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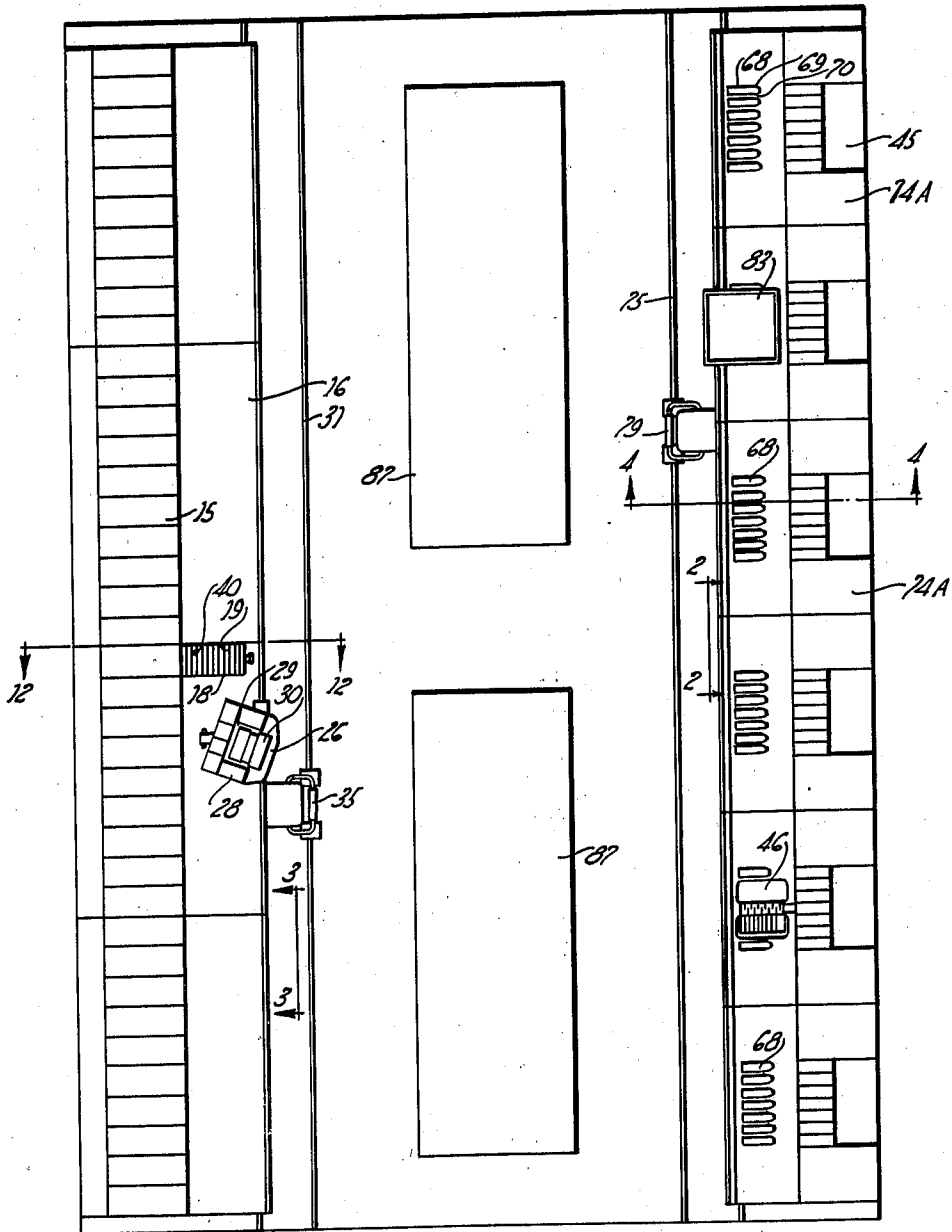
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MECHANISM FOR KEEPING RECORDS

