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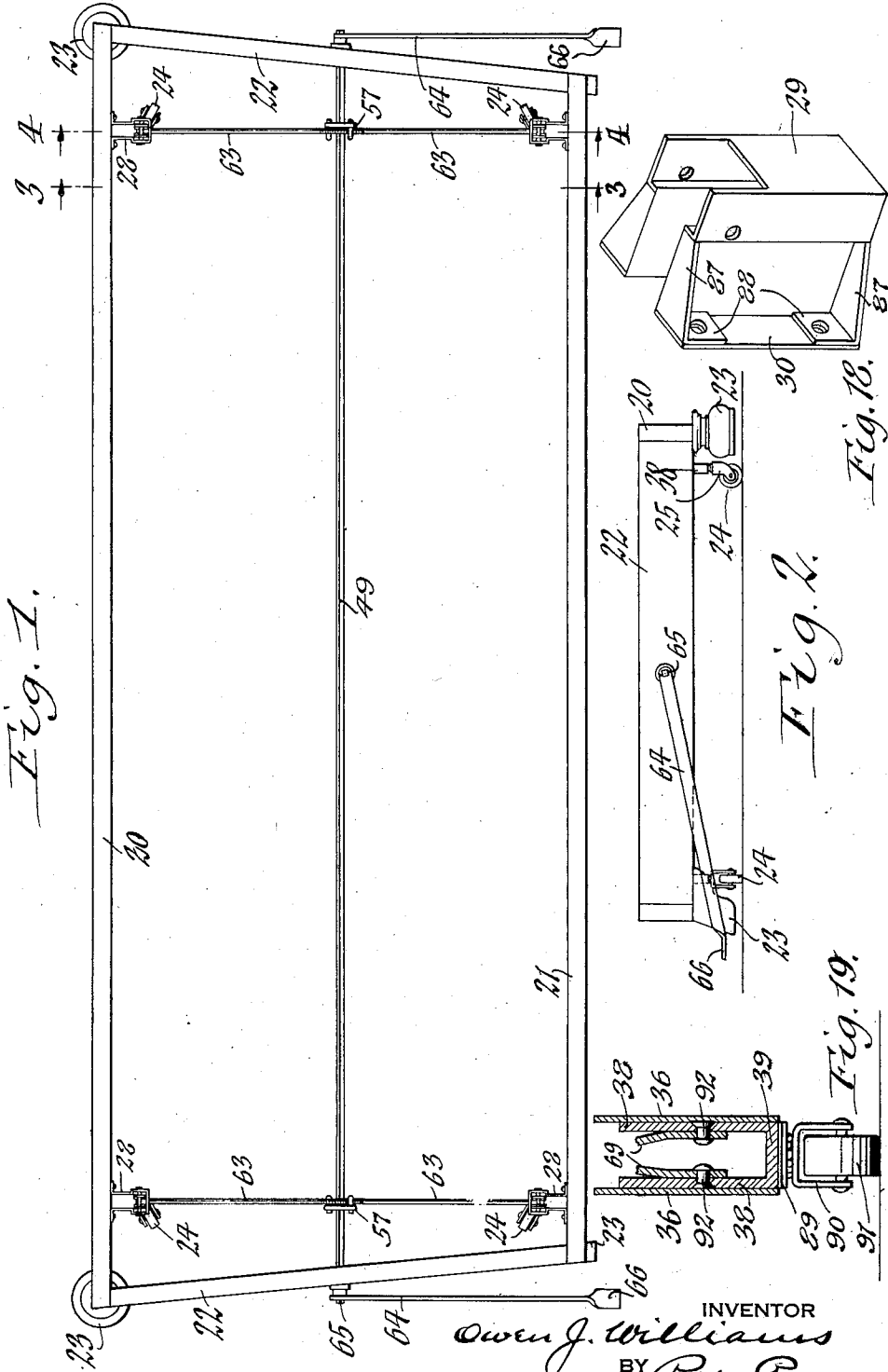
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2,042,489

CASTER RAISING AND LOWERING MECHANISM

Filed April 13, 1934

5 Sheets-Sheet 1



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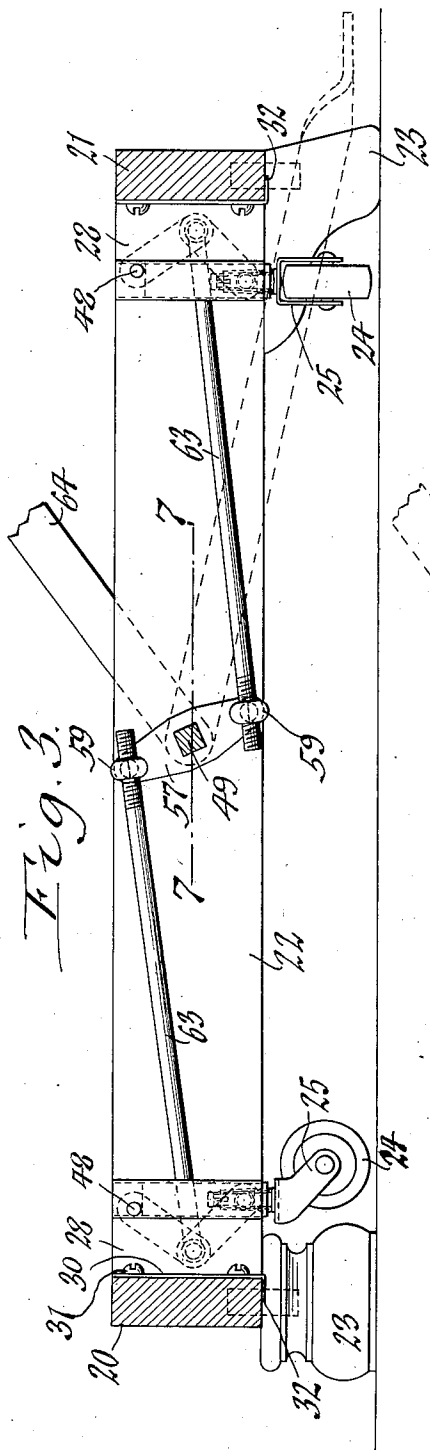
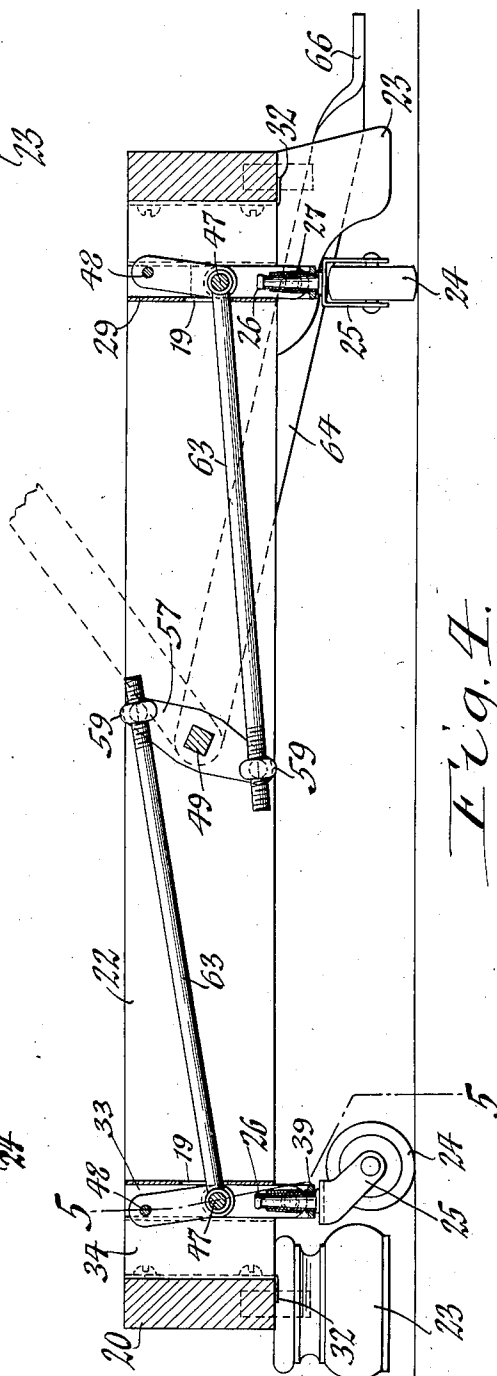
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CASTER RAISING AND LOWERING MECHANISM

