

No. 641,920.

Patented Jan. 23, 1900.

D. A. ASKEW.  
AUTOMATIC STOCK FEEDER.

(Application filed May 31, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

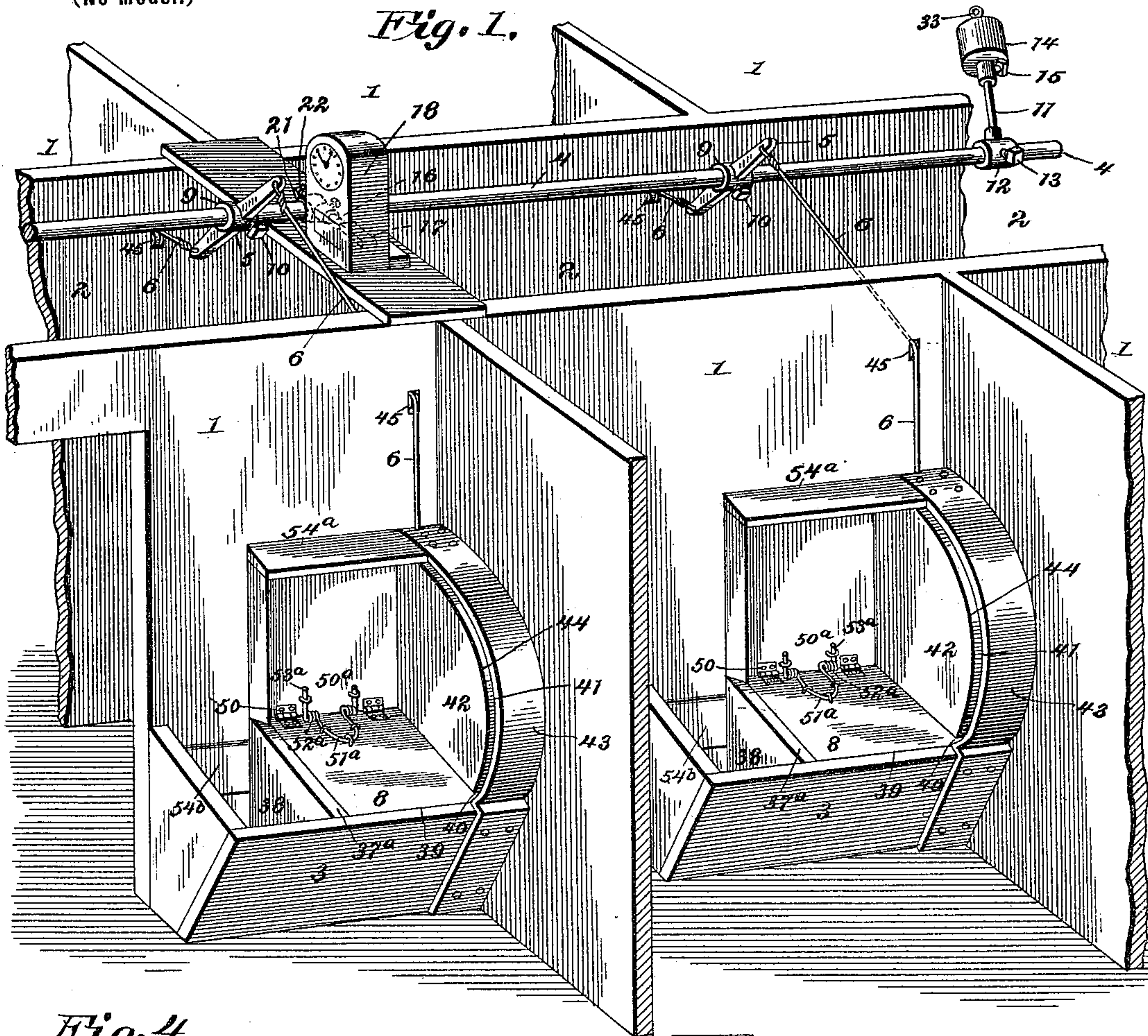


Fig. 4.

