

No. 644,048.

Patented Feb. 27, 1900.

C. E. ANDRE.
STEP LADDER.

(Application filed Nov. 28, 1899.)

(No Model.)

Fig. 3.

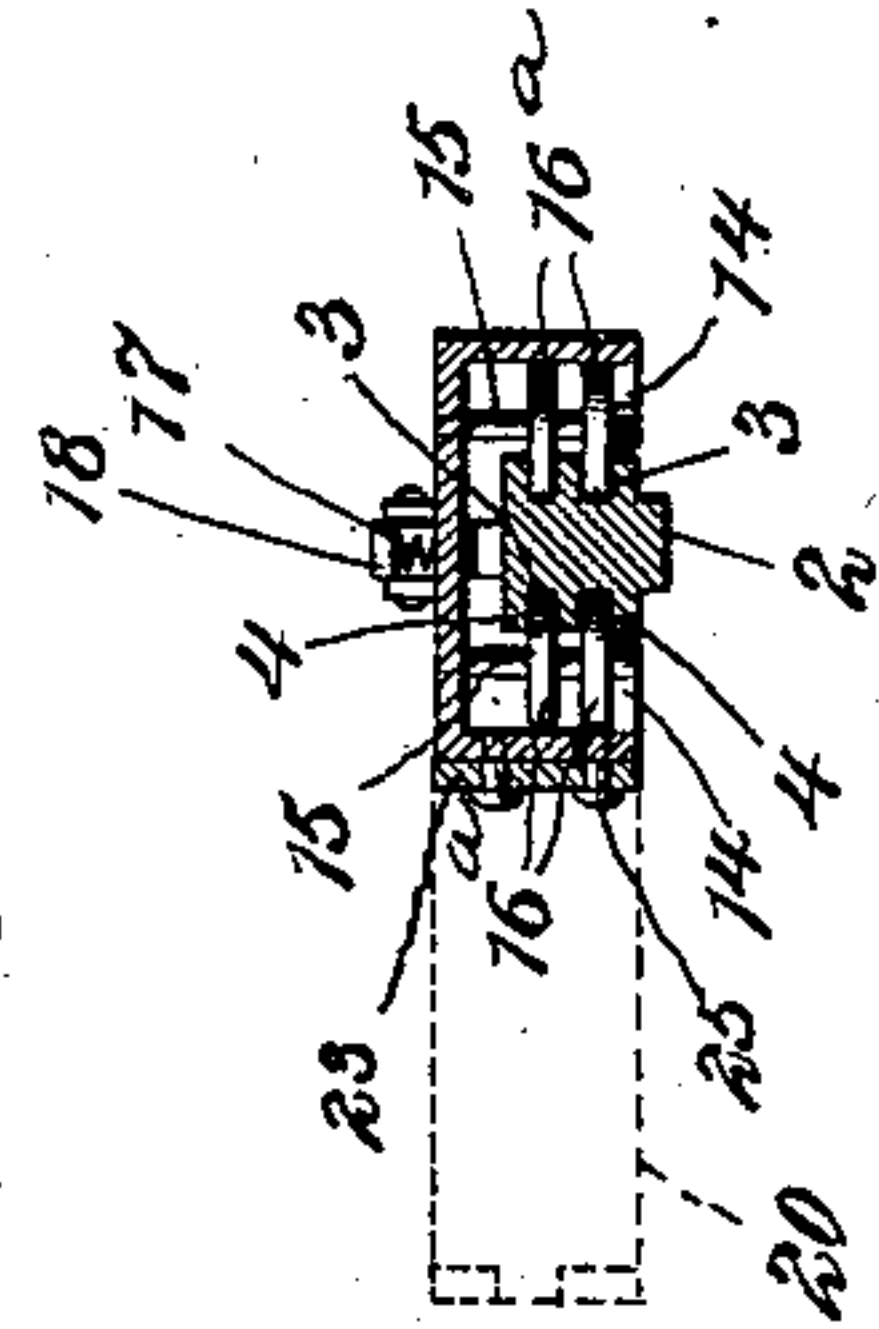


Fig. 4.

