No. 812,066. PATENTED FEB. 6, 1906.

H. W. MOORE.

TRUCK.

APPLICATION FILED FEB. 4, 1905.

3 SHEETS—SHEET 1.

Fig. 1.

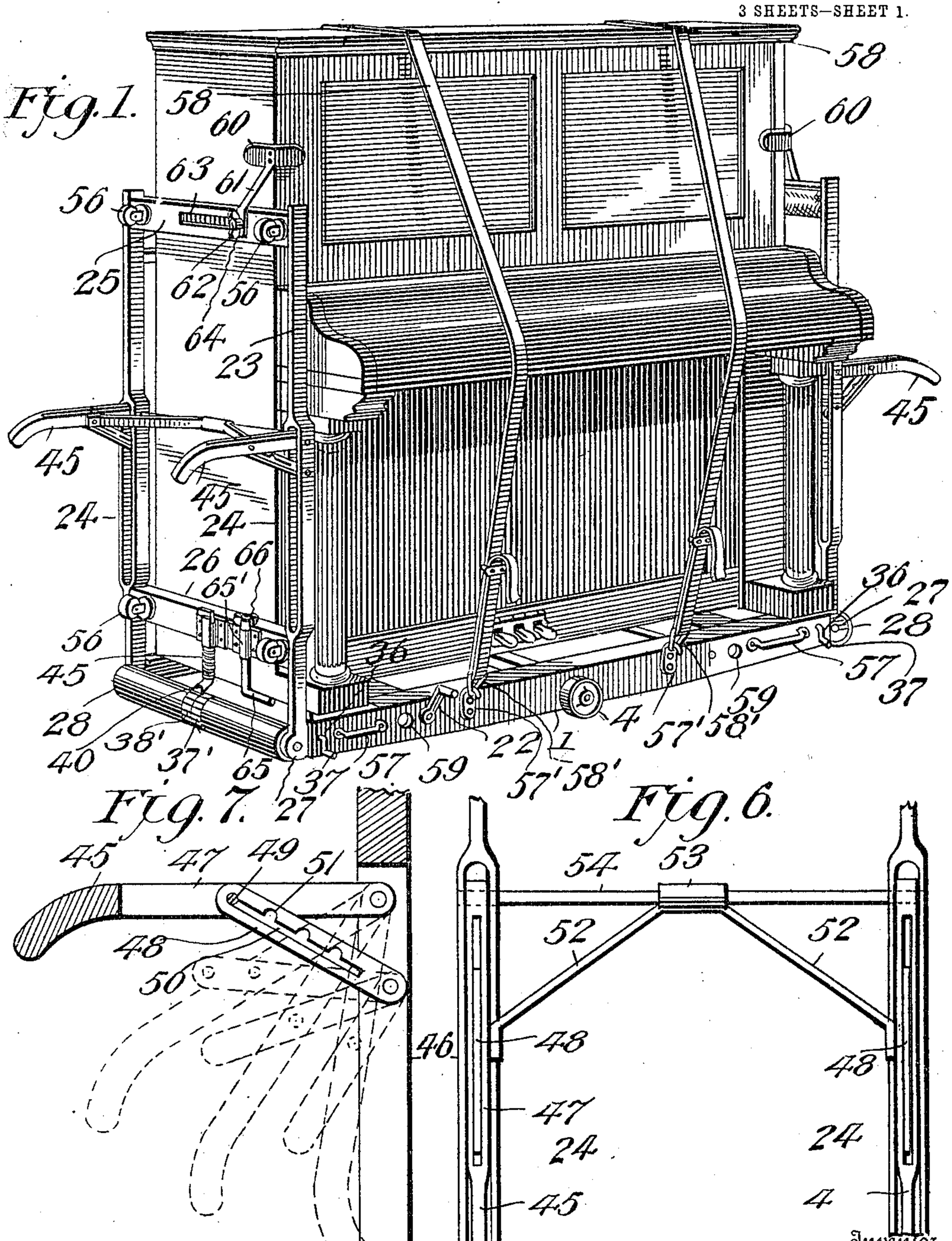

Fig. 7.

Fig. 6.

Witnesses

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3 SHEETS—SHEET 2.

Fig. 2.

