

R. E. E. WEITLICH.
VENDING MACHINE.
APPLICATION FILED APR. 24, 1908.

905,394.

Patented Dec. 1, 1908.

2 SHEETS—SHEET 1

Fig. 1.

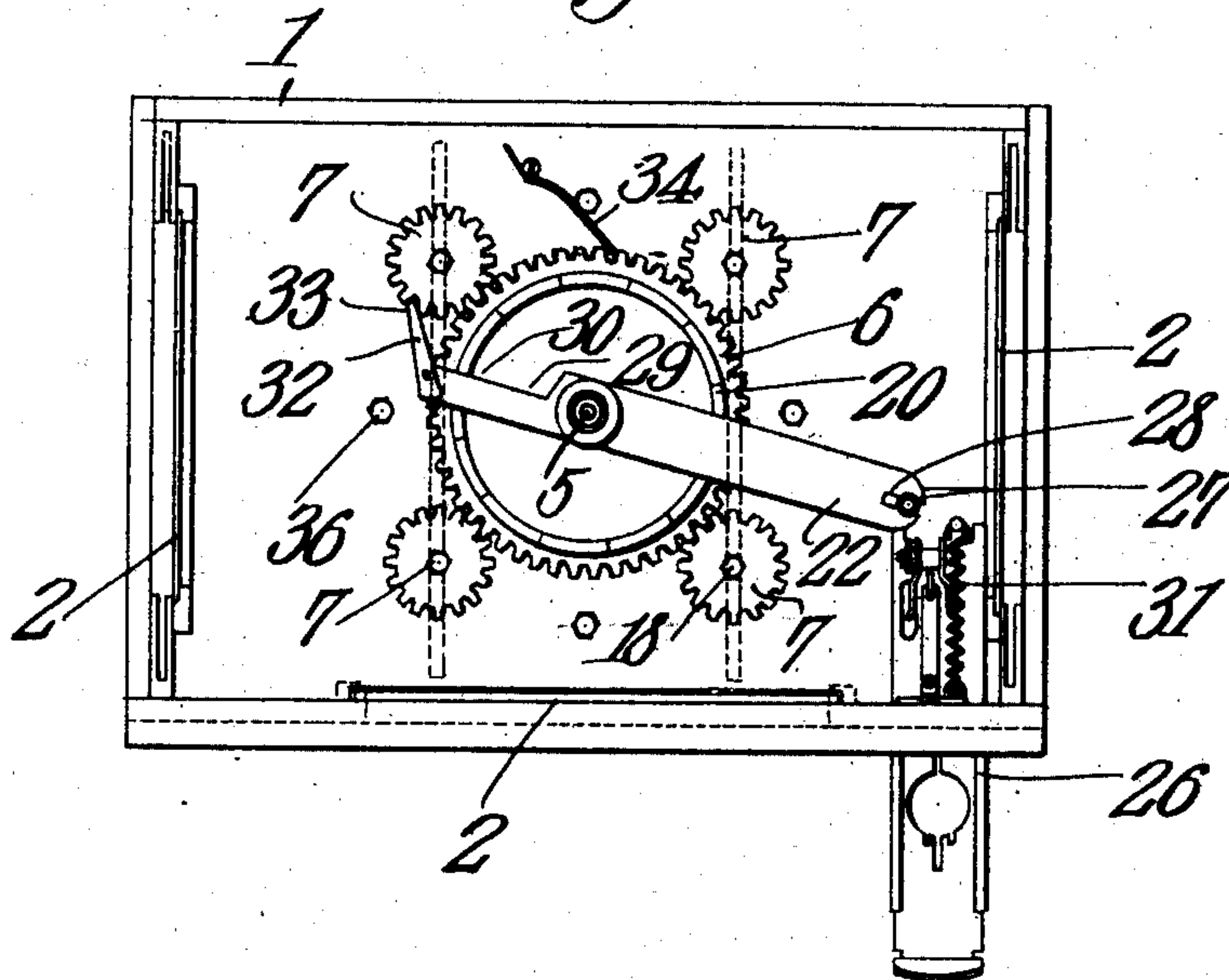
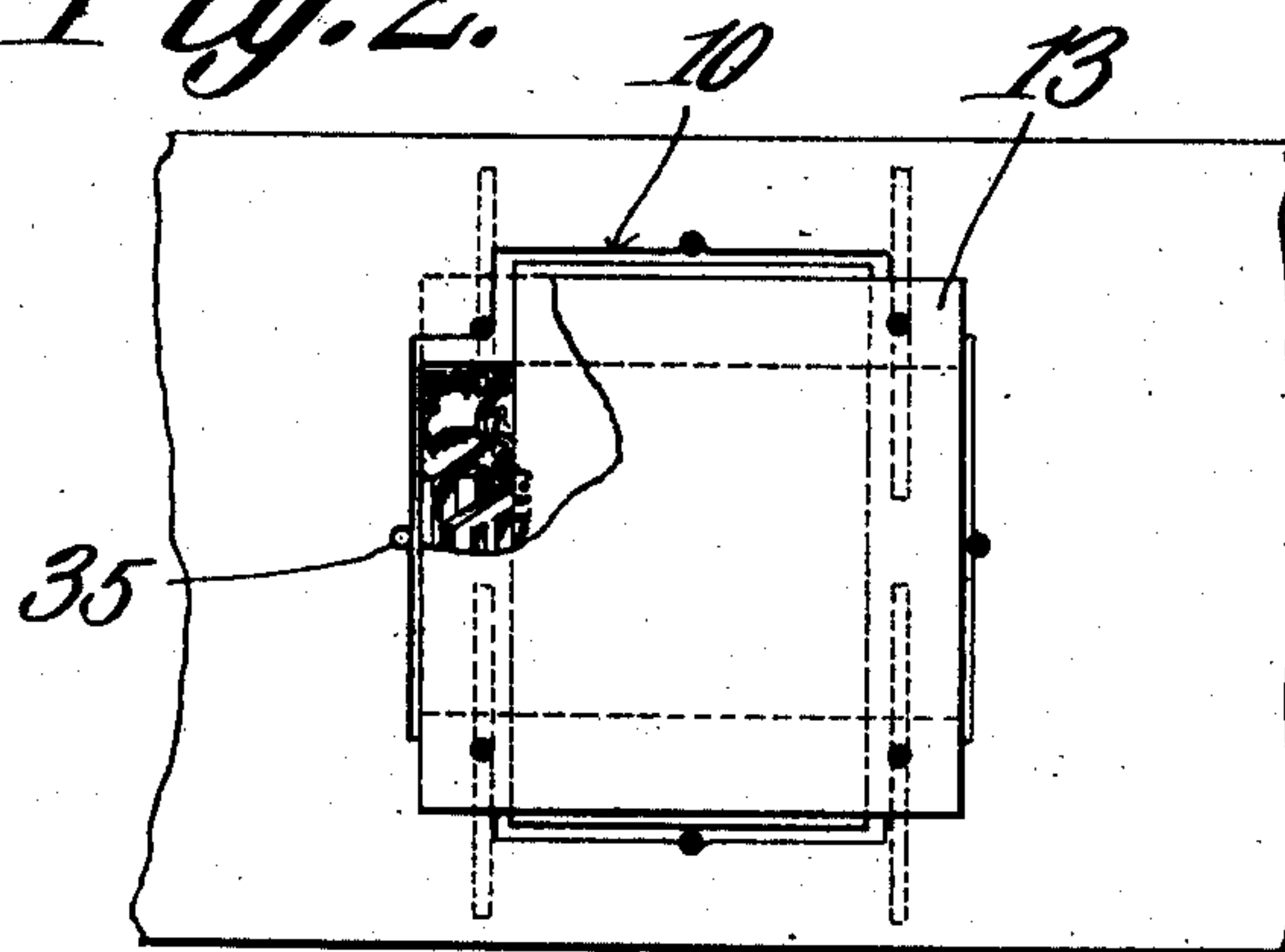