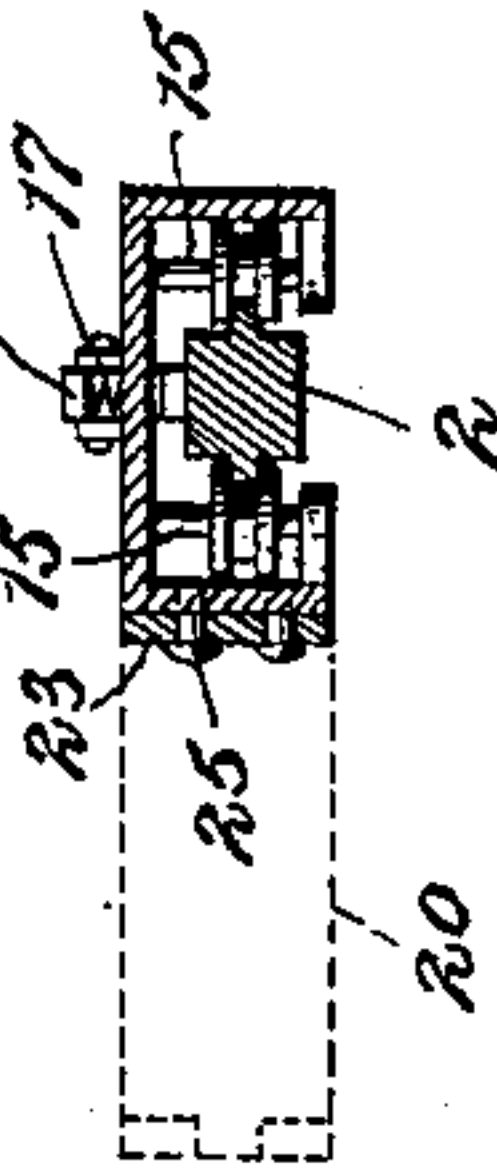


Fig. 2.