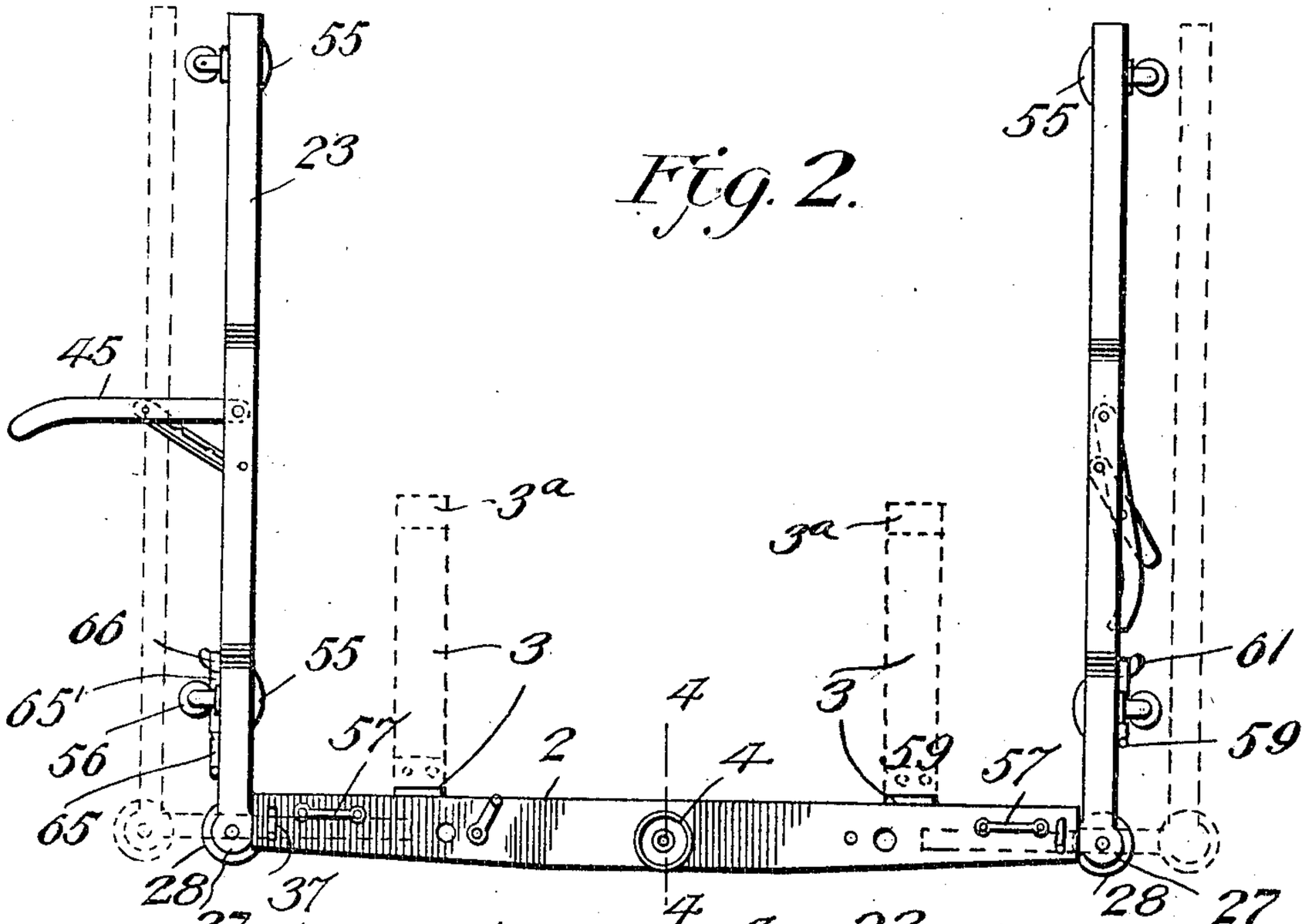


Fig. 3.

