No. 612,523. Patented Oct. 18, 1898.

D. W. MARTIN.

PIANO TRUCK.

(Application filed Jan. 11, 1898.)

(No Model.) 2 Sheets—Sheet 1.

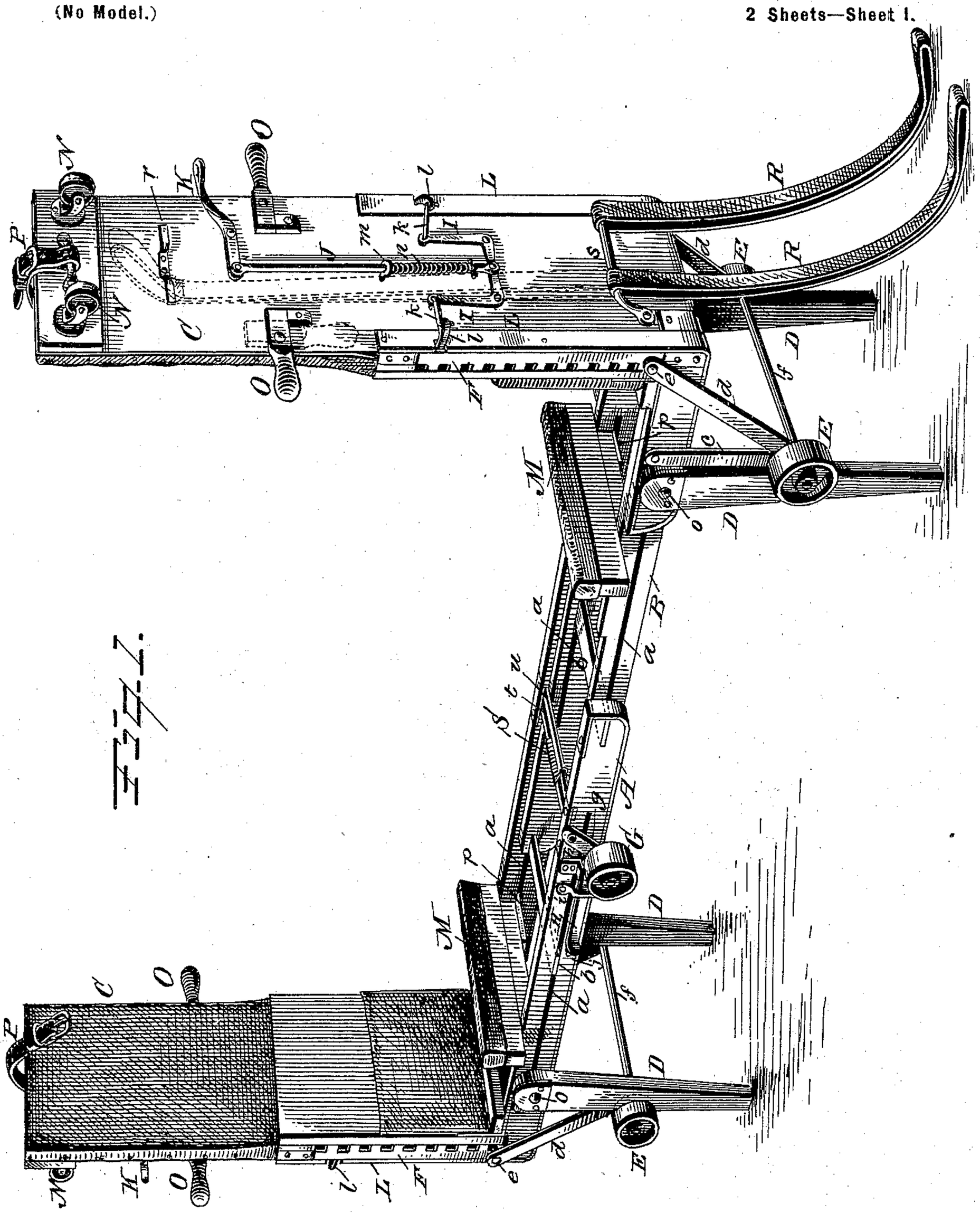


Fig. 1.

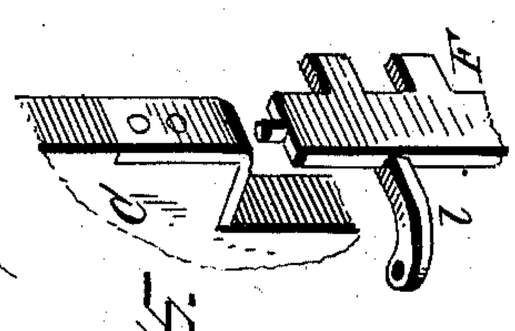


Fig. 2.

