

H. HODSDON.
 ENUMERATING MACHINE.
 APPLICATION FILED SEPT. 25, 1911.

1,034,239.

Patented July 30, 1912.

4 SHEETS—SHEET 1.

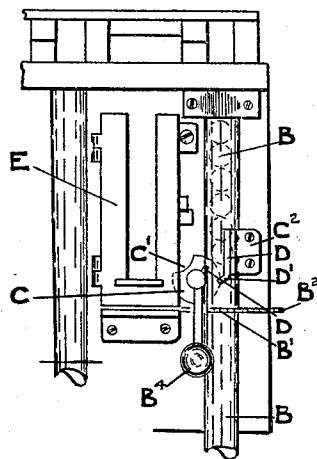
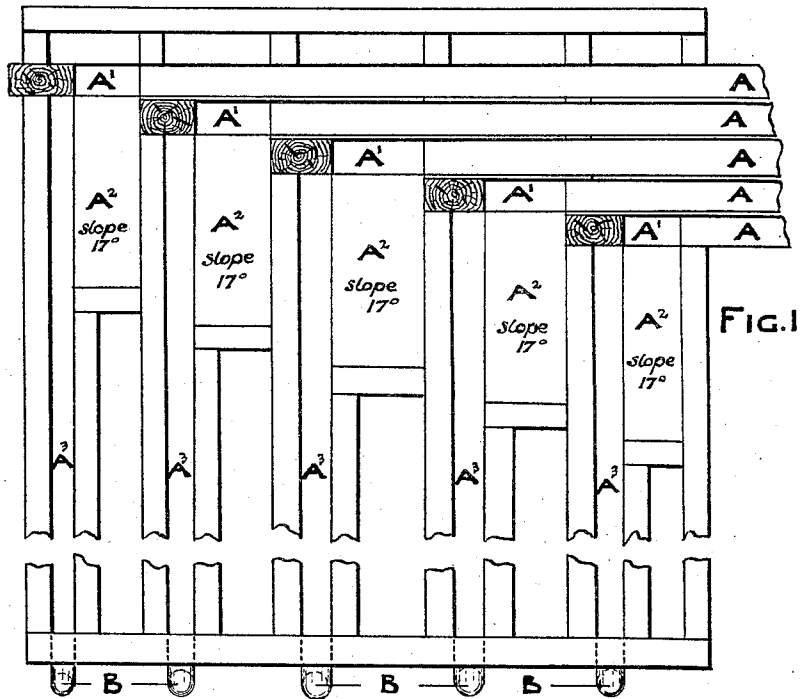


FIG. 2

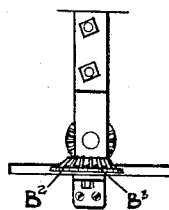


FIG. 3

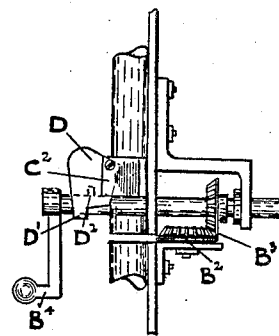


FIG. 4

Witnesses

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Henry Hodsdon.

