W. H. ROBINSON.

MECHANICAL BOOK.

APPLICATION FILED APR. 12, 1913

1,090,502.

Patented Mar. 17, 1914.

3 SHEETS—SHEET 1.

Fig. 1.

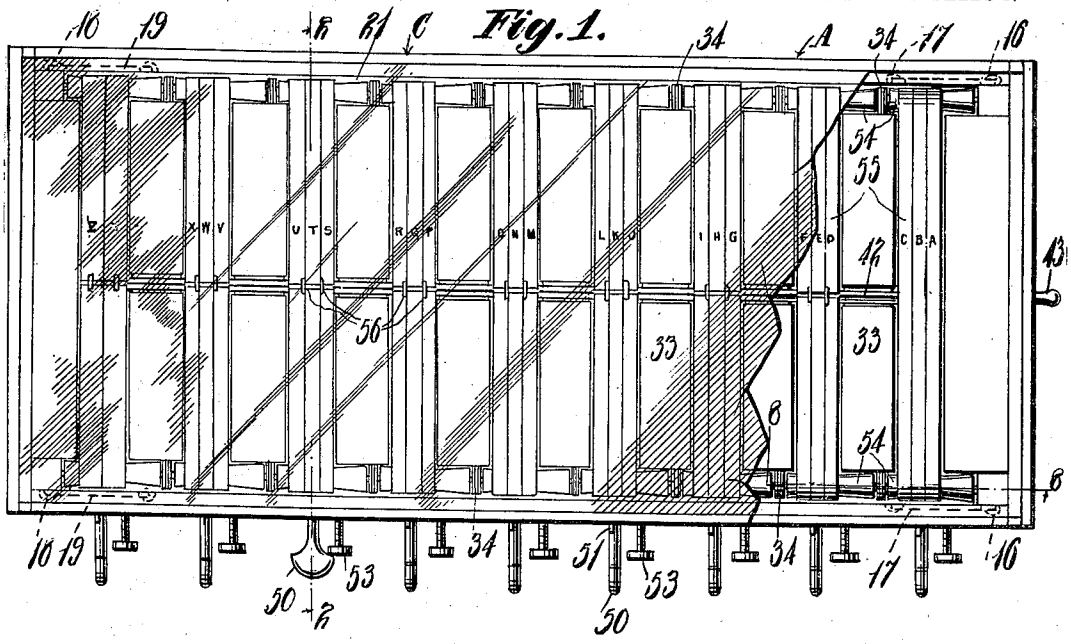


Fig. 2.

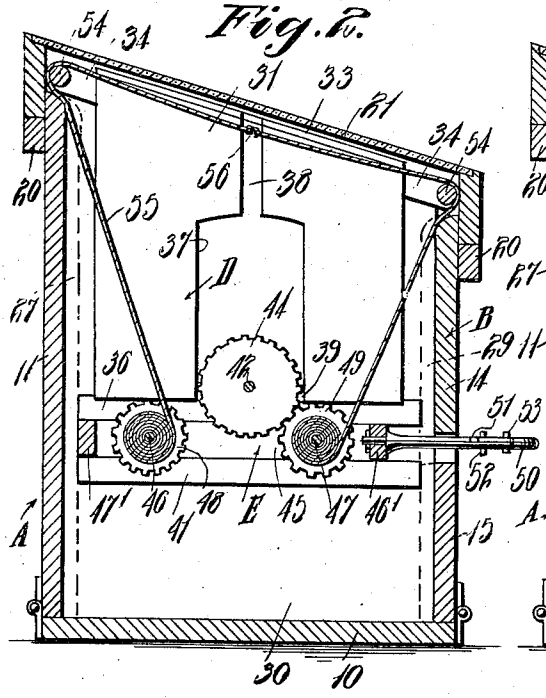
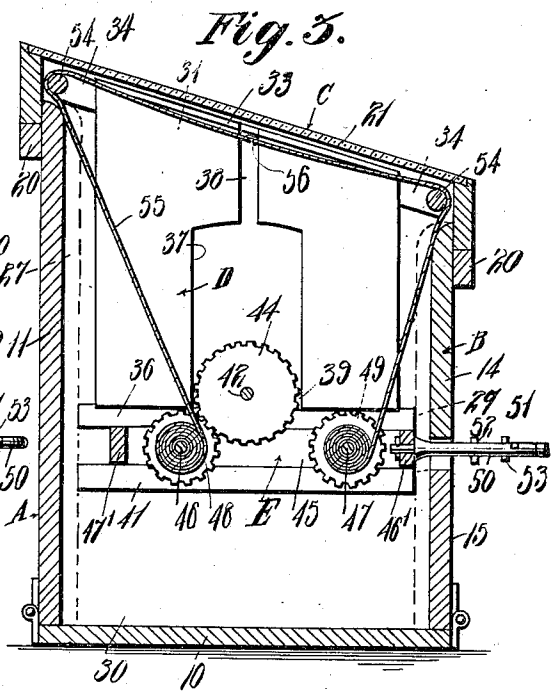


Fig. 3.



