No. 738,057. PATENTED SEPT. 1, 1903.

E. B. O'CONNOR.

SHOVEL ATTACHMENT.

APPLICATION FILED DEC. 2, 1902.

NO MODEL.

Fig. 1.

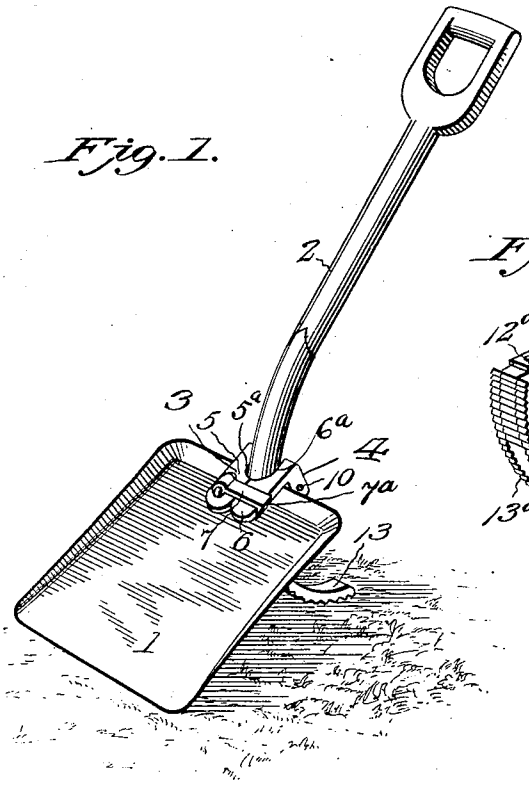


Fig. 6.

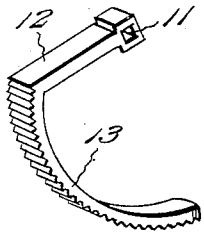


Fig. 7.

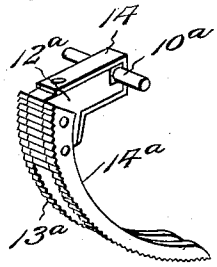


Fig. 2.

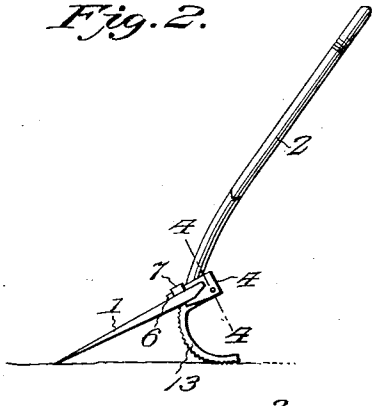


Fig. 3.

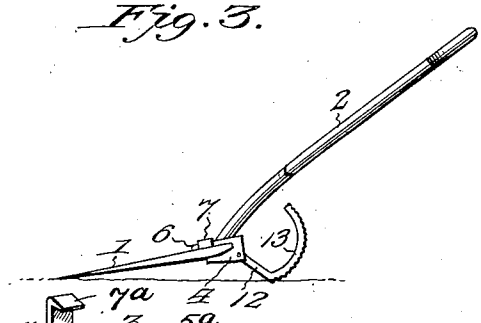


Fig. 4.

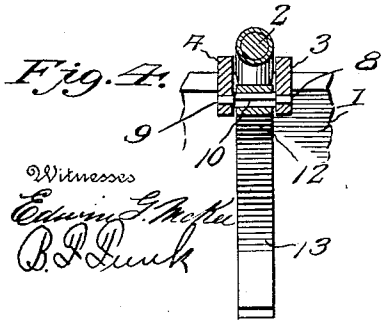
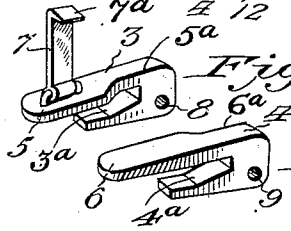


Fig. 5.



Witnesses

Edwin L. Roche

R. D. Dunk

Inventor

Edward B. O'Connor

By Victor J. Evans

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 738,057. Patented September 1, 1903.

UNITED STATES PATENT OFFICE.

EDWARD B. O'CONNOR, OF COURTNEY, MISSOURI.

SHOVEL ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 738,057, dated September 1, 1903.

Application filed December 2, 1902. Serial No. 133,591. (No model.)

To all whom it may concern:

Be it known that I, EDWARD B. O'CONNOR, a citizen of the United States, residing at Courtney, in the county of Jackson and State of Missouri, have invented new and useful Improvements in Shovel Attachments, of which the following is a specification.

This invention relates to a fulcrum attachment for shovels and like implements; and the primary object of the same is to provide a simple and effective device of this class movably connected to a shovel and of a rigid nature to facilitate the scooping action of the shovel-blade in handling ore, earth, mineral, and other substances.

