

1,257,480.

12 SHEETS—SHEET 1.



Charles Owens
H.B. Finley

Robt G Griswold
INVENTOR.

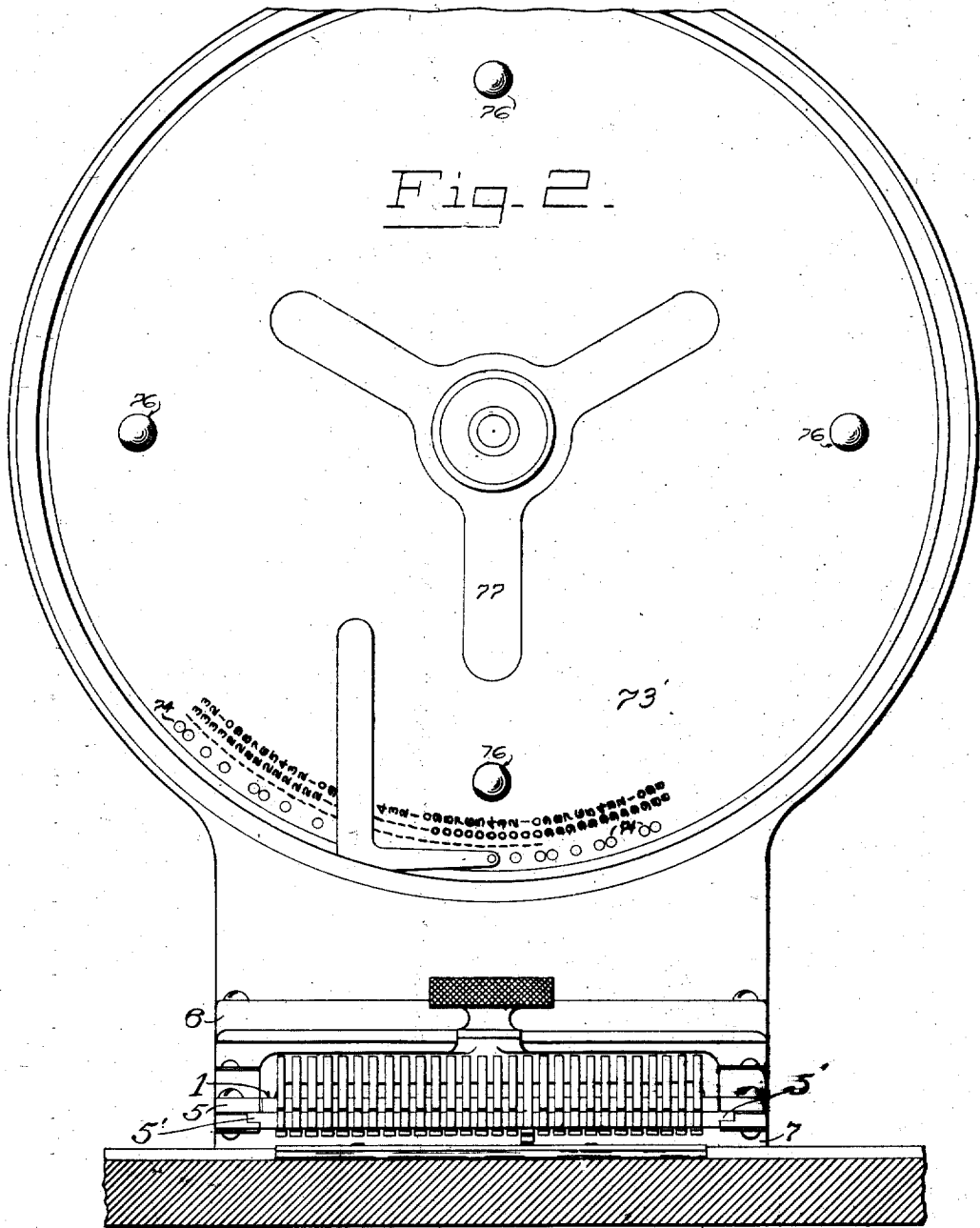
Dear Middleton, I have seen
 ATTORNEY

R. G. GRISWOLD.
SELECTOR PRINTING MECHANISM.
APPLICATION FILED SEPT. 16, 1914.

1,257,480.

Patented Feb. 26, 1918.

12 SHEETS—SHEET 2.



WITNESSES:

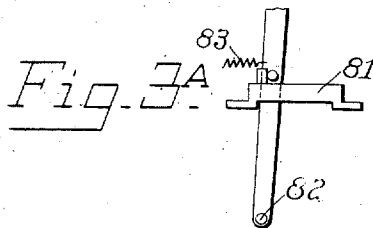
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Fig 3.



WITNESSES

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Patented Feb. 26, 1918.

12 SHEETS—SHEET 4.

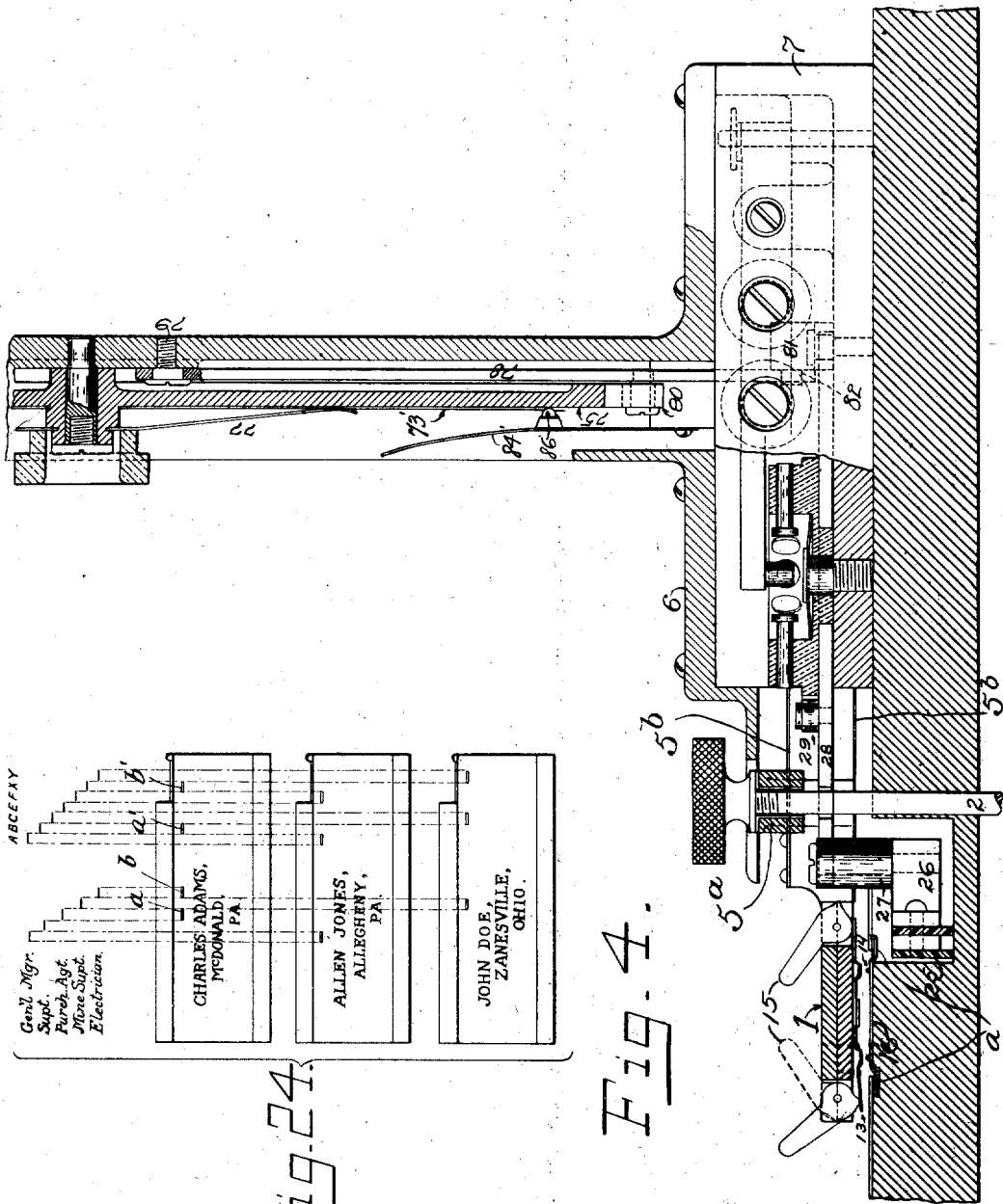


Fig. 24.

Fig. 4.

