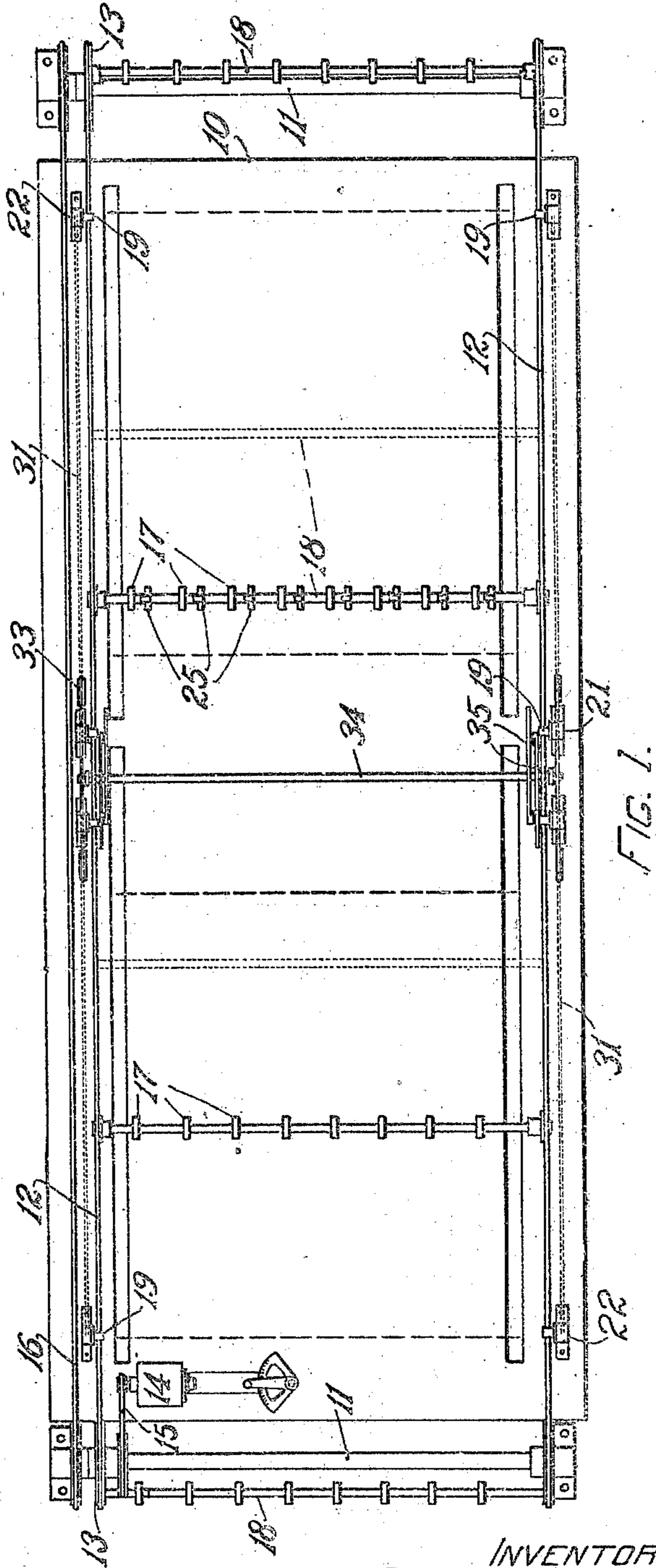
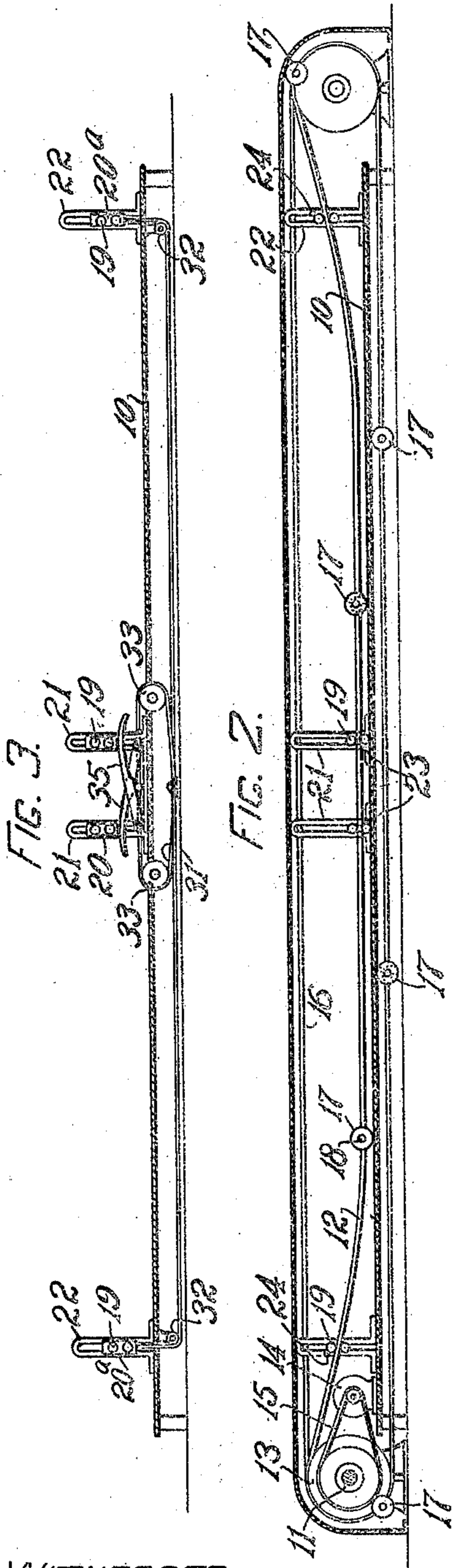


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 DEVICE FOR DISPLAYING MERCHANDISE.
 APPLICATION FILED MAR. 29, 1909.

951,413.

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3 SHEETS—SHEET 1.



WITNESSES

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A. F. Sullivan

INVENTORS

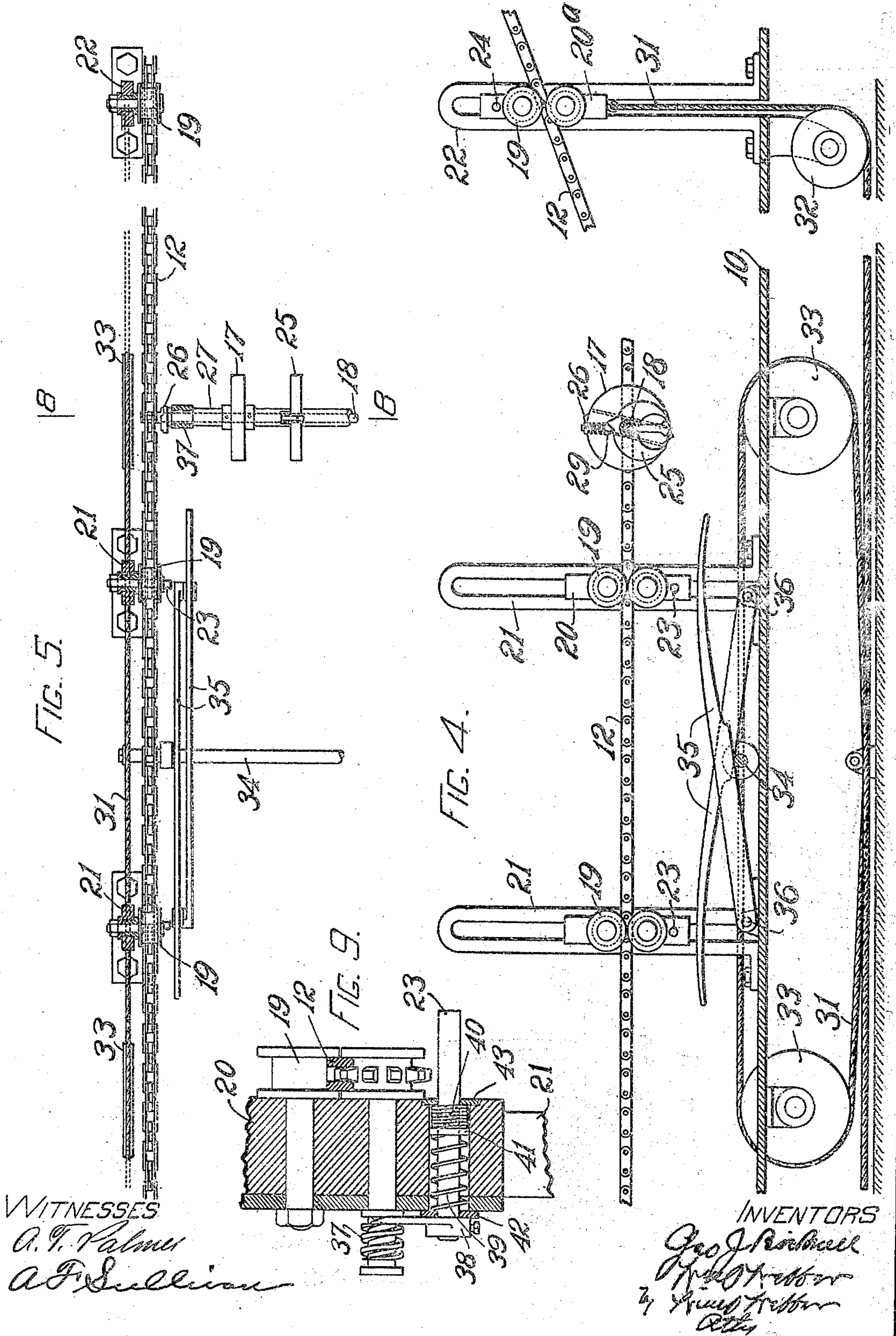
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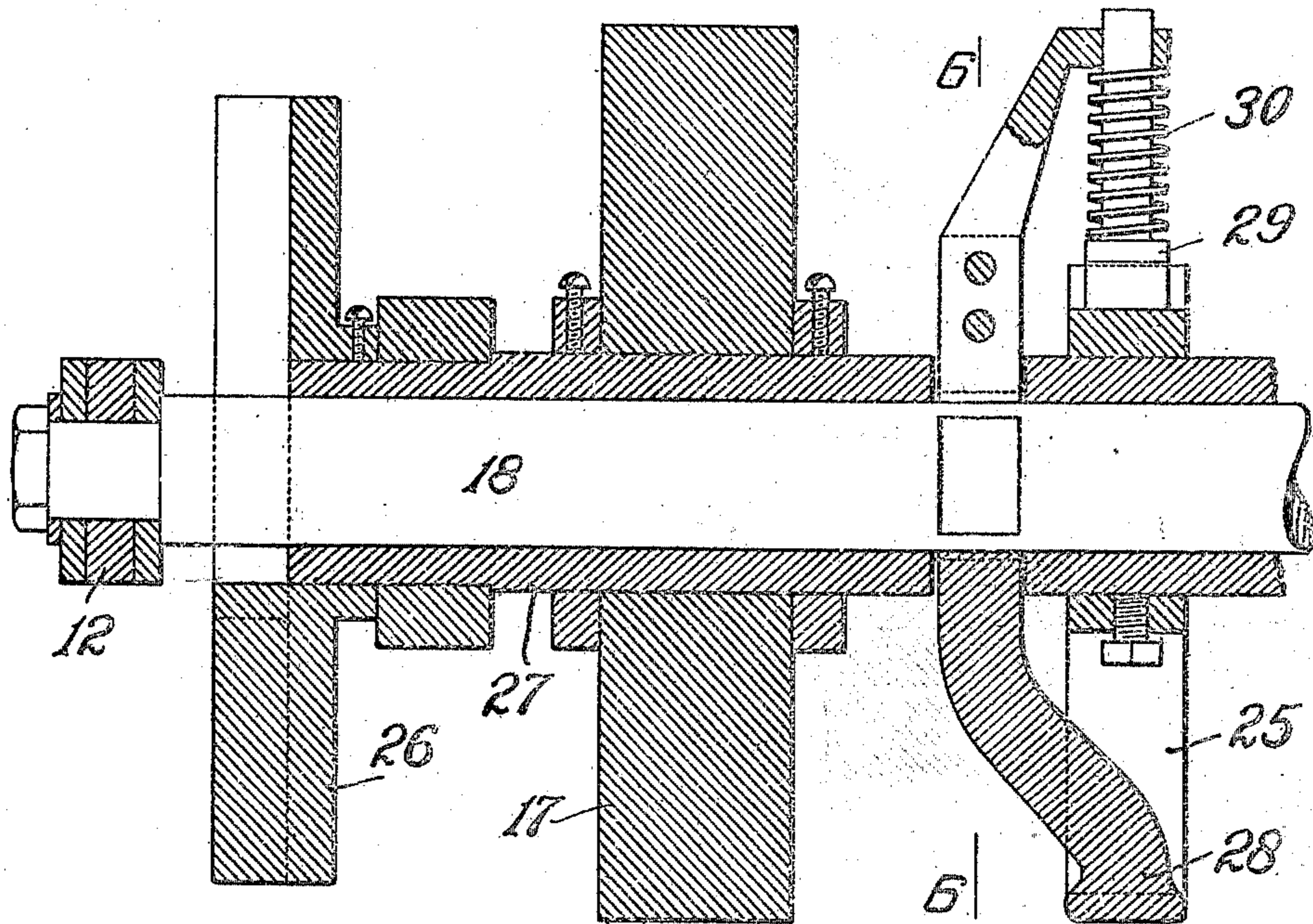


FIG. 8.

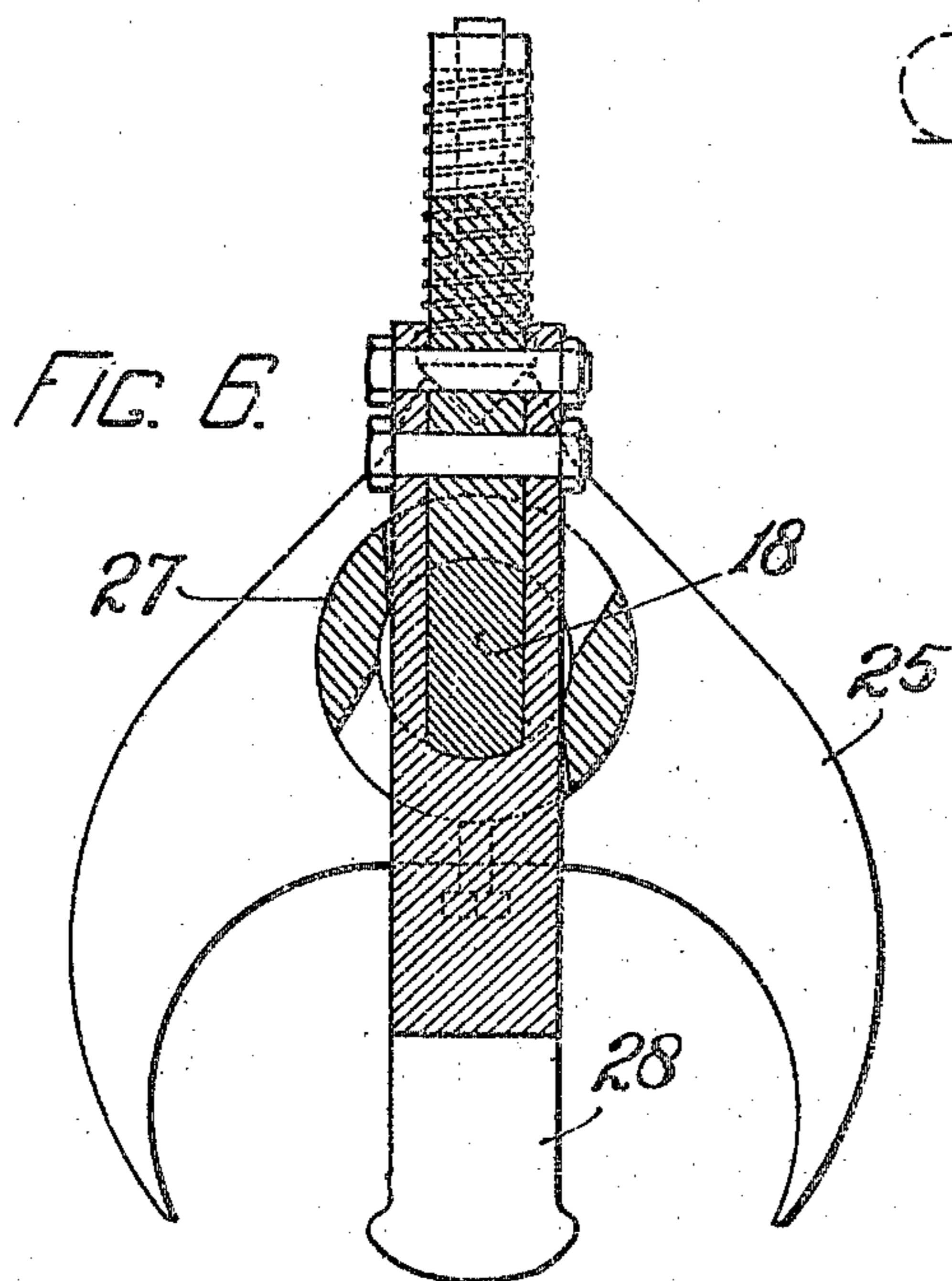


FIG. 6.

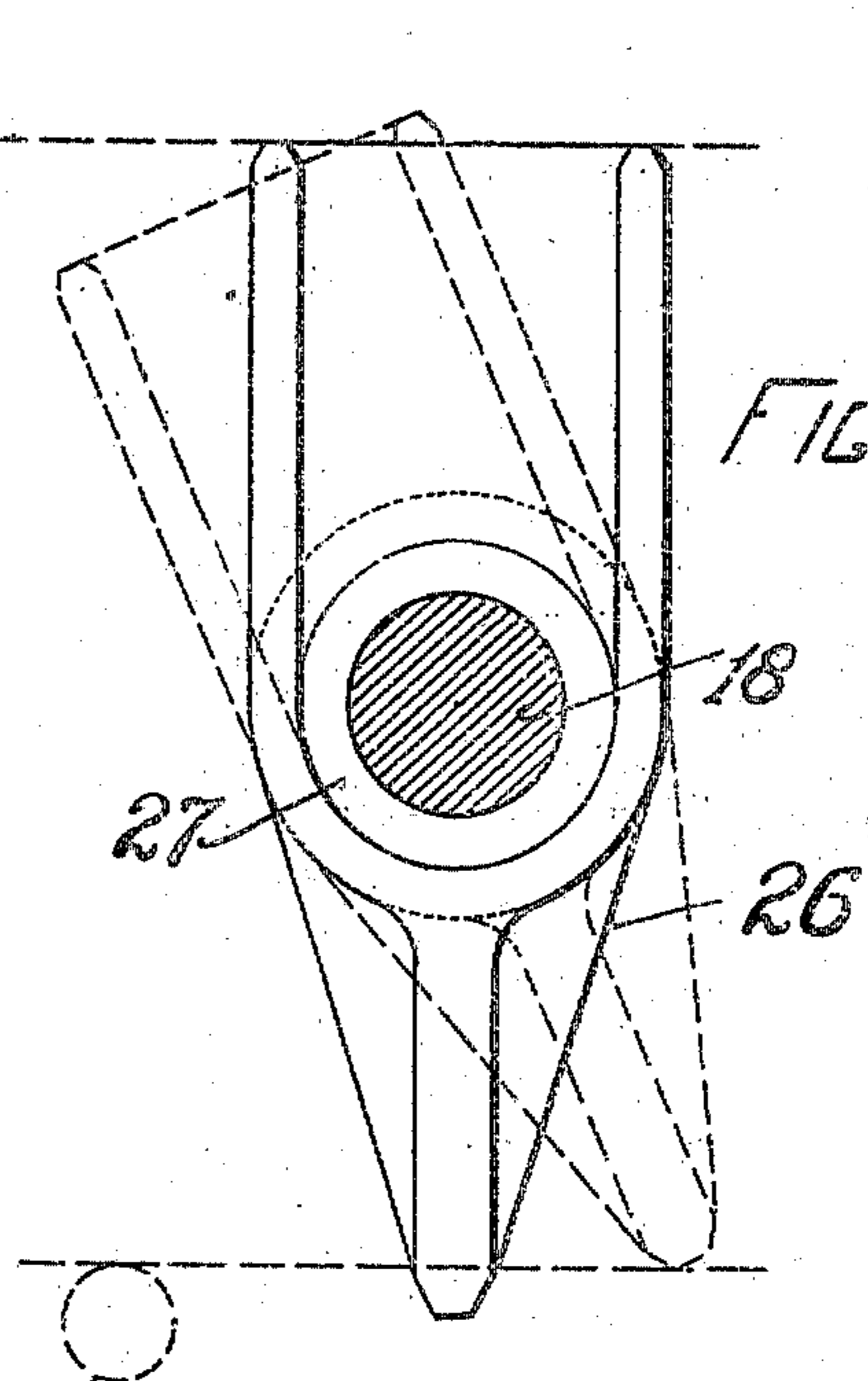


FIG. 7.

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UNITED STATES PATENT OFFICE.

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DEVICE FOR DISPLAYING MERCHANDISE.

951,413.

Specification of Letters Patent.

Patented Mar. 8, 1910.

Application filed March 29, 1909. Serial No. 486,488.

To all whom it may concern:

Be it known that we, GEORGE J. BICKNELL, of Hull, in the county of Plymouth and State of Massachusetts, and WILLIAM OLIVER WEBBER, of Brookline, in the county of Norfolk and State of Massachusetts, citizens of the United States, have invented a certain new and useful Improvement in Devices for Displaying Merchandise; and we hereby declare that the following is a clear, full, and exact description of the same, reference being made to the accompanying drawings, forming a part of this specification, in which similar characters represent corresponding parts in all the views.

This invention relates to a device for displaying merchandise, and has for its object, means for consecutively removing from one position to another, a superimposed number of articles, and depositing said articles in sequence in a superimposed manner, in a second location horizontally located in reference to the first location, together with means for subsequently reversing this operation, returning the merchandise in the same manner from the second location to the original location, with means for interrupting these operations at any stage and reversing the operation in either direction at will.

This device consists of certain novel features of construction and arrangement of parts which will be readily understood by reference to the description of the drawings and to the claims hereinafter given.

Of the drawings, Figure 1 represents a plan view, Fig. 2 represents a partial sectional elevation on line 2—2 on Fig. 1, Fig. 3 represents a vertical elevation showing the leveler guides in detail. Fig. 4 represents a vertical elevation. Fig. 5 represents a plan of the leveler mechanism on a larger scale and in greater detail than is shown in Figs. 1 and 3. Fig. 6 represents a transverse section of the supporting rod, gripper rod and gripper foot with an alternative form of gripper to that shown in Fig. 4. Fig. 7 represents the gripper cam in detail. Fig. 8 represents one end of a supporting rod showing the gripper rod, gripper cam, supporting rollers, gripper foot and gripper, in vertical section. Fig. 9 represents a sectional elevation of one of the vertically moving blocks showing in detail the cam actuating pins, and mechanism for operating same in detail.

Similar characters designate like parts throughout the several figures of the drawings.

In the drawings 10 represents a platform superimposed upon any floor or base line. 11 represents two shafts mounted upon stands at opposite ends of the longest dimension of the platform 10. 12 represents two endless working chains, actuated by sprocket wheels 13, mounted upon shafts 11, one part of the chains 12 passing above, and the other part below the surface of the platform 10. The shafts 11 are actuated by a motor 14, driving chain 15, and driving chain 16, for the purpose of allowing the upper part of the working chains to remain slack when operated in either direction.

The working chains 12 are carried by means of rollers 17 mounted upon rods 18 operatively attached to the chains at opposite ends. The working chains 12 are caused to pass between rollers 19 operatively mounted upon sliding blocks 20, which have a free vertical movement in stands 21 and 22 which are adjustably attached to the platform 10. Upon the blocks 20 and 20^a are carried pins 23 and 24. On the outer tubes 27 of two of the carrying rods 18 are on mounted grippers 25 and near the ends of the tubes carrying the grippers are gripper cams 26, which engage the pins 23 and 24.

The carrying rods on which the grippers are mounted consist of an inner rod 18 and an outer tube 27. The gripper 25 is fixedly secured to the outer tube 27. The gripper foot 28 is in two parts and is secured by passing through the gripper rod 18. The upper part of the gripper foot 28 acts as a guide for a spring latch 29 operated by spring 30. Attached to the lower ends of vertical moving blocks 20^a is a chain cord 31 which passes under sheaves 32 and around sheaves 33 carrying a rod which engages the bottom edges of guides 35 operatively hinged in guide bases 36 which are fixed to the top of platform 10, so as to cause the guides 35 to come in contact with guide rolls 37 which are operatively mounted upon rods 18 inside of the working chains.

It is obvious that the motor can be stopped or reversed at any period of the operation at the pleasure of the operator. Longitudinal slots 38 are provided in the upper surface of the platform on opposite sides thereof, so that bound edges of the flat materials

will not pile up unduly and interfere with the action of the roller and gripper rods.

The operation of this device is as follows: A plurality of flat merchandise is superimposed one upon the other on one end of the platform 10 and the motor 14 is started causing the working chains to move in a horizontal direction over the pile of the merchandise. When the gripper rod 18 arrives at the right hand edge of the pile of merchandise, it brings the cam 26 into contact with the pin 23 thereby causing a partial revolution of the grippers 25 about their axis of support and the point of the grippers 25 pick up the right hand edge of said flat merchandise between them and the feet 28; at the same time the rotative motion of the gripper 25 forces back the wedge bolt 29 against the spring 30 and brings the right hand face of said wedge against the left hand face of the above gripper 25 and the compression of the spring 30 forces the contact between gripper 25 and the foot 28 thereby firmly holding the forward edge of said flat merchandise. As the articles of flat merchandise are superimposed upon each other the rollers 17 and rods 18 will cause the sliding blocks 20^a to assume a higher elevation above the surface of the platform and this in turn by means of the chain 31 will cause the guides 35 to assume a correspondingly greater elevation as the rod 34 is drawn beneath the lower edge of the guide 35, and the upper edges of the guides 35 are brought into contact with the under side of the rolls 37, and the right hand or forwardly progressing edge of the flat merchandise is lifted, thereby admitting air underneath the lower surface of said merchandise thus reducing the friction between said bottom edge and the top or upper surface of the next succeeding piece of merchandise. Immediately after the gripper mechanism engages with the forwardly moving edge of the flat merchandise and begins to move it horizontally one of the roller rods 18 with the rollers 17 comes into contact by being superimposed on the rear end of the next succeeding piece of flat material thereby holding it in a stationary position due to the weight of said rod and rollers. When the forward edge of the merchandise arrives at a point opposite the stands 22 at the end of the platform, the gripper 26 comes into contact with a pin 24 which causes the gripper to mechanically release its hold upon the merchandise and it is thereby deposited. This operation will continue until all of the flat material originally deposited on one end of the platform, is transported to the opposite end of the platform, the motor then being reversed in its direction of revolution, the load chain is reversed in its movement, and the grippers 65 are reversed by coming into contact with

pins on the second set of stands causing the articles of flat material to be transported back again and deposited in their original position. It is obvious that different forms of gripper mechanism may be employed, and in Fig. 6, gripper 25 is shown with a double projection on the back in contact with the latch 29, necessitating the alternate withdrawal of one each of pins 23 and 24 as the direction of the moving parts is changed; this is shown in detail in Fig. 9, in which one of the rollers 19 on each of the stands 21 and 22 is provided with sprocket teeth engaging the chains 12, and on the rear of the shaft on which this roller is fixedly mounted is a threaded portion 37, one each of the threads engaging pins 23 and 24 being right hand, and the others left hand threads, with a clearance groove at either end; engaging with these threaded portions is an arm 38 fixedly secured to the rear end of pins 23 and 24 on which are mounted two springs 39 and 40 with a fixed collar 41 between them; these studs 23 and 24 are carried by plates 42 and 43 at either end, these plates also serve as abutments against which the springs 39 and 40 are compressed. The action in this case is as follows: When the carrying chains 12 are moving in one direction, the grippers are in the central position shown in Fig. 6, the cam 26 is in a vertical position, on approaching the first pin 23, the lower end of the cam engages the pin and the gripping action takes place; the second pin 23 is withdrawn by the mechanism described and shown in Fig. 9; when pin 24 is reached, it engages the upper rearmost web of gripper 26 restoring it to a vertical position, thus releasing the gripper; the pin 24 at the other end of the machine in this case being withdrawn. On reversing the direction of motion of the machine, the pins 23 and 24 previously projected so as to engage the cam as above described are withdrawn and the alternate pins 23 and 24 are projected instead and the action above described is reversed. The advantage of this form of construction is that the lower depending points of the gripper 25 are not so liable to catch in any unevenness of the upper surface of the merchandise being handled.

We claim—

1. A device for displaying flat merchandise, consisting of a plurality of endless chains or belts traversing above and below a platform, carried by shafts and sprocket wheels at the opposite ends of said platform, actuated by a motor operatively connected to one of the shafts; a plurality of supporting rods attached to the working chains at opposite ends, each rod provided with a plurality of rollers, one or more of said rods provided with grippers for attaching to said merchandise; vertically moving blocks mounted in

stands situated opposite the ends of said carrying rods, and provided with withdrawable pins, actuating cams on the end of said rods, whereby the engagement and disengagement of said grippers are effected.

2. In a device for displaying flat merchandise, comprising a plurality of horizontally moving endless chains or belts carrying a plurality of supporting rods, one or more of said rods provided with grippers for attaching to said merchandise; a plurality of vertically moving blocks provided with rollers, between which said chains are carried; a plurality of hinged levers situated between the stands carrying the intermediate set of blocks; a roller rod located beneath said levers; cords or chains attached to said roller rod carried over pulleys and attached to the outside blocks, so that, the levers hinged farthest from an outside block are caused to rise and fall in conformity thereto, whereby means are provided for admitting air beneath the advancing edge of said merchandise.

3. In a device for displaying flat merchandise, comprising a plurality of horizontally moving endless chains or belts carrying a plurality of supporting rods, one or more of said rods provided with grippers for attaching to said merchandise; a plurality of vertically moving blocks with rollers between which said chains or belts are carried; one of each of said rollers provided with sprocket teeth engaging said chains or belts, the opposite end of the shaft on which said sprocket roller is mounted provided with a threaded portion engaging an arm on a pin, said pin located between springs exerting force to keep said arm forced against said threaded portion, whereby when the direction of motion of the chains is reversed, the pins will be projected or withdrawn from, a position to contact with cams carried on tubular sleeves, actuating the grippers on the supporting rods.

4. In a device for displaying flat merchandise consisting of a plurality of horizontally moving endless chains or belts carrying a plurality of supporting rods; one or more of said rods provided with grippers for attaching to said merchandise; a plurality of gripper feet vertically fixed in said gripper rods, tubes surrounding said rods on which are fixed a plurality of grippers; a triple wing cam fixed on the end of each tube, and adapted on coming in contact with withdrawable pins carried in vertically moving blocks situated opposite the ends of said rods to assume a position, whereby the grippers will stand free of the gripper feet.

5. In a device for displaying flat merchandise consisting of a plurality of horizontally moving endless chains or belts carrying a plurality of supporting rods; one or more of said rods provided with grippers for attaching to said merchandise; a plurality of gripper

feet vertically fixed in said gripper rods, tubes surrounding said rods on which are fixed a plurality of grippers; a triple wing cam fixed on the end of each tube, and adapted on coming in contact with withdrawable pins carried in vertically moving blocks situated opposite the ends of said rods to assume a position whereby the grippers will contact with the gripper feet.

6. A device for displaying flat merchandise, consisting of a plurality of endless chains or belts traversing above and below a platform, carried by shafts and sprocket wheels at the opposite ends of said platform, actuated by a reversible motor operatively connected to both shafts by driving chains independent of the working chains, whereby that part of the endless working chains or belts passing beneath the platform is always in tension, and that part passing above the platform is always slack, and free to follow the contour of the materials over which it is carried.

7. A device for displaying flat merchandise, consisting of a plurality of endless chains or belts traversing above and below a platform, carried by shafts and sprocket wheels at the opposite ends of said platform, actuated by a motor operatively connected to the shafts; a plurality of supporting rods operatively attached to the working chains or belts at opposite ends, each rod provided with a plurality of rollers, one or more of said rods provided with grippers for attaching to said merchandise; the supporting rod next succeeding a gripper rod, located whereby it will be superimposed on the rearward edge of the next succeeding piece of merchandise to that whose forward edge is in the grasp of the grippers.

8. A device for displaying flat merchandise, consisting of a plurality of endless chains or belts traversing above and below a platform, and carried by shafts and sprocket-wheels at the opposite ends of said platform, said platform provided with longitudinal slots near the edges on opposite sides thereof, whereby the bound edges of the flat materials will not pile up and interfere with the action of the traversing mechanism.

9. In an apparatus of the character specified, the combination of a pair of endless chains or belts, a plurality of vertically moving blocks carried by said chains, a plurality of supporting rods carried by said chains, means for driving the chains and means attached to said blocks whereby the idle side of said chains are caused to assume a higher horizontal position at a predetermined place, for the purpose specified.

10. In an apparatus of the character specified, the combination of a pair of endless chains or belts, a plurality of supporting rods attached to said chains, a plurality of roller wheels carried by said rods and

adapted to traverse over a pile of flat merchandise, whereby the height of said chains is automatically assured, for the purposes specified.

5 11. In an apparatus of the character specified, the combination of a plurality of endless chains or belts; a plurality of gripper rods attached to said chains provided with
10 opposite directions in combination with means for engaging and disengaging said

grippers at the proper time, as the direction of motion is reversed, for the purposes specified.

In testimony whereof, we have hereunto 15 affixed our signatures in the presence of two subscribing witnesses.

GEORGE J. BICKNELL.
WM. O. WEBBER.

Witnesses:

A. F. SULLIVAN,
CHARLES M. DAVENPORT.