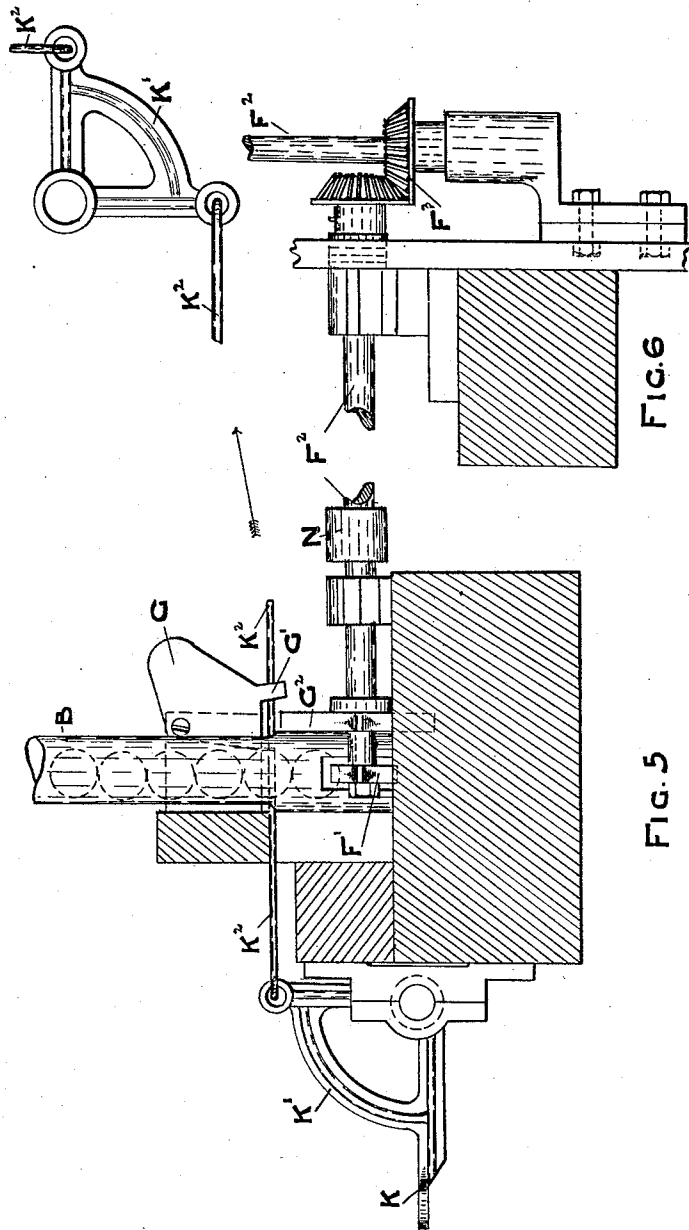
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4 SHEETS—SHEET 2.



Witnesses

Louis Warner.
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Inventor

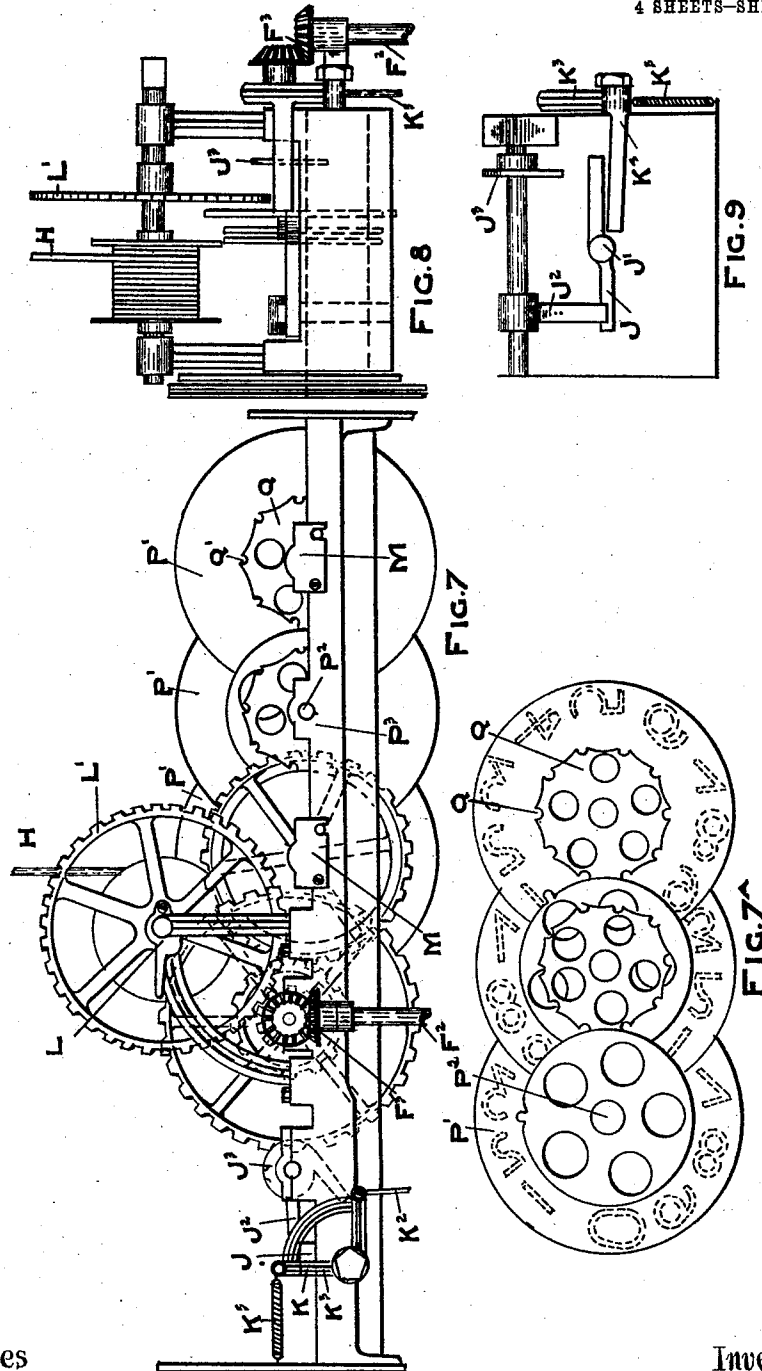
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4 SHEETS—SHEET 3.