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12 SHEETS—SHEET 5

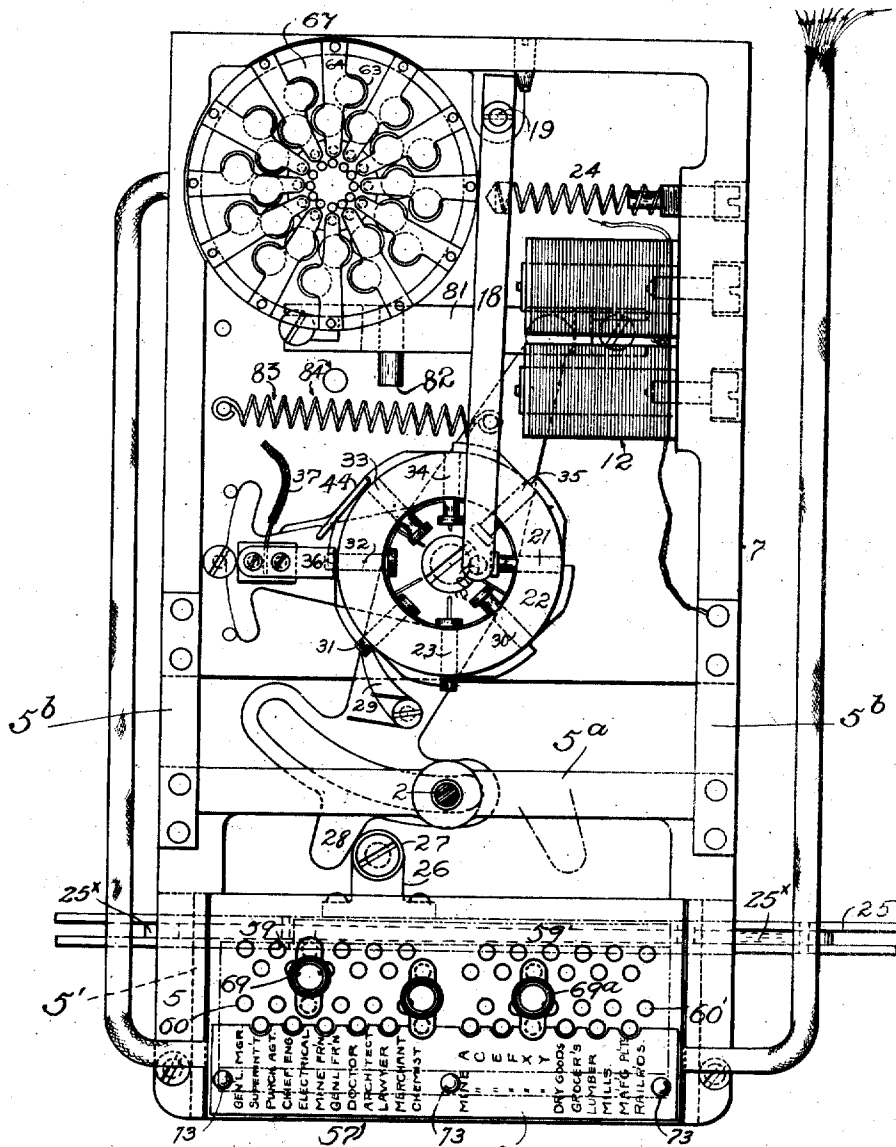


Fig. 5

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Patented Feb. 26, 1918.
 12 SHEETS—SHEET 6.

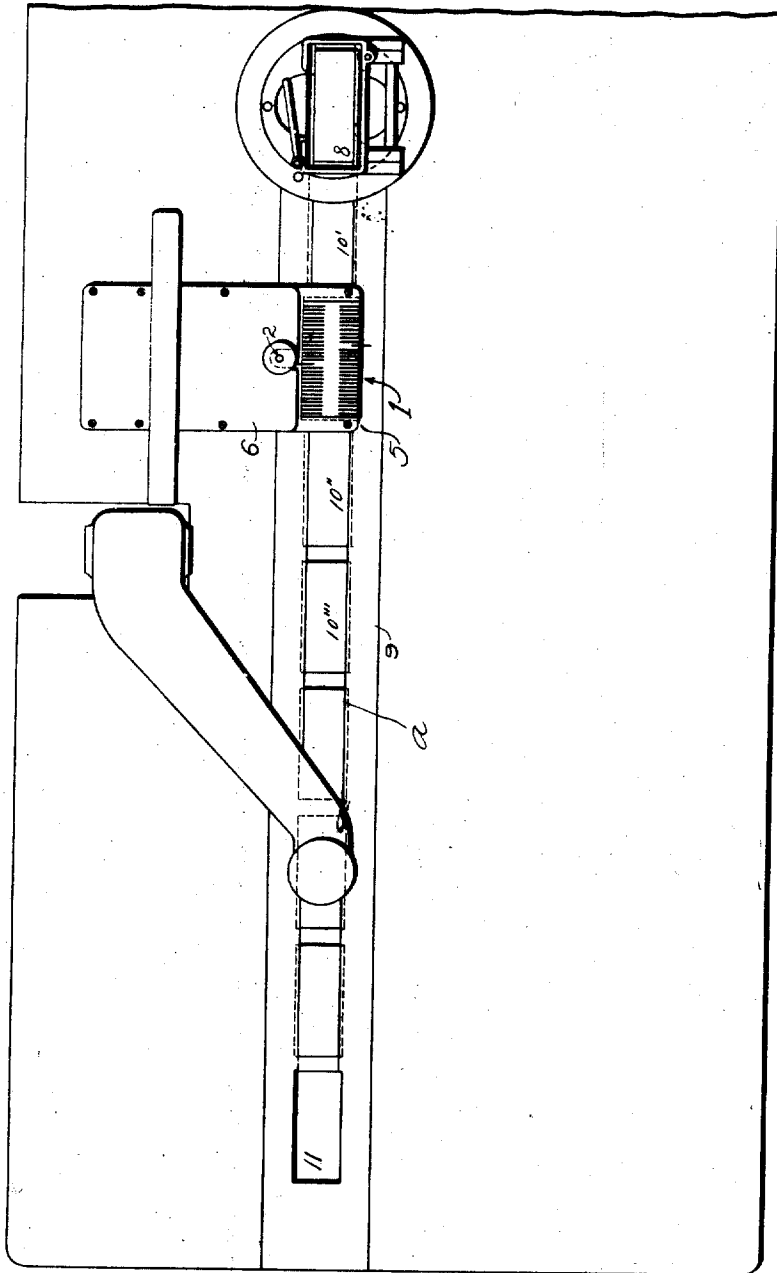


Fig. 6.

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12 SHEETS—SHEET 7.

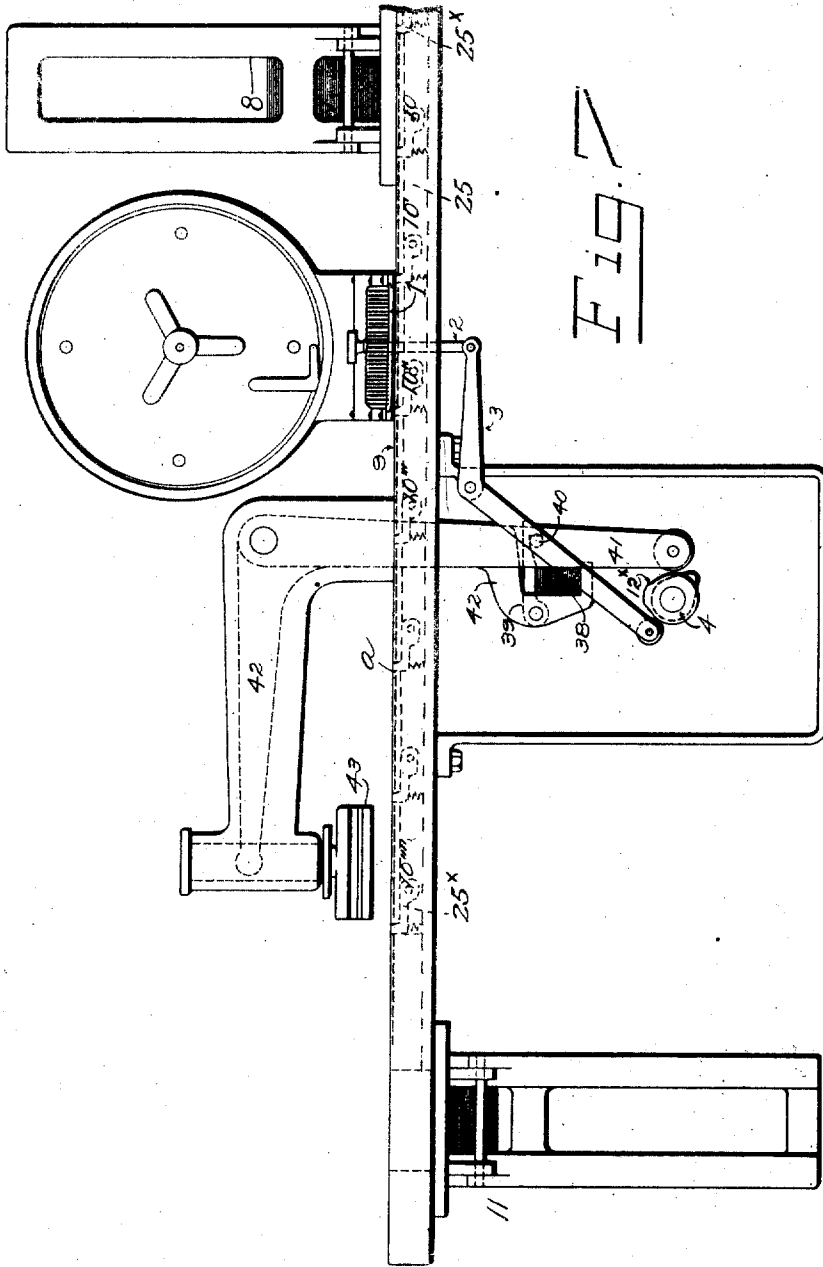


Fig. 7

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Patented Feb. 26, 1918.
 12 SHEETS—SHEET 8.

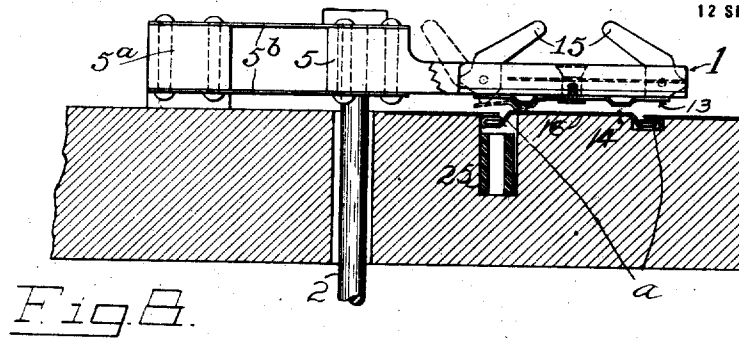


Fig. 8.

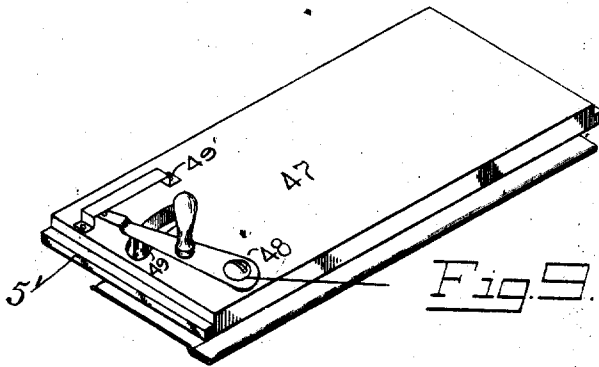


Fig. 9.