The invention consists in the construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of a shovel, showing the improved fulcrum attachment applied thereto. Fig. 2 is a side elevation of a shovel having the improved fulcrum attachment thereon and illustrating the position of the parts previous to the forward movement of the shovel into the material to be scooped or removed. Fig. 3 is a view similar to Fig. 2, showing the position of the shovel and fulcrum device after a full forward movement has been imparted to the shovel. Fig. 4 is a transverse vertical section on the line 4 4, Fig. 2. Fig. 5 is a detail perspective view of a pair of clamping-jaws for holding the fulcrum in applied position. Fig. 6 is detail perspective view of the fulcrum-foot. Fig. 7 is a detail perspective view of a modified form of the fulcrum-foot.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates a shovel-blade of any ordinary or preferred construction and provided with a handle 2. Secured to the upper flanged end of the shovel-blade, close to the point of attachment of the lower end of the handle 2 thereto, are two clamping-jaws 3 and 4, having slots 3^a and 4^a entering thereinto from the front to provide upper and lower arms, the upper arms 5 and 6 of the respective clamps being longer than the lower arms. The slots 3^a and 4^a have a contour corresponding to that of the upper end of the shovel-blade to permit the jaws to snugly embrace said part of the shovel-blade. The rear extremities of the inner opposing sides of the clamps 3 and 4 are formed with recesses 5^a and 6^a, respectively, to provide seats for the reception and close embrace of the handle 2. This recessed construction permits the jaws to be applied in close relation, and they are held against movement when disposed on the shovel-blade by a latch 7, which is pivoted on the forward extremity of the arm 5 of the one jaw and has an angular end 7^a to snugly fit over the outer side edge of the forward extremity of the arm 6 of the other jaw, the said latch being movable over the arms 5 and 6 in a transverse direction and serves to reliably hold the two jaws in applied position. The lower portions of the heels of the jaws 3 and 4 in rear of the slots 3^a and 4^a are respectively formed with perforations or openings 8 and 9, which are transversely alined when the jaws are applied and rotatably receive the opposite extremities of a pintle 10, having the intermediate portion thereof of angular contour, as clearly shown by Fig. 4, and the opposite ends rounded to provide trunnions. The intermediate angular portion of the pintle 10 projects through and is seated in an angular slot 11, formed in the upper extremity of a fulcrum-foot 12, the latter having a depending arcuate member 13, which is rearwardly and downwardly curved. The front face of the arcuate member 13 is formed with a series of transversely-extending teeth or corrugations to engage the surface of the ground in rear of the shovel-blade and prevent the latter from slipping. The foot as an entirety, including the arcuate member 13, constitutes a rocker upon which the shovel rests and is sustained when such shovel is moved forward or rearward, and by such respective movements the shovel-blade is alternately depressed in a plane substantially parallel with the ground-surface and elevated at an angle to the latter.

Fig. 7 illustrates a modified form of the fulcrum, and therein a pintle 10^a has rounded bearing ends to engage the openings 8 and 9 of the respective jaws 3 and 4. A stock or bar 12^a is engaged by the angular portion of the pintle 10^a and is held in contact with said bar by means of a strap 14, secured over the

upper and lower edges and rear end of the said bar 12^a. On the opposite sides of the forward extremity of the stock or bar 12^a the upper ends of two arcuate feet 13^a and 14^a are secured, the said feet 13^a and 14^a being arranged parallel and having their front faces transversely serrated or corrugated, and the front terminal of the said stock or bar 12^a depends and has its front edge between the upper ends of the arcuate feet 13^a and 14^a also transversely serrated or corrugated.

In using a shovel having the improved fulcrum means applied thereto it will be disposed, as shown by Fig. 2, with the lower edge of the blade thereof arranged close to the material to be elevated or removed. By pressing forward on the handle of the shovel the fulcrum attachment will move or rock until it assumes the position shown by Fig. 3, and a continued forward movement of the shovel will lower the shovel-blade or pan to a plane very close to the ground-surface and cause the shovel-blade or pan to scoop the material to be elevated or removed thereby. By drawing rearwardly on the handle of the shovel the fulcrum attachment will rock or move to the position shown in Fig. 2, and at the same time a downward pressure on the handle will elevate the blade or pan and retain the quantity of material scooped thereby.

The improved attachment avoids the necessity of an operator stooping to fill the shovel-blade or pan with obvious advantages, and in rough shoveling—such as coal, macadam, or clay and rock—and in fact where shoveling is done from the ground the attachment will prove especially useful and convenient, as the same amount of shoveling can be performed with less labor than is ordinarily required.

It will be understood that changes in the form, proportions, dimensions, and minor details may be resorted to without departing from the spirit of the invention.

Having thus fully described the invention, what is claimed as new is—

1. The combination with a shovel, of a rocking rigid fulcrum attachment on which the shovel-blade can be lowered and raised and projected forwardly and retracted, the said attachment having an arcuate foot curved downwardly and rearwardly.

2. The combination with a shovel, of a pair of jaws removably secured to the rear end of the shovel-blade and embracing the handle thereof, and a pivoted fulcrum interposed between the clamps and having an arcuate foot with a roughened surface.

3. The combination with a shovel, of a pair of jaws removably secured to the rear end of the shovel-blade and embracing the handle, one of the jaws having a latch to engage the other, and a movably-mounted rigid fulcrum-foot secured to the said clamps.

4. The combination with a shovel, of an arcuate rigid fulcrum-foot movably attached to the rear end of the shovel-blade and having a front roughened face.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD B. O'CONNOR.

Witnesses:
HENRY GRAHAM,
JACOB JACKSON.