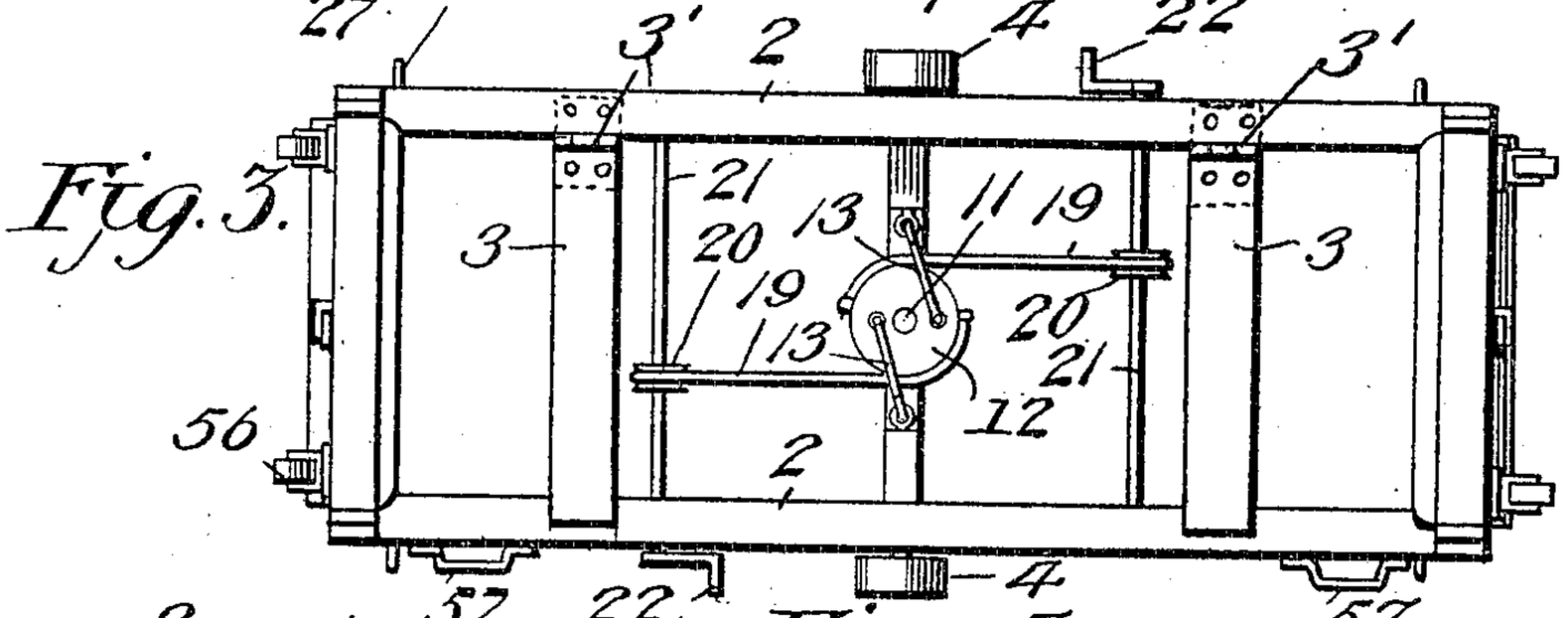
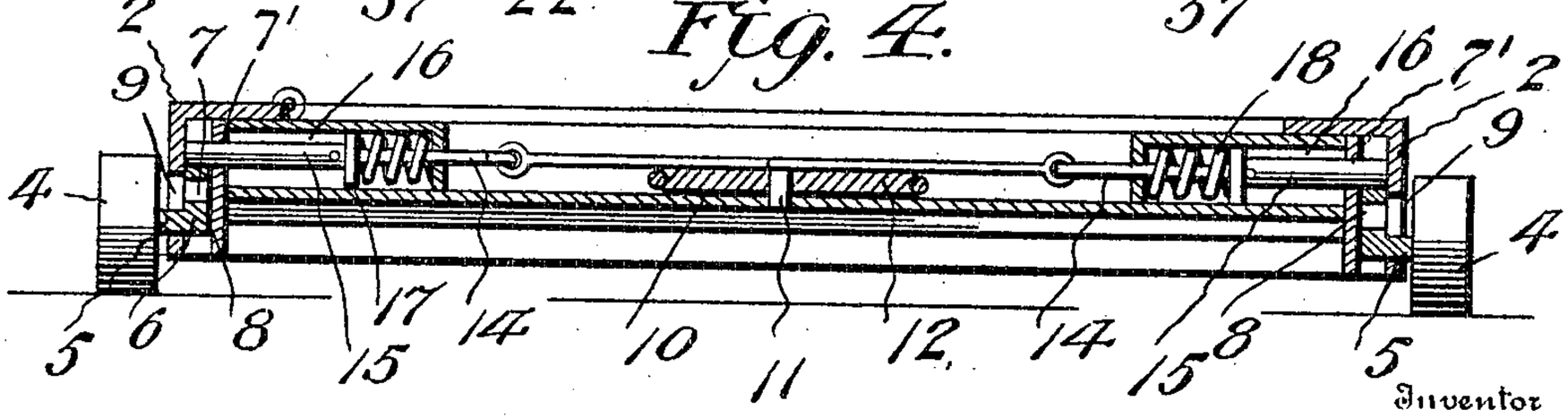


Fig. 4.



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3 SHEETS—SHEET 3.

