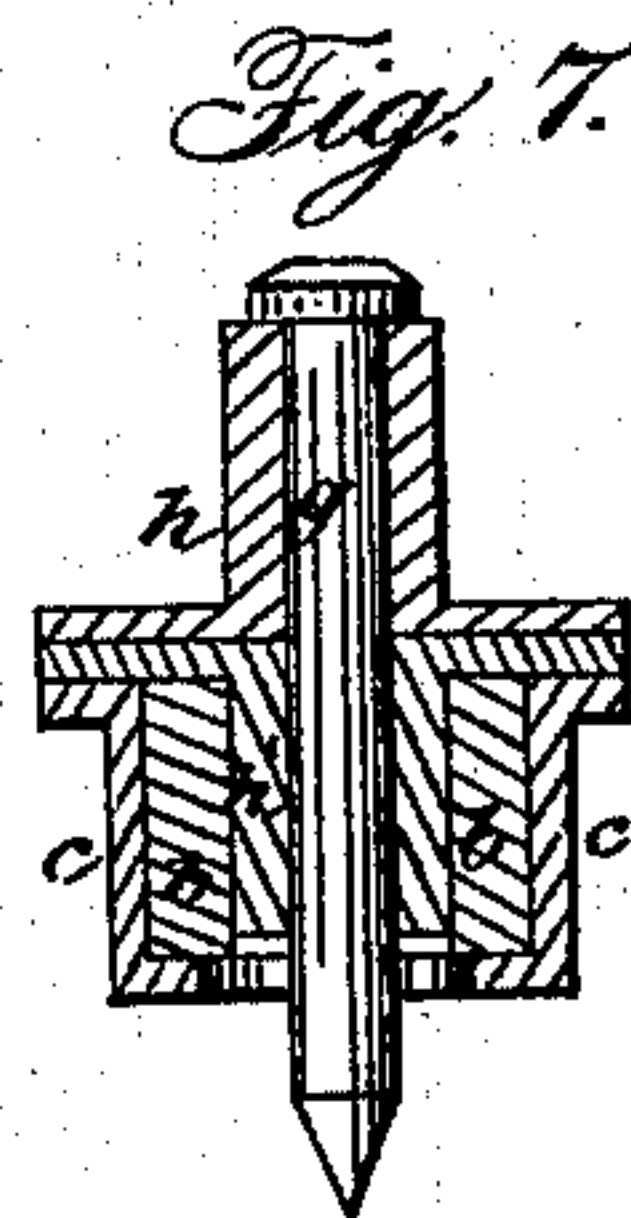