Fig. 2.



Witnesses

E. J. Stewart
F. T. Chapman

Inventor

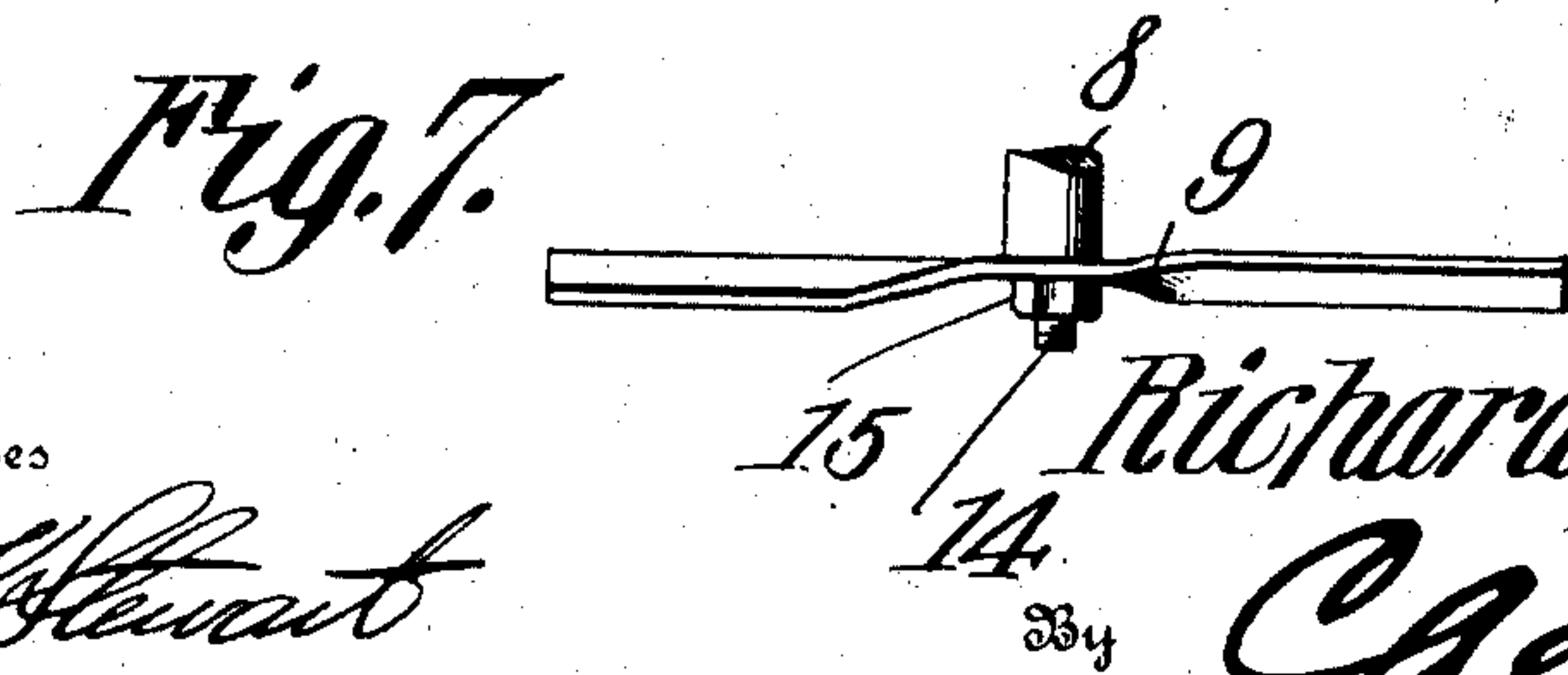