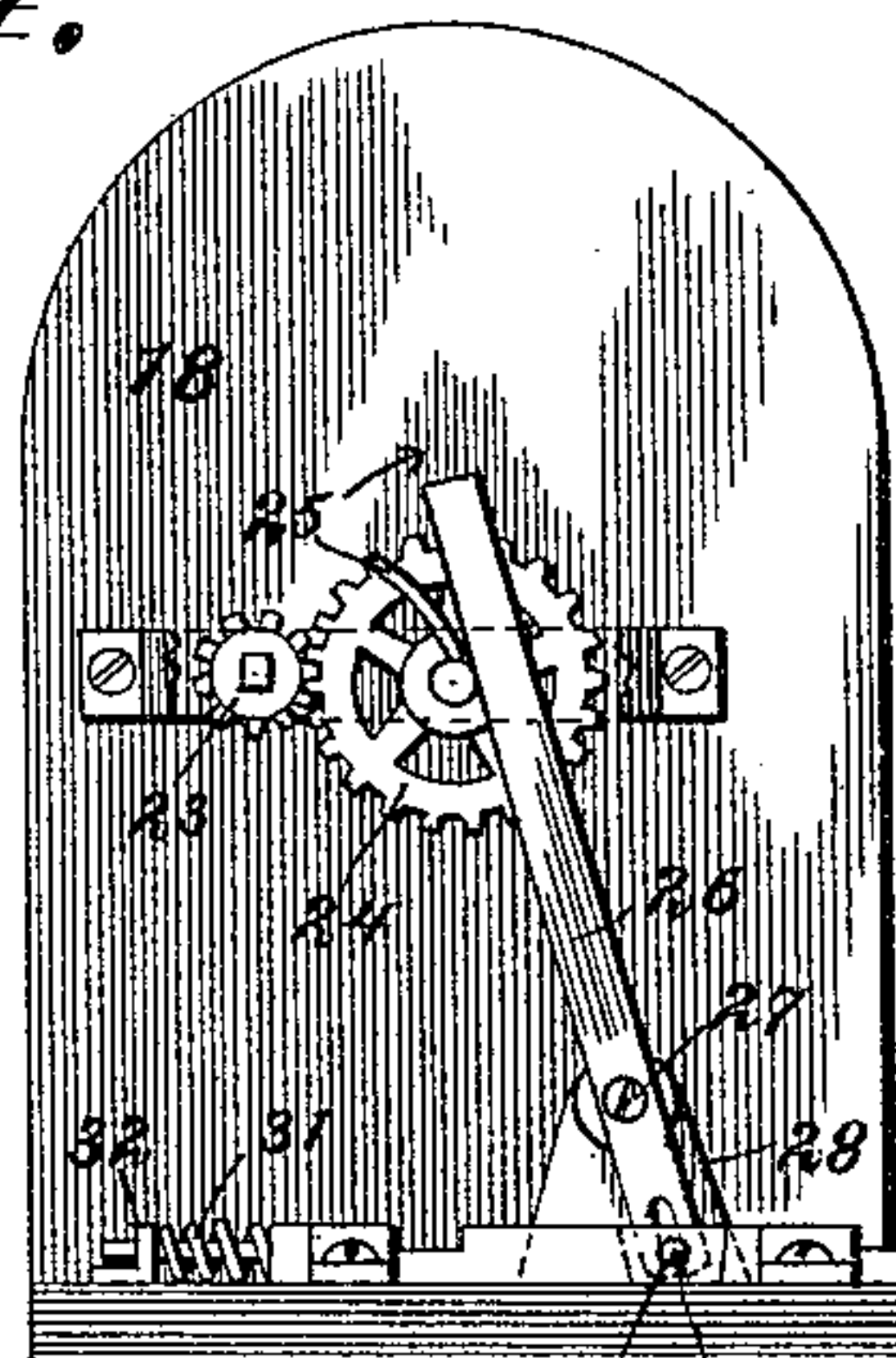
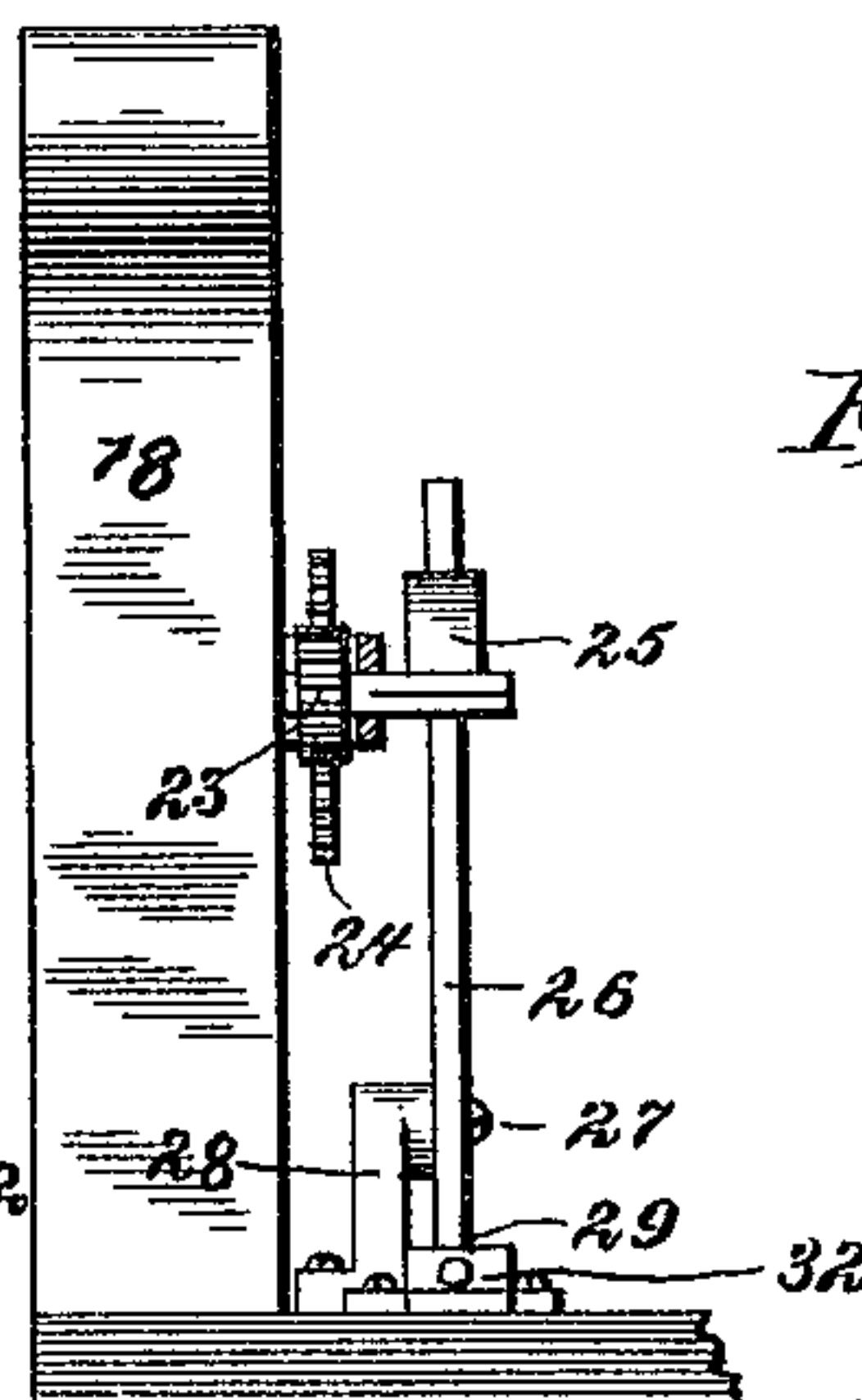


