No. 747,938. PATENTED DEC. 29, 1903.

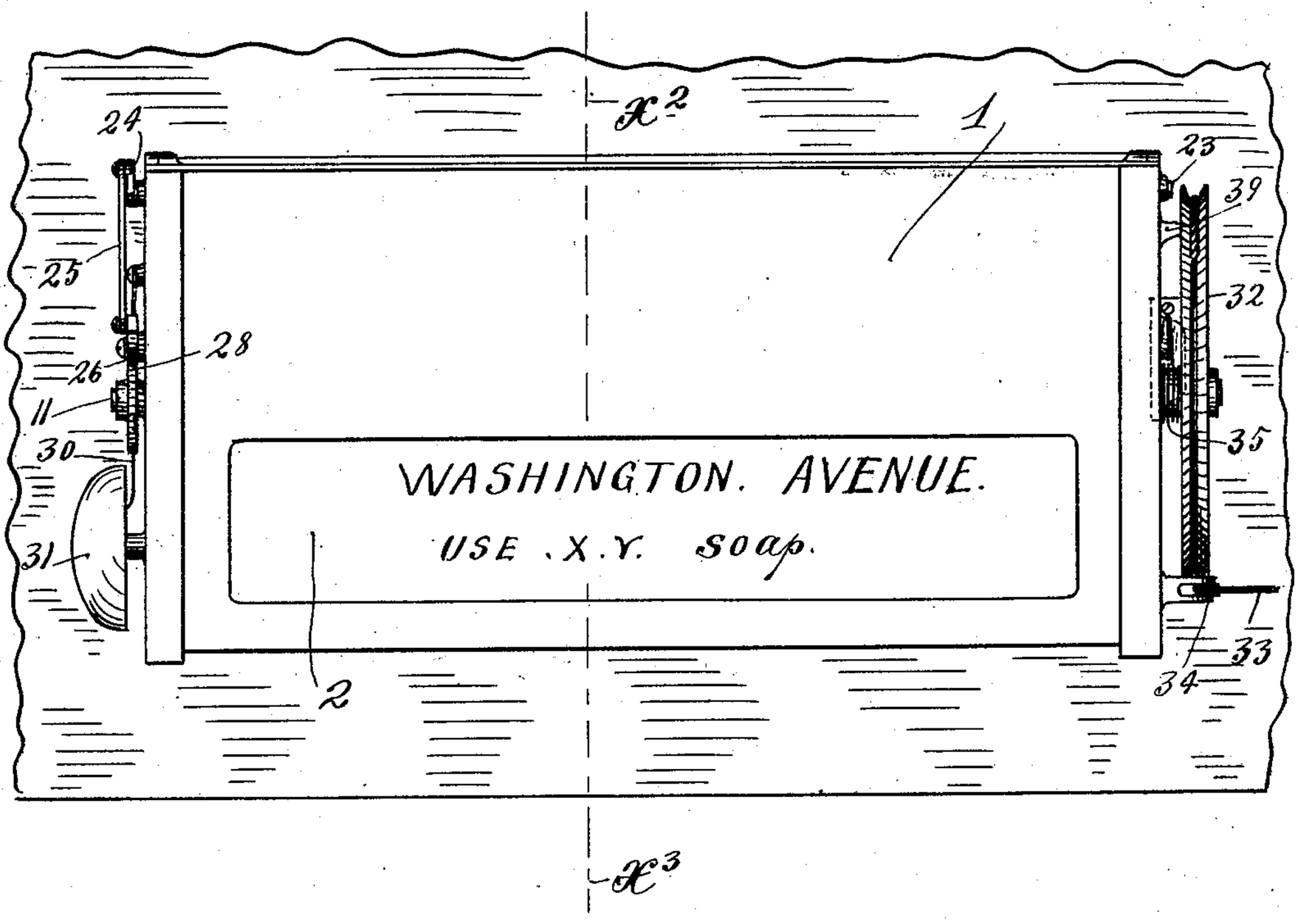
F. CLARK.

STATION INDICATOR.

APPLICATION FILED FEB. 21, 1903.

NO MODEL. 7 SHEETS—SHEET 1.

Fig. 1.