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5 Sheets-Sheet 1



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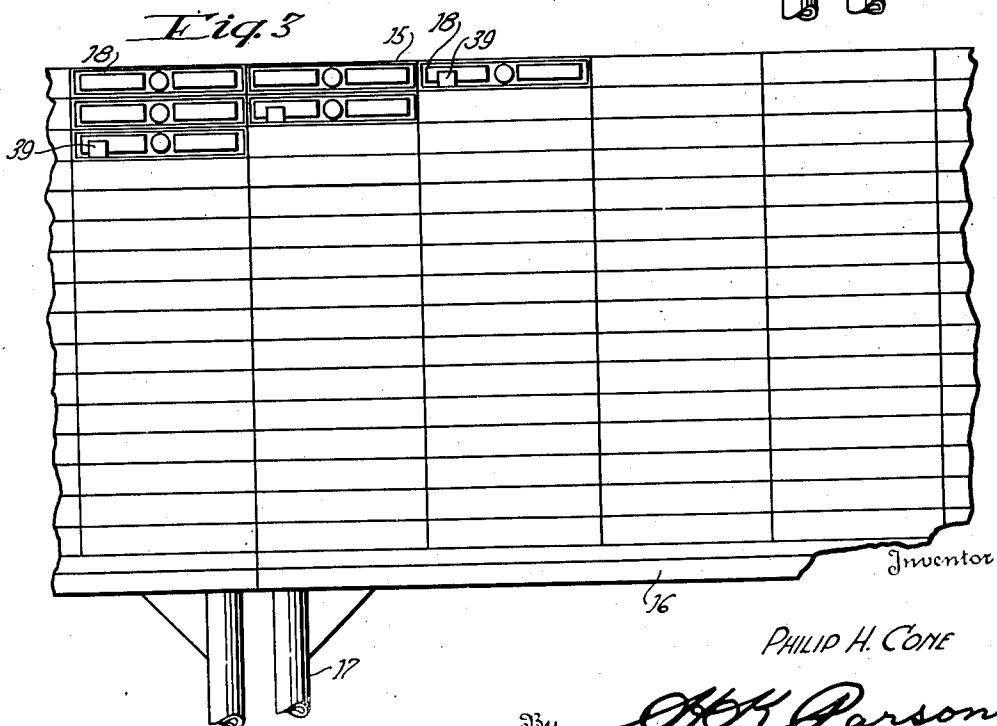
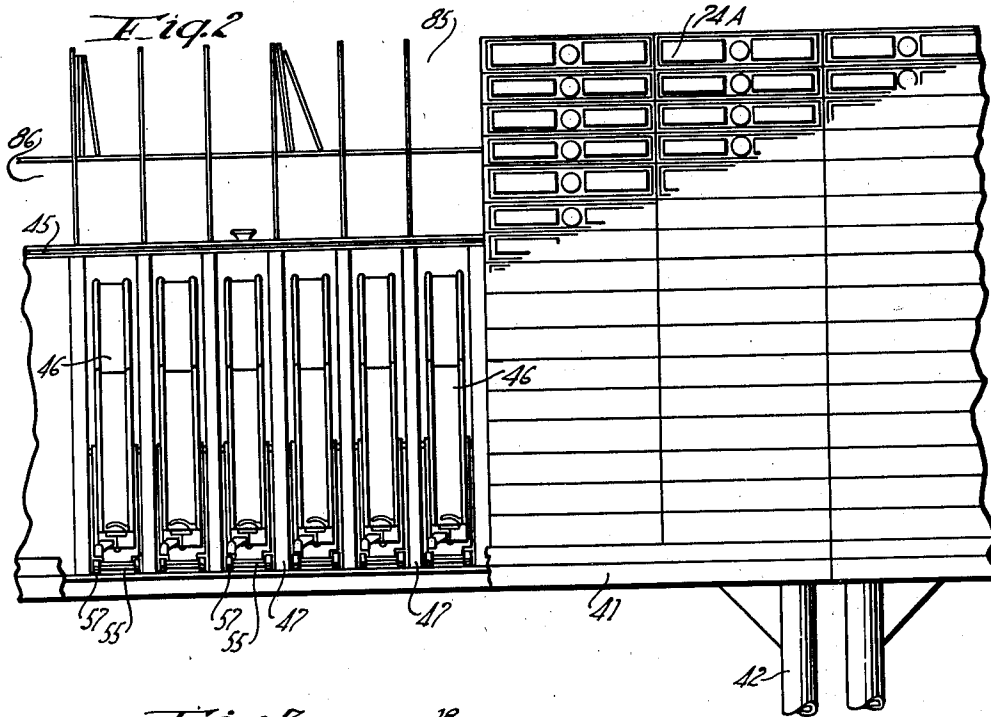
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MECHANISM FOR KEEPING RECORDS