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5 Sheets-Sheet 2



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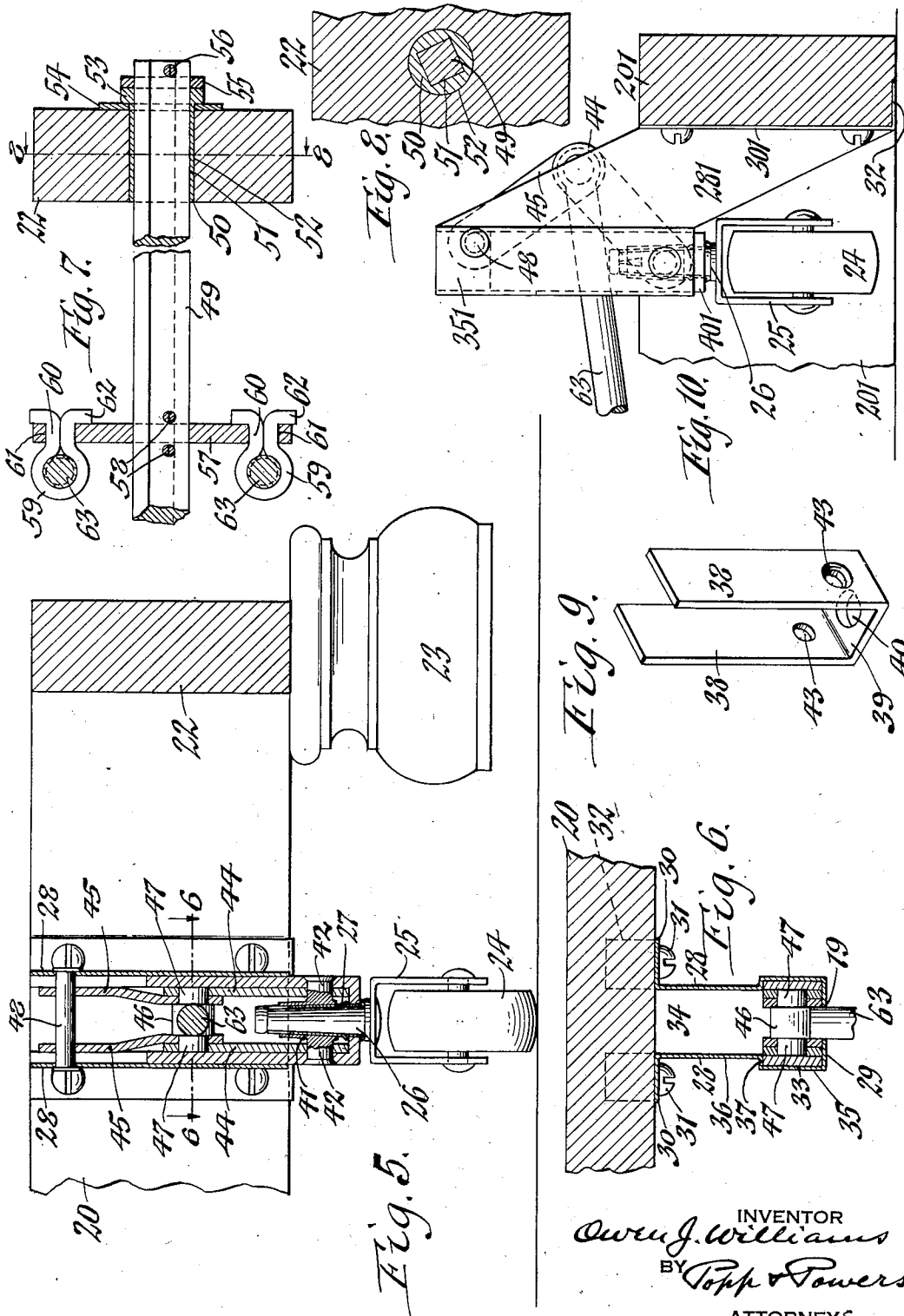
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CASTER RAISING AND LOWERING MECHANISM