Witnesses
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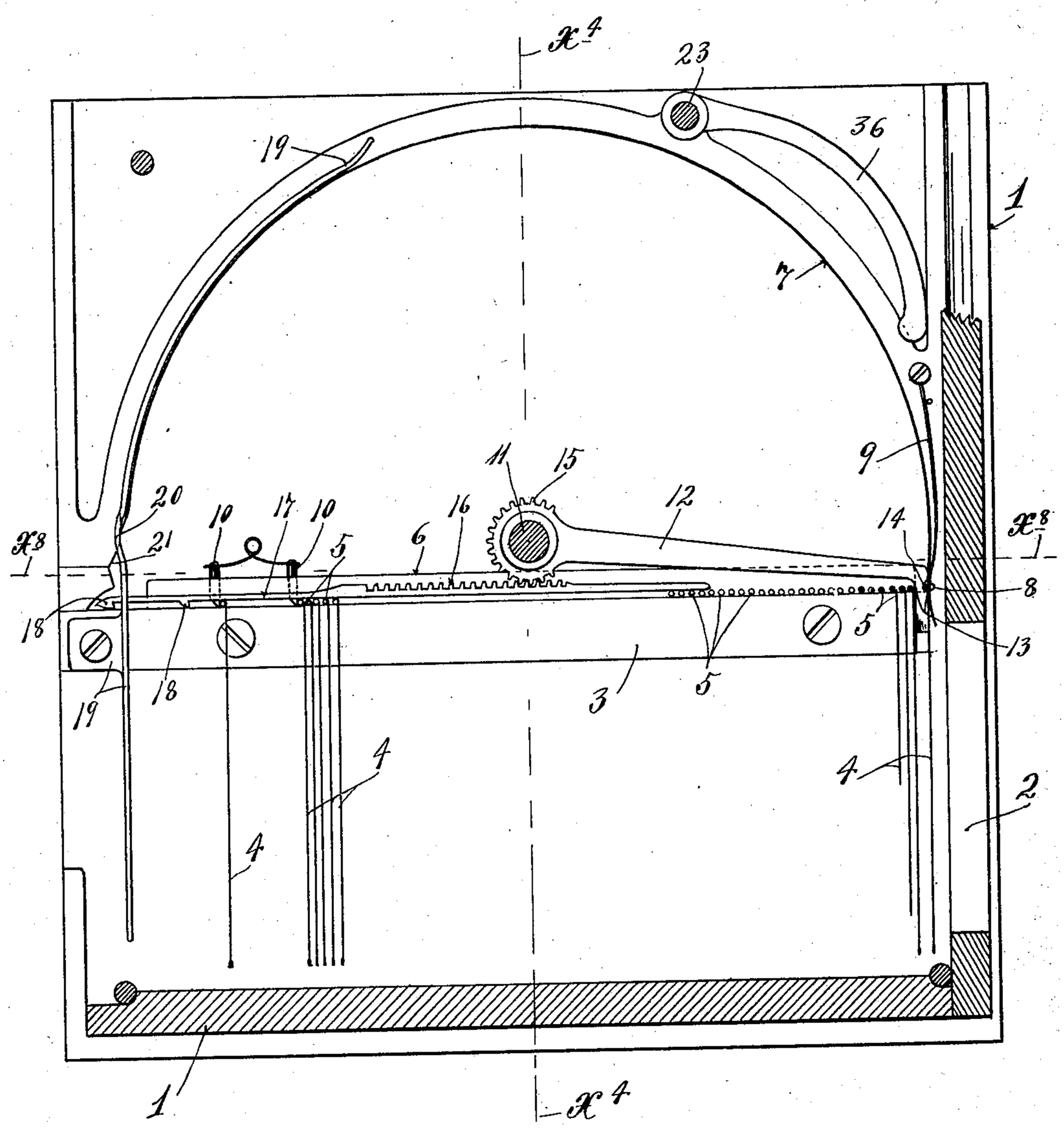
NO MODEL. 7 SHEETS—SHEET 2.

Fig. 2.



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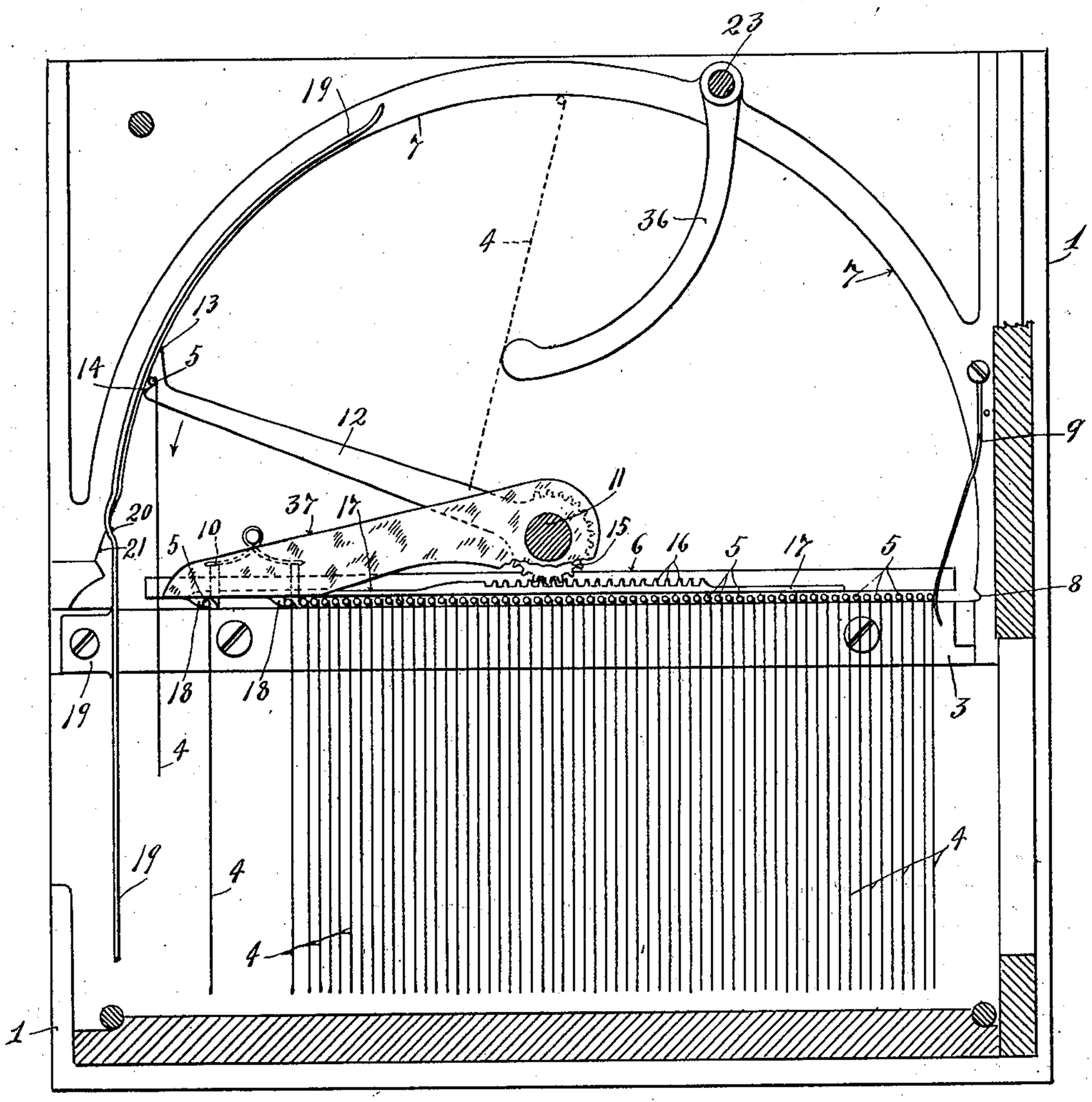
NO MODEL. 7 SHEETS—SHEET 3.

