May 12, 1959 F. K. STORM, JR., ET AL 2,885,806

AUTOMATICALLY ADJUSTABLE PAGE TURNER

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FIG. 1.

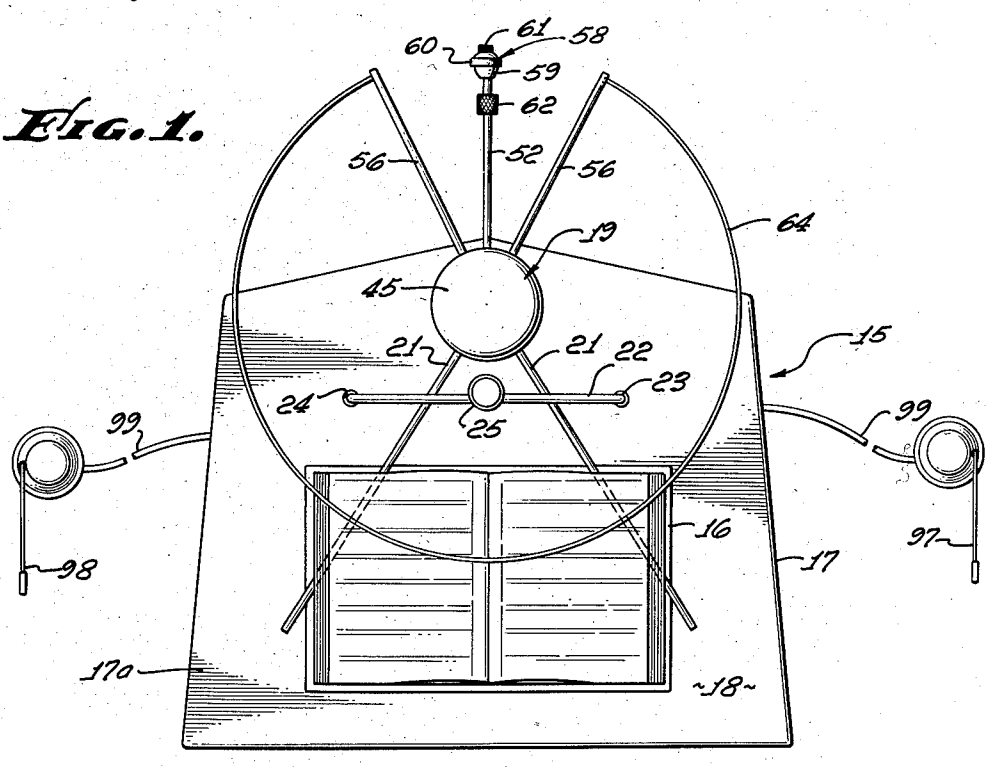


FIG. 2.

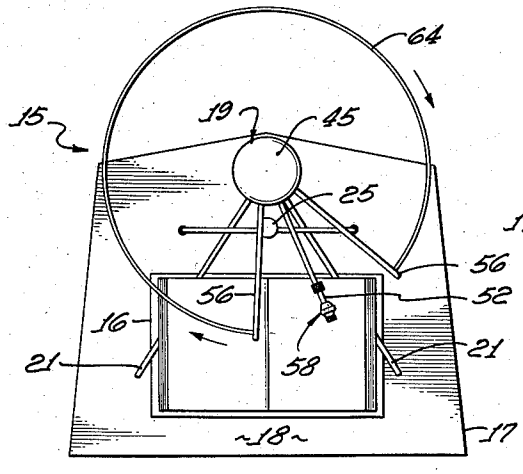
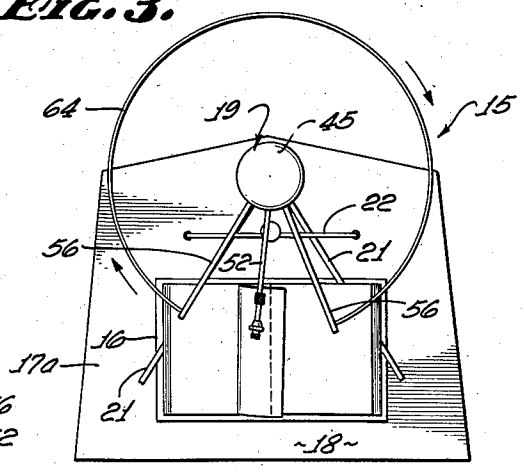


FIG. 3.



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FIG. 4.