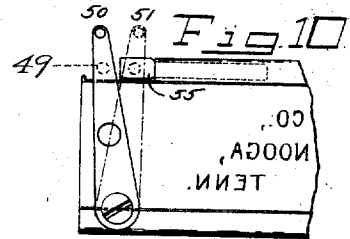


Fig. 10.

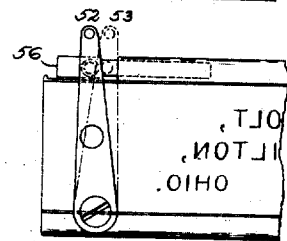


Fig. 11.

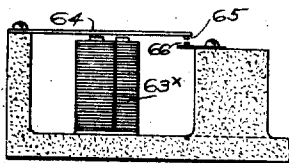


Fig. 12.

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 12 SHEETS—SHEET 9.

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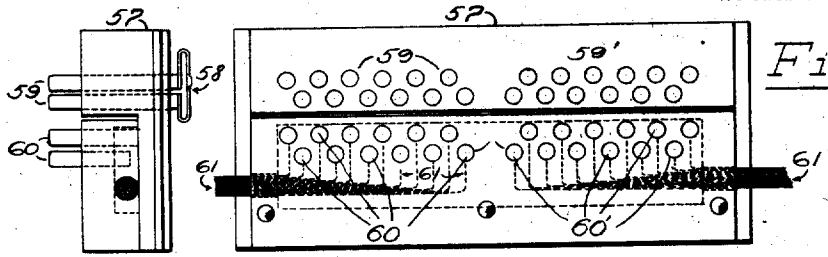


Fig. 14.

Fig. 13.

Fig. 15.

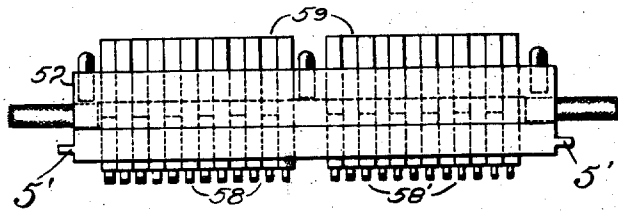


Fig. 16.

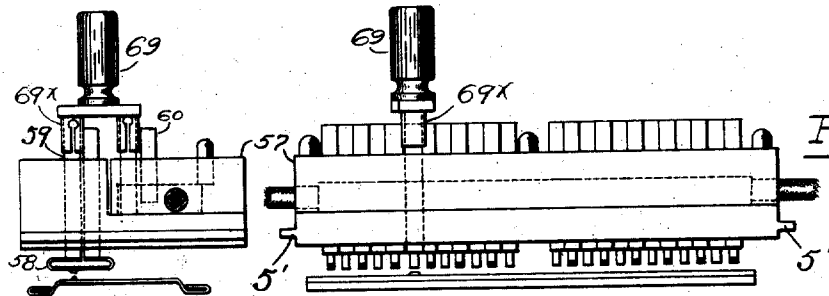
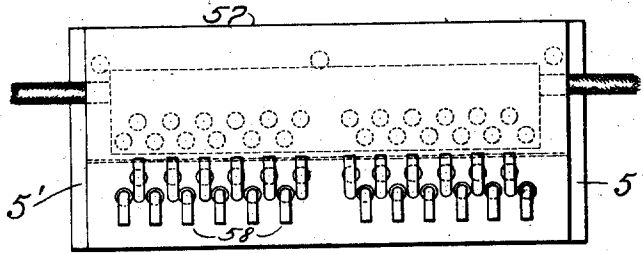


Fig. 18.

Fig. 17.

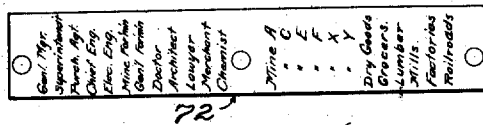


Fig. 19.

WITNESSES: Charles Owens

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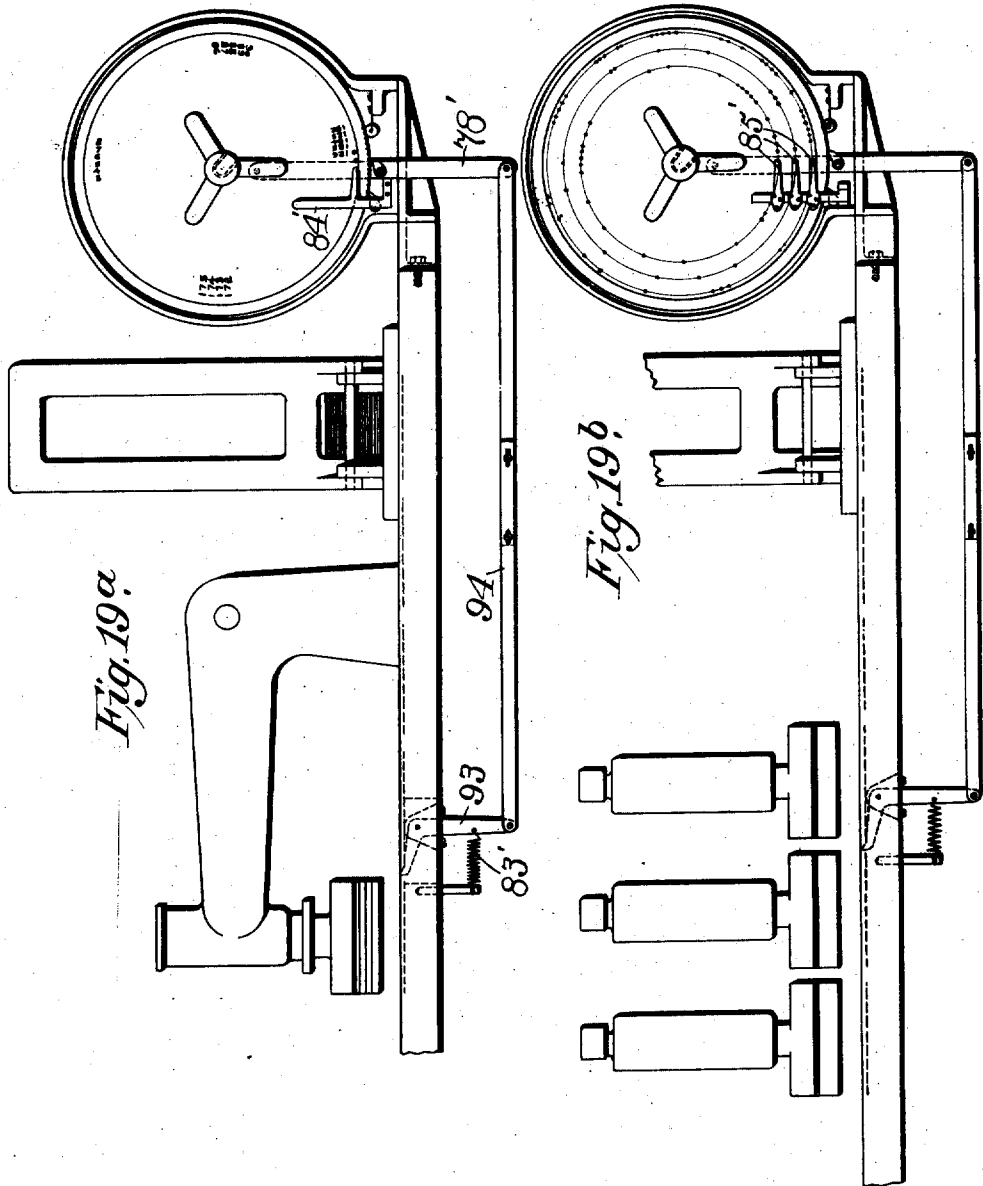
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APPLICATION FILED SEPT. 16, 1914.

1,257,480.

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12 SHEETS—SHEET 10.



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APPLICATION FILED SEPT. 16, 1914.

Patented Feb. 26, 1918.
12 SHEETS—SHEET 11.

Fig. 20.

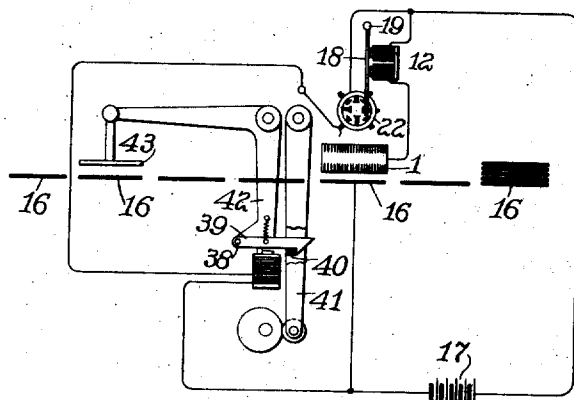
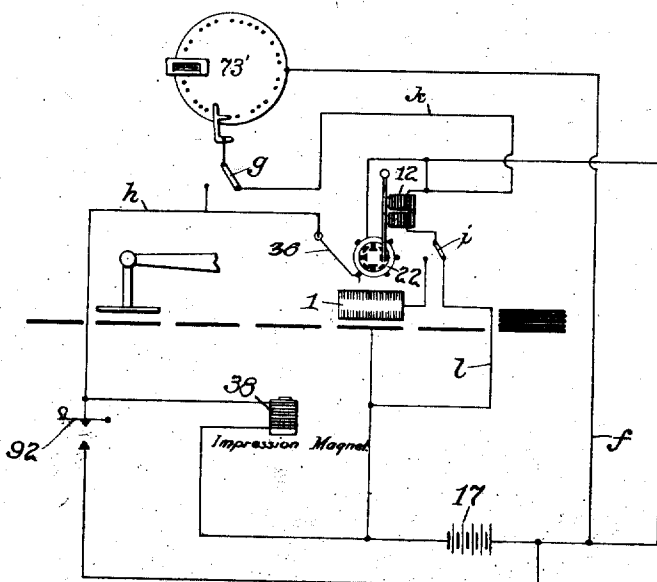


Fig. 23.



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Inventor:

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 APPLICATION FILED SEPT. 16, 1914.

1,257,480.

Patented Feb. 26, 1918
 12 SHEETS—SHEET 12.

