W. BRIMFIELD.

STEAM SHOVEL.

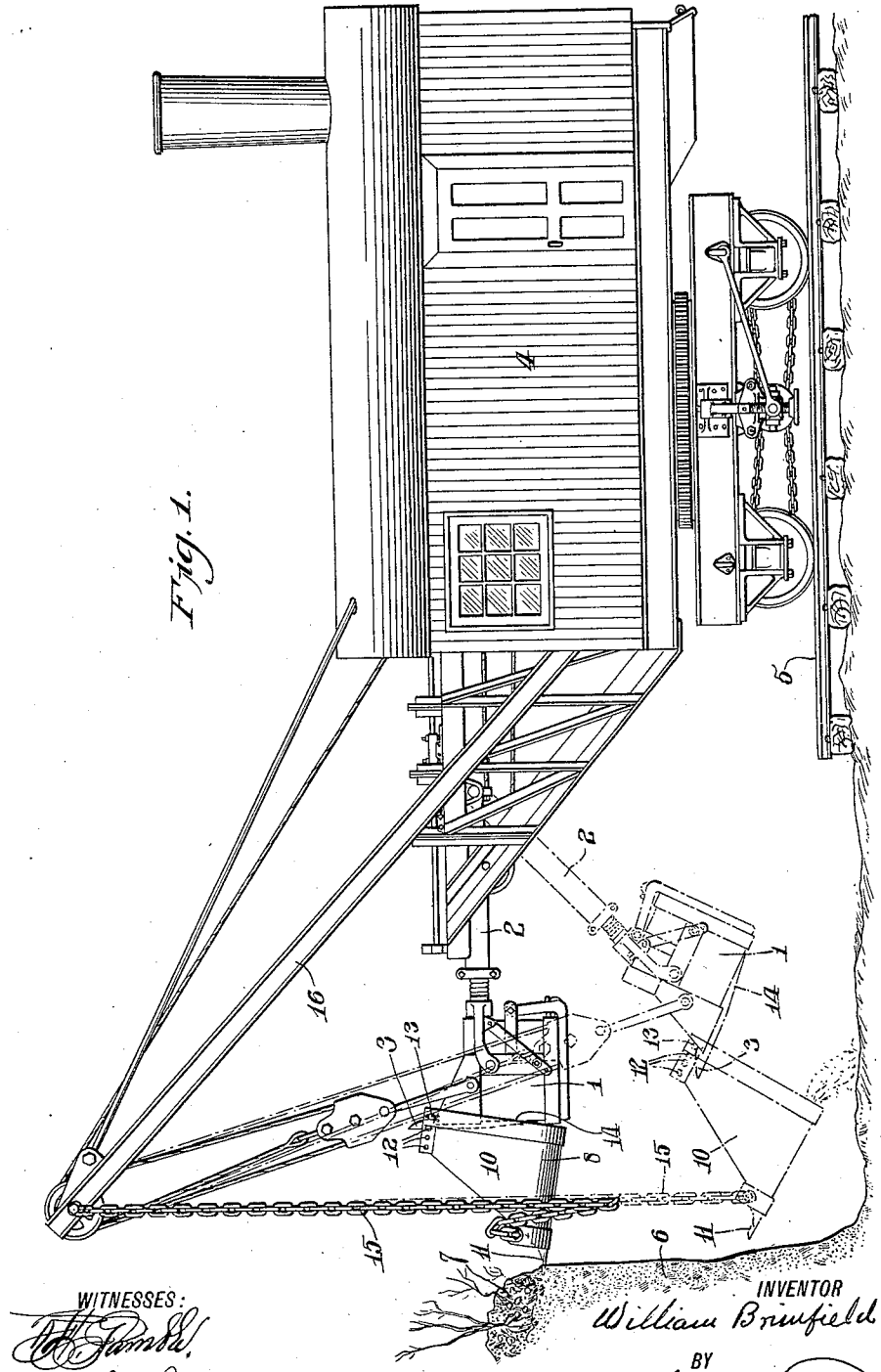
APPLICATION FILED OCT. 30, 1912.

1,067,462.