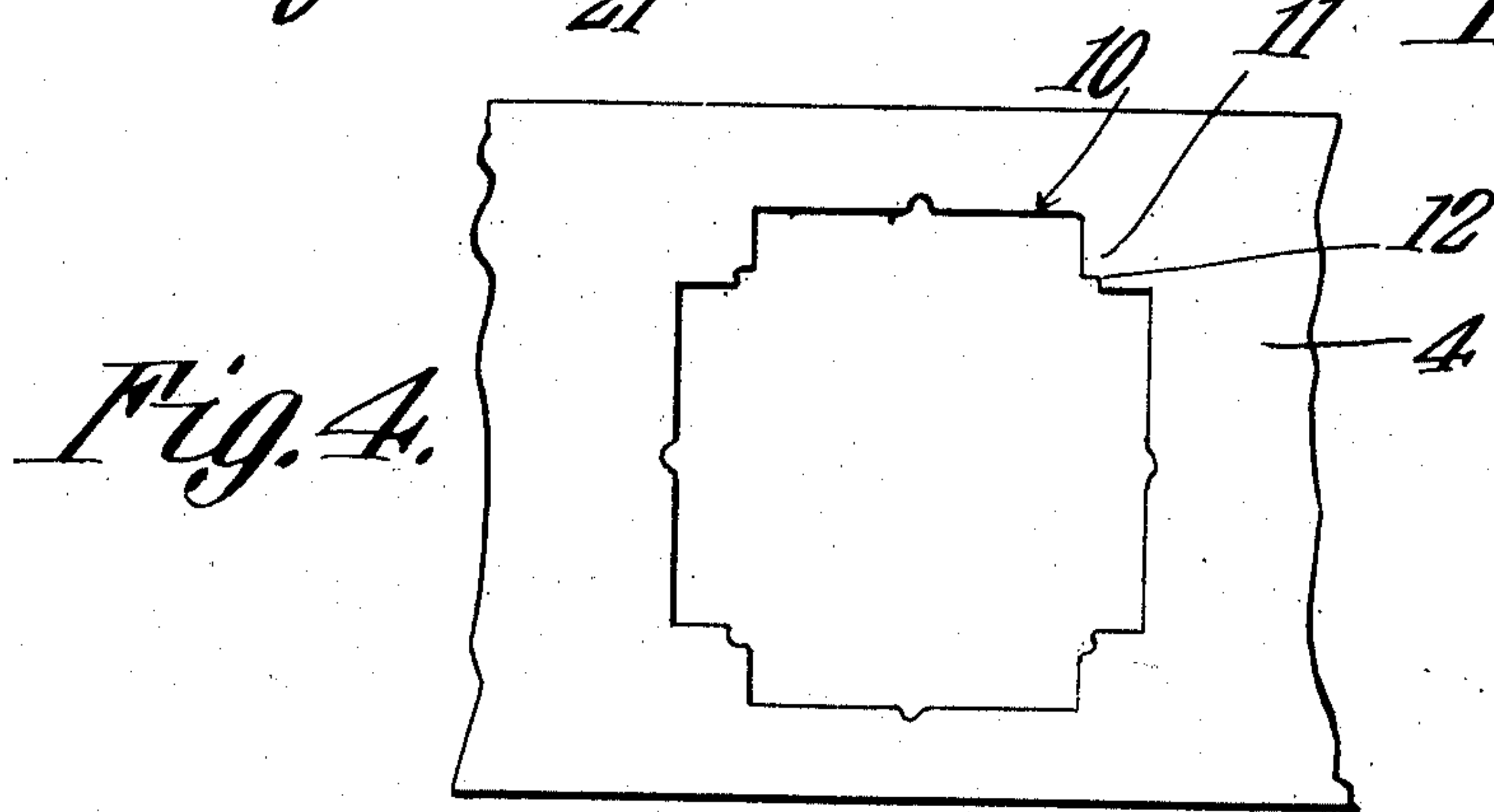
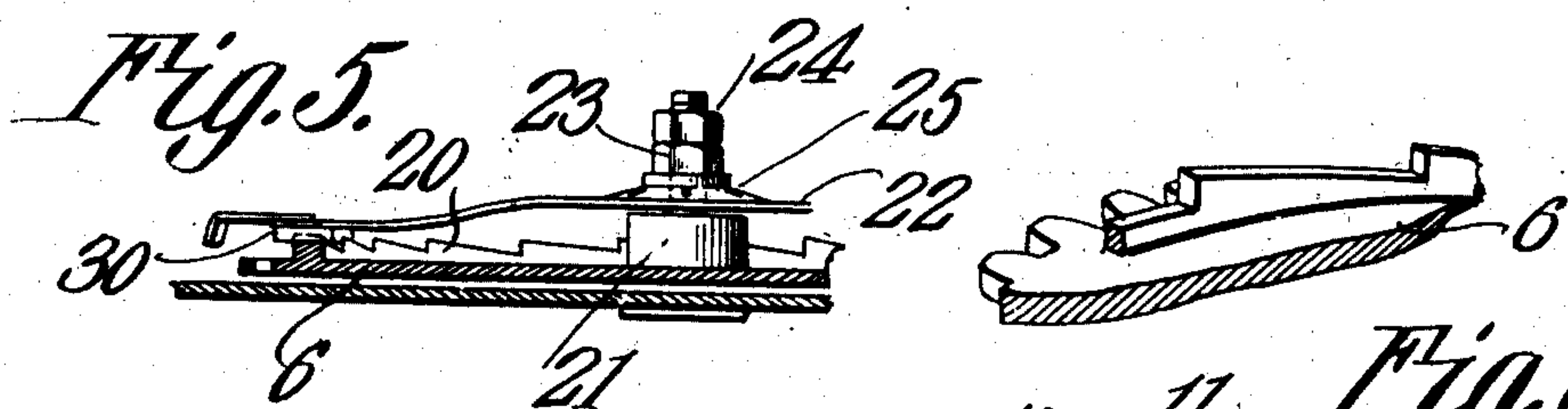