Fig. 3.



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NO MODEL. 7 SHEETS—SHEET 4.

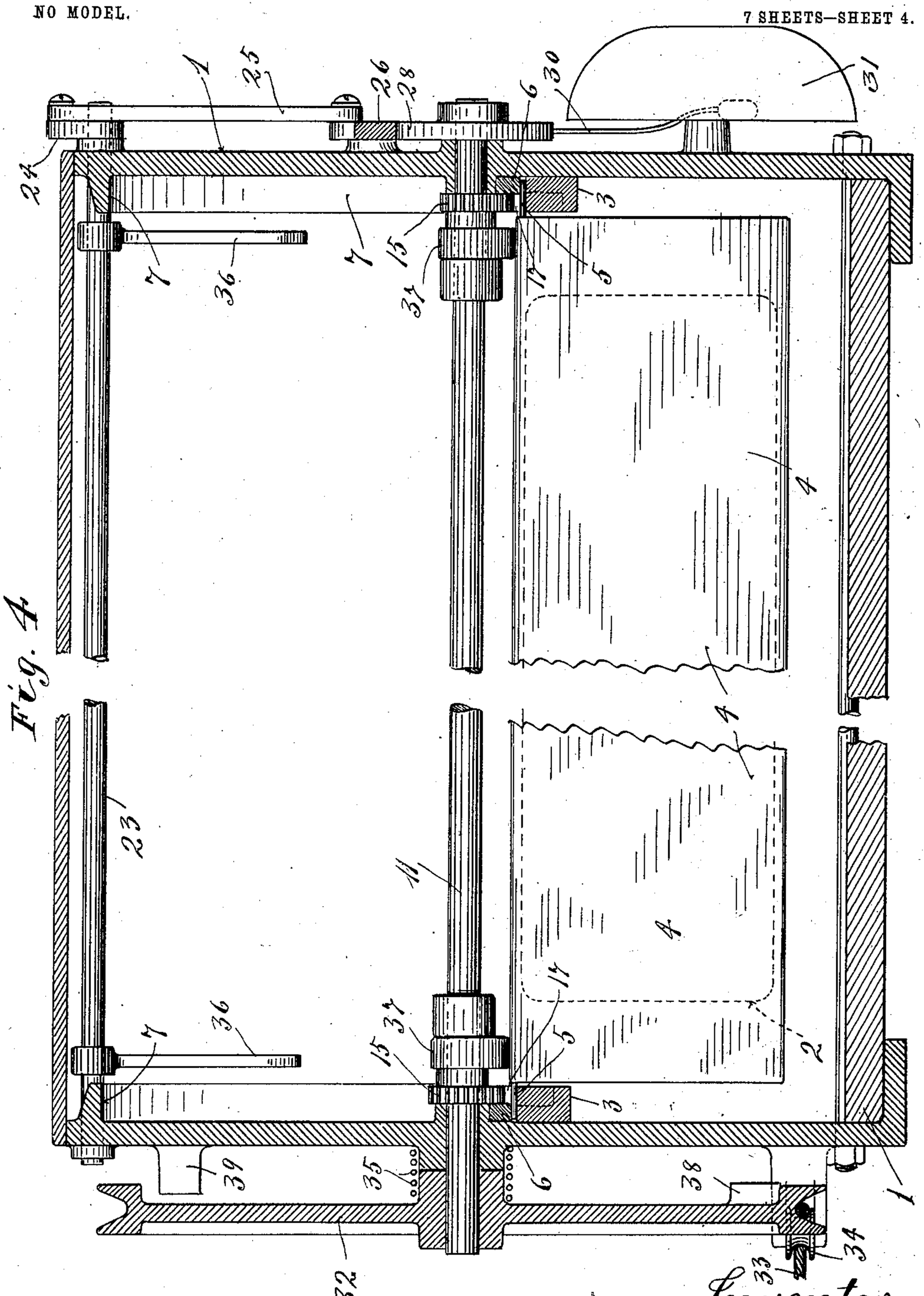

Fig. 4

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