

G. W. & C. B. KING & B. JACOBY,
EXCAVATING MACHINE.
APPLICATION FILED SEPT. 26, 1911.

1,066,286.

Patented July 1, 1913.

2 SHEETS—SHEET 1.

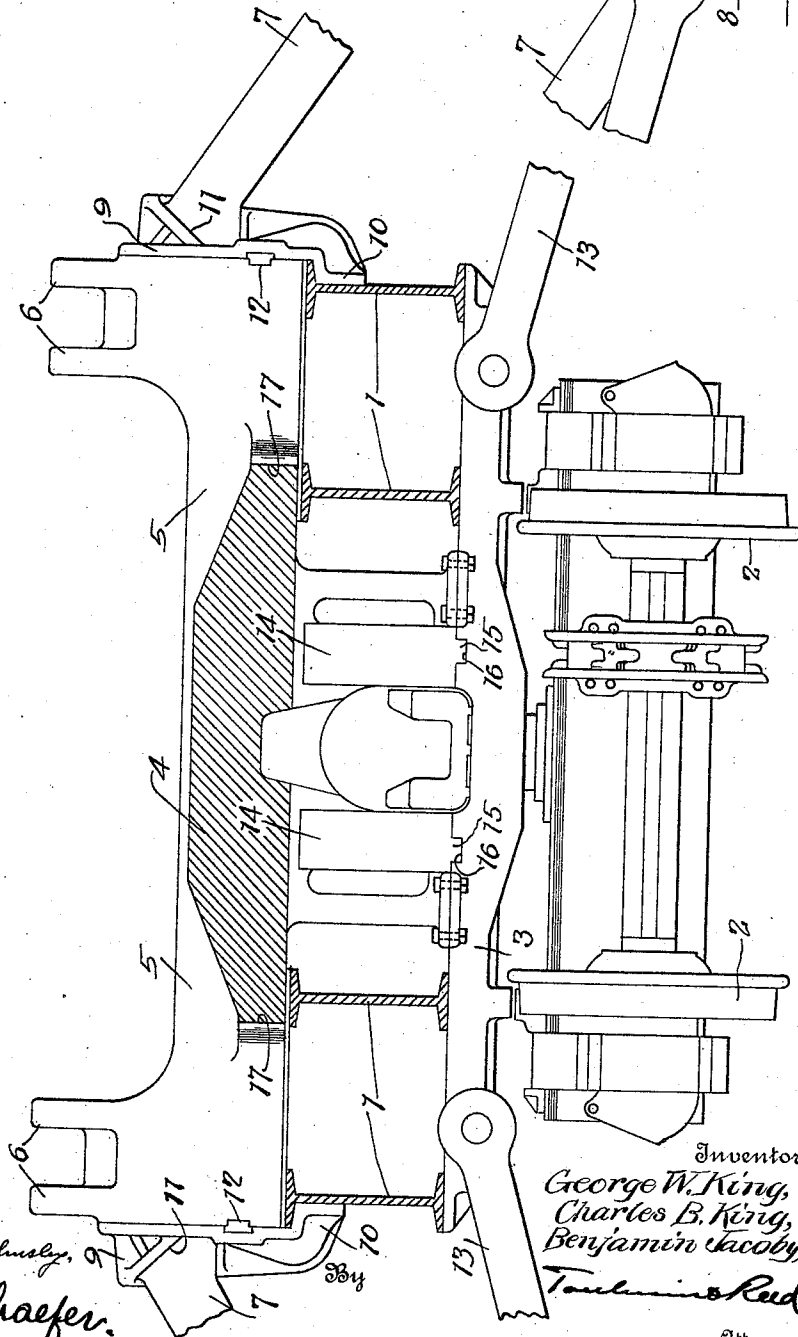


Fig. 1.

Witnesses

Almon W. Walmsley,
F. W. Schaefer.