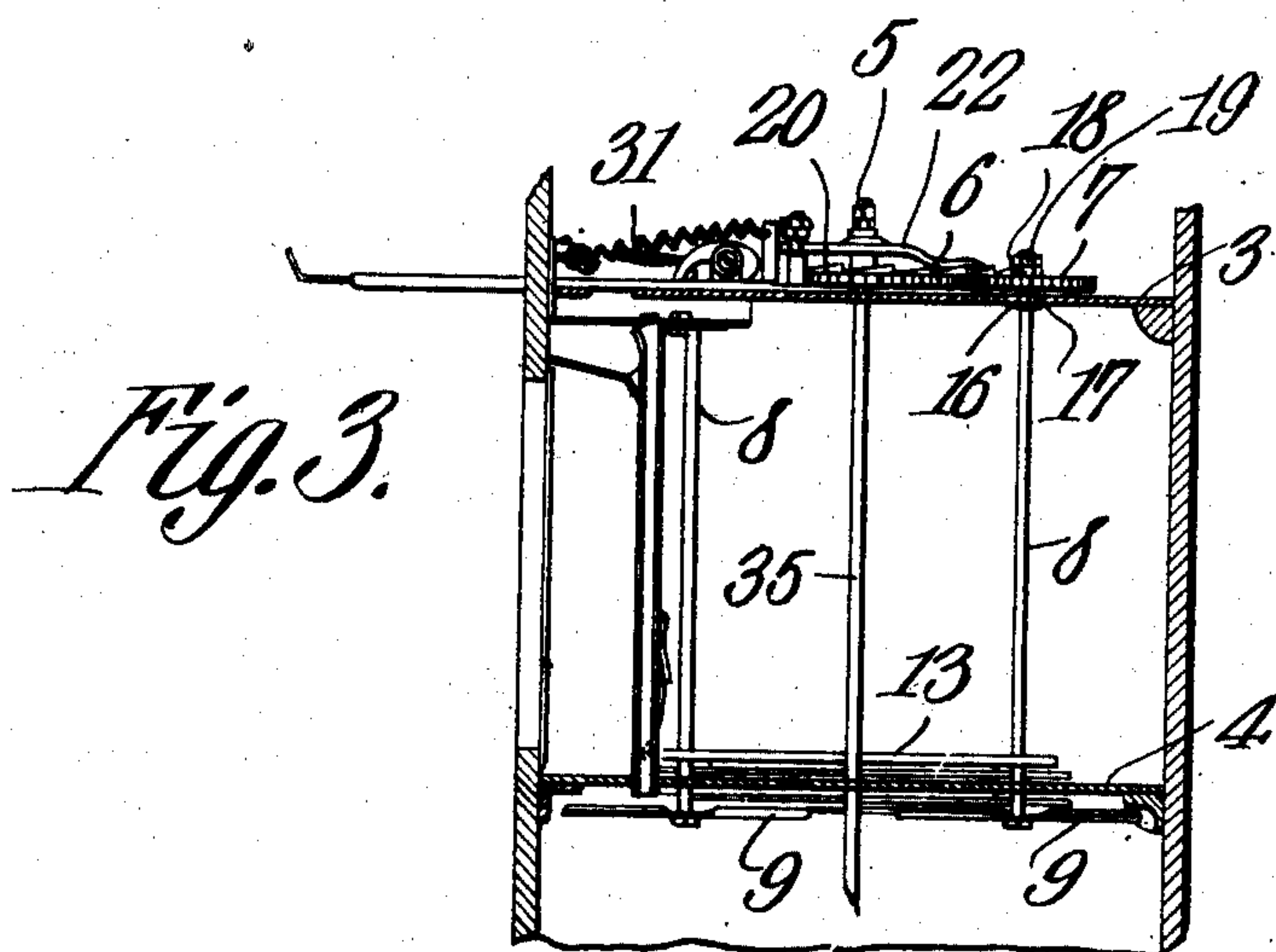
Richard E. E. Weitlich.
334 *C. A. Snow & Co.*
Attorneys