Witnesses

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3 SHEETS—SHEET 2.

Fig. 4.

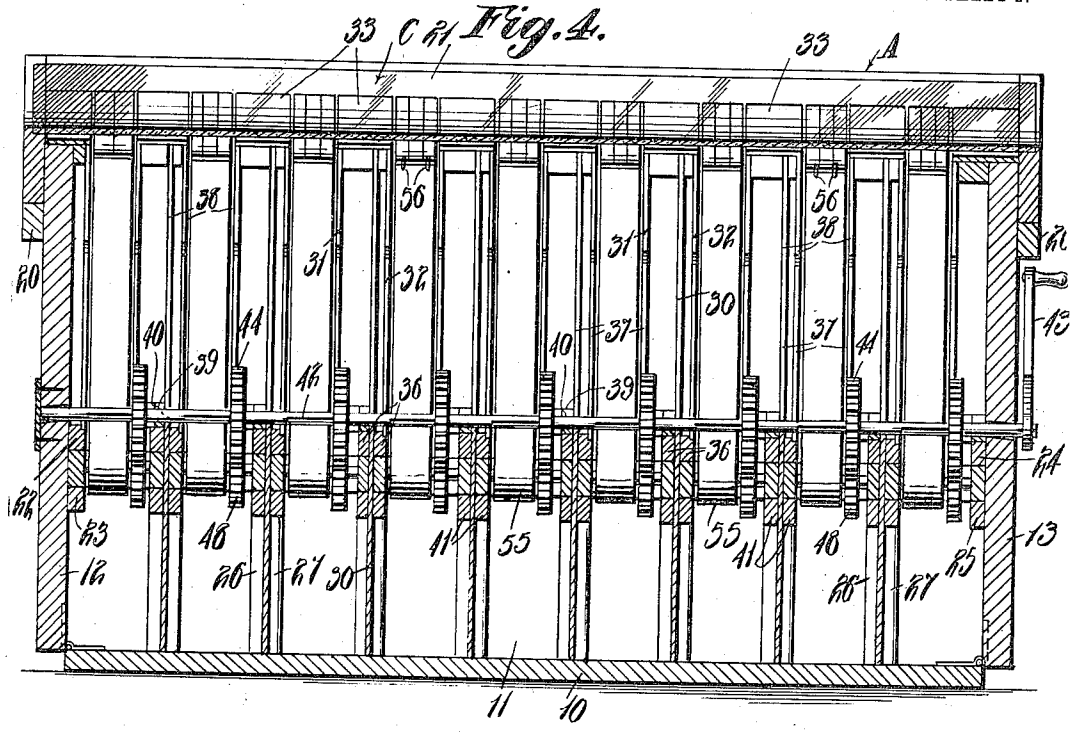
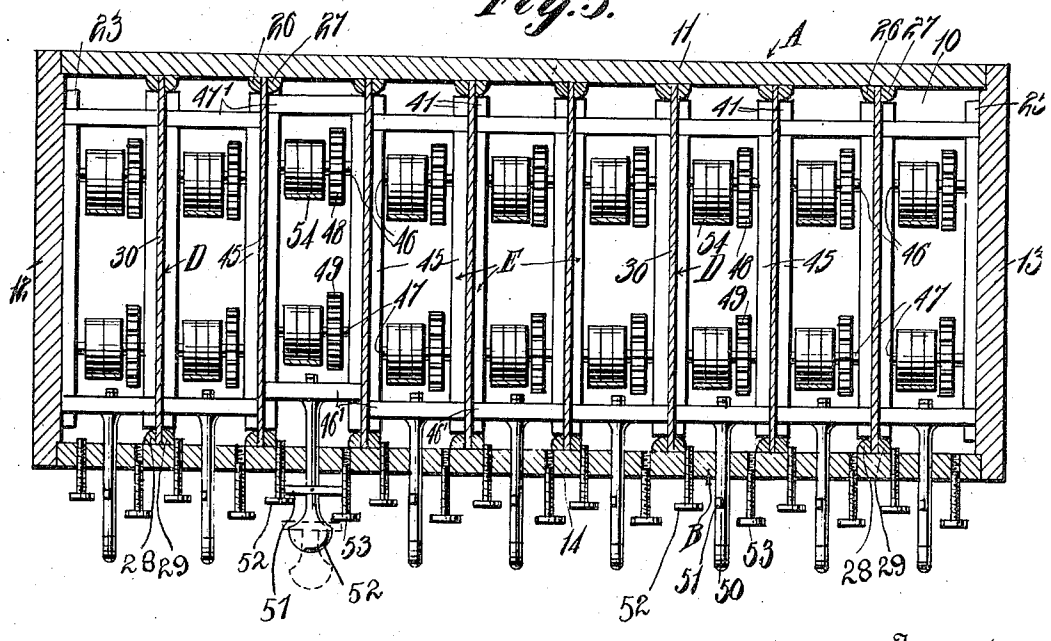


