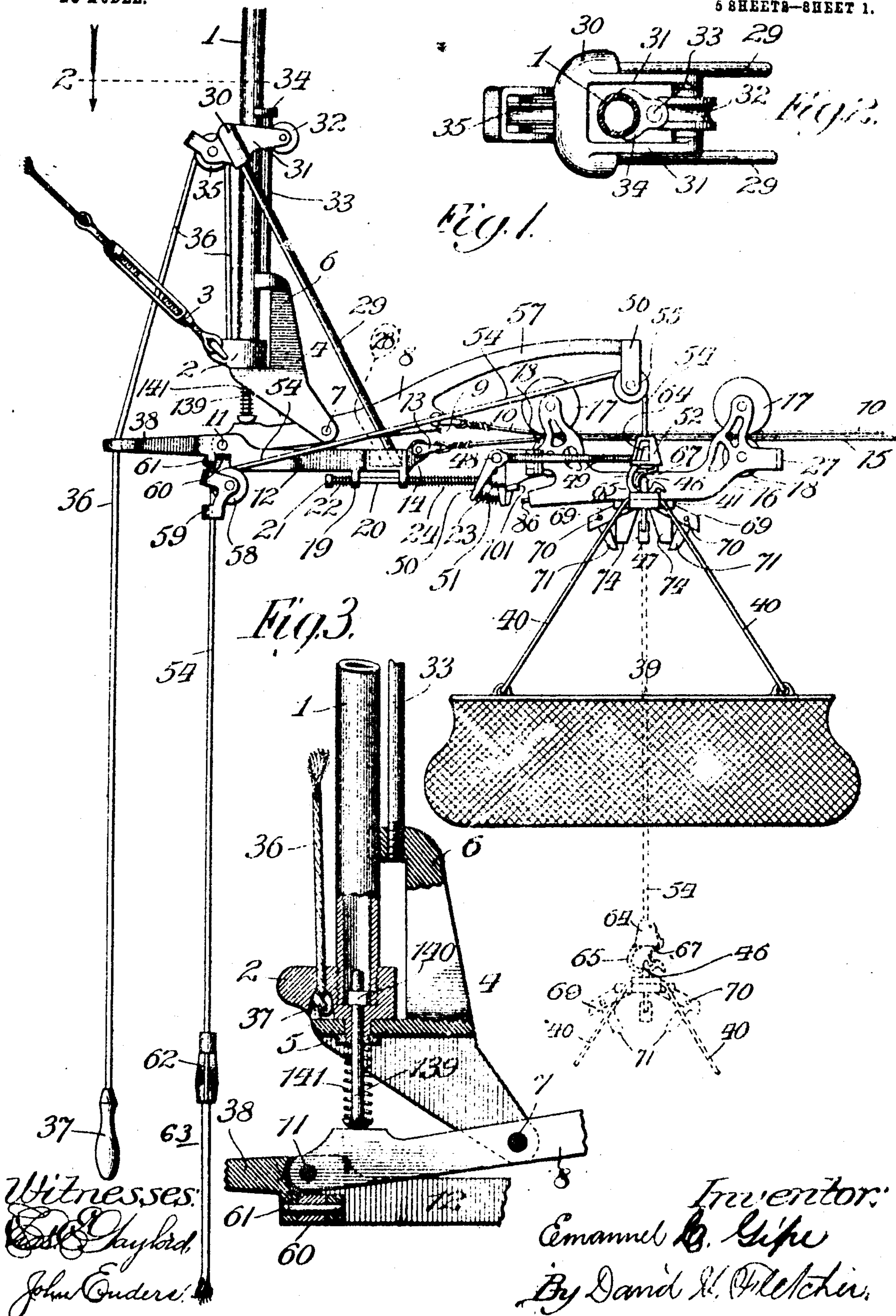


E. C. GIPE.  
STORE SERVICE APPARATUS.

APPLICATION FILED APR. 9, 1904

NO MODEL.

5 SHEETS—SHEET 1.



E. C. GIPE.  
STORE SERVICE APPARATUS.

APPLICATION FILED APR. 9, 1904.

NO MODEL.

8 SHEETS-SHEET 2.

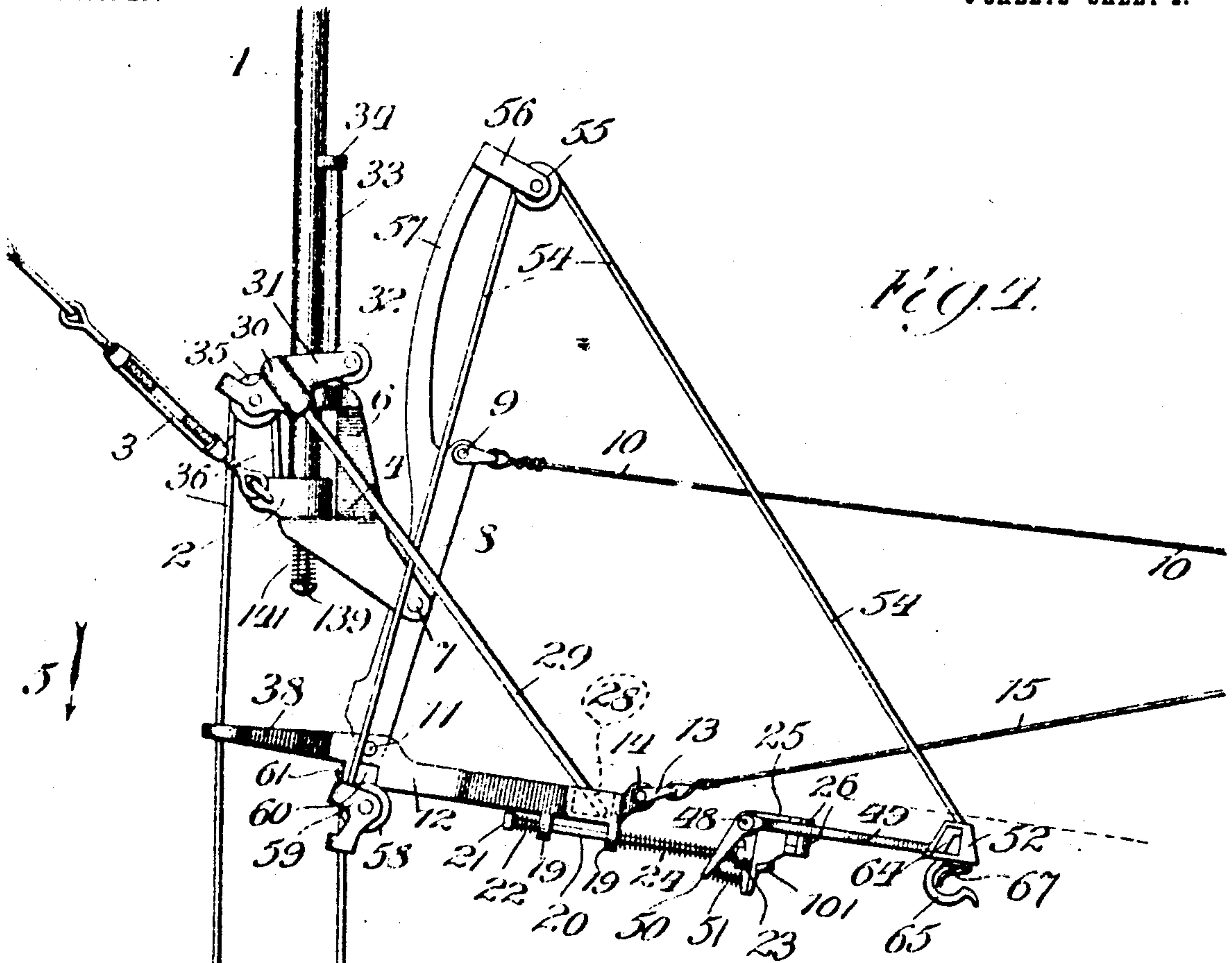
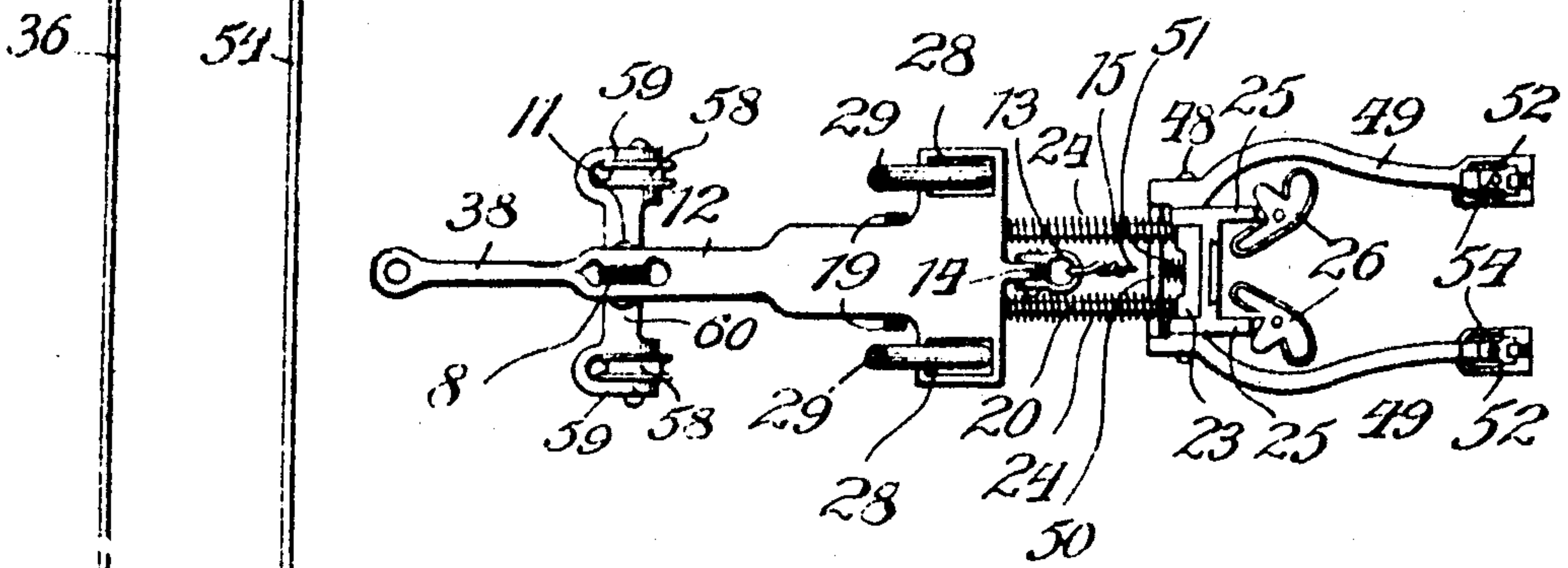