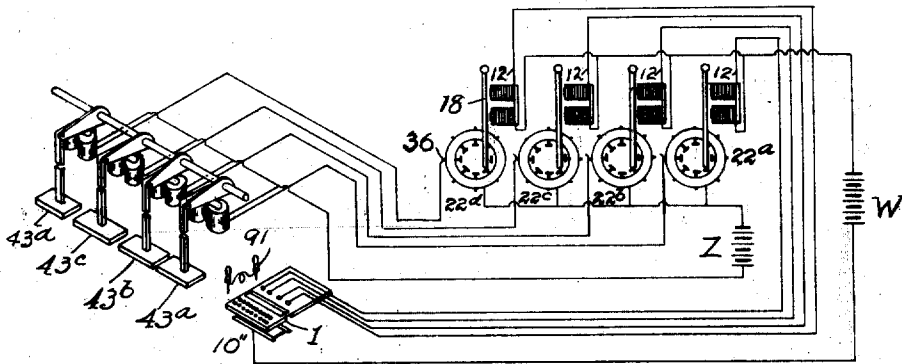
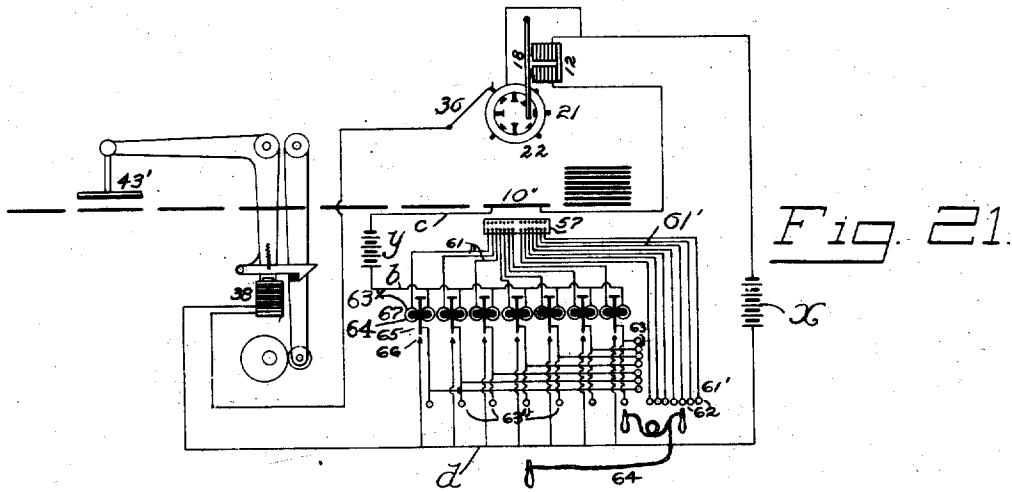


Fig. 22.

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UNITED STATES PATENT OFFICE.

ROBERT G. GRISWOLD, OF CHATTANOOGA, TENNESSEE, ASSIGNOR TO MONTAGUE MAILING MACHINERY COMPANY, OF CHATTANOOGA, TENNESSEE, A CORPORATION OF TENNESSEE.

SELECTOR PRINTING MECHANISM.

1,257,480.

Specification of Letters Patent.

Patented Feb. 26, 1918.

Application filed September 16, 1914. Serial No. 861,973.

To all whom it may concern:

Be it known that I, ROBERT G. GRISWOLD, citizen of the United States, residing at Chattanooga, Tenn., have invented certain new and useful Improvements in Selector Printing Mechanism, of which the following is a specification.

My invention relates to printing apparatus employing a series of individual printing plates or stencils having the printing characters embossed thereon or formed therein, said plates being moved one after another through the machine to have the impressions made therefrom upon the desired form sheets, strips or other articles and the invention concerns means whereby the plates may be selected for printing.

The invention consists in the features and combination and arrangement of parts hereinafter described and particularly pointed out in the claims.

In the accompanying drawings:

Figure 1 is a plan view of a portion of the machine embodying my invention.

Fig. 2 is a front elevation of a portion of the machine.

Fig. 3 is a front elevation of a portion of said machine showing other features.

Fig. 3^a is a detail view.

Fig. 4 is a sectional elevation in detail of a portion of the machine.

Fig. 5 is a detail plan of the interior construction and arrangement of a portion of the machine.

Fig. 6 is a plan view of the printing machine showing the selecting device in place.

Fig. 7 is a front elevation of Fig. 6.

Fig. 8 is a side elevation of a portion of the contact carrying frame of said selecting device.

Fig. 9 is an isometric view of the special contact plate for use in connection with said selecting device in special cases. One of the printing plates is shown directly beneath it.

Fig. 10 is a diagrammatic sketch of a portion of a printing plate with a movable identification and classification tab and with a selecting lever, as shown in Fig. 9, superimposed in operative and non-operative positions over the plate, the carrier plate for the selecting lever being omitted.

Fig. 11 is a plan of a portion of said printing plate with selecting lever as shown in Fig. 9 superimposed over said printing plate,

the carrier plate for the selecting lever being omitted.

Fig. 12 is a side elevation of a selecting relay magnet.

Fig. 13 is the end elevation of the special selecting plate, by means of which compound classifications may be effected.

Fig. 14 is a plan view of said special selecting plate.

Fig. 15 is a front elevation of said special selecting plate.

Fig. 16 is a bottom view of the special selecting plate.

Fig. 17 is a side elevation of the special selecting plate showing means of connecting contact plugs with terminals of leads and relay magnets, or special operating magnets, as hereinafter described.

Fig. 18 is a front elevation of said special selecting plate showing the connector in place and the selecting device associated with a printing plate.

Fig. 19 is a plan of a special classification card for use in connection with special selecting plate.

Figs. 19^a, 19^b, are views of modifications.

Fig. 20 is a wiring diagram for said selecting device in connection with the printing machine, for simple classifications.

Fig. 21 is a wiring diagram showing the connections for the compound selector plate and compound classification.

Fig. 22 is a wiring diagram for the special arrangement of selector for use in connection with a printing machine having multiple heads for the purpose of selecting one or more classifications from a mixed list of printing plates. Fig. 23 shows a wiring diagram.

Fig. 24 is a diagram showing the use of a series of plates according to my invention.

While the invention may be carried out with printing machines of various forms I show it in connection with a machine of the Montague type in which address or printing plates are fed one after the other in line along a runway, from a hopper to an impression point or points where impressions are made from the plates onto form sheets or strips by an impression head and an inking ribbon. The runway for the printing plates is illustrated in Figs. 4, 8, 6, and 7 at *a*. The hopper for the printing plates is shown at 8, and the impression head at 43 in Fig. 7.

In this instance but a single impression head is shown but this impression head may be of a multiple character, each member of said head being disposed over the runway for the plates and I have indicated such a head in the diagram in Fig. 22, the impression pads being 43^a, 43^b, 43^c, 43^d. The plates are fed step by step from the hopper to the impression head, these being indicated at 16 in Figs. 4, 8 and diagrammatically in Fig. 20.

Figs. 6 and 7 indicate at 10, 10', 10'', 10''', 10'''' different stations at which the plates rest momentarily in passing from the hopper 8 to the printing point under the impression head 43 in Fig. 7.

After leaving the impression point 10'''' under the impression head the plates are fed onward to a stacker chute or receiving hopper 11. The feed of the plates may be effected in various ways either by a reciprocating shuttle bar having dogs to engage the plates or by an endless feed chain having engaging dogs.

My invention may be embodied in a machine for performing simple selection or classification or in a machine for performing compound classification. In the former case the selection would be made according to whether the plate belongs in one class or another, while in the latter case *i. e.* compound classification the plate would be selected in accordance, first, whether it belonged in a generic or basic class and second, whether it belonged in a subclass of the general or basic class. In other words, a list may be made up of a number of general classes *i. e.* General Managers, Purchasing Agents, Chief Engineers. Under each of these we may have sub-classes as General Managers, Purchasing Agents, and Chief Engineers of Mines. Now supposing we want to print General Managers and not print any of the others, this would be simple classification, but if we want to print General Managers of Mines, this would be compound selection or classification, because we would have to select General Managers as distinguished from Purchasing Agents and Chief Engineers and of the General Managers we would select only those of mines. I will first describe simple selection or classification.

Simple selection or classification.

At a point intermediate the hopper 8 and the impression head I show in one form of my invention a selecting mechanism which is intended to select certain of the plates for printing and to allow other plates to pass the printing point without having an impression made therefrom. Selecting devices have been proposed heretofore in which the selecting is done while the printing plate is at the station next preceding the impression point but it is not always desir-

able to have selecting mechanism applied in this close relation to the printing point as this space may be employed to locate devices for other uses. With my invention it is possible to locate the selecting mechanism at any desired distance from the printing point or in other words at any desired station occupied by the plates intermediate the hopper 8 and the printing point and I will now describe such mechanism.

1 indicates a special contact plate or comb located at the selecting station which as shown in Fig. 7 is the station 10'', this being a number of stations preceding the point at which the impression is made. This comb comprises a plate having fingers 13 which may be bent down by cam levers 15 so that said fingers will contact with selector projections 14 or other devices carried by the printing plates. In the instance illustrated these projections are embossed on the plates and may be letters or characters of the alphabet so that the typograph machine ordinarily used for embossing the letter characters may be employed for making the selector embossings. The comb is carried in a frame made up of the parts 5, 6 and 7, the base of the frame being marked 7, while 6 indicates a cover plate. The comb plate may be removed and replaced by another selecting plate which may be designed to do special work.

The frame 5 which carries the comb or selecting plate is movably carried in the base of the selector. Vertical movement is given to the selector plate or comb by a rod 2, lever 3 and a cam 12 on the shaft 4.

The selecting comb 1 and carrying frame 5 are insulated from the rest of the selector mechanism and also from the bed plate of the printing machine.

The comb plate is in an open circuit with an electromagnet 12, Figs. 5, and 20 and the electromagnet is energized whenever the comb plate is lowered and one or more of its fingers come in contact with the selector projections on the printing plate. By setting the cam levers 15 which are pivotally mounted on the comb plate in the dotted line position Fig. 8, the corresponding spring finger 13 of the comb plate will be depressed so that when the entire comb plate is lowered this depressed finger or fingers 13 will close the circuit through the printing plate by contacting with the selector projection thereon, whereas all the other spring fingers of the comb plate which have not been set or adjusted downwardly by their corresponding cam levers 15 will not come in contact with the printing plate.