Witnesses
C. J. Williamson
Wm. B. Goodrich.

Inventor
Daniel W. Martin.
per Chas. H. Fowler
Attorney.

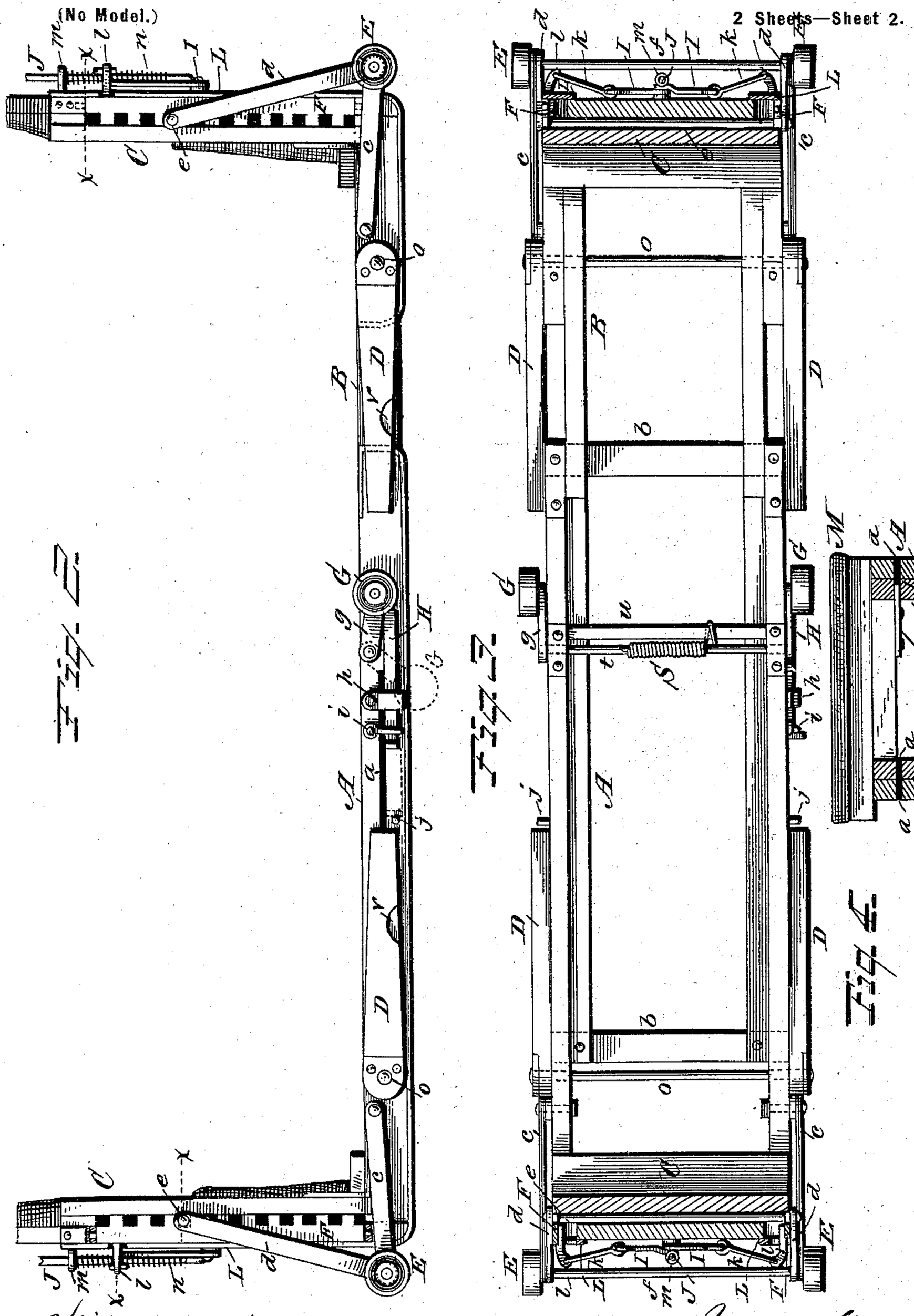
No. 612,523. Patented Oct. 18, 1898.

D. W. MARTIN.

PIANO TRUCK.

(Application filed Jan. 11, 1898.)

(No Model.) 2 Sheets—Sheet 2.