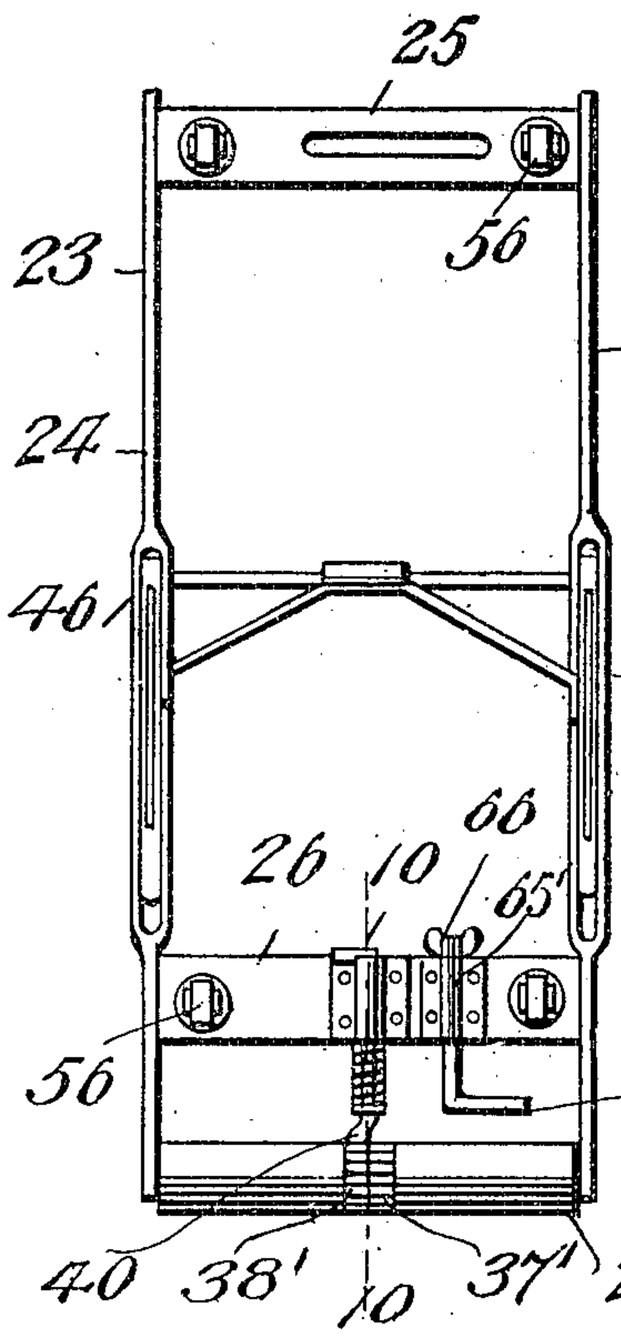


Fig. 5.

Fig. 10.

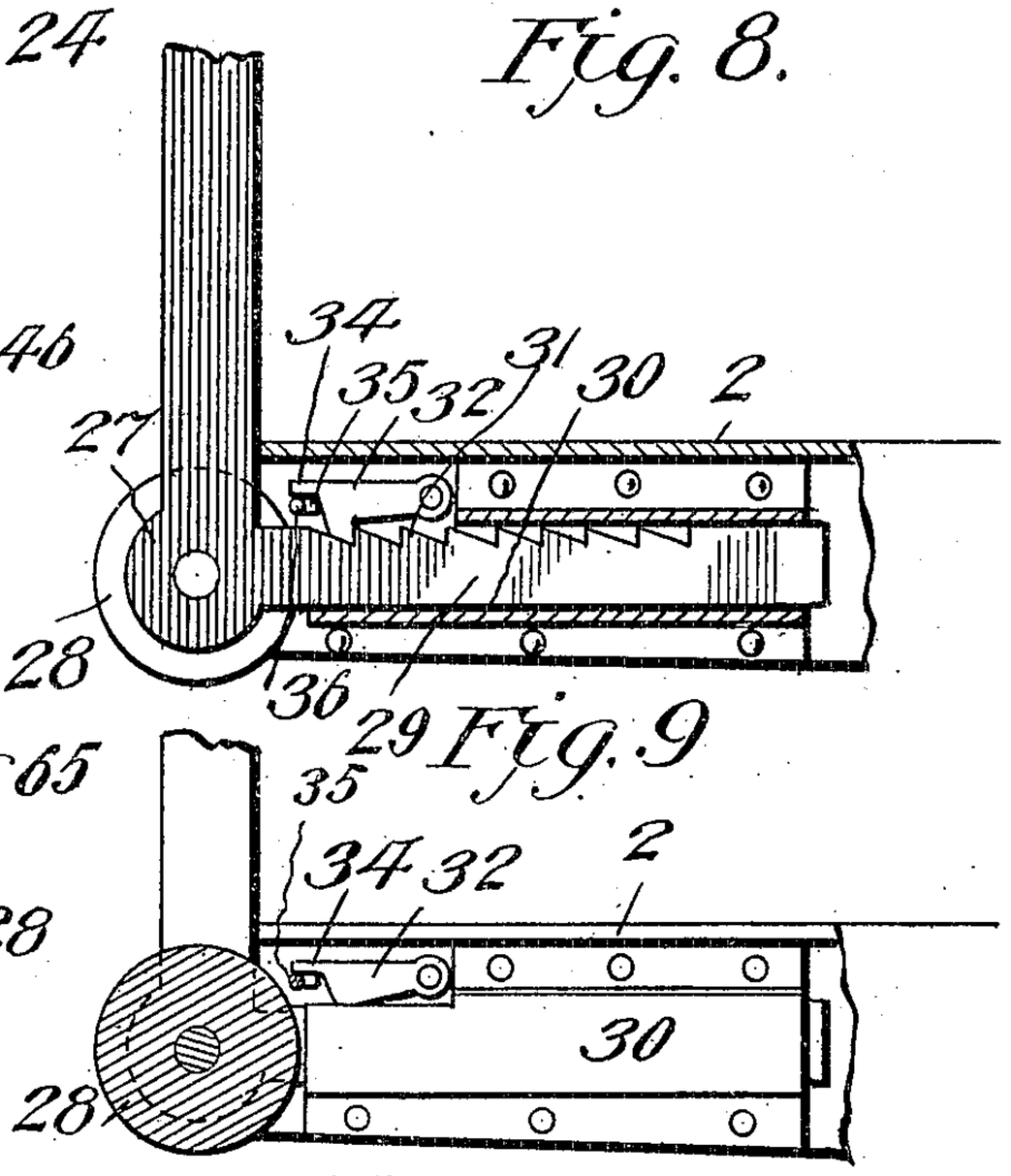
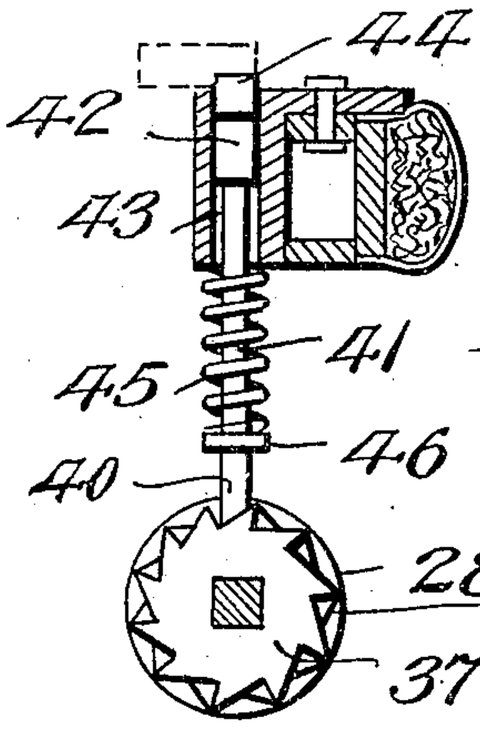