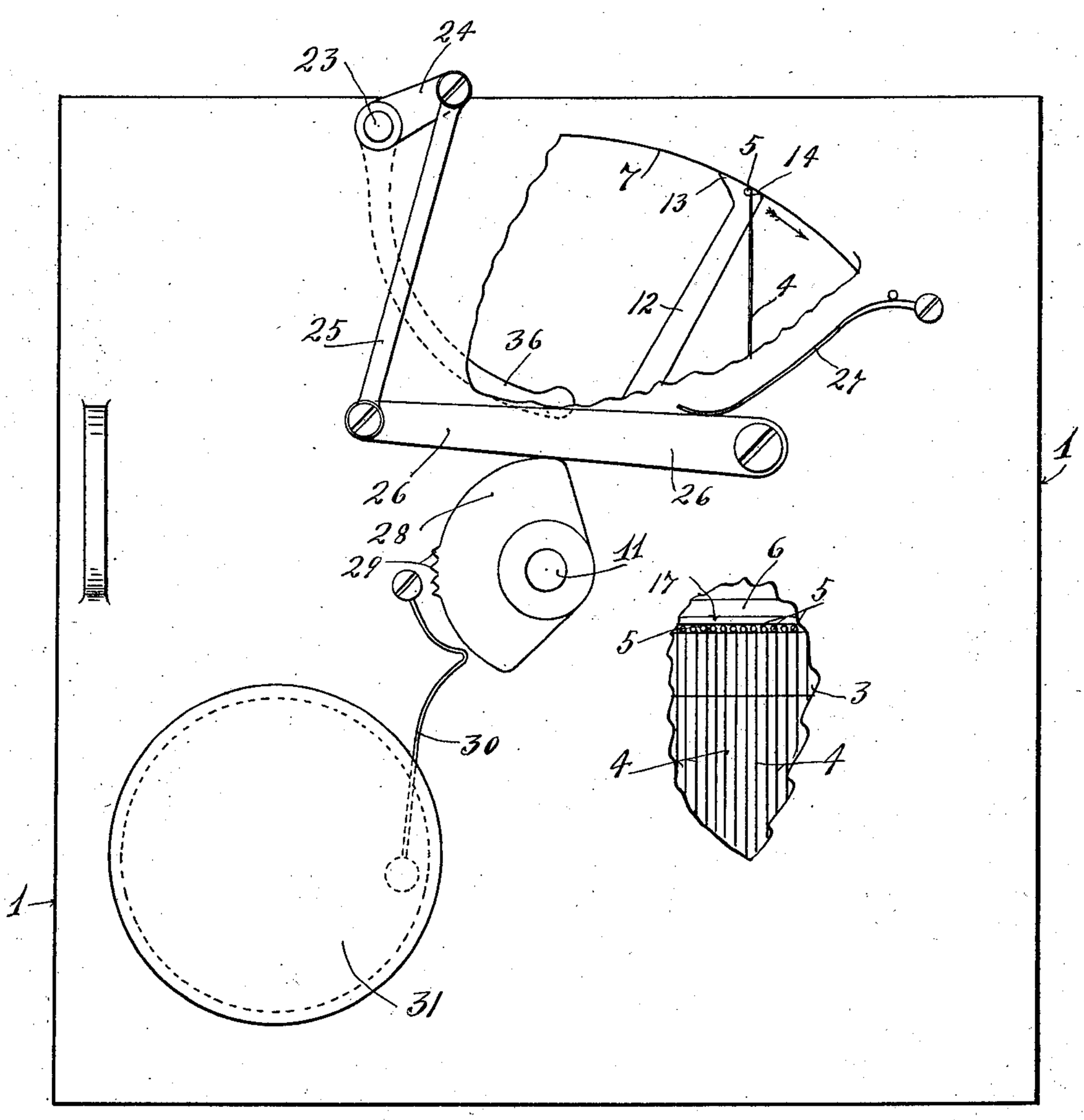
NO MODEL. 7 SHEETS—SHEET 5.

Fig. 5.



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NO MODEL. 7 SHEETS—SHEET 6.

Fig. 6.