Fig. 5.



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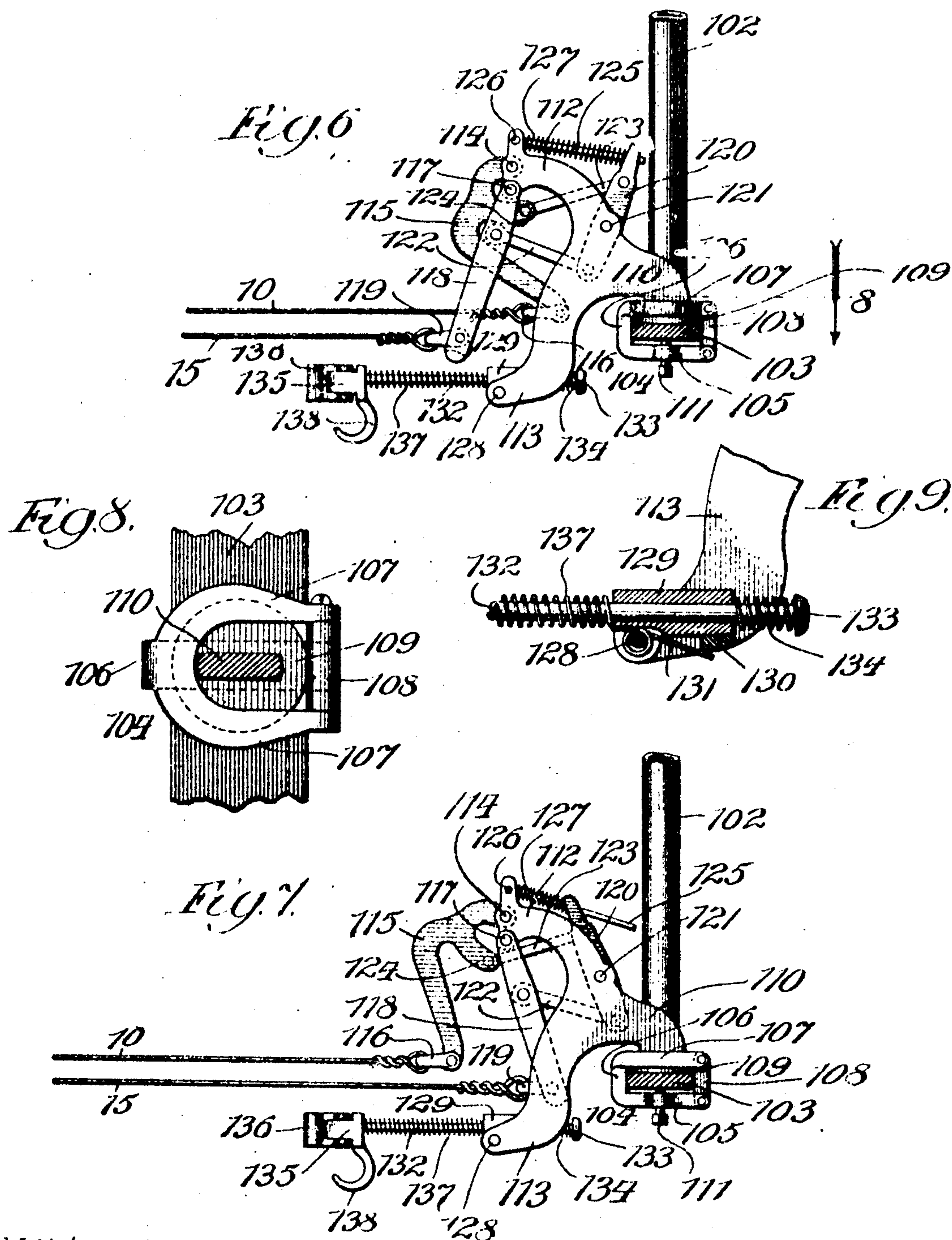