Patented July 15, 1913.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

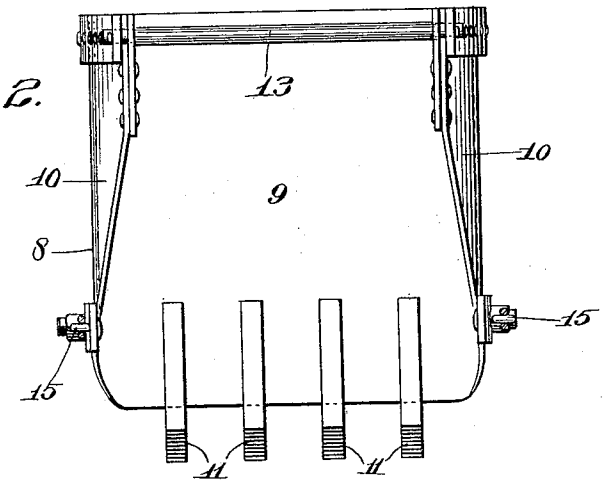


Fig. 3.

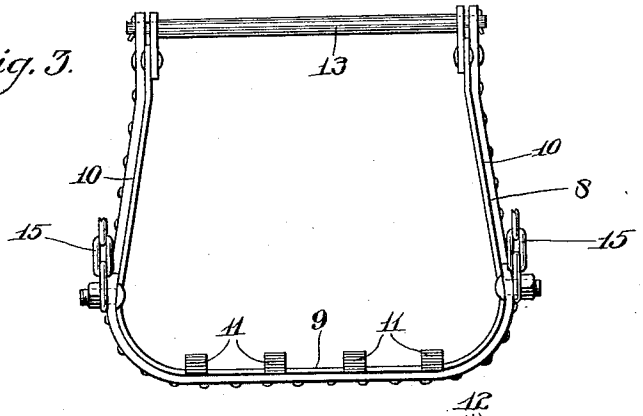
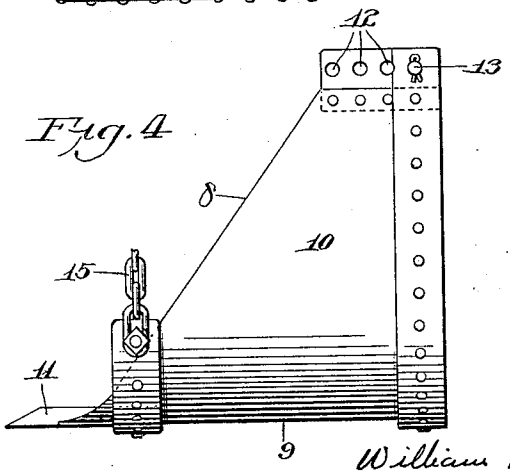


Fig. 4



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UNITED STATES PATENT OFFICE.

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STEAM-SHOVEL.

1,067,462. Specification of Letters Patent. Patented July 15, 1913.

Application filed October 30, 1912. Serial No. 728,568.

To all whom it may concern:

Be it known that I, WILLIAM BRIMFIELD, a citizen of the United States, and a resident of Blue Anchor, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Steam-Shovels, of which the following is a specification.

My invention relates to improvements in steam shovels, and the object of my invention is to furnish an attachment for the dipper of a steam shovel which will permit it, when actuated by a thrusting movement, to be conveniently and satisfactorily operated to strip the top surface or soil from a deposit of sand or other valuable material which is to be excavated by the usual radial or sweeping movement of the dipper.

Deposits of gravel, sand, and similar substances are usually overlaid by soil, loam or other materials which it is necessary to remove before removing the valuable deposit underneath, it being understood, of course, that it is desirable that the lower material be not mixed with that upon the surface.

A steam shovel for removing deposits of sand, gravel, etc., is usually located in a pit against the sides of which it operates and as ordinarily arranged it cannot well be used for stripping when so located, the consequence is that the stripping is usually done by hand which is a costly and laborious operation.

The purpose of my invention is to furnish an attachment for the ordinary form of dipper shovel, the handle of the dipper of which can be run in or out in a well known manner, which will permit of an operative action when the dipper is actuated horizontally and which will be automatically dumped by simply lowering the dipper handle.

In the accompanying drawings forming part of this specification, and in which similar letters of reference indicate similar parts throughout the several views: Figure 1, is a side elevation of a steam shovel to the dipper of which my attachment is secured and Figs. 2, 3 and 4 a plan, a front elevation and a side elevation respectively of my attachment.