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5 Sheets-Sheet 3



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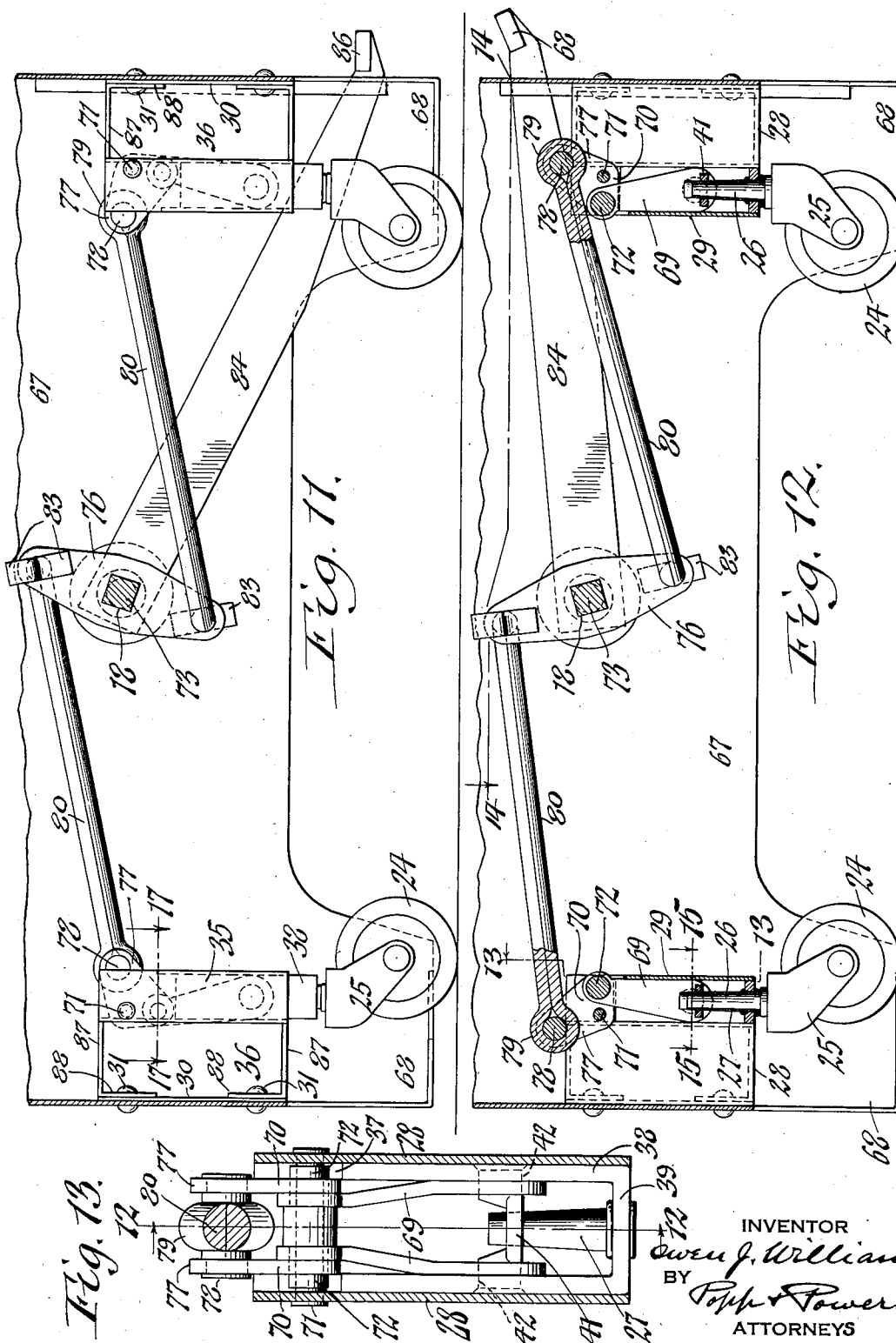
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CASTER RAISING AND LOWERING MECHANISM

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5 Sheets-Sheet 4



June 2, 1936.

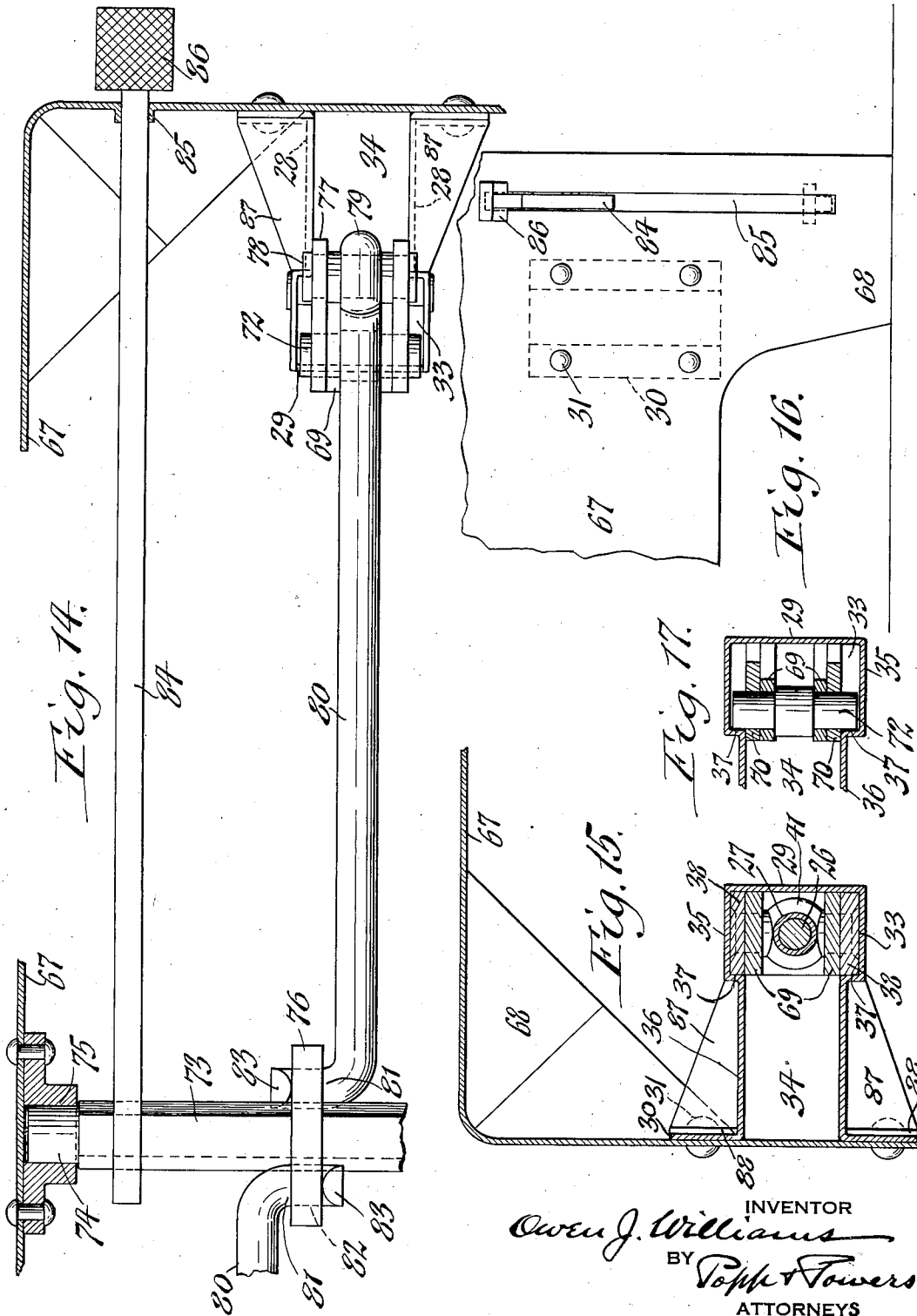
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CASTER RAISING AND LOWERING MECHANISM