Fig. 20 illustrates the fact that the printing plate when located at the selecting station *i. e.* under the selector, is in circuit. This circuit can be formed in various ways, it being sufficient to say that the printing

plate when in the position indicated rests upon a frame part, which is in the circuit or any special contact may be provided.

The teeth or fingers of the comb plate correspond in pitch or distance apart to that of the selector or classification projections upon the printing plates.

Fig. 4 indicates that the selector comb finger or tooth 13 at the left has been depressed or set down by the cam lever 15, the whole comb being in its upper position however. Now when the comb is lowered by the operation of the rod 2, the finger 13 at the left will contact with the selector or classification projection on the printing plate and the circuit to the magnet 12 will be closed.

It is thus seen that any particular finger corresponding to any predetermined classification projection position may be thrown at will, so as to cause an electrical contact to be made with any plate carrying a projection corresponding to this exact position, while all other projections not in this position will not cause electrical connection to be made.

Immediately upon the completion of this electrical contact a complete circuit is formed through the printing plate, 16, and finger 13 of the comb, the bed of the selecting plate 1, and the carrying frame 5, and thence to one terminal of the winding of the operating magnets 12, thence back to the source of supply and to the printing plate. The instant this circuit is closed the magnets 12 draw the armature 18, which is pivoted upon pin 19, toward them, the free end 20 pushing the contact pin 21 toward the periphery of the rotating impression control drum 22 until it occupies the position as shown by the contact pin at 23. Immediately upon the movement of the selecting plate away from the printing plate, the circuit is broken, and the armature 18 is returned to its normal position by means such as a spring 24.

The plates are moved from one position to another by means of a chain or bar 25, which is provided with pawls or dogs 25* which engage said plates and carry them with it into the next consecutive position. Said chain, or bar, has immovably mounted upon it an arm 26, which carries a roll 27, which in turn engages with a lever 28 which through means of a pawl 29 causes a partial rotation of drum 22 for each movement of the bar 25. The drum 22 is provided with a plurality of contact pins 21, 30, 23, 31, 32, 33, 34 and 35, said number of pins being equal to or greater than the number of plate positions or stations existing between the position or station of the selector and the position of the plate when it is being printed from. When the contact pin 21 is thrown out into the position indicated by the pins 23 and 31 it remains in this position until the step movement of the lever 28 has car-

ried the drum 22 around and until the pin 21 comes into contact with the contact point 36, when a completed circuit is formed there-through to lead 37 and the printing arm control magnet 38, in Figs. 7 and 20, and thence by means of another lead through the source of supply and back to the contact point as shown diagrammatically in Figs. 20-21. The electromagnets 38, control the movement of a latch lever 39, pivotally carried by the lever arm 42 of the impression head. This latch lever, when drawn down by the magnets, engages with a stop 40 carried by the constantly moving portion of the printing mechanism consisting of the lever 41 operated by the cam 12* on shaft 4, Fig. 7.

When the above mentioned circuit is completed the magnet 38 draws the catch lever 39 down until it catches over the point 40 and causes the levers 41 and 42 to be connected with each other so that the movement of lever 41 will cause corresponding movement of lever 42, thus depressing the printing head 43, until it causes the impression from the printing plate to be made upon any object placed beneath it and the printing plate shown in position 10''''.

When drum 22 is moved to another position, the pin 21 which we have been considering as in position 32 moves away from the contact 36 breaking the circuit of the electromagnet 38, releasing catch-lever 39, when the swinging arm 41 may perform its oscillations without affecting the printing arm 42, and this connection will not again prevail until another pin on the drum 22 has been moved around until it makes a contact with contact point 36. After any of the contact pins 21, 30, etc., have passed the contact point 36, they are brought into contact with a cam plate 44 which by reason of its position returns the contact plugs to their original position, as shown at 33 and 34, Fig. 5, when they will again be ready to be pushed into active position by armature 18.

This impression controlling drum 22 thus accurately determines the operation of the printing arm 42 and the impression head 43 when the printing plate has arrived at position 10'', as indicated in Fig. 7 and any plate which passes under the special selector plate 1 and which does not have a classification contact point coinciding in position with the fingers of the comb that have been depressed by means of the cam lever 15, will fail to operate the magnets 12, and thus the contact plug 21, 23, etc., corresponding to this position will not be moved to the outer position where it may come in contact with contact point 36. This plug will, therefore, pass by this contact without completing a circuit through electromagnet 38, therefore, this plate, when it reaches the position directly under the impression head 43, will not be printed from; but will move on to the dis-

charge hopper and by means of this arrangement any desired selection of plates or stencils may be made from the original list by simply moving the cam levers corresponding to the position of the classification projections or orifice in the plates or stencils which are to be printed.

It will be observed that the member 22 is in the form of a rotary drum but I do not limit myself in this respect. This member progresses with the feed of the plates making one movement for each feeding action of the plates.

My invention also includes means to prevent error in moving the cam levers 15 and to facilitate the operation of the selecting device, by reason of the introduction of a classification card 45, which slips over dowels 46, Fig. 1. Upon this card may be printed, or otherwise indicated, the position of the classification projections as embossed or otherwise located upon the plate or stencil, and when a definite scheme of placing these classification projections upon the plates or stencils is followed, the said location cards may be printed to use at any time for the determination of the classification fingers of the comb.

In order to facilitate the use of my selector in connection with a series of printing plates or stencils such as are already in use and which are provided with movable tabs, as shown in Figs. 10 and 11, I have provided an extra plate which may be inserted in carrying frame 5, in place of special selector comb plate 1. This special plate 47 carries an adjustable contact lever, 48, which carries the contact point 49, which may be moved into either position 50 or 51, as indicated in Fig. 10; or 52 and 53 as indicated in Fig. 11. The contact point 49 may then be brought into contact with the movable tag 55 as shown in Fig. 10; or movable tag 56, as shown in Fig. 11, and the selecting accomplished in accordance with the predetermined position of these tags with reference to the data carried upon the plates or stencils themselves. The contact may be made between lever 48 and contact bridge 49', which is also carried on plate 47, bridge 49' being connected in series electrically with electromagnets 12 for operating plate control drum 22, as hereinbefore described. Special plates may be constructed and inserted in carrying frame 5, in lieu of plates 1 and 47, for the purpose of performing special classifications.

Compound selection or classification.

Realizing that there are many times when simple classifications as above indicated cannot meet all of the requirements to which printing machines are subjected, I have also included in my invention a compound selecting device, whereby the selection of plates

or stencils may be performed in accordance with a classification that may or may not depend upon the prime classification. For instance, if a series of printing plates should exist in a large list comprising the names of general managers, superintendents, purchasing agents, chief engineers, electrical engineers, etc., and it was desired to use this set of plates in addressing a series of advertising or other matter to all of the general managers and purchasing agents of mines in which compressed air was used, and to no others, it may be readily seen that the simple classification first mentioned would not meet this condition where the plates also carry classification projections corresponding to various class of mines, such as those using air, those using electricity and not air, those using both electricity and air, etc.

There is great need of a device which will classify such matter upon the basis of subordinate classifications, and I have invented a device which will accomplish this result.

I accomplish this result in my invention by the use of a special selector plate 57, Figs. 5, 13, 14, 15, 16, 17, 18 and 21, which can be inserted in the supporting frame 5, Fig. 5 in lieu of the special selector plates 1 and 47 hereinbefore described. This special selector plate, which for more specific identification I will hereinafter call the compound selector plate is provided with a series of contact points 58 carried upon pins 59 59'.

The pins 59, 59' are arranged in two groups, but along one side of the selector plate. At the other side of said plate there are two groups of connecting plugs 60, 60'. These do not have contact points as 58 but the group 60 has lead wires 61 extending therefrom, Fig. 21, to relays 67. These relays may be arranged in various ways, the electro-magnets of these relays being indicated at 63*. These relay magnets are also illustrated in Fig. 12. Each of these relay magnets as shown in Fig. 21, is connected with a common lead wire *b* extending to the relay battery *y* from which a lead wire *c* extends to the printing plate runway at the station 10'' at which the selector mechanism is located as before described. The contacts 58 are the ones which close the relay circuit through the selector projections on the printing plate and for enabling this circuit to be closed according to the general class to which the plates belong, which are to be printed I employ a special connector 69, Figs. 5, 17, 18, which has a pair of spring sockets 69*, one of which fits over the pin 59 of contact 58 and the other over the desired plug 60 so as to electrically connect these two.

In making this selection a special index card 72, Fig. 5, may be employed to facilitate the work of the operator, said card be-

ing arranged to lie upon the top of the compound selector plate, its position being determined by the dowels 73, the distance between said dowels not being uniform for the purpose of determining the exact position of the index card. This card is provided with classification information as shown *i. e.* classes of officials, classes of mines, and classes of businesses. In the example shown the special connector 69 at the left has been placed to select the general class of "Electrical" meaning electrical engineers. With this connector in place and with a plate at station 10'' having selector or contact projections with which the contact 58, now connected by connector 69 to a plug 60, engages, the relay circuit will be closed energizing the magnet 63^x of the selected lead 61 and the armature of this relay will be drawn down to close another circuit at 65, 66, Figs. 12 and 21. The operator however when he places the left hand connector 69, Fig. 5, in position to make the selection as to the general classification *i. e.* Electrical Engineers, also at the same time places another connector 69^a *i. e.* the right hand one, Fig. 5 to select mine *x*, which may be for instance indicative of mines operated by electricity and air. The placing of this second connector 69^a is for selecting the sub-class just mentioned, falling under the general or generic class above mentioned. This second connector it will be noticed connects one of the pins of the right hand group 59' with one of the plugs 60' of the right hand group of Figs. 14, 18 and 5.

The closing of the relay circuit it will be noticed has no immediate or direct effect on the magnet 12 before mentioned and therefore this circuit closing alone will not cause the setting of the pin 21 of the rotary step by step controller 22 and the consequent operation of the printing head at a later period by coming in contact with the contact 36 but it will require that another circuit be closed through the second connector 69^a, that is a selection of a sub-class, before the magnet will be energized and this broadly speaking constitutes the compound selection or classification above mentioned.