E. C. GIPE.  
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NO MODEL.

5 SHEETS—SHEET 3.



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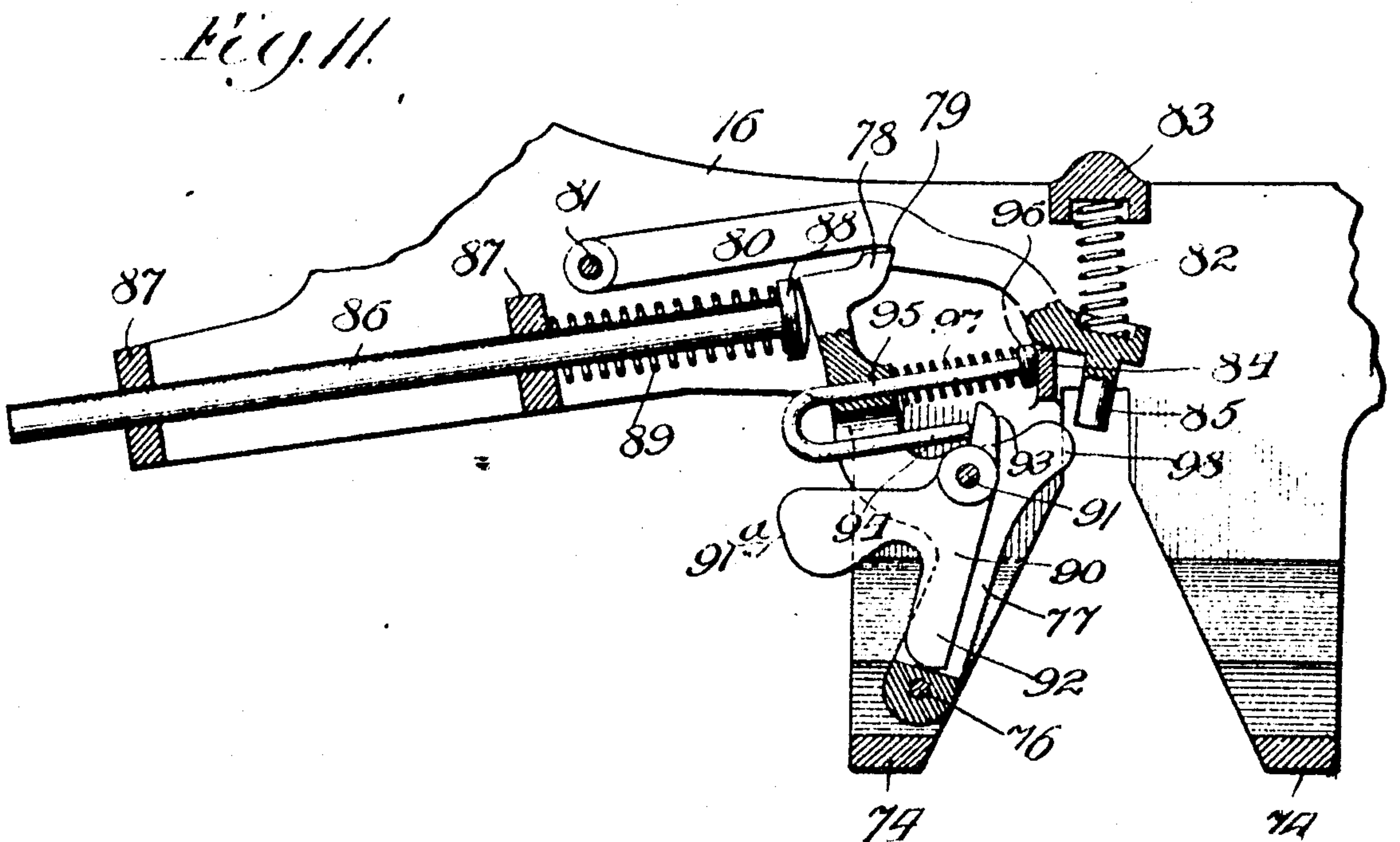
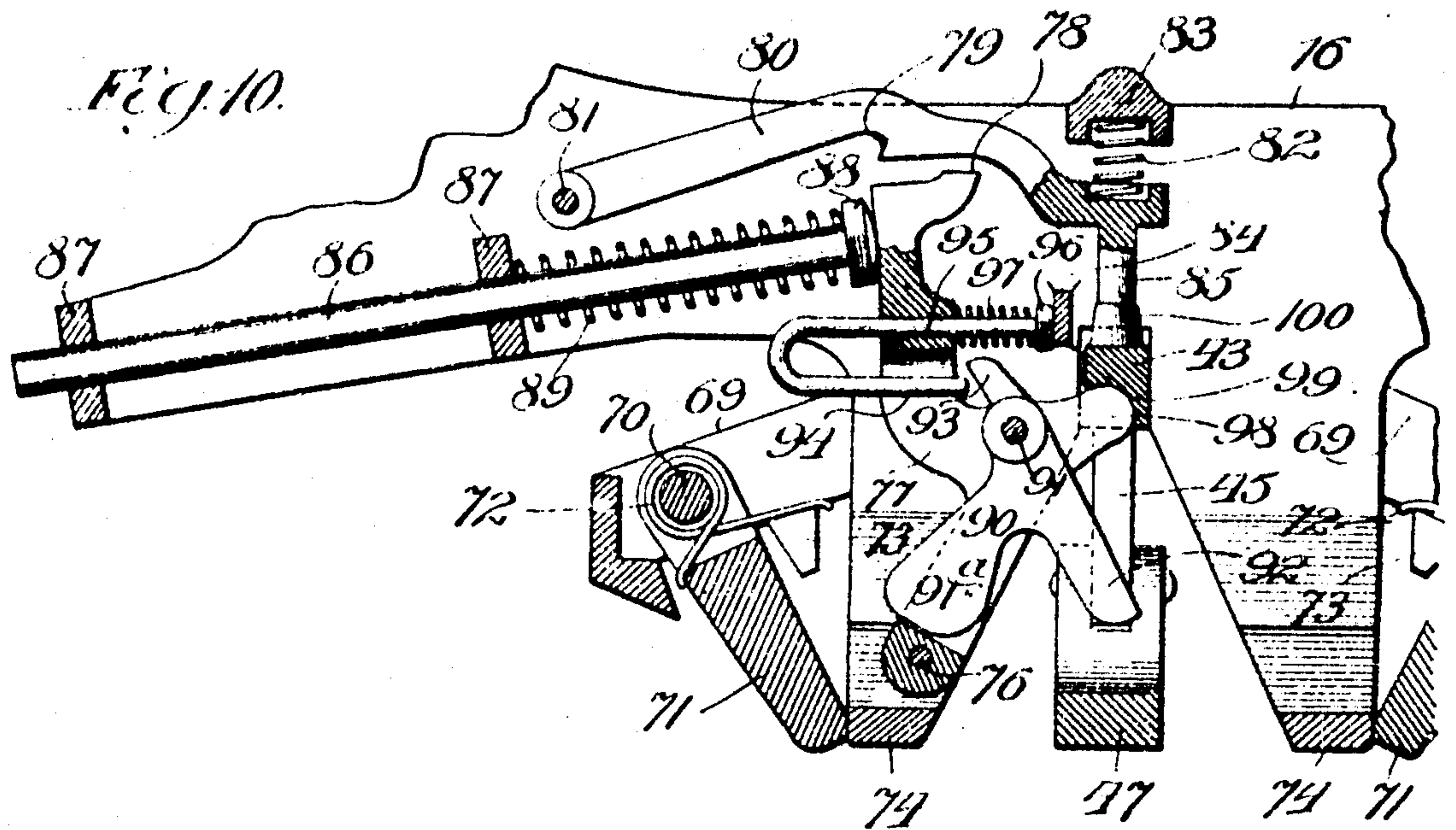
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E. C. GIPE.  
STORE SERVICE APPARATUS.

APPLICATION FILED APR. 9, 1904.

NO MODEL.

5 SHEETS—SHEET 4.



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No. 775,967.