Witnesses
C. J. Williamson
Wm. B. Goodrich.

Inventor
Daniel W. Martin.
per Chas. H. Fowler.
Attorney.

UNITED STATES PATENT OFFICE.

DANIEL WEBSTER MARTIN, OF DAYTON, OHIO.

PIANO-TRUCK.

SPECIFICATION forming part of Letters Patent No. 612,523, dated October 18, 1898.

Application filed January 11, 1898. Serial No. 666,285. (No model.)

To all whom it may concern:

Be it known that I, DANIEL WEBSTER MARTIN, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Piano-Trucks; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

The present invention has for its object to provide a practically and easily operated truck especially adapted for moving grand, square, and upright pianos and other similar heavy objects and in which the same may be readily and conveniently loaded, unloaded, and transported with a great saving of labor and without danger of marring or otherwise injuring the object being moved.

The invention therefore consists in a truck constructed substantially as shown in the drawings and hereinafter described and claimed.

Figure 1 of the drawings represents a perspective view of the truck with the supporting legs and rollers in an extended position; Fig. 2, a side elevation thereof with the legs and rollers in an elevated position; Fig. 3, a horizontal section taken on line *x x* of Fig. 2; Fig. 4, a detail cross-section showing the manner of attaching the padded skids to the extensible supporting-frame of the truck; Fig. 5, a detail perspective view showing the upper end of one of the pivoted toothed bars and a portion of the backboard to which the upper end of the bar is pivoted.

In the accompanying drawings, A B represent the two extensible sections, which form together the supporting-frame of the truck, each section at its outer end having connected thereto a suitable backboard C, which is preferably cushioned or upholstered upon its inner side, as shown. These frame-sections A B have slots *a* extending through their sides, with which engage the guide-braces *b* upon the ends of each of the sections, thereby holding the two sections together and preventing the spreading thereof, as well as forming guides and stops for the frame-sections when moved in or out to adapt the size or length of the frame to the size or length of the object being placed thereon. This frame, comprising the two extensible sections A B, may be of any suitable size and shape and of any preferred construction, the sections at or near their outer ends having pivoted supporting-legs D and supporting-rollers E. These supporting-legs are for the purpose of increasing the height of the truck to adapt it for loading thereon the square or grand piano, the legs being brought into position, as shown in Fig. 1 of the drawings, and the piano tipped over onto suitable skids detachably connected to the extensible sections of the frame, which skids will be hereinafter described.

The rollers E are mounted upon the ends of a transverse rod *f*, said rod having loosely connecting therewith the lower ends of two arms *c d*. The upper end of the arm *c* is pivoted to the side of the frame-section and the arm *d* connected to the end of a transverse rod *e*, which rod is adapted to engage with the notches of a horizontally-movable plate F upon the edge of the backboard C.

It should be understood that the rollers E, with their arms *c d* and the notched plate F, are upon each side and upon each end of the truck.

The legs D and rollers E may be elevated or raised to the position shown in Fig. 2 of the drawings or brought into position for use, as shown in Fig. 1.

A guide-roller G upon each side of the frame-section is suitably connected to hangers *g*, which hangers in turn are suitably connected to the ends of a rod *t*, and around this rod is coiled a spring S, which spring has its ends connected, respectively, to the rod and to a transverse brace *u*. These rollers G are adapted to be brought down into working position, as shown in dotted lines, or in a raised position, as shown in full lines, of Fig. 2 of the drawings. The rollers are held in a raised position by means of a sliding support H, which is suitably held to the side of the frame-section by means of guides *h i*, or any other well-known means may be employed to support and hold the sliding supports.

The spring S and its connections provide spring-actuated rollers G, that not only hold the rollers down in position, as shown in Fig. 1 of the drawings, but when rolling the truck over a rough walk or other place where the

rollers might catch or come against an obstruction the spring-actuated rollers will yield and allow the truck to come flat on its under side, thus avoiding injury to the rollers as well as preventing the truck from being suddenly jerked backward. Then by simply raising one end of the truck the spring will force the rollers down to working position.

A suitable stop *j* is provided in order to limit the backward movement of the sliding support H when the roller G is to be let down to a working position.

The transverse rod *e*, which engages with the notches in the plates F upon the opposite edges of the backboard C, forms a connecting-brace for the arms *d* upon the opposite sides of the frame-sections to hold them in their proper relative position.