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2 SHEETS—SHEET 2.



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E. J. Stewart
J. T. Chapman

Inventor
Richard E. E. Weittlich.
By *Ca Snow & Co*
Attorneys

UNITED STATES PATENT OFFICE.

RICHARD E. E. WEITLICH, OF STURGEON BAY, WISCONSIN.

VENDING-MACHINE.

No. 905,394.

Specification of Letters Patent.

Patented Dec. 1, 1908.

Application filed April 24, 1908. Serial No. 429,025.

To all whom it may concern:

Be it known that I, RICHARD E. E. WEITLICH, a citizen of the United States, residing at Sturgeon Bay, in the county of Door and State of Wisconsin, have invented a new and useful Vending-Machine, of which the following is a specification.

This invention has reference to improvements in vending machines, and relates more particularly to improvements in machines designed to deliver postal cards on the insertion of a coin of suitable value, or by a suitable change in the proportions of the parts for the delivery of newspapers or magazines, or other like articles more bulky than postal cards.

The present invention is based on the fact that postal cards, magazines and other such articles, are longer in one direction than in the other, and, therefore, can be crossed at right angles so as to present reëntering angles at the corners. By locating supporting arms so as to engage the lowermost member of a tier or stack of cards or magazines with each alternate card or magazine arranged at right angles to the next adjacent cards or magazines, then by turning the supporting members so as to be moved out of the path of the lowermost card or magazine and at the same time be brought into the path of the projecting ends of the next higher card or magazine, then the lowermost magazine is free to drop away from the tier or stack while the remainder of this tier or stack is held against downward movement.

This invention is an improvement upon a prior mechanism invented by myself and Adolph W. Miller, and for which U. S. Letters-Patent No. 868,589 for a vending machine were granted October 15, 1907.

The improvements constituting the subject-matter of this application are directed more particularly to means for causing the rotation of the arms serving alternately for the delivery of the lowermost number of the stack or tier of articles and the support of the remainder of the articles, and also in part to the structure of these arms. The mechanism is intended primarily to be operated by a coin-controlled mechanism which latter, however, forms no part of this present invention and will be referred to only in so far as it may be necessary to understand the invention as a whole.

The invention will be best understood by a

consideration of the following detail description taken in connection with the accompanying drawings forming a part of this specification, in which drawings,—

Figure 1 is a plan view of the operating mechanism with the top of the casing omitted. Fig. 2 is a plan view of the card-retaining portion with the follower plate in place and in part broken away. Fig. 3 is a vertical section near one edge of the casing. Fig. 4 is a plan view of the card-receiving plate with the follower and other parts omitted. Figs. 5, 6 and 7 are detail views.

Referring to the drawings, there is shown a casing 1 of suitable construction provided, where necessary, with glass panels 2 giving a clear view of the interior of the casing. Near the top of the casing is a cross partition 3, and near the bottom of the casing is another partition 4. Extending centrally through the upper partition is a vertical stud 5 carrying at its upper end above the partition 3 a gear wheel 6 lying close to the upper face of the partition 3 and separated therefrom only sufficient to prevent frictional contact. Grouped about the gear wheel 6 are four pinions 7 equidistantly disposed with relation to said gear wheel, and each fast upon the upper end of a corresponding shaft 8 extending down to the partition 3 and also through the partition 4 and immediately below the latter carrying arms 9 for the support of postal cards, magazines or the like, as will hereinafter appear.

In the bottom plate 4 there is formed a delivery opening 10 at the corners of which are reëntering sections 11 so that the openings 10 are in fact in the form of a cross with very short stems. The opening is of such size and shape as to permit articles, such as postal cards, to pass freely through it when the longer diameter of the card is in line with the length of the partition 4 or when the long diameter of the card lies in the direction of the width of the plate 4. Each reëntering section 11 has its inner corners formed with rounded recesses 12 to form bearings for the shafts 8, and these shafts are kept in proper spaced relation by a follower plate 13 through which the shafts extend. This follower plate is free to move longitudinally on the shafts and serves to urge the stack of cards or magazines or other articles downward through the opening 10 by virtue of its weight.