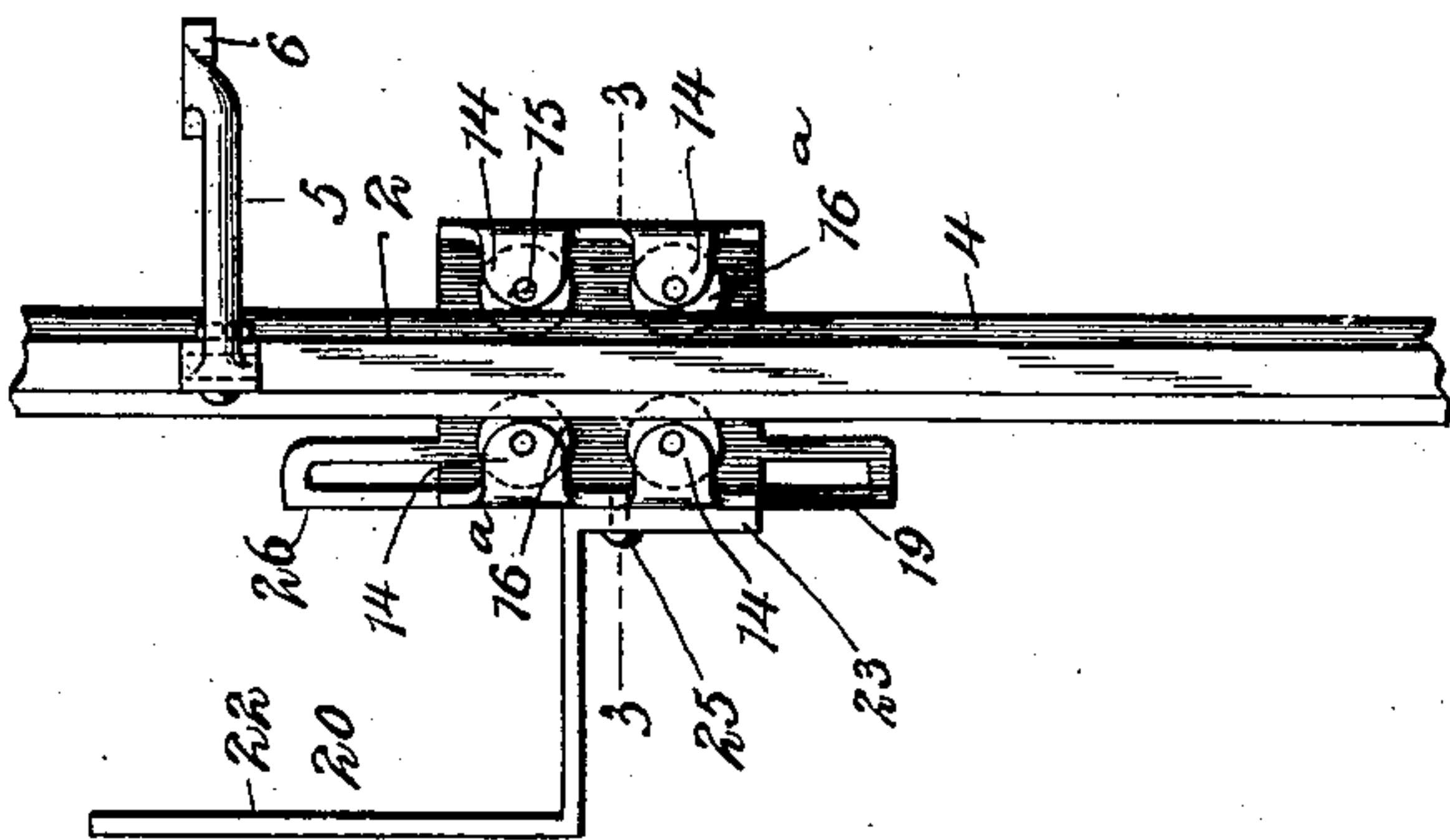
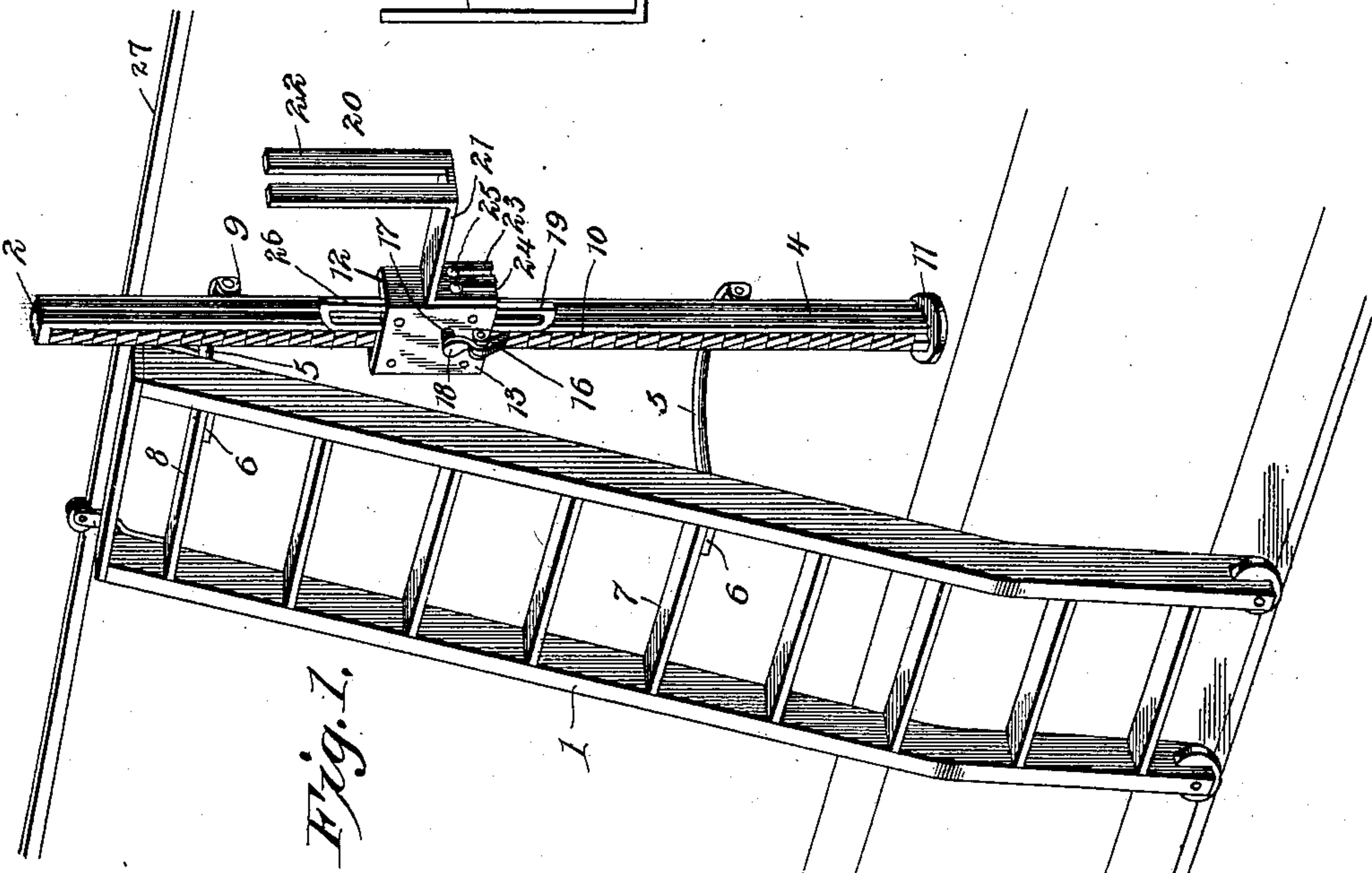


Fig. 1.