Fig. 5.



Witnesses

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3 SHEETS—SHEET 3.

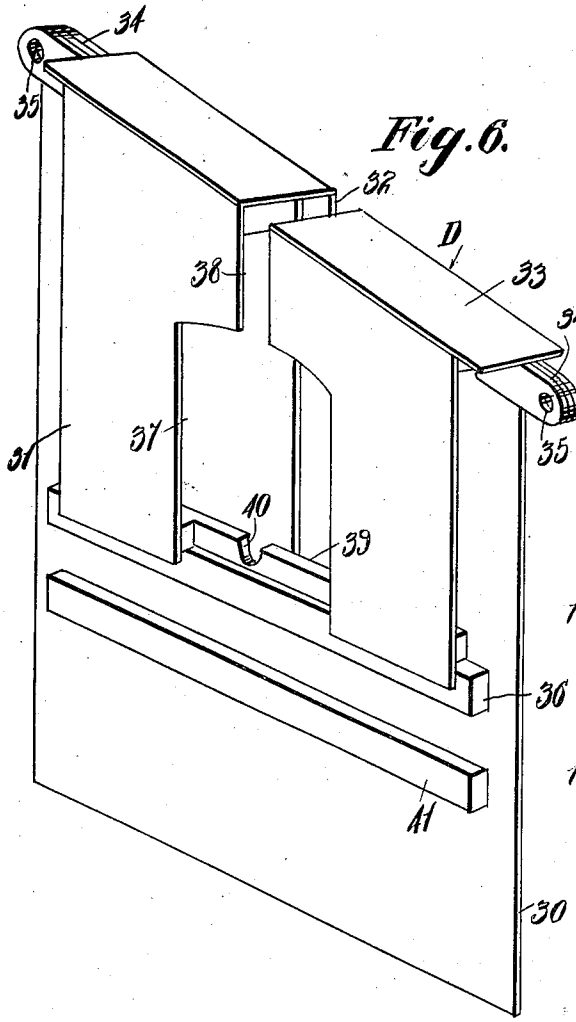


Fig. 6.

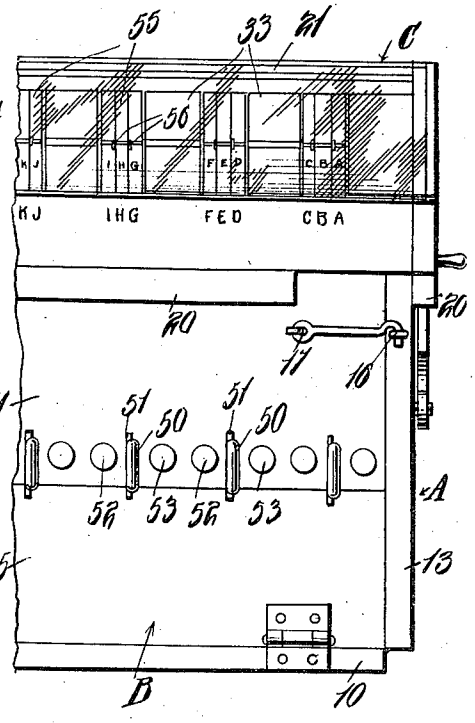


Fig. 9.