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5 Sheets-Sheet 2



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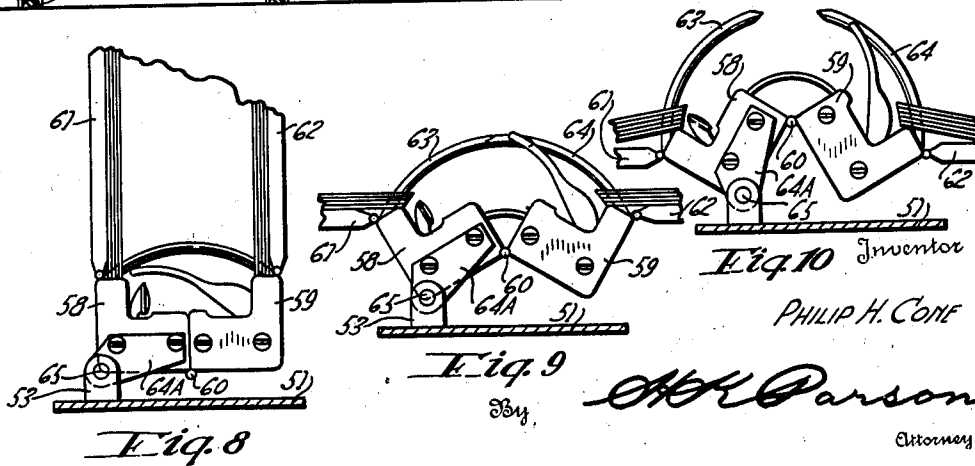
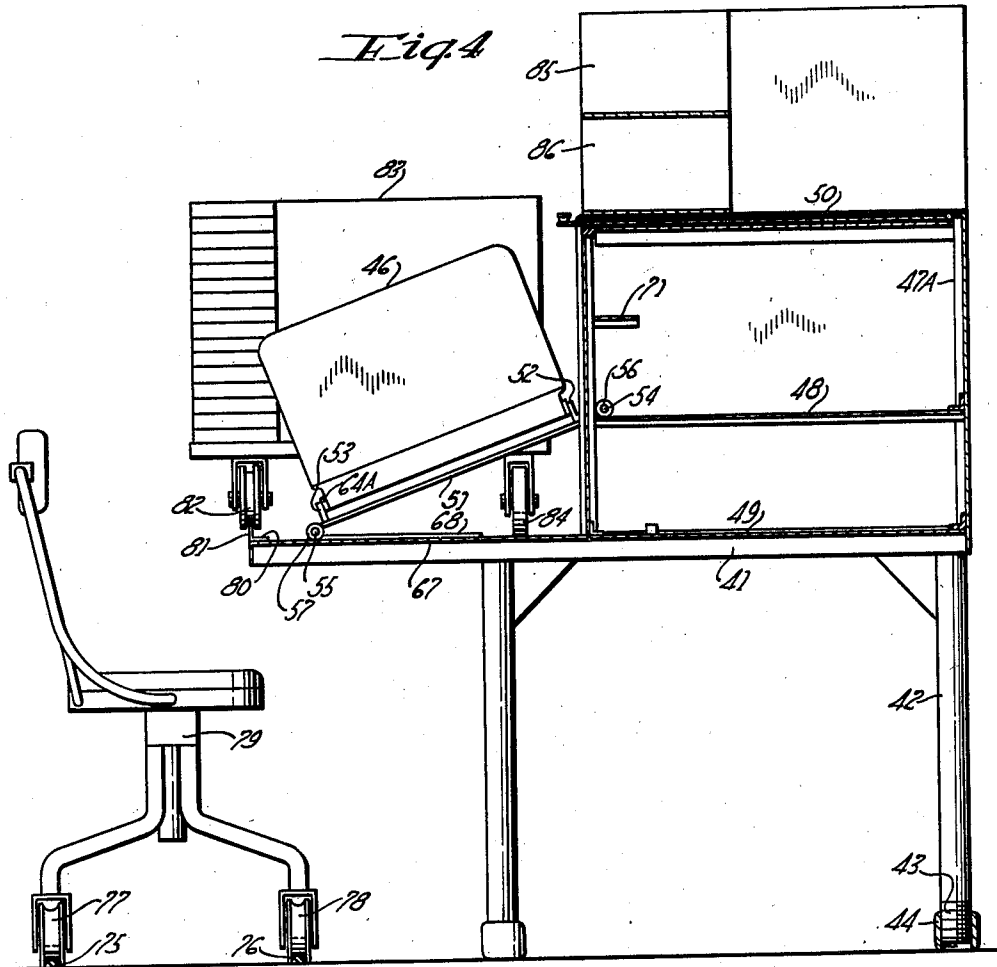
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MECHANISM FOR KEEPING RECORDS

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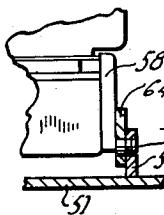
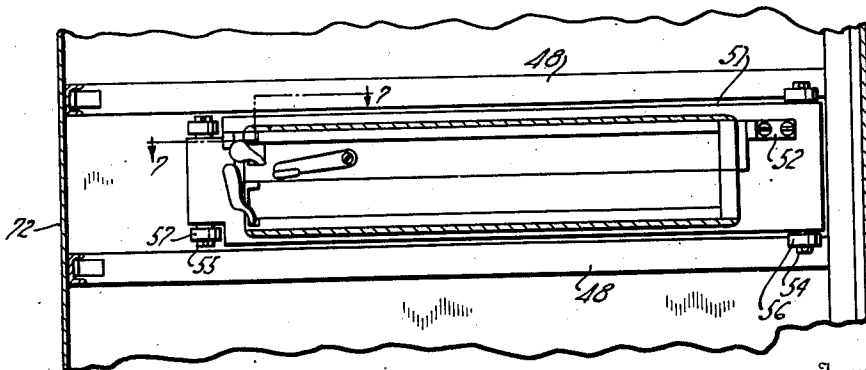
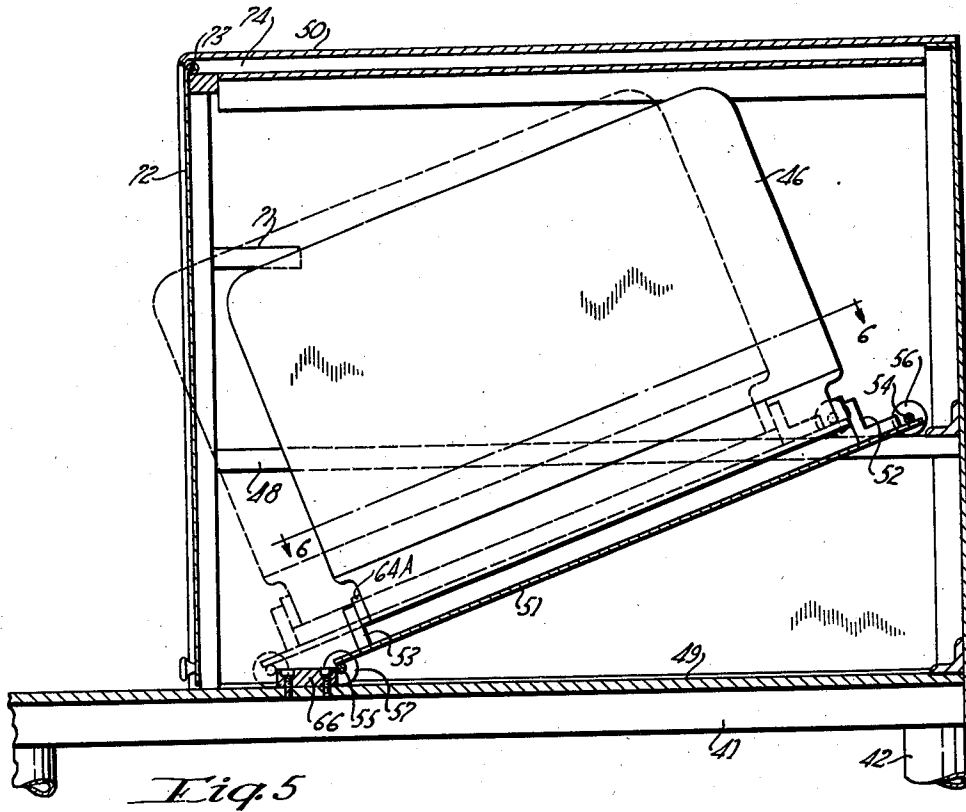
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MECHANISM FOR KEEPING RECORDS