Fig. 8.

Fig. 9



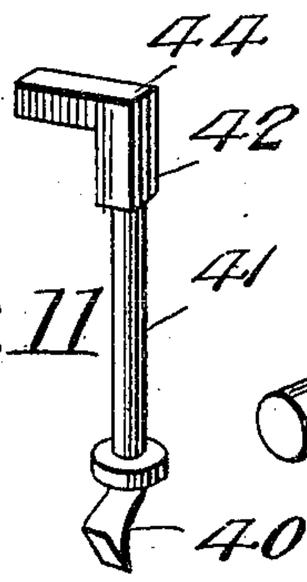


Fig. 11

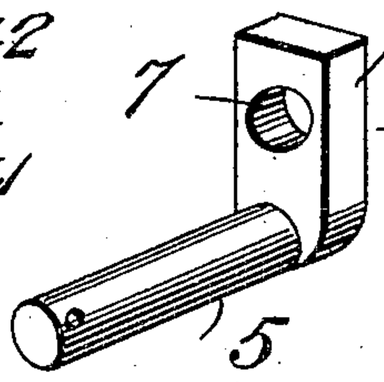


Fig. 12.

Witnesses

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UNITED STATES PATENT OFFICE.

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TRUCK.

No. 812,066. Specification of Letters Patent. Patented Feb. 6, 1906.

Application filed February 4, 1905. Serial No. 244,227.

To all whom it may concern:

Be it known that I, HENRY W. MOORE, a citizen of the United States, residing at Anderson, in the county of Madison and State of Indiana, have invented new and useful Improvements in Trucks, of which the following is a specification.

This invention relates to improvements in trucks for handling and transporting pianos, safes, and other heavy articles, and has for its object to provide a truck possessing certain novel features of construction, hereinafter fully described and claimed, whereby the operation of handling and moving articles of the character stated may be more conveniently, efficiently, and speedily accomplished.

In the accompanying drawings, Figure 1 is a perspective view showing the truck as employed in practice for transporting a piano. Fig. 2 is a side elevation of the truck, showing in dotted lines the manner of extending the same. Fig. 3 is a top plan view of the truck. Fig. 4 is an enlarged detail transverse section taken on the line 4 4 of Fig. 2. Fig. 5 is an end elevation of the truck. Fig. 6 is a fragmentary elevation of one of the upright end frames. Fig. 7 is a vertical section through one of the standards thereof, showing in full and broken lines the adjustability of the handles. Fig. 8 is a section on an enlarged scale through one of the ends of a side bar of the truck-frame, showing the extension bar or arm and the locking-dog coöperating therewith. Fig. 9 is a section through one of the end rollers and an inner elevational view of the adjacent end of one of the side bars, showing the guide for the extension bar or arm. Fig. 10 is a sectional view taken on the line 10 10 of Fig. 5. Fig. 11 is a detail view of the locking-pawl shown in Fig. 10, and Fig. 12 is a similar view of one of the bearing blocks or brackets in which the central rollers are mounted.