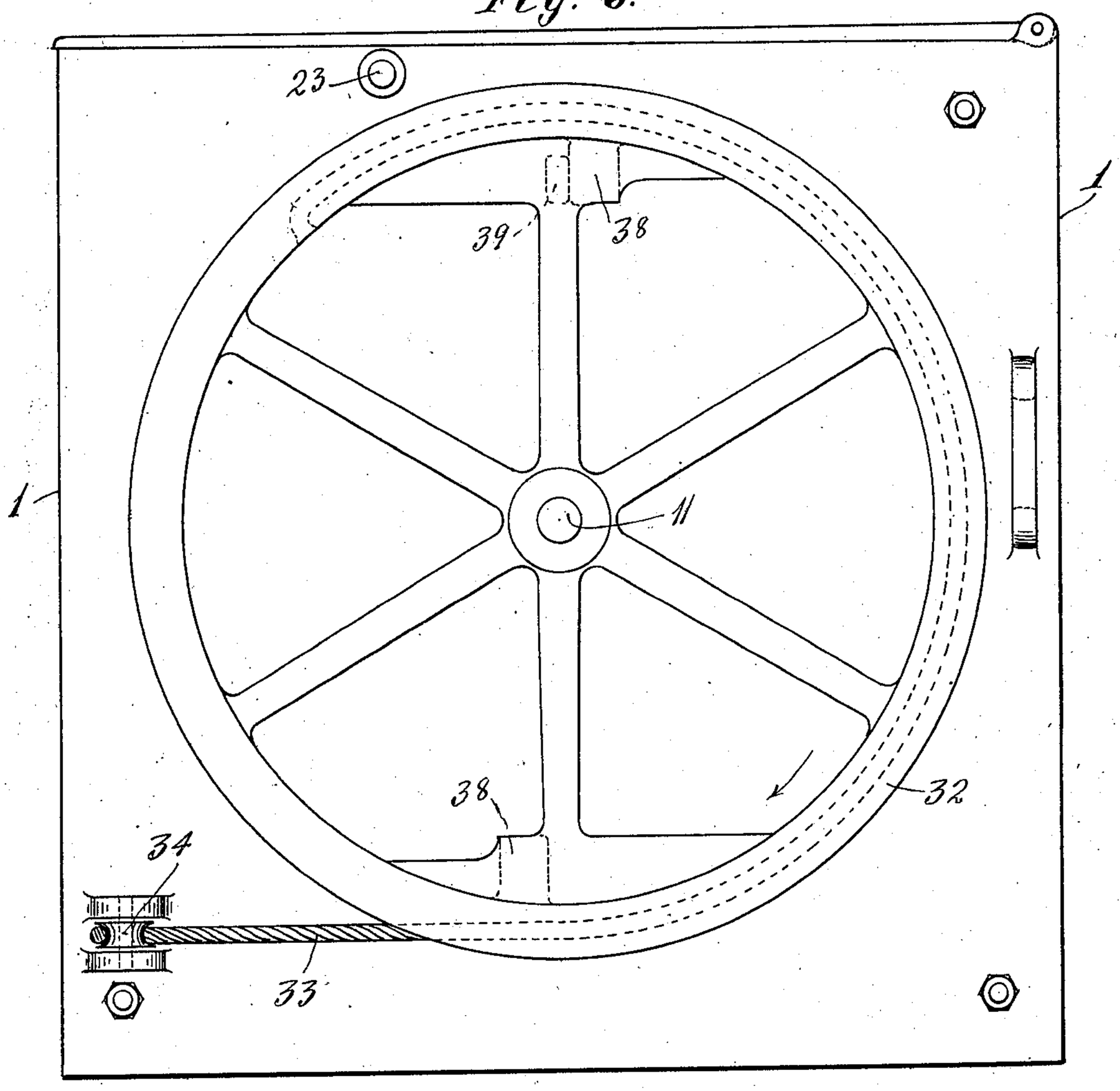
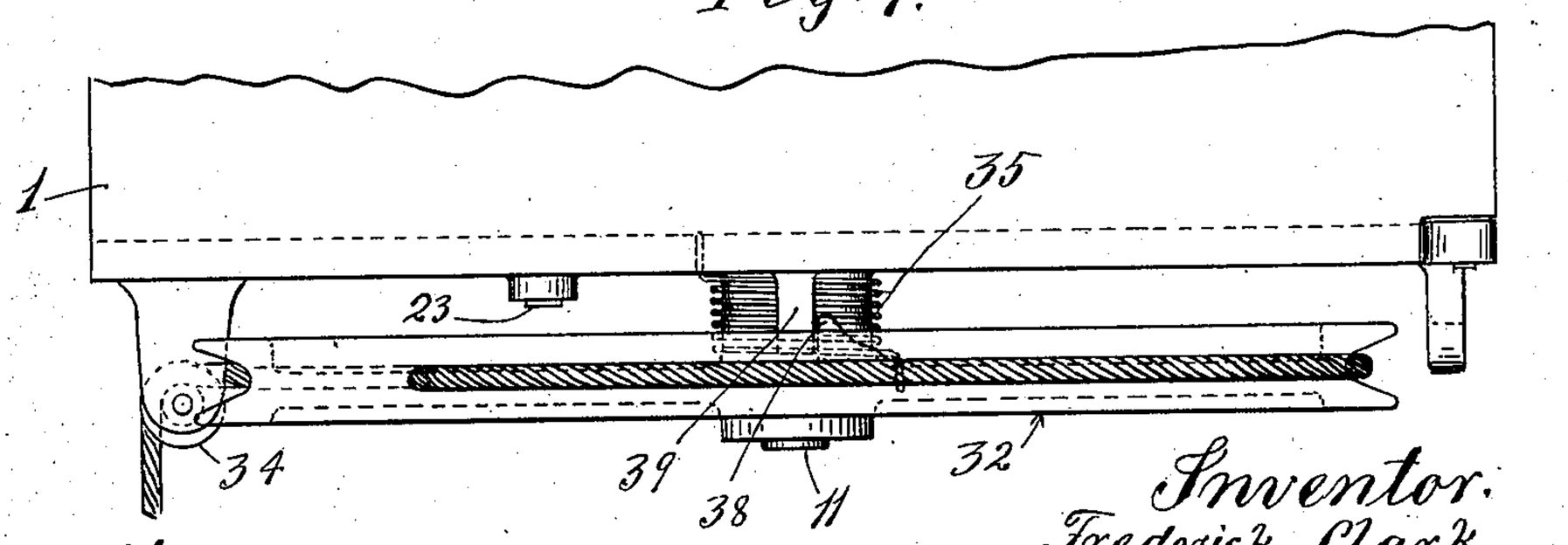


Fig. 7.