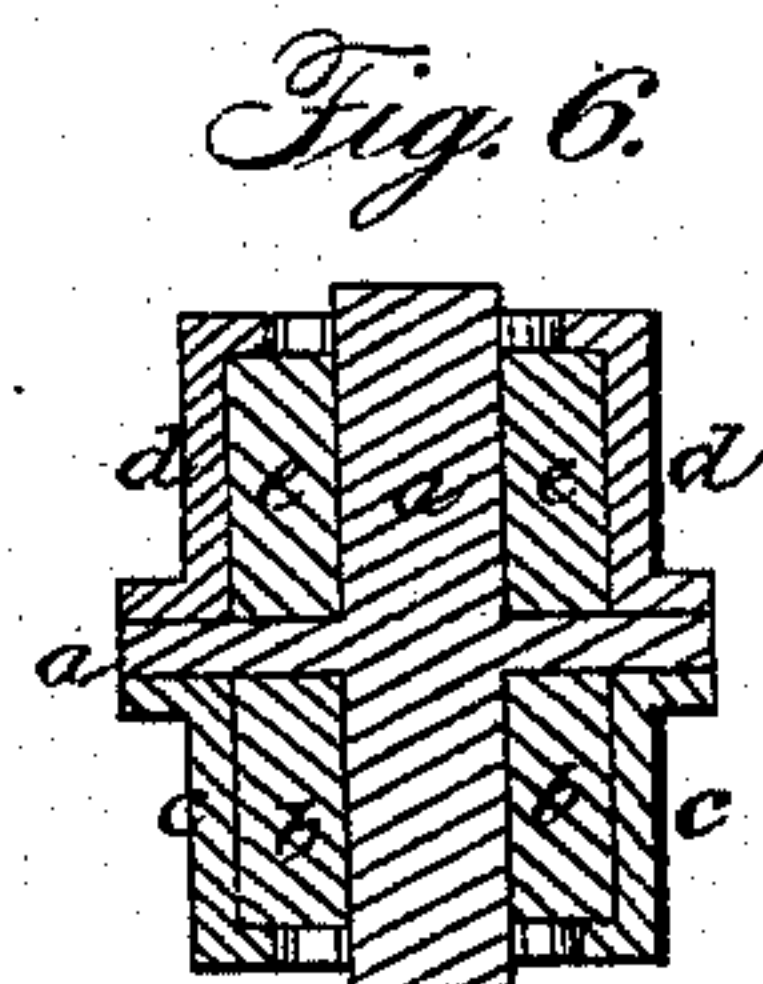
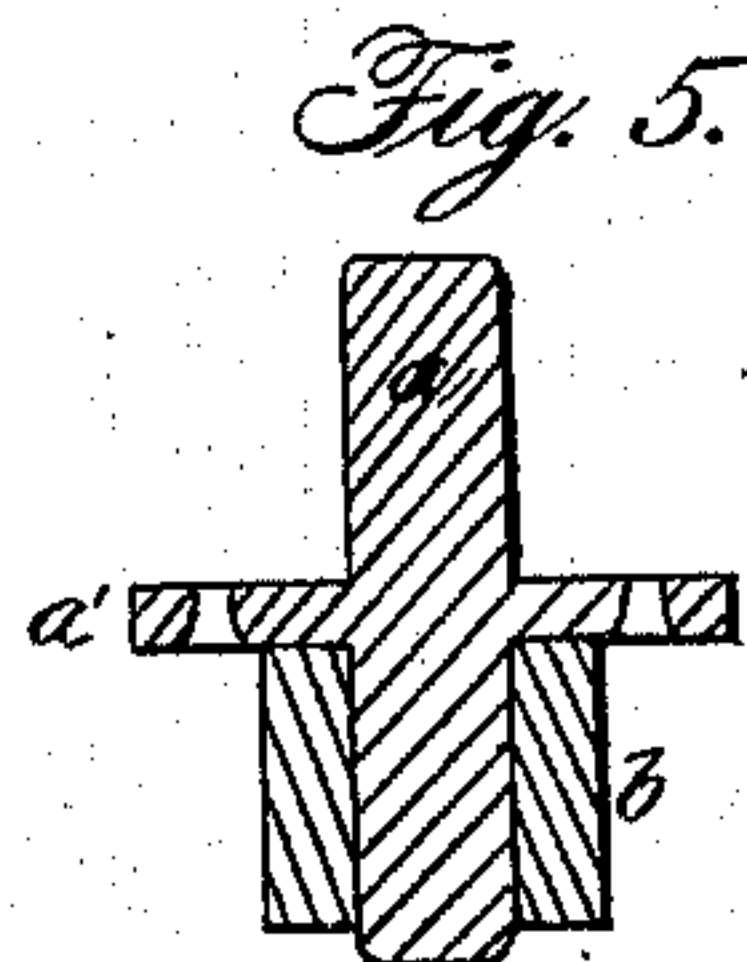