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5 Sheets-Sheet 4



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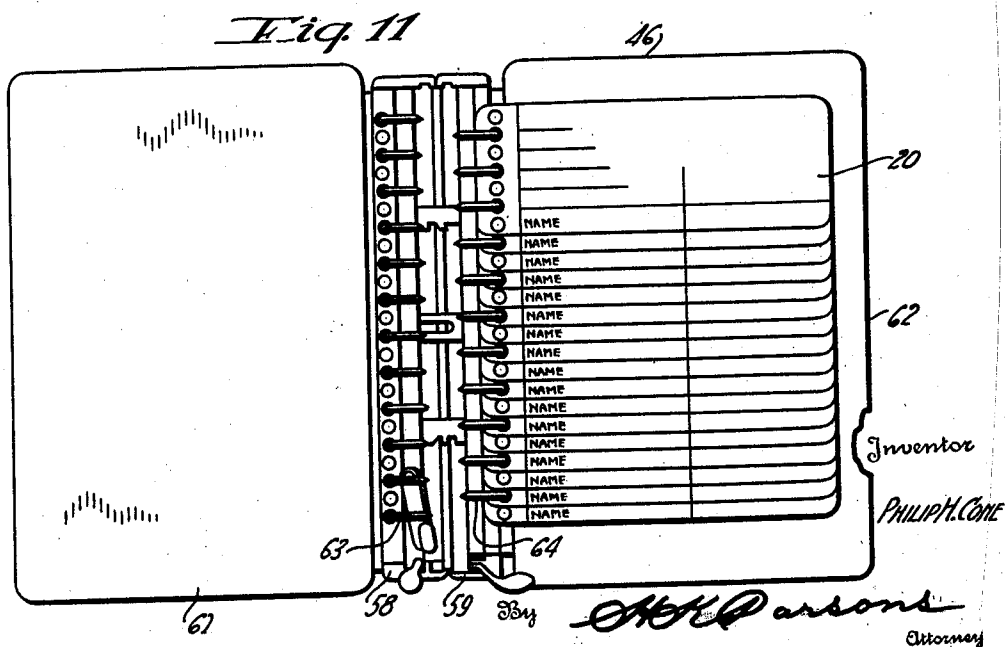
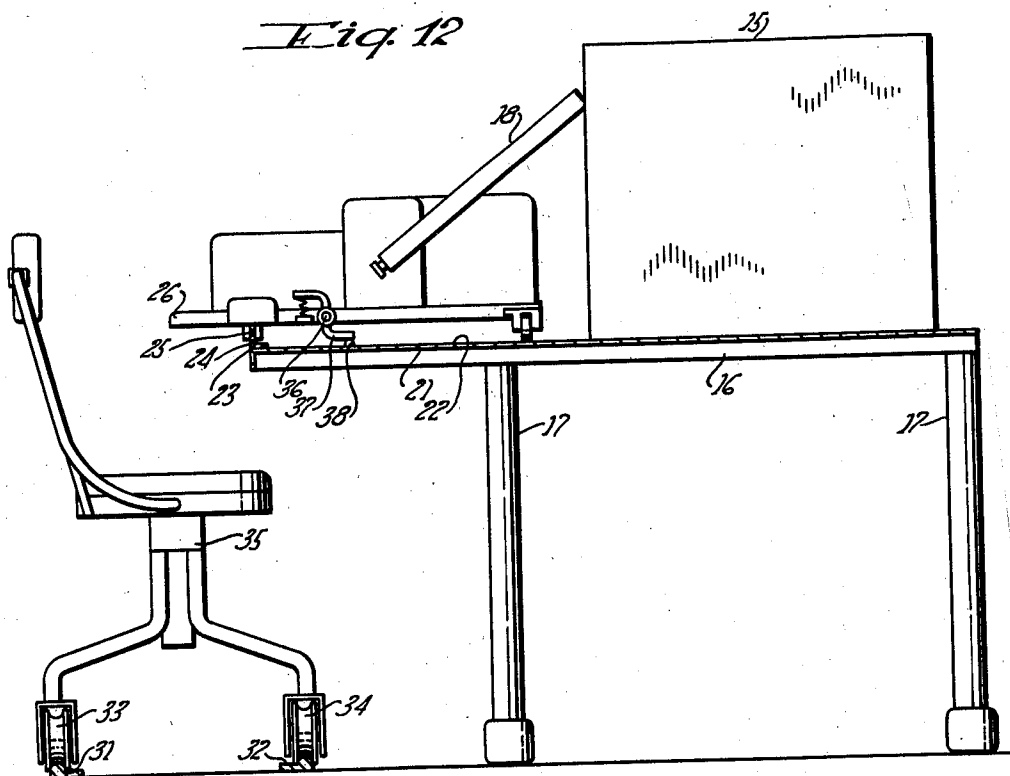
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MECHANISM FOR KEEPING RECORDS

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5 Sheets-Sheet 5



UNITED STATES PATENT OFFICE

2,045,756

MECHANISM FOR KEEPING RECORDS

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Application November 4, 1933, Serial No. 696,692

10 Claims. (Cl. 312—34)

This invention relates to improvements in means or mechanism for keeping and maintaining records.