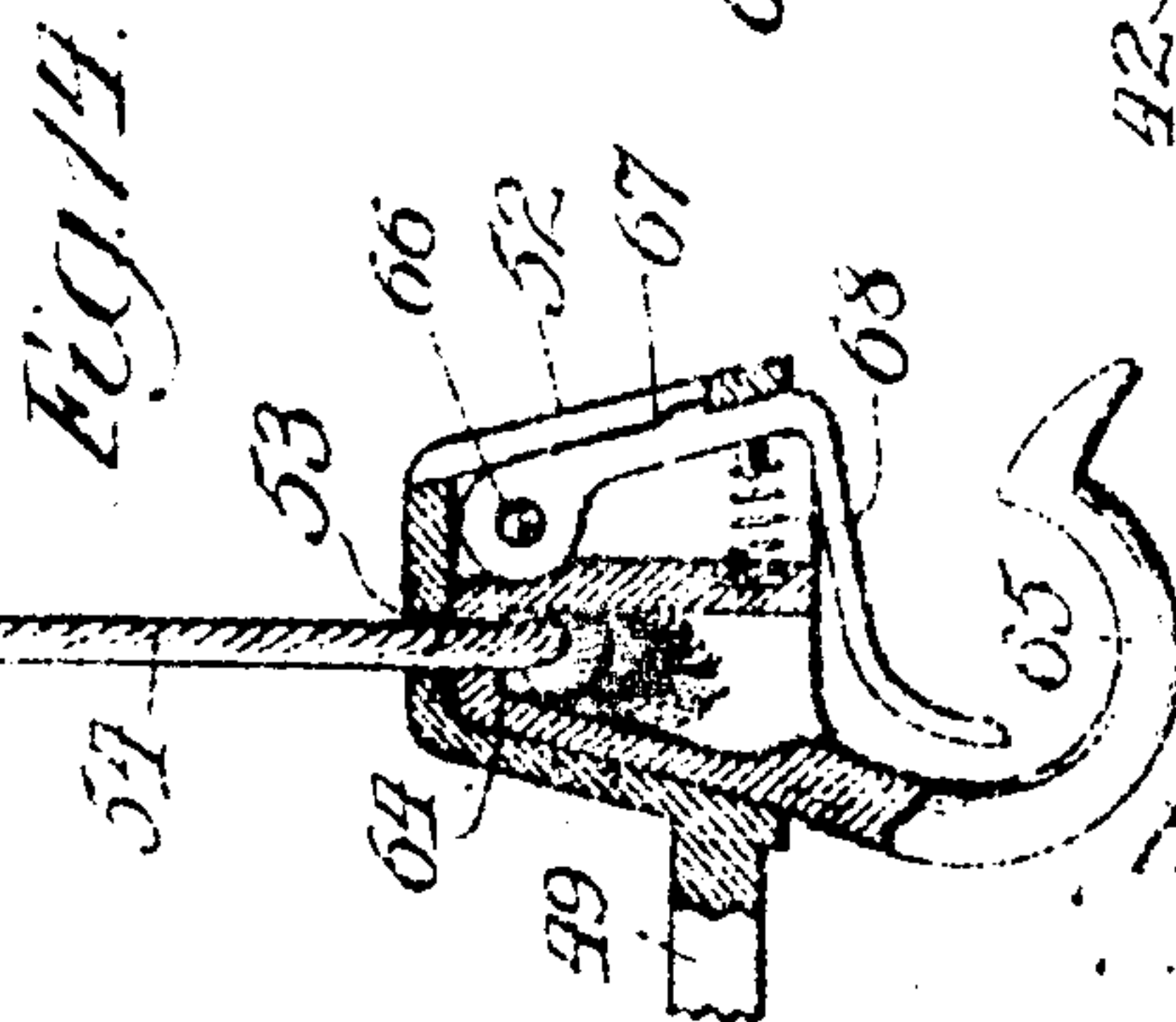
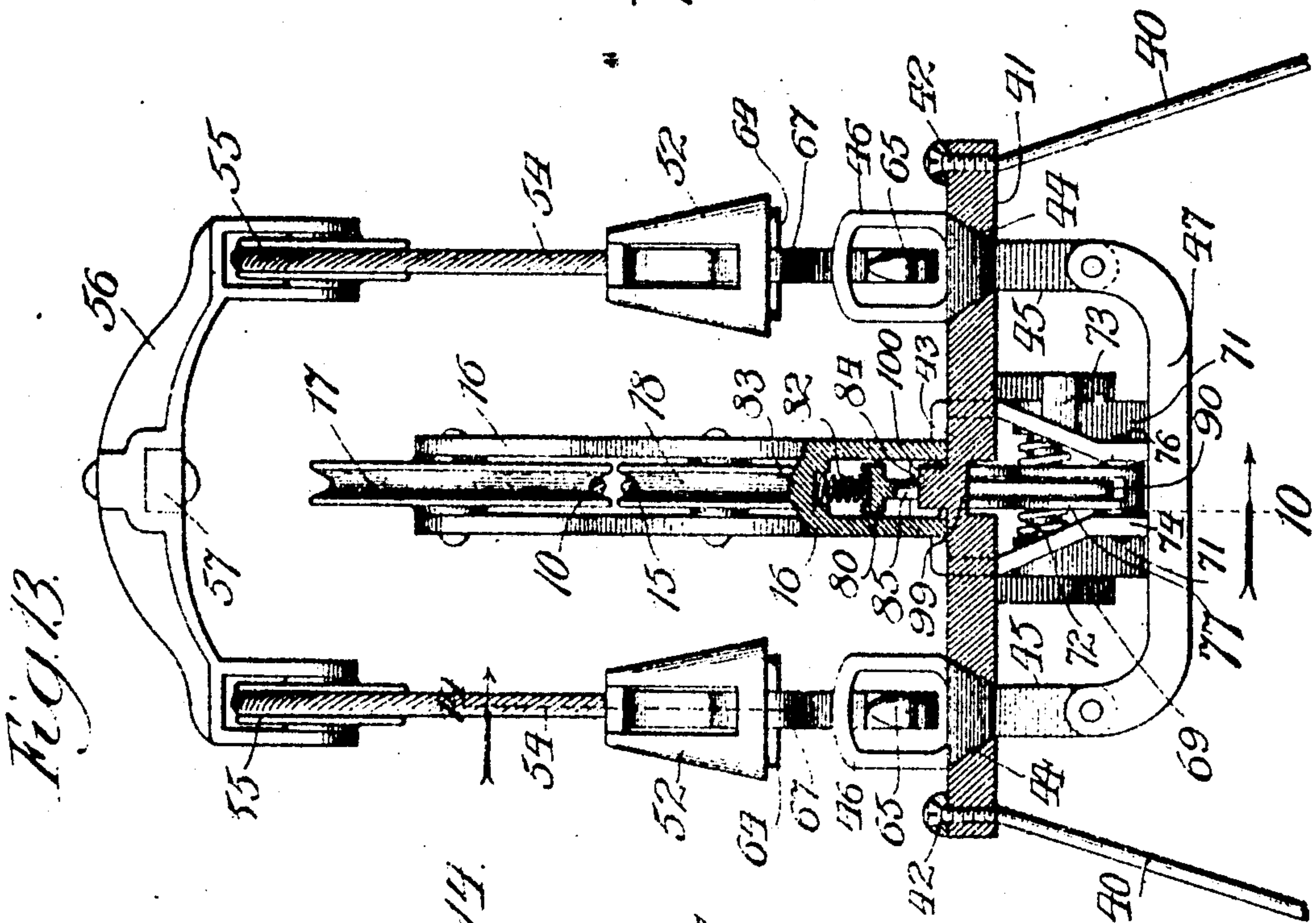
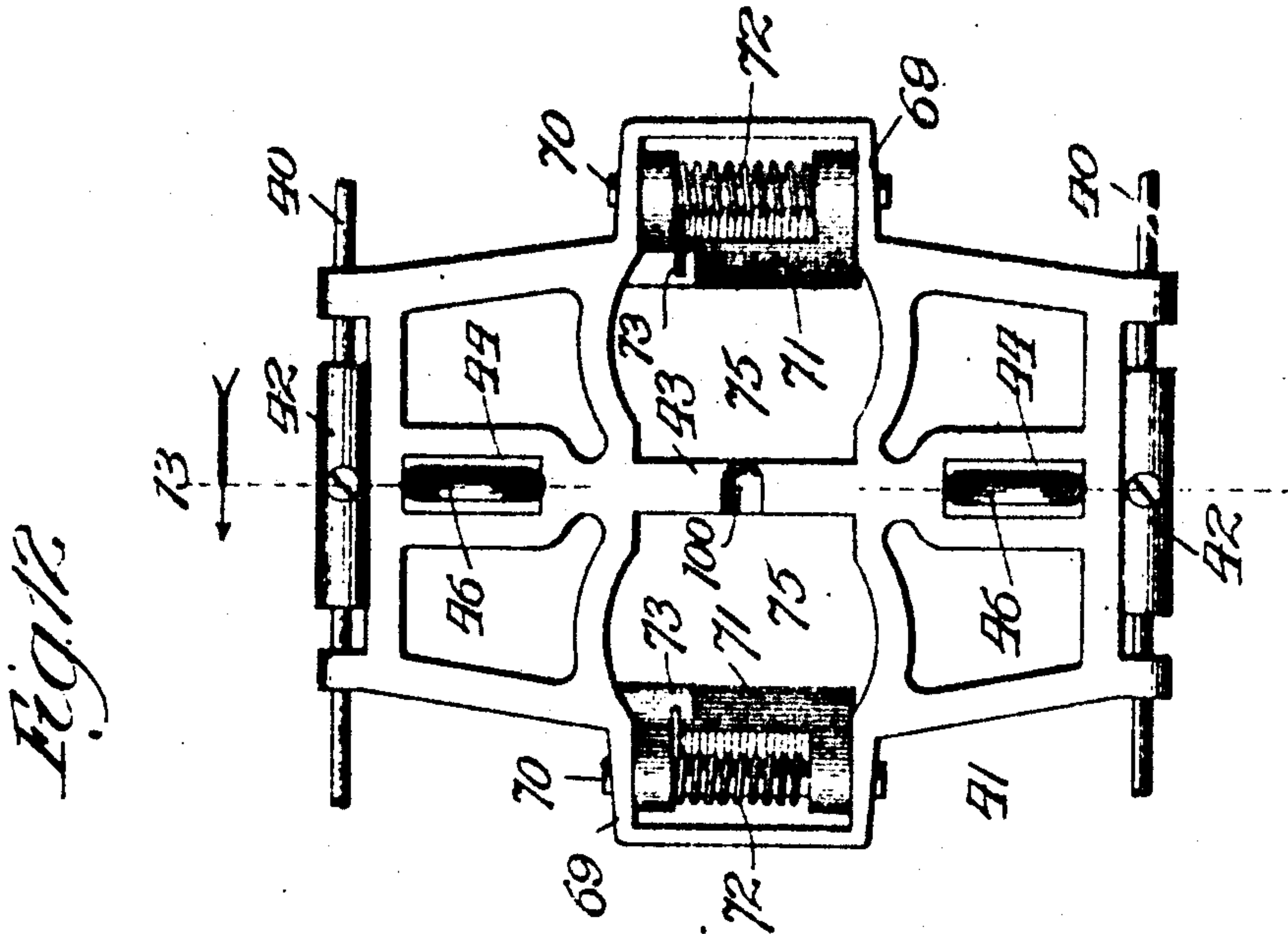
PATENTED NOV. 29, 1904.

E. C. GIPE.  
STORE SERVICE APPARATUS

APPLICATION FILED APR. 9, 1904.

NO MODEL.

5 SHEETS—SHEET 5.



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Att'y.



## UNITED STATES PATENT OFFICE.

EMANUEL C. GIPE, OF CHICAGO, ILLINOIS.

## STORE-SERVICE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 775,967, dated November 29, 1904.

Application filed April 9, 1904. Serial No. 202,399. (No model.)

*To all whom it may concern:*

Be it known that I, EMANUEL C. GIPE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Store-Service Apparatus, of which the following is a description, reference being had to the accompanying drawings, forming a part of this specification, in which corresponding reference-numerals in the different figures indicate like parts.

My invention relates to store-service apparatus, and more particularly to carriers designed to carry packages in connection with what is known as the "spread-wire" system, and especially upon grade-lines in which that system is employed, and among important objects of my invention are included means for propelling the car with greater ease and certainty, improved mechanism for elevating and lowering the detachable receptacle, improved locking and releasing means for securing the receptacle to and disengaging it from the car, means for preventing the propulsion of the car from the station until the receptacle is securely locked thereto, means for cushioning the vibration of the receptacle when the car is stopped at a given station, special means for maintaining parallelism between the supporting-wires at all times except when the car is being propelled from the salesman's station, and means for returning the motor elements to their respective normal positions, as well as specific details of construction hereinafter more fully pointed out, and the novel features of which are more particularly set forth in the claims.

