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6 SHEETS—SHEET 1.



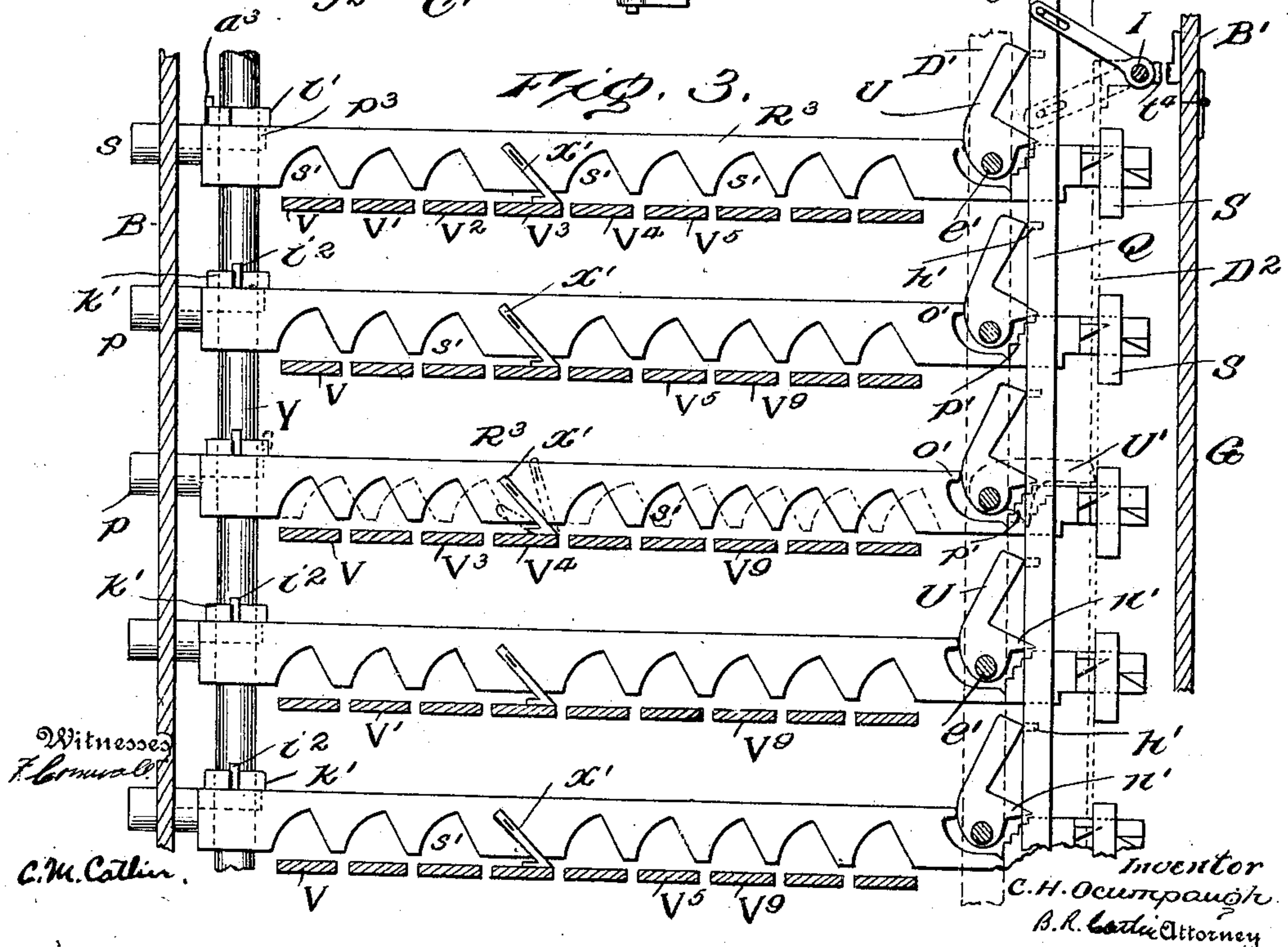
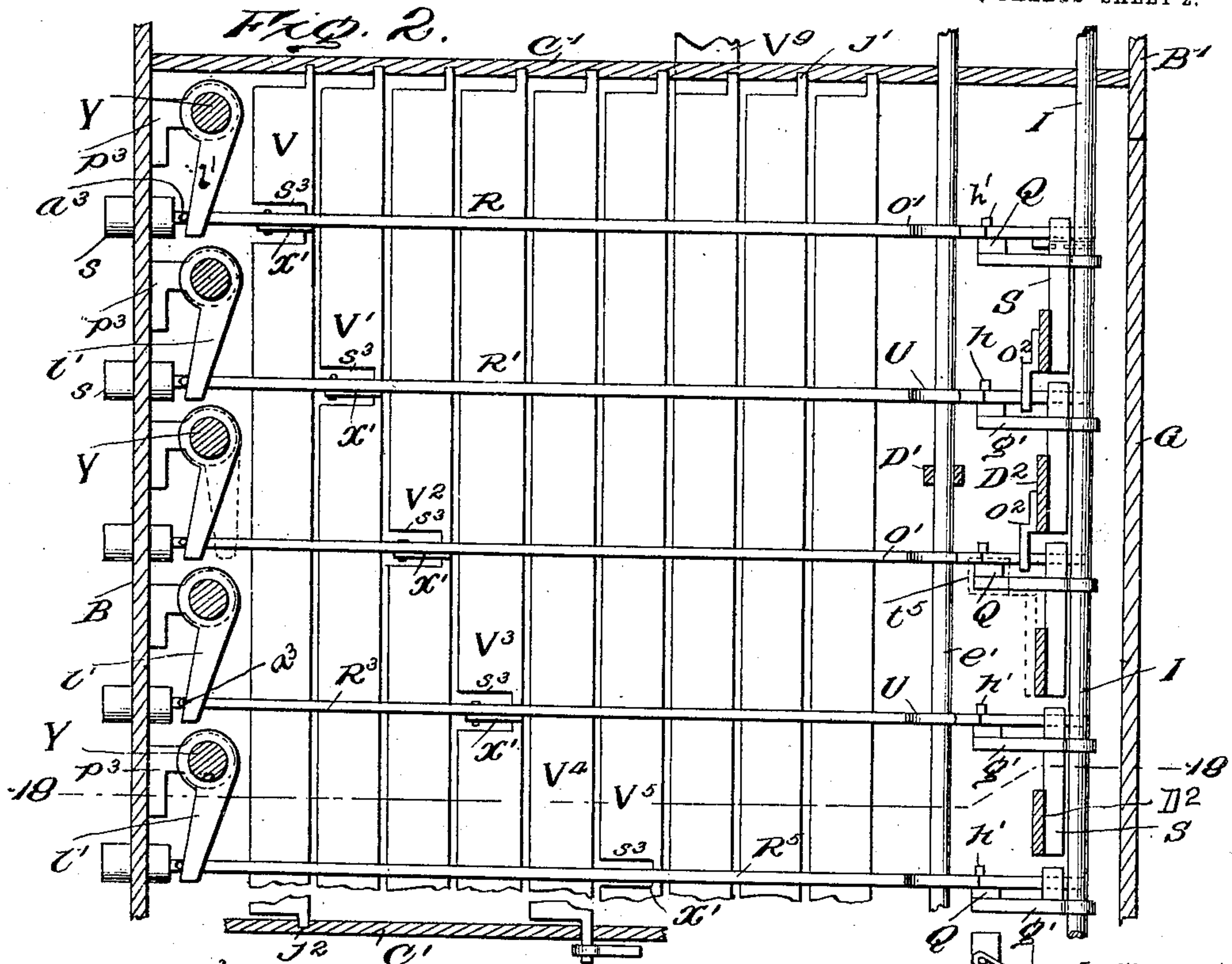
THE NORRIS PETERS CO., WASHINGTON, D. C.