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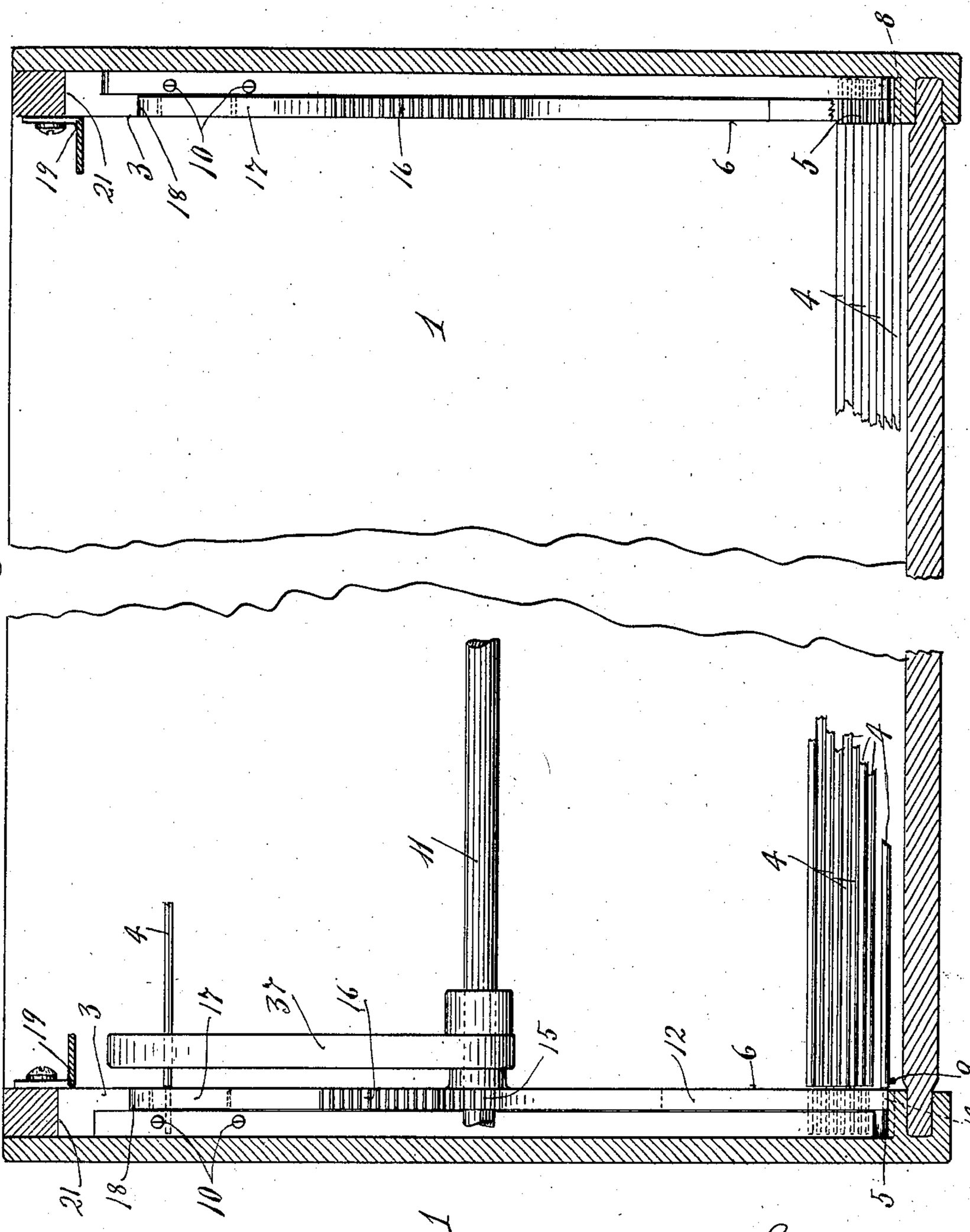
STATION INDICATOR.

APPLICATION FILED FEB. 21, 1903.

NO MODEL. 7 SHEETS—SHEET 7.

Fig. 8.



Witnesses
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No. 747,938. Patented December 29, 1903.

UNITED STATES PATENT OFFICE.

FREDERICK CLARK, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF TWO-THIRDS TO BARTON CLARK AND SAMUEL BAREMORE, OF CLEARLAKE, MINNESOTA.

STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 747,938, dated December 29, 1903.

Application filed February 21, 1903. Serial No. 144,479. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK CLARK, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Station-Indicators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its especial object to provide an improved street or station indicator; but from a broad point of view it is directed to improved means for exhibiting in succession certain matter printed or otherwise marked on a plurality of plates or cards.

To the ends above indicated the invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a front elevation showing the improved device applied to and supported by what may be considered a portion of the front end of a street-car. Fig. 2 is a transverse vertical section taken approximately on the line x^2 x^3 of Fig. 1, some parts being removed and others being broken away. Fig. 3 is also a section on the line x^2 x^3 of Fig. 1, some parts being broken away, but showing the machine in more complete form than in Fig. 2 and illustrating different positions of the parts. Fig. 4 is a longitudinal vertical section taken through the device approximately on the line x^4 x^4 of Fig. 2. Fig. 5 is an end elevation of the device, some parts being broken away, looking at the same from the left toward the right with respect to Fig. 1. Fig. 6 is an end elevation of the device looking at the same from the right toward the left with respect to Fig. 1. Fig. 7 is a plan view of the right-hand end of the device, other parts being broken away. Fig. 8 is a horizontal section taken through the device approximately on the line x^8 x^8 of Fig. 2.

The numeral 1 indicates a rectangular box or case provided in its forward face with a longitudinally-extended slot or opening 2, through which matter to be exhibited is exposed to view, as hereinafter described. Horizontally-extended supporting and guiding rails 3 are rigidly secured to the inner sides of the ends of the box or case.

The numeral 4 indicates a plurality of exhibiting-plates provided at their upper edges with small trunnions 5, that project beyond the ends of the same and rest loosely upon the supporting-rails 3, while the bodies of the said plates are by gravity caused to hang vertically downward. These exhibiting-plates are thus held in a closely-packed bank or assembled series upon the rails 3, and the face of the particular exhibiting-plate which happens to stand the farthest forward or nearest to the opening 2 of the case is positioned where whatever matter that may be printed thereon will be exposed to view through the opening 2. If used as a street-indicator for street-cars, the name of a street will be printed or marked on each plate 4, and preferably advertising matter, such as indicated in Fig. 1, will also be printed or marked on each plate. Of course if used as a station-indicator for railway-cars the names of the stations instead of names of streets would be printed on the said exhibiting-plates.

Overlying each supporting-rail 3 and serving to hold the trunnions 5 of the plates 4 down onto the said rails is a guard-strip 6, the ends of which, however, terminate short of the ends of said rails 3 to afford vertical passages for the trunnions of the said plates, as will hereinafter more fully appear.

