J. J. LEIDIGH.

AUTHORIZING METHOD AND SYSTEM.

APPLICATION FILED SEPT. 8, 1908. RENEWED MAY 13, 1914.

1,146,082.

Patented July 13, 1915.

5 SHEETS—SHEET 1.

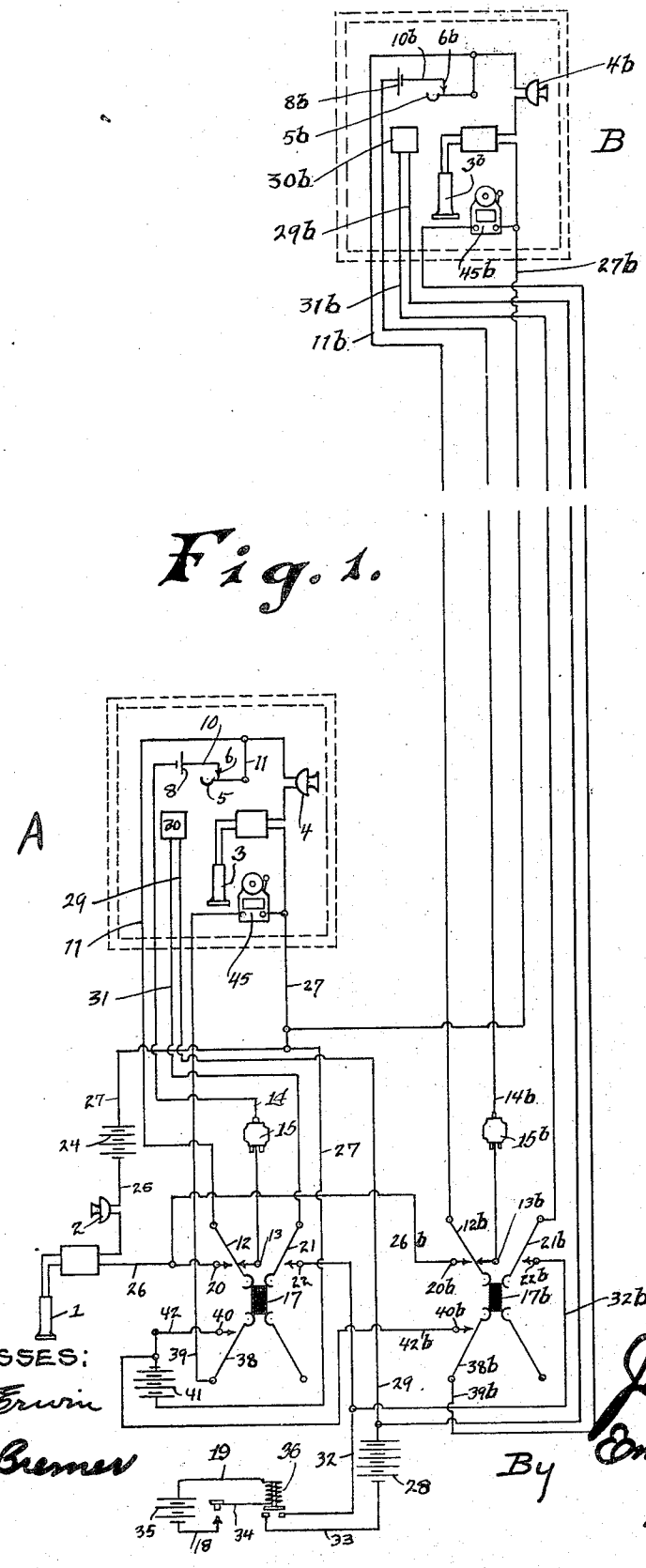

Fig. 1.

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5 SHEETS—SHEET 2.

FIG. 6.

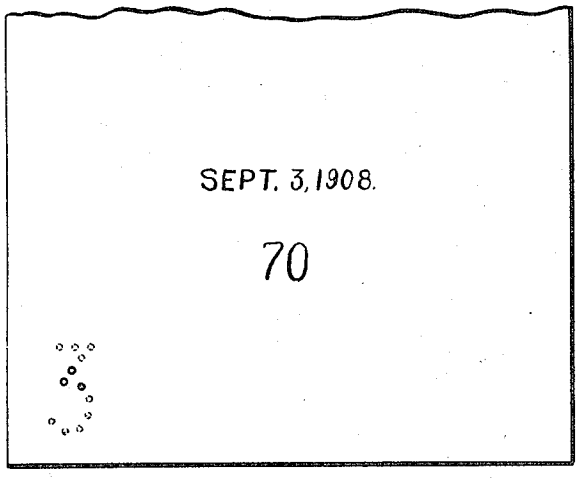


FIG. 7.