C. H. OCUMPAUGH.
INTERLOCKING DEVICE FOR VOTING MACHINES.
APPLICATION FILED MAY 4, 1907.

996,027.

Patented June 20, 1911.

6 SHEETS—SHEET 2.

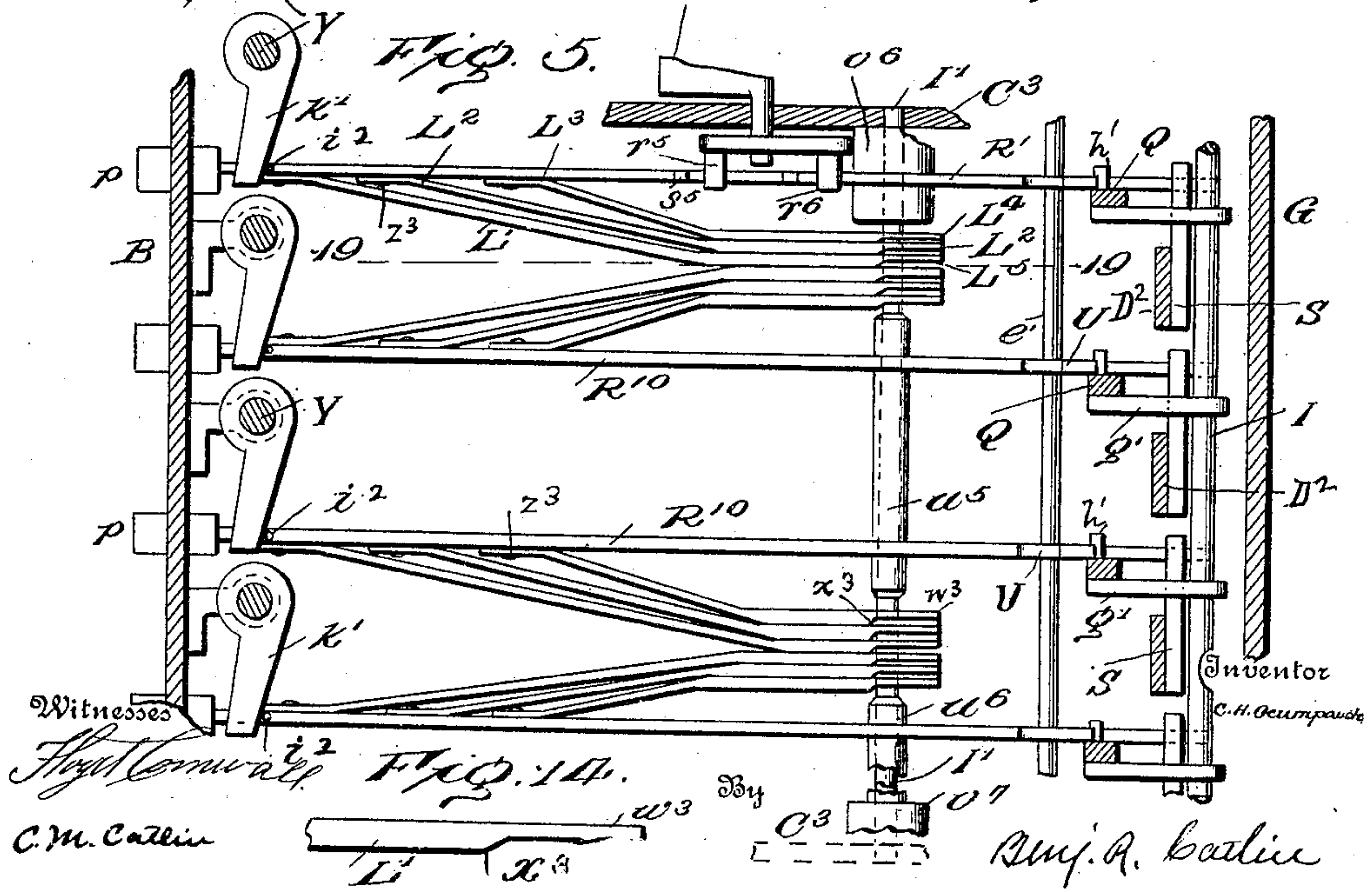
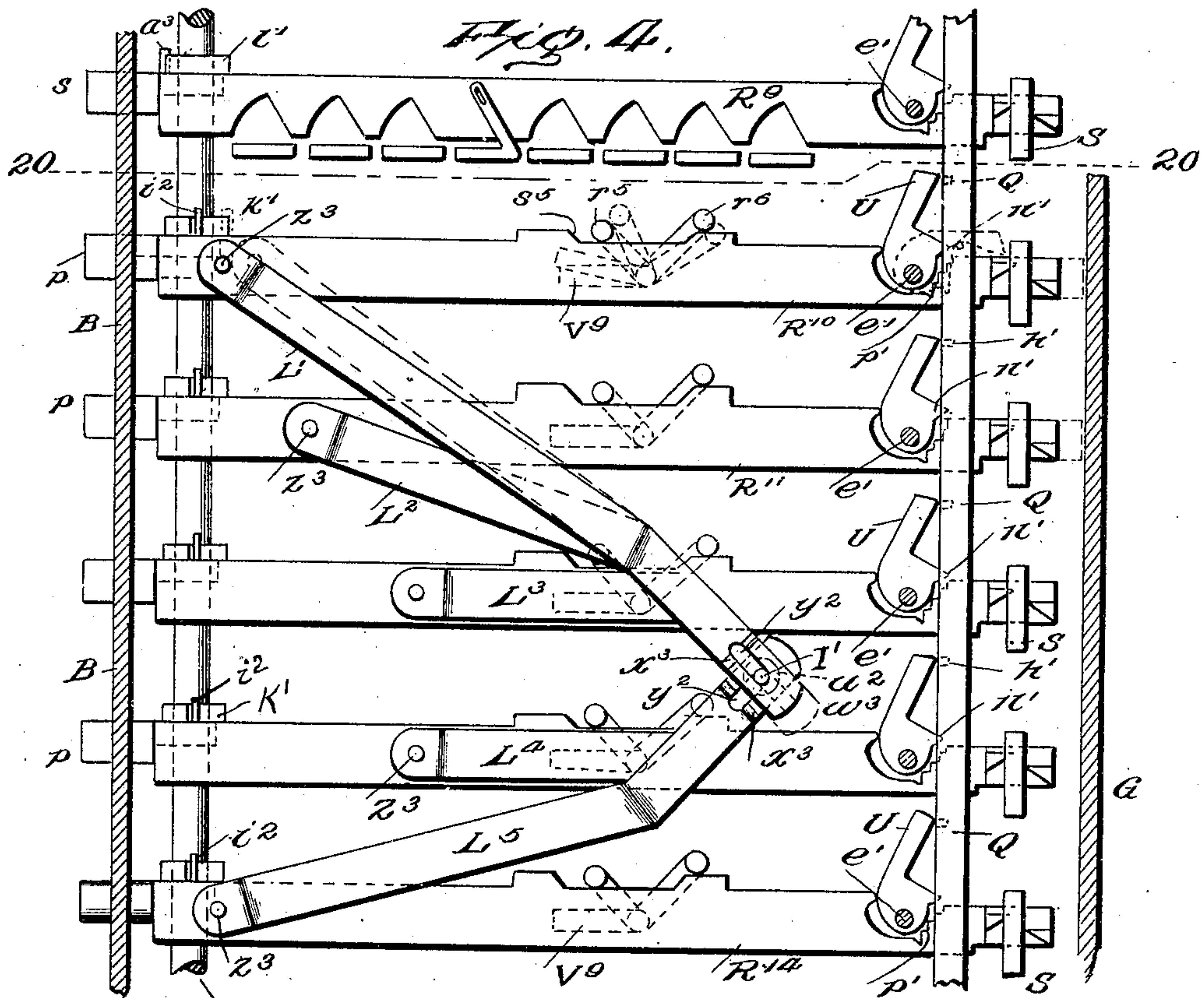