Filed April 13, 1934

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UNITED STATES PATENT OFFICE

2,042,489

CASTER RAISING AND LOWERING
MECHANISM

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Application April 13, 1934, Serial No. 720,400

20 Claims. (Cl. 280—44)

This invention relates to a caster raising and lowering mechanism which is adapted to be mounted on the lower part of furniture, refrigerators, sewing machines, accounting machines or similar articles, and which may be operated so as to project the caster below the respective article and lift the same temporarily from the floor upon which it normally rests to facilitate the movement of the article from one part of the floor to another, and then retract the caster and permit the article to rest fully on the floor after the same has been properly located.

It is the object of this invention to provide a caster raising and lowering mechanism of this character which is very simple and inexpensive in construction, which can be readily applied to various kinds of furniture, refrigerators or other articles which may require shifting from one place on the floor to another, and which can be very easily operated from the exterior of the article and yet leave the main parts of the mechanism concealed from view.

In the accompanying drawings:—

Figure 1 is a top plan view of the frame or body of a lounge or similar piece of furniture provided with one form of my invention.

Figure 2 is an end elevation of the same showing the article raised from the floor.

Figure 3 is a vertical cross section, on an enlarged scale, taken on line 3—3 Fig. 1, and showing the article lowered upon the floor.

Figure 4 is a similar view, taken on line 4—4 Fig. 1, and showing the article raised from the floor.

Figure 5 is a vertical section, on an enlarged scale, taken on line 5—5 Fig. 4.

Figure 6 is a horizontal section taken on line 6—6 Fig. 5.

Figure 7 is a fragmentary horizontal section, on an enlarged scale, taken on line 7—7 Fig. 3.

Figure 8 is a fragmentary, vertical, transverse section taken on line 8—8 Fig. 7.

Figure 9 is a perspective view showing the preferred form of carriage or slide forming part of the caster raising and lowering mechanism.

Figure 10 is a fragmentary vertical section showing a modified form of the raising and lowering mechanism shown in Figs. 1—6.

Figure 11 is a vertical transverse section similar to Fig. 4, showing another modified form of the caster raising and lowering mechanism with the article to be raised from the floor shown in an elevated position.

Figure 12 is a view similar to Fig. 11 but taken on line 12—12 Fig. 13, and showing the article

to be elevated in its lowered or normal position on the floor.

Figure 13 is a vertical section taken on line 13—13 Fig. 12.

Figure 14 is a horizontal section taken on line 14—14 Fig. 12.

Figure 15 is a horizontal section taken on line 15—15 Fig. 12.

Figure 16 is a fragmentary side elevation of the article shown in Figs. 11—15.

Figure 17 is a fragmentary horizontal section, on an enlarged scale, taken on line 17—17 Fig. 11.

Figure 18 is a perspective view of one of the supporting brackets shown in Figs. 11—17.

Figure 19 is a fragmentary vertical section, similar to Fig. 13, and showing a different way of mounting a caster on the adjustable carrier.

Heretofore it has been the practice to either constantly rest furniture or other articles directly upon a floor or to provide the same with casters which rested upon the floor and permitted of more easily shifting the article from one place to another.

Both of these methods of supporting furniture or other articles on the floor are objectionable in that such articles when always resting directly on the floor are incapable of being easily moved from one part of the floor to another, while the use of casters which permanently supported the article on the floor produced comparatively deep indentations on the floor due to the small area of contact between the casters and the floor.

The present invention therefore proposes the use of a caster raising and lowering mechanism for furniture or other articles which permits the furniture to normally rest over a comparatively large area on the floor so that indentation or marking of the floor is either wholly eliminated or reduced to a minimum, but when it becomes necessary to shift the furniture or other article from one place to another on the floor, this can be readily done by projecting the caster below the article and lifting the latter from the floor while being transported, and thereafter the furniture or other article can be again lowered on the floor so as to provide a bearing surface of comparatively large area between the article and the floor which will not mar the latter.

The articles which are to be thus supported and transported may be various. For example, one form of this invention is shown in Figs. 1—10 in connection with the frame or body of a lounge, davenport or settee which comprises two longitudinal side bars 20, 21 and two transverse end bars 22, 22 connecting the corresponding ends of

the longitudinal side bars. At its corners this frame is provided with downwardly projecting feet 23 which normally rest upon the floor of the building, as shown in Fig. 3, but are elevated therefrom together with the article of which they form a part while being transported, as shown in Fig. 4.

When my improved caster raising and lowering mechanism is used in connection with an article of the general character shown in Figs. 1-4, a lifting unit is mounted on the article adjacent to each of its four corners, and a single operating mechanism is employed for actuating these lifting units simultaneously. Inasmuch as all the several lifting units are alike in construction the following description of one will apply to all of them.

The numeral 24 represents the roller or wheel of the caster forming part of one of the lifting units or devices, which wheel is pivotally mounted on the lower end of a fork 25 and the upper end of this fork being provided with an upwardly projecting pivot pin 26. This pivot pin is journaled in a bearing bushing 27 and the fork 25 has its lower end projecting laterally from the axis of this pivot pin so that the supporting roller or wheel will always trail in rear of this axis upon moving the caster over the floor in any direction. In connection with each caster a bracket is employed on the frame of the article, as part of the respective lifting device, which bracket is preferably mounted on the adjacent part of the inner side of the furniture frame and serves as a guide and support for the caster and its operating mechanism.