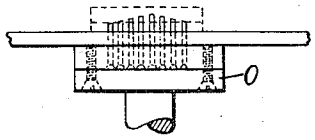
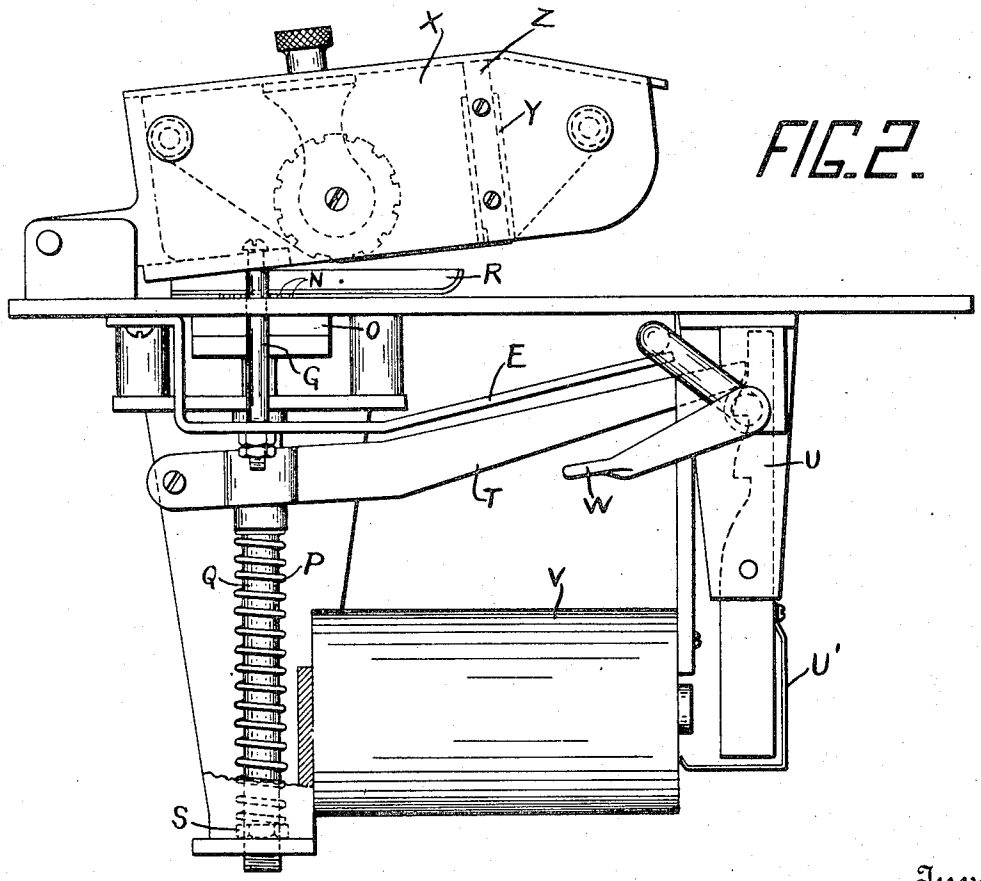


FIG. 2.



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5 SHEETS—SHEET 3.

Fig. 3.