Witnesses

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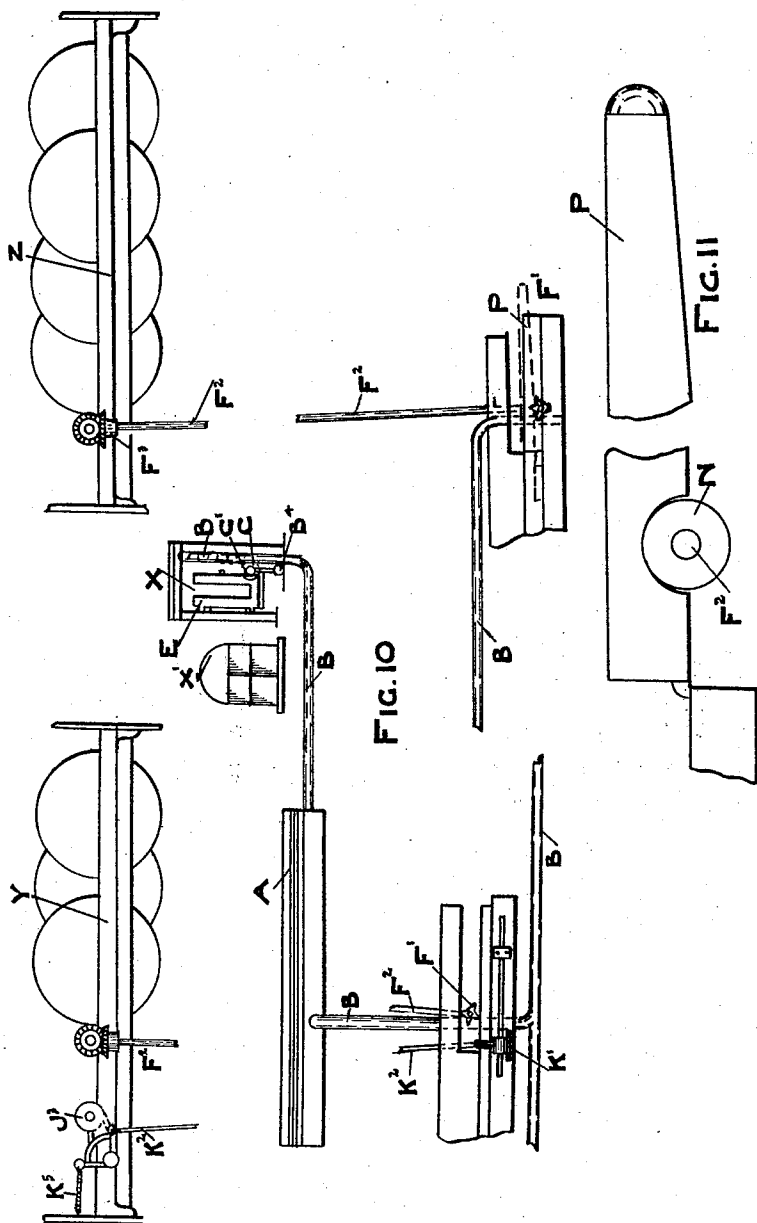
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4 SHEETS-SHEET 4.



Witnesses

Henry Hodson.
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UNITED STATES PATENT OFFICE.

HENRY HODSDON, OF BRISBANE, QUEENSLAND, AUSTRALIA, ASSIGNOR TO THE HODSDON PATENT TOTALISER AND ENUMERATING MACHINES COMPANY LIMITED, OF BRISBANE, AUSTRALIA.

ENUMERATING-MACHINE.

1,034,239.

Specification of Letters Patent.

Patented July 30, 1912.