Secured to each end of the box or case 1 and extending in the same plane as the corresponding supporting-rail 3 is a segmental retaining-guide 7. In the forward extremities of the guides 7 are small notches 8, that aline with the channels between the rails 3 and guard-strips 6. These notches 8 are of such size that each will admit but one trunnion 5 of a plate 4 at any one time. Springs 9, shown as secured at their upper ends to corresponding segments 7, yieldingly press at their lower ends against the upper portion of the plate 4, which stands at the extreme front

ends of the rails 3, with its trunnions seated in notches 8. The trunnions of the plate 4, which stands at the extreme rear of the assembled bank or series of plates supported by the rails 3, are engaged and held by a pair of spring-pressed catches or latches 10, shown as mounted to work vertically through the guard-strips 6. For a purpose which will hereinafter appear these spring catches or latches 10 are duplicated—that is, there are two pairs of the same—the one pair being mounted in the said strips 6 forward of the other pair. The lower ends of these spring-pressed catches or latches 10 are beveled on their rear faces, so that the trunnions of a plate 4, which is pressed forward, may readily pass under the same.

An operating-shaft 11 is mounted in the ends of the case and extends longitudinally through the case, with its axis located concentric to the curve of the retaining-guides 7. On this shaft 11, working one in the plane of each coöperating rail 3 and retaining-guides 7, is rigidly secured a pair of "transferring-levers" 12, so called, which levers at their free end move in close engagement with the coöperating segmental retaining-guides 7 and are provided at their free ends with hooks afforded by wedge-like noses 13 and notches or seats 14, which parts operate as presently described. The hubs of the levers 12 are formed with teeth, which afford segmental spur-pinions 15. Meshing with each pinion 15 is a rack 16 of a so-called "feed-bar" 17. These feed-bars 17 rest loosely upon the trunnions of the plates 4, which are supported by the rails 3, and they are held against lateral movements by the retaining-strips 6 and the shouldered edges of the said plates 4, being, however, free for limited vertical movements at their rear ends. It should be here noted that the strips 6 are narrower than the rails 3, so that the feed-bars 17, as well as said strips 6, overly the coöperating rails 3. At their rear ends the bars 17 are provided with cam-acting hook-lugs 18, which coöperate with the spring latches or catches 10 and operate on the trunnions of the plates 4 in a manner which will presently be described. The numeral 19 indicates a pair of metallic guard-straps, which, as shown, are rigidly secured one to each rail 3. The upper portions of the straps 9 are shown as bent to conform approximately to the curve of the retaining-guide 7, and the lower ends thereof depend below the rails 3. At some little distance above the rails 3 the straps 19 are indented or bulged, as shown at 20, and in a horizontal line therewith the retaining-guides 7 are beveled, as shown at 21, for purposes which will appear in the description of the operation.

Extending longitudinally of the case and journaled in the ends thereof is a rock-shaft 23, provided at its outwardly-projected end—to wit, its left-hand end as viewed in Fig. 1 or its right-hand end as viewed in Fig. 4. The said shaft 23 is provided with a short crank-arm 24, which is connected by a link 25 to a cam-actuated lever 26, pivoted to the adjacent end of the case 1 and yieldingly pressed downward by a spring 27, one end of which spring is rigidly secured to the said end of the case. At the proper time the lever 26 is acted upon by a cam 28, rigidly secured to the adjacent end of the oscillating shaft 11. The cam 28 is shown as provided with peripheral teeth or serrations 29 for action on the hammer 30 of a bell 31, which parts 30 and 31 are suitably mounted on the adjacent end of the case 1. At its other end from that to which the cam 28 is secured the shaft 11 is provided with a large sheave 32. An operating-cord 33, wound on and secured to the sheave 32, is, as shown, passed over a small guide-sheave 34 on the case 1 and from thence to any suitable point from which the device is to be operated. Preferably the said operating-cord 33 will be extended to the rear platform of a car, so as to enable the conductor to readily operate the device. A spring 35 (see particularly Figs. 4 and 7) surrounds the hub of the sheave 32, with one end secured to said sheave and the other end to the adjacent end of the case 1. This torsional spring acting on the sheave 32 yieldingly holds the transferring-levers 12 and the feed-bars 17 in the normal positions indicated in Fig. 2.

Rigidly secured to the rock-shaft 23 is a pair of laterally-spaced arighting-arms 36, which operate as hereinafter described. Loosely pivoted on the rock-shaft 11 and resting on the tops or upper edges of the bank of plates 4 is a pair of so-called "guide-skids" 37, the upper surfaces of which incline downward toward the rear of the case 1 and the free edges of which project beyond the rearmost latches 10. The purpose of these skids 37 will also presently appear in the description of the operation. A stop 38 on the sheave 32 coöperates with the stop 39 on the case 1 to limit the movement of the said sheave under the action of the spring 35.

Operation: Normally the parts stand as indicated in Fig. 2 of the drawings; but it will of course be understood that the space which in said view is shown as left clear between the front and rear exhibiting-plates 4 on the rails 3 will be closely packed with the said exhibiting-plates. Normally it will be noted the trunnions of the front plate 4 are pressed into the notches 14 of the transferring-levers 12 by the pair of springs 9. It may be here stated, however, that as the nose 13 or hooked ends of the levers 12 are forced downward between the foremost two plates 4 the trunnions of the extreme forward plate are forced into the notches 8 to permit the said ends of the said levers to pass downward at the rear of the same. By drawing on the operating-cord 33 the shaft 11 may be given its operative movement, so as to carry the transferring-arms 12, together with the exhibiting-plate caught thereby, upward and rearward