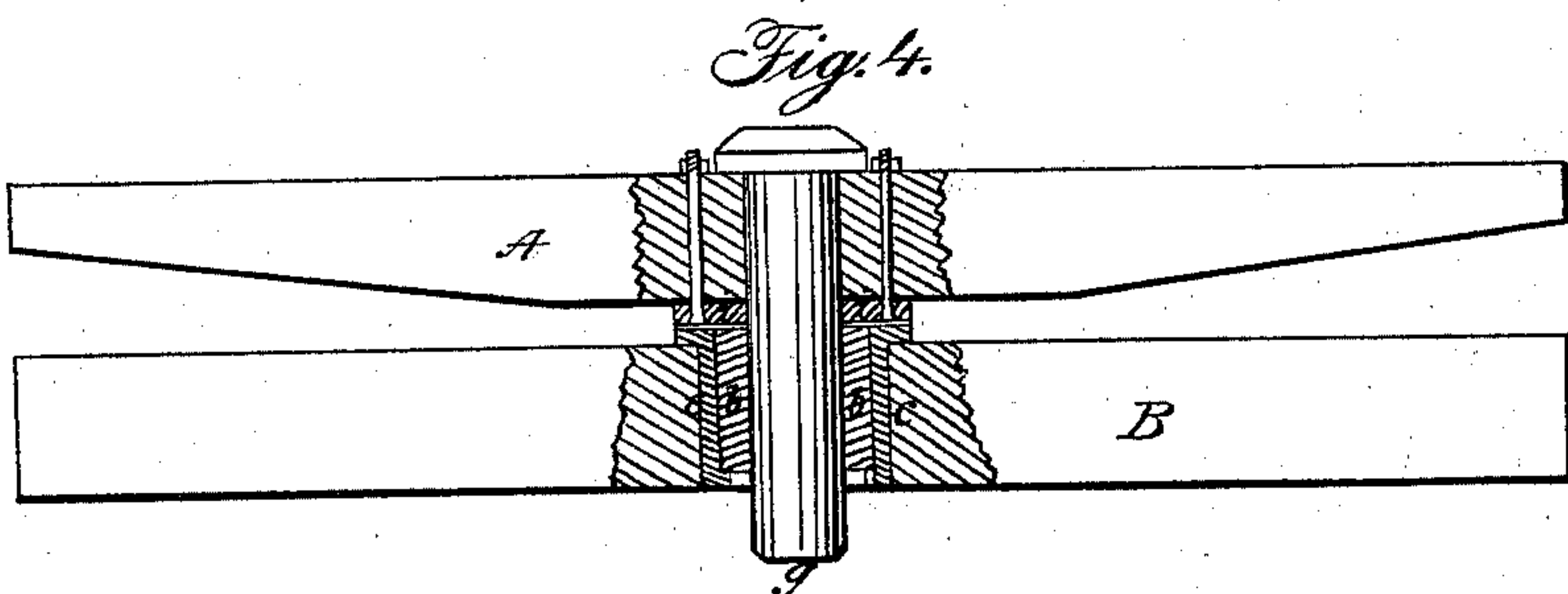