In the Letters-Patent referred to the sustaining arms for the stack of cards or magazines are in the form of rods or wires, but in the present instance they are made each of a flat strip having a central perforation for the passage of a threaded stem 14 on the lower end of each shaft 8, so that its arms may be held against the lower end of the stem by a suitable nut 15. The oppositely-projecting ends of the strip forming each arm 9 are given a partial twist in opposite directions, as best indicated in Fig. 7 so that when the shafts are rotated to bring one end of each arm out of sustaining relation to a card or magazine, the other end of the arm may thoroughly engage under the next succeeding card or magazine, even though the latter shall, because of its weight, have more or less sag, the arm because of its twist on the longitudinal axis acting more or less after the nature of a wedge to catch under the overhanging end of the card or magazine and cause it to be lifted to the proper plane, even though it initially sag to a greater or less extent.

In order to hold the upper ends of the shafts 8 they may be suitably shouldered below the plate 3 and there receive a washer 16 and above the plate 3 to receive another washer 17, and on this last-named washer is placed a corresponding pinion 7. The pinion is held in place by a nut 18 to which may be applied a lock-nut 19 so that the nut 18 may not become loosened in use and the shaft 8 be permitted to drop.

The gear wheel 6 is provided on one face near its periphery with a circular series of ratchet teeth 20 cut in an annular flange rising from the corresponding face of the gear wheel. The web of the gear wheel 6 is preferably solid, although of course it may be otherwise shaped if so desired, and surrounding the stud 5 the gear wheel is provided with a hub 21. Mounted upon the stud 5 above the hub 21 is a lever arm 22 held to the stud by a nut 23 and a lock nut 24. There may be introduced between the nut 23 and the corresponding face of the arm 22 a washer 25.

The machine is provided with a suitable coin lock 26 in the form of a slide with locking mechanism thereon capable of responding through the intermediary of a coin of proper size. The structure of this coin lock has nothing whatsoever to do with the present invention and so is not described herein, it only being necessary to state that the coin lock is capable of moving longitudinally and is provided at an appropriate point with a stud 27 entering a slot 28 formed in the corresponding end of the lever 22 so that when the coin lock is moved longitudinally to a sufficient extent, which movement is permitted when the lock is released by the suitable coin, the other end 29 of the lever

arm 22 will move a distance sufficient to cause it to operate in a manner to be now described. The end 29 of the lever 22 is made elastic and overrides the rack teeth 20, and may be additionally provided with a tooth 30 to engage behind the shoulders of the teeth of the rack 20. When the arm 22 is moved in one direction the end 29 with its tooth 30 will ride up the inclined faces of the teeth and ultimately snap down in front of the shoulder of the tooth, and when the arm 22 is moved in the other direction the spring end 29 or its tooth 30 will engage the shoulder of one of the rack-teeth 20 and so cause the gear wheel 6 to rotate about its axis for a distance commensurate to the movement of the coin slide 26. The structure of this coin slide is such that when it is moved in one direction toward the unlocked position, the spring 31 is put under tension, and when the coin slide is released this spring will return the parts to normal position. The first movement of the coin slide, that is, when the spring 31 is put under tension, will move the arm 22 about the stud 5 in a direction to cause the spring arm 29 to ride up the inclined face of one of the rack teeth 20 and ultimately snap down in front of the shoulder of the tooth, and when the coin slide is released the spring 31, on returning the coin slide to its normal position, will at the same time impart a rotative movement to the gear wheel 6 and the corresponding rotative movement to each of the pinions 7 and shafts 8 driven thereby. The movement of the coin slide sufficient to permit the spring end 29 of the arm 22 to snap down in front of the tooth shoulder is only permitted when a proper coin has been used. Otherwise the movement of the coin slide is insufficient for this purpose.

Fast on the end 29 of the arm 22 is a finger 32 terminating in a down-turned end 33 capable of entering between the teeth of one of the pinions 7 when the coin slide is in its outermost position, so that the gear 6 and pinions 7 are then all locked against rotative movement. There is also provided a spring back-stop 34 engaging the teeth of the gear 6.

The plates 3 and 4 are locked together by rods 35 extending through both plates and held in position by appropriate nuts 36. In the normal position of the parts, one or the other end of the arms 9 extend into the path of the column of cards or magazines or other articles to be delivered and so sustain them.