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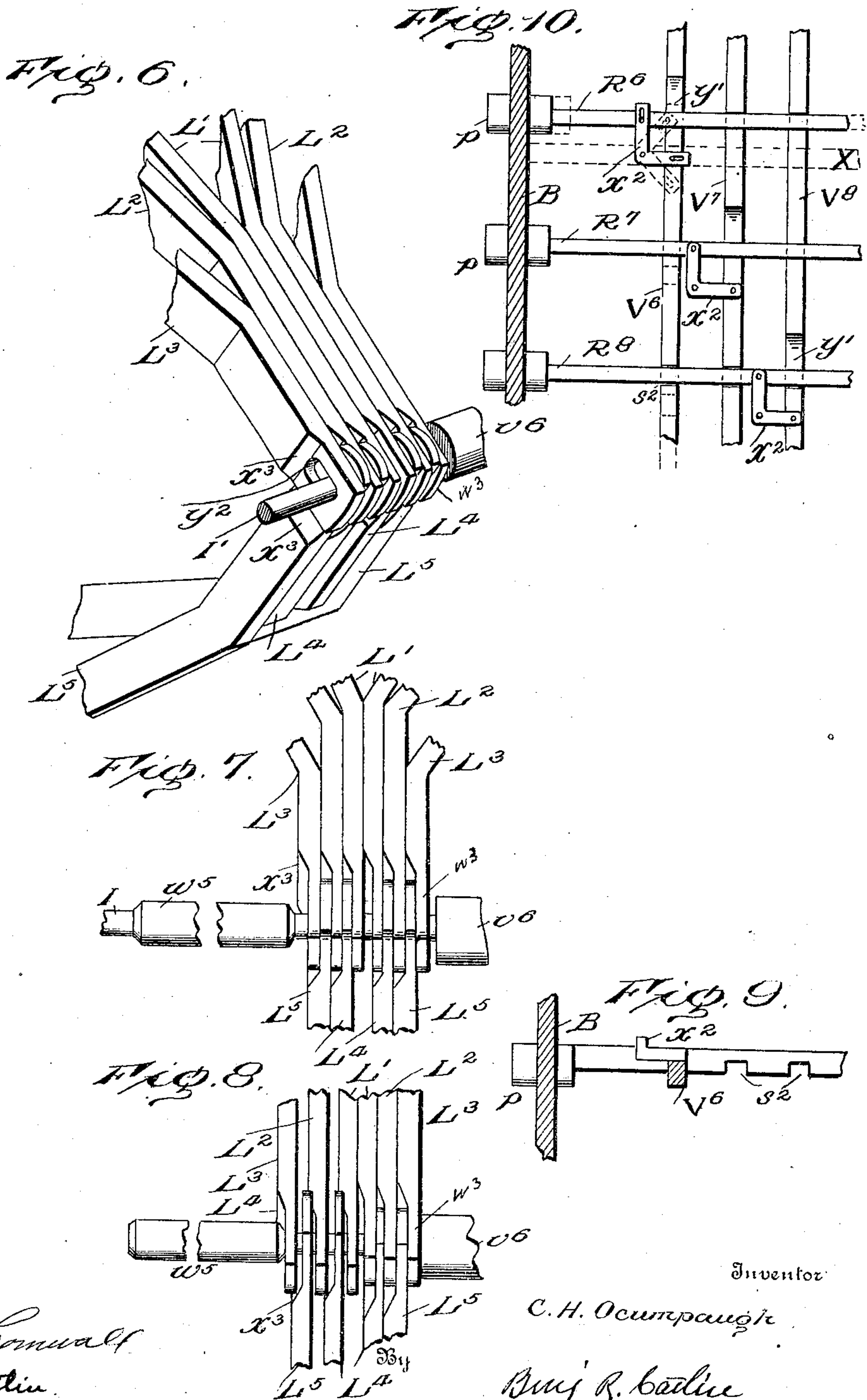
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6 SHEETS-SHEET 4.



