

No. 632,368.

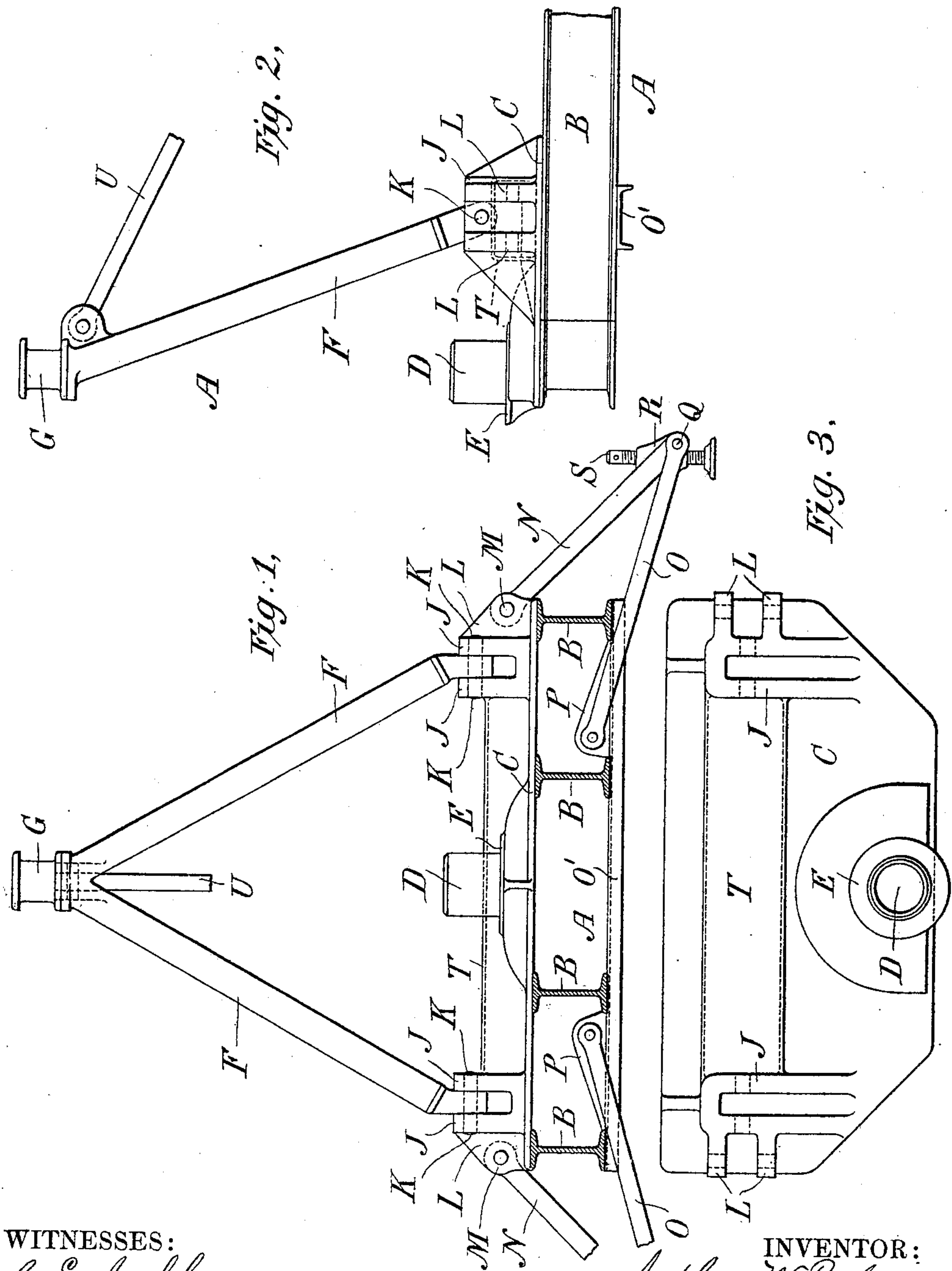
Patented Sept. 5, 1899.

A. W. ROBINSON.  
STEAM SHOVEL.

(Application filed Mar. 30, 1899.)

(No Model.)

2 Sheets—Sheet 1.



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Edgar A. Mead.

INVENTOR:

Arthur W. Robinson  
By his Attorney  
Phillips Abbott.