Fig. 5.



Witnesses

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2 Sheets—Sheet 2.

Fig. 2.

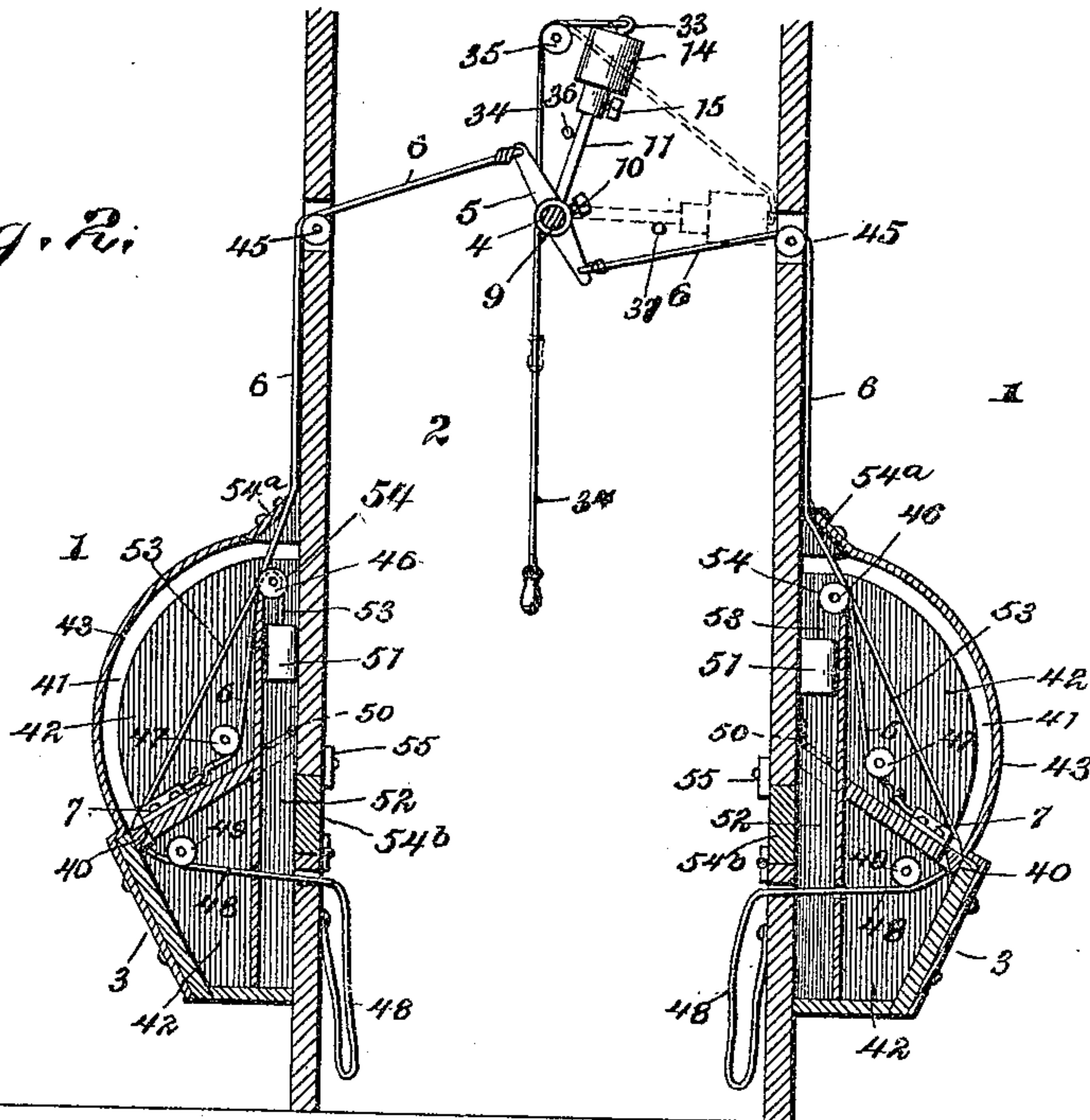


Fig. 3.