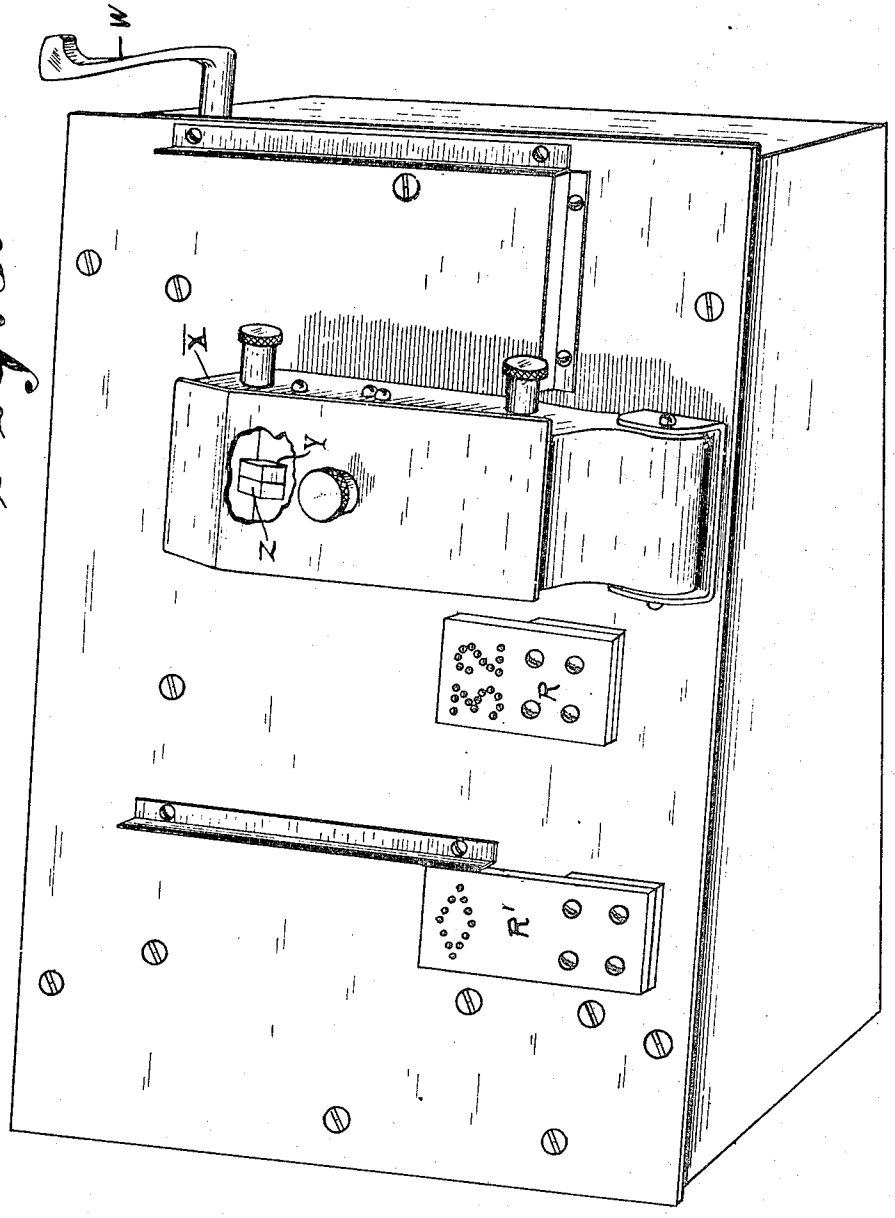
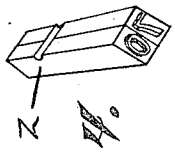


Fig. 4.



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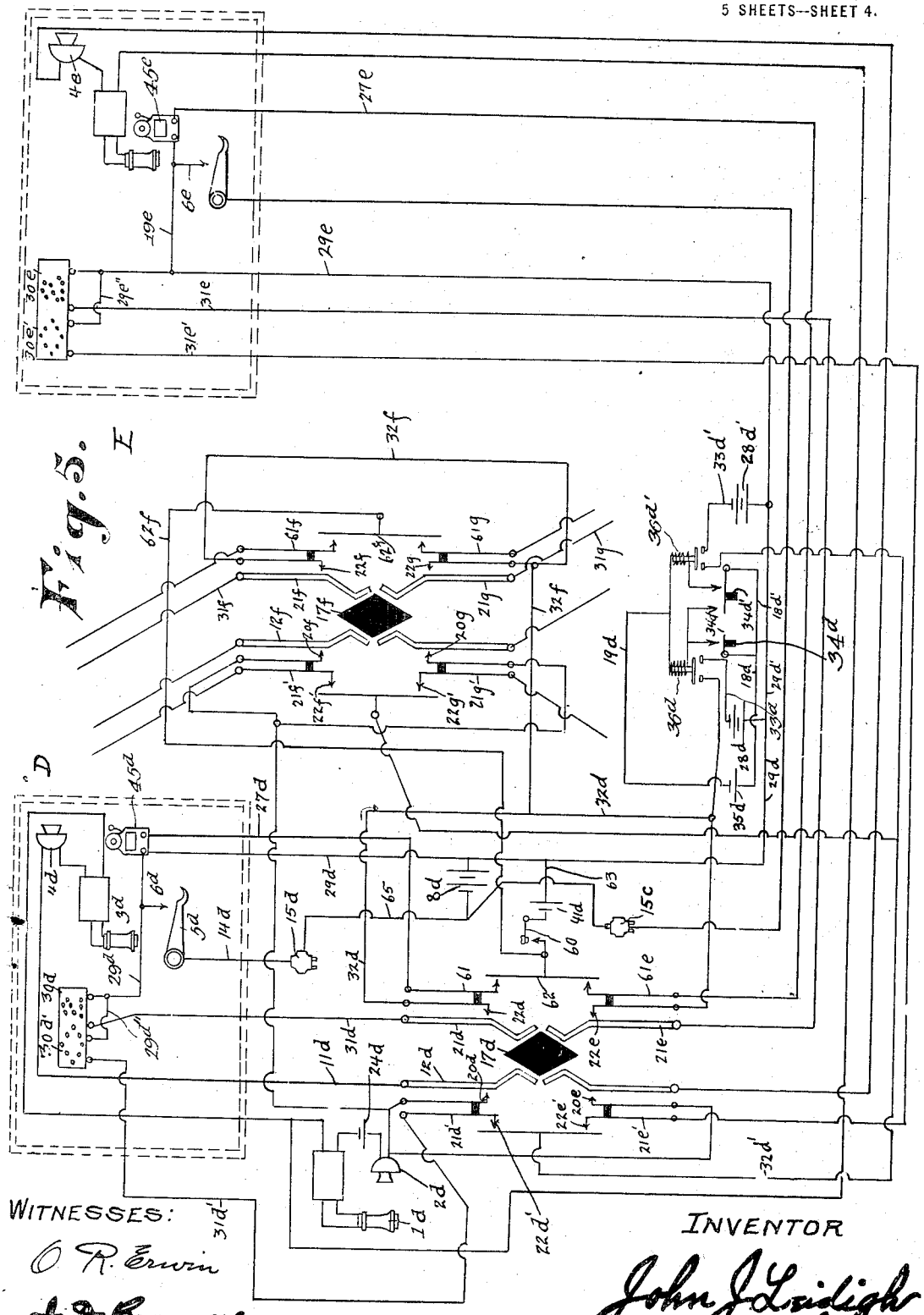
5 SHEETS--SHEET 4.