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To all whom it may concern:

Be it known that I, HENRY HODSDON, a subject of the King of Great Britain, residing at Tattersall's Estate, Eagle Farm, Brisbane, in the State of Queensland, Commonwealth of Australia, carpenter, have invented certain new and useful Improvements in and Relating to Enumerating-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention refers to improvements in and relating to indicating or registering machines of the class known in some countries as "totalizers" and used principally in connection with horse races.

My invention provides a simple machine that is rapid in registering and accurate in its additions and owing to specially designed locking arrangements, if a ticket is issued at any one window an indication of same must be made on the individual or minor register and also on the major register or grand total.

The machine is installed in a suitable building with the desired number of windows where tickets can be purchased; at each window are the requisite number of ticket issuing devices, each holding the tickets on a different number or horse, and also provided with a suitable number of polished metal balls. Over these windows or elsewhere, are placed the minor registers to indicate the number of tickets issued on each horse, while the grand total indicates all tickets issued.

On a ticket being called for, the attendant turns the handle of the proper ticket issuing device; this expels one ticket and releases one ball. The former is handed to the purchaser and the latter goes along a suitable duct to the minor register where an attendant, allows it to register one; it then passes on to the grand total and is there also registered after which it is available for further distribution.

In the event of the supply of tickets or balls failing, in either case a positive lock intervenes and prevents one being issued without the other.

The register devices I use, have a series of disks with the numerals painted on the face,

and the different spindles carrying the units, tens, etc., are arranged so that they can readily be disengaged from their gears and put to zero.

I prefer to drive each registering device by means of a cord wound upon a barrel and carrying a weight. In order however that my invention may be clearly understood I will now describe it with the aid of the accompanying drawings.

Figure 1 is a plan of a ball hopper, such as is used at a minor register. Fig. 2 is a front view of a ticket issuing device with the front of a ball hopper showing. Fig. 3 is a reverse view of the ticket expeller and means for operating it. Fig. 4 is a side view of the ball controlling and ticket ejector mechanism. Fig. 5 is a section showing the non-automatic recording escapement. Fig. 6 shows the means of connecting the escapement with the disk mechanism. Fig. 7 is a back view of the registering mechanism with its mechanical stop device. Fig. 7^A shows train of wheels operating registers. Fig. 8 is an end view of Fig. 7. Fig. 9 is a detail view showing the no ball stop. Fig. 10 is a general view of a complete layout showing the connection between parts. Fig. 11 is a detail view showing hand brake controlling grand total register.

Now beginning at the ball hopper A, A are ducts leading with a slope from the ball issuing station and discharging through the slots A' into the hoppers of their respective registers; the balls fall onto a table having a slope A² of 17° from which they roll off into the duct A³ (at right angles to the slope) leading into the pipe B at the ticket issuing device. When the pipe and duct are full, the balls pile upon each other but owing to the angles do not stick anywhere and move on readily when the machine is operated.

The pipe B (Figs. 2 and 4) is severed at B' to permit the ticket expeller B² to revolve with the small miter wheel B³ when the handle B⁴ is rotated. This pipe B is slotted on one side for the disk C on the handle shaft to revolve, while it is also slotted in front for the locking device to enter when no balls are in the tube.

In front of the tube suspended from a small bracket C² is a stop D which has at its lower end a tang D'. This stop is kept

out of the tube by the balls, but as soon as the last ball has been passed down by the slotted disk C it falls partly into the tube while the tang comes in front of a stud D², and prevents the rotation of the handle, and consequently the issuing of another ticket until more balls are put in the hopper above.

The disk C has a semicircular gap C' in it, corresponding in size with half a ball so that if the handle can be turned round, a ball must fit in the gap and be passed downward. Contiguous to this pipe is the ticket box, with the hinged door E, open at the bottom with a bracket beneath, a space being left between for one ticket only to pass out at a time when ejected by the expeller B². A block of metal thicker than two tickets is used on the top of the tickets so that after the last is issued the expeller comes in contact with the metal and prevents further movement and the passing of a ball without a ticket. After a ball has been passed by rotating the handle B⁴, it falls down the pipe B into a duct such as A, and on to its respective hopper A³, into the pipe B (Figs. 1 and 5) where its progress is blocked by a star wheel F' geared to the register, through the shafts F² and miter wheels F³.

The pipe B has a slot at the back for the stop G to fall in when no balls are in it; this stop G has a tang G' on its lower end that engages the teeth of a star wheel G² coinciding with the star wheel F' so that immediately the last ball has passed the star wheel F', the register is locked, and nothing can be added to the total until another ticket has been issued and a ball passed on its way.