1 is the dipper and 2 the dipper handle of a steam shovel of well known construction. The dipper handle 2 is so arranged that it may be moved in or out both vertically and horizontally from its carrying means. The mechanism for carrying and for actuating the dipper and its handle are well known and as they form no part of my invention it will be unnecessary to describe them in detail.

3 are the usual teeth upon the front of the dipper the purpose of which is to take the wear and facilitate the entrance of the dipper to the material to be removed.

In Fig. 1 I have shown the car 4, which carries the dipper carried upon tracks 5 which are located in the bottom of a pit. 6 is the face of the pit against which the dipper works in order to remove the sand, gravel or other material. 7 is the top soil or material which must be removed prior to removing the material 6 in order to prevent the mixing of the two materials. It will be observed from this figure that the dipper, as usually arranged and operated, cannot be employed to strip, or remove, the top soil 7. In order to fit it for this purpose I have devised the following device: 8 is a shovel having an open front and back, a bottom 9 and sides 10. This shovel is constructed of metal, has upon the cutting face of its bottom teeth 11, and the upper ends of its sides are furnished with holes 12 opposite ones of which are adapted to carry a bar 13. The bar 13 is adapted to be placed behind the teeth 3 of the dipper 1, as shown in Fig. 1, and when the shovel 8 is so hung its sides 10 engage the sides of the dipper 1 and the face 14 of the dipper forms a back for the shovel. The dipper being thus equipped with the shovel is operated horizontally by moving the dipper handle 2 in and out by the mechanism usually employed for advancing or retarding it. Upon a forward movement of the dipper arm the shovel 8 is moved horizontally into the top of the bank and upon a retractive movement it is moved away from the bank carrying with it the material which it has gathered. This material is held in the shovel 8 by the sides and bottom 10—11 and by the face 14 of the dipper 1 which forms the back of the shovel. 15, Fig. 1, is a chain or cable which is secured at one end near the cutting face of shovel 8 and at the other end to the crane 16 which carries the sheaves and pulleys for carrying and operating dipper 1.

The shovel 8 having been filled the dipper arm 2 and the dipper 1 are retracted until the shovel is clear of the bank when the car

4 is revolved to bring the shovel above the point where it is to be dumped. The dipper 1 is now lowered and as the front of the shovel is supported by chain 15 this lowering causes the lower end of shovel 8 to move away from lower end of face of dipper 1, the rod 13 of the shovel which is carried by the teeth 3 of the dipper, acting as a pivot around which the shovel turns and its contents fall out. Upon the lifting of the dipper, the shovel by gravity takes its operative position for the next thrust into the top of the bank.

In Fig. 1 the positions of the shovel and dipper when the former is dumped is shown in dotted lines. This dotted view is incorrect in that the chain 15 is too long and the position of the several parts too low, actually the chain 15 hangs slightly slack and the shovel is dumped while practically at the level shown in the full lines. For the sake of clearness the dotted position is shown entirely too low, but illustrates clearly the positions of the parts during the dumping.

The angle of the shovel 8 in relation to the bank and to the dipper 1 is determined by which pair of holes 12 carry the rod 13. In Fig. 1 the rear holes 12 carry the rod and the bottom of the shovel 8 is, in operative position but slightly inclined from the horizontal. If the forward holes are used to carry the rod this inclination will be greater.

Having thus described my invention I claim as new and desire to secure by Letters Patent:—

1. The combination with the dipper of a steam shovel, of an auxiliary shovel having sides and a bottom, and a means for pivotally attaching the top of said auxiliary shovel to the face of the dipper so that said face will form the back of said auxiliary shovel.

2. The combination with the dipper of a steam shovel, of an auxiliary shovel having sides and a bottom, a means for pivotally securing the top of said shovel to the top of the face of the dipper so that said face will form the back of said shovel, and a means for carrying the cutting face of said shovel.

3. The combination with the dipper of a steam shovel of an auxiliary shovel having sides and a bottom, a rod adjustably carried by the tops of the sides of said shovel adapted to be hung upon the teeth of the dipper, and a means, carried by the crane which carries the dipper, for carrying the cutting face of said shovel.

4. As a new article of manufacture a shovel attachment for the face of the dipper of a steam shovel, having a bottom and sides, teeth projecting beyond the face of said bottom, a means carried by the upper ends of said sides for pivotally attaching said shovel to the upper end of the face of said dipper, and a means for connecting the forward lower part of said shovel to the crane carrying the dipper.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."