Inventors

George W. King,
Charles B. King,
Benjamin Jacoby,

Attorneys

G. W. & C. B. KING & B. JACOBY.

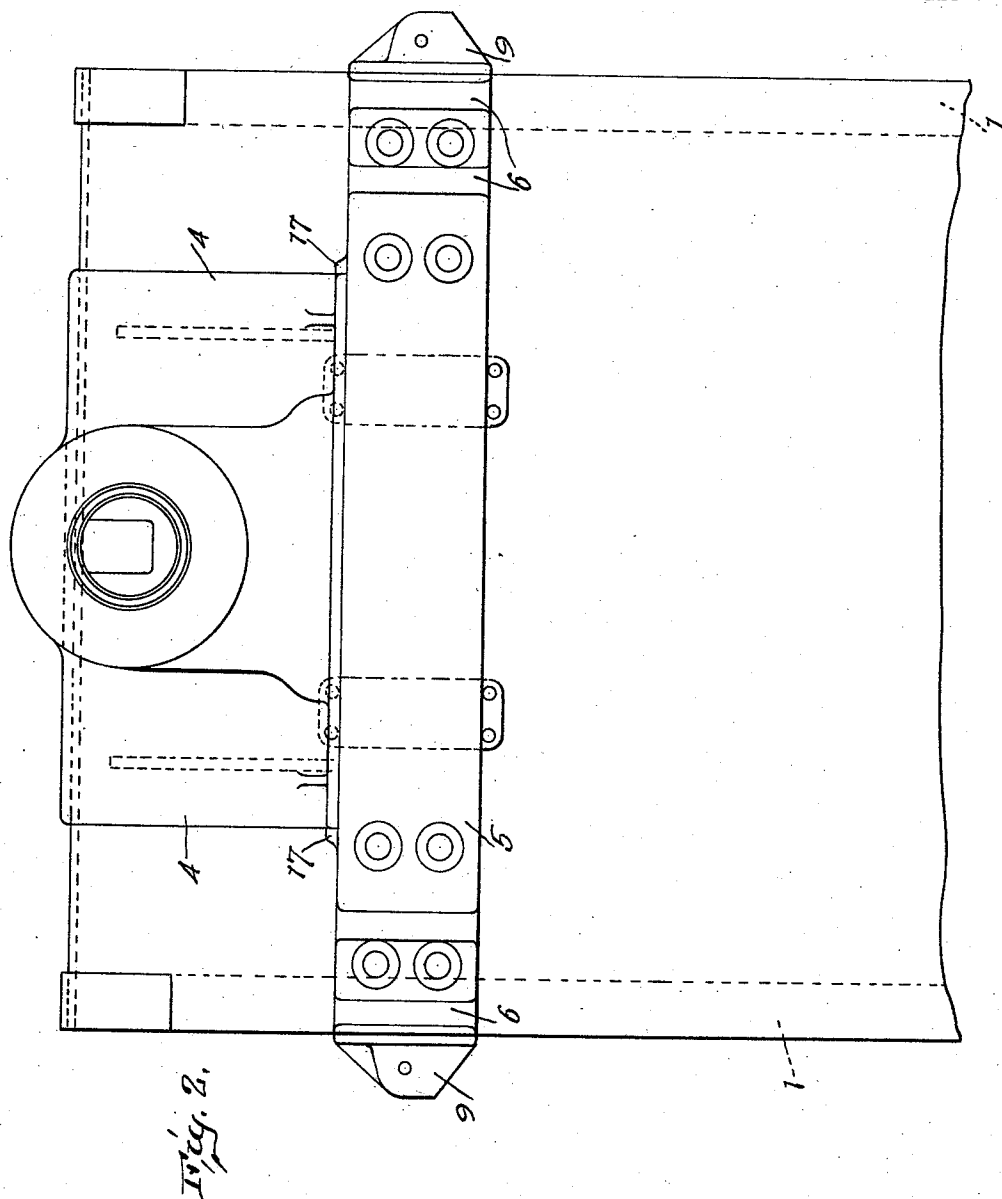
EXCAVATING MACHINE.