In the preferred construction this bracket is constructed of sheet metal so as to provide two side walls or arms 28 which are arranged adjacent to a part of the inner side of the furniture frame, a cross piece 29 connecting the front or inner ends of these side walls or arms, and attaching lugs 30 projecting laterally from the inner or rear ends of the side walls 28 and secured to the respective part of the furniture frame by means of screws 31, as shown in Figs. 1-6, by welding or by other suitable means.

In order to enable the furniture frame to rest effectively on this bracket and relieve the screws 31 from the full strain of the load, the lower end of each attaching flange 30 is provided with a horizontal outwardly projecting lip or lug 32 which engages with the underside of the adjacent part of the furniture frame, as best shown in Figs. 3, 4 and 6.

The inner parts of the arms or walls 28 of the bracket are spaced apart so as to form a wide space 33 between the inner or front parts of these walls and a narrow space 34 between the outer or rear parts of these walls, as best shown in Fig. 6. The widening of the inner or front part of the space within each of the brackets is preferably formed by offsetting the inner part 35 of each wall laterally relative to the rear part 36 thereof, and thereby forming a vertical internal shoulder 37 between each inner part 35 and the corresponding outer part 36 of the respective bracket wall which constitutes part of a vertical guideway for a carriage upon which the respective caster is supported.

In its preferred construction this carriage is of substantially U-shaped form, as shown in Figs. 5, 6 and 9 and comprises two upright guide arms or plates 38, each of which slides vertically between the shoulder 37 of one of the side walls of the bracket and the cross piece or front wall

29 at the front end thereof, and a horizontal cross piece 39 connecting the lower ends of the side plates 38 of the carriage.

The cross piece 39 of the carriage is provided with a central opening 40 in which is secured the lower end of the pivot bushing 27 in which the pivot pin 26 of the respective caster is journaled. The upper part of this bushing is supported in the central part 41 of a bridge, which latter has its opposite ends constructed in the form of horizontal pivot pins 42 which are secured in openings 43 in the adjacent parts of the carriage plates 38 and serve as part of the means for raising and lowering this carriage.

The carriage raising and lowering mechanism of each lifting unit may be variously organized but the means for this purpose which are shown in Figs. 1-6 are constructed as follows:—

The numeral 44 represents two lower toggle links which are arranged along the inner side of the carriage plates 38 and are pivotally connected at their lower ends with the carriage by means of the pivot pins 42. The numeral 45 represents two upper toggle links which are pivotally connected at their lower ends with the upper ends of the lower links 44 by means of a coupling head 46 which is provided at its opposite ends with pivot pins 47 passing through the adjacent or corresponding ends of the lower and upper toggle links. The upper ends of the upper toggle links are pivoted to the upper parts of the side walls of the respective bracket by a horizontal transverse pivot pin 48 passing horizontally through these parts, as best shown in Fig. 5.

Upon folding the lower and upper links of each toggle mechanism outwardly, as shown by dotted lines in Fig. 3, the carriage is raised in the guideway of the respective bracket and the caster associated therewith is lifted from the floor, thereby permitting the article of furniture, or other article to rest with its legs or base on the floor, in which position the wide area usually provided on such legs or base will avoid concentrating the load of the furniture on the floor and thus preventing indenting or disfiguring the latter. Upon straightening or unfolding the upper and lower toggle links by moving the opposing ends of the same inwardly, the respective carriage will be lowered in the guideway of the bracket, together with the caster which is mounted on this carriage, and thereby cause the caster to be projected below the underside of the legs or base of the furniture. By this means the furniture will be lifted from the floor, as shown in Fig. 4, and permit the load which is now supported upon the roller or wheel of the caster to be transported to the desired place where the furniture is to be located.

The straightening or unfolding movement of the links is arrested after the pivotal connection between the lower and upper toggle links has passed slightly inwardly beyond the dead center line between the opposite extremities of these links, and the opposing ends of the links engage with the inner wall or cross piece 29 of the respective bracket, whereby the latter serves as a stop to limit the unfolding movement of the links and causes the weight of the furniture to maintain the toggle links in this unfolded position and hold the furniture off from the floor.

After the furniture has been moved to the desired locality the toggle mechanism of the several lifting units is again folded by moving the opposing ends of the pairs of links of each toggle

mechanism outwardly, thereby lowering the furniture so that it rests with its feet or base on the floor and elevates the several casters therefrom. During such folding and unfolding action of the
 5 pairs of links of the toggle mechanism in each bracket for moving the caster supporting carriage vertically therein, the opposing ends of the links of each toggle mechanism move into and out of the clearance space 34 which is provided
 10 between the contracted outer or rear part of the respective bracket.

Various means may be employed for causing the toggle mechanisms of the several lifting devices or units to be operated simultaneously. The means for this purpose shown in Figs. 1-8 are constructed as follows:

The numeral 49 represents a horizontal operating shaft which is arranged lengthwise of the furniture frame at a convenient point between the front and rear sides thereof. This shaft in the present case is square in cross section and journaled at its opposite ends in the transverse bars 22 of the furniture frame by means of bearing bushings 50 applied to opposite ends of this
 20 shaft and each having a bore 51 which is of square form in cross section, so as to fit the shaft 50 and be compelled to turn therewith, while the periphery of this bushing is cylindrical and turns in a bearing opening 52 in the adjacent part of the cross bar 22, as best shown in Figs. 7 and 8. Longitudinal movement of the bearing bushings in the frame bars 22 and longitudinal movement of this operating shaft in these bushings is prevented by providing the outer end of each bushing with an enlarged collar 53 which engages with an inner washer 54 on the outer side of the frame bar 22, and an outer washer 55 applied to the operating shaft and held in engagement with the outer end of the bushing 50 by means of a
 30 cotter pin 56 passing through the operating shaft, as shown in Fig. 7.

Within the furniture frame and adjacent to each end thereof a two-armed rock lever 57 is mounted on the operating shaft and compelled to
 45 turn therewith by means of a square opening in the center of this lever engaging with the periphery of this shaft, and longitudinal movement of this lever on the shaft is prevented by means of cotter pins 58 passing through this shaft on opposite sides of this lever, as shown in Fig. 7.