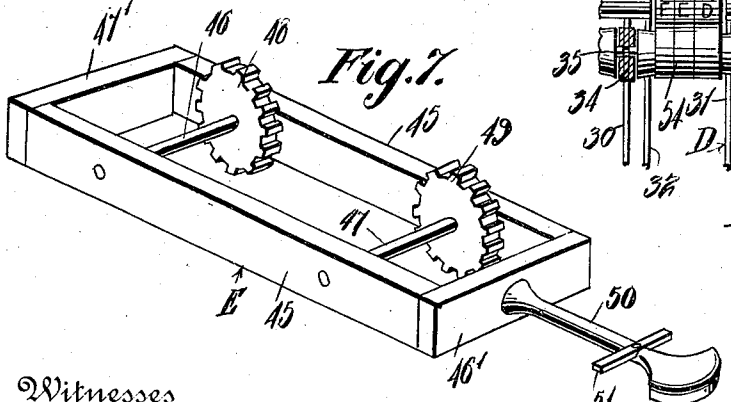


Fig. 7.

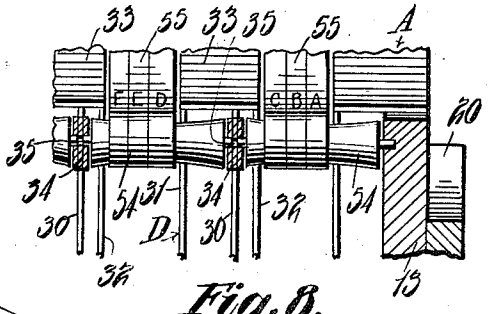


Fig. 8.

Witnesses

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UNITED STATES PATENT OFFICE.

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MECHANICAL BOOK.

1,090,502. Specification of Letters Patent. Patented Mar. 17, 1914.

Application filed April 12, 1913. Serial No. 760,663.

To all whom it may concern:

Be it known that I, WILLIAM H. ROBINSON, a citizen of the United States, residing at Paris, in the county of Bourbon, State of Kentucky, have invented certain new and useful Improvements in Mechanical Books; 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.

This invention relates to mechanical books.

The object of the invention resides in the provision of a mechanical book which will serve all the offices of the ordinary bound book and which is particularly adapted for use in lieu of ordinary bound books of the lexicon class.

A further object of the invention resides in the provision of a mechanical book which embodies a plurality of webs, the ends of which latter are adapted to be wound upon and unwound from suitable reels so that the web may be moved beneath a predetermined observation point to expose to view any desired characters or words imprinted upon the web.

A still further object of the invention resides in the provision of a mechanical book which is so constructed and arranged as to permit the various parts thereof to be disassembled and assembled with ease and facility.

Another object of the invention resides in the provision of a mechanical book in which any desired web may be removed and a new web supplied in lieu thereof without in any way disturbing the remaining webs.

Another object of the invention resides in the provision of a mechanical book which will be simple in construction, easily operated, artistic in appearance and which may be readily associated with any desired support such as a desk or table.

With the above and other objects in view the invention consists in the details of construction and in the arrangement and combination of parts to be hereinafter more fully described and particularly pointed out in the appended claims.

In describing the invention in detail reference will be had to the accompanying drawings wherein like characters of reference denote corresponding parts in the several views, and in which—

Figure 1 is a plan view of the improved mechanical book with a portion of the top broken away; Fig. 2, a section on the line 2—2 of Fig. 1; Fig. 3, a view similar to Fig. 2 showing the reel carrier adjusted to reverse the direction of movement of the web with respect to the direction of movement of the web which would result from the operation of the device with the parts in the position shown in Fig. 2; Fig. 4, a vertical section of the invention; Fig. 5, a horizontal section of the invention taken just above the plane of the reel carriers; Fig. 6, a detail perspective view of one of the removable partitions; Fig. 7, a detail perspective view of one of the reel carriers; Fig. 8, a section on the line 8—8 of Fig. 1, and Fig. 9, a partial front elevation of the invention.

Referring to the drawings the device is shown as comprising a body or casing A which includes a bottom 10, a front wall B, a rear wall 11, and side walls 12 and 13. The front wall B comprises upper and lower sections 14 and 15 respectively, the latter being hingedly connected to the bottom 10 for outward swinging movement, while the former is supported upon the upper edge of the lower section held in place in a manner that will hereinafter appear. The rear wall 11 and the side walls 12 and 13 are all hingedly connected to the bottom 10 so as to be capable of an outward swinging movement when it is desired to disassemble the device. The side member 13 has mounted in its front and rear edges respectively eyes 16 with which are adapted to be engaged hooks 17 pivotally mounted on the section 14 and on the rear wall 11 and whereby the side wall 13 is held in proper assembled relation to the front wall B and rear wall 11. Likewise the side wall 12 has mounted in its front and rear edges eyes 18 which are detachably engaged by hooks 19 pivoted on the section 14 and on the rear wall and whereby the side wall 12 is held in proper assembled relation to the front and rear walls of the body. The front, rear and side walls of the body A have secured thereto strips 20 which support a removable top C. This removable top C includes a glass pane 21 whereby certain parts mounted in the in-

terior of the body may be at all times observed.