Witnesses

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STEP-LADDER.

SPECIFICATION forming part of Letters Patent No. 644,048, dated February 27, 1900.

Application filed November 28, 1899. Serial No. 738,565. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. ANDRE, a citizen of the United States, residing at Burlington, in the county of Des Moines and State of Iowa, have invented a new and useful Step-Ladder, of which the following is a specification.

This invention relates to attachments for step-ladders of that character which are ordinarily used in mercantile establishments or stores and have a portion bearing on a track and in slidable relation to shelving; and the object of the present improvement is to provide means in connection with such a ladder so as to make it convenient in raising or lowering a number of articles at one time from the shelves for the purposes of display and sale and avoid the inconvenience and disadvantage to the salesmen now commonly encountered by the requirement of holding a number of articles in the arms during the descent and ascent of the ladder, with frequent damage or accidents, and thus leave the arms and hands of the salesman free for use in connection with the ladder-rails or in manipulating the improved attachment, and thereby more expeditiously arrive at the results sought.

The invention consists of the construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of a ladder in operative position, showing the improved attachment applied thereto. Fig. 2 is a rear elevation of the improved attachment broken away at its upper and lower extremities. Fig. 3 is a horizontal section on the line 3 3 of Fig. 2. Fig. 4 is a view similar to Fig. 3, showing a slight modification.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates a ladder of the character usually employed in stores or mercantile establishments and arranged adjacent tiers of shelves and mounted on rollers, as well as hung on a track 27, and freely slidable before the said shelves in a longitudinal direction.

The improved attachment comprises an upright 2, which, as clearly shown by Fig. 3, has pairs of grooves 3 in opposite side edges

and extending full length thereof, which are guarded by inner and outer rails 4. As shown by Fig. 4, the number of these grooves may be varied, if desired; but it has been found that the form shown by Fig. 3 is preferable, in view of the fact that the parts movably carried by the upright and engaging the grooves will be more steadily guided by the employment of opposite pairs of the same. The upright 2 is supported in connection with the ladder 1 by arms 5, which have front terminal securing-brackets 6, adapted to be applied against the under sides of two of the steps 7 and 8, as shown by Fig. 1, and removably fastened in such position, so as to leave the side bar or rail of the ladder adjacent the attachment entirely clear for use by the salesmen in a manner which will be obvious. The arms 5 extend rearwardly and are curved around the rear portion of the upright 2 to clear the latter at all points and at their rear extremities have pairs of lugs 9, with intervening spaces to embrace projections on the rear side of the said upright and to which they are bolted. The lower arm 5 is longer than the upper arm, and, as will be seen, this variation in the length of the arms is for the purpose of disposing the said upright in perpendicular position relatively to the inclined disposal of the ladder 1. The front edge of the upright 2 is provided with an aligned series of upwardly-projecting ratchet-teeth 10, and at the lower end of said upright is a stop or limiting device 11 to hold the movable parts on the upright and avoid separation thereof.

A carriage or carrier 12 is movably mounted on the upright and comprises a surrounding casing 13, having inwardly-directed pairs of ears 14 at the rear side, and in the said ears and the front portion of the casing upper and lower opposite pairs of axles 15 are mounted, on which are journaled pairs of rollers 16 to fit and move within the grooves 3, a pair of these rollers being on each axle and serving to steady the movement of the casing 12 and preventing the latter from rocking or shifting in any direction. At the lower central portion of the front of the casing 12 a stop-pawl 16 is mounted and is normally pressed into engagement with the ratchet-teeth 10 by a spring 17, interposed between the casing

and an operating-arm 18 of the said pawl, said spring and arm being located above the fulcrum-point of the pawl and the latter operated by pressing inwardly on the arm to release the nose of the pawl when in engagement with the ratchet-teeth, and thereby permit the casing to lower or be drawn downwardly, and after arriving at a desired level the release of the pressure from the arm 18 will permit the pawl to immediately engage the ratchet-teeth or one of the latter at such level as may be desired. To the outer front portion of the casing a depending slotted grip or handle 19 is fixed and is used in raising or lowering the entire carriage or carrier. On the right end of the carriage or carrier 12 an angle-support 20 is removably and adjustably applied and comprises a base-plate 21, having an outer vertical bifurcated arm 22 and an inner depending securing-arm 23, having slots 24 to receive bolts 25, which are made fast in the said end of the carriage or carrier and may be used for adjusting the support or permit the latter to be removed for replacement by another, if desired and found necessary. This support is used for holding boxes, cartons, or other articles removed from the shelves, and the bifurcated arm 22 may be conveniently used for hanging articles thereon or to assist in removing the load that may be disposed on the support. Before receiving the load of goods or articles from the shelves the carriage or carrier is moved upwardly very easily in view of the fact that the rollers 16^a will play smoothly in the grooves, and in its empty condition the said carrier or carriage is of light weight, yet strong enough to withstand or resist breakage from a heavy load of articles that may be placed thereon.