The numeral 1 in the drawings represents the bed or frame of the truck, which comprises parallel side bars 2, connected and braced by any suitable number of cross-bars 3. These cross-bars 3 may be fixed to the side bars 2 or they may be hinged to one of the side bars, as indicated at 3′, so that they may be turned up to a vertical position, as shown in dotted lines in Fig. 2, to serve as side supports for an article to be transported under some conditions. When hingedly mounted, the free ends of the cross-bars will be provided with cushions 3ª to engage the surface of the article to be transported. The lower edges of the side bars 2 are straight and horizontal at their central portion and thence inclined upwardly toward their ends, thus permitting the truck-frame when properly adjusted to tilt or rock like a cradle, so that either end thereof may be elevated to enable the truck to be readily pushed or trundled in one direction or the other, as hereinafter described. The straight surfaces of the said side bars thus form a central seating portion to rest upon a floor or ground surface. Arranged on opposite sides of the frame are central rollers 4, each of which is journaled on a spindle 5, carried by a bearing block or bracket 6, formed with an opening 7. These brackets are fitted to slide vertically in guideways 8, suitably formed or provided centrally and upon inner side of each side bar 2, while the spindles 5 thereof project outwardly through and are vertically adjustable in slots 9, formed in the sides of the bars 2, as clearly shown in Fig. 4.

Connecting the inner walls of the guides 8 is a cross-brace 10, carrying a pivot stud or bolt 11 on which a disk or head 12 is revolubly mounted. On opposite sides of the center of this head are pivotally attached links 13, which are pivoted or jointed at their outer ends to rods or stems 14, attached to locking-bolts 15, movable transversely of the frame in guideways 16 and adapted to project into the guideways 8 to engage and lock the brackets 6 in adjusted position. The rods or stems 14 slide through openings in the inner walls of the guideways 16 and are provided within said guideways with heads or collars 17, between which and on the inner ends of the guideways are coil-springs 18, surrounding the stems and serving to hold the bolts normally projected.

When the brackets 6 are at the limit of their upward movement in the guideways 8, the openings 7 therein register with openings 7′ in the inner walls of said guideways through which bolts project, and the ends of the bolts are thereby free to be projected into said openings 7 and lock the brackets in their raised position. When the brackets are in raised position, the spindles 5 are at the upper ends of the slots 9 and the bases of the wheels 4 lie in the plane of the central por-

tions of the lower edges of the bars 2, thus allowing said portions of the bars to seat squarely upon the ground or other surface. Upon raising the frame at either end and retracting the bolts 15 the brackets 6 will drop by gravity downward in the guideways 8, thus depressing the rollers 4 to a position below the straight lower central edges of the bar 2, in which position said rollers will be locked when the bolts are projected by the bolts bearing upon the upper surfaces of the brackets, as shown in Fig. 12.

In order to retract and release the bolts, straps 19 are attached at one end to diametrically opposite sides of the disk 12 and project in opposite directions and are connected at their opposite ends to pulleys 20 upon transverse shafts 21, journaled in the side bars 2, said shafts having ends projecting laterally at opposite sides of the frame and carrying operating-cranks 22, by which the shafts may be turned to oscillate the disks 12, thus causing the projection or retraction of the bolts 15. At each end of the frame 1 is an upright frame 23, comprising vertical parallel standards 24, connected at their upper ends by a cross-piece 25 and at a point above their lower ends by a second cross-piece 26. Each standard is formed at its lower end with a bearing 27 for receiving journals of an end roller 28, extending transversely between the standards and adapted to support the adjacent end of the truck. Each standard is further provided at its lower end with an arm or bar 29, extending inwardly and at right angles thereto and slidably fitted in a guideway 30, formed upon the inner face of the adjacent end of the cooperating bar 2, the said arms or bars of the standards of each end frame serving to adjustably connect said frame to the main frame 1. Each bar or arm 29 is provided in its upper edge with a series of rack-teeth 31, adapted to be engaged by the tooth of a dog 32, pivoted to the side bar 2 to lock the arm or bar 29 rigidly to the bar 2 in adjusted position, by means of which each end frame may be adjusted toward and from the main frame to limit the length of the truck to the length of the latter or to extend the length thereof to accommodate the truck to receive pianos and other articles of greater than normal length. Each dog 32 is provided with a lug or nose 34, adapted to be engaged by a bead or projection 35 on a short shaft 36, journaled in the walls of the bar 2 and provided at its outer end with a handle 37 by which it may be turned to retract or release the dog. The rollers 28 project below the extremities of the upwardly-inclined lower edge portions of the bars 2, so as to normally lie in the plane of the straight central portions of the lower edges of the bars and cooperate therewith to support the truck in a firm and substantial manner.