The group of plugs 60' at the right of Figs. 5 and 14 are connected with terminal sockets 62 of the multiple relay indicated generally in Figs. 5 and 21 by the numeral 67 and in the diagram this connection is indicated by the leads 61'. The contacts 65 of the said relays are connected as shown in Fig. 21 to terminal sockets 63'. By using a connector 64 Fig. 21, any terminal 63' can be connected with any terminal socket 62. The contacts 66 of the relays are connected individually and electrically with the lead wire *d* which includes the battery *x* and the printing determining magnet 12 and the printing plate when on the runway at sta-

tion 10''. Now supposing a printing plate is resting at the station 10'' having selector or classifying projections thereon corresponding to or to register with the contacts 58 of both the left hand connector 69, Fig. 5 and the right hand connector 69^a and also that the connector 64 is connecting the proper terminals 62 and 63' and also supposing that the selector plate is being lowered by the rod 2 as before described to make these contacts engage with the selector projections on the printing plates representing both the general class and sub-class to which the printing plate belongs, the relay circuit will be closed across the connector 69 at the left of Figs. 5 and 21 and the contacts 65 and 66 will be closed. Also in the main circuit *d*, 61''' will be closed at the printing plate and connector 69^a and at the contacts 65 and 66 so that the current from main battery *X* will pass through the magnet 12 causing this to draw armature 18 and set contact pin 21 in position to engage contact 36 when in the step by step movement of the rotary controller consequent upon the operation of the plate feeder, the said pin is brought to the said contact 36. In other words, it requires contact of the selector with the printing plate at a plurality of points before the magnet 12 will be energized. In the example mentioned electrical contact must be made at two points in this compound selection but it will be understood that compound selecting may require electrical contact of the selector with the printing plate at a larger number of points. As in the form first described in connection with the diagram of Fig. 20 the electromagnet 38 for operating the impression head is in a branch of the main circuit *d*.

My invention includes a division of the contact points into a plurality of series, and also a division of the relay magnets into a plurality of series for the purpose of securing what may be described as triple, quadruple, quintuple, etc., selections or classifications which may all be effected by means of alterations in the connections without affecting the design or construction of the selector, although I do not limit my invention to the particular design shown in the drawings.

The above arrangement of compound selector plate, together with its manifold connections, enables the operator of the printing machine provided with this device to select corresponding classifications with reference to the subordinate classifications without in any way handling the plates or stencils, it merely being necessary to provide said plates or stencils with a system of classification projections that may be imprinted in a uniform manner upon every plate in a series.

My invention also incorporates in this automatic selector, a means whereby a control disk 73', Fig. 2, may be used to control the printing of certain plates bearing addresses or other information corresponding to a series of accounts, such as ledger accounts, for the purpose of imprinting upon statements or envelopes the names and addresses of the persons mentioned in said accounts. Under present systems in using similar printing machines it is necessary for the bookkeeper to first go through a series of plates and adjust the movable tab, placing it in a definite position, so that the simple selectors heretofore used may come in contact therewith and cause the printing head to be depressed, making an imprint from these specific plates. My invention obviates the necessity for handling these plates and provides in its stead a master disk or sheet bearing upon its surface a series of numbers corresponding to the numbers and position of the respective plates in their filing trays. When it is necessary to print a series of statements or envelopes corresponding to any particular classification or selection of plates, this master plate, (which may be made of any material, but preferably of paper) is placed upon a special punching machine bearing a zero and a series of numbers; then, as a series of accounts is gone over, those accounts for which statements and envelopes are required are indicated by moving the disk until the number thereon, corresponding to the serial number of the plate is directly under the punch, when a hole is punched through it, as shown in Fig. 2, at 74. The blank spaces between the punched orifices corresponds to the accounts for which no statement or envelop is needed. This master disk is then placed in a position shown in Fig. 2 upon its rotating carrier 75, in Fig. 4, its definite position in relation thereto being maintained by the dowel pins 76 and the spring retainer 77 serves to hold it closely to the plate. This holder 77 may be removed easily from the carrier 75 for the removal of the paper disk.

The rotation of the disk 75 is secured in intermittent steps corresponding to the number or numbers printed thereon, by means of a swing lever 78 which is pivoted at 79, and carries an operating pawl 80 which engages in the teeth provided in the periphery of the disk 75, and moving it through one division with every movement of the lever 78, which is controlled by sliding block 81, which in turn is operated by oscillating lever 28 shown in Figs. 4 and 5, the connection between sliding block 81 and lever 78 being effected by pin 82, lever 28, being returned to its position of rest by spring 83, and limited in its movement

by the stop 84, which may form a part of sliding block 81, but an individual stop is indicated. The operating mechanism for lever 78 is shown in Figs. 3 and 5 where similar numbers correspond to similar parts. The plate 75 is prevented from reversing its direction of movement by detent pawl 82', Fig. 3, and from moving more than the distance desired by detent roller mechanism 83'. Electrical connection for the operation of the plate control mechanism is maintained through the medium of a spring contact device 84', Figs. 2 and 3, said spring contact device being provided at point 85 with a special form of contact point 86, Fig. 4, which drops through the orifice punched through the edge of the paper disk as the successive perforations are brought beneath it as the disk 75 is rotated by the action of the plate feed bar 25 as it moves the plates 85 along to the printing position. This device will determine the printing of exactly the plates selected by the bookkeeper, and for which corresponding perforations have been made in the edge of the master disk.

My invention also includes a similar operating device carrying a disk which is provided with the names radially thereon instead of numbers, the names corresponding to those on the series of plates in the filing trays, and permits the selection of definite plates for imprinting therewith upon any matter whatsoever by placing this master record plate containing the series of names on the rotating disk 75, and controlling the action of the imprinting head by a special contact button which may be depressed by the operator at such times as desired names appear in the window provided at 86', the rotation of the plate being secured by control dowel 87, and the arm 88 containing the window through which the name appears being rotatably mounted upon the frame of the selecting device, as shown at 89, so that it may be conveniently swung out of the way when new disks are being placed upon the selector. This disk may also be perforated along the periphery, as shown at 90, for use when using the contact 85 and automatic printing mechanism. Such a disk is shown in Fig. 3 only one name, enough to illustrate this feature, being shown. These disks are both controllers and indicators.

My invention comprises movable mounts for these rotating disks, so that they may be applied to or removed from the main body of the automatic selector at will, rendering the selecting device extremely flexible in its application.

In Fig. 2 I have shown the front elevation of the special portion of the selector in which the said paper dial is used to determine the plates from which the printing is to be made. In explaining this part of

my invention we will assume for instance, the case of a commercial house desiring to send out a number of statements, these statements based upon the ledger accounts as they exist on their books. They may have a list of 20,000 names, only 15,000 of which are to receive statements. It is obviously a laborious task to go through a series of plates and move the classification tabs as provided ordinarily on the plates, from one position to another; and it is equally as laborious to go through a list of 20,000 plates and move selecting tabs from one position to another, or insert special loose tabs in their specific pockets for this purpose. To overcome the necessity of so much labor, I have designed the dial 73', as shown in Fig. 2. This paper disk bears upon its periphery two-hundred and twenty-five consecutive numbers corresponding with the number of metallic plates packed in our filing trays. In using this system of selecting, it will be necessary for the user to be supplied with a series of paper dials running consecutively from 1 to the highest number of the account which they may have, each plate starting with the next consecutive number to that at which the series leaves off on the former disk. Those parties to whom statements are to be sent are indicated by pressing the punching lever of a special punch, which punches a small hole, as shown in 74, Fig. 2, corresponding in position with the number of the plate from which the address is to be printed in the filing drawer. This punching mechanism has a ratchet action whereby the disk may be rotated one position for each time the lever is pressed, and it is thus a simple matter for the bookkeeper to readily indicate the exact address plates which are to be used in heading up the statements.

These disks are then given to the operator of the printing machine, and they are placed one after the other upon the disk 75, and set in such a position that the first or lowest number on the disk corresponds with the relative number of the first plate in the tray as it passes under the selector comb. Inasmuch as there is no electrical connection necessary between the plates and the selector comb in this case, the device for depressing the selector comb is released, so that this portion of the mechanism is rendered inoperative.

Now, as the paper dial is rotated, the special contact point 85 of the spring 84, shown on Fig. 3 and Fig. 4, slips through the perforations and makes a contact with the metallic plate directly behind, and this in turn operates the plate control magnets which force the contact pins in the plate control drum 22 into their outermost positions, as shown at 23, Fig. 5. Then, as each plate passes toward the printing head, the plate

control drum is moved one position by the action of the lever 28, and when the contact pin comes in contact with the plate 36, the electrical contact is made with the operating magnets, causing the impression head to descend and to imprint the impression of the address on the statement head from the particular plate desired. After a paper dial has been used for the selection of certain accounts, it may be destroyed and new ones made when new accounts are to be imprinted. In the event of certain accounts being removed from the ledger, the blank spaces, if left, will, of course, be indicated by blank spaces on the paper dial. However, it is possible for the commercial house to introduce new accounts under the old numbers, so that the plate trays may be filled with practically all live accounts. Of course, it is readily seen that in order that this system may become operative with a high degree of efficiency and accuracy, it will be necessary to have exactly two-hundred and twenty-five plates in each tray, and any blank numbers may be filled in with blank plates.

In Fig. 22 I show impression means consisting of a plurality of pads 43^a—43^d. There may be more or less. With this series of heads separate sheets or forms are to be used, one sheet being fed beneath pad 43^a, another beneath pad 43^b and so on. Each pad or member of the multiple impression head is controlled by a magnet like 38 and associated mechanism above described and each magnet is in circuit, through a rotary controller similar to the controller 22 before described and these are marked in Fig. 22 as 22^a, 22^b, 22^c, 22^d, with battery *z*. The selector plates are in circuit with the battery *w* and with the magnets 12, which through the armatures 18 control the setting of the contact pins in the rotary controllers to engage the contacts 36. Now when a printing plate is lying at the station 10' and the selector plate 1 is lowered its contact will engage the selector projection on the printing plate, if this plate is to be printed and the proper one of the magnets 12 will be energized to set the radial pin of the rotary controller belonging to this selected printing plate out in position to close the circuit through the contact 36 with the magnet at the printing head so that at the proper time this head will be operated to print from this printing plate when this in its step by step movement comes under this head. This plate will pass under the other impression pads without printing if its class is such that no impressions are desired at the other heads. Each head may be used to print on a form, sheet or strip separate from those on which the other heads print.