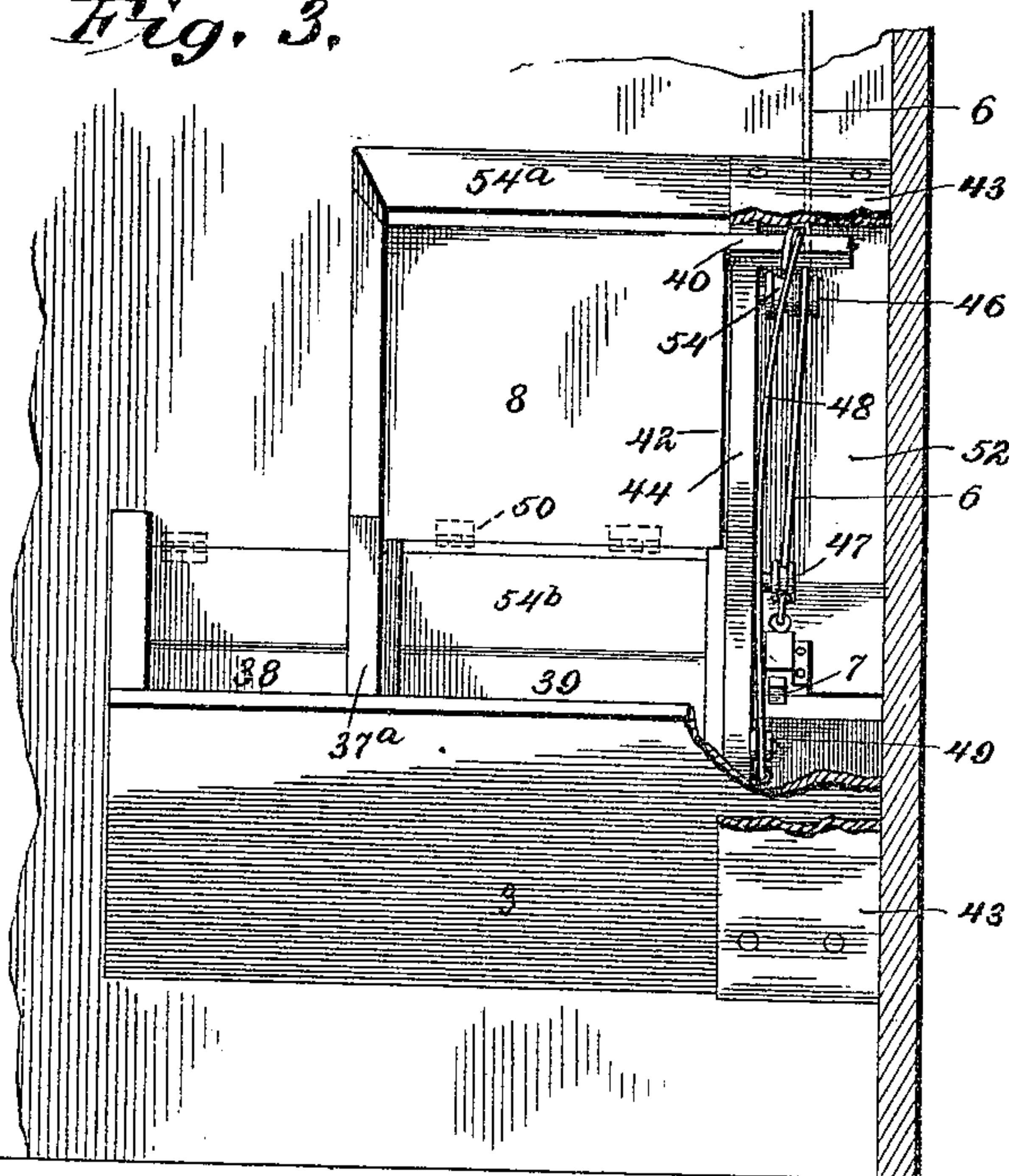
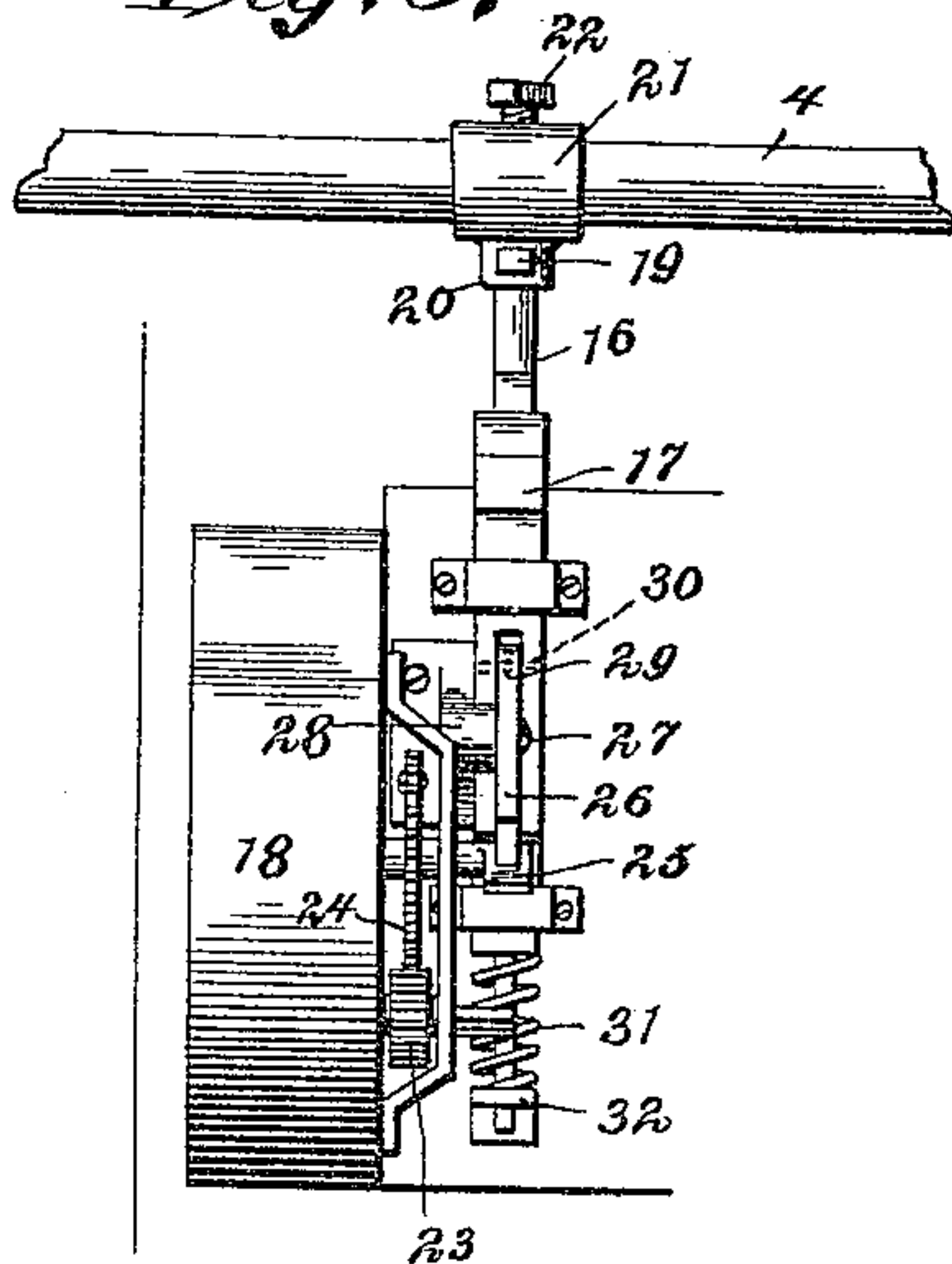


Fig. 6.



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# UNITED STATES PATENT OFFICE.

DAVID ANDREW ASKEW, OF COLERAINE, NORTH CAROLINA.

## AUTOMATIC STOCK-FEEDER.

SPECIFICATION forming part of Letters Patent No. 641,920, dated January 23, 1900.

