Dec. 24, 1940. E. L. BRICE 2,225,765

DEVICE FOR DRIVING POSTS AND STAKES INTO THE GROUND

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Fig. 1.

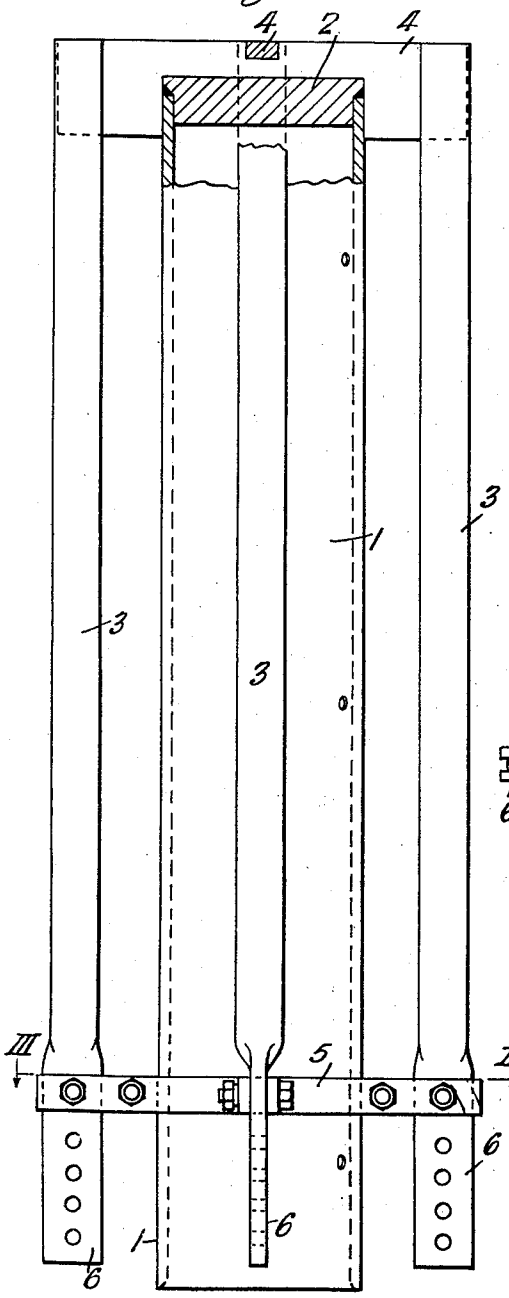


Fig. 2.

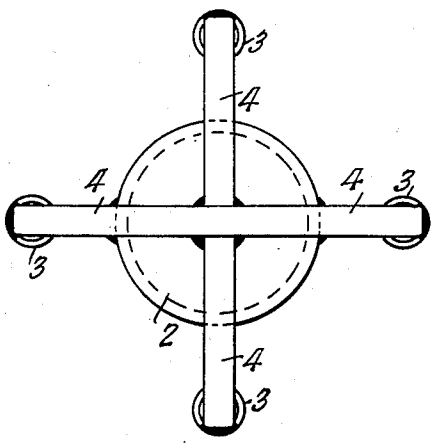


Fig. 3.

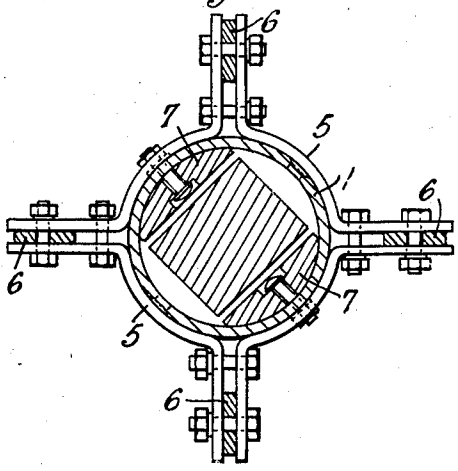
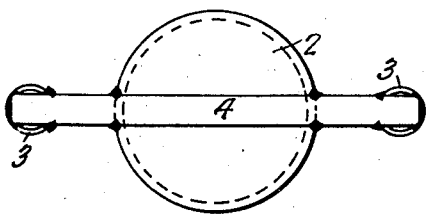


Fig. 4.



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DEVICE FOR DRIVING POSTS AND STAKES INTO THE GROUND

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Fig. 5.