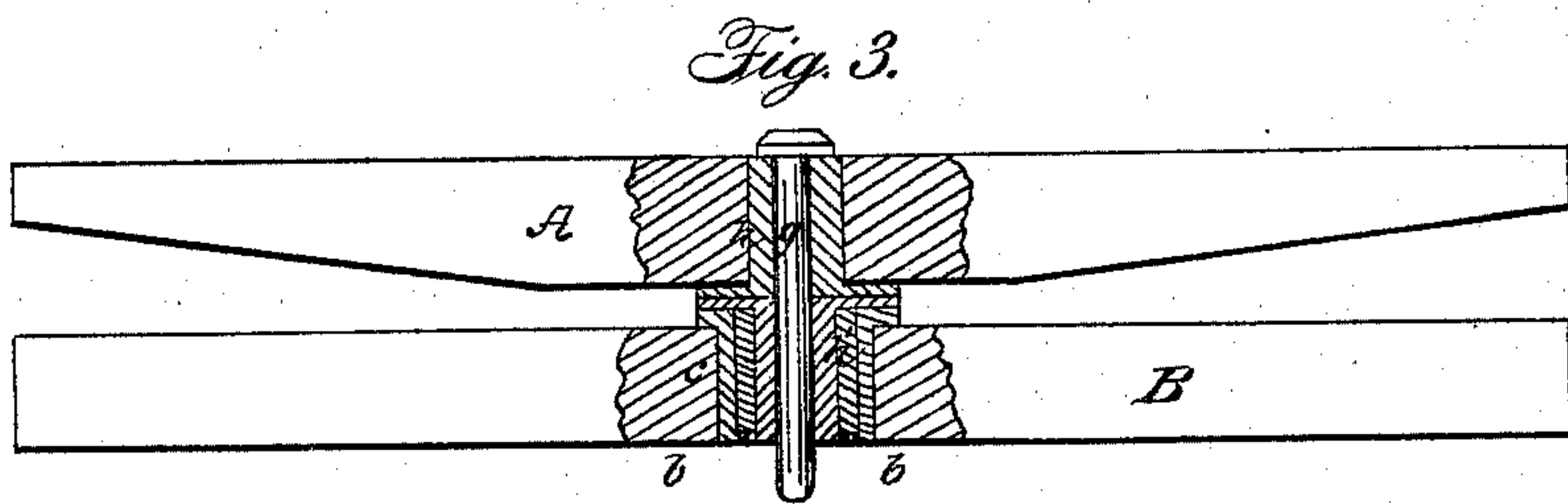
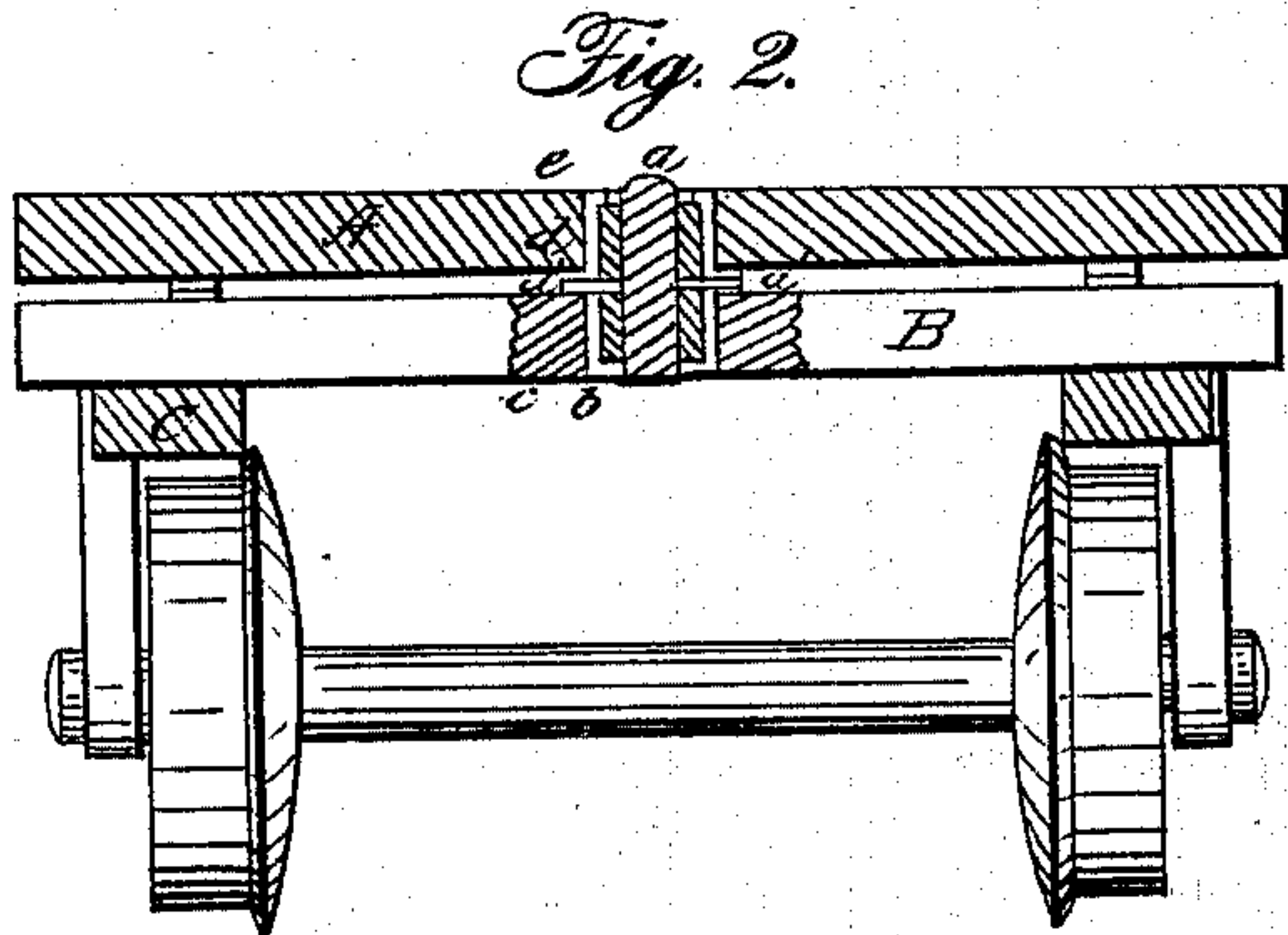