Application filed May 31, 1899. Serial No. 718,856. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID ANDREW ASKEW, a citizen of the United States, residing at Coleraine, in the county of Bertie and State of North Carolina, have invented a new and useful Automatic Stock-Feeder, of which the following is a specification.

The invention relates to improvements in automatic stock-feeders.

The object of the present invention is to improve the construction of automatic stock-feeders and to provide a simple and comparatively inexpensive one adapted to permit feed to be readily placed in the troughs at any time and without entering the stalls and capable of preventing the animals from obtaining access to the feed until a predetermined time and of automatically opening the feed-troughs at such time.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of an automatic stock-feeder constructed in accordance with this invention. Fig. 2 is a vertical sectional view taken longitudinally of two of the stalls. Fig. 3 is an elevation of the head of one of the stalls, partly broken away to illustrate the arrangement of the means for operating the hinged lids or covers. Figs. 4 and 5 are detail views illustrating the construction of the tripping mechanism. Fig. 6 is a plan view of the mechanism for setting and tripping the rock-shaft.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 1 designate parallel series of stalls arranged head to head and separated by an intervening space 2, which forms a passage-way for the operator and which affords access to the feed-troughs 3 to enable the feed to be supplied to the same, as hereinafter described, without entering the stalls. Arranged over the space or passage 2 between the series of stalls is a horizontal rock-shaft 4, journaled in suitable bearings and provided opposite the corresponding stalls of each series with oppositely-disposed arms 5, which are connected by cords 6 or other suitable flexible con-

nections with catches 7 for holding hinged lids or covers 8 of the feed-troughs closed, and the rock-shaft is adapted to be rotated to unfasten the catches. The arms 5 are preferably formed integral with sleeves 9, which are adjustably secured to the horizontal rock-shaft by clamping-screws 10 or other suitable fastening devices.

The rock-shaft is actuated by a weighted arm 11, adjustably mounted on the rock-shaft by means of a sleeve 12 and a clamping-screw 13 and arranged nearly in a vertical position when the parts are set, as illustrated in Fig. 2 of the accompanying drawings, in order to relieve the tripping mechanism of strain. The weight 14 of the actuating-arm 11 is adjustable by means of a clamping-screw 15, and it is adapted to move inward and outward on the arm to vary the power of the same.

The rock-shaft is provided with a setting-arm 16, which is engaged by a reciprocating spring-actuated catch 17, and the latter is adapted to be tripped by the alarm mechanism of a clock 18, as hereinafter described. The arm 16 is adjustably mounted by a set-screw 19 in a socket 20 of the sleeve 21, which is secured to the rock-shaft by a clamping-screw 22, and the outer end of the setting-arm 16 is beveled, as clearly illustrated in Fig. 4 of the accompanying drawings, to enable it to engage the reciprocating catch automatically when the rock-shaft is rotated by hand, as hereinafter described, for setting the mechanism for automatic operation.

The clock 18, which is mounted on a suitable support, is provided with a pinion 23, which is connected with and adapted to be rotated by the alarm mechanism of the clock, so that the clock may be set at any time for tripping the reciprocating spring-actuated catch. The pinion 23 meshes with a large gear-wheel 24, which carries a tripping-arm 25, and by employing the small pinion and the large gear-wheel sufficient power is obtained from an ordinary clock to operate the mechanism.

The arm 25, which is radially disposed, is adapted to engage the upper portion of a lever 26, which is fulcrumed near its lower end at 27 on a suitable support 28, and its lower end 29 is slotted and is pivoted by a pin 30



to the reciprocating spring-actuated bolt 17, which is mounted in suitable guides or ways and which has its beveled engaging end arranged in the path of the setting-arm of the rock-shaft. When the radial arm oscillates in the direction of the arrow in Fig. 4, the lower end of the lever 26 is swung inward, thereby withdrawing the bolt or catch 17, which releases the arm 16 and allows the weight to actuate the rock-shaft. The setting-arm is beveled at its lower face, and the spring-actuated bolt or catch 17 is beveled at its upper face, and when the setting-arm is swung downward by hand it engages the catch or bolt automatically. The reciprocating catch or bolt is provided with a slot or recess to receive the lower end of the lever 26, and its rear end is reduced to form a stem on which is disposed a coiled spring 31. The spring 31 engages the shoulder formed by the reduction of the rear portion of the bolt and bears against a guide 32, and it is adapted to return the bolt or catch to its normal extended position after the operation of the tripping mechanism.

The actuating-arm 11 of the rock-shaft is provided at its outer end with an eye 33, to which is attached one end of a cord 34 or other suitable flexible connection, which extends over a pulley 35, located at a point above the rock-shaft, and when the cord 34 is pulled upon the weighted arm of the rock-shaft is swung upward to the position illustrated in Fig. 2 of the accompanying drawings. The upward and downward movement of the weighted arm of the rock shaft is limited by upper and lower stops 36 and 37, adapted to relieve the rest of the mechanism of strain.