In the drawings, Figure 1 is a side elevation of a package-carrier representing a portion of the supporting and propelling wires, the supports therefor, and the propelling mechanism at the salesman's station, including the features of my invention in connection therewith. Fig. 2 is a sectional view in plan, taken upon the line 2, Fig. 1. Fig. 3 is an enlarged view in detail, partly in central vertical section, of portions of the anchoring and propelling mechanism shown in Fig. 1. Fig. 4 is a side elevation of the features shown in Fig. 1, the movable parts being shown in their abnormal or reverse positions. Fig. 5 is a plan view

taken upon the line 5, Fig. 4. Fig. 6 is a side elevation of the mechanism intended to be employed at the cashier's station, the clamping-bar being shown in section and the several movable parts in their respective normal positions. Fig. 7 is a like view showing the movable parts in reverse positions. Fig. 8 is a sectional view in plan, taken upon the line 8, Fig. 6. Fig. 9 is an enlarged view, partly in longitudinal vertical section, of a portion of the stop-and-releasing mechanism shown in Fig. 6. Fig. 10 is an enlarged longitudinal vertical sectional view taken upon the line 10, Fig. 13, viewed in the direction of the arrow there shown and illustrating the automatic locking mechanism with the parts in their respective positions as they would appear when the receptacle is locked to the car. Fig. 11 is a like view showing the locked parts reversed. Fig. 12 is a plan view of the locking-plate at the top of the basket-hail for locking the basket or goods-carrying receptacle to the body of the car. Fig. 13 is a vertical sectional view taken upon the line 13, Fig. 12, viewed in the direction of the arrow there shown, representing a portion of the car, the stirrup mechanism, and the locking-plate; and Fig. 14 is a side view, partly in central vertical section, of one of the hooks adapted to engage one of the eyes in the stirrup mechanism, said part being viewed as indicated by the arrow 14, as shown in Fig. 13.

Referring to the drawings, 1, Figs. 1 to 4, inclusive, represents the usual tubular hanger, attached to and depending from the ceiling. Tapped upon the lower end of said tubular hanger is a fitting 2, which serves as a means for attaching the usual braces 3 and also as a partial support for a fitting (generally designated by 4) which is loosely swiveled upon the lower portion of said fitting 2, as indicated in Fig. 3, and retained in place by means of a nut 5 or other suitable fastening. An upwardly and inwardly bent arm 6 is provided with a notch upon said inwardly-bent portion at its upper end, which is arranged to bear loosely against said hanger to serve as a brace for the purpose hereinafter stated. Pivotaly attached at 7 to the lower end of the part 4, which is bifurcated to receive the same and is extended forward, as shown, to serve as a



bearing therefor, is a lever 8, to which is loosely attached at 9 a clevis, as shown, which forms an anchorage for the upper wire 10 of a wireway. Pivoted at 11 to the rear end of the lever 8 is a bar 12, which I prefer to designate as the "actuating-bar." (Shown in Figs. 1, 3, 4, and 5.) Said bar is provided with a clevis 13, attached to a lug 14 thereon, to which clevis is attached the lower wire 15 of the two wires for supporting and propelling the car. The car 16 is provided with the usual upper and lower wheels 17 17 18 18, Fig. 1, between which the wires 10 and 15 are disposed, as shown. Upon the lower side of the bar 12, at or near its forward end, are formed lugs 19 through bores in which are loosely inserted two parallel rods 20 20, Figs. 1, 4, and 5, upon the rear end of each of which is formed a nut 21, between which and the rear lug 19 is interposed a spiral spring 22. The forward ends of the rods 20 are rigidly attached to a casting 23, between which and the forward lug 19 there is interposed a coiled spring 24 upon each of said rods. The casting 23 forms a buffer-plate for the impact of the car as it enters the station, and the springs 24 serve to cushion said impact. Formed upon the casting 23 are parallel extensions 25 25, upon the ends of which are pivoted upon vertical axes spring-controlled wings 26 26, Fig. 5, which are adapted to engage a T-shaped catch 27 upon the end of the car, one of which is shown upon the forward end of the car. Said buffer and catch mechanism having been described in a former application, I make no claim thereto in this.

Having thus generally described the car, the propelling lever and bar, the stop, and catch mechanism, I will now describe the mechanism for actuating the propelling lever and bar for releasing and forwarding the car.

The bar 12 is expanded in width at its outer end and is provided with two recesses 28 28 in its upper face, (shown in Fig. 5 and indicated in dotted lines in Figs. 1 and 4,) into which are loosely inserted the lower ends of two forwardly and downwardly inclined parallel rods 29 29, the upper ends of which are attached to a fitting 30, Figs. 1, 2, and 4, which is provided with forwardly-projecting parallel arms 31; arranged to straddle the hanger 1. Mounted in a suitable bearing in the outer ends of said arms is a grooved friction-roller 32, arranged to roll upon a vertical rod 33, the lower end of which is tapped into the upper end of the fitting 6, while to the upper end is attached a block 34, notched, as shown in Fig. 2, to fit against the hanger 1, the rearward pressure of the friction-roller against the rod 33 serving to press the block against the hanger. Within a suitable housing upon the rear end of the fitting 30 is a grooved pulley 35, over which is trained a pull-cord 36, having one end knotted or otherwise secured in a bore 37, Fig. 3, formed in the stationary

fitting 2. Said cord, which is provided with a handle 37 at its lower end, is passed loosely through a bore in the end of an arm 38, which is extended rearwardly from and forms a part of the bar 12. The sole object of this construction is to provide means for holding the cord away from other parts of the construction with which it might otherwise interfere.

The goods-carrying receptacle 39, Fig. 1, commonly known as the "basket," is suspended by means of wire bails 40 to a horizontally-arranged plate 41, (better shown in Figs. 12 and 13,) which wires are held in place by means of keepers 42, screwed to said plate. The plate is cast in open-work, as shown in Fig. 12, and is provided with a cross-bar 43, adapted to engage with a locking mechanism hereinafter described, which is located upon the car. The locking-plate is provided with openings 44 44, in alignment with the cross-bar, into each of which is inserted a member 45, having an enlarged loop 46 at the top adapted to project above the plate for the purpose hereinafter stated. Each of said parts is made wedge-shaped or otherwise so constructed as to limit its downward movement, and the lower portion of each projects considerably below the plate, as shown, the two being jointly attached to a cross-bar 47, the whole forming a stirrup which is loosely but permanently connected with the locking-plate and adapted, by means of the mechanism hereinafter stated, to cause the locking and unlocking of said plate to and from the car and to raise and lower the basket.

Pivoted at 48, Figs. 1, 4, and 5, to the part 28 is a bent U-shaped lever having forwardly-extended arms 49 49, which inclose the catch mechanism, as clearly shown in Fig. 5, and are connected at the rear by means of a downwardly-inclined part 50, which extends beneath the rods 20 and between which and a depending lug upon the part 23 is interposed a coiled spring 51, which tends to depress the forward ends of the arms 49, the extent of said depression being limited by the part 50, which is thereby brought into contact with the rods 20, or any other obvious means may be employed for accomplishing said result.

Upon the forward end of each of the arms 49 is formed a housing 52 in the shape of an inverted cup, Figs. 1, 4, 5, 13, and 14, but better shown in said last two figures, which housing is provided with an opening 53, Fig. 14, in the top for the passage of a cord 54. The two cords 54 are arranged parallel to each other and are trained over pulleys 55 55 upon the opposite ends of a cross-bar 56, (better shown in Fig. 13,) rigidly attached to the outer end of an arm 57, which forms an extension of the lever 8.

The length of the arm 57 is such that when the lever 8 and bar 12 are in their respective normal positions, as shown in Fig. 1, the outer periphery of the pulleys 55 will be directly



over the openings in the housing 52, so that the cords passing through said openings will be vertical. The cords 54 are carried back upon opposite sides of the lever 8 and trained over pulleys 58, but one of which is shown secured in housings 59 upon opposite ends of a cross-bar 60, pivoted at 61 to the bar 12, as shown in Figs. 1, 3, 4, and 5. The cords 54 are extended downwardly from the pulleys 58 parallel to each other and connected to the laterally-extended ends of a metal casting 62, which serves as a weight to keep the same from twisting and from the middle of which is caused to hang a single operating-rope 63, Fig. 1.

To the forward ends of each of the cords 54 is attached a metal plug 64, which is tapered, as shown, and adapted to extend loosely into the housing 52, as clearly shown in Fig. 14. Upon each of said plugs is a forwardly-extended hook 65 of such length and construction that the loops 46 are free to pass into engaging positions therewith, as shown in Fig. 13, when the car arrives at the salesman's station. Pivoted to the plug at 66, Fig. 14, is a keeper 67, the lower portion of which is bent rearwardly, as shown, and between which and the body of the plug is interposed a coiled spring 68, which acts when the plug is not inclosed within the part 52 to throw the keeper outwardly so that its lower end will touch the upturned end of the hook, thereby preventing the loops 46 from becoming disengaged from the hooks while the basket is being raised and lowered. As long, however, as the plugs are held within the housings 52 the keepers are forced back by contact with the housings into the positions shown in Figs. 1 and 14, thus leaving the loops free to enter the hooks. As long as the plugs are thus retained within the housings the pressure of the springs 68 upon the keepers serve to hold said plugs therein with a slight frictional action, and inasmuch as the downward movement of the arms 49 is limited, as described, the hooks are normally held slightly above the locking-plate 41, as shown in Fig. 14.