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5 SHEETS—SHEET 5.

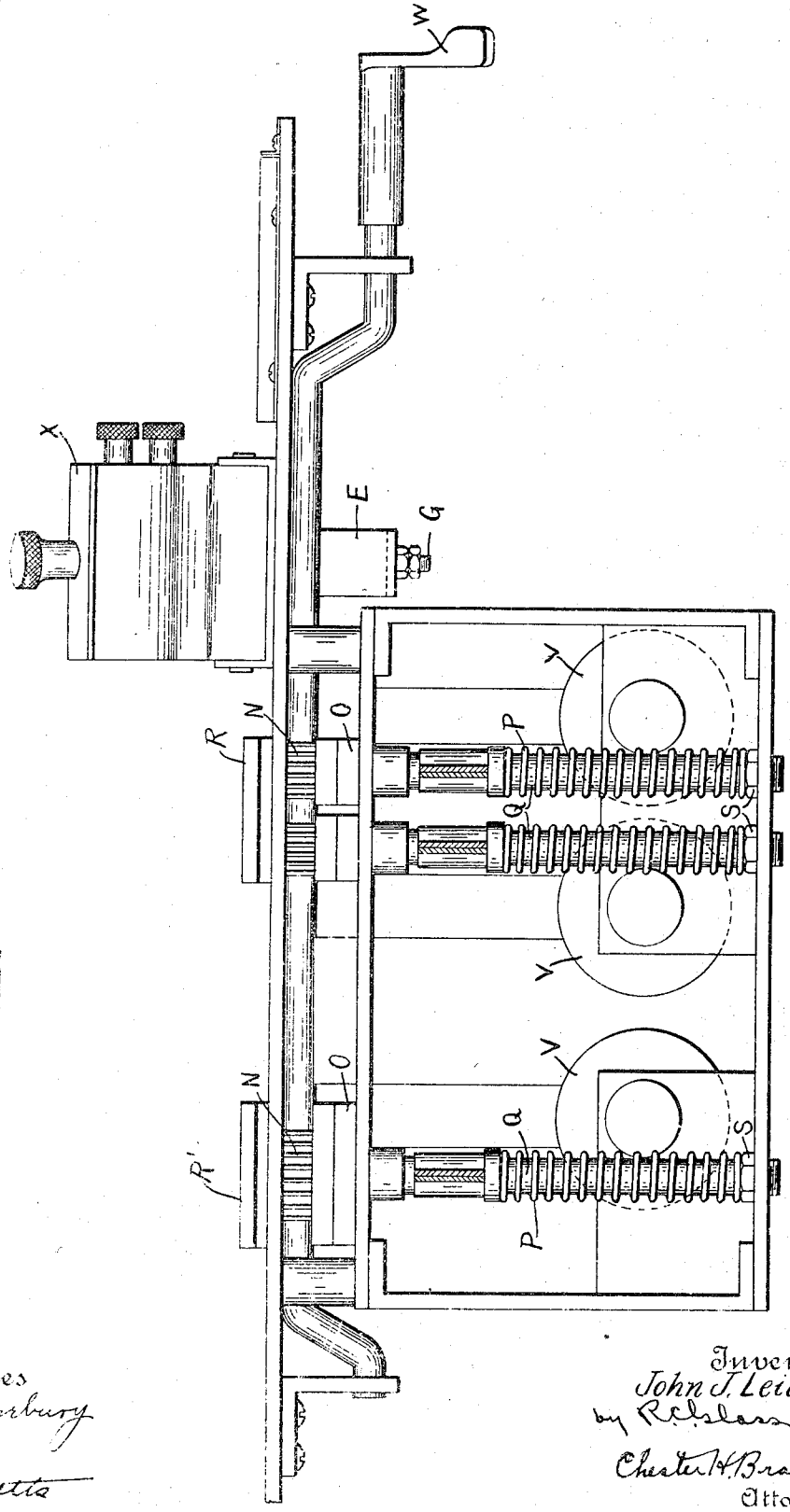

FIG. 8.