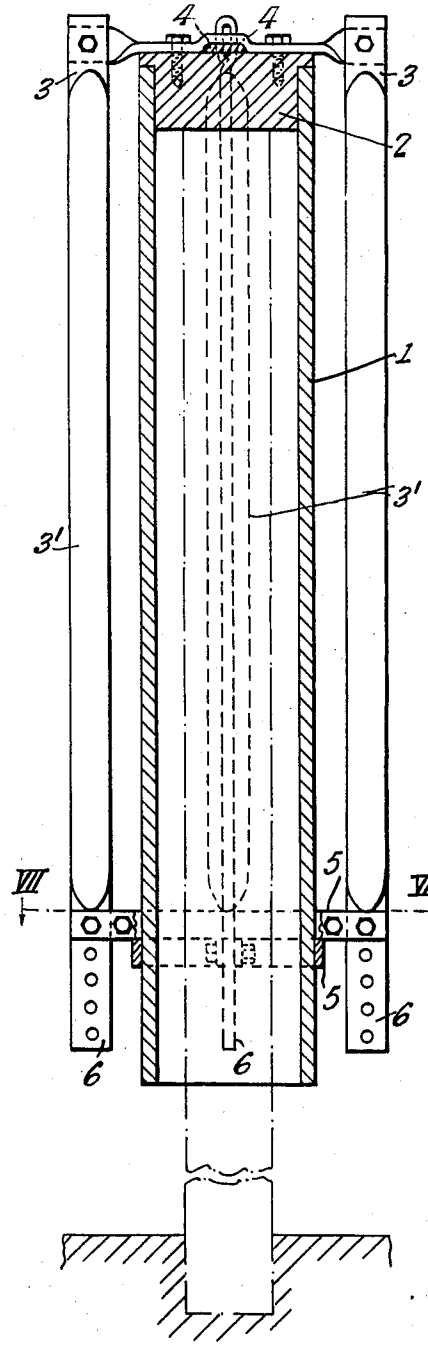


Fig. 6.

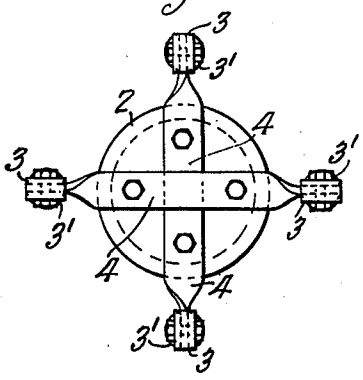
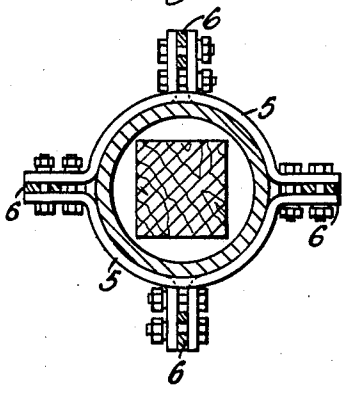


Fig. 7.



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Fig. 8.

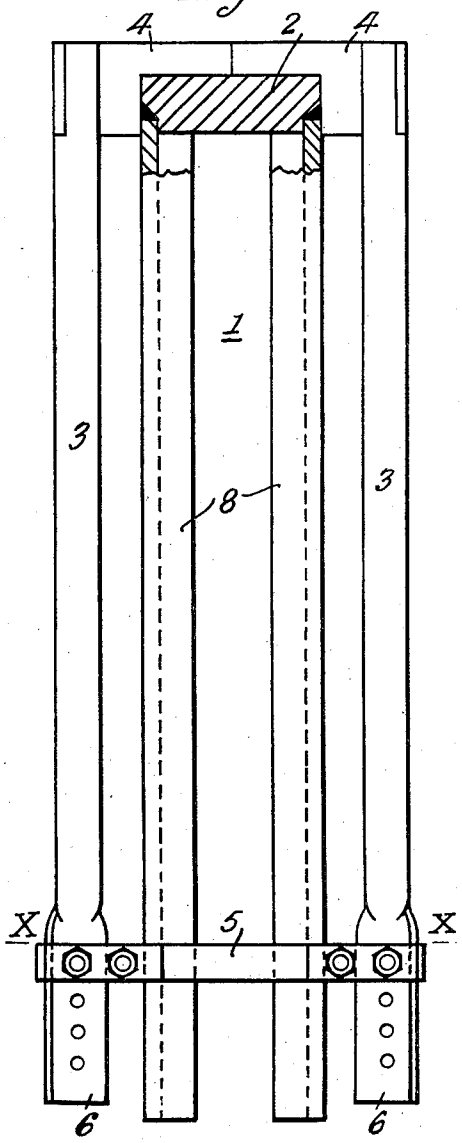


Fig. 9.