As is well known, when the car is stopped at the end of the line there is a considerable strain upon the basket-supports owing to the severe vibration caused by the sudden stoppage. In order to cushion this vibration, I have provided the following-described mechanism: Upon the front and rear, respectively, of the locking-plate is a downwardly-inclined part 69, Figs. 1, 10, and 12, within each of which is pivoted at 70 an inwardly-inclined buffer-plate 71, which is held in a normal position by means of a coiled spring 72, one end of which bears upon a stationary lug 73 and the other against said plate in the manner more clearly shown in Fig. 10.

The car frame 16 is provided at its middle with depending legs 74 74, Figs. 1, 10, and 11, the outer faces of which are vertical, while

the inner opposite faces are inclined, as shown. When the locking-plate is locked to the car, the legs project downwardly through the openings 75 75, Fig. 12, in said plate, thereby causing the buffer-plates 71 to bear against the outer faces of said legs with a spring-pressure in the manner indicated in Figs. 1 and 10. Upon a sudden stoppage of the car the buffer-plates by bearing upon the frame in the manner described serve to cushion the vibrations of the basket. It should be remembered in this connection that the plate 41 is not rigidly locked to the car, but that a limited play thereof is provided, as will be understood in connection with a description of the locking mechanism, which is as follows:

The frame of the car (generally designated by 16) is made up of two corresponding parallel plates upon opposite sides of the carrying-wheels, as clearly shown in Fig. 13. Pivotaly secured at 76, Figs. 10, 11, and 13, between said frame-plates near the lower end of one of the legs 74 is a dog (generally designated as 77) which is extended upwardly, as shown, nearly to the top of the car-frame and is provided with a detent 78 at its upper end, which is adapted to engage with a notch 79 upon the lower face of a trigger-arm 80, pivoted at 81 within the frame. The forward end of said trigger is held down by means of a coiled spring 82 interposed between it and a cross-bar 83 at the top of the frame, said downward movement being limited by means of a cross-bar or lug 84 cast upon one of the frame-plates. A finger 85 is formed upon the end of said trigger, which projects downwardly into the space between the legs 74. A rod 86, the rear end of which is also shown in Fig. 1, is arranged to slide loosely in bores formed in cross-pieces 87. The forward end of said rod is provided with a head 88, between which and the forward cross-piece 87 is interposed a spiral spring 89, adapted to press said head against the dog 77 and move the latter forward to the position shown in Fig. 10 when not withheld by the interposition of the trigger 80.

The dog 77 is cored out, so as to provide a vertical space or slot, within which is loosely suspended a gravity-dog 90, pivoted upon a horizontal axis at 91. Said dog is provided with a weighted arm 91" and a secondary depending arm 92, which is caused by the action of the weight 91" to assume the position shown in Fig. 10 directly above and in the vertical pathway of the stirrup 47 when not otherwise held by the mechanism hereinafter described. Formed upon the dog 90 above the pivot 91 is a short arm 93, adapted to be engaged by the end 94 of a bent rod, the main body 95 of which is passed through a bore in the upper part of the dog 77, in which it is free to slide. A head 96 is formed upon said rod, which abuts against the part 84. A spring



97, interposed between said head and the dog, tends to push the dog away, while holding the head seat at all times against the part 84. The spring 89 is much stronger than the spring 97 and serves when the trigger 80 is released to push the dog 77 forward against the action of the spring 97.

The dog 77 has a projection or shoulder 98 thereon, which is normally held out of the path of movement of the cross-bar 43 of the locking-plate 41, but is adapted to engage with a notched or cut-away portion 99, upon the under side thereof, as shown in Figs. 10 and 13, when said cross-bar is passed upwardly into the space between the legs 74 in order to be locked to the car. Upon the upper face of the bar 43, at its middle, is an upwardly-projecting stud 100, Figs. 10, 12, and 13, which when the bar 43 is raised is adapted to engage the finger 85 and release the trigger 80, thereby permitting the dog 77 to be thrown forward by the action of the spring 89, while the part 94, which engages the arm 93, remains stationary; but inasmuch as the pivotal point of the dog 90 is moved forward with the dog 77 the arm 93 is freed from the part 94 and the weight 91<sup>a</sup> is free to descend and move the arm 92 into the path of the stirrup. This action will be herein- after more particularly referred to in describing the general operation of the machine.

The rear end of the rod 86 is caused to extend beyond the body of the car sufficiently when the parts of the locking mechanism are in unlocked positions to project beneath a cross-bar 101 upon the part 23, Fig. 1, thereby preventing the downward movement of the latter in the manner and for the purpose hereinafter described.

I have stated that the lever 8 and bar 12 are normally in the respective positions shown in Fig. 1. Nothing, however, is shown in such figure for returning them to such positions or causing them to maintain such positions. This might be accomplished by means of a coiled spring at the joint 11 or in other obvious ways; but I prefer to accomplish it by means located at the opposite end of the line—such, for example, as those shown in Figs. 6 and 7.

It is customary to cause a number of lines from different stations to converge at a cashier's desk. This I accomplish by means of two or more hangers, only one of which, 102, is shown, said hangers being suspended from the ceiling in the usual way and connected by means of a horizontal bar 108. (Also shown in Fig. 8.) Upon said bar are placed as many adjustable clamps (generally designated by 104) as there are lines. Each of said clamps consists of a bottom plate 105, connected, by means of an integral vertical part 106, with a U-shaped top portion consisting of arms 107 107. The parts opposite to the part 106 are connected, by means of a removable hinged

link 108, with the arms 107. The space between the plate 105 and arms 107 is greater than the thickness of the bar 103 and before securing the link in place enables a disk 109, Figs. 6, 7, and 8, which is integral with and forms the base of a bracket 110, to be inserted between. Said disk is larger in diameter than the space between the arms 107, and when placed beneath them and the link 108 secured in place the whole may be tightened and securely held by means of a set-screw 111, projected through the bottom plate. The bracket 110 after extending forward somewhat from the base is bifurcated and consists of arms 112 and 113, formed from parallel plates sufficiently separated to allow for the insertion between them of a system of compound levers and other mechanism, as hereinafter stated. Pivoted at 114 to the upper arm of the bracket is a bent lever 115, to the lower end of which is attached a clevis 116, to which the upper wire 10 is secured. Upon the same arm of said bracket at 117 is pivoted a secondary lever 118, which is composed of separated parallel plates, so as to straddle the lever 115 when the two are moved in opposite directions. A clevis 119 upon the lower end of said lever serves as an attachment for connecting the wire 15. The two levers described are controlled in their movements by means of a third lever 120, which is pivoted at 121 to the bracket. The lower end of said lever is connected, by means of a link 122, to the body of the lever 118 above its middle, while a link 123 connects the upper portion of said lever with the end of a short inwardly-extended arm 124. A rod 125 is pivotally attached at 126 to the upper end of the bracket and is extended loosely through a bore in the upper end of the lever 120. A spring 127, mounted upon said rod between the lever 120 and said bracket, tends to push said end of said lever back to its normal position, as indicated in Fig. 6.

Between the plates of the bracket forming the part 113 is pivoted at 128 (also shown in Fig. 9) a fitting 129, which is retained normally in a horizontal position against a stop 130 by means of a coiled spring 131. Said fitting is bored to receive parallel rods 132, upon the rear end of which is formed a head 133, between which and the fitting 129 is interposed a spiral spring 134. The forward ends of said rods are rigidly secured to a fitting 135, corresponding substantially to the buffer-plate 23 at the opposite end of the line and having spring-controlled stop-wings 136, pivoted thereon in like manner and corresponding in every respect to the stops or wings 26. (Shown in Fig. 5.) Buffer-springs 137 serve to cushion said buffer-plates, while a hook 138 enables the stops to be disengaged from the car in the manner hereinafter stated.

In order to cushion the action of the lever



8, Figs. 1, 3, and 4, as it is returned to its normal position by the recoil of the spring 127, Fig. 6, a buffer-rod 139, having a head upon its lower end, is loosely projected through a vertical bore in the fitting 2 and secured in place by means of a nut 140, Fig. 3, upon its upper end. A coiled spring 141 serves to force said buffer-rod downwardly, so that when the rear end of the lever 8 is brought into contact therewith the action of the latter is cushioned in an obvious manner.