When the rollers 4 are projected downward, as previously explained, the truck-body will be elevated and may be tilted toward one end so as to run upon the central rollers and either of the end rollers, thereby permitting the truck to be freely trundled in one direction or the other. Each roller 28 is formed or provided intermediate of its length with two sets of ratchet-teeth 37′ and 38′, which project in reverse directions and are adapted to be engaged by a locking-pawl 40, which is formed upon the lower end of a stem 41, provided at its upper end with a rectangular head 42, which fits and is vertically movable in a correspondingly-shaped socket 43, carried by the cross-piece 26, and is provided at its upper end with a right-angularly-extending handle 44. A coil-spring 45 surrounds the stem 41 between the lower end of the socket 43 and the collar 46 on said stem and normally serves to project the latter downward to hold the pawl 40 in engagement with one of the ratchet-teeth. When the head 42 is seated in the socket 43, the stem 41 and its pawl are held from rotation and the latter will be retained in engagement with one of the sets of ratchet-teeth, and by pulling upon the handle 44 the head 42 may be disengaged from said socket and the stem turned to bring the pawl into position to engage the other set of ratchet-teeth, after which by forcing the pawl downward again until the head 42 fits within the socket at an angle to its former position the pawl will be locked in its former position, as will be readily understood. By this construction the pawl may be thrown into engagement to lock the roller 28 against either forward or backward movement. This lock is employed to hold the end roller stationary and prevent backward movement of the truck, so that the latter cannot accidentally run backward and injure the man or men at the rear of the truck.

In order to enable the truck to be lifted or trundled in a convenient manner, a pair of handles 45 is applied to each upright frame 23, the inner ends of the handles being pivotally mounted in the upper ends of slotted guides or yokes 46, formed upon the standards 24 and provided with longitudinal slots 47 to receive the outer ends of locking-links 48. As shown, each handle 45 is provided with a pin 49, projecting across the slot therein and free to slide in a longitudinal slot 50 in the link 48, which latter is pivoted at one end in the guide or yoke 46, as clearly shown in Fig. 7. One of the side walls of the slot 50 in the link is formed at intervals with notches or recesses 51 to receive the pin 49, whereby the handle may be supported in an elevated position or at any one of a number of different angles or folded down in close contiguity to the standard 23, when desired. By this means the handles may be arranged and locked in the positions best suit-

ed for pulling, pushing, or lifting, or folded to enable the end of the truck to be run close to an object. Each pair of handles is connected and braced by a pair of diverging bracing-arms 52, connected with a sleeve 53, engaging and turning on a rod 54, connecting the standards 24 near the upper ends of the yokes or guideways 46. The cross-pieces 25 and 26 of the end frames 23 have their inner faces suitably upholstered to provide cushions 55 to prevent injury to the casing of the piano or other object to be handled or transported.

In order to enable the truck-frame to be turned on end and rolled when occasion requires, each end frame 23 is provided with rollers 56, mounted on the cross-pieces 25 and 26, and to enable the truck, with the article carried thereby, to be more conveniently lifted and transported fixed handles 57 are applied to the side bars 2. On each side bar 2 are also hooks 57′, adapted to receive metallic loops 58′ on the ends of straps 58, which pass over the piano or other object and hold the same in position on the truck. Openings 59 are formed in the side bars 2 adjacent to the handles 57. The object of these openings is to enable ropes to be passed through the side bars of the frame and over the piano or safe to permit the latter to be bound thereto when it is desired to hoist the same to an upper floor. When a piano or safe is thus to be bound and hoisted, the end frames 23 are detached from the truck by releasing the dogs 32 and withdrawing the ratchet extension bars or arms 29 from the guideways 30, as will be readily understood.

In the use of the device the dogs are first released and the end frames 23 extended to admit the piano or object to be transported between them, after which the end frames are adjusted into engagement with the object and locked by the dogs 32. The fastening-straps 58 are then applied in position to hold the object firmly against independent movement. Before the article is applied to the base-frame, however, the hinged cross-pieces 3 are turned up to a vertical positon if they are to be used. In so making ready the truck the central wheels 4 are disposed in their normal position, so that the base of the truck will rest squarely upon the straight central edges of its bars 2 and the end rollers 28; but after the piano or object has been applied the handles 45 are properly adjusted and the truck raised at one end and the crank-handles 22 operated to retract the bolts 15, thus permitting the brackets 6 to drop by gravity in the guides 8 and lower the rollers 4, after which the bolts are released and permitted to be projected by the springs 18 to lock the brackets in their lowered position, and the truck may then be tilted from either end to run upon the central rollers and one of the end rollers, thus enabling the entire device to be transported with facility in either direction. Angular brackets 60 may be provided to support the piano at its upper front corners, as shown in Fig. 1. These brackets are carried by stems 61, connected to bolts 62, adjustable longitudinally in slots 63 in the upper cross-pieces 25 of the end frames 23, which bolts are fitted with wing-nuts 64 to enable the brackets to be clamped in adjusted position.