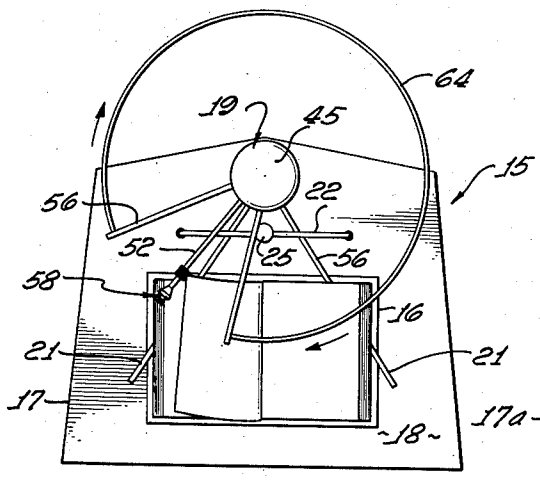


FIG. 5.

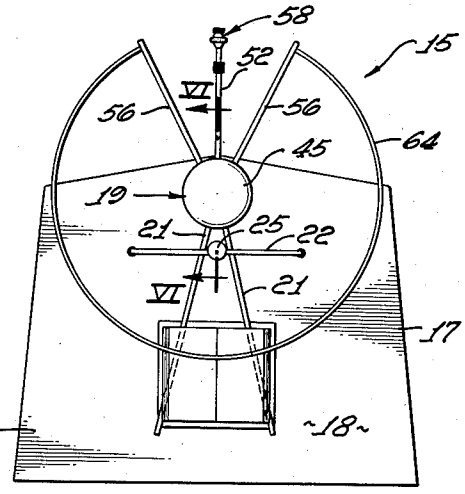
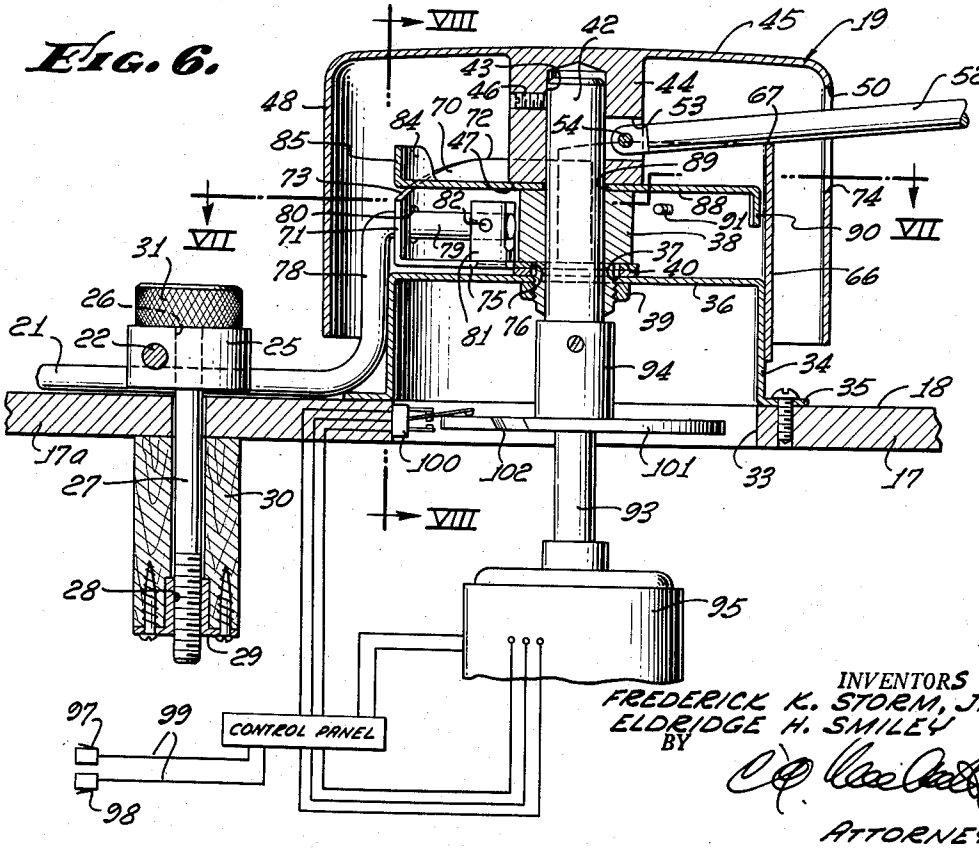


FIG. 6.



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FIG. 7.