Now, let it be assumed that it is desired to obtain from the machine an article on the introduction of a coin of proper value. The coin is introduced into the coin-controlled lock, and the slide 26 is pushed into the machine to its full extent. This causes the end 29 of the lever 22 to engage a tooth of the rack 20, as already explained. On release

of the coin slide the spring 31 becomes active and the gear 6 is rotated in a proper direction. The parts are so proportioned that the rotation of the gear 6 a distance quite
 5 equal to the length of a tooth of the rack 20 will cause the pinions 7 all to synchronously rotate through an arc of 90° . This will bring one end of each arm 9 out of the path of the article supported thereby and at
 10 the same time bring the other end of the arm 9 into the path of the next article above which as has been already explained, lies at right angles to the lowermost article of the tier. The first article being unsustained
 15 drops by gravity to a point within reach of the customer, and the next article is locked against following by the new position of the arms 9. On the pinions 7 being rotated through an arc of 90° the downturned end
 20 33 of the finger 32 is brought between two teeth of the corresponding pinion 7 and the rotative elements of the structure are thereby locked against further rotative movement until there is again introduced into the coin-
 25 controlled mechanism a coin of proper value and the apparatus is again operated. The degree of spring pressure of the arm 29 upon the teeth of the rack 20 may be determined by the nuts 23 and 24, and the end 29 of the
 30 arm 22 will yield elastically when caused to pass over the teeth of the rack 20.

What is claimed is:—

1. In a vending machine, a number of substantially vertical shafts arranged to receive
 35 between them a number of articles stacked alternately at approximately right angles one to the other, supporting and delivering means carried by the lower portions of the shafts, pinions for rotating said shaft, a
 40 common gear wheel for the pinions, and provided with ratchet teeth on one face, an arm pivotally supported in the axis of the gear wheel and provided at one end with a spring member arranged to engage the said teeth,
 45 and means accessible from the outside of the machine for reciprocating said arm about its support.

2. In a vending machine, a number of substantially vertical shafts, supporting means
 50 at the lower ends of the shafts, pinions at the upper ends of the shafts, a common gear wheel for the pinions, ratchet teeth formed on the upper face of said gear wheel, a reciprocating arm mounted on the axis of the
 55 gear wheel and provided with means at one end for engaging the ratchet teeth, means accessible from the outside of the machine for reciprocating said arm, and a finger carried by the arm and movable thereby in en-

gagement with one of the gear members to 60 lock the same against rotation.

3. In a vending machine, a number of rotatable shafts, article supporting means at one end of the shafts, pinions at the other
 65 ends of the shafts, a common gear wheel for the pinions having an annular series of ratchet teeth formed on one face, an arm pivotally supported in the axis of the gear wheel, a reciprocating member engaging one
 70 end of said arm, a spring member on the other end of said arm and coacting with the ratchet teeth on the gear wheel, and a finger carried by the spring member and movable into the path of the teeth of one of the gear
 75 members to locate all the gear members against rotation.

4. In a vending machine, a number of substantially vertical shafts, means for imparting step-by-step rotative movement thereto,
 80 and article sustaining parts carried by the lower ends of said shaft, each composed of a flat strip centrally carried by the respective shaft and having its ends bent to lie in planes oppositely-disposed with relation to
 85 each other.

5. In a vending machine, a number of substantially vertical shafts arranged to receive
 90 between them a number of articles stacked alternately at approximately right angles one to the other, means for imparting step-by-step rotative movement to the shafts, and support and delivering means on the lower
 95 end of each shaft comprising a flat strip having a central connection to the shaft and with its free ends twisted in opposite directions but projecting in diametrically-opposite directions from said shaft.

6. In a vending machine, a number of rotatable shafts, article-supporting means at one end of the shafts, pinions at the other
 100 end of the shafts, a common gear wheel for the pinions, having ratchet-teeth formed on one face, an elastic back stop for the gear wheel, an arm pivotally supported in the axis of the gear wheel, said arm having an
 105 elastic portion engaging the ratchet-teeth and also provided with a finger movable into the path of the teeth of one of the pinions, and means for reciprocating the arm about its support.
 100

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

RICHARD E. E. WEITLICH.

Witnesses:

ADOLPH W. MILLER,
 CLYDE M. STEPHENSON.