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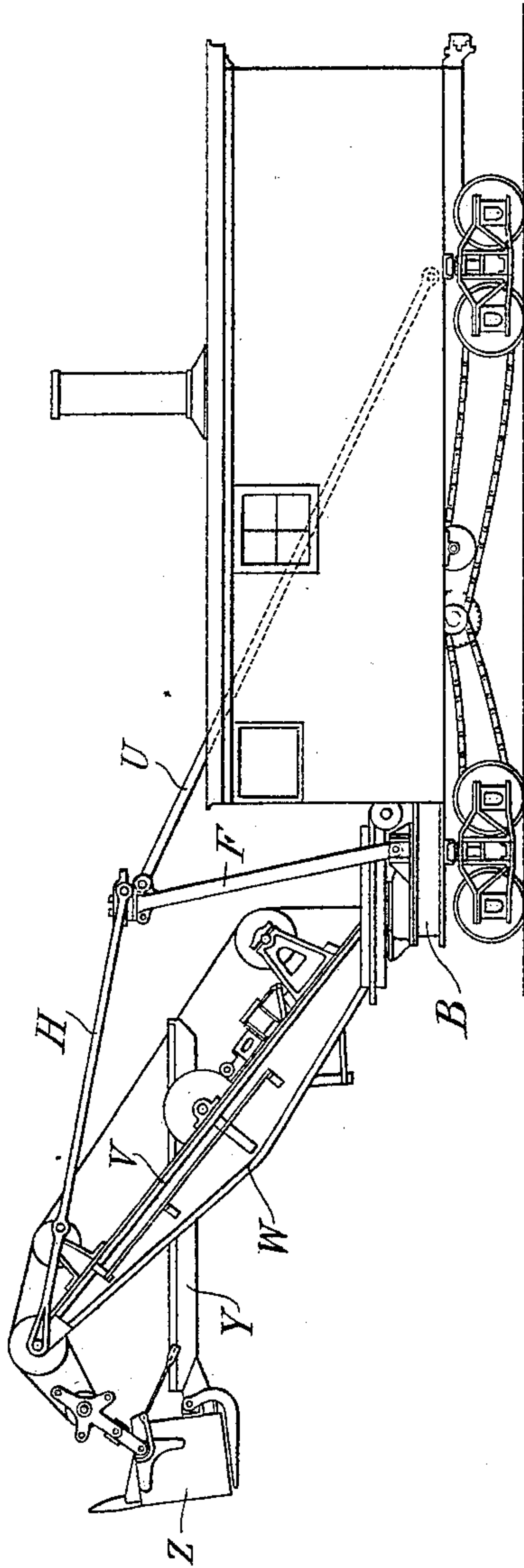
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Fig. 4.



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# UNITED STATES PATENT OFFICE.

ARTHUR W. ROBINSON, OF MILWAUKEE, WISCONSIN.

## STEAM-SHOVEL.

SPECIFICATION forming part of Letters Patent No. 632,368, dated September 5, 1899.

Application filed March 30, 1899. Serial No. 711,056. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR W. ROBINSON, a citizen of the Dominion of Canada, and a resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Steam-Shovels, of which the following is a specification.

My invention, generally stated, relates to improvements in the construction and arrangement of certain of the operative parts of a steam-shovel, more particularly those pertaining to the support for an A-frame, boom, and jack-arms; and they consist in so constructing the main base-plate upon which the said parts are supported that strength, simplicity, and economy are secured and a convenient arrangement of the parts.

Among the advantages resulting from my improvement are these: An A-frame for the support of the boom is mounted upon a base-plate in such a way that it can be readily raised or lowered for transportation, and also the jack-arms are in part attached to said base-plate in such a manner as to contribute to the stability of the machine when in operation and so that the strains are resisted in a direct and simple manner.

In the drawings hereof, Figure 1 is an elevation of the front end of a steam-shovel, in which the I-beam sills of the car are shown in section. Fig. 2 is a side elevation of that which is shown in Fig. 1. Fig. 3 is a plan view of the base-plate to which certain of the parts are attached. Fig. 4 is a side elevation of the shovel and coacting parts, shown as mounted upon a car.

Many devices necessary for an operative machine have been omitted in all of the above drawings, because they form no essential part of the invention. Also I wish it to be understood that although I show and herein describe my invention as applied to a steam-shovel mounted upon a car or truck I do not limit myself to that construction, since obviously the improvements, in whole or in part, are adapted to use upon a scow or any suitable support therefor.

A illustrates the frame of a platform-car, embodying I-beam sills B B, &c.

C is a plate, preferably made as a single continuous casting and preferably of the general shape shown in Fig. 3 and wide enough to extend across the entire front end of the car or so much thereof as may be necessary to give the desired stability.

D is the lower gudgeon forming the axis upon which the boom or crane revolves, E being the upwardly-presented surface, upon which rests the frame in which the boom is stepped.

F F are the two members of an A-frame which supports the boom.

G is a gudgeon at the apex of the A-frame, from which the top or tension members H (see Fig. 4) of the boom extend, they being connected with a suitable sleeve I, which pivots upon the gudgeon G.

J J are lugs formed upon the base-plate C, having a vertical presentation, and they form the lower hinge connections for the A-frame, transverse pins K K serving as the axes upon which the A-frame tilts in operation. These axes are in line with each other. L L are other lugs likewise cast integral with the base-plate C and which have a horizontal presentation, to which are pivoted by pin connections M M the upper ends of the compression members N N of the jack-arms. The lower or tension members O O of the jack-arms are pivoted at their inner ends to lugs P P, which are bolted to a transverse beam O' or other suitable support. The outer ends of both members O and N of the jack-arms are pivoted by a pin Q to an internally-threaded casting R, into which meshes a screw-jack S, one at each side of the machine.

To further stiffen the base-plate and to connect the bearings of the A-frame so that strains coming from any direction will be transmitted more generally throughout the entire base-plate, I provide a transverse beam or a box-girder T.