One of the principal objects of the present invention is the provision of improved mechanism for utilizing existing parts and units for expeditiously maintaining records.

Another object of the invention is the provision of improved means for use with visible record books whereby the said books may be efficiently employed for keeping and maintaining records.

A further object of the invention is the provision of improved means and the combination of existing parts or means whereby shop records, such as are necessary in the control of production of a plurality of sizes of a plurality of kinds of finished units, may be adequately maintained in an efficient manner and with the least amount of manual labor and labor fatigue.

A further and specific object of the invention is the provision of improved means for rendering certain units of the mechanism, such as the visible record books, more efficient in operation and use, thereby generally improving the efficiency of the mechanism.

A still further object of the invention is the provision of improved means for arrangement of auxiliary parts and units utilizable with the mechanism as a whole and tending to materially increase the efficiency of the same.

Other objects and advantages of the present invention should be readily apparent by reference to the following specification, considered in conjunction with the accompanying drawings forming a part thereof and it is to be understood that any modifications may be made in the exact structural details there shown and described, within the scope of the appended claims, without departing from or exceeding the spirit of the invention.

In the drawings:

Figure 1 is a plan view of the entire production record and control mechanism.

Figure 2 is a fragmentary elevational view of a portion of the mechanism as seen particularly from line 2—2 on Figure 1.

Figure 3 is a fragmentary elevational view of another portion of the mechanism as seen particularly from line 3—3 on Figure 2.

Figure 4 is a transverse sectional view taken on line 4—4 of Figure 1.

Figure 5 is an enlarged sectional view of a portion of the mechanism disclosed in Figure 4.

Figure 6 is a fragmentary sectional view

through the visible record book as seen from line 6—6 on Figure 5.

Figure 7 is a detail sectional view taken on line 7—7 of Figure 6.

Figures 8, 9, and 10 are fragmentary views showing the visible record books in different positions of adjustment with respect to their mounting and forming details of the invention.

Figure 11 is a plan view of the visible record book in an open position.

Figure 12 is a transverse sectional view taken on line 12—12 of Figure 1.

Throughout the several views of the drawings similar reference characters are employed to denote the same or similar parts.

As was noted above, this invention pertains to improved mechanism for maintaining records, such as the quantity of parts in stock and in the process of manufacture; the cost of manufacturing the individual parts or sub-units of a given machine or other article of use and manufacture; in fact, any type of records that are changing or need revision to maintain same up to date. In the past, such changeable records have been kept on file cards, loose leaf books, and visible multiple record books and the like. The individual file cards were susceptible to being removed from their file and frequently misplaced or misfiled, so that the file was frequently incomplete. Loose leaf and multiple visible record books have greatly superseded the individual loose card file, except that the said books are rather awkward to handle and not very efficient in use since they are generally filed on shelves and the like from which they must be taken and returned.

This invention is built to a large extent around the use of visible record books and a novel manner of utilizing the said books whereby their efficiency is increased to a maximum. In addition to the novel manner of mounting and utilizing the visible record books this invention contemplates the arrangement of other parts and mechanism whereby the entire record is kept in an expeditious manner due to the co-operation of the parts employed.

While, as was pointed out above, this invention may be employed with the keeping of all types of records, it was developed and will be particularly explained in connection with the keeping of records of individual parts employed in the manufacture of finished articles, such as machine tools. As will be appreciated, machine tools are of different kinds and each kind is in turn manufactured in different sizes or of different capacities. It frequently happens that the same part may

be employed in each size of machine, as well as with different types of machines. In practice, a certain number or quantity of machines is authorized to be manufactured at one time, thereby requiring that a definite number of each of the individual parts going to make up that machine, be run or processed through the factory. There is always a possibility during the manufacture or processing of spoilage, which, if not taken into consideration initially, will prevent the entire lot from being completed. Not always is the percentage of spoilage the same, thereby causing extra parts to gradually accumulate in the stock room which is generally deducted from the next lot of that part to be run.

The present invention contemplates the maintaining of records of the parts in the stock room, in addition to controlling its progress through the factory. The stock records and parts cards are placed in suitable cabinets shown on the left hand side of Figure 1. These cabinets 15, see Figure 3, are disposed side by side on tables 16 supported by suitable legs 17. The cabinets 15 each contain a plurality of drawers 18 and are of the well-known construction utilizing visible record cards 19, see Figure 1. Each of these cards contains information pertaining, for example, to the number of a given part in stock, the number to be run for a given size and type of machine and the necessary operations on the part in order to place it in condition for use. The information is taken from these cards and typed onto slips or leaves, each of which is perforated and filed in the visible record books, such leaves being shown at 20 in Figure 11 in position in the said books and which will be described in detail later.