The registering device is shown in Figs. 7, 8, 9 and 10; in these figures the register has only units, tens and hundreds disks as P', but, for the grand total or major register, an extra disk is required to register thousands. Each disk P' used to indicate units, tens, etc., is carried on a separate spindle P², running in bearings P³; this spindle also carries specially designed wheels such as Q which have semicircular gaps Q' corresponding with the numerals, while the spaces between are curved to fit a disk having one tooth only, which gears at regular intervals with the gap Q'.

Fig. 7^A shows the arrangement of the train of wheels by means of which for every ten revolutions of the units wheel Q the tens wheel advances one and so on through the train.

At the end of the frame carrying the spindle P² is an escapement controlling the movement consisting of a sprag J pivoted on the bed plate at J'. This sprag J under normal conditions prevents the arm J² and shaft of the registering mechanism from revolving; but, after the sprag has been released, and before the arm can come around

again, the sprag J is replaced by the cam J³ and stops further registering.

The sprag is displaced by an attendant operating the crank lever K, which is connected through crank lever or levers K' and wires K² to the lever K³, which latter is provided with a finger K⁴ and spring K⁵.

It will be understood that no numbers are added to the register until the attendant presses down the lever K thereby causing the finger K⁴ to knock out the sprag J so allowing the arm to at once rotate by means of the gearing and power supplied by the cord H, which is normally under the tension of a weight (not shown). No sooner has the arm J² started to revolve than the cam J³ replaces the sprag J, and checks further movement.

The arm K⁴ is arranged to strike the sprag J as near the center J' as possible so that only a short travel is required and a high speed can be attained, while the sprag has the end extended for the cam J³ to operate against.

In the event of there being no ball in the pipe B the stop G will be in the slot and the tang G' holding the star wheel and through the gearing, the whole of the register mechanism.

If balls are in the tube B the lever K may be pressed down as quickly as possible and indications made on the register, until the last ball is through when the mechanism is instantly locked.

The balls from the minor register after passing the star wheel F', travel along suitable ducts to the major register, which consists of the same mechanism as the minor register device (Fig. 5) and driven in the same way; but as it is required to be more rapid in its action having to register the total of several registers, the sprag J and its attendant parts are omitted, and behind the star locking wheel G², I provide a drum N on the shaft F², fitted with a brake P (Fig. 11) having a handle for the attendant to regulate the pressure on the drum, and consequently the speed of the registering.

The operation is the same as that described in the minor register; after a ball leaves one of the minor registers, it rolls along suitable ducts to the major register receiver, which is made to receive from all the minor registers; and the attendant, as he finds the balls coming down, releases the brake P, and the mechanism being free to revolve by reason of the driving weight on the cord H, does so as long as there are balls to pass around the star wheel F', the brake being used to prevent too great a speed being attained and reduce same as the balls are reduced in number. By this means a very large number can be registered on the grand or major total in a very short space of time.

A general arrangement (Fig. 10) is shown

to enable the connections to be traced, but in most cases the connections between the parts will be varied to suit the local conditions; but the working will be the same in all race work and may be described as follows:
 5 The mechanism being fixed up in suitable premises, with the requisite number of ticket issuing machines X and ticket windows X' with their respective minor registers Y and
 10 a major register Z, tickets and balls being put in their respective places, a ticket is called for, the attendant at that window rotates handle B⁴ and in doing so a ball slips into the gap C' and passes down the pipe B
 15 (while a ticket is thrown out by the expeller B²) into its proper duct A, down that, through a slot A', onto a table A², down the duct A³ (as in Fig. 1) into the pipe B feeding the minor register mechanism, from
 20 whence it is released by the attendant pressing the lever K, and so removing the sprag J, allowing the mechanism to register one number before the cam J³ replaces the sprag and stops the mechanism. If the lever K
 25 be lightly pressed down the sprag is so quickly released and detained that the registering is extremely rapid so long as there are balls to pass. From the minor register the balls pass onto the major register where
 30 the attendant lets them pass through as before described, after which the balls are ready for further distribution in any of the hoppers requiring replenishing.

Having now particularly described and as-
 35 certained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—

1. In a registering mechanism, the combination of disks having characters and adapted
 40 ed to move in *seriatim*; a plurality of balls adapted to actuate said disks; a tube for holding and guiding said balls; a rotatable disk projecting within said tube and adapted to control the passage of the balls there-
 45 through; a device for manually actuating said rotatable disk; and a ticket ejecting device connected to be actuated by said manually actuating device, substantially as described.