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UNITED STATES PATENT OFFICE.

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AUTHORIZING METHOD AND SYSTEM.

1,146,082. Specification of Letters Patent. Patented July 13, 1915.

Application filed September 8, 1908, Serial No. 451,952. Renewed May 13, 1914. Serial No. 838,388.

To all whom it may concern:

Be it known that I, JOHN J. LEIDIGH, a citizen of the United States, residing at Milwaukee, county of Milwaukee, and State of Wisconsin, have invented new and useful Improvements in Authorizing Methods and Systems, of which the following is a specification.

My invention relates to improvements in authorizing methods and systems, with particular reference to methods of and systems for electrically controlling the operation of recording stamps or punches at various sub-stations from a central station or credit rating agency, the request for such ratings originating in a department or sub-station and being transmitted to the central station through telephones or other means for transmitting messages.

In a former application, for Letters Patent for a credit marking system, filed July 2nd, 1906, Serial No. 324,353 refiled April 13th, 1911, as renewal application No. 620,888 I have shown and described an authorizing system in which a stamp or punch is electrically operated through a solenoid, and a normally disconnected circuit closer at the central station, common to all the stamps, is connected up with any given station by means of a switch lever which also closes the telephone circuit for that station.

The object of this invention is to provide means for operating authorizing mechanism for printing or stamping tickets with uniform pressure in all departments and at a pressure capable of making a record of authorization for but one person at a time, whereby a department or station clerk, distant from and out of the view of the central or authorizing station, is unable to fradulently secure authorization for persons without credit by combining their tickets with those of persons entitled to credit; also to provide means, whereby, in case of any attempt by a clerk to secure a fradulent authorization by so combining tickets, each ticket will contain a record of the attempted authorization, and in addition thereto, a character or perforation identifying the clerk attempting such fraud will be made upon the upper ticket, and the unworthiness of the clerk thereby recorded, also to provide means for guarding against mistakes on the part of the central operator by preventing authorizations at more than one station at a time.

In retail dry goods stores and particularly in what are known as department stores, it is customary to employ duplicate or triplicate tickets, one of which is given to the customer and one turned in at the office by the clerk, when accounting for sales made. In using the system described herein, whenever it appears among the tickets turned in at the office that some of them bear no record of an authorization, but contain only a portion of the necessary authorizing perforations or marks, it will be known that a clerk has placed more than one set of tickets in position for simultaneous authorization, and as the identifying marks of the several clerks appear upon the tickets so turned in, the fraud is easily traced.

In the construction as shown and described in my former application, however, it is impossible to operate the authorizing mechanism with uniform pressure, owing to the varying resistance of the circuits, due in part, to the difference in distance between the sub-station and central, and the impossibility, from a practical standpoint, of winding each solenoid to correspond with the resistance and also owing to the necessity of frequent changes in the location of the stations.

My present invention therefore contemplates the use of mechanically actuated stamps or punches in connection with manual resetting means, preferably operated by the clerk at the sub-station, and electromagnetic releasing or tripping mechanism operated from the central office.

In the following description reference is had to the accompanying drawings, in which,

Figure 1 is a diagrammatic view, showing my invention embodied in a system comprising one central and two sub-stations at different distances from the central station. Fig. 2 is a sectional view of a spring actuated authorizing punch employed in connection with my improved system. Fig. 3 is a perspective view of the punch casing showing the dies and the dater, the latter being partially broken away to show one of the differential printing keys. Fig. 4 is a detail perspective view

of one of the removable differential keys used by the department clerks. Fig. 5 is a diagrammatic view illustrating a further modification of the controlling connection and showing means for passing on shipping or house delivery orders, and immediate or store delivery orders from the same central credit station. Fig. 6 is a detail showing a ticket which has received only a partial authorization. Fig. 7 is a detail side view of one of the punch heads and punch pins thereon. Fig. 8 is a sectional view of the punching device on a plane at right angles to that of Fig. 2.

Like parts are identified by the same reference characters throughout the several views.