Witnesses

Frederic Cornwall
C. M. Catlin

Inventor

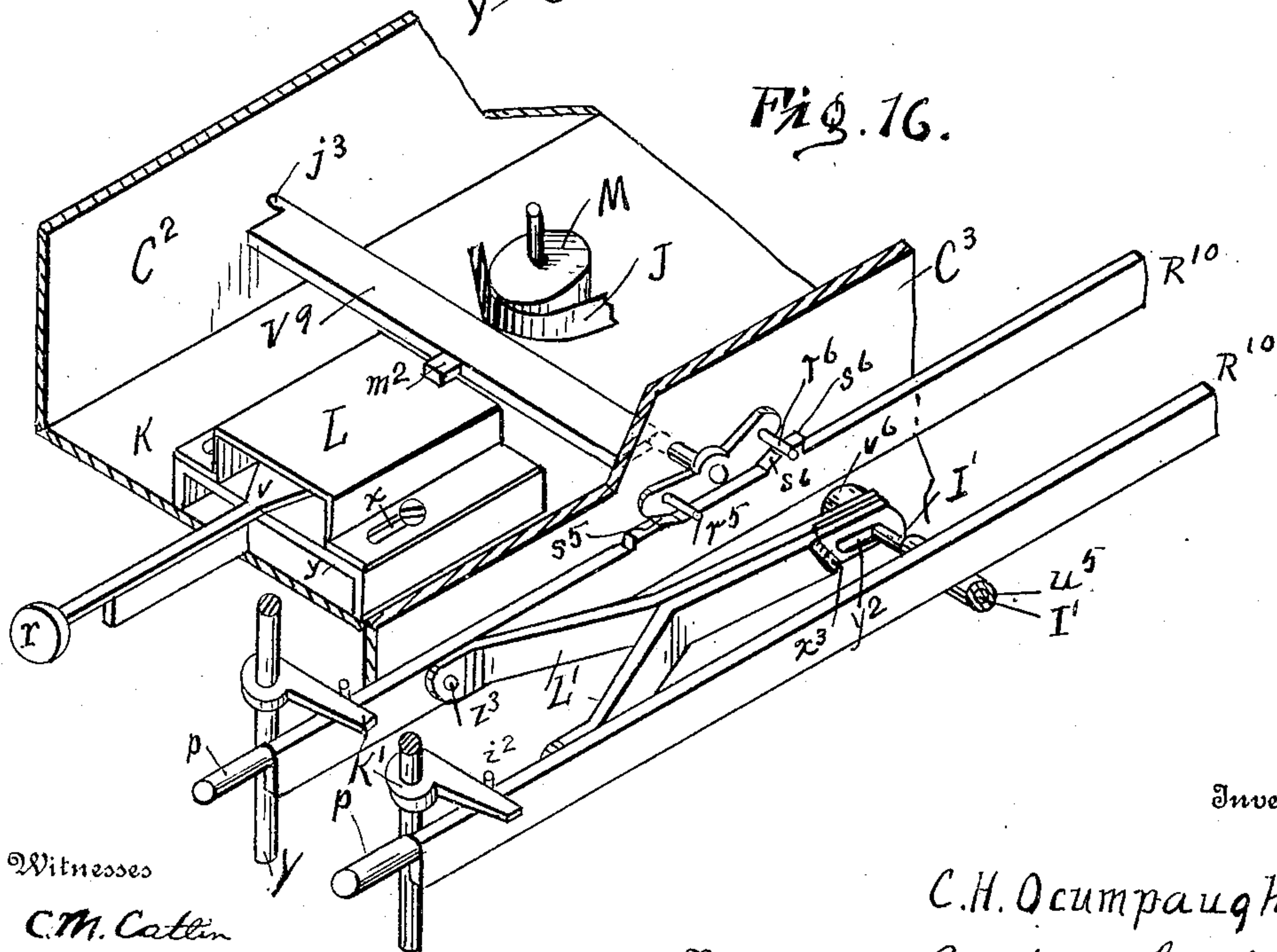
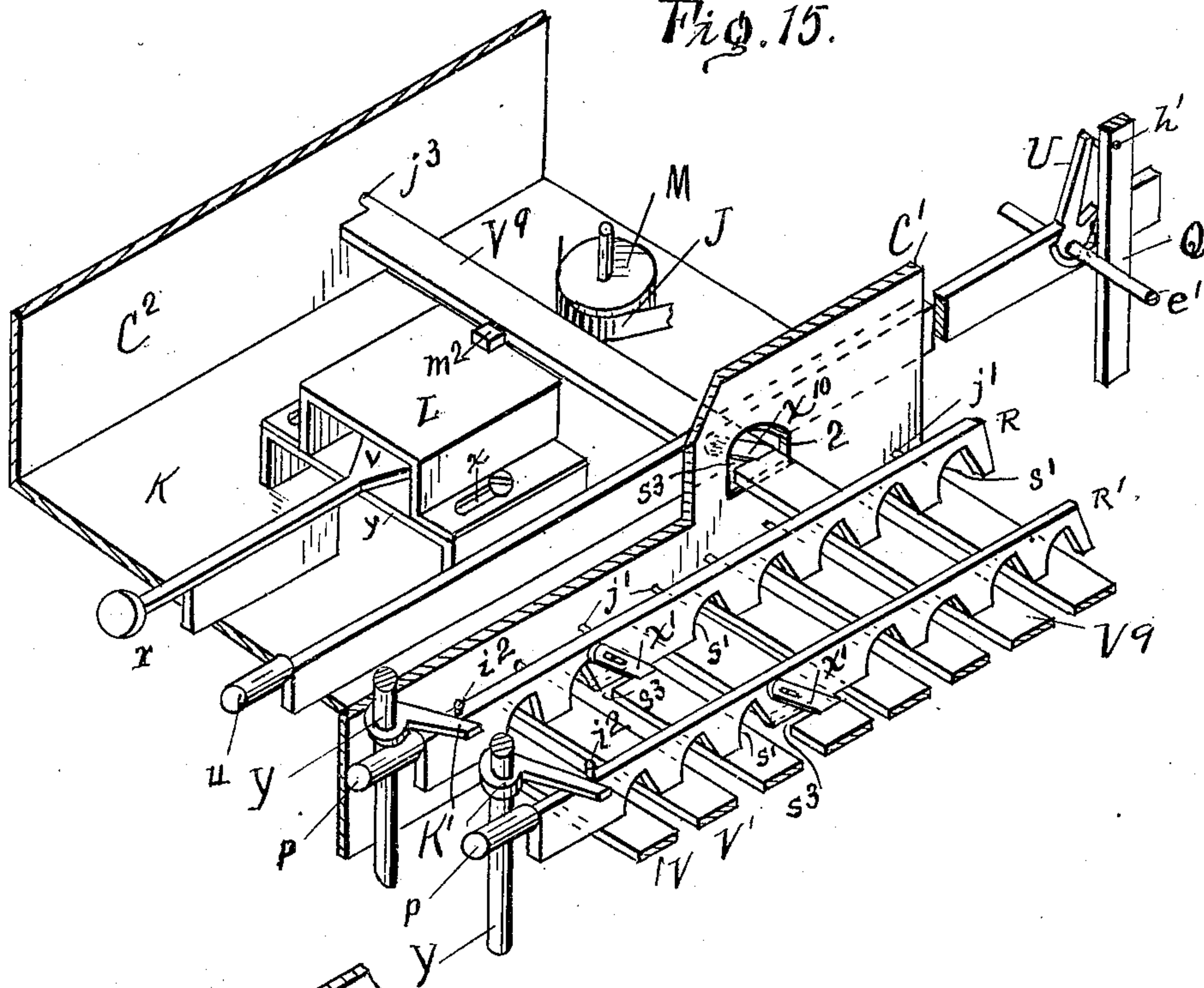
C. H. Ocumpaugh