Having thus described the several parts of my improved device, I will now explain its operation. Assuming the car to have arrived at the salesman's station, as shown in Fig. 1, it is of course necessary that it should be lowered to permit the removal of the goods, which may be accomplished as follows: Upon reaching the station it is obvious that the loops 46 will have entered the hooks 65, standing in such relation thereto that when the operator pulls upon the cord 63 the cords 54 will thereby act to lift said hooks and with them the stirrup 47, which is thus brought into contact with the arm 92 of the gravity-dog. (Shown in Fig. 10.) Said arm is thereby lifted, thus forcing the upper end of the dog 77 back against the action of the spring 89. At the same time the shoulder 98 is withdrawn from contact with the locking-bar, whereupon the weight of the basket will cause the latter to descend, thus allowing the trigger to engage the detent 78 of the locking-dog. The basket being suspended from the loops 46, the plugs 64, which are normally held in place within the housings 52 by the slight frictional action of the springs 68, as hereinbefore stated, are drawn out of their housings by the weight of the basket and descend therewith when the latter is lowered by means of the cords 54, the carriage in the meantime being supported upon the wireway and locked in position at the end of the way by means of the catch 27, which is in engagement with the rings 26. The wrapped goods having been removed from the basket and another consignment placed therein to be sent to the cashier's station, the basket is raised by pulling upon the cords 54 until the stud 100 upon the cross-bar 43 engages the finger 85, then in the position shown in Fig. 11, which action serves to lift the trigger 80 and to release the detent 78 upon the dog 77 from the notch 79, thereby allowing the rod 86 to be thrown forward by the action of the spring 89, thus forcing the dog 77 forward until the shoulder 98 thereon is brought into engagement with the cross-bar 43 in the manner shown in Fig. 10. The basket is thereby securely locked to the car, while the plugs 64 are inclosed within the housings 52, Figs. 1, 13, and 14, and the tension upon the cords 54 being released by the operator the action of the spring 51 throws the arms 49 downwardly, as shown in Figs. 1 and 13, so that the hooks 65 are sufficiently lowered to permit the

car to be forwarded without contact between the loops 46 and said hooks. The operator then grasps the handle 37 and pulls downwardly upon it, thereby drawing the fitting 30 downwardly in its guideway and causing the rods 29 to depress the forward end of the bar 12. This downward pressure, acting, as it does, at the same time upon the pivotal point 11, serves to depress the rear end and raise the forward end of the lever 8 with corresponding force. The first result of this movement is to throw the wings 26 downwardly out of contact with the catch upon the end of the car and to release the latter. The next result is to spread the wires 10 15 with great energy against the rear opposing wheels of the car, thereby propelling the latter up any desired grade to its destination. The extreme abnormal positions of the propelling parts referred to are shown in Fig. 4. In order to provide for the movement described of the lever 8 and bar 12, it is essential that a corresponding longitudinal movement of the wires 10 and 15 should be provided for. This result may be accomplished either by duplicating said lever and bar mechanism at the opposite end or by providing the compound-lever system above described. The former construction necessitates the spreading of the wires at one end while they are together at the other, but the latter enables them to be substantially parallel at all times except during the act of propulsion. This feature is of special importance in connection with package-carriers in that it enables them to be used in connection with grade-lines. Should the operator fail upon raising the basket to the car to lock it thereto before pulling the propelling-cord, he will at once discover the defect from the fact that the car-releasing mechanism cannot then be operated, owing to the fact that the bar 12 cannot be moved downwardly until the rod 86 is moved forward out of contact with the part 101, Fig. 1, and said rod can only be moved forward when the basket is locked to the car. This feature is important, inasmuch as it prevents the car from being prematurely forwarded. When the propelling parts are in their respective normal positions, as shown in Fig. 1, the compound levers at the opposite end of the line assume the several positions indicated in Fig. 6, while Fig. 7 indicates the reversal thereof to correspond to the position shown in Fig. 4, it being understood that that portion of the wires between the car and the parts 115 118 are parallel, being held together by the opposing wheels, while the parts between the car and the parts 8 and 12 are temporarily at an angle to each other. Upon releasing the propelling-cord 36 the spring 127 expands, thereby returning all of the parts under consideration to their respective normal positions, when of course the wires 10 and 15 will be parallel throughout their length.



This reversal may occur before or after the arrival of the car at the cashier's station without affecting the action of the car, provided sufficient force is exerted upon the cord 36. Upon arriving at the cashier's station the catch 27, Fig. 1, upon the car is engaged by the stop mechanism 136. When necessary to return the car, the operator pulls downwardly upon the hook 138, thus withdrawing the parts 136 from contact with the catch, when the car rolls by gravity down the grade to the salesman's station.

The mechanism by which I am enabled to apply a direct and substantially equal force in separating the outer ends of the lever 8 and bar 12 enables me to apply my invention to package-carriers upon grade-lines, which is a matter of great importance in connection with a spread-wire system. My improved locking, releasing, and elevating mechanism likewise possess marked advantages.

An obvious advantage in having the basket-suspending and lock-releasing stirrup travel with the car is that it is always maintained in a fixed and constant relation to the locking-plate regardless of the different sag of the wires from varying strains therein; but it also avoids the objection incident to having the goods catch therein when the car is forwarded.

An advantage of having the pulleys 58 pivotally suspended from the rear end of the actuating-lever is that the pull-cords may not only be at all times in alinement with the wires, but any variation in pull from a vertical plane will be compensated by the swing of said pulleys upon the pivot 61, so that the locking-bar when lifted thereby will maintain a horizontal position.

Having thus described my invention, I claim—

1. In a store-service apparatus, the combination with a track or way consisting of double wires, one above the other, a carrier having opposing wheels arranged to engage said wires respectively, mechanism for forcibly separating said wires consisting of a swinging lever pivoted between its ends to a stationary support with one end jointly connected to one of said wires, a bar jointly connected at one end to the opposite end of said lever while the other end of said bar is attached to the second of said double wires, a downwardly and forwardly inclined rod in operative connection with the forward end of said bar, means for guiding the upper end of said rod, and means for applying a downwardly-propelling force to the upper end of said rod to cause the separation of the free ends of said lever and rod.

2. In a store-service apparatus, the combination of a track or way composed of double wires, one above the other, a carrier having opposing wheels arranged to engage said wires respectively, mechanism for forcibly separat-

ing said wires consisting of a lever pivoted between its ends to a stationary support with one end jointly connected to one of said wires, a bar jointly connected at one end to the opposite end of said lever while the other end of said bar is attached to the second of said double wires, a downwardly and forwardly inclined rod having its lower end in operative connection with the forward end of said bar, a fitting upon the upper end of said rod arranged to move upon a substantially vertical guideway, a pulley upon said fitting, and an operating-cord trained thereover for applying an endwise force to said inclined rod.

3. In a spread-wire store-service system, the combination with the wires respectively and a car having opposing wheels, of a pivoted lever connected to one wire, a bar connected to the other, said bar and lever being jointly connected to each other at their rear ends, a rod pivotally connected to the forward end of said bar at an angle thereto, means for maintaining said rod at an angle to said bar, and means for applying an endwise force to said rod for actuating said bar.

4. In a spread-wire store-service system, the combination with the respective wires and a car having wheels opposed thereto, of a lever pivoted to a stationary point, said lever being connected to one of said wires, a bar connected to the other, said bar and lever being jointly connected to each other at their rear ends, a rod pivotally connected to the forward end of said bar at an angle thereto, a fitting upon the opposite end of said rod having a friction guide-roller thereon, a substantially vertical guideway therefor, and means for applying an endwise force to said rod to actuate said bar.

5. In a spread-wire store-service system, the combination with the wires respectively and a car having wheels opposed thereto, of a lever pivoted to a stationary support, said lever being connected to one of said wires, a bar connected to the other wire, said bar and lever being jointly attached to each other at their rear ends, a rod pivotally connected to the forward end of said bar, said rod lying substantially in the plane of movement of said bar, but at an angle thereto, means for maintaining said rod at an angle to said bar, means for applying an endwise force to said rod for actuating said bar, and means for yieldingly maintaining said lever, bar and rod in normal positions respectively.

6. In a spread-wire store-service system, the combination with the wires respectively and a car having opposing wheels, of a lever pivoted to a stationary support, said lever being connected to one of said wires, a bar attached to the other wire, said bar and lever being jointly connected to each other at their rear ends, a rod pivotally connected with the forward end of said bar, said rod lying substantially in the plane of movement of said



bar but at an angle thereto, a fitting upon the opposite end of said rod, a substantially vertical guideway therefor, a pulley upon said fitting and an actuating-cord trained over said pulley and having one end thereof attached to a stationary point.

7. In a spread-wire store-service system, the combination with the wires respectively and a car having wheels opposed thereto, of a lever pivoted to a stationary support, said lever being connected to one of said wires, a bar connected to the other wire, said bar and lever being jointly attached to each other at their rear ends, a rod pivotally connected to the forward end of said bar, said rod lying substantially in the plane of movement of said bar but at an angle thereto, means for applying an endwise force to said rod for actuating said bar, and a system of compound levers at the opposite end of the way in operative connection with said wires for maintaining normal parallelism between the wires while permitting an endwise movement thereof in opposite directions with respect to each other.