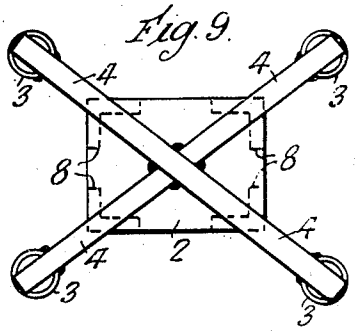


Fig. 10.

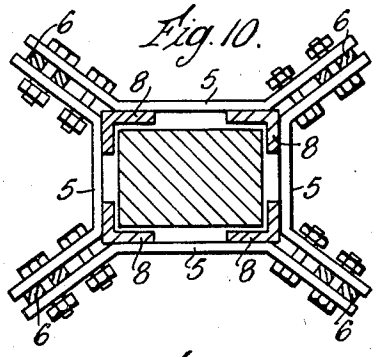


Fig. 11.

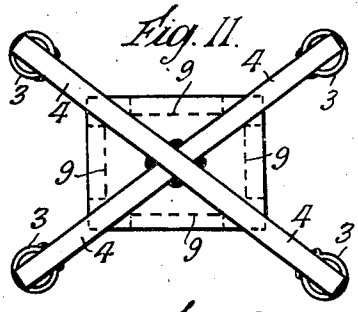
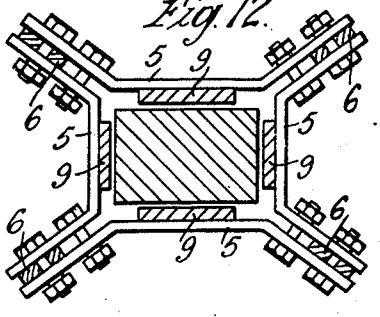


Fig. 12.



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DEVICE FOR DRIVING POSTS AND STAKES INTO THE GROUND

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Fig. 13.

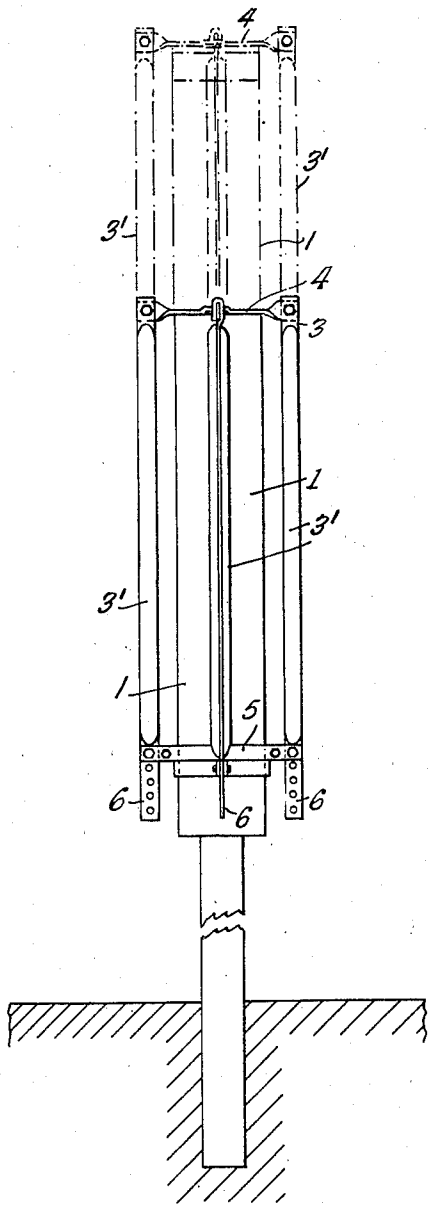


Fig. 14.

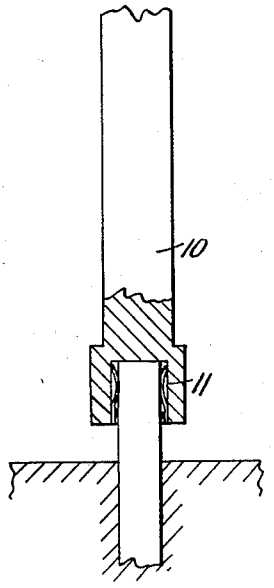
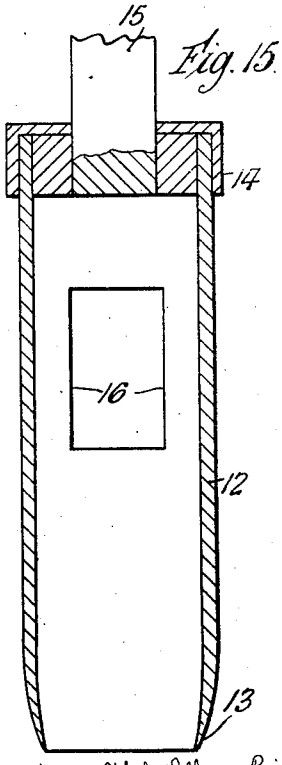


Fig. 15.