Ray R. Badine

Attorney

996,027.

6 SHEETS—SHEET 6.



Attorney

UNITED STATES PATENT OFFICE.

CHARLES H. OCUMPAUGH, OF ROCHESTER, NEW YORK.

INTERLOCKING DEVICE FOR VOTING-MACHINES.

996,027.

Specification of Letters Patent. Patented June 20, 1911.

Original application filed February 20, 1896, Serial No. 580,017. Divided and this application filed May 4, 1907. Serial No. 371,939.

To all whom it may concern:

Be it known that I, CHARLES H. OCUMPAUGH, a resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Interlocking Devices for Voting-Machines; 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 pertains to make and use the same.

The invention relates to voting machines, and has for its object to provide efficient and simple vote-indicator-interlocking devices.

The invention consists in the construction hereinafter described and pointed out.

This application is a division of application #580,017, filed February 20, 1896.

In the accompanying drawings which illustrate the invention and form part of the specification,—Figure 1 is a partial perspective of vote-indicators or pushes and interlocking devices; Fig. 2 is a plan view of the selective voting mechanism, showing the keys or pushes and sliding key-bars, the counters, the interlocking and restoring mechanisms, and the straight ticket device, the key or indicator plate and the rear wall of the booth being shown in section; Fig. 3 is a side elevation of the same; Fig. 4 is a side elevation of the interlocking mechanism in the multicandidate group, showing the parts above the line 19—19, Fig. 5; Fig. 5 is a plan view of the mechanism of the multicandidate group, showing the arrangement for four vertical rows of pushes; Fig. 6 is a partial perspective, illustrating the locking mechanism for the multicandidate group; Figs. 7, 8 are partial elevations of the same; Figs. 9 and 10 represent a modified form of the interlocking devices between the push-bars; Fig. 11 is a side elevation of irregular voting mechanism including parts of interlocking devices; Figs. 12 and 13 are respectively a side elevation and a plan view of a modified form of the same; Fig. 14 is a view of a detail; Figs. 15 and 16 are partial perspective views showing, respectively, the interlock connection between the irregular vote devices and regular vote devices of the kind shown in Figs. 1, 2 and 3, and group voting devices such as shown in Figs. 4 and 5.

The letter B Figs. 2 and 3 denotes the key

plate and B¹ the rear wall of a booth or chamber, and G a door in said wall.

C¹ indicates inclosing walls and I a rocking shaft connected to a turn-stile-operated shaft *g*, Fig. 1, connected to a turnstile not shown herein.

S indicates registers, and Q key-returning and register-actuating bars operatively connected to shaft I by arms *g*¹.

U are pivoted locking dogs moved by the bars R and returned by means of pins *h*¹ on bars Q.

D¹ and D² are fixed supports, and *o*² fixed to D² to support the inner ends of the push or key bars.