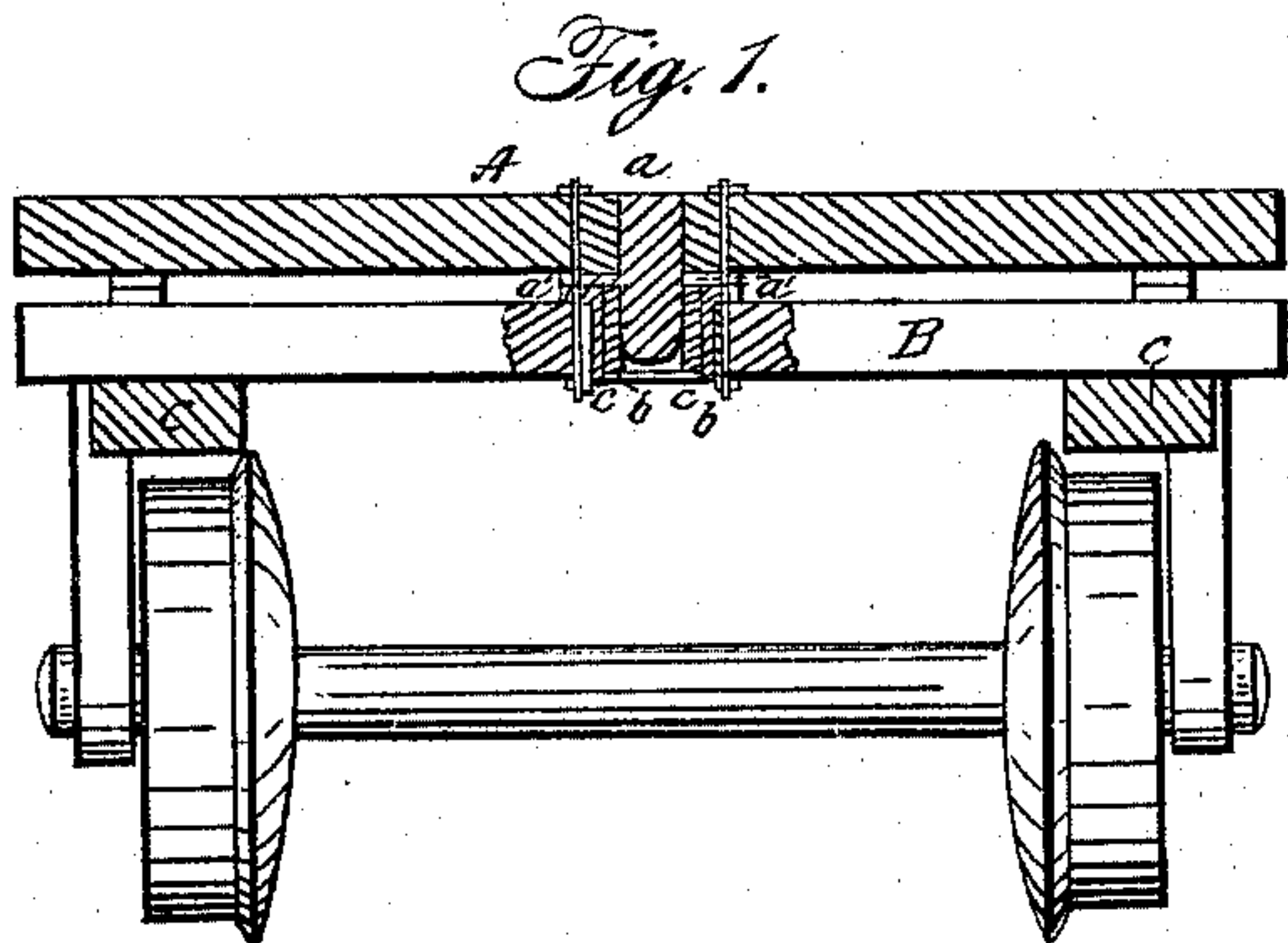


