end opposite to the head to the body of said dump truck, whereby tilting the truck body in one direction will drive a post into the ground, and tilting said body in the other direction will tend to move the head away from said post, said truck body being tiltable sidewise and the post driving apparatus being positioned at one side of said body.

5. Post-driving apparatus adapted to be detachably mounted upon and operated by a tiltable dump truck, comprising a substantially vertical upright guide, a driving head slidably mounted on said guide, a cable fastened to said head for exerting a pull thereon in one direction, a second cable fastened to said head for exerting a pull on said head in the opposite direction, a sheave for each of said cables, each of said cables being fastened at its end opposite to the head to the body of said dump truck, whereby tilting the truck body in one direction will drive a post into the ground, and tilting said body in the other direction will tend to move the head away from said post, said truck body being tiltable endwise and the post driving apparatus being positioned at one end of said body.

6. A post-driving attachment for tilting dump trucks comprising a guide member, a driving member slidably mounted on said guide member, a pair of cables secured to the driving member and extending in opposite directions therefrom, a sheave or sheaves for one or both of said cables, the opposite end of one of said cables being adapted to be secured to a desired position on the truck body, the end of the other cable being adapted to be secured to a desired position on the truck body, the points of attachment of the cable ends to the truck body being such that when the truck body tilts in one direction the driving member will operate to drive a post in the ground, and when the truck body tilts in the opposite direction the driving member will tend to move away from the post.

7. A post-driving attachment for tilting dump trucks comprising a support, a guide member, a driving member guided by and slidable along the guide member, a pair of cables secured to the driving member and extending in opposite directions therefrom, the end of each of said cables opposite to the ends secured to the driving member being secured at desired points to the truck body, means for directing the end portions of the cables in proper direction with relation to the body and driving member respectively, the parts being so arranged that the driving member may drive a post into the ground when the truck body tilts in one direction, and tend to raise the driving member away from the post when the truck body tilts in the opposite direction.

8. A post-driving attachment for tilting dump trucks comprising a support, a guide member, a driving member guided by and slidable along the guide member, a pair of cables secured to the driving member and extending in opposite directions therefrom, the end of each of said cables opposite to the ends secured to the driving member being secured at desired points to the truck body, means for directing the end portions of the cables in proper direction with relation to the body and driving member respectively, the parts being so arranged that the driving member may drive a post into the ground when the truck body tilts in one direction, and tend to raise the driving member away from the post when the truck body tilts in the opposite direction, the post-driving attachment being mounted at one side of a sidewise tilting truck body.

9. A post-driving attachment for tilting dump trucks comprising a support, a guide member, a driving member guided by and slidable along the guide member, a pair of cables secured to the driving member and extending in opposite directions therefrom, the end of each of said cables opposite to the ends secured to the driving member being secured at desired points to the truck body, means for directing the end portions of the cables in proper direction with relation to the body and driving member respectively, the parts being so arranged that the driving member may drive a post into the ground when the truck body tilts in one direction, and tend to raise the driving member away from the post when the truck body tilts in the opposite direction, the post-driving attachment being mounted at one end of an endwise tilting truck body.

10. A post-driving attachment for tilting dump trucks comprising a support, a guide member, a driving member guided by and slidable along the guide member, a pair of cables secured to the driving member and extending in opposite directions therefrom, the end of each of said cables opposite to the ends secured to the driving member being secured at desired points to the truck body, means for directing the end portions of the cables in proper direction with relation to the body and driving member respectively, the parts being so arranged that the driving member may drive a post into the ground when the truck body tilts in one direction, and tend to raise the driving member away from the post when the truck body tilts in the opposite direction, the post-driving attachment being mounted at that side of a sidewise tilting truck body that moves upwardly when the body moves into dumping position.

11. A post-driving attachment for tilting dump

trucks comprising a support, a guide member, a driving member guided by and slidable along the guide member, a pair of cables secured to the driving member and extending in opposite directions therefrom, the end of each of said cables opposite to the ends secured to the driving member being secured at desired points to the truck body, means for directing the end portions of the cables in proper direction with relation to the body and driving member respectively, the parts being so arranged that the driving member may drive a post into the ground when the truck body tilts in one direction, and tend to raise the driving member away from the post when the truck body tilts in the opposite direction, the post-driving attachment being mounted at that side of a sidewise tilting truck body that moves downwardly when the body moves into dumping position.

GEORGE D. SMITH.