On the outer end of each arm of the lever 57 a screw eye 59 is pivoted by means of a wrist 60 projecting from one side of the screw eye 59 through an opening 61 in the end of the respective lever arm and provided with retaining lugs 62 which engage with opposite sides of this arm for preventing disengagement from the latter, as shown in Fig. 7. The numerals 63, 63 represent two transverse shifting rods, each of which has its inner threaded end engaging with one of the screw eyes 59, while its outer end is connected with the head 46 which forms part of the pivotal connection between the opposing links of the toggle mechanism of one of the lifting devices.
 60 Each of these shifting rods passes through an opening 19 in the front or inner wall of the respective bracket, as shown in Fig. 4.

By means of the screw connection between each shifting rod 63 and the double armed rock lever, the relative position of the parts may be adjusted to secure the desired throw of the toggle links of the several lifting devices.

The rocking of the operating shaft 49 is effected from the exterior of the piece of furniture by one or more treadles or foot levers 64, two

being employed in the construction shown in Fig. 1, and each of these levers having its inner end provided with a square opening which receives one of the square outer ends of the operating shaft 49 and is held thereon by means of a
 5 cotter pin 65, while the outer end of each lever is provided with a pedal 66 which is preferably arranged adjacent to the rear side of the piece of furniture, as shown in Figs. 1 and 2.

When the treadle 64 is in its elevated position, 10 as shown by full lines in Fig. 3, the rock lever 57 and the several toggle mechanisms are in the position in which the piece of furniture is lowered upon the floor and the casters are elevated, and when it is desired to elevate the furniture 15 from the floor, this treadle is depressed into its lowest position, as shown by full lines in Fig. 4, whereby the several casters are depressed into engagement with the floor and the furniture is lifted. After the treadle is thus depressed the 20 same remains in this position owing to the links of the several toggle mechanisms being held in their unfolded position slightly inward from the dead center positions by engagement with the transverse inner walls of the several brackets, as 25 shown in Fig. 4. It therefore only requires a slight upward pressure underneath the treadle or foot lever 64 and a sufficient upward movement of the same to bring the pivotal connection between the lower and upper links of the toggle 30 mechanisms slightly outward relative to the dead center position in order to permit the furniture to again drop by gravity into its normal lowered position on the floor.

If desired, means may be provided for holding 35 the treadle lever 64 in its elevated position and thus holding the caster rollers or wheels off the floor, for which purpose the several parts of the operating mechanism may be fitted sufficiently tight to secure the necessary frictional resistance, 40 but if no means are provided for holding the caster wheels off the floor, then the same will merely bear lightly against the floor without marring the same or producing any objectionable result.

In the construction shown in Figs. 1-5 the 45 furniture frame is provided with separate feet for engagement with the surface of the floor, but in the construction shown in Fig. 10 the feet are omitted and the bars 201 of the furniture frame form a base for the same which rests directly 50 on a building floor.

When employing this invention in a piece of furniture having a base of this character it is necessary to so organize each lifting unit that the underside of the caster roller or wheel can be 55 raised in line with or above the bottom of the furniture base. This is readily accomplished by constructing the outer or rear parts 281 of the bracket side arms or walls of inclined form and extending the same upwardly from their attaching flanges 301 to the vertical guideway 351 for the respective caster carriage 401, as shown in Fig. 10, so that in the fully raised position of the caster its roller will be on line with or above the bottom of the furniture base, and thereby permit the latter to rest on the floor without interference from the lifting device.

In Figs. 11-17 a modified form of my improved 60 caster raising and lowering mechanism is shown, and in this instance the same is mounted on the 70 lower part of the frame or body 67 of a refrigerator which is provided at its corners with downwardly projecting legs or feet 68 which are adapted to rest on the floor.

The form of lifting mechanism as shown in 75

Figs. 11-17 and embodying my invention is constructed as follows:—

On the inner side of the base of the refrigerator body 67 four supporting brackets are mounted adjacent to the corners thereof and four carriages supporting casters are slidable vertically in guideways on these brackets in substantially the same manner in which this is done in the construction shown in Figs. 1-9, and the same reference numerals and description as to operation apply to both of these constructions.

Those features in Figs. 11-17 which differ from those shown in Figs. 1-9 are constructed and operated as follows:

The numeral 69 represents the lower links of the toggle mechanism associated with each lifting device, which links are pivotally connected at their lower ends with the pivot pins 42 at opposite ends of the bridge 41 which receives the upper end of the guide bushing 27 in which the vertical pivot pin 26 of the respective caster is journaled. The numeral 70 represents two upper toggle links which are pivoted at their upper ends on the upper parts of the bracket walls 28 by means of a transverse pivot pin 71, while their lower ends are connected by a transverse pin 72 with the upper ends of the lower links 69. In this construction the upper and lower links of each toggle mechanism are adapted to move with their opposing ends inwardly in order to fold these links for raising the casters from the floor and lowering the refrigerator or other article thereon, as shown by full lines in Fig. 12, and the links of each toggle mechanism are adapted to move with their opposing ends outwardly or rearwardly relative to the respective bracket for the purpose of straightening or unfolding these links in order to cause the respective caster to produce a downward thrust against the floor and raise the refrigerator or other articles therefrom, as shown by dotted lines in Fig. 11.

The inward or folding movement of each toggle member in this construction is limited by engagement of the inner edges of the toggle link 69 with the inner or front wall 29 of the respective bracket, and the outward or rearward unfolding movement of these links is limited by engagement of the opposite ends of the pivot pin 72 with the inwardly facing shoulders 37 formed on the respective bracket between the inner wide and outer narrow part thereof, as shown by full lines in Fig. 17, and by dotted lines in Fig. 11.

Simultaneous operation of the several lifting devices is effected in the construction shown in Figs. 11-17 as follows:—

The numeral 73 represents a horizontal rock shaft which is arranged lengthwise of the base portion of the refrigerator casing between the front and rear sides thereof and journaled on this base by means of cylindrical trunnions 74 at opposite ends thereof, turning in bearings 75 secured to the inner sides of the base portion 67 of the refrigerator casing as best shown in Fig. 14. Intermediate of its ends this operating shaft 73 is made square in cross section and adjacent to each end a two-armed rock lever 76 is mounted thereon so as to turn therewith by providing this lever with a square opening 18 which fits the square periphery of the shaft 73.