It will be noted that the front wall B is of less height than the rear wall 11 while the upper edges of the side walls 12 and 13 are inclined to correspond with the difference in height of the front and rear walls and that the top C is so constructed that the pane 21 will partake of the inclination of the upper edge of the side walls 12 and 13 to permit observation of certain parts mounted within the body of the device without the necessity of leaning over the top thereof to get the proper view. Mounted on the inner side of the side wall 12 are upper and lower parallel spaced guide rails 22 and 23, said rails being disposed transversely of the side wall 12 and with the rail 23 positioned above the upper edge of the section 15 of the front wall B. Mounted on the inner face of the side wall 13 are upper and lower guide rails 24 and 25 disposed in spaced relation to each other and positioned transversely of said side walls with the lower guide rail 25 disposed above the upper edge of the section 15. Mounted on the inner side of the rear wall 11 are equidistantly spaced pairs of vertical rails 26 and 27, while corresponding equidistantly spaced pairs of vertical rails 28 and 29 are secured against the inner side of the front wall B. Slidably and removably mounted between corresponding rails 26—27 and 28—29 are similar partitions D. Each of these partitions D comprises a central plate 30 and side plates 31 and 32 all of which are connected together at their upper edges by a top member 33. The central plate 30 has its front edge confined between the rail 28 and 29 and its rear edge confined between the rails 26 and 27. The upper end of the central plate 30 is extended at the front and rear to form ears 34 provided respectively with perforations 35 for a purpose that will presently appear. These ears 34 extend over and rest upon the upper edge of the rear wall 11 and the upper edge of the section 14 of the front wall respectively. The side plates 31 and 32 terminate at their lower ends a considerable distance inwardly of the central plate 30 and are secured respectively against guide rails 36 mounted on opposite sides of the plate 30 and disposed transversely of the partition and in the same horizontal plane with the rails 22 and 24 carried by the side walls 12 and 13 respectively. The plates 30, 31 and 32 are provided with registering central openings 37 which merge at their upper ends in alined vertical slots 38 which intersect the top 33. Mounted upon the upper side of certain of the rails 36 is a bar 39 provided centrally with a recess 40 for a purpose that will presently appear, said recess being disposed in vertical alinement with the slots 38. Mounted against each side of the plate 30 is a guide rail 41 disposed beneath and parallel to the guide rail 36 and in the same horizontal plane as rails 23 and 25 carried by the side walls 12 and 13 respectively.

Bearing in the recesses 40 and extending through suitable openings in the side walls 12 and 13 is an operating shaft 42 which has fixed on the end thereof adjacent the side wall 13 a crank shaft 43 through the medium of which said shaft is adapted to be rotated. Fixed on the shaft 42 is a plurality of gears 44 disposed respectively in the plane of the plate 31 of each partition D. Slidably mounted between adjacent partitions D and between the side walls 12 and 13 and the partitions D adjacent thereto are reel carriers E. Each of these reel carriers E comprises side members 55 and front and rear members 46′ and 47′ respectively. Journaled between the side members 25 are spaced reel shafts 46 and 47 which have fixed thereon respectively gears 48 and 49 adapted to be brought selectively into mesh with a respective gear 44 by sliding the reel shaft carrier forwardly and rearwardly as will hereinafter appear. Rotatably mounted in the front member 46′ of each reel shaft carrier is the inner end of an operating handle 50 which passes through a suitable opening in the section 14 and has fixed on the outer end a cross arm 51. The reel shaft carrier E which is disposed between the side wall 12 and the adjacent partition D is slidably mounted between the rails 22 and 23 and between the rails 36 and 41, while the reel shaft carrier disposed between the side wall 13 and the adjacent partition D is slidably mounted between the rails 24 and 25 and the rails 36 and 41. Those reel shaft carriers E disposed between adjacent partitions D are slidably mounted between the rails 36 and 41 carried by respective partitions. Mounted in the section 14 on opposite sides of each operating handle 50 are set screws 52 and 53 respectively which can be adjusted so as to move their heads toward and away from the section 14. The set screw 52 is adjusted so as to dispose its head inwardly of the head of the said screw 53 and when the operating handle is positioned so as to dispose the ends of the cross arm the same distance from the heads of the screws 52 and 53 neither gears 48 or 49 mounted on the corresponding reel shaft carrier will be positioned in mesh with adjacent gear 44 of the shaft 42. However, when the operating handle 50 is moved so as to position one end of the cross arm 51 against the inner side of the head of the screw 52 the gear 49 will be moved into mesh with the adjacent gear 44. Again if the operating handle 50 is moved so as to position one end of the cross arm 51 against the outer side of the head of the screw 53 the