In raising the carriage or carrier the pawl 16 remains unengaged in view of the arrangement of the ratchet-teeth 10, and in the said upward movement of the carriage or carrier the said pawl slips over the teeth. In lowering the carriage or carrier when loaded by a deposit of boxes or articles in the support 20 the grip or handle 19 is grasped, and at the same time an inward pressure is applied to the arm 18 of the pawl 16 to hold the latter clear of the ratchet-teeth 10 and which can be easily accomplished by the salesman descending the ladder, and when the carriage or carrier has reached a desired lower level the ratchet-teeth will hold the same in adjusted position through the medium of the pawl 16, which is released at such level and immediately falls into engagement with one of the teeth. In Fig. 4 the rollers used on the axles in the carriage or carrier correspond in number to the grooves; but otherwise the construction and arrangement of the parts are similar to those heretofore set forth.

The improved attachment is adapted for general use, but is most serviceable in shoe-stores or other mercantile places of business where single cartons or small boxes are arranged on the shelves, and particularly those

containing single pairs of shoes and requiring a salesman to exhibit a large number for the choice or selection of a purchaser. It will be observed that in this use a number of the cartons can be stacked in the support 20 and lowered within convenient reaching distance and allow the salesman use of the hands in descending the ladder. In this connection the improved attachment will also be useful in elevating the cartons after use or display to their proper shelves, and by making the support removable others of a different nature or size can be substituted therefor to accommodate the difference in dimensions of cartons containing shoes for men, women, and children. It is proposed to extend the upright 2 as high or as low as may be required to accommodate use in connection with high shelving and to bring the carriage close to the floor, and, furthermore, all the parts are to be made light and strong, as well as ornamental. At the upper part of the casing is a handle or grip 26, which is on the same side as the handle-grip 19 below and is used by the operator when above the carrier for lifting the same, if desired, to elevate it to a more convenient position for loading or distributing the contents thereof, and this upper extension will also conveniently assist in holding the cartons in place when a large number of the same are loaded on the carrier.

The improved attachment will also be used in conveying cartons or other devices or articles from one place to another along a line of shelving that can be reached by a clerk or salesman from the floor without ascending the ladder, and thereby afford convenient means for distributing cartons or articles that have been displayed and disposing them on their proper shelves without the necessity of transportation in the arms of the salesman or clerk, as in ordinary practice, and in this use the ladder will be pushed along in front of the shelving as desired. In the same manner the cartons or other articles may be removed from the shelves that are in reaching distance from the floor and conveyed by the attachment on the ladder to a point of display before a purchaser or customer, and in this operation the ladder will likewise be pushed from one point to another.

Changes in the form, proportions, and minor details may be resorted to without departing from the principle or sacrificing any of the advantages of the invention.

Having thus described the invention, what is claimed as new is—

1. The combination with a ladder, of a guide secured thereto and held vertically suspended at one side thereof, and a carrier provided with rollers movably bearing on the said guide.

2. The combination with a ladder, of a vertical guide having stop projections thereon, the said guide being disposed at one side and clear of the ladder, and a carrier provided with rollers movably bearing on the said

guide and having a stop device to engage the said projections.

3. The combination with a ladder, of a guide secured thereto and having roller-engaging devices on the opposite sides thereof, and a carrier movably mounted on the said guide and having rollers for operation in relation to the said roller-engaging devices.

4. The combination with a ladder, of a guide disposed vertically and held outwardly from one side of the ladder, a carrier slidably mounted on the said guide, and an angular support attached to one side of the carrier.

5. The combination with a ladder, of a

guide secured thereto and having stop devices thereon and opposite side edge grooves, a carrier having rollers to engage the said grooves, a spring-actuated pawl to coact with the stop devices, and a handle or grip to one side of the pawl, and a support removably applied to one end of the carrier.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES E. ANDRE.

Witnesses:

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J. F. CLARK.