From each upper toggle link 70 of one of the lifting devices a rock arm 77 projects upwardly and the upper ends of these arms are connected by means of a pivot pin 78 which receives the pivot eye 79 on the outer end of a shifting rod

80. The inner end of each of these shifting rods is pivotally connected with the outer end of one of the arms of the rock lever 76 by forming a laterally projecting wrist 81 on the inner end of the respective shifting rod 80 and passing the same through an opening 82 in this arm of the rock lever 76 and retaining the same therein by means of lugs 83 bent sidewise of the wrist 81 and into engagement with the opposite side of the respective arm of the lever 76, as best shown in Figs. 11, 12 and 14.

Each of the shifting rods 80, its pivot eye 79, wrist 81 and retaining lugs 83 are preferably constructed from a single piece of half-round iron, the flat sides of which are placed in contact with each other to form the body of this rod and parts of which are bent to form said pivot eye, wrist and retaining lugs as shown in these Figs. 11, 12, 14. Rocking movement of the operating lever is effected by means of a treadle or foot lever 84 which is preferably arranged principally within the base portion of the refrigerator casing and connected with the operating shaft 73 by forming a square opening in the inner end of this foot lever which receives the correspondingly shaped periphery of the operating shaft 73, while the outer part of this lever passes through a vertical slot 85 in the front part of the refrigerator casing and its front end is provided with a pedal 86 for operating the same. Depression of this lever by means of the foot causes the operating shaft 73 to be turned in a direction for causing the links of each toggle mechanism to be straightened or unfolded and thereby lift the refrigerator from the floor preparatory to transporting the same, as shown in Fig. 11, and upon raising the foot lever the toggle mechanism is again folded for retracting the casters and permitting the refrigerator to again rest on the floor, as shown in Fig. 12.

When the links of each toggle mechanism are moved with their opposing ends into their outer or rearmost unfolded position the pivotal connection between the opposing links of each toggle mechanism is arranged slightly outward from a dead center line passing through the axes at the outer ends of these links, as shown by dotted lines in Fig. 11, whereby the weight of the refrigerator or other article which has been elevated is locked in this elevated position without requiring the downward pressure to be maintained on the foot lever for this purpose, and only necessitating a sufficient upward movement of the foot lever for again bringing the central connection between the upper and lower links of each toggle mechanism slightly inward or forward from this center line in order to release the toggle mechanism and permit the refrigerator to automatically drop into its lowered position on the floor.

As shown in Figs. 11-18 each of the brackets may be further strengthened by providing the upper and lower ends or edges of its side walls with horizontal stiffening flanges or ribs 87 which project laterally therefrom and each of which is provided at its outer or rear end with a lug 88, which is connected with the inner side of the adjacent attaching flange 30 of the respective bracket by the rivets 31 or by other suitable means, such as bolts, screws or welding.

Instead of using a caster having a spindle 26, as shown in Figs. 1-18, the form shown in Fig. 19 may be employed which comprises a plate 89 secured to the lower part 39 of the carriage and on which is pivotally mounted the fork 90 which supports the bearing roller or wheel 91. In this

case the lower ends of the toggle links 69 are pivotally connected with the sides 38 on the carriage by rivets or pins 92.

Although the drawings in both forms of this invention show the operating shaft arranged lengthwise of the furniture and refrigerator frame or body the same may be arranged in any other position which may be more suitable for adapting this invention to a particular article.

As a whole this caster raising and lowering mechanism is very simple in construction, the same can be produced at low cost, it can be readily and easily worked by slight foot pressure, and the same is not liable to get out of order.

I claim as my invention:—

1. A caster raising and lowering mechanism for furniture and other articles, comprising a bracket adapted to be secured to said article and having a comparatively wide vertical guideway extending substantially the full height of the bracket and a narrow adjacent vertical clearance space and also having an extension forming a stop, a vertically movable carriage, slidable in said guideway and exclusively supported therein, a caster mounted on the carriage and adapted to engage with the floor upon which said article normally rests, and means for raising and lowering said carriage, including toggle links pivotally connected with each other and pivoted, respectively, to said carriage and bracket, and adapted in one position to engage with said stop extension on one side of the carriage and adapted in another position to project into said space on the opposite side of said carriage.

2. A caster raising and lowering mechanism for furniture and other articles, comprising a bracket adapted to be secured to said article and having a comparatively wide vertical guideway extending substantially the full height of the bracket and a narrow adjacent vertical clearance space and also having an extension forming a stop, a vertically movable carriage slidable in said guideway and exclusively supported therein, a caster mounted on the carriage and adapted to engage with the floor upon which said article normally rests, and means for raising and lowering said carriage, including toggle links pivotally connected with each other and pivoted, respectively, to said carriage and bracket, and an operating arm arranged on said upper link, said links engaging with said stop extension in their extended position and projecting into said space in their contracted position, and said operating arm being moved into and out of said space upon extending and contracting said links.

3. A caster raising and lowering mechanism for furniture and other articles, comprising a bracket having two side walls which have their rear ends connected with said article and their front ends connected by a cross piece, the front parts of said walls being separated widely to form a vertical guideway and the rear parts of said walls being arranged closer together to form a clearance space, a carriage having two side shoes slidable vertically in opposite sides of the wide part of said guideway, and a cross piece connecting the lower ends of said side pieces, a caster pivoted on said carriage, and means for raising and lowering said carriage.

4. A caster raising and lowering mechanism for furniture and other articles, comprising guide brackets secured to said article on opposite sides thereof, carriages slidable vertically in said guideways, casters mounted on said carriages and adapted to engage the floor upon which the arti-

cle normally rests, and means for actuating said carriages, including a pair of toggle links connecting each carriage with the respective bracket, a horizontal shaft which has cylindrical ends journaled in bearings on said article and an intermediate part which is angular in cross section, levers each having an angular opening which receives said shaft and two arms projecting in opposite directions, and a connecting rod connecting each of said arms with a pair of said links and comprising two parallel longitudinal sections, pivot lugs projecting laterally from one pair of corresponding ends of said rod sections into one of said arms, and an eye connecting the other corresponding ends of the respective rod sections and receiving a pivot pin connected with one pair of toggle links.

5. A mechanism for raising and lowering a caster on an article comprising a bracket having side walls, a front wall connecting the inner ends of the side walls, flanges arranged on the outer ends of said walls and adapted to be fastened to said article, horizontal ribs projecting laterally from the upper and lower ends of the side walls, and vertical lugs arranged on the outer ends of said ribs and adapted to be connected with said flanges and said article, and a vertically movable carriage guided on said bracket and adapted to support a caster.