gear 48 will be moved into mesh with the adjacent gear 44.

Journaled between adjacent ears 34 and between the side walls 12 and 13 and adjacent ears 34 are jockey rollers 54. Trained over each pair of corresponding front and rear jockey rollers 54 is a web 55 which has imprinted thereon the desired characters or words. The ends of this web 55 are secured to the shafts 46 and 47 respectively which are disposed between the same partition as the web. By this construction it will be apparent that by moving the gear 49 into engagement with the gear 44 and then rotating the shaft 42 the web 55 can be moved in one direction to bring certain characters or words thereon to view beneath the pane 21 and that by shifting the carrier E to bring the gear 48 into engagement with the gear 44 and continuing to rotate the shaft 42 in the same direction the web can be moved in the opposite direction. It will be noted that during this operation the web 55 is wound upon and unwound from the shafts 46 and 47 as will be obvious.

It will be apparent from the construction heretofore described that any of the webs 55 can be operated without operating the remainder of said webs and it will be further apparent that the characters or words imprinted upon the web may be varied to suit the particular purpose the device is designed to serve. Each of the webs 55 is formed in two sections connected together by a suitable releasable fastening device 56 whereby the sections of the web may be separated to permit its removal and the removal of the carrier E with which it is associated for the purpose of supplying a new web without disturbing the remaining similar parts of the device.

It will be obvious that by removing the sections 14 and releasing the fastening 56 any of the carriers E together with its associated web may be readily removed from the device. It will be further obvious that by swinging the side walls 12 and 13 outwardly to disengage same from the ends of the shaft 42, said shaft can be raised upwardly out of the recess 40 until the gears 44 aline with the openings 37 when the shaft can be entirely removed by longitudinal movement thereof. After the shaft 42 and the carriers E have all been removed it will be apparent that the partitions D can be readily disengaged and the entire device disassembled.

What I claim is:—

1. A device of the character described, the combination of a casing, a plurality of spaced transverse partitions in said casing, an operating shaft journaled longitudinally of the casing and passing through said partitions, a plurality of gears fixed on said shaft and corresponding in number to the number of partitions, a frame slidably mounted between each pair of adjacent partitions, a pair of reel shafts journaled in each frame, a web having its ends secured to respective reel shafts, said web being movable between adjacent partitions at the top of the latter, and gears fixed on the reel shaft of each frame respectively and adapted to be moved selectively into mesh with the adjacent gear on the operating shaft by sliding a respective frame in opposite directions.

2. In a device of the character described, the combination of a casing, a plurality of spaced removable transverse partitions in said casing, an operating shaft journaled longitudinally of the casing and passing through said partitions, a plurality of gears fixed on said shaft and corresponding in number to the number of partitions, a frame slidably mounted between each pair of adjacent partitions, a pair of reel shafts journaled in each frame, a web having its ends secured to respective reel shafts, said web being movable between adjacent partitions at the top of the latter, and gears fixed on the reel shaft of each frame respectively and adapted to be moved selectively into mesh with the adjacent gear on the operating shaft by sliding a respective frame in opposite directions.

3. In a device of the character described, the combination of a casing, an operating shaft rotatably mounted therein, a gear mounted on said shaft, a frame slidable in the casing, a pair of reel shafts journaled in said frame, a web having its ends secured to respective reel shafts, gears fixed on said reel shafts respectively adapted to be moved selectively into mesh with the gear on the operating shaft by sliding said frame in opposite directions, an operating handle secured to the frame and extending through an opening in one wall of the casing, a cross arm on said handle, and stops adjustably mounted on the wall of the casing for engagement with said cross arm respectively to determine the correct positions of the sliding frame to effect the desired meshing relation of the gears on the reel shaft with the gear on the operating shaft.

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

WILLIAM H. ROBINSON.

Witnesses:
CLIFTON AMSPARGER,
T. J. SMITH.