Each feed-trough is divided by a partition 37<sup>a</sup> into two compartments 38 and 39. The compartment 38 remains open at all times, being uncovered, as clearly illustrated in Fig. 1 of the accompanying drawings, and the other compartment 39 is covered by the hinged lid or door 8 when it is desired to prevent access of the stock to the same. The two compartments are provided for the purpose of facilitating the feeding of stock at both night and in the morning, the feed to be supplied in the morning being placed in the covered compartment 39, so that the stock will not have access to it until the compartments are opened by the automatic device, which may be set for any hour, thereby enabling stock to be fed at an early hour in the morning without requiring the attendance of the operator.

The hinged lid or cover 8, which is arranged at an inclination when closed, as clearly illustrated in Fig. 2 of the accompanying drawings, is provided at its outer or free edge with a laterally-extending arm 40, which is arranged to operate in a suitable guide or way 41 and which is engaged by the catch 7 when the lid or cover is closed. The curved guide or way 41 is formed by a board or partition 42 and a curved strip 43, constructed of any suitable material. The edge 44 of the parti-

tion 42 is spaced from the curved strip 43 of the stall and is curved, and the partition is separated from the adjacent side of the stall to house the operating mechanism and to prevent the stock from coming in contact with the same. The ropes or cords 6, which extend from the rock-shaft in opposite directions, pass over guide-pulleys 45 at the upper portion of the heads of the stalls and extend downward over guide-pulleys 46 and under guide-pulleys 47. The guide-pulleys 46 and 47 are arranged within the housing or casing at one end of the feed-trough, and the lower ends of the flexible connections 6 are secured to the spring-actuated bolts of the catches 7, and when the rock-shaft is rotated the bolts are withdrawn from engagement with the arms 40, and the lids or covers are swung upward by the means hereinafter described. The bolts of the catches 7 are beveled at their upper faces, and the arms 40 are beveled at their lower faces, as clearly shown in Fig. 2 of the drawings, to enable the lids or covers to engage the catches automatically when they are swung downward. The lids or covers are drawn downward by the operator and are connected with cords or ropes 48, preferably forming continuations of the cords or ropes 6 and extending from the arms 40, beneath guide-pulleys 49, through the heads of the stalls, and their outer ends are preferably attached to the same, as illustrated in Fig. 2, to prevent them from touching the floor.

Each lid or cover 8, which is connected by hinges 50 to the head of the stall, is opened by a weight 51, operating in a suitable well 52 and connected with one end of a cord or rope 53, which passes over a guide-pulley 54 and which has its outer end attached to the lid or cover at the free edge thereof, preferably by being secured to the arm 40. As the lid or cover is arranged at an inclination when it is closed, it will require a considerable pull on the cord or rope 53 to start the lid or cover in its opening movement, and in order to enable a comparatively light weight to be employed to open the troughs the opening movement of the lid or cover is started by means of a spring 50<sup>a</sup>, which is adapted to lift the said lid or cover to a horizontal position, so that the weight may readily act on the same. The spring 50<sup>a</sup>, which is preferably constructed as illustrated in Fig. 1 of the accompanying drawings, is shown consisting of a central substantially U-shaped loop 51<sup>a</sup>, side coils 52<sup>a</sup>, and arms 53<sup>a</sup>. The loop 51 is secured to the upper face of the lid or cover by staples or other suitable fastening devices, and the arms 52 are similarly fastened to the head of the stall. When the lid or cover is open, it is arranged within a beveled frame 54<sup>a</sup>, consisting of vertical and horizontal bars mounted on the stall and adapted to prevent the stock from closing or attempting to close the lid or cover, and the said frame by being arranged around the lid or cover causes the parts to present smooth surfaces to the stock.



Each stall is provided at its head with a downwardly-swinging or drop door 54<sup>b</sup>, hinged at its lower edge and secured when closed by a pivoted button 55, arranged to engage the upper edge of the door. This drop-door affords access to the feed-trough from the passage-way between the stalls and enables the feed to be placed within the trough without entering the said stalls. By this construction children and timid persons may be employed for handling the feed without liability of being frightened or injured.

It will be apparent that the apparatus, which is simple and comparatively inexpensive in construction, is positive and reliable in operation, that it will enable feed to be placed in the troughs at any desired time, and that it will prevent access of the stock to the contents of the closed or covered troughs until it is desired to feed the animals. It will also be apparent that the troughs, which are provided with two compartments, may be supplied with feed for night and morning and that the closed or covered compartments may be opened at any hour in the morning or other times without requiring the attendance of the operator. Furthermore, it will be apparent that by the drop-doors at the back of the stalls the feed may be placed in the troughs without entering the stalls, thereby enabling children and timid persons to be employed for this purpose without danger. The weight of the actuating-arm may be readily adjusted to provide the necessary power for releasing the catches, and the setting-arm of the rock-shaft may be adjusted longitudinally to enable it to be positively released by the throw of the lever 26.