The tables 16 which support the cabinets 15 have projecting in front of the said cabinets a ledge 21 having a smooth upper surface 22. The extreme outer edge of the ledge 21 is provided with an angle iron 23 having one leg 24 thereof projecting upwardly and received in the groove of a pair of flanged casters or rollers 25 secured to the under side of a carriage 26. The carriage 26 is supported on its other side, that adjacent to the file cabinets 15, by plane surfaced casters or rollers which ride on the upper surface 22 of the ledge 21. The carriage 26 has a plurality of small pockets 28 disposed substantially around a relatively large central compartment 29 in which is disposed a typewriter or the like 30. The small compartments or pockets 28 contain a supply of the visible record book leaves or slips 20.

Mounted on the floor in front of the tables 16 is a pair of tracks 31 and 32 respectively received in the groove of flange casters 33 and 34 carried respectively by the front and rear legs of a chair 35 which is movable thereon. The tracks 31 and 32 are related to the table ledge 21 and the carriage 26 so that an operator disposed thereon may move the entire length thereof for transferring the desired information from the cards 19 to the book leaves 20. In order to hold the typewriter carriage 26 in a relatively rigid position during the use of the typewriter the said carriage 26 has pivoted at 36, to one side thereof, a spring actuated latch 37 having a vacuum cup foot 38 or the like engaging with the flat surface 22 of the table ledge 21.

From the foregoing it will be seen that an operator has convenient access to all of the visible record card drawers 18 and can readily and expeditiously transfer any information from any of the cards in the said drawers. In order to advise the operator from which drawers information is

to be transferred, use is made of tabs or flags 39, see Figure 3, applicable to the front of said drawers. While to advise which of the parts in the said drawer are to be made, use is made of additional flags 40, see Figure 1, attachable directly to the card of the part.

The mechanism utilized for controlling the progress of the parts through the factory and for advising the particular condition of said part during its manufacture, utilizes the visible record books disposed in banks on suitable tables 41 which are similar to the tables 18. As shown in Figures 2 and 4, the tables 41 are supported by legs 42, which legs 42, as well as the legs 17, may conveniently be formed of piping having threads 43 formed at the lower ends thereof. Disposed on the threads 43 of each leg is a pipe sleeve coupling 44 adapted to be axially adjusted relative to the legs along the threads 43. The couplings 44 are utilized for leveling the upper surface of the table to thereby dispose successive table surfaces in absolute alignment and eliminate any slight steps between adjacent tables. From this it will be seen that each corner of the tables 41 and table 16 are independently adjustable and the desired flat and unbroken surface from table to table obtained.

Each of the tables 41 supports a rack 45 containing a bank of visible record books 46. The rack 45 is divided into compartments by front posts 47 and rear posts 47A whereby the books 46 are separate from one another. The front and rear posts 47 and 47A, see Figure 4, are connected intermediate their ends by an angle iron 48 to provide a ledge which is somewhat nearer the top of the table than the top 50 of the rack. Within each compartment is an inclined plate 51 having upstanding therefrom at each end thereof a lug 52 and 53. Beyond the lugs 52 and 53 the plate 51 carries axles 54 and 55 to which are rotatably secured rollers 56 and 57 respectively riding on the ledges 48 and table top 49 and effecting the inclination of the plate.

The visible record books 46 are formed of two relatively rigid members 58 and 59 pivotally connected at 60 to one another. Pivotaly connected respectively to the members 58 and 59 are the book covers 61 and 62 on which the leaves 20 rest when the book is opened. Projecting from the rigid or back members 58 and 59 are the arcuate prongs 63 and 64 adapted to pass through the perforations in the pages or leaves 20. The book as a whole is pivotally connected to the plate 51 by means of hinge members 64A rigidly secured to either of the book back members 58 or 59, here shown as connected to the member 58. Hinge plates 64A lie adjacent to the lugs 52 and 53 of the plate 51 and said lugs are connected to one another by means of pivoted pins 65.

The axis of the pivot pins 65 is so related to the rigid members or book backs 58 and 59 that the same may be operated as through it were not carried by the member 51, that is, so that no interference is offered to the easy manipulation of the book. It will be appreciated that visible record books have two operative positions when the book backs 58 and 59 are actuated about their pivots, which positions are in addition to the usual opening of the covers 61 and 62, the said positions being respectively illustrated in Figures 9 and 10 of the present drawings.

The inclination of the book carrying plate 51 is such that when the book is opened with the plate in its inclined position the material or information on the leaves 20 can be readily ascertained.

The books and plate 51 have three operative positions shown in full lines in Figure 4, and in full and dotted lines in Figure 5. The showing in Figure 4 is with the book entirely out of the cabinet and in position to be opened by the operator, while the one in full line in Figure 5 shows the book in its fully retracted position entirely within its compartment and the dotted line position is the normally retracted position with the upper foremost corner projecting beyond the compartment posts so that it may be readily grasped by the operator or attendant for pulling to the position in Figure 4. The first position is determined by the rear axle and wheels 54 and 56 engaging the forward posts 47 of the compartment, as shown in Figure 4, and the other two positions by the front axle 55 engaging the forward face and rearward face respectively of a stop block 66 disposed within the compartment. In order to guide the book during its movement relative to its compartment the upper surface or table top 49 is provided on its ledge 67 with a series of guides 68 which are straddled by the front rollers 57. The ends of the guides 68 adjacent the book compartments are tapered as at 69 and 70, thereby guiding the rollers and book to move in the desired path and prevent canting of the books while they are being withdrawn from their respective compartments.