The rollers E may be lowered or adjusted in height to any degree required with relation to the supporting-frame of the truck or may be adjusted to bring the rollers around on line with the rollers N at the upper end of the backboard, so that the backboard will be provided with rollers at each end, both at top and bottom, thus enabling the truck to be turned upon its end and moved as conveniently as when the truck is in a horizontal position. The rollers E when in the position shown in Fig. 1 of the drawings may be adjusted to any height required for stair-climbing or other purposes necessary in moving the truck.

A suitable mechanism for operating the notched plates F is provided, which preferably consists of the two bell-crank levers I, which are suitably connected with the notched plates upon the opposite edges of the backboard by toggle-links *k* and arms *l*, the latter rigidly connected to the plates. The bell-crank levers are pivoted to the backboard C, and their lower ends are pivotally connected to the lower end of an upright rod J, the upper end of said rod being pivoted to a hand-lever K, which in turn is pivoted to the backboard. This rod passes through a suitable guide *m*, projecting out from the backboard, and around the rod J is a coiled spring *n*. In pressing down upon the lever K the rod J will be raised and through the medium of the bell-crank levers I and their connections with the notched plates F said plates will be moved horizontally upon their axes in a direction toward each other, which will release the rod *e* from engagement with the notches in the plate and admit of the rollers E being adjusted in height, and when thus adjusted the notched plates will be forced back in engagement with the rod by means of the spring *n*, thus holding the rollers in their adjusted position.

I do not wish to be understood as limiting myself to the precise means or mechanism for operating the notched bars, as various and well-known means may be employed without departing from the principle of my invention, and any changes or modifications in the several details of construction as would come within ordinary mechanical skill may be resorted to without affecting the essential features of the truck.

I prefer to use a single notched plate L for engaging therewith the arm *l* of the plate F, so as to form a guide and support for the arm. The important feature of the notched plate F is the manner in which it is supported, so that it will move horizontally on its pivotal center, thereby economizing space and rendering it much easier in operation and more effective as a means for holding the rollers E in their adjusted position, as it is impossible for the notched plate to slip or be accidentally disengaged with the rod *e*. As the plate F moves horizontally on its pivotal center instead of sliding up and down, there is nothing to interfere with its freely working at all times.

The skids M, which are suitably padded, are detachably connected to the frame-sections A B, and when in use are held in position on the frame-sections by the plates *p* engaging with the slots *a* in the sides of the sections, thereby not only holding the skids in engagement with the frame-sections, but enabling them to be adjusted in position with relation to the backboards C.

The handles O are pivotally connected to the backboard C and are used in lifting the truck; but when in close quarters or making a short turn, the handles being pivoted, it will enable them to be turned down out of the way, as shown in dotted lines of Fig. 1 of the drawings, and in place of the handles the handholds *s* or the straps R may be used, as found necessary.

To hold the lifting-straps R up out of the way when not in use, a spring holding device *r* is provided, the spring-arms thereof securely clamping the ends of the straps against the backboard, as shown in dotted lines of Fig. 1 of the drawings.

Short straps P, with buckles, are connected to the upper ends of the backboards C for the purpose of attaching the ends of the strap that binds the piano or other object to the truck.

It will be noticed that the truck is provided with two backboards in place of one, each extensible section comprising the frame having a backboard at its outer end, thus enabling the truck to be turned upon either end without strain upon the binding-straps, either end of the truck being handled with equal facility and turned up at an angle, the backboard taking the weight off the binding-straps. This is considered an important feature of the invention when applied to trucks of this character, results being obtained by using a backboard at each end of the truck that could not be secured in trucks with a backboard only at one end. The spring-actuated rollers G are also considered of value and importance in providing a perfectly and practically operating truck that can be used in all places with ease and convenience and without dan-

ger of injury to the piano or other object being moved, particularly when the truck is rolled over rough and uneven places, in which case the spring-actuated rollers will be brought into use by their yielding action when coming in contact therewith.

In Fig. 2 of the drawings is shown the truck with the supporting legs and rollers elevated, in which position the truck is ready to load an upright piano thereon, the truck being placed to the back of the piano, after which a man at each end of the piano tilts the same forward and the truck then pulled under it. The backboards at each end of the extensible frame-sections are brought against the ends of the piano by sliding said sections in a direction toward each other until the backboards come up firmly against the ends of the piano, after which the piano is let back and comes down on the truck in proper position, allowing the truck to be under the piano, between the casters of the same. The supporting-slides H upon each side of the extensible frame which supports the rollers G in a raised position are now pushed back to release said rollers, and by lifting either end of the truck, with the piano on, the spring S will force down the rollers in position, as shown in dotted lines of Fig. 2 of the drawings, thus enabling the truck, with its load, to be turned on the rollers.