1 is a receiver and 2 the transmitter of a telephone at the central station, arranged for ordinary telephonic communication with a telephone at the local station having a receiver 3 and a transmitter 4. When the receiver 3 at the department station A is removed from the hook 5, the latter rises to contact 6 in the usual manner and closes a circuit of a battery 8 through a wire 10, hook 5, contact 6, line direct 11, resilient switch arm 12, contact 13 and drop wire 14 with which a drop signal 15 is connected. The operator at the central station then throws line lever 17 to break the drop circuit by moving switch arm 12 from contact 13 to contact 20 and to simultaneously move switch arm 21 to contact 22. This connects the talking circuits of the telephone battery 24 through line 25, the telephonic apparatus of the central station, line 26, switch arm 12, line direct 11, the telephonic apparatus of the department station, and a common return wire 27 leading to battery 24. The same movement of lever 17 connects the stamp battery 28 of the department A through line 29, the electro-magnet of the stamp 30, line 31, switch 21, contact 22, and line 32, with one relay terminal of the relay 36, the other terminal being connected by return line 33. The circuit of battery 35 may then be closed through the relay through line 18, push button 34 and line 19. The ringing circuit of the sub-station bell 45 is closed by moving switch lever 17 to throw switch arm 38 to contact 40, whereupon the circuit of battery 41 is closed through 42, 40, 38, 39, and 27. The circuit connections and apparatus for the other departments or sub-stations are the same as those for station A, and in the other sub-station illustrated, the same reference characters are applied to corresponding parts, with the character "b" added. The lines 26^b, 27^b, 29^b, 32^b, and 42^b, of the station B are bridged onto lines 26, 27, 29, and 32 of the station A and it will be understood that this arrangement may be multiplied for any desired number of stations.

Referring to Fig. 2, which shows one form of stamping or credit punching mechanism which may be employed, N is a set of spring actuated pins mounted upon a punch head O and operated by a spring P through a rod Q to force the punch pins through suitable apertures in a die plate R. A nut S is used to adjust the tension of the spring P so that it will have sufficient force to drive the punch pins through a single set of tickets, but not through any additional tickets, either single or in sets. The spring is held normally in a retracted position by means of a lever T and a spring actuated trip latch U, which is retracted against the tension of the spring U′ to release the lever T by means of an electro-magnet V, the latch being arranged at its lower end to constitute an armature. The lever T is reset, preferably by the clerk at the sub-station, by means of a crank rod W, provided for this purpose and arranged to extend through the casing wall. The strength of the stamp battery 28 at the central station, and of the electro-magnets V at the department stations is so proportioned with reference to the armature latch U and the duty to be performed by it in releasing lever T, that there will be insufficient current to retract more than one latch at a time. It is therefore obvious that when the central operator moves one of the switch operating levers 17, 17^b, etc. to close the talking and stamping circuits of any department, the system becomes inoperative for the stamps of all other departments until the switch operating lever for the department first connected is restored to normal position. If any other switch operating lever is actuated to close its talking and stamping circuits, before the first is restored, the stamps of both the first and second departments so connected can not be operated. The central operator is therefore forced to first correct any errors made in the manipulation of the levers before the stamps can be operated.

The general features of the stamps or punching device illustrated are made the subject of an application filed by me on February 25th, 1907, Serial No. 359,053, and refiled March 14th, 1912, as renewal application Serial No. 683,702, and also in Letters Patent of the United States numbered 917,955, issued to me on April 13th, 1909, except that I preferably add thereto, means for enabling a single operator at the credit office to make authorizations for both store deliveries and for deliveries through the shipping department. This is accomplished by providing an additional check punch, operating through the die plate R′, and an independent push button $34^{d'}$ for simultaneously actuating both check punches, the additional check punch being preferably of the same construction

clerk is then obliged to reset the trip in order to retract the pins and release the tickets, and in so doing, the dater is automatically operated to print both the date and the character index of the clerk upon the upper ticket, which is retained and turned in at the office at the proper time, usually at the close of business.

In case a clerk attempts to obtain more than one authorization at a time and inserts two sets of tickets for that purpose, the operation is the same in all respects, except that only the long pins will perforate the paper. The other pins will not penetrate any of the tickets and therefore no authorization is given but the tickets bear evidence in that partial perforation, of the fact that the punch was operated against more than the correct number of tickets.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is,—

1. A credit authorizing system comprising a central station and a series of sub-stations, an automatically acting mechanically operated punch at each sub-station, means for adjusting the punches to operate with like pressure at all sub-stations, manually operable means for setting said punches in position for operation and electrical releasing means for each of said punches controlled from the central station.

2. A credit authorizing system, comprising a set of mechanically actuated punches, a manually actuated re-setting device for each punch, an automatic lock for each punch arranged to normally hold the same in ticket receiving position, an electrical unlocking device connected with a distant station and signaling devices connected with the same station.