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Patented Dec. 24, 1940

2,225,765

UNITED STATES PATENT OFFICE

2,225,765

DEVICE FOR DRIVING POSTS AND STAKES INTO THE GROUND

Ethel Lillian Brice, Stockport, England, assignor to John Earl Ransom Simons, Harlow, Essex, England

Application September 21, 1937, Serial No. 164,975
In Great Britain February 2, 1937

4 Claims. (Cl. 61—73)

This invention relates to a device for driving posts, stakes and the like into the ground.

The device of this invention comprises a member adapted to embrace and slide up and down on the post or the like and having a top which acts as a hammer or weighting member, and being provided with handle means adapted to be manually gripped conveniently for lifting up and pulling down the sliding member.

Preferably the device has two or more handles extending longitudinally outside the sliding member and these handles may be adapted to carry extensions which increase their effective length.

The sliding member may be in the form of a tube or sleeve or equivalent framework or skeleton of circular, square or any other desired cross section.

In accordance with a further feature of the invention a tubular or sleeve boring tool may be provided for use in operative combination with the device described above, this boring tool having an upstanding rod or the like adapted to be embraced by the sliding member. Alternatively a wedge shaped or circular pointed boring tool may be provided.

The invention is illustrated in the accompanying drawings, in which Figure 1 is a sectional elevation of a driving or hammering tool constructed in accordance with one embodiment of the invention.

Figure 2 is a plan view, and Figure 3 is a section on the line III—III of Figure 1.

Figure 4 is a plan view illustrating a further modification having only two handles.

Figure 5 is an elevation with part in section showing another embodiment, Figure 6 being a plan view, and Figure 7 a section on the line VII—VII of Figure 5 and showing the stake or post in position.

Figure 8 is a side elevation of a further modification in which the sliding member is assembled from angle pieces.

Figure 9 is a plan view of the device shown in Figure 8.

Figure 10 is a section along the line X—X of Figure 8.

Figures 11 and 12 are views similar to those of Figures 9 and 10 respectively of a further modification in which the device is assembled from flat bars instead of from angle pieces.

Figure 13 is a view illustrating the method of operating the tool when using the same to drive a stake into the ground.

Figure 14 is a detail view showing an adaptor for use with the tool.

Figure 15 is a sectional view of a boring tool for use with the tool of this invention.

Referring to Figures 1 to 3 the device comprises a sliding member 1 which may be of any suitable cross section, but which in the form shown is a cylinder open at its bottom end and at its other or top end which may be the top of the device, is closed by a plug. The plug 2 which acts as a hammer or weighting member fits within it and is flanged at its edge so as to lie flush with the wall of the cylinder. Extending longitudinally of the sliding member are handles 3 which in the form shown are formed from metal tubes but which may, if desired, be made from rods or bars covered with wood facings 3' of semi-circular section as shown in Figures 5 and 6.

The handles 3 are secured at their upper ends to bridge pieces 4 e. g. by welding, the said bridge pieces being secured as by welding to the plug 2 of the sliding member 1. At their lower ends the handles are flattened and are retained by a sectional clamping ring 5 fitting round the sliding member and clamped thereon by bolts. The lower ends of the handles are extended as indicated at 6 for the attachment of extension members (not shown) when desired, for this purpose bolt holes being provided in the extensions 6.

In order to accommodate a sliding member of circular cross section to a square post, segmental filling pieces 7, (two as shown in Figure 3, or four in number) may be provided, the said filling pieces 7 having their flat faces directed inwards and the distance between opposed flat faces being slightly greater than the thickness of the post.

In Figure 4 a modification is shown in which there are only two laterally extending handles 3.

In the form shown in Figures 5–7 the handles are carried at their top by bridge pieces 4 bolted to the plug 2. At their outer ends the bridge pieces are twisted and passed through slots or loops in the handles 3 and secured therein for example by bolts. At their lower ends the handles 3 are held between two sectional clamping rings 5, each ring carrying two handles opposite one another and being made in two halves.

Figures 8, 9 and 10 illustrate a sliding member 1 of rectangular section constructed of metal angle pieces 8. At the top these angle pieces are secured to the plug 2 while near the bottom they are secured by clamping pieces 5. In Figures 11 and 12 a further modification is shown in which the sliding member 1 is built up from flat bars 9 instead of the angle pieces 8 shown in Figures 8–10.