Changes in the form, proportion, size, and the minor details of construction within the scope of the appended claims may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

What is claimed is—

1. In an apparatus of the class described, the combination with the stalls arranged in series separated by an intervening space or passage, of troughs arranged within the stalls and having hinged covers, fastening devices for holding the cover closed, a rock-shaft extending longitudinally of the space or passage and provided with oppositely-disposed arms, flexible connections extending from the said arms to the fastening devices, a weighted arm mounted on the rock-shaft and adapted to actuate the same, means for setting and tripping the rock-shaft, and an operating device for returning the rock-shaft to its initial position, substantially as described.

2. In an apparatus of the class described, the combination of troughs having automatically-opening covers, fastening devices for retaining the covers in their closed position, a rock-shaft connected with the fastening devices and adapted to release the covers, a setting-arm carried by the rock-shaft, a catch en-

gaging the setting-arm, a lever adapted to trip the catch, and an oscillating arm arranged to engage the lever and designed to be connected with a clock mechanism, whereby the device may be tripped at any desired time, substantially as described.

3. In an apparatus of the class described, the combination of a rock-shaft having a setting-arm, a catch arranged to engage the setting-arm, a lever fulcrumed between its ends and arranged to carry the catch out of engagement with the setting-arm, an oscillating arm arranged to engage the lever, and gearing for connecting the oscillating arm with a clock mechanism, substantially as described.

4. In an apparatus of the class described, the combination of a reciprocating spring-actuated catch, a lever fulcrumed between its ends and having one end connected with the catch, a pinion designed to be connected with the alarm mechanism of a clock, and a gear-wheel meshing with the pinion and carrying means for engaging the lever, whereby the latter is oscillated, substantially as described.

5. In an apparatus of the class described, the combination of a rock-shaft having a weighted actuating-arm, feed-troughs having automatically-opening covers, catches adapted to retain the covers in their closed positions and connected with the rock-shaft, means for setting and tripping the rock-shaft, and a flexible connection attached to the actuating-arm and adapted to raise the same for setting the device, substantially as described.

6. In an apparatus of the class described, the combination of a rock-shaft having a setting-arm and provided with a weighted actuating-arm, a catch arranged to engage the setting-arm, means for tripping the catch, and a flexible connection attached to the actuating-arm and arranged to swing the same upward to carry the setting-arm into engagement with the catch, substantially as described.

7. In an apparatus of the class described, the combination of a feed-trough having a hinged cover, a rock-shaft, a catch engaging the cover and adapted to retain the same in its closed position, a flexible connection passing over guide-pulleys and extending from the catch to the rock-shaft, a cord or rope provided with a weight and connected with the cover, and means for setting and tripping the rock-shaft, substantially as described.

8. In an apparatus of the class described, the combination with a stall provided with a feed-trough having an automatically-opening cover, a catch for holding the cover in its closed position, a rock-shaft, a flexible connection extending from the rock-shaft to the catch, and a cord or rope connected with the cover and extending through the head of the stall, substantially as and for the purpose described.

9. In an apparatus of the class described, the combination of a trough having an inclined hinged cover, a weighted flexible con-



nection attached to the cover and adapted to swing the same upward, a spring connected with the cover and adapted to lift the same to a horizontal position, and means for fastening and unfastening the cover, substantially as described.

10. In an apparatus of the class described, the combination of a stall having a trough, and provided at one side with a housing having a curved slot or opening, a hinged cover provided with a laterally-extending arm operating in the slot or opening and projecting into the housing, a catch engaging the arm and adapted to hold the cover in its closed position, and means for disengaging the catch and for opening the cover, substantially as described.

11. In an apparatus of the class described, the combination with a stall provided with a trough, a cover hinged at its rear edge, means for operating the cover to open and close the same, and a frame extending upward from the rear edge of the cover, arranged to receive the latter when the same is open and forming a shield adapted to exclude an ani-

mal from the edges of the cover, substantially as and for the purpose described.

12. In an apparatus of the class described, the combination with the stalls arranged in series, separated by an intervening space or passage, of troughs arranged within the stalls and having hinged coverings, fastening devices for holding the covers closed, a rock-shaft extending longitudinally of the space or passage and provided with oppositely-disposed arms, flexible connections between the arms and the fastening devices, a weighted arm extending from the rock-shaft and adapted to actuate the same, stops arranged to limit the movement of the rock-shaft and located in the path of the arm, and means for setting and tripping the rock-shaft, substantially as described.

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

DAVID ANDREW ASKEW.

Witnesses:

E. E. ETHERIDGE,  
W. C. OVERTON.