3. A credit authorizing system, including a central station and a series of sub-stations, and comprising a set of mechanically actuated punches, one at each sub-station, and each provided with a manually actuated resetting device, an automatic trip lock for each punch, arranged to normally hold the punch in ticket receiving position, and electrical unlocking devices connecting the punch at each station with the central station.

4. A credit authorizing system, including a central station and a series of sub-stations, and comprising a set of mechanically actuated punches, one at each sub-station, and each provided with a manually actuated resetting device, an automatic trip lock for each punch, arranged to normally hold the punch in ticket receiving position, and electrical unlocking devices connecting the punch at each station with the central station, together with means for adjusting said punches to operate at a pre-determined equal pressure at all sub-stations.

5. A credit authorizing system, including a central station and a series of sub-stations, and comprising a set of mechanically actuated punches, one at each sub-station, and each provided with a manually actuated resetting device, an automatic trip lock for each punch, arranged to normally hold the punch in ticket receiving position, and electrical unlocking devices connecting the punch at each station with the central station, together with means for adjusting said punches to operate at a pre-determined equal pressure at all sub-stations, and a dating device operatively connected with the resetting device and provided with a characteristic key indicative of the station operator.

6. A credit marking system, including electrical signaling circuits between a central station and a series of department stations, comprising a series of stamps, each located at one of the department stations, electrically operated mechanisms controlling said stamps and included in circuits leading through the central station, means for making and breaking the stamping circuits at the central station, and means for supplying electrical energy to said mechanisms from a common source of supply insufficient in proportion to the duty to be performed, to operate more than one stamp at a time.

7. A credit marking system including electrical signaling circuits between a central station and a series of department stations, comprising a series of stamps, each located at one of the department stations, an electro-magnet for each stamp controlling the operation thereof and included in a circuit leading through the central station, a common means for making and breaking all the stamping circuits at the central station and a common source of electrical supply for all said electro-magnets, said magnets and the supply of electrical energy from said common source being arranged and proportioned to operate but one stamp at a time.

8. A credit authorizing system, including a central station and a series of sub-stations, and comprising a set of mechanically actuated punches, one at each sub-station, and each provided with a manually actuated re-setting device, an automatic trip lock for each punch, arranged to normally hold the punch in ticket receiving position, electrical unlocking devices connecting the punch at each station with the central station, a normally inoperative circuit closing key at the central station, common to the unlocking devices of all the sub-stations, and means for connecting up said key in operative relation to any one of said stations.

9. A credit authorizing system, including a central station and a series of sub-stations,

as that above described, except that the punching pins are differently arranged so that the symbols produced by all the punches in one set will be alike but those produced by the punches in the different sets will be different.

The separate authorizing push button $34^{d'}$, which is employed (Fig. 5) is arranged to close circuits simultaneously through the relays of both punches, and the customers' address tickets (also in duplicate) are inserted over the die plate R' and punched to indicate that the accompanying sales ticket authorization, is for shipping or wagon delivery. In such cases, one sales ticket accompanies the goods, and the other goes to the credit office, while one address ticket is retained by the shipping or delivery clerk, and the other is attached to the goods. The circuit of a battery 35^d is established through line 18^d, push button 34^d, relay 36^d and line 19^d. The relay circuit is over line 33^d, battery 28^d, line 29^d, magnet of stamp 30^d, line 31^d, switch 21^d, contact 22^d, and line 32^d. The circuit of battery 35^d may also be established through the line 18^d, and $18^{d'}$, push button $34^{d'}$, relays 36^d and $36^{d'}$ and line 19^d, thus simultaneously operating both relays. The relay circuit of $36^{d'}$ is over line $33^{d'}$, battery $28^{d'}$, line $29^{d'}$ and through 29^d and $29^{d''}$, the electro-magnet of the stamp $30^{d'}$, line $31^{d'}$, switch $21^{d'}$, contact $22^{d'}$ and line $32^{d'}$. In Fig. 5 I have also illustrated an arrangement of switch levers by means of which one lever is utilized to control two of the connections to two substations, the lever being moved up for one station and down for the other, to make the desired connections. The circuit connections which correspond with those illustrated in Fig. 1, bear the same reference characters as in Fig. 1 with the reference character "d" added. In this construction the circuit of the drop 15^d and bell is established as follows: The ringing battery 41^d of the substation bell 45^d is connected in circuit with the bell by a push button at 60 which is connected in the circuit by a switch 61 and spring 62, the circuit being thus established through 62, 61, line 27^d, the bell line 29^d and line 63. The circuit through the central station drop 15^d is a circuit of battery 8^d through line 29^d, the hook 5^d, contact 6^d, line 14^d, the drop 15^d and line 65. The second station circuits have the same reference figures with the reference character "e" added, and the third and fourth have the reference characters "f" and "g" added respectively. It will therefore be understood that my invention is not dependent upon any specific arrangement of telephone circuits, or even upon any connection with the telephonic circuits or switch levers, the object of using the telephonic switch levers to close the stamp circuits being to expedite business and avoid errors on the part of the central operator in sending authorizing impulses to the proper station.

