Nov. 18, 1924.

1,515,857

M. J. HOFFMAN

PRODUCTION RECORDER

Filed Jan. 13, 1923 4 Sheets-Sheet 1

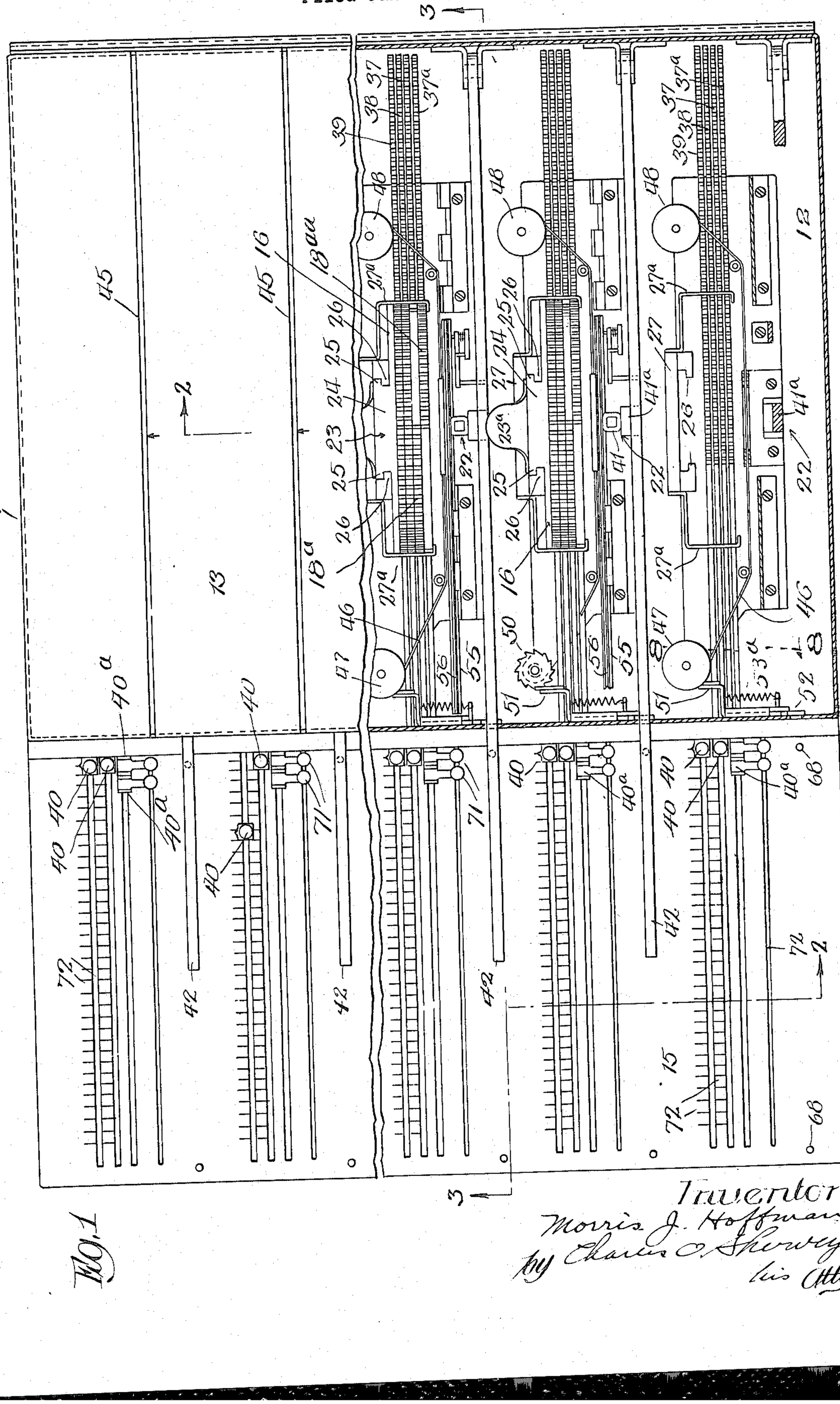

FIG. 1

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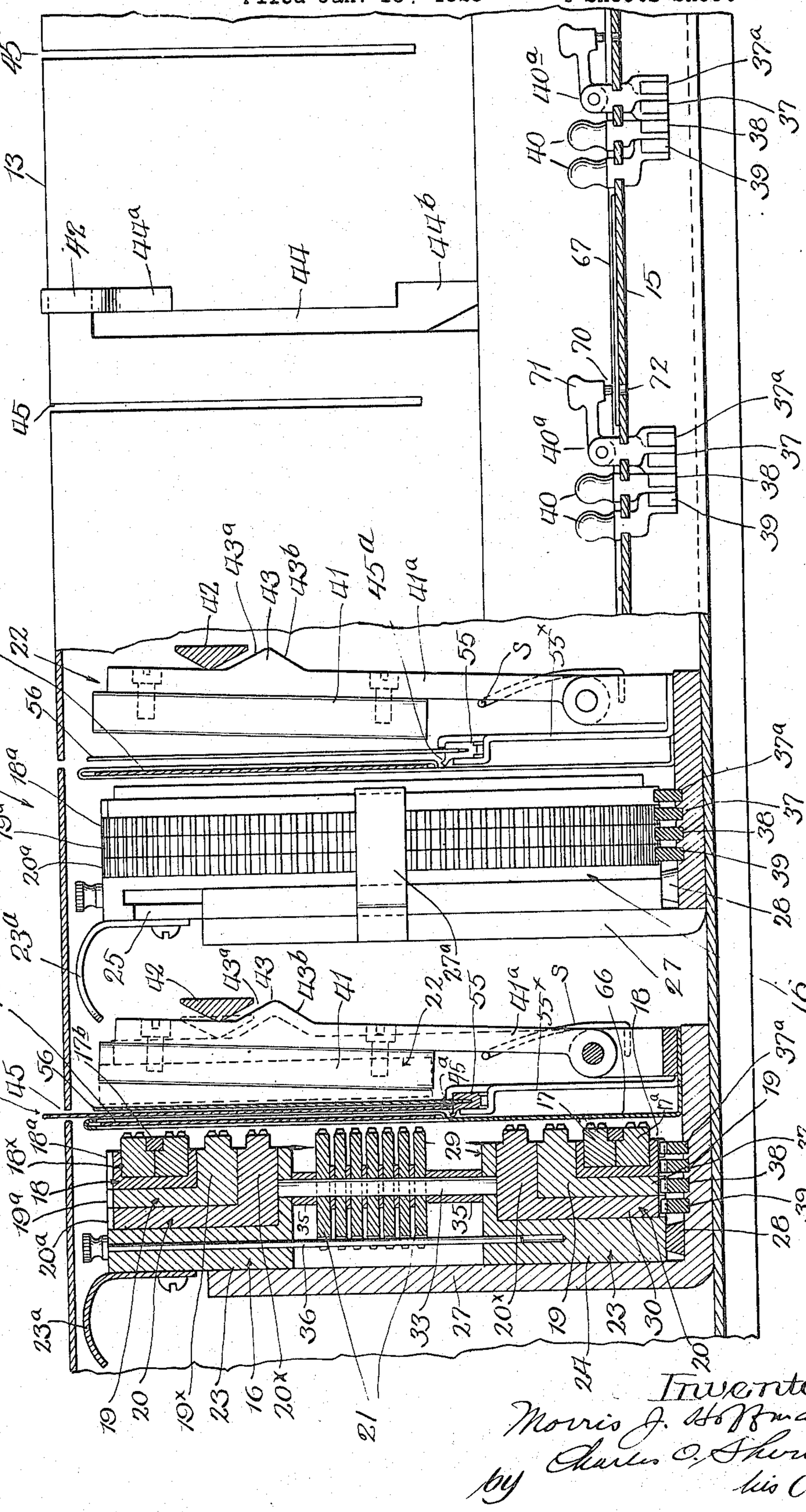
PRODUCTION RECORDER

Filed Jan. 13. 1923 4 Sheets-Sheet 2



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PRODUCTION RECORDER

Filed Jan. 13, 1923 4 Sheets-Sheet 3

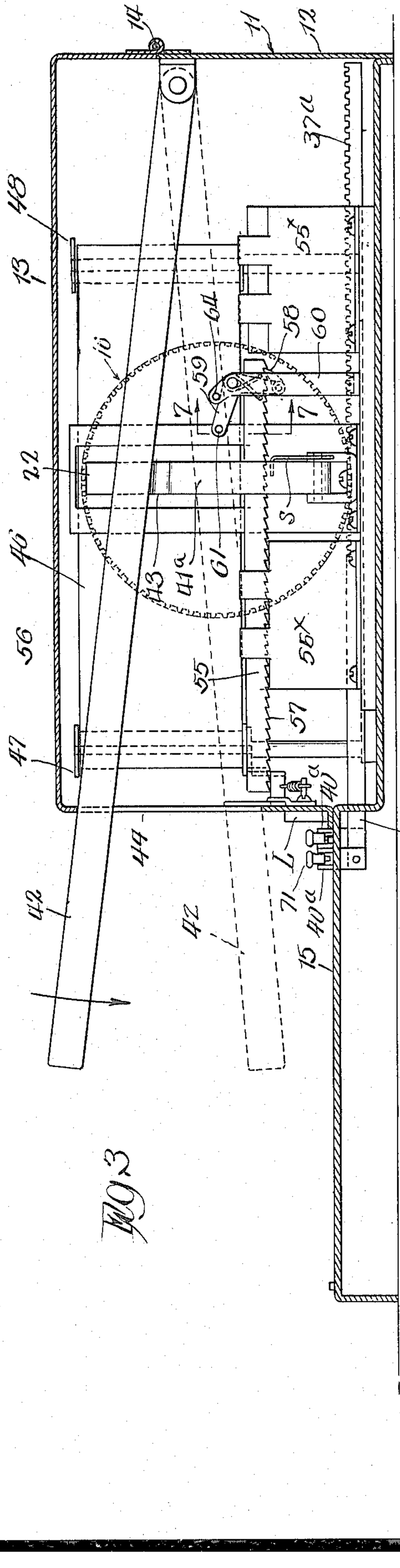

FIG. 3

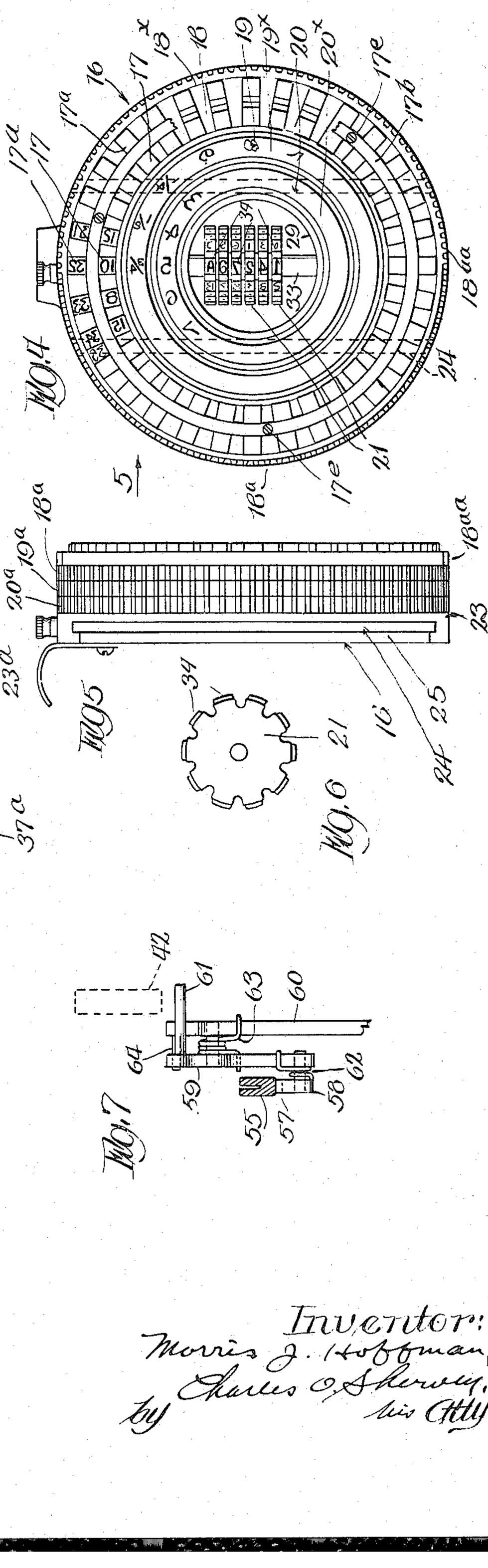

FIG. 4

FIG. 5

FIG. 6

FIG. 7

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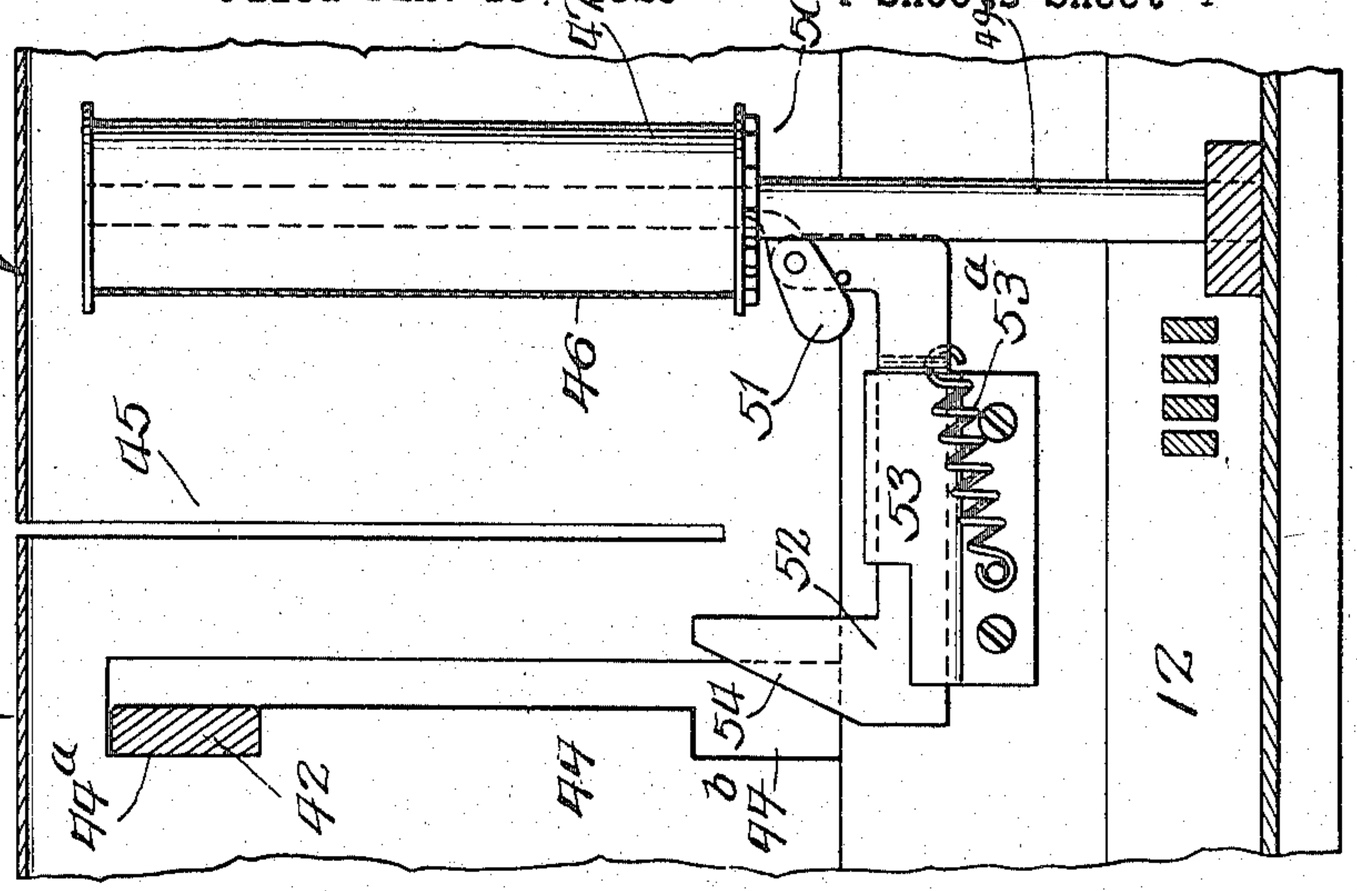
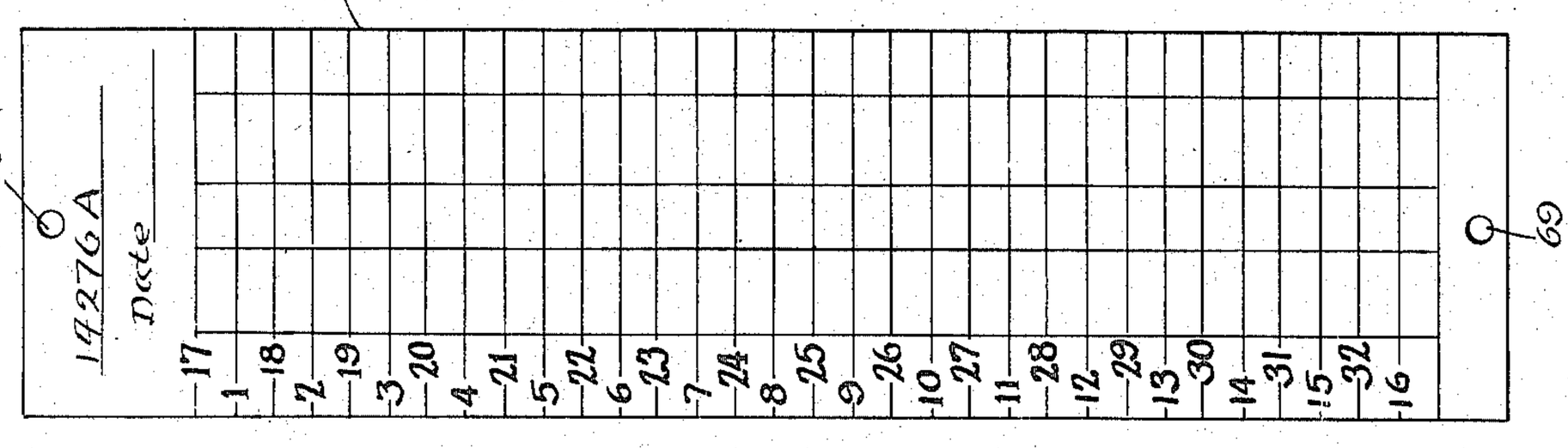
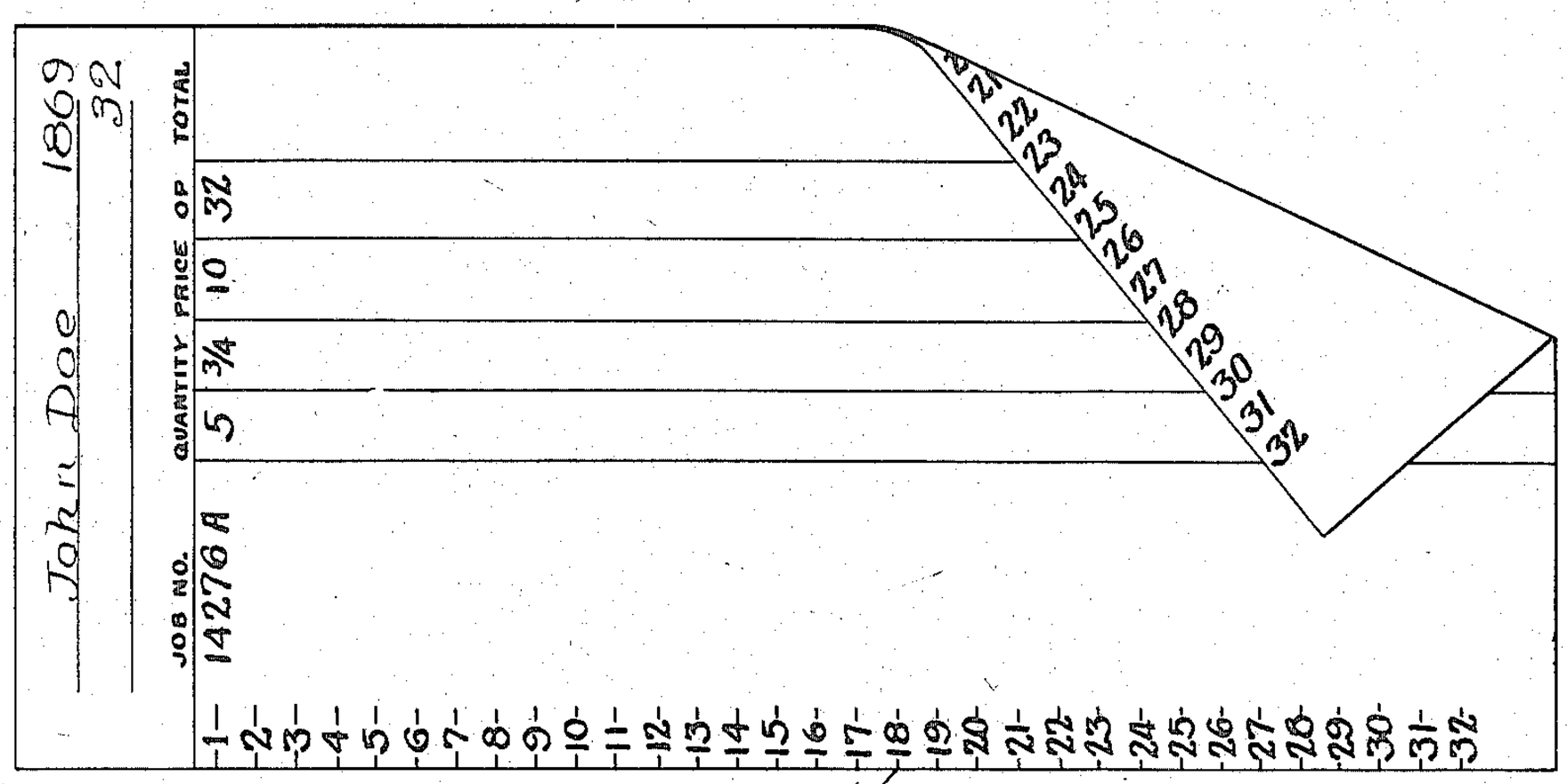
PRODUCTION RECORDER

Filed Jan. 13, 1923 4 Sheets-Sheet 4







Inventor:
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his Atty.

Patented Nov. 18, 1924. 1,515,857

UNITED STATES PATENT OFFICE.

MORRIS J. HOFFMAN, OF CHICAGO, ILLINOIS.

PRODUCTION RECORDER.

Application filed January 13, 1923. Serial No. 612,465.

To all whom it may concern:

Be it known that I, MORRIS J. HOFFMAN, a citizen of the United States, and a resident of Chicago, Cook County, and State of Illinois, have invented certain new and useful Improvements in Production Recorders, of which the following is declared to be a full, clear, and exact description.

This invention relates to production recorders. Its principal object is to provide a machine for use in making and keeping records of workmen's time in connection with articles upon which labor is performed by them, the amount of labor performed and the amounts due for such labor. In many establishments where many separate or individual operations are performed upon each article of manufacture, in order to obtain large production, each workman performs one definite operation upon the article, and he is paid for the number of operations that he performs. In accordance with the practice, a record card or slip is issued to each workman upon which a time keeper or other clerk writes in this information, but frequently errors occur, with the result that the workman is overpaid and some times underpaid. The object of this invention is to provide mechanical means for making the entries, which mechanical means are fixed so that it is practically impossible for the time keeper or other entry clerk to make mistakes in giving credit to the workman for the amount of work which he has done upon any lot of articles. Moreover, when the items are written in by hand and mistakes do occur, it is difficult and requires a large number of clerks to keep the records, discover errors and make corrections, and one of the objects of the present invention is to provide a machine by which the entries can be made mechanically so that in case errors should occur they may be readily detected and with less labor. Another object is to provide a machine of this type which may be used for keeping several accounts of the individual work done upon a great number of separate and distinct "jobs." Another object is to provide a machine of this character containing individual sets of type for the individual jobs, which type may be set up for the individual printing devices or units and locked up in the machine to prevent tampering therewith. Another object is to provide a machine of this type in which duplicates are made of the records printed upon the workmen's cards or slips. Another object is to provide a machine of this type which shall be simple, practical and certain in its operation. Other objects and advantages will occur in the course of this specification, and with all of said objects and advantages in view, this invention consists in the several novel features for attaining said objects and advantages hereinafter fully set forth and claimed.

The invention is clearly illustrated in the accompanying drawings, in which:

Figure 1 is a plan, partly broken away, of a production recorder embodying a simple form of the present invention; Fig. 2 is a vertical, longitudinal section taken on the broken line 2—2 of Fig. 1; Fig. 3 is a vertical cross section taken on the line 3—3 of Fig. 1; Fig. 4 is a detail, side elevation of one of the type carriers; Fig. 5 is an edge view thereof looking in the direction of the arrow 5 in Fig. 4; Fig. 6 is a detail plan of one of the type wheels; Fig. 7 is a detail, fragmental view, partly in elevation and partly in section, of the record strip feed mechanism, the line of section being indicated at 7—7 in Fig. 3; Fig. 8 is a detail, longitudinal section taken on the line 8—8 of Fig. 1; Fig. 9 is a face view of one of the production slips upon which the records are made and Fig. 10 is a face view of a certain dial or indicating strip which accompanies the machine.

In order that the construction, operation and use of the machine may be more readily understood, I shall briefly describe its general operation in connection with a workman's production slip, which is used with the machine.

In the production of great numbers of similar articles, it is the practice in many establishments to provide each workman with a definite number of articles at a time, upon which he is to perform a certain definite task, and such articles are usually identified by a "lot number". Each workman is frequently identified by a number, and the particular operation which he performs upon the articles is identified by a number. Each workman is provided with a production slip, A (see Fig. 9) upon which is written his name or identification number or both, and the number which identifies the particular kind of work he performs upon the articles. The production slip is preferably ruled to provide a number of columns, at the tops of

which may be printed the words "Job No.", "Quantity", "Price", "Operation" or "Op." and the margin at the left hand side may contain a column of numbers arranged consecutively from top to bottom to designate the lines upon which the information is to be printed. Upon the reverse side of the production slip, and at the left hand side thereof, is a column of numbers arranged consecutively, from top to bottom, and disposed in the same relative locations on the slip as are the numbers on the front side thereof. The purpose of this is to enable the person having charge of the production recorder, to properly locate the production slip in the machine when printing upon the same. After a workman has completed his particular work upon an identified lot of articles, the person who has charge of the production recording machine, places the workman's production slip in a slot in the machine which is associated with a printing unit corresponding with the lot number of said articles, sets the type thereof to correspond with the workman's operation number, and the number of articles in the lot, and prints upon the slip a record of the work. The machine prints the identifying number of the job or "Job No." the quantity, or number of articles in the job, the price or wages to be received by the workman for his work upon each article or upon a lot of articles, and also the identifying number which designates the nature of his operation. At the same time, the machine prints a duplicate of this information upon the office or permanent record, which is contained in the machine.

Referring to the drawings, the reference character 11 designates a case or cabinet for containing the mechanism, said case comprising a box like lower portion 12 and a cover 13 hinged thereto as at 14, and locked thereto by a suitable lock. The box like portion 12 has a table or platform 15 at its front end upon which are placed the dials or indicating slips, as will be hereinafter set forth. The cabinet or case may be of elongated, rectangular shape so as to contain a large number of printing units, all duplicates of each other (except the information contained on the type) and as said units are substantially duplicates of each other, a detailed description of one will suffice so far as this specification is concerned. Each unit is used to make records of work done on a separate lot of articles by the several workmen working on said lot. The number of units employed may vary and a multiplicity of them may be placed in one case or cabinet to suit the requirements of any establishment. As a preference, the machine may be constructed of several sizes, containing certain specified numbers of units.

Each printing unit comprises a type carrier 16 (see Figs. 2, 4, 5, 6) containing a number of type rings 18, 19, 20 and type wheels 21, and an associated impression making device 22 for making the impression and printing the information on the workman's production slip A and on the permanent or office slip. The type carrier is removably secured in the case whereby it may be removed therefrom and another one substituted for it, and whereby it may be taken to a type case and the type set up in the type carrier to print the desired information. The type ring 18 contains removable type 17, 17^a that print the operation number and the price, the type ring 20 contains type that print the whole number of articles in the lot; the type ring 19 contains the type that print any fractions or decimal parts of whole numbers, and refer to the number of articles in the lot, and the type wheels 21 contains type that print the lot number which identifies a lot of articles.

Each type carrier 16 comprises an annular type supporting body or frame 23 having on one side, slide blocks 24 grooved vertically along their side edges to leave ribs 25, which slide in vertical grooves behind ribs 26 that are formed on a stationary upright supporting frame member 27 which is stationarily secured to and supported on the bottom of the case, (see Fig. 1.) The annular type carrying body 23 rests upon a suitable block or other support 28 and extends crosswise of the case; it is removably but stationarily supported and secured in position on the stationary supporting frame 27. A handle 23^a on the body 23 furnishes means for lifting it out of its supporting frame 27.

Upon the annular type carrying body 23 are rotatively mounted the type rings 18, 19, 20 on one side of which are the type and they are arranged circumferentially about the type rings, with their printing faces arranged in a vertical plane which extends transversely of the cabinet. In the form illustrated, the annular type carrying body 23 is formed with an annular flange 29 on which is rotatively mounted the type ring 20, and said ring 20 has a disk like portion 30 which is placed against the flat face of the type carrying body 23 and an annular flange 20^x which surrounds the flange 29 of said body 23. The type ring 19 is substantially of the same construction as the type ring 20, and is rotatively mounted thereon in the same manner as the type ring 20 is mounted upon the body 23. The type ring 18 preferably contains an annular type receiving groove 18^x and is rotatively mounted upon the flange 19^x of the type ring 19. Type slugs 17, 17^a are provided, which may be set up and locked in the groove 18^x to print the prices or amounts and which may print the operation number or other identi-

fying data for the separate operations which are to be performed upon the articles. The type 17, 17ª may be fastened in place by a ring 17ᵇ and screws 17ᵉ. The type for the rings 19, 20 may be made directly upon the outer side faces of the flange portions 19ˣ 20ˣ of said type rings inasmuch as they do not vary or do not require changing, as frequently as do the type which prints the operation numbers and the prices or amounts. The type rings 19, 20 may contain type which print the quantities and fractions of numbers of articles, upon which the workmen perform labor. It will be understood that the several type rings may be separately turned upon their axes to bring any of the type characters thereof into a straight, vertical line, which is the printing position of said type characters. The type rings are held in place on the type carrier by any suitable means, here shown as comprising arms 27ª supported by the frame 27 and overhanging the outermost type ring.

In the open portion of the annular type carrying body 23 are the type wheels 21, which are mounted upon a vertically extending pin or shaft 33 which is mounted in the flange 29. Said type wheels contain type characters 34 in the form of numerals running from 0 to 9 and one of the type wheels may contain other characters, as for instance ten of the letters of the alphabet. Said type wheels are suitably spaced apart and spaced from the flange 29 by suitable washers 35 and are held against rotation on the shaft, as for instance by a locking pin 36, which is removably secured in the type carrying body 23 and extends through spaces between the type characters of the type wheels. It will be understood that the type wheels 21 may be adjusted to print any whole number containing as many figures as there are type wheels, bearing numbers, and in addition thereto one type wheel may print a character such as a letter of the alphabet. It will also be understood that when the several type rings and type wheels are set so as to present a set of type characters in vertical alignment, as shown in Fig. 4, those type characters which extend in vertical alignment with each other from the lowermost type wheel and upward, are in printing position and will print the data contained thereon on the workman's production slip and on the office or record slip whenever the associated impression device is properly operated. The type carrier may be lifted out of its supporting frame in case it becomes necessary to reset any of the type thereof, or to adjust the type wheels to change the lot number to correspond with the identifying number of a new lot of articles. Type setting means are provided for setting the type characters in printing position, which is done by rotating the several type rings so as to bring the desired characters thereon into printing position and said means will now be described.

On the peripheries of the type rings 18, 19, 20 are rack teeth 18ª, 18ªª, 19ª, 20ª which mesh respectively with the teeth of rack bars 37, 37ª, 38, 39 which are slidably mounted on the base of the machine and have knobs or other projections 40, 40ª that extend up through slots formed in the table 15 in convenient position to be grasped. In order to narrow up the width of the table 15, the type ring 18, (which contains the greatest number of type characters,) is provided with two sets of gear teeth, one set 18ª extending through an arc of 180 degrees and the other set 18ªª extending through an arc of 180 degrees commencing where the first set left off, but at one side thereof, as is clearly seen in Fig. 1. In the position of the type ring 18 shown, the first tooth of the rack bar 37ª meshes with the first tooth of the teeth 18ªª, of said type ring, and the first tooth of the teeth 18ª is arranged to come into mesh with the first tooth of the teeth of the rack bar 37′ when the rack bar 37ª has moved said type ring through an arc of 180 degrees from the zero point. When the teeth 18ª come into mesh with the rack bar 37, the latter bar is moved forward by the operator, thereby turning the type ring 18. The last tooth 18ªª thereof has at that time run off the rack bar 37ª. In this way the two rack bars which move the type ring of the greatest diameter through 360 degrees, move only through one-half the distance which would be required for a single rack bar which was long enough to engage all of the teeth on said type ring. The knob 40ª for the bar 37 is set back of the knob 40ª for the bar 37ª (see Figs. 2 and 3) and both knobs project up through one and the same slot in the table 15.

The impression making device 22 may comprise rubber covered impression bar 41 which is arranged to be forcibly brought into contact with a production slip which is interposed between the type and impression bar. Said impression bar is secured upon an arm 41ª pivotally supported upon the framework of the machine. A hand lever 42 pivoted to the rear end of the machine, is employed for actuating the impression making device, and in the form of the invention illustrated, said hand lever is arranged to engage a cam like element 43 on the arm 41ª whenever it is moved down, and also whenever it is moved upward to thereby swing the arm 41ª upon its fulcrum and press the impression bar 41 against the interposed production slip. Said cam like element 43 has inclined faces 43ª, 43ᵇ with which the hand lever 42 engages to actuate the impression making device, whereby an impression is made whenever the handle is moved down-

ward and a second impression is made when the handle is moved upward. The arm 41ª may be spring pressed in a direction away from the type by a spring, *s*. In operation, an impression is made upon an interposed workman's production slip when the hand lever is moved down, and a duplicate impression is made upon the office or permanent slip when the handle is moved upward. The workman's production slip is removed however, before lifting up on the handle. The front end of the handle is guided to move vertically in a vertical slot 44, and said slot has off set portions 44ª, 44ᵇ into which the hand lever may be moved at the top and bottom limits of its strokes. This arrangement merely serves to hold the hand lever in position at the top and bottom limits of its strokes. The vertical portion guides the handle and holds it in effective engagement with a cam 43.

At a place adjacent each type carrier and directly in front of the faces of the type thereof, a slot 45 is formed in the cover 13 through which the workman's production slip A, is inserted. Said slot 45 is located between the printing faces of the type and the adjacent edge of the impression bar 41 and ledges 45ª are provided which support the slip while it is being printed upon. Immediately in front of the type is the type ribbon 46 which, as shown, is wound upon two spools or rollers 47, 48 mounted upon suitable standards or posts 49 that are supported by the base or framework of the machine. Means are provided for advancing said type ribbon to present fresh places to the type, and the ribbon winding means may conveniently comprise a ratchet wheel 50 (see Fig. 8) secured upon the spool 47, and a pawl 51 pivotally mounted on a sliding pawl actuating member 52 which is slidably mounted in a guide bracket 53 and has a cam face 54 that is engaged by the hand lever 42 after it has passed the cam 43 and before it reaches the lower limit of its down stroke. The hand lever engages said cam face 54 and shifts said pawl actuating member 52 in a direction to engage the pawl 51 with the teeth of the ratchet wheel 50, thereby moving said ratchet wheel and the spool 47 one step at a time and advancing the ribbon. A spring 53ª connected with the actuating member 52 and with some stationary element, as for instance the guide bracket 53 serves to retract the member 52 and pawl 51 after it is released by the hand lever 42.

Below and at one side of the slot 45, is an office or permanent record support 55, in which is supported an office or permanent record strip or card 56 upon which is printed duplicates of the information printed upon the workman's production slip, either at the same time that it is printed upon said slip or directly afterwards. Said record support 55 is shown in the form of a bar having a slot in its upper edge in which the record card 56 is inserted. Means are provided for advancing said record strip or card 56 one step at a time, after a record has been made thereon, so as to present new spaces upon which to print succeeding records. The simple means for advancing the permanent record card or strip may comprise a toothed rack 57 (see Figs. 3 to 7) upon the lower side of the record support 55, and a pawl 58 engaging therewith, which is operated by the hand lever 42 each time that the same is fully depressed. The pawl 58 is mounted upon a lever 59 which is pivotally supported upon a bracket or arm 60 and has a pin 61 lying in the path of movement of the hand lever 42. The pawl 58 is spring pressed towards the rack teeth 57 by a spring 62, and a spring 63 is provided for returning the lever 59 to inoperative position after it has been moved by the hand lever 42. A pin or other stop 64 carried by the bracket or arm 60 holds the lever 59 in inactive position.

Associated with each set of actuating bars 37, 37ª is a dial or indicating strip 67, (see Fig. 10) which may be in the form of a card that is removably secured upon the table, as for instance by pins 68 on said table that are arranged to project through perforations 69 in the dial or indicating strip. Each strip bears two columns of numbers, the numbers of each column being arranged consecutively, and one column containing one-half of the numbers and the other column containing the other half thereof, and these dials or indicating strips are used to aid the attendant in operating the rack bars 37, 37ª in setting the type ring 18 of any unit. Each rack bar is provided with a pointer or arrow which indicates upon the dial, the type which are in printing position. For the purpose of indicating which operations upon any lot of articles have been performed, I have provided a cancelling device which is connected with the actuating bars that operate the type ring, 18, and said cancelling device may comprise punch points 70 formed upon the under side of levers 71 one of which is pivotally mounted upon each actuating bar 37, 37ª. Below the punch 70 is a slot 72 into which said punch point may be moved in punching a hole through the dial or indicating strip 67. The strip 67 may be ruled as shown, and the attendant may write in the workman's number, when the record is made on his card. A dial or indicator 72 is provided adjacent the knobs of the bars 38, 39, and indicates the places, (corresponding to the information on the quantity type rings) where the pointers of the bars 38, 39 are stopped to bring the desired type characters into printing position.

In use, the type ring of each printing unit which holds the type that print the "operation" numbers and the "prices" or values, is set up with type to print the operation number and price paid for each workman's operation on one lot of articles. These prices vary in accordance with the character of the work performed. The number wheels of each type carrier are set to correspond with the job number of a "lot" of articles and locked in place against rotation. The type ring having type set to correspond with the operation numbers and prices to be paid workmen for operations corresponding with said operation numbers, is then placed on a type carrier whose lot number wheels are set to correspond with the lot number of a given "lot" of articles and the type carrier is then placed in its supporting frame with all of the type rings placed at a zero or neutral place. The operation numbers are arranged numerically about the type ring and correspond with the numbers on the dial or indicating strip 67 so that when the actuating bar for said ring is drawn out until the pointer thereon stands at the selected number on the dial, the corresponding type characters on the type ring will be in printing position. The characters on the quantity type rings are also arranged consecutively about their rings and correspond in position with corresponding characters on the table 15, whereby said type wheels may be manipulated by the actuating bars to bring the selected type characters thereof into printing position.

In operation, when a workman has completed his work upon a given lot of articles, the attendant manipulates the actuating bars of the unit having the lot number corresponding with the lot number on which he has worked, to set into printing position, the type corresponding to his operation number and quantity of articles in said lot. This brings the type showing the price to be paid for his work into printing position, since said type is on the same ring and in line with the operation number type.

The attendant then inserts the workman's production card through the slit, associated with said printing unit and locates the card by placing the first unprinted line thereof as shown by the numbers thereon, in register with the arrow or pointer on the case adjacent the slot. The attendant then presses down on the hand lever 42, which moves the impression bar against the card and presses it into engagement with the type ribbon which is interposed between the type and card and makes an impression or record on the card of the type characters that are in printing position. As the hand lever 42 approaches the bottom of its stroke, after the impression bar has been operated, it engages the office record support actuating mechanism and advances said support and therewith the office record, one step. When the hand lever is at the bottom of its stroke, the workman's card is removed and the hand lever raised. As it passes the cam on the impression bar arm 41ª it again moves the impression bar over, thereby making a duplicate impression or record of said information upon the office or record strip.

Each workman's car shows exactly the lot numbers of the articles he has worked on, the number of articles in each lot, the price to be paid him for such work and the lot number of his operation. These items can be easily checked over to discover mistakes, in case any occur. Inasmuch as the case is locked, the mechanism and type thereof cannot be tampered with, and consequently greater certainty and accuracy are obtained in the records.

More or less variation of the exact details of construction is possible without departing from the spirit of this invention; I desire, therefore, not to limit myself to the exact form of the construction shown and described, but intend, in the following claims, to point out all of the invention disclosed herein.

I claim as new and desire to secure by Letters Patent:

1. A production recorder, comprising a supporting base, and a plurality of individual printing units removably supported thereby, each unit comprising a type carrier, and a multiplicity of type carried thereby, and each unit being removable as a hole, type setting mechanism and an impression making element, cooperating with the set type to print a record.

2. A production recorder, comprising a supporting base, and a plurality of individual printing units removably supported thereby, each unit comprising a removable and replaceable type carrier, and a multiplicity of type carried thereby, and each unit being removable as a whole, type setting mechanism and an impression making element, cooperating with the set type to print a record.

3. A production recorder, comprising a supporting base, and a plurality of individual printing units removably supported thereby, each unit comprising a type carrier, rotatable type rings rotatively mounted thereon, and type characters on said rings, and each unit being removable as a whole, setting mechanism cooperating with said type rings, whereby the type thereon may be set in printing position, and an impression making element cooperating with the set type characters to print a record.

4. A production recorder, comprising a supporting base, and a plurality of individual printing units removably supported thereby, each unit comprising a removable

and replaceable type carrier, rotatable type rings rotatively mounted thereon, and type characters on said rings, and each unit being removable as a whole, setting mechanism cooperating with said type rings, whereby the type thereon may be set in printing position, and an impression making element cooperating with the set type characters to print a record.

5. A production recorder, comprising a supporting base, and a plurality of individual printing units supported thereby, each unit comprising a type carrier, and a multiplicity of type carried thereby, type setting mechanism and a double acting impression making element, cooperating with the set type to print a record and a duplicate thereof.

6. A production recorder, comprising a supporting base, and a plurality of individual printing units supported thereby, each unit comprising a type carrier, having a type ring rotatively carried thereby and provided with type characters thereon, and a series of type wheels having type characters thereon, the type characters of said type wheels being arranged to print in the same plane as the type characters of the type rings, setting mechanism cooperating with said type ring, whereby the type characters thereof may be set to print in line with the type characters of the type wheels, and an impression element cooperating with the set type characters to print a record.

7. A production recorder, comprising a supporting base, and a plurality of individual printing units supported thereby, each unit comprising a removable and replaceable type carrier, having a type ring rotatively carried thereby and provided with type characters thereon, and a series of type wheels having type characters thereon, the type characters of said type wheels being arranged to print in the same plane as the type characters of the type rings, setting mechanism cooperating with said type rings, whereby the type characters thereof may be set to print in line with the type characters of the type wheels, and an impression element cooperating with the set type characters to print a record.

8. A production recorder, comprising a supporting base, and a plurality of individual printing units supported thereby, each unit comprising a type carrier, having a type ring rotatively carried thereby and provided with type characters thereon, and a series of type wheels having type characters thereon, the type characters of said type wheels being arranged to print in the same plane as the type characters of the type rings, there being locking means for securing said type wheels against rotation, setting mechanism cooperating with said type rings, whereby the type characters thereof may be set to print in line with the type characters of the type wheels, and an impression element cooperating with the set type characters to print a record.

9. A production recorder, comprising a supporting base, and a plurality of individual printing units removably supported thereby, each unit comprising a type carrier, and a toothed type ring rotatively carried thereby and provided with type characters, and each unit being removable as a whole, a type setting bar having rack teeth meshing with the teeth of said ring, and an impression making element cooperating with the set type characters to print a record.

10. A production recorder, comprising a supporting base, and a plurality of individual printing units removably supported thereby, each unit comprising a removable and replaceable type carrier, and a toothed type ring rotatively carried thereby and provided with type characters, and each unit being removable as a whole, a type setting bar having rack teeth meshing with the teeth of said ring, and an impression making element cooperating with the set type characters to print a record.

11. A production recorder, comprising a supporting base, and a plurality of individual printing units removably supported thereby, each unit comprising a type carrier, and a toothed type ring rotatively carried thereby and provided with removable and replaceable type characters, and each unit being removable as a whole, a type setting bar having rack teeth meshing with the teeth of said ring, and an impression making element cooperating with the set type characters to print a record.

12. A production recorder, comprising a supporting base, and a plurality of individual printing units supported thereby, each unit comprising a type carrier, having a toothed type ring rotatively carried thereby and provided with type characters thereon, and a series of type wheels having type characters thereon, the type characters of said type wheels being arranged to print in the same plane as the type characters of the type rings, toothed setting mechanism cooperating with said toothed type ring, whereby the type characters thereof may be set to print in line with the type characters of the type wheels and an impression element cooperating with the set type characters to print a record.

13. A production recorder, comprising a supporting base, and a plurality of individual printing units removably supported thereby, each unit comprising a type carrier and a plurality of type rings rotatively mounted thereon and provided with type characters, and each unit being removable as a whole, setting mechanism cooperating with said rings, whereby the type characters

thereof may be set in printing position, and an impression making element cooperating with said set type characters to print a record.

14. A production recorder, comprising a supporting base, and a plurality of individual printing units supported thereby, each unit comprising a type carrier and a plurality of type rings and type wheels rotatively mounted thereon and provided with type characters, all arranged to print in one plane, setting mechanism cooperating with said rings, whereby the type characters thereof may be set in printing position, and an impression making element cooperating with said set type characters to print a record.

15. In a production recorder, a base, a printing unit mounted thereon and comprising a type carrier and type characters thereon for printing on a ticket and on a record strip, a double acting impression making element cooperating with said type characters to successively print on the ticket and on the record strip, and including an actuating handle, an office record support for supporting the office record, and automatic means for moving said support and strip in a step by step manner.

16. In a production recorder, a printing unit comprising a type carrier, a type ring rotatively mounted thereon, two ring actuating members arranged to rotate said type ring through a predetermined distance around its axis, each of said ring actuating members operating to rotate the ring through a part of said distance.

17. In a production recorder, a printing unit comprising a type carrier, a type ring rotatively mounted thereon, said type ring containing one row of segmental rack teeth extending part way there around, and a second row of segmental rack teeth disposed laterally of the first mentioned rack teeth and extending part way around the ring, beyond the first row of teeth, and two ring actuating rack bars, one adapted to mesh with the first mentioned segmental rack and the other adapted to mesh with the second segmental rack.

MORRIS J. HOFFMAN.