APPLICATION FILED SEPT. 25, 1911.

1,066,286.

Patented July 1, 1913.

2 SHEETS—SHEET 2.



Witnesses

Howard Walmsley,

F. W. Schaefer.

Inventor
George W. King,
Charles B. King,
Benjamin Jacoby,

By

Toulin & Reed.

Attorneys

UNITED STATES PATENT OFFICE.

GEORGE W. KING, CHARLES B. KING, AND BENJAMIN JACOBY, OF MARION, OHIO,
ASSIGNORS TO THE MARION STEAM SHOVEL COMPANY, OF MARION, OHIO, A COR-
PORATION OF OHIO.

EXCAVATING-MACHINE.

1,066,286.

Specification of Letters Patent.

Patented July 1, 1913.

Application filed September 25, 1911. Serial No. 651,069.

To all whom it may concern:

Be it known that we, GEORGE W. KING, CHARLES B. KING, and BENJAMIN JACOBY, citizens of the United States, residing at Marion, in the county of Marion and State of Ohio, have invented certain new and useful Improvements in Excavating-Machines, of which the following is a specification, reference being had therein to the accom-
panying drawing.

This invention relates to excavating machines. In machines of this character the frame is braced against the thrust of the boom by means of jacks arranged on opposite sides of the frame of the machine and engaging parts connected with the frame. Ordinarily the jack arm engages a socket secured to the opposite ends of the sill which supports the A-frame and this jack arm is connected by a tie bar with the bolster or some other transverse member connected with the frame. This makes a very strong brace for the machine, but under the strain imposed thereon by the boom there is a tendency for the transverse members, that is, the sill and the bolster to move longitudinally relatively one to the other, thus throwing the parts out of alinement and distorting the frame to a greater or less extent and also tending to shear the bolts by means of which the sill and bolster are connected.

The object of the present invention is to provide a construction by means of which these transverse members will be held rigidly against relative displacement; and which further will rigidly connect the sill and the base casting upon which the turntable for the boom is mounted, thereby uniting these parts in a very strong rigid manner.

It is also an object of the invention to provide approved means for connecting the end of the jack arm to the sill.

In the accompanying drawings, Figure 1 is a transverse, sectional view of an excavating machine showing a sill and bolster construction embodying our invention; and Fig. 2 is a top, plan view of the frame of such a machine showing the connection between the sill and the base casting.

In these drawings we have illustrated one embodiment of our invention and have shown the same applied to what is known as the standard type of steam shovel which

comprises a frame 1 mounted on trucks 2 and having a bolster 3 interposed between the frame members and the trucks. Mounted at the forward end of this frame is the usual turn-table carrying the excavator boom. This turn-table and boom are of well known construction and are not here shown. The turn-table, however, is mounted on a base 4 which preferably comprises a casting rigidly mounted on the main frame. Mounted on the frame and above the bolster 3 is a sill 5 upon which the usual A-frame may be mounted, the sill being provided at its opposite ends with lugs 6 spaced apart to receive the upright members of the frame. To hold the frame and the machine as a whole against lateral displacement and preserve the same against injury during the excavating operation the frame is braced by means of jacks 7 which resist the lateral thrust exerted on the frame by the boom. Each jack preferably comprises a body portion or jack arm, one end of which is carried by an adjustable base 8 mounted on the ground and the other end of which enters a socket at the adjacent end of the sill 5. This socket, in the present instance, comprises a casting 9 having at its lower end an inwardly extending portion 10 which engages beneath the adjacent portion of the frame upon which the sill rests and which is provided with a recess 11 to receive the end of the jack arm 7. To more rigidly connect the socket casting to the sill the adjacent portions of the casting and the sill are provided with keyways and a key 12 inserted in the same, thus forming a very rigid connection between the parts and effectually preventing any movement of the casting relatively to the sill under the thrust of the jack arm. The jack arm is also connected with the frame by means of a tie bar 13 secured at its outer end to the jack arm and at its inner end to the adjacent end of a transverse frame member, such as the bolster 3. The tie bar is pivotally connected both to the jack arm and to the bolster and, consequently, when the parts are subjected to a lateral strain there is a tendency on the part of the sill and bolster to move relatively one to the other. To prevent this these two parts are rigidly connected one to the other. Preferably, they are formed separate and one of the parts, in the present instance the sill, is provided