One resetting crank rod W serves to reset the trip mechanism of both punches. All the punching mechanism used for like service are adjusted by means of the nuts S to operate with equal and uniform pressure. With punching dies and pins accurately formed, an adjustment is possible whereby, with the addition of a single thickness of tissue paper to a set of authorizing tickets, the shorter pins will fail to perforate any of the sheets, while the longer pins will produce a record. In Fig. 7 these longer pins are so disposed on the head piece O with reference to the others, that the number intended to be punched, (*i. e.* the number of the central station operator furnishing the authorization) can be readily ascertained by the credit office from an inspection of the holes made by the longer pins, such pins being characteristically located to so identify the central operator. The resetting crank rod W is arranged to operate a dater X which is provided with a socket Y to receive a printing or perforating key Z. The operation of the dater X is effected by the resetting crank rod W through the medium of the lever E and the vertical rod G connecting said lever with the frame of the dater X (see Figs. 2 and 8). Each clerk at any given station is provided with such a key, which is required to be inserted when requesting an authorization, so that both the central operator's perforated record and the printed or perforated character representing the calling clerk appears upon the upper ticket after the operation is completed. The clerk is obliged to reset the punch in order to retract the pins and release the ticket, and the resetting operation cannot be performed without operating the dater. By regulating the strength of the authorizing current so that only the electro-magnet of one station can be operated at one time, the central operator is obliged to restore the switch lever of each station to normal before authorizations can be given to the next station.

My improved method will be readily understood from the foregoing description, but it will be briefly reviewed here. The clerk at the local station places a set of sales tickets in the punch or stamp, inserts her characteristic key in the dater, and calls up the central or credit station over the telephone and gives the name of the person desiring credit. If credit is refused, the clerk is so informed by telephone. If granted, the central operator closes the circuit through the electro-magnet of the punch, and thereby releases the trip and the reaction of the punch spring drives the pins against the tickets with the exact pressure required to perforate a single set of tickets and no more. The

and comprising a set of mechanically actuated punches, one at each sub-station, and each provided with a manually actuated re-setting device, an automatic trip lock for each punch, arranged to normally hold the punch in ticket receiving position, electrical unlocking devices connecting the punch at each station with the central station, a normally inoperative circuit closing key at the central station, common to the unlocking devices of all the sub-stations, and means for connecting up said key in operative relation to any one of said stations, together with current supplying means connected with said key and having insufficient energy for the operation of more than one unlocking device at a time.

10. A credit authorizing system, including a central station and a series of sub-stations, and composing sets of mechanically actuated punches so constructed that the punches of each set produce symbols of a like character upon or in a ticket, one punch of each set being located at each sub-station; an automatic trip lock for each punch arranged normally to hold the punch in ticket receiving position; electrical unlocking devices therefor operatively connected with the central station; a normally inoperative circuit closing key common to all of the punches of one set; another circuit closing key common to all the punches; and means for connecting said keys with any given station.

11. In a credit authorizing system, including a central station and a series of substations, and comprising two sets of punches, one punch of each set being located at each sub-station, a re-setting device at each sub-station, an automatic trip lock for each punch arranged to normally hold the punch in ticket receiving position, electrical unlocking devices therefor operatively connected with the central station, a normally inoperative circuit closing key common to all the punches of one of the sets, another circuit closing key common to all the punches of both sets, and means for connecting said keys with any given station.

12. A credit authorizing system, including a central station and a series of sub-stations, and comprising sets of electrically controlled marking devices, one device of each set being located at each sub-station; a circuit closing key at the central station common to all of the devices of one set and another circuit closing key at the central station common to all of the devices.

13. A credit authorizing system, including a central station and a series of substations, and comprising sets of electrically controlled marking devices, one device of each set being located at each substation; a normally ineffective circuit closing key common to all of the devices of one set; another circuit closing key common to all of the devices, and means for connecting said keys with any substation.

14. A credit authorizing system, including a central station and a series of substations and comprising sets of marking devices, one device of each set being located at each substation; and selectively operable means at the central station for controlling the operation of any or all of said devices at any sub-station at the will of the operator.

15. A credit authorizing system, including a central station and a series of substations and comprising sets of marking devices, one device of each set being located at each substation; selectively operable means at the central station for controlling the operation of any or all of said devices at any substation at the will of the operator, and means for connecting said selective means with any substation.

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

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