to a point diametrically in line with the positions of said levers. (Shown in Fig. 2.) This movement of said levers 12 is shown as partially completed in Fig. 3. When the trunnions of the plate which is being transferred by the levers 12 are brought into line with the bulges 20 of the guard-straps 19 and with the beveled or back-cut surfaces 21 of the retaining-guides 7, they are released from the hooked ends of said levers and permitted to drop onto the rear ends of the rails 3. Under the above-noted delivering movement of the levers 12 the trunnions of the exhibiting-plate are of course held within the notches 14 of said levers by the segmental retaining-guides 7. Again, under the plate-delivering movement of the levers 12, above noted, the cam 28, acting on the lever 26 and through the connections described, oscillates the arighting-arms 36 downward and rearward, thereby causing the same to engage the elevated exhibiting-plate and rock the depending edge thereof forward, as indicated by dotted lines in Fig. 3, so that when the said plate begins to lower its depending edge will stand in advance of the trunnions thereof at the time it engages with the inclined skids 37. This prevents the said plate from being swung so that it will be turned backward by engagement with the skids 37. The skids 37 cause the depending edge of the moving plate to travel ahead and to drop rearward of the plate, which is held by the rearmost catches 10. When the transferring-levers 12 are moved rearward, the feed-bars 17 are by their coöperating pinions 15 and racks 16 caused to travel forward, and when they thus move forward the rear hooks 18 thereof catch the trunnions of the last previously-deposited exhibiting-plate at the extreme rear of the rails 3 and carry the same under and forward of the rear pair of catches or latches 10, by which latches the said plate will be held against rearward or return movements. Under the same movements the forward pair of hooks 18 catch the trunnions of the exhibiting-plate which has been forced forward of the rear latches 10 and carry the same under and forward of the forward pair of latches 10, by which latter-noted latches the delivery exhibiting-plate will be pressed against the stack or series of plates supported by the rails 3.

If the same number of exhibiting-plates are always to be employed, each feed-bar 17 might be provided with but one hook 18 and each strip 6 would require but one catch or latch 10. However, by employing two or more pairs of the said hooks and latches it is possible to vary the number of exhibiting-plates employed, since the space between the forward and rear latches may be more or less filled with exhibiting-plates.

When the actuating-cord 33 has been drawn upon and then released, the spring 35 becomes operative to restore the moving parts of the machine to normal positions, as indicated in Fig. 2, and under this movement of the parts back to normal the beveled hooks or lugs 18 of the feed-bar 17 ride over the trunnions of the exhibiting-plates which lie in their path on the rear portions of the rails 3, so that they will catch the said trunnions upon the next forward movement of the feed-bars and operate on the exhibiting-plates, as just described.

In the manner above described the exhibiting-plates are one after another in a regular order of succession exhibited at the sight-opening 2 of the case and are then picked up and carried rearward and deposited at the rear of the bank or series of exhibiting-plates. Under each oscillation of the operating-shaft 11 the teeth or serrations 29, acting upon the bent portion of the bell-hammer 30, cause the bell 31 to be sounded, thus indicating to the operator the fact that the device has been actuated and serving further to attract the attention of the passengers to the matter exhibited on the exhibiting-card, which, as already stated, would usually be both the name or number of the street or station and certain advertising matter.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. In a machine of the character described, the combination with supporting-rails and a bank of exhibiting-plates having trunnions that rest upon and slide over said rails, of pivoted transferring-levers having hooked ends that engage the trunnions of said plates and deliver said plates, one at a time, from the forward to the rear portions of said rails, springs at the forward portions of said rails, for pressing the trunnions of the forward plate against the hooked ends of said levers, and means for forcing forward the plates delivered to the rear portions of said rails, substantially as described.

2. In a machine of the character described, the combination with supporting-rails and a bank of exhibiting-plates having trunnions that rest on and slide over said rails, of pivoted transferring-levers having hooked ends that engage the trunnions of said plates and deliver said plates, one at a time, from the forward to the rear portions of said rails, springs at the forward portions of the rails, for pressing the trunnions of the forward plate against the hooked ends of said levers, latches near the rear portions of said rails for holding said plates in a compact bank, on the said rails, and feed devices for pressing forward of said latches, the plates delivered to the rear portions of the rails, by said levers, substantially as described.

3. In a machine of the character described, the combination with supporting-rails and a bank of exhibiting-plates having trunnions that rest upon and slide over said rails, of pivoted transferring-levers having hooked ends that engage the trunnions of said plates and deliver the same, one at a time, from the forward to the rear portions of said rails, guide-

skids overlying said bank of plates and projecting rearward thereof, and means for forcing forward the plates delivered to the rear portions of said rails, by said levers, substantially as described.

4. In a machine of the character described, the combination with supporting-rails and a bank of exhibiting-plates having trunnions that rest upon and slide over said rails, of pivoted transferring-levers having hooked ends that engage the trunnions of said plates and deliver said plates, one at a time, from the forward to the rear portion of said rails, and pivoted arighting-arms operating on the raised plate to prevent backward swinging of the lower edge thereof, while said plate is being raised by said levers, substantially as described.

5. In a machine of the character described, the combination with supporting-rails and a bank of exhibiting-plates having trunnions that rest upon and slide over said rails, of pivoted transferring-levers having hooked ends that engage the trunnions of said plates, and deliver said plates, one at a time, from the forward to the rear portion of said rails, a plurality of latches coöperating with each rail, to hold the plates, at different points, against rearward movements, and a pair of reciprocating feed-bars coöperating with said latches, each bar having a plurality of catch hooks or lugs, for action on the plates delivered to the rear portions of said rails, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK CLARK.

Witnesses:

ELIZABETH H. KELIHER,

F. D. MERCHANT.