with projections 14 extending through the frame 1 and having keys 15 to enter grooves 16 in the bolster. These keys or tongues fit snugly in recesses and rigidly connect the two parts together, effectually preventing any relative longitudinal movement. Further, the base casting 4 is so connected with the sill as to effectually hold these parts against relative movement under the thrust of the boom. To this end the sill is provided along its forward side with toes 17 formed integral therewith and the adjacent portion of the casting is machined to fit snugly between these toes, thereby rigidly connecting the two parts together and effectually preventing any relative movement thereof.

It will be apparent that we have provided a construction which will effectually prevent any relative movement on the part of the several members under the thrust of the boom during the excavating operation, the construction being such as not only to resist the direct thrust of the boom but also the thrust of the jack arms as a result of the strain imposed on the frame by the boom.

While we have shown and described the several parts as formed integral and connected one to the other by interlocking parts it will be obvious that in many instances, if not all, the parts could be cast in a single piece.

While we have shown and described one embodiment of our invention this has been chosen for the purpose of illustration only and we wish it to be understood that we do not desire to be limited to the details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

Having thus fully described our invention, what we claim as new and desire to secure by Letters Patent, is:—

1. A frame structure comprising longitudinal members, transverse members arranged, respectively, above and below said longitudinal members and adapted to receive endwise strains, said transverse members having interlocking parts to rigidly connect the same one to the other and to prevent the relative movement of said transverse members when subjected to said endwise strains.

2. A frame structure comprising longitudinal members, transverse members arranged, respectively, above and below said longitudinal members and adapted to receive endwise strains, and a supporting member mounted on said longitudinal members, said transverse members and said sup-

porting member having interlocking parts to rigidly connect said members one to the other.

3. A frame structure comprising main frame members, a bolster arranged beneath said main frame members, and a sill mounted on said main frame members, above said bolster, said sill and said bolster having interlocking parts.

4. A frame structure comprising main frame members, a bolster arranged beneath said main frame members, and a sill mounted on said main frame members above said bolster, one of said parts having projections provided with keys and the other of said parts having keyways to receive said keys, whereby said members are rigidly locked against relative movement when subjected to endwise thrusts.

5. In a frame structure, longitudinal frame members, a bolster arranged beneath said longitudinal members and adapted for connection with a supporting truck, a sill mounted on said frame members and having portions extending between said frame members and provided with keys, said bolster having keyways to receive said keys.

6. A frame structure comprising longitudinal frame members, a sill mounted on said longitudinal frame members, a supporting member mounted on said longitudinal frame members adjacent to said sill, said supporting member and said sill having interlocking parts to hold the same against relative movement when subjected to strain.

7. A frame structure comprising longitudinal members, a sill mounted on said longitudinal members and having forwardly projecting lugs, a supporting member mounted on said longitudinal members adjacent to said sill and having a part adapted to fit snugly between said lugs, whereby said sill and said supporting member are rigidly connected and held against relative movement when subjected to strains in different directions.

8. A frame structure comprising a sill, a bolster, and a supporting member, the adjacent portions of said member having interlocking parts, whereby a rigid construction is provided and relative movements of the parts under strain prevented.

In testimony whereof, we affix our signatures in presence of two witnesses.

GEORGE W. KING.
CHARLES B. KING.
BENJAMIN JACOBY.

Witnesses:

H. H. CONNOLLY,
C. M. WRIGHT.