In order to prevent the books from opening while within their compartments, and thereby disposing their covers behind the compartment posts, the said posts have secured thereto and projecting rearwardly therefrom lugs or arms 71 which are in overlying relation to the ledges 48.

In order to place the book from its normally retracted or dotted line position in Figure 5 to the full line therein the attendant merely engages the exposed forward corner of the book, raising it about the axis of the rear axle 54 and inserts the same further into the compartment until the forward axle drops behind the stop block 66. With the books in the full line position shown in Figure 5 the entire front of the cabinet 45 may be closed. For this purpose a door 72 is provided with its upper end provided with a pin 73 co-operating with the end of a slot 74 formed immediately beneath the cabinet top 50. From this it will be seen that when not in use the visible record books may be completely enclosed within their respective compartments.

During the processing or manufacturing of parts small tools and jigs are employed which are utilized in connection with the machine tools. These tools may frequently be utilized with different parts and in order to advise the attendant which tools are used with the different parts, and which tools must be withdrawn from the tool stores and sent to the factory, when the part is in the factory the visible record book banks are flanked on opposite ends with visible record card files or the like 74A. From this it will be seen that the attendant not only has a record of the parts in the shop and being processed but also a record of the small tools and jigs needed with these parts, and whether or not the said tools are being used.

Disposed adjacent the tables 41 is a pair of tracks 75 and 76 which are similar to the tracks 31 and 32 and are received in the grooves of flanged wheels 77 and 78 carried by a chair 79. Mounted on the table ledge 67 at the forward end thereof is an angle iron 80 having its one leg 81 projecting upwardly and received in the groove in flange caster 82 carried by a movable cabinet

unit 83. The rear of this unit, similar to the typewriter carriage 26, is supported by a plane wheel 84 movable on the table top 49 between the guides 68 and the book racks. From the foregoing it will be noted that the operator, without leaving the chair 79, may propel himself the entire length of the table and have ready access to the several banks of books and the flanking file cabinets.

Disposed on top of the book racks 45 and between the file cabinets 74A there is provided a double row of pigeon holes 85 and 86 which constitute mail boxes for the disposal and reception of outgoing and incoming mail.

The complete operation and co-ordinated use of the foregoing mechanism is as follows:

When it is desired to run a lot of a given size and type of machine tool, for example, the cards in the different drawers 18 pertaining to the parts are marked with the desired number of said parts to be run. These cards are then flagged by means of the removable flag, 40 whereupon the front of the drawers are provided with the removable flags 39. The operator or attendant then, while disposed on the chair 35, commences at one or the other end of the said cabinets, moving along from drawer to drawer and making up the necessary visible record book leaves 20 from the flagged drawers and cards. These leaves are then placed on one or the other of the flat topped tables 87 disposed behind the attendant, as shown for example in Figure 1.

The said typed leaves 20 are then collected by the second attendant, who, while on the chair 79, places them in the proper visible record book of the several banks at his disposal. In the event the said leaves are to be forwarded to the factory to commence or advance the processing or manufacturing of the part the tool cards in the cabinets 74A and 83 are consulted to determine the condition of the necessary tools. If it is found that the factory is in a position to work on the part the necessary page or leaf 20 is removed from its book and placed in the outgoing mail box 85 or 86 for delivery to its proper destination. On completion of the part the leaf 20 is returned to the mail box whereupon the attendant again properly files the same.

It will be noted that the visible record books by being mounted on their individual carriage or plate, mounted in turn on anti-friction rollers, can be readily placed in position for use and returned to their position without the use of an excessive amount of time or fatigue on the part of the attendant. By disposing the said visible record books in the manner shown in the drawings their use is materially facilitated, rendering the mechanism very efficient in operation.

What is claimed is:

1. In a mechanism of the class described for effecting the efficient use of a plurality of visible record books the combination of a rack having a plurality of compartments in each of which a record book is adapted to be disposed, a table supporting the rack and having its top extending beyond the forward edge of the rack, a carrier within each compartment to which the book therein is adapted to be pivotally secured, a rail provided on each side of each compartment and disposed above the top of the table, roller means at each end of the carriers and disposed respectively on the table top and compartment rails whereby the plate is disposed at an angle to the table top for correspondingly dis-

posing the book, said roller means effecting the ready withdrawal and insertion of the plate and book relative to its compartment, and guide means mounted on the table top in front of the rack for guiding each plate and its book relative to its compartment.

2. In a mechanism of the class described for effecting the efficient use of a plurality of visible record books the combination of a rack having a plurality of compartments in each of which a record book is adapted to be disposed, a table supporting the rack and having its top extending beyond the forward edge of the rack, a carrier within each compartment to which the book therein is adapted to be pivotally secured, a rail provided on each side of each compartment and disposed above the top of the table, roller means at each end of the carriers and disposed respectively on the table top and compartment rails whereby the plate is disposed at an angle to the table top for correspondingly disposing the book, said roller means effecting the ready withdrawal and insertion of the plate and book relative to its compartment, guide means mounted on the table top in front of the rack for guiding each plate and its book relative to its compartment, each plate having three positions relative to its compartment including a fully retracted position, a fully extended position, and an intermediate position in which the book is substantially within its compartment but with a corner thereof exposed whereby it may be grasped for movement relative to its compartment, and means associated with the table and rack for determining the said several positions of the book.