50 2. In a registering mechanism, the combination of disks having characters and adapted to move in *seriatim*; a plurality of balls adapted to actuate said disks; a tube for holding and guiding said balls; a rotatable
 55 disk projecting within said tube and adapted to control the passage of the balls there-through; a shaft on which said disk is mounted; a rotatable arm connected to be actuated from said shaft; a ticket holder
 60 constructed to receive said rotatable arm whereby the tickets are ejected; and means for manually actuating said ball controlling disk and said ticket ejector, substantially as described.

65 3. In a registering mechanism, the com-

bination of disks having characters and adapted to move in *seriatim*; a plurality of balls adapted to actuate said disks; a tube in sections for holding and guiding said balls; a rotatable disk projecting within said
 70 tube and adapted to control the passage of the balls therethrough; a shaft on which said disk is mounted; a countershaft connected to be driven from the first-named shaft; an arm mounted on said countershaft
 75 and adapted to move between the tube sections; a ticket hopper constructed to receive said rotatable arm whereby the tickets are singly ejected therefrom; and manual means for actuating said ball controlling disk and
 80 said ticket ejector, substantially as described.

4. In a registering mechanism, the combination of disks having characters and adapted to move in *seriatim*; a plurality of
 85 balls adapted to actuate said disk; a tube for holding and guiding said balls; a rotatable disk projecting within said tube and adapted to control the passage of the balls there-through; a manually actuating device for
 90 rotating said disk to control the passage of said balls; and a device associated with said tube and manually actuating device adapted to act as a stop for holding said actuating device against movement when the balls are
 95 exhausted from said tube, substantially as described.

5. In a registering mechanism, the combination of disks having characters and adapted to move in *seriatim*; a plurality of
 100 balls adapted to actuate said disks; a tube for holding and guiding said balls; a rotatable disk projecting within said tube and adapted to control the passage of the balls therethrough; a manually actuating device
 105 for rotating said disk to control the passage of said balls; a vertically disposed and gravity actuated device mounted to project within said tube, and providing a stop for said manually actuating device, said stop
 110 normally held in inoperative position through engagement of said balls and adapted to move into operative position when said balls are exhausted; and a ticket ejecting device adapted to be actuated by said manually
 115 actuating device, substantially as described.

6. In a registering apparatus, the combination of a plurality of hoppers; a sloping table associated therewith; a duct for said
 120 table; registering devices; means for operating said devices; means automatic for locking said last mentioned means comprising, a plate, a lug on said plate, a shaft, a star-wheel on said shaft, said lug being adapted to engage said star-wheel, substantially as
 125 described.

7. In a registering mechanism, the combination of disks having characters and adapted to move in *seriatim*; a plurality of balls adapted to actuate said disks; a tube for
 130

holding and guiding said balls; a rotatable disk projecting within said tube and adapted to control the passage of the balls there-
 5 through; a shaft on which said disk is mounted; a means for manually actuating said shaft; a ticket holding hopper having an open bottom; a bracket located at said bottom and spaced from said hopper whereby to permit of removal of the tickets; a ticket
 10 ejecting device movable through said space for ejecting the tickets singly; and gearing connections between said disk shaft and said ticket ejecting device, substantially as described.

15 8. In a registering mechanism, the combination of disks having characters and adapted to move in *seriatim*; a plurality of balls; a tube within which said balls are adapted to have passage; a spur wheel mounted to
 20 project within said tube and be actuated by said balls; operative connections between said spur wheel and said disks; and an automatically actuated stop for said spur wheel; said stop adapted to be held in in-
 25 operative position through engagement with

the balls in the tube but releasable when the balls are exhausted therefrom, substantially as described.

9. In a registering mechanism, the combination of disks having characters and adapted to move in *seriatim*; a plurality of balls adapted to actuate said disks; a tube for holding and guiding said balls; a spur wheel projecting within said tube and operable through engagement with said balls; operative
 35 connections between said spur wheel and said disks; a vertically disposed stop projecting within said tube and adapted to engage with and be held in inoperative position through engagement with the balls in the
 40 tube and to be released therefrom when the balls are exhausted from the tube; and a manually actuated means for controlling said stop, substantially as described.

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

HENRY HODSDON.

Witnesses:

A. HANCOCK,
 A. BISHOP.