6. A mechanism for raising and lowering a caster, comprising a bracket having vertical side walls at least one of which is interiorly indented to provide a vertical guideway and also a clearance space at one end of said guideway, a carriage slidable in said guideway and supported its entire height therein, a swivel caster mounted on said carriage, means for raising and lowering said carriage and means for attaching the side of said bracket opposite said guideway to a piece of furniture whereby the part of said bracket forming said clearance space forms a spacer between said caster and the adjacent portion of the piece of furniture.

7. A mechanism for raising and lowering a caster, comprising a bracket having vertical side walls at opposite sides, each of said side walls being interiorly formed to provide a vertical guideway extending substantially the full height of the bracket and also a clearance space at one end of said guideway, a carriage having its opposite sides slidably arranged in said guideways, a swivel caster mounted on said carriage, means housed within said guideway and clearance space for raising and lowering said carriage and means for attaching the side of said bracket opposite said guideway to a piece of furniture whereby the part of said bracket forming said clearance space forms a spacer between said caster and the adjacent portion of the piece of furniture.

8. A mechanism for raising and lowering a caster, comprising a bracket having vertical walls adapted to be attached to a piece of furniture, side walls projecting outwardly from said attaching walls and forming a clearance space and a wall connecting the outer ends of said side walls, said side walls being interiorly formed adjacent the connecting wall to provide vertical guideways between said clearance space and connecting wall, a carriage having its opposite sides slidably arranged in said guideways, a swivel caster mounted on said carriage and means for raising and lowering said carriage, that part of the side walls forming said clearance space forming a spacer between the caster

and the adjacent portion of said piece of furniture.

9. A mechanism for raising and lowering a caster comprising a bracket having relatively thin vertical walls adapted to be attached to a piece of furniture, relatively thin side walls projecting outwardly from said attaching walls, the outer ends of each of said side walls being offset laterally outward to provide an interior vertical guideway, a relatively thin wall connecting the outer edges of said side walls, a carriage having its opposite sides slidably arranged in said guideways, a caster mounted on said carriage and means for raising and lowering said carriage.

10. A mechanism for raising and lowering a piece of furniture or other article, comprising a bracket having vertical side walls at opposite sides, each of said side walls being interiorly formed to provide a vertical guideway, a U-shaped carriage having a horizontal cross bar and side legs rising from said cross bar, said legs being slidably arranged in said guideways, and means for raising and lowering said carriage.

11. A mechanism for raising and lowering a caster, comprising a bracket having vertical walls adapted to be attached to a piece of furniture, side walls projecting outwardly from said attaching walls, the outer ends of each of said side walls being offset laterally outward to provide an interior vertical guideway, a wall connecting the outer edges of said side walls, a U-shaped carriage having its upwardly extending legs slidably arranged in said guideways, a caster mounted on and depending from the lower cross bar of said U-shaped carriage and means for raising and lowering said carriage.

12. A mechanism for raising and lowering a piece of furniture or other article, comprising a bracket having two side walls which have their rear ends connected with said article and their front ends connected by a cross piece, the front parts of said walls being separated widely to form a vertical guideway and the rear parts of said walls being arranged closer to form a clearance space, a carriage having two side shoes slidably vertically in opposite sides of the wide part of said guideway, and a cross piece connecting said side pieces and means for raising and lowering said carriage.

13. A mechanism for raising and lowering a piece of furniture or other article, comprising a bracket attached to the piece of furniture, the walls of said bracket forming a vertical guideway and a clearance space alongside said guideway, a carriage slidably retained in and guided in said guideway, and means retaining and moving said carriage in said guideway, said means being attached to said carriage and bracket and enclosed and operating within said guideway, carriage and clearance space.

14. A mechanism for raising and lowering a piece of furniture or the like, comprising a bracket adapted to be attached to the piece of furniture or the like, and comprising side walls each offset laterally outward at its outer end to provide a relatively wide guideway and a clearance space between said guideway and a piece of furniture or the like, a vertical end wall connecting the outer ends of said side walls, a carriage movable vertically in said guideway, and

means for raising and lowering said carriage to and from a position below said bracket.

15. A mechanism for raising and lowering a piece of furniture or other article, comprising a bracket adapted to be attached to said piece of furniture or other article, the side walls of said bracket being formed to provide a vertical guideway, a carriage having a horizontal cross bar and legs rising from said cross bar slidable vertically in said guideway and means attached to and housed within said carriage and bracket for retaining said carriage in said bracket and for raising and lowering said carriage.

16. A mechanism for raising and lowering a piece of furniture or other article, comprising a bracket adapted to be attached to said piece of furniture or other article, a carriage having a horizontal cross bar and legs rising from said cross bar and exclusively supported by and slidable vertically in said bracket and means attached to and housed within said bracket and carriage for operating and retaining said carriage in said bracket.

17. A mechanism for raising and lowering a piece of furniture and other article, comprising a bracket adapted to be mounted on said article and having a vertical guideway and an adjacent clearance space, a carriage slidable vertically in said guideway, and a toggle linkage housed within said bracket and movable to a position within said carriage, one end of said linkage being connected to an interior portion of said carriage and the other end being connected to said bracket and means for extending and contracting said linkage.

18. A mechanism for raising and lowering a piece of furniture or other article, comprising a bracket adapted to be secured to said article and having a comparatively wide vertical guideway extending substantially the full height of said bracket and a narrow adjacent vertical clearance space and also having an extension forming a stop, a vertically movable carriage slidable in said guideway and exclusively supported therein, and means for raising and lowering said carriage including toggle links pivotally connected with each other and pivoted, respectively, to said carriage and bracket and adapted in one position to engage with said stop extension on one side of the carriage and adapted in another position to project into said space on the opposite side of said carriage.

19. A mechanism for raising and lowering a piece of furniture or other article, comprising a bracket attached to the piece of furniture, the walls of said bracket forming a vertical guideway and a clearance space alongside said guideway, a carriage slidably retained and operated in said guideway by means attached to said carriage and bracket and enclosed and operated within said guideway, carriage and clearance space.

20. A mechanism for raising and lowering furniture or other articles comprising a bracket having side walls connected together at one end and adapted to be attached at the other end to said article and the same side walls providing a vertical guideway adjacent their ends which are attached together and the intermediate parts of said side walls serving to space said guideway from said attaching ends, a carriage slidable in said guideway, and means for raising and lowering said carriage.

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