3. In a mechanism of the class described for effecting the efficient use of a plurality of visible record books the combination of a rack having a plurality of compartments in each of which a record book is adapted to be disposed, a table supporting the rack and having its top extending beyond the forward edge of the rack, a carrier within each compartment to which the book therein is adapted to be pivotally secured, a rail provided on each side of each compartment and disposed above the top of the table, roller means at each end of the carriers and disposed respectively on the table top and compartment rails whereby the plate is disposed at an angle to the table top for correspondingly disposing the book, said roller means effecting the ready withdrawal and insertion of the plate and book relative to its compartment, guide means mounted on the table top in front of the rack for guiding each plate and its book relative to its compartment, each plate having three positions relative to its compartment including a fully retracted position, a fully extended position, and an intermediate position in which the book is substantially within its compartment but with a corner thereof exposed whereby it may be grasped for movement relative to its compartment, means associated with the table and rack for determining the said several positions of the book, and means associated with each compartment of the rack for prohibiting opening of the book when disposed within its compartment.

4. In a mechanism of the class described for effecting the efficient use of a plurality of visible record books the combination of a rack having a plurality of compartments in each of which a record book is adapted to be disposed, a table supporting the rack and having its top extending beyond the forward edge of the rack, a carrier within each compartment to which the book

therein is adapted to be pivotally secured, a rail provided on each side of each compartment and disposed above the top of the table, roller means at each end of the carriers and disposed respectively on the table top and compartment rails whereby the plate is disposed at an angle to the table top for correspondingly disposing the book, said roller means effecting the ready withdrawal and insertion of the plate and book relative to its compartment, guide means mounted on the table top in front of the rack for guiding each plate and its book relative to its compartment, each plate having three positions relative to its compartment including a fully retracted position, a fully extended position, and an intermediate position in which the book is substantially within its compartment but with a corner thereof exposed whereby it may be grasped for movement relative to its compartment, means associated with the table and rack for determining the said several positions of the book, and a cover carried by the rack for closing the compartment when each book is fully retracted within its compartment.

5. A filing and record transfer unit including a support, forwardly opening compartments projecting thereabove adapted to receive record books, a cabinet member mounted on the support for movement transversely of and in advance of the compartments, means for guiding the cabinet in its transverse movement, a record book support, alternatively disposable within or projectable from an individual compartment into intersecting relation with the path of movement of the cabinet, and guide means on the support in the path of movement of the cabinet for determining the position of the book support when projected from the compartment.

6. In a structure of the character described, the combination with a support, of means rising therefrom providing book receiving compartments, book supports adapted to be contained within the compartments and projectable therefrom, means permanently guiding individual book supports during all adjustments thereof, a cabinet member mounted on the main support and transversely shiftable with respect to the book receiving compartments, spaced rollers on the cabinet engaging the support for facilitating movement of the cabinet, means on the support guiding certain of said rollers to maintain the cabinet in definite relation to the compartments, and supplemental guide means on the support intermediate the paths of movement of the cabinet rollers for determining the position of the forward portion of the book support, said supplemental guiding means being spaced from the compartments to provide an uninterrupted path of travel of certain of the cabinet rollers.

7. In a structure of the character described, the combination with a support, of means rising therefrom providing book receiving compartments, said means including elevated guide rails, book supports disposable within and projectable from the compartments and having rear rollers adapted to ride on the rolls for supporting the rear portion thereof in elevated position and forward rollers riding on the main support, whereby the book supports are permanently positioned in angularly tilted relation with respect to the support during all positions of adjustment thereof, and additional guide members carried by the compartment forming unit for lateral engagement with the covers of a book on the support

whereby opening of the book, when in position within the compartment, is prevented.

8. In a structure of the character described, the combination with a support, of means rising therefrom providing book receiving compartments, said means including elevated guide rails, book supports disposable within and projectable from the compartments and having rear rollers adapted to ride on the rolls for supporting the rear portion thereof in elevated position and forward rollers riding on the main support, whereby the book supports are permanently positioned in angularly tilted relation with respect to the support during all positions of adjustment thereof, additional guide members carried by the compartment forming unit for lateral engagement with the covers of a book on the support whereby opening of the book, when in position within the compartment, is prevented, and stop means for engagement with one of the book support rollers for restraining movement of the book support at an intermediate position in its complete potential travel.

9. In a structure of the character described, the combination with a support, of means rising therefrom providing book receiving compartments, said means including elevated guide rails, book supports disposable within and projectable from the compartments and having rear rollers

adapted to ride on the rolls for supporting the rear portion thereof in elevated position and forward rollers riding on the main support, whereby the book supports are permanently positioned in angularly tilted relation with respect to the support during all positions of adjustment thereof, additional guide members carried by the compartment forming unit for lateral engagement with the covers of a book on the support whereby opening of the book, when in position within the compartment, is prevented, and stop means engageable with the book support for locking the same in completely retracted position within its compartment.

10. In a structure of the character described, the combination with a support, of a unit mounted thereon providing book receiving compartments, book supports disposable within the compartments movable in a contained or projected relation with respect thereto, a cabinet unit mounted on the support for movement transversely of the compartment unit whereby the cabinet may be disposed in juxtaposition to a desired book support, and angularly related guides carried by the main support and respectively engageable with the cabinet and the book support units for determining their relationship during several shiftings thereof.

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