The lifting-straps R, which are at both ends of the truck, are of special advantage in moving the piano up an inclined plane or a flight of steps, as they allow one to stand in an upright position and lift and pull at the same time, as when going up a flight of steps the man in front of the truck or at the top cannot stand in a balanced position and reach the handles O, as in order to reach the handles the person would have to incline forward, which would throw his weight against the piano, and as the person would lift the piano would be pushed from him, and instead of lifting and pulling the truck, with its load, up the steps he would lift and push it down. With the lifting-straps R this objectionable feature in moving pianos is wholly avoided, as the person is enabled to stand in any easy position and lift and pull at the same time. The lifting-straps are also of great advantage when the truck, with its load, is turned on its end, the straps being then used to lift with when the other handles are out of reach. When not in use, the lifting-straps are held up out of the way in a convenient position to be reached when required, the ends of the straps being engaged with the spring holding device *r*, hereinbefore described, the spring-arms of the device being slightly bent outward, so that the end of the strap will easily slip in between the arm and backboard.

The guides *h* are considerably larger than the guides *i*, so as to serve the purpose of stops and supports to the hangers *g*, thus preventing the spring S from throwing the rollers G clear around when the sliding support H is pushed back, as shown in Fig. 1 of the drawings.

It will be further noticed that the legs D upon their outer side are cut away to form mortises *v*, as shown in Fig. 2 of the drawings. These mortises when the legs are extended fit the inner sides of the rollers. Thus the legs are better braced and held more solid and prevented from wabbling or giving sidewise when putting a piano or other heavy object on or off the truck.

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

1. A truck comprising two extensible frame-sections adjustably connected together, backboards at the outer ends of both of said sections, said boards having long lifting-straps at or near their lower ends and means for holding the straps up against the backboard at or near the upper end thereof, substantially as and for the purpose described.

2. A truck comprising two extensible frame-sections adjustably connected together which form the bottom of the truck, adjustable supporting legs and rollers at or near the ends of said frame-sections which are adapted to be elevated or swung up out of the way when not required for use, and intermediate spring-actuated rollers connected to the sides of one of the frame-sections and also adapted to be swung up out of the way when not in use, substantially as and for the purpose set forth.

3. A truck comprising two extensible frame-sections adjustably connected together, upwardly-extending backboards at the outer ends of each section, rollers at or near the upper ends of the backboards, and supporting-rollers connected near the outer ends of the frame-sections and adjustable to swing out on line with the rollers at or near the top or upper ends of the backboards, whereby the truck when tipped over on its end may be moved along upon the rollers, substantially as and for the purpose specified.

4. A truck comprising two extensible frame-sections adjustably connected together which form the bottom of the truck, backboards at the outer ends of each frame-section, and supporting-rollers upon the sides of one of the frame-sections, said rollers connected to suitable hangers rigidly secured to the ends of a movable transverse rod, a coiled spring connected to the rod and to a transverse brace, and supporting-slides for holding the rollers up out of the way when not in use, substantially as and for the purpose described.

5. A truck comprising two extensible frame-sections adjustably connected together which form the bottom of the truck, detachable and adjustable skids connected to the frame-sections, backboards upon the outer ends of each frame-section, adjustable supporting legs and rollers at or near the ends of the frame-sections, spring-actuated rollers at the sides of one of the frame-sections, and supporting-slides to hold the spring-actuated rollers up

out of the way when not in use, substantially as and for the purpose set forth.

6. A truck comprising two extensible frame-sections adjustably connected together, upright backboards at the outer ends of each frame-section, supporting-rollers at or near the ends and upon both sides of the frame-sections, horizontally-swinging or movable notched locking-plates and suitable means for operating them, and suitable arms connecting with the rollers and adapted to engage the notches in the locking-plates, substantially as and for the purpose described.

7. A truck comprising two extensible frame-sections adjustably connected together, backboards upon the outer ends of each frame-section provided at or near their upper and lower ends respectively with rollers and lifting-straps, intermediate pivoted lifting-handles, supporting-rollers connecting with the ends of the frame-sections, horizontally-movable notched locking-plates for holding the rollers in their adjusted position, adjustable supporting-legs connected to the frame-sections, and spring-actuated rollers upon the sides of one of the frame-sections, substantially as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

DANIEL WEBSTER MARTIN.

Witnesses:
J. C. MARTIN,
NELLE HOCHWALT.