Instead of bolting the clamping ring or rings

5 to the sliding member they may be welded thereto.

In operation, when it is desired to drive or hammer a post or stake into the ground as illustrated in Figures 5 and 13 the sliding member is slipped over the end of the post or if it is a large size and thus a heavy one, it is laid on the ground and the post inserted within the sliding member. The whole is then lifted upright and then the sliding member raised relatively to the post to the dotted line position shown in Figure 13, when it is pulled down by the handles so as to bring the closed top, which acts as a hammer or weighting member, into contact with the top of the post. It is found, by so timing the blow that the pressure or weight of the person or persons operating is maintained at the moment of impact, that the momentum is transmitted to the post to be driven into the ground and the effective hammer force is very much greater than if the device is allowed to rebound. In this respect the invention is entirely different from the usual pile driving devices in as much as the pressure or driving force is held on to the driving surface and moreover the effective driving force obtainable from a given weight is multiplied many times by eliminating rebound.

Furthermore it is a surprising fact that with the tool according to the invention unlike a pile driver there is extraordinarily little damage done to either end of the post or the like even when the latter is driven into extremely hard ground surfaces. In fact posts which are required for temporary purposes may repeatedly be extracted and again driven in.

Alternatively, the length of the sliding member may be extended by means of a socket piece such as shown at 10 in Figure 14. This may consist of the short bar 10 formed at its lower end with a socket 11 of a size to fit over the stake.

Referring now to Figure 15 there is shown a boring tool for use in connection with the device for making holes in the ground. This tool consists of a tubular or sleeve portion 12 which is conveniently of circular cross section to pierce the ground its lower end being provided with a cutting edge 13. On the upper end of the tube or sleeve is a hard steel collar 14 adapted to receive the blows from the device above described. Fitted to the tubular or sleeve portion is an upstanding rod or the like 15, over which the driving device fits, this rod extending through a central aperture in the collar 14 and being secured within the portion 12 in any suitable manner. Apertures 16 may be formed in the wall of the portion 12 to enable the material to be discharged therefrom.

It is obvious that the boring tool is capable of modification and for example in addition to the apertures 16 one or more holes (not shown) may be provided therein for the insertion of levers for use when extracting the bar from the ground.

What I claim is:

1. A device for driving posts and stakes into the ground comprising a member adapted to embrace and slide up and down on the article to be driven, the said sliding member being built up from angle pieces and having a closed top overlapping and secured to the ends of said angle pieces, means extending across the upper surface of said top rigidly secured thereto, and handles depending rigidly from said means longitudinally and outside of said member.

2. A device for driving posts and stakes into the ground comprising a member adapted to embrace and slide up and down on the article to be driven, the said sliding member being built up from laterally spaced apart bars and having a closed top from which the bars depend, said bars being separated throughout below said top, handles secured rigidly to said top depending therefrom longitudinally outside of said member and being separated throughout from each other and from said bars below said top, and a removable clamping means engaging the bars and handles adjacent their lower extremities.

3. A device for driving posts and stakes into the ground comprising an elongated hollow body open at one end shaped to embrace and slide vertically on the article to be driven, a hammer member closing the top of said body, a bar disposed rigidly across the upper surface of said hammer member, handles depending rigidly from opposite ends of said bar outwardly of the body to substantially the lower end of the body, the handles being provided with lateral slots into which opposite ends of said bar are interfitted respectively, said handles below said bar throughout being free of the body, the lower end portions of said handles having series of openings therethrough, removable clamping ring means contacting said lower end portions and said body, and removable fastenings for said clamping ring means, said series of openings functioning dually to receive said fastenings and to receive fastenings for extensions of said handles.

4. A device for driving posts and stakes into the ground comprising an elongated hollow body open at one end shaped to embrace and slide vertically on the article to be driven, a hammer member welded to said body, said hammer member being provided with a shoulder engaging the upper end of the body, and a reduced portion extending interiorly of the body, a bar disposed rigidly across the upper surface of said hammer member and being welded to the upper surface of the top of the hammer member, handles depending rigidly from opposite ends of said bar outwardly of the body to substantially the lower end of the body, said handles below said bar throughout being free of the body, the lower end portions of said handles having series of openings therethrough, removable clamping ring means contacting said lower end portions and said body, and removable fastenings for said clamping ring means, said series of openings functioning dually to receive said fastenings and to receive fastenings for extensions of said handles.

ETHEL LILLIAN BRICE.