J. J. SHERMAN.

Car Truck.

No. 49,163.

Patented Aug. 1, 1865.



Witnesses:

R. T. Campbell,
Eschafer

Inventor:

Joseph J. Sherman
by his Atty
Mason, Fenwick & Lawrence

UNITED STATES PATENT OFFICE.

JOSIAH J. SHERMAN, OF ALBANY, NEW YORK.

IMPROVEMENT IN KEY-BOLT CONNECTIONS FOR CAR-TRUCKS.

Specification forming part of Letters Patent No. 49,163, dated August 1, 1865.

To all whom it may concern:

Be it known that I, JOSIAH J. SHERMAN, of Albany, in the county of Albany and State of New York, have invented a new and useful Improvement in Key-Bolt Connections for Railroad-Carriages; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical transverse section through a railroad-truck having my invention applied to it. Figs. 2, 3, and 4 are modifications of the key-bolt connection of Fig. 1. Figs. 5, 6, and 7 are enlarged sectional views of the key-bolt connections and their elastic buffers.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to greatly diminish the concussions and shocks to the truck-frames, flanges of the wheels, and rails by affording an elastic resistance in a horizontal direction at the key-bolt connections of the carriages with the trucks, so that while there will be less sudden strain upon the key-bolts there will be less destruction and danger of breakage to the rolling stock, and also to the rails, than hitherto, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

My invention consists in surrounding the key-bolts *a* with blocks of india-rubber or other elastic substance which may be found to answer the desired purpose, and confining these blocks within sockets or boxes which are seated either into the cross-beams of the truck-frames, or in the transoms of the car-body, or in both of these beams, as may be found desirable.

In the accompanying drawings I have represented several modes of carrying out my invention, all of which embody the same general principle—viz., affording lateral, diagonal, or longitudinal resistance in a horizontal direction at the point of connection of the car-body with the truck-frame.

In Fig. 1, *a* represents a vertical key-bolt, having a flange, *a'*, formed on it at the middle of its length. This flanged bolt is rigidly secured to the transom A, and its lower project-

ing end is inserted into a cylindrical block, *b*, of india-rubber, which block is confined in place within a flanged cup, *c*, as shown in Fig. 1. The flanged cup *c* is recessed into the cross-beam B of the truck-frame C, so as to leave its flange exposed on top of said beam, to serve as a bearing for the collar or flange *a'* of the bolt *a*. The bottom of the cup *c* is perforated to admit the bolt *a* through it, and this perforation should be of sufficient diameter, if the bolt does pass through it, to allow the bolt to have a free horizontal play, resisted only by the elastic substance *b*, care being taken that a sufficient interior rim is left in the bottom of the cup to support and confine the rubber, as shown in Fig. 1 and elsewhere in the drawings.

In Fig. 2 the same form of bolt is used as described in Fig. 1; but in this modification the bolt is not secured to the transom, but its upper end is introduced into an india-rubber block, *e*, which is compressed within an inverted cup, *d*, both of which are constructed and arranged in the transom substantially as those in the truck in Fig. 1. Thus each end of this bolt being inserted into an india-rubber block, and its motions being otherwise free, it operates with a double elastic action.

Fig. 3 shows a modification in which the common key-bolt *g* is used. This mode consists in the employment of flanged tubes *h* *h'*, through which the bolt *g* passes. The flanged tube *h* is inserted into the transom A and suitably secured thereto, and the flanged tube *h'* is inserted into the rubber block *b*, so that while it is free to yield with the rubber its flange will rest upon the flange of the cup *c* and afford a solid bearing and support for the transom A.

By making the key-bolts sufficiently large to avoid a cutting action upon the rubber, the flanged tube *h'* may be dispensed with, as shown in Fig. 4; and cast-iron bolts may in some cases be substituted for wrought-iron ones with safety. In this modification and in that of Fig. 3 the bolts may be arranged in the transom in any usual or convenient manner.

In these modifications it will be seen that I have only carried out the principle of my invention and presented it in new forms and arrangements.

When two buffers or rubber blocks are used—

one for the transom and the other for the cross-beam of the truck—the elasticity of the connection is greatly increased and a greater freedom of horizontal movement allowed. This feature may be applied to all the different plans shown in the drawings, if desired, the only material changes required being the introduction of an auxiliary rubber block and socket-cup into the transom.

The bolts or flanged tubes, as the case may be, may pass entirely through the sockets *c* and *d*, as shown in Figs. 2, 3, 4, and 6, or may be adjusted to terminate within the sockets, as shown in Figs. 1 and 7, as may be preferred, care being taken that they have in both cases proper horizontal space to yield with the rubber.

It is not intended by my invention to provide an elastic resistance to any vertical movement of the car-body or key-bolt. My invention is intended to guard against injury to the rolling stock and the rails, in consequence of

lateral, diagonal, or longitudinal thrust, by employing an elastic substance in such manner as to deaden or yield to the concussions.

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

1. The elastic key-bolt connection for railway-carriages, when arranged and applied to operate against lateral or other horizontal impulse, substantially as described.

2. Surrounding the pivot or key-bolt connections with india-rubber or other elastic substance confined within metallic cups or boxes in such manner as to admit of a horizontal motion of said key-bolt, but no vertical motion, substantially as described.

JOSIAH J. SHERMAN.

Witnesses:

DEXTER REYNOLDS,
WILLIAM J. WILSON.