U is the back guy, one only being necessary in my construction. It extends from near the top of the A-frame rearwardly and



is connected to any suitable point at the rear of the car or scow, preferably in the event of a car approximately over the rear truck.

V, Fig. 4, is the boom, W is the truss thereof, Y is the dipper-arm, and Z the dipper.

In Fig. 4 I indicate certain engines, drums, chains, &c., which need not be described, their purpose being well understood, and their special construction and location form no special consideration here.

It will be noted that under my improvement the base-plate consists of a single casting having lugs for the A-frame and likewise lugs for the compression members of the jack-arms and intermediate of these a support for the boom and that the arrangement is such that simplicity and economy are attained, and also, since the pivotal points of the compression members of the jack-arms are approximately in line with the support for the A-frame, that the strains are transmitted directly from one to the other without passing through any other intermediary framing excepting the pins connecting these parts with the base-plate itself. In this manner the car-frame is greatly strengthened and is relieved of the strains to which it would otherwise be subjected, tending to its injury. The A-frame is, as it were, extended down to and rests upon the jack-screws, and the tension members of the jack-arms O O are, as it were, connected together, because the lugs P P, to which they are pivoted, are connected by the transverse beam O', upon which they are supported.

It will also be observed that the A-frame, upon disconnecting certain parts, may be lowered as a whole, since it will pivot upon the horizontal pins K K, which in effect form a horizontal axis for it, and also that because of my employment of the A-frame I avoid the necessity for a plurality of guys and may employ a single tension member U only, extending to the rear.

It will be obvious to those who are familiar with this art that modifications may be made in many of the details of construction shown and described by me without departing from the essentials of the invention. I therefore do not limit myself to such details.

Having described my invention, I claim—

1. A base-plate for a steam-shovel or similar structure having cast integral therewith vertically-presented lugs for the support of an A-frame, and laterally-presented lugs for the support of the compression members of the jack-arms, for the purposes set forth.

2. A base-plate for a steam-shovel or similar structure having cast integral therewith vertically-presented lugs for the support of an A-frame, laterally-presented lugs for the support of the compression members of the jack-arms, and an intermediately-located gudgeon for pivotally supporting the inner end of the boom, for the purposes set forth.

3. A base-plate for a steam-shovel or similar structure, having cast integral therewith vertically-presented lugs for the support of an A-frame and laterally-presented lugs for the support of the compression members of the jack-arms, in combination with an A-frame composed of two parts and an upper gudgeon mounted upon the apex of said A-frame, for the purposes set forth.

4. A base-plate for a steam-shovel or similar structure, having cast integral therewith vertically-presented lugs for the support of an A-frame, laterally-presented lugs for the support of the compression members of the jack-arms and an intermediately-located gudgeon for pivotally supporting the inner end of the boom, in combination with an A-frame composed of two parts, and a gudgeon mounted upon the apex of the A-frame, for the purposes set forth.

5. A base-plate for a steam-shovel or similar structure, having cast integral therewith lugs for the support of an A-frame and other lugs for the support of the compression members of the jack-arms, in combination with supports for the inner ends of the tension members of the jack-arms connected together transversely of the machine, for the purposes set forth.

6. A base-plate for a steam-shovel or similar structure, having cast integral therewith vertically-presented lugs for the support of an A-frame and laterally-presented lugs for the support of the compression members of the jack-arms, said lugs being all arranged on substantially the same line transversely of the base-plate, for the purposes set forth.

7. A base-plate for a steam-shovel or similar structure, having cast integral therewith vertically-presented lugs for the support of an A-frame and laterally-presented lugs for the support of the compression members of the jack-arms, said lugs being all arranged on substantially the same line transversely of the base-plate, and a gudgeon likewise cast integral with the base-plate for pivotally supporting the inner end of the boom, for the purposes set forth.

8. A base-plate for a steam-shovel or similar structure, having cast integral therewith vertically-presented lugs for the support of an A-frame, laterally-presented lugs for the support of the compression members of the jack-arms, said lugs being all arranged on substantially the same line transversely of the base-plate, a gudgeon for pivotally supporting the inner end of the boom located between said lugs, in combination with supports for the inner ends of the tension members of the jack-arms connected together transversely of the machine, for the purposes set forth.

9. A base-plate for a steam-shovel or similar structure, having cast integral therewith vertically-presented lugs for the support of



an A-frame, laterally-presented lugs for the support of the compression members of the jack-arms, said lugs being located on substantially the same line transversely of the  
5 base-plate, and a gudgeon for pivotally supporting the inner end of the boom also cast integral with said base-plate, in combination with an A-frame having an upper gudgeon mounted upon its apex and supports for the  
10 inner ends of the tension members of the jack-

arms connected together transversely of the machine, for the purposes set forth.

Signed at Milwaukee, in the county of Milwaukee and State of Wisconsin, this 2d day of March, A. D. 1899.

ARTHUR W. ROBINSON.

Witnesses:

JOSEPH G. DAVIES,  
ANTHONY HAUCK.