8. In a spread-wire store-service system, the combination with the wires respectively and a car having wheels opposed thereto, of a lever pivoted to a stationary support, said lever being connected to one of said wires, a bar connected to the other wire, said bar and lever being jointly attached to each other at their rear ends, a rod pivotally connected to the forward end of said bar, said rod lying substantially in the plane of movement of said bar but at an angle thereto, means for applying an endwise force to said rod for actuating said bar, a system of compound levers at the opposite end of the way in operative connection with said wires for maintaining normal parallelism between the wires while permitting an endwise movement thereof in opposite directions with respect to each other, and means for yieldingly maintaining said compound levers, and through them said first-named lever, bar and rod in their respective normal positions.

9. In a spread-wire store-service system, the combination with the wires respectively and a car having wheels opposed thereto, of a lever pivoted to a stationary support, said lever being connected to one of said wires, a bar connected to the other wire, said bar and lever being jointly attached to each other at their rear ends, an inclined rod having its lower end pivotally connected to the forward end of said bar, means for guiding the upper end of said rod, means for applying an endwise force thereto for actuating said bar and lever, means for returning said bar and lever to their respective normal positions, and means for cushioning the action of said members when so returned.

10. In a spread-wire store-service system, the combination with the wires respectively and a car having opposing wheels, of a lever

pivoted to a stationary support, said lever being connected to one of said wires, a bar connected with the other wire, said bar and lever being jointly attached to each other at their rear ends, elevating-cords trained over pulleys supported upon an extension upon the forward end of said lever, hooks upon the lower ends of said cords, a detachable basket having loops thereon adapted to engage said hooks, and means supported by said bar for normally maintaining said hooks in position to receive said loops.

11. In a spread-wire store-service system, the combination with the wires respectively and a car having opposing wheels, of a lever pivoted to a stationary support, said lever being connected to one of said wires, a bar connected to the other wire, said bar and lever being jointly attached to each other at their rear ends, elevating-cords trained over pulleys supported upon an extension upon the forward end of said lever, hooks upon the lower ends of said cords, a detachable basket having a suspending-stirrup with upwardly-projecting loops for engaging said hooks, means supported by said bar for normally maintaining said hooks in position to engage said loops, and an automatic locking mechanism upon the car adapted to be locked by the upward movement of the basket and to be released in turn by the upward movement of said stirrup.

12. In a spread-wire store-service system having double wires, the combination of a car having opposing wheels and a detachable basket, of a lever and bar hinged at their rear ends for forcibly separating said wires, an extension upon said lever for supporting an elevating-cord and hooks for raising and lowering said basket, means upon the forward end of said bar for yieldingly maintaining said hooks in a normal position, automatic locking mechanism upon said car, a lock-releasing stirrup with suspending-loops movably connected with said basket, and means for raising said stirrup through the action of said cords against the yielding tension of said hook-maintaining means.

13. In a spread-wire store-service system having double wires, the combination of a car having opposing wheels, of a lever and bar hinged together at their rear ends for forcibly separating said wires, a detachable basket, means for raising and lowering the same, an automatic locking mechanism upon the car arranged to be thrown into a locked position by the raising of the basket to the car, and means in operative connection with said actuating-bar for preventing movement of said bar while the basket is detached from the car.

14. The combination with a car and detachable basket having a cross-bar, of a car-body having depending legs, a locking mechanism consisting of a dog pivoted at its lower end to swing lengthwise of the car, a locking-shoulder



der thereon arranged to swing into the space between said legs and beneath said cross-bar when the latter is raised, yielding means for forcing said dog into a locking position, and  
5 a trigger for holding the same in an unlocked position, said trigger lying in the path of upward movement of said cross-bar.

15. The combination with a car and a detachable basket having a suspending cross-bar,  
10 of a car-body having depending legs between which said cross-bar is guided in its upward movement, a locking mechanism consisting of a spring-actuated dog pivoted at its lower end to swing lengthwise of the car, a shoulder  
15 thereon arranged to swing beneath said cross-bar when the latter is raised to release the trigger, a trigger extending into the pathway of said cross-bar, a vertically-movable releasing-stirrup suspended beneath said cross-bar,  
20 a gravity-dog pivoted to said locking-dog, the former having an arm arranged to move into the pathway of said stirrup when the basket is locked to the car, means for withholding the same therefrom when the basket is detached,  
25 and means for actuating said stirrup to release said locking mechanism.

16. The combination with a car and a detachable basket having a suspending cross-bar, of a car-body having depending legs between  
30 which said cross-bar is guided in its upward movement, a locking mechanism consisting of a spring-actuated dog pivoted at its lower end to swing lengthwise of the car, a shoulder thereon arranged to swing beneath said cross-  
35 bar when the latter is raised to release the trigger, a trigger extending into the pathway of said cross-bar, a vertically-movable releasing-stirrup suspended beneath said cross-bar, a gravity-dog pivoted upon said locking-dog  
40 above the pivotal point of the latter, said gravity-dog having an arm arranged to move into the pathway of said stirrup when the basket is locked to the car, a U-shaped spring-controlled rod loosely supported in a bore in said  
45 locking-dog, having a head upon one end arranged to bear against a stop, a light spring interposed between said head and locking-dog, and a short arm upon the upper end of said gravity-dog in position to engage the other  
50 end of said U-shaped spring.

17. In a store-service apparatus, the combination with a car having a detachable basket, of an automatic lock located upon the car, an automatic locking and releasing device permanently but movably supported upon the  
55 bail of the basket, elevating-cords and hooks at the end of the way in position to engage said locking and releasing device, the latter serving as a temporary connecting-link between the basket-bail and said elevating-cords.  
60

18. In a store-service apparatus, the combination of a car having a detachable basket, of an automatic lock located upon the car, a locking-plate upon the basket for engaging said  
65 lock, a movable stirrup permanently secured

to said locking-plate for releasing said locking mechanism, elevating means at the end of the way for engaging said stirrup to raise and lower the basket, and means for normally maintaining said elevating means above said  
70 locking-plate whereby, when the car is at the end of the way, the two may be in engaging positions.

19. The combination in a store-service apparatus, of a car having a detachable basket,  
75 an automatic lock mounted upon said car, a locking-plate upon said basket for engaging said automatic lock, a stirrup permanently suspended in said locking-plate, the body of said stirrup lying below said locking-plate,  
80 while loops thereon are extended above the same, said stirrup being capable of vertical movement with respect to said plate, and an elevating mechanism at the end of the way above said locking-plate in position to engage  
85 the loops of said stirrup.

20. A store-service apparatus comprising a car having a detachable basket in combination with an elevating mechanism located permanently at the end of the way, an automatic  
90 lock, and a vertically-movable lock releasing and suspending stirrup for engaging said elevating mechanism, said stirrup being permanently secured to and arranged to travel with the basket.  
95

21. The combination in a store-service apparatus of the class described, of a lever and actuating-bar for spreading the wires, a car having a detachable basket, elevating mechanism for raising and lowering the basket, a  
100 car-stop mechanism supported by said bar for releasing the car when said bar is actuated, and an automatic locking mechanism arranged to lock said basket to the car and to lock said actuating-bar against movement when said  
105 basket is detached.

22. In a spread-wire store-service apparatus, the combination of a car having wheels opposed to the spreading of the wires, a lever and bar hinged at their rear ends for spreading  
110 said wires, wire-supporting levers at the opposite end of the way for supporting said wires while permitting a substantially parallel movement thereof in opposite directions, and a spring-controlled lever having one end  
115 connected with one and the other end with the other of said wire-supporting levers for yieldingly maintaining the same in normal positions.

23. In a spread-wire store-service system  
120 the combination with the wires respectively and a car having opposing wheels, of a lever pivoted to a stationary support, said lever being connected to one of said wires, a bar connected with the other wire, said bar and  
125 lever being jointly attached to each other at their rear ends, elevating-cords trained over pulleys mounted upon an extension of the forward end of said lever and over pulleys connected with the rear end of said lever,  
130



a detachable basket, and means upon said cord for engaging said basket.

24. In a spread-wire store-service system, the combination with the wire respectively  
 5 and a car having opposing wheels, of a lever pivoted to a stationary support, said lever being connected to one of said wires, a bar connected with the other wire, said bar and lever being jointly attached to each other at their  
 10 rear ends, pulleys supported upon an extension upon the forward end of said lever, pulleys in a depending frame jointly connected

to the rear end of said bar, elevating-cords trained over said two sets of pulleys, a detachable basket, and means for detachably  
 15 connecting said elevating-cords thereto.

In testimony hereof I have signed this specification, in the presence of two subscribing witnesses, this 7th day of April, 1904.

EMANUEL C. GIPE.

Witnesses:

D. H. FLETCHER,  
 C. E. JORDAN.