It will be observed that with the use of the rotary controller 22 the selecting sta-

tion may be removed from the printing station as far as desired with any desired number of stations in between. The impression head and its operating mechanism may be therefore of any desired construction, the employment of the selecting mechanism located at a distant point not imposing any restrictions or limitations as to the character or extent of the impression mechanism, and this is true whether the impression head be of single or multiple form. By the arrangement shown in Fig. 22 a selection may be made from any list of plates in any number of classifications, printing each classification upon its own individual sheet or paper strip. In this Fig. 22 a special connector 91 is employed for connecting the selector plate with any particular impression pad or member of the multiple head.

Referring more particularly to some detail features of the apparatus: In Figs. 1 and 2 it will be observed that the selector comb plate is seated in a groove by means of a tongue on the plate proper, which is held in position by a plate 5 and clamping screws. In changing the selector plate for instance, from a simple to a compound plate, the one is removed and the other is placed in position, or special forms of selector plates suited to special forms of classification may be used having special contact points to meet the selector projections as embossed or otherwise provided on the printing plates.

The comb plate of the selector may be divided into two isolated sections, either of which may be used for selecting. In the comb plate of Fig. 1 there are twenty-eight contact fingers on each side, all in common electrical connection with the plate but with the divided plate just mentioned we would have two independent sets of contact points or fingers on the selector plate, there being twenty-eight points in each set and such a plate may be used as a compound selector.

The fingers 15 may be mounted on an insulated plate and each have its own individual electrical connection, or only one finger may be used, and this may be shiftable from place to place over the appropriate fingers 18, these features being mentioned to emphasize the fact that I do not limit myself to any particular form of contact comb or member. As before stated, the contact or selector member slips in guide-ways of the selector frame so that it may be readily removed and replaced by another form in doing which it is slipped out toward the left in Fig. 4. Figs. 9, 15, 16, 18 show the guide tongues 5' on the various forms of selector members which slip into the guide-ways of the frame. The frame 5, Fig. 5, which removably carries the comb plate or selector member includes also a cross bar 5^a with which the rod 2 connects

for operating the frame vertically. Said frame 5, 5^a is supported by leaf springs 5^b, Figs. 4, 5 and 8 which will allow it to move vertically while maintaining its parallelism with the record plate with which its fingers 70 are to engage. The springs 5^b are connected with the main frame of the attachment.

Reverting to the index cards 45 and 72 for preventing error in making the selection, there is one of these cards for each class from which selections are to be made, or one card can be printed to serve for all of the classes that the list contains.

Reverting to the chart 73', and others of similar form, I prefer to place numbers on the plates, these plates being then serially arranged from 1 to 225. The foregoing description makes it clear that the chart may be used in several different ways either as an indicator to notify the attendant when to make the impression, this being under his control by pushing a button 92, Fig. 23, and closing a circuit which includes the magnet 38, the notification to the attendant being secured by the name on the chart appearing at the window 86^a, or, the chart may automatically close the circuit to the electromagnet 38, said chart having the perforations above described for this purpose in connection with the contact 85, 86, and the chart being rotated step by step. When this automatic operation is performed the circuit is from battery 17 Fig. 23 through wire *f* to the chart carrier, the contact 85, switch *g*, wire *h* to magnet 38, and thence back to the battery, a switch at *i* being open to make selector 1 inoperative together with magnets 12 and controller 22. In neither of the above forms is the selector comb or member 1 used, the apparatus however is organized to use either one of the above systems at will of the user according to the class of work he may be doing at the moment. If he is sending out statements he would use the chart in either of the above ways. The selector comb or member may be left in place and its contact fingers may be adjusted to be out of use while the chart is being used, or the switch *i* may be employed to cut out the selector from the system.

Fig. 23 shows the wiring for the machine in which both the controller 22 and the chart are employed, and in which the chart may be used in either of the two ways above mentioned, or in a third way, *i. e.*, as a selector for the rotary controller 22, the selector 1 being out of use. In this case the circuit from battery 17 is through *f*, chart 73', switch *g*, wire *k*, magnet 12, switch *i* wire *l*, back to the battery. This will operate the armature 18 and set the proper pin on the controller 22, and this will operate after the proper number of steps to close the circuit at 36. The selector 1 in this operation is cut out.

In using the system of Fig. 23 without the chart 73' the switch is left open at *g*, and the switch is adjusted at *i* to cut out wire *l* and cut in the selector 1.

5 Reverting to Fig. 22, the several controllers may be on the same axis or on different axes. The contact 36 in all the forms may be adjustable as shown in Fig. 5, this adjustment being for the purpose of closing the
10 circuit according to the number of stations the impression head is away from the hopper or selector station. Thus in Fig. 22 the contacts 36 would be adjusted to different positions in respect to each other. It may
15 be noted also that four connectors 91 would be used in this figure when the four impression heads are employed.

Reverting to Fig. 21, it will be noticed that there are two sets of main class or relay
20 terminals 63' and 63 and one set of sub-class terminals 62, and the connector 64 is provided with three plugs. Now by using proper connectors two or more sub-classes
25 one sub-class can be compounded with two main classes.

I do not restrict myself to a chart of circular form, as a traveling chart may be used in band or other forms.

30 Instead of employing the means above described for rotating or moving the selecting or controlling chart located at a station distant from the impression station and at or adjacent the controller or selector station, I
35 may, as shown in Fig. 19^a, employ a bell-crank lever 93 pivoted to the frame and having one end in the path of the plates to be depressed thereby as they pass the station just in advance of the impression station
40 and arrive at the printing point. This bell-crank lever operates through a rod 94 the lever 78' substantially like the lever 78 before described Fig. 3. This through the pawl 80 turns the chart carrier step by step
45 as the record plates pass the lever 93. The parts are returned by a spring 83'. As the chart turns the perforations therein come to the contact lever 84' which makes contact through these perforations by means of its
50 contact 85 and thus closes the circuit just when the plate arrives at the printing point, so that the impression head will be operated through the mechanism above described, which includes the magnet 38.

55 In Fig. 19^b a duplex chart is used operated as just described. It has a plurality of rows of perforations and a contact 85' for each, and each of these contacts controls an electro-magnet like 38, which in turn controls its
60 individual printing head so that in accordance with the relative arrangement of these perforations the printing heads will be operated, thus giving the same effect as is secured in Fig. 22, that is the class of Doc-
65 tors may be selected from a list including

Doctors, Chemists, Lawyers, &c., and each class will be printed at its own individual printing head but will not be printed at the other heads. In Fig. 22 the selections may be either simple or compound.

70 It will be seen from Figs. 19^a and 19^b that the selector or controller is located at a station distant from the impression point but this selector is operated from means adjacent the printing point. The plates in this in-
75 stance do not have to be of a selective character, that is to say they do not have to be made or fitted with selector tabs or projections or other selecting means because the selecting is done by the chart.

80 In Fig. 24 are shown three printing plates, one bearing the name "Charles Adams," and bearing four selecting points. From these certain lines have been drawn to certain marks in the chart above these plates, 85 said chart, in the instance given containing the marks "Genl. Mgr.," "Supt.," "Purch. Agt.," "Mine Supt.," and "Electrician," and also the letters A, B, C, E, F, X, Y, indicating mines substantially as on the chart
90 shown at 72 in Fig. 5, to illustrate the fact that this plate of "Charles Adams," belongs in the generic classes of "Purchasing Agent," and "Electrician," and also in the specific classes of Mines B & X.

95 The plate marked "Allen Jones" belongs in the general class of "Genl. Mgr.," and in the sub-classes of Mines A & F, and the plate of "John Doe" belongs in the general class of Mine Superintendents and in the
100 sub-classes of Mines C & Y.

For selecting these plates under the compound selecting system the selector would be set in the case of the plate "Charles Adams" to contact with the projection *a*, or
105 *b*, and one of the projections *a'* or *b'* representing the sub-class of Mines, for instance those mines B operated by air or those X operated by electricity.

I claim:

110 1. In a printing apparatus, impression means, printing plates having classifying means, means for feeding the plates step by step and *seriatim* to the printing point, a controller for the impression means, selector
115 means cooperating with the printing plates to set the controller, and means rendered effective by the controller, after a plurality of plate feeding actions have taken place following the setting action, for controlling
120 the impression means when the plate arrives at the printing point.

2. In a printing apparatus, impression means, printing plates having classifying means combined therewith, means for feeding
125 the plates step by step and *seriatim* to the impression point, and a controller set by the presence of a printing plate at one station, said controller having a progressive movement conforming to the progression of
130

the printing plate toward said printing point and controlling the operation of the impression means when the plate by which the controller is set arrives at said impression point.

3. In combination, impression means, printing plates, means for feeding the plates step by step to the printing point, a controlling means for the impression means, said controlling means having a progressing movement in accordance with the progression through the machine of the printing plates, and selecting means cooperating with classifying means on the printing plates for setting said controller to control the movement of the impression means to take place at a certain point in the progressive movement of said controller, substantially as described.

4. In combination, impression means, printing plates, means for feeding the plates step by step to the printing point, a controlling means for the impression means, said controller means having a progressing movement in accordance with the progression through the machine of the printing plates, and selecting means cooperating with classifying means on the printing plates for setting said controller to effect movement of the impression means at a certain point in the progressive movement of said controller, said selecting means being located at a station removed several plate feeding actions away from the impression point, substantially as described.

5. In combination impression means, printing plates having classifying means thereon, means for feeding the plates step by step to the impression point, selecting means cooperating with the plates to determine which shall be printed, a rotary controller which is set by the selecting means to operate the impression means at a certain point in its rotary movement, connections between the rotary controller and the impression means for operating the latter and means for moving the controller in accordance with the feed of the printing plates, substantially as described.

6. In combination impression means, printing plates having classifying means thereon, means for feeding the printing plates, selecting means cooperating with the classifying means to determine which plates are to be printed, controller means set by the cooperation of the selecting means and classifying means to determine the time of operation of the impression means, connections for operating the impression means rendered effective by the controller and means for operating the controller progressively from the plate feed, substantially as described.

7. In combination impression means, printing plates having classifying means thereon, means for feeding the printing

plates, a controller having a series of electrical contacts thereon, a selector cooperating with the classifying means on the plates to set the proper contact of the controller in effective position, means for giving the controller a progressive movement corresponding to the progression of the printing plate which has been selected for printing and electric means controlled by said contact for operating the impression means when the selected printing plate arrives at the impression point, substantially as described.

8. In combination impression means, printing plates having classifying means thereon, means for feeding the printing plates step by step, a controller having a series of electrical contacts thereon, a selector cooperating with the classifying means on the plates to set the proper contact of the controller in effective position, means for giving the controller a progressive movement corresponding to the progression of the printing plate which has been selected for printing and electric means controlled by said contact for operating the impression means when the selected printing plate arrives at the impression point, said controller having a step by step rotary movement in accordance with the step by step movement of the printing plate and said electric means including a magnet, a fixed contact to engage the contact set on the controller, and circuit connections between said fixed contact and magnet, substantially as described.

9. In combination, impression means, printing plates having classifying means thereon, means for feeding printing plates, a selector, a controller having a plurality of movable contacts thereon, a magnet energized from the selector when it engages the classifying means on the plates, an armature for said magnet for setting said contacts in effective position, means for moving the controller progressively in accordance with the movement of the printing plate, a contact to be engaged by the contact set on the controller when the plate has arrived at the printing point and electrically operated means for effecting the operation of the impression means when the said contacts engage and means for returning the set contact of the controller to normal position, substantially as described.

10. In combination impression means, printing plates, means for feeding said plates, said plates having classifying means thereon, and selecting means comprising a holder and interchangeable selector plates carrying adjustable contact members and adapted to be removably held by the holder, and means for operating said holder to make the selector plate contact with the classifying means on the printing plate, substantially as described.

11. In combination impression means, 130

printing plates having classifying means thereon, selector means for determining which plates shall be printed, said selector means having a plurality of contacts to engage the classifying means on the printing plate, and an index card or card having guide inscriptions thereon and detachably associated with the selector means to indicate which of its contacts are to be rendered effective, substantially as described.

12. In combination impression means, printing plates having classifying means thereon, selector means for determining which plates shall be printed, said selector means having a plurality of contacts to engage the classifying means on the printing plate, and an index card or cards having guide inscriptions thereon and detachably associated with the selector means to indicate which of its contacts are to be rendered effective, said contacts of the selector being movable to be set in effective position, substantially as described.

13. In combination, impression means, a plurality of printing plates individually belonging in a plurality of classes and individually having compound classifying means, means for feeding the plates *seriatim* to the impression point and compound selector means engaging said compound classifying means on the plates and thereby controlling the impressions from said plates according to the generic and sub-classes in which said plates individually belong.

14. In combination impression means, printing plates, means for feeding said plates *seriatim* to the printing point, individual plates having classifying means thereon representing a generic class and also classifying means representing a sub-class, compound selector means for engaging said generic and sub-class classifying means, said selector means controlling the impression means to determine the making or skipping of impressions by the conjoint action of the generic and sub-class classifying means, which conjoint action is necessary to effect said control, substantially as described.

15. In combination, impression means, printing plates, means for feeding them *seriatim* to the printing point, individual plates having thereon generic class contacts and also sub-class contacts and compound selector means to engage said generic and sub-class contacts simultaneously and means for controlling the impression means rendered effective by the said simultaneous engagement of the said contacts with the selector means, substantially as described.

16. In combination impression means, printing plates, means for feeding said plates to the printing point *seriatim*, individual plates having generic classifying means and also sub-class classifying means, selector means having contacts to engage

said classifying means on the printing plates, relay circuits closed by the cooperation of the selector means and printing plates, a circuit to be closed by the energizing of the relay circuits and by the engagement of the certain contacts of the selector and printing plates and means in said circuit for operating the impression means, substantially as described.

17. In combination, impression means, printing plates, means for feeding said plates to the printing point, individual plates having generic classifying means and also sub-class classifying means thereon, selector means having generic and sub-class contacts, a plurality of relay magnets, controlled from the generic contacts and classifying means, a circuit controlled by the relay magnets and by the sub-class contacts of the printing plates and selector, said circuit having a plurality of terminals connected with the sub-class selector contacts and a plurality of terminals for the relay, connector means to connect up the desired terminals to associate any generic contact with any sub-class contact of the selector and means controlled by the said circuit for effecting the operation of the impression means, substantially as described.

18. In combination, impression means, printing plates, means for feeding them to the impression point, individual plates having thereon generic selector means and sub-class selector means, a selector having two groups of contacts, one for generic class selection and the other for sub-class selection, means controlled by the conjoint action of the selector contacts and the generic and sub-class selector means on a plate for in turn controlling the impression means and means whereby any generic contact of the selector may be coupled for conjoint action with any sub-class contact on said selector, substantially as described.

19. In combination, impression means, printing plates having individually generic classifying means and sub-class classifying means, a selector having generic class contacts and sub-class contacts, means for rendering any of the contacts of the selector effective and a card having indicator marks to be placed on the selector for indicating the contacts to be employed, and means to secure proper registration of said cards with said selector, substantially as described.

20. In combination, impression means, printing plates arranged in a set, means for feeding the plates to the impression point *seriatim*, a controller progressing with the plates step by step to advance its controlling portion step by step to effective position, and means for controlling the operation of the impression means through said controller.

21. In combination, impression means, printing plates arranged in a set, means for

feeding the plates to the impression point *seriatim*, a controller progressing with the plates step by step to advance its controlling portions step by step to effective position, and means for effecting the operation of the impression means automatically through said controller.

22. In combination, impression means, a series of printing plates, means for feeding them step by step to the impression point *seriatim*, and a chart having indications thereon designating serially the printing plates, means for giving said chart a step by step movement in accord with the step by step movement of the plates, and means for effecting the operation of the impression means in accordance with the indications on the chart, substantially as described.

23. In combination impression means, a series of printing plates, means for feeding them step by step and *seriatim* to the printing point, and a chart having indications thereon designating the serial arrangement of the plates, controller means for selecting the plates to be printed and means for operating the impression means from said controller means, and means for giving the chart a step by step movement in accord with the step by step feed of the plates, substantially as described.

24. In combination, impression means, a series of printing plates, means for feeding them *seriatim* to the printing point, a chart having perforations for selecting certain of the plates for printing said perforations being spaced apart to accord with the positions of the plates in the series, and means for operating the impression means rendered effective when the perforations arrive at a certain point, and means operating the chart step by step to accord with the feeding of the plates, substantially as described.

25. In combination, impression means, a series of printing plates, means for feeding them step by step to the printing point, a carrier having a step by step movement to accord with the feeding movements of the plates, charts adapted to be placed on or removed from said carrier, and means for operating the impression means, said charts having designating means to determine the times of operation of the impression means, substantially as described.

26. In combination a plurality of impression pads, printing plates, means for feeding them step by step and from pad to pad, and means for controlling the operation of said pads including selector means cooperating with selector devices on the plates, each pad operating when the plate selected therefor comes to said pad.

27. In combination, a plurality of impression pads, printing plates, means for feeding them step by step and from pad to pad and

means for controlling the operation of said pads including selector means cooperating with selector devices on the plates and a controller progressing with the printing plates step by step.

28. In combination a plurality of impression pads, printing plates, means for feeding them step by step and from pad to pad and means for controlling the operation of said pads including selector means cooperating with selector devices on the plates, each pad operating when the plate selected therefor comes to said pad, and printing upon a sheet or article individual thereto.

29. In combination, impression means, record plates, means for feeding the plates step by step to the printing point, and selecting means located at a distant station from the impression station with a plurality of plate stations between, said selecting means moving progressively and being controlled by the plates to be thereby rendered effective at the proper intervals, and said selecting means in turn controlling the impression head, substantially as described.

30. In combination impression means including a plurality of heads, printing plates, means for feeding them *seriatim* and step by step to the printing heads, and means for controlling the printing heads so that one will print while another remains idle to thus individually select plates for printing therefrom, some of the plates being printed and some being skipped by the different heads, substantially as described.

31. In combination an impression member, a plurality of printing plates, means for feeding said plate *seriatim* to the impression point, means for operating the impression member, and a member having a progressive movement in consonance with the advancing movement of the printing plates and having means thereon individual to successive plates for determining the times of operation of the impression member, substantially as described.

32. In combination an impression member, a plurality of printing plates, means for feeding said plates *seriatim* to the impression point, means for operating the impression member, and a member having a rotary progressive movement in consonance with the advancing movement of the printing plates and having means thereon for determining the times of operation of the impression member, substantially as described.

33. In combination impression means, a plurality of printing plates, means for feeding said plates *seriatim* to the impression point, means for operating the impression member, and an indicating member having a progressive movement in consonance with the advancing movement of the printing plates for bringing its indications in suc-

sion to an effective point for determining the times of operation of the impression member, substantially as described.

24. In combination impression means, a series of printing plates, means for feeding said plates *seriatim* to the impression point, means for operating the impression member, a member having a progressive movement in consonance with the advancing movement of the printing plates, said member having means for determining the times of operation of the impression member which means are advanced by the progressive movement to effective position, means controlled by the progressively moving member for in turn controlling the operating means of the impression member, and selecting means having a progressive movement in consonance with the advancing movements of the printing plates and means controlled thereby for setting the progressively moving member to determine the times at which the same will become effective, substantially as described.

35. In combination impression means having a plurality of impression heads arranged in line, means for feeding printing plates

along a path below said impression heads and step by step to occupy positions at the printing points of said heads, means for operating said heads individually, and controlling means for determining the order of operation of said heads, in respect to each other, substantially as described.

36. In combination, impression means, individual printing plates, means for feeding them to the impression point, said individual printing plates having thereon generic selector means and subclass selector means, a selector having two groups of contacts, one for generic class selection and the other for sub-class selection, means dependent upon and controlled by the conjoint action of the generic and subclass selector contacts and the generic and sub-class selector means on a plate for in turn controlling the impression means, substantially as described.

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

ROBERT G. GRISWOLD.

Witnesses:

W. A. WHEELER,
F. L. MIDDLETON.