Arranged upon each end frame is an angular or L-shaped bracket 65, each having its vertical arm journaled in a bearing 65′, fixed to the cross-piece 26 and threaded at its upper end for the reception of a wing-nut 66. These brackets may be turned in the bearings 65′ to project the horizontal arms thereof inwardly from the end frames to serve as additional supports in transporting grand pianos and other heavy articles, the horizontal arms of the brackets being projected beneath the articles, so that the upper upright end frames will sustain a portion of the weight thereof. When the brackets 65 are not intended to be used, the brackets are turned until their horizontal arms lie beneath and parallel with the cross-pieces 26, as shown in Fig. 5.

The parts of the main frame and upright end frames may be made of any suitable material—wood, metal, or both—and if made of metal may be composed of solid or channeled pieces bolted or riveted together, or they may be cast in an integral structure, as desired.

From the foregoing description, taken in connection with the accompanying drawings, the construction and mode of operation of the invention will be understood without a further extended description.

Changes in the form, proportions, and minor details of construction may be made within the scope of the invention without departing from the spirit or sacrificing any of the advantages thereof.

Having thus described the invention, what I claim as new is—

1. In a truck of the character described, the combination of a base-frame, upright end frames, extension-arms on the upright end frames adjustably engaging the base-frame, automatic locking devices on the base-frame for fastening the extension-arms thereto, and means for simultaneously retracting said locking devices.

2. In a truck of the character described, the combination of a base-frame provided with guides, upright end frames, rack-bars on the end frames slidable in said guides, dogs within the guides for engaging said rack-bars, and means for retracting said dogs from the exterior of the guides.

3. In a truck of the character described, the combination of a base-frame provided with guides, upright end frames, rack-bars on the end frames slidable in said guides, automatic dogs within the guides for adjustably locking said rack-bars to the base-frame, and

means for simultaneously releasing the dogs of each end frame.

4. In a truck of the character described, the combination of a base-frame, upright end frames extension-arms on the upright end frames slidably engaging guides on the base-frame, automatic locking devices on the base-frame to lock the arms thereto, and means for retracting said device from the exterior of the base-frame.

5. In a truck of the character described, the combination of a base-frame, upright end frames, extension-arms on the upright end frames engaging the base-frame, said arms being provided with rack-teeth, dogs upon the base-frame to engage the rack-teeth, and operating devices for raising the dogs to disengage them from said teeth.

6. In a truck, the combination of a main frame provided with guides and having a central seating portion arranged below the plane of its ends, upright end frames having members slidably secured in said guides, rollers upon the top and bottom portions of each end frame, rollers at the center of the main frame, and means for lowering the central rollers so that the main frame may be tilted in either direction to run upon the central rollers and base-rollers of one of the end frames and to raise them so that the main frame will rest upon its said central seating portion and the rollers of both end frames, substantially as described.

7. A truck having central rollers and end rollers, adjustable brackets carrying the central rollers, bolts for locking said brackets in their adjusted positions, and means for simultaneously projecting and retracting the bolts.

8. A truck having central rollers and end rollers, brackets carrying the central rollers, said brackets being adjustably mounted, bolts for holding the brackets in their adjusted positions, a device controlling the action of both bolts, and means for operating said device from either or both sides of the truck.

9. A truck having central rollers and end rollers, adjustable brackets carrying the central rollers, spring-actuated bolts for securing said brackets in their adjusted positions, a device for simultaneously retracting the bolts, and means for operating said device from either side of the truck.

10. In a truck, the combination of a base-frame, upright end frames adjustably connected with the base-frame, and angular supporting-brackets pivotally mounted upon the end frames and adapted to be projected inwardly from said frames to serve as supplementary supports.

11. A truck comprising a base-frame, upright end frames adjustably secured thereto, each of said frames having slotted stems, handles pivotally mounted within the slotted standards, locking-pins upon the handles, and slotted links receiving said pins and pivotally connected within the slots of the standards, the slots of the links being formed with a series of receiving-notches to receive the locking-pins whereby the handles may be adjusted and locked at different angles and folded substantially parallel with the end frames.

12. A truck having supporting-rollers provided with sets of ratchet-teeth projecting in opposite directions, and a reversible locking-pawl adapted to engage either set of teeth to hold the roller against retrograde movement in either direction.

13. A truck having supporting-rollers provided with oppositely-projecting sets of ratchet-teeth, pawls reversible to engage either set of teeth, guides and operating devices for the pawls, and means for locking the pawls to the guides in either of their adjusted positions.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY W. MOORE.

Witnesses:

JULIA A. MOORE,

D. C. CHIPMAN.