Y indicates straight ticket shafts which are rocked by pushes or keys having pins *a*³ engaging arms *l*¹ fixed on said shafts. These shafts have each an arm K¹ cooperating with lugs *i*² on the key bars whereby the actuation of any key *s* moves inwardly all the keys in the same party row and puts corresponding registers S in situation to be actuated by the return of the keys through the medium of bars Q.

s, *p*, and *u* denote pushes or keys for straight, selective and irregular or independent voting respectively. These are fixed to bars R¹, R², etc.

The interlocking mechanism comprises a series of pivoted slats V, V¹, etc., corresponding in number with the push-bars,—each slat being connected with one of the push-bars, so that, when its bar is actuated, it swings or moves into notches in the key bars, and serves to prevent their movement. The key bars R, etc., are each provided with a series of notches, *s*¹, Fig. 3,—which in the particular arrangement shown, are in the lower edges of the bars. The slats V, V¹, etc., are pivoted on one edge in the plates C¹ C¹ or other suitable supports, as indicated at *j*¹, *j*², Fig. 2. Each of the slats is provided with an arm *x*¹, which is connected to one of the bars by a pin and slot, or other suitable device. When the bar is pushed in, its corresponding slat is caused to swing on its pivot so that its free edge enters the notches in all the other bars, which represent the same office, and locks them against being pushed inward. The position of one of the slats, V⁴, at this time, is indicated by dotted lines in Fig. 3. Each slat is provided with a notch, *s*³, Fig. 2, where it crosses the bar to which it is connected so that it may

swing upward when its bar is actuated. When the bar is returned, by the action of the rock shaft I the slats are swung back to their original positions, and the pushes or keys are then all unlocked, so that selective voting may be again practiced.

It will be understood that the number of pushes, bars, and interlocking slats will be made to correspond with the number of parties, and the candidates to be voted for,—the accompanying drawings showing only so many of such parts as may be requisite for a clear understanding of the principle on which my interlocking devices operate.

In Figs. 9 and 10 I have represented a modified arrangement of the interlocking slats, in which they are caused to move endwise to engage with the notched push-bars, instead of swinging on pivots. Each bar is connected to its corresponding locking slat by the bell-crank x^2 , pivoted to any suitable support,—such as a bar X, Fig. 10, extending across the machine,—the arrangement being such that when one of the bars is pushed in, its corresponding interlocking slat is shifted endwise laterally of the push-bar, as indicated by the full and dotted lines, with regard to the bar R^6 and the slat V^6 , Fig. 9. The bars are provided with the notches s^2 , in which the slats engage when shifted laterally,—it being understood that each of the slats is provided with a corresponding notch where it crosses a bar to which it is connected by one of the bell-cranks x^2 ,—so that the bar is free to move inward. If the bar R^6 be pushed inward, the slat V^6 will be shifted laterally and will engage with the notches at s^2 on the lower side of the bars R^7 , R^8 , and will lock these fast. In a similar manner, if the bar R^7 be actuated, the slat V^7 will lock the bars R^6 , R^8 . The slats may be supported by the bars X, or by any other suitable device,—provision being made for allowing them free endwise movement. Each of the push-bars in this arrangement is provided with a locking dog, counting mechanism and returning devices in a manner similar to that already described.

The irregular voting devices may be briefly described in connection with Figs. 11, 12, and 13. It will be seen from Figs. 11 and 13 that each of the irregular voting levers r is provided with a type wheel H, which is rotated by the swinging of the lever, and which is mounted on a sliding carriage L, which can be pressed toward the paper J by the lever r . The carriage and type wheel may be arranged in any suitable manner for the purposes mentioned, but in practice I provide lever r with a segment v which engages with a gear w attached to the type wheel H. K is a support for the irregular printing mechanism, attached to the key plate or other suitable part

of the machine. The type wheel H and its connected parts are carried by a suitable frame L, supported on plate K in suitable manner so as to reciprocate thereon, as by screws and slots x in flanges extending outward from the frame. The reciprocating movement of the frame and type wheel, received from lever r , is indicated by full and dotted lines in Figs. 11 and 12. This movement brings the type wheel H in contact with the paper J supported by the roller M, which is sustained by a stud in plate K. The return movement of the carriage and type wheel is secured by a suitably arranged spring, or by the weight N, carried by a bell-crank lever pivoted to plate K, and bearing by its bent end against the carriage. The carriage L is made of any suitable shape, being in the drawing shown as bent upward over the type wheel and provided with flanges at its sides. The toothed segment at the inner end of lever r , and the type wheel H and gear w are arranged to turn on pivots attached to the carriage. Inside the carriage a plate y may be arranged to carry the gear and type wheel. Any suitable mechanism may be employed to impart to the paper a step by step movement between the impressions made by the type wheel. An ordinary pawl and ratchet mechanism may be employed for this purpose,—the pawl being pivotally attached to the carriage, and the ratchet wheel to one of the rollers over which the paper runs, or other suitable mechanism may be employed for this purpose. I prefer the mechanism shown in the drawings, in which the toothed wheel O is operated positively by the vibration of the pallets z , z^1 on the lever P which receives its motion from carriage L. Lever P is pivoted at a^2 to a support on plate K, and receives a vibratory motion from carriage L by a bell-crank lever, or by the inclined slotted arm b^2 engaging with a pin on the carriage. The reciprocating movement of the carriage imparts a to-and-fro movement to the pallets, which causes the toothed wheel O to have a corresponding intermittent motion, and this actuates drums c^1 , c^2 on which the paper is wound. The band of paper is unwound from one of the rollers and wound onto the other as the printing operation proceeds. The construction is such and so arranged as to move the paper at each printing operation the proper distance suitable for the type used on wheel H. In order to avoid the use of ink I wind a strip of carbon manifold-paper in with the band of paper J, either outside or inside, or between two bands, the paper being arranged to move in the proper direction, and the roller M presenting a proper surface against which the impression may be made. Roller M is sustained by a stud rising from the base-plate K, and rolls c^1 , c^2 revolve on suitable

shafts. The construction is such that the voter by the use of a lever r^1 , type wheel H^1 and gears v^1 , w^1 can print the name of his candidate and also the name of the office.

5 To provide for interlocking the irregular, selective and straight ticket devices, one of the interlocking slats, such as V^9 , Figs. 2, 3 and 15, is extended beyond the selective voting mechanism, and operates to prevent
10 the type-wheel H of the irregular vote mechanism Figs. 12, 13, from being pushed against the paper. The push u of the irregular voting mechanism is provided with a push-bar which is connected with the slat
15 V^9 by a pin and slotted arm x^{10} in a manner like that shown at x^1 , Figs. 2 and 3. The slat V^9 journaled at j^3 in part C^2 , rests in contact with the carriage L of the irregular vote mechanism or a lug m^2 thereon, as indicated by the full lines in Fig. 11 and pre-
20 vents any printing being done, until, by operating the push u , the voter turns the slat V^9 up out of the path of the carriage, and at the same time locks all the push-bars in the same horizontal line,—that is, all the
25 voting devices for candidates for the same office, so that they cannot be operated. The push-bar of push u is also provided with a locking dog, and the restoring mechanism as
30 already described. The voter after having actuated the push u is free to print the name of his preferred innominate candidate on the band of paper, but he cannot vote for any regular candidate for the particular office
35 represented by the pushes in that horizontal row, because the slat V^9 , being engaged with the notches in the push-bars of such row, prevents the operation of any of them, while at the same time it prevents the voter from
40 using any of the straight ticket voting mechanisms. The extended slat V^9 is most clearly shown in Fig. 15 in which said slat is shown passing through an opening 2 in the partition C^1 and under the several notched bars
45 in one horizontal row, whereby when slat V^9 is turned up by the irregular-releasing push u in the same row all the notched bars of the row will be engaged and locked at the same time that the irregular device is
50 released. x^{10} is the arm connected to the push u to turn bar V^9 . If the voter uses a regular push button p , the corresponding notched bar is displaced longitudinally so that its notch which is normally over slat
55 V^9 will be at one side and a solid edge of the notched bar will be over slat V^9 thus locking it against turning. A finger z^2 , Fig. 11, attached to the slat V^9 opposite the printing roll M , serves to make the impres-
60 sion of a line or row of dots on the band of paper between each irregular vote. The end of the finger z^2 is pressed against the paper supported by the roll M of the irregular vote mechanism when the slat V^9 is in posi-
65 tion to prevent the movement of the type

wheel toward the paper, and this pressure makes a mark on the paper between each im-
pression of an irregular vote. When the slat V^9 is rocked up so as to permit the type
wheel to print on the paper, the arm z^2 is
70 moved out of contact with the paper but when the type wheel is locked by the slat the arm z^2 is swung against the paper and produces an impression thereon, by pressure
75 on the carbon manifold paper, and this im- pression comes between and separates regis-
tration of irregular votes. This arrange- ment facilitates the counting of the irregu-
lar vote, which is done by removing the
80 paper from the rolls and counting the num- ber of votes cast for the irregular candi-
dates.

To provide for interlocking the multican-
didate group the push bars in any one verti-
cal row are provided with the interlocking
85 rods L^1 , etc., of the same class or type, be- ing substantially identical in form and op-
eration. These rods are pivoted at one end to their respective push-bars, at z^3 , and so
90 bent and shaped that their other ends are engaged by the slots y^2 side by side on the
rod I^1 . Fig. 5 represents the parts below
line 20—20, Fig. 4. The slotted end of ad-
95 jacent interlocking rods L^1 , L^2 , etc., cross each other at substantially right angles, and
each of the bars is provided with the in-
clined surface or interlocking wedge x^3 , see
Fig. 14. The arrangement is such that when
one of the interlocking rods is thrust inward
as indicated with regard to rod L^1 by the
100 full and broken lines in Fig. 4, the wedge x^3 on it enters beyond the edges of the other
rods, and partially fills the space allotted to
the rods lengthwise on the rod I^1 . Beyond
105 the wedges x^3 , the interlocking rods termi-
nate in a flat projection w^3 , which is thinner than the body of the rod. At each end of
the rod I^1 are placed the collars or abutments
 v^6 , v^7 , Fig. 5, which are placed at such a
110 distance that the proper number of inter-
locking rods may be thrust inward,—the slot
 y^2 sliding on the rod I^1 ,—but that no more
can be actuated because the thickened por-
tions of the rods occupy all the space be-
115 tween the abutments, and no other wedges
can enter. In the unvoted position, the
wedges x^3 on each of the rods, is outside of
the adjacent rods, but when the push bars
are actuated, the corresponding interlocking
rods are thrust inward (see full and dotted
120 lines, Fig. 4) and their thickened portions
fill up the space between the abutments.
When this interlocking mechanism is adapt-
ed to three or more vertical rows of pushes,
as indicated in Fig. 5, suitable spacing
125 blocks. u^5 , u^6 , may be employed,—being ar-
ranged to slide lengthwise of the rod I^1 . In
the particular instance shown, where four
rows of five pushes each are grouped to-
130 gether by the same interlocking mechanism,

the ten interlocking rods of each pair of rows are conveniently brought together, by bending the rods toward each other, as shown, and these two sets are separated by the sliding spacing block u^5 ,—the block u^6 being also used, if desired,—and the abutments v^6 , v^7 , are separated by such a distance as will only permit five of the wedges w^3 to be inserted between them. Then the voter can vote for any five of the twenty candidates, voting for all the five candidates of a particular party, or splitting his voting as he may desire, but after he has voted for five, he cannot vote for any of the others in the group, since the wedges fill the whole space allotted to the rods lengthwise on the rod P^1 . It will be understood that the interlocking rods are pivoted on their respective push-bars in such manner as to permit the requisite amount of lateral movement to the rods. The length of the spacing block or blocks is of course proportioned for this purpose. It will be understood that the system may be adapted to any other number of rows of pushes. In the instance shown, the voter can vote for any five candidates out of the twenty,—such five being selected from any of the parties, but after voting for his five preferred persons he cannot vote for any of the other candidates. In the multicandidate group, each of the push-bars R^{10} , etc., Fig. 4, at one side of the group, is provided with cams which operate a slat V^9 which interlocks with the irregular-vote printing-mechanism of the same horizontal row of candidates in which an irregular-vote printing mechanism is shown opposite each row of candidates for the same office by the different political parties. This mechanism consists of an interlocking slat, V^9 , Figs. 4 and 5, which prevents the operation of the printing mechanism, as shown in Fig. 11, and which is provided with arms carrying the lugs r^5 , r^6 , Fig. 4, which are acted on by the inclined surfaces s^5 , s^6 on the push-bars R^{10} , etc., Fig. 4. By this construction the irregular-vote printing-mechanism is interlocked with the regular voting mechanism, the printing mechanism being provided with a lug m^2 , as in Fig. 11, which bears against the slat. In this case each bar in the vertical row nearest the irregular voting devices stands for an irregular vote, instead of a regular-candidate vote, and each bar in said row takes the place of a push bar u , such as described in connection with Fig. 1.

The construction of the interlocking devices of the multicandidate group or groups may be variously modified or altered,—the essential feature of the thickened rods being employed, as indicated in Fig. 5 which is a view of those parts located below the plane of line 20, 20 of Fig. 4. The interlocking slats L^1 , L^2 , etc., may be arranged to slide endwise as indicated in Figs. 5, 6, instead of

being pivoted, and they may be placed either above or below the push-bars. The push-bars may be provided with holes or openings in which projections on the interlocking slats engage, or vice versa.

What I claim is, —

1. In an interlocking mechanism for voting machines, a plurality of rods having thin and thickened parts, the alternate proximate rods being arranged at different angles with respect to the direction of their operative movement, and abutments, said rods having each an endwise movement whereby a thickened part may be interposed between and in contact with the thin parts of the other rods to crowd them against the abutments, substantially as described.

2. A plurality of interlocking rods having each a different angular relation to a transverse line at which alternate rods cross each other, each rod being provided with a thickened part normally out of operation, and adapted to be moved to cause its thickened part to contact with the adjacent rods and crowd the remaining rods laterally, substantially as described.

3. In a voting machine, a plurality of voting keys and push bars, interlocking mechanism, comprising a plurality of movable rods pivotally connected to said push bars and having thin and thickened parts whereby the movement of a predetermined number less than the whole will bring into contact the thick and thin portions of adjacent rods and lock the whole.

4. In a voting machine, the combination of sliding interlocking parts, a guide for the same, said parts alternately movable in different directions so as to cross each other, being slotted to pass above and below said guide, voting keys and push-bars connected thereto, the latter being movable with said keys to move the interlocking parts and spread the same, substantially as described.

5. In a voting machine, the combination of a rod extending lengthwise of the machine, interlocking parts supported on said rod and transversely and longitudinally sliding thereon, alternate rods extending in different directions so as to cross each other at said rod, and each having a wedge part, the thicker parts of the crossing bars being normally out of contact with each other, and voting keys operatively connected to said bars to move them to interlock.

6. In a voting machine interlocking mechanism, keys in party and office rows, a sliding bar for each key in line therewith and directly moved by its key, an interlocking bar for each sliding bar having one end loosely connected to its sliding bar so as to be moved longitudinally thereby, and its opposite end also movable transversely, a support for said opposite ends transverse to the party rows and in a plane between the

beginning and the end of said party rows, whereby a part of the interlocking bars of each party row reach said support from one side, and a part from another side, thus crossing and interlocking at said support.

7. In a voting machine interlocking mechanism, keys in party and office rows, a sliding bar for each key in line therewith and directly moved by its key, an interlocking bar for each sliding bar having one end loosely connected to its sliding bar so as to be moved longitudinally thereby, and its opposite end also movable transversely, a support for said opposite end transverse to the party rows and in a plane between the beginning and the end of said party rows, whereby a part of the interlocking bars of each party row reach said support from one side, and a part from another side, thus crossing and interlocking at said support, the sliding bars in each office row being in pairs and the interlocking bars of each pair being side by side on said support, and sliding spacing devices between interlocking bars of successive groups.

8. In a voting machine interlocking mechanism, keys in party and office rows, a sliding bar for each key, an interlocking member operatively connected to each bar and key, there being an opening in each bar, a resetting device in each of said openings made operative by movement of the corresponding key, which device when moved in reverse direction pushes its sliding bar back to normal position, and means controlled by an outgoing voter after indicating his vote to move all of the operative resetting devices in their respective bar-openings.

9. In a voting machine, regular and irregular voting devices, keys in party and office rows, one key for each regular device, a pivoted slat for each irregular device normally locking it, releasing keys one for each of said pivoted slats to unlock the corresponding irregular voting device, interlocking means operated by such releasing

key to prevent voting a regular device, and means operated by movement of the regular keys to prevent turning said pivoted slats to release the corresponding irregular voting devices.

10. In a voting machine, regular group-voting keys, an interlocking bar for each key, irregular voting devices, a releasing key for each irregular voting device, and means operated by each of said releasing keys to unlock the corresponding irregular voting device and to prevent operation of one of said group keys.

11. In a voting machine, regular voting means comprising regular keys in rows, interlocking bars one for each regular key, irregular voting devices, a releasing key and sliding bar for each irregular device, an interlocking bar operatively connected to each of said sliding bars and in coöperative relation to the interlocking bars of the regular keys, each of said sliding bars having locking and releasing cams, and locking devices for the irregular voting devices controlled by said cams on operation of the sliding bars.

12. In a voting machine, interlock mechanism comprising an interlock bar having an edge offset with an inclined portion, said offset bearing a lateral cam-projection, and means for guiding the bar comprising a stationary part engaged by said inclined portion of the bar.

13. In a voting machine, interlock mechanism comprising a guide for interlock members, stops co-acting therewith, and interlock members coöperating with said guide and equipped with wedges adapted to act directly upon each other and the adjacent interlock members, for the purpose set forth.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

CHARLES H. OCUMPAUGH.

Witnesses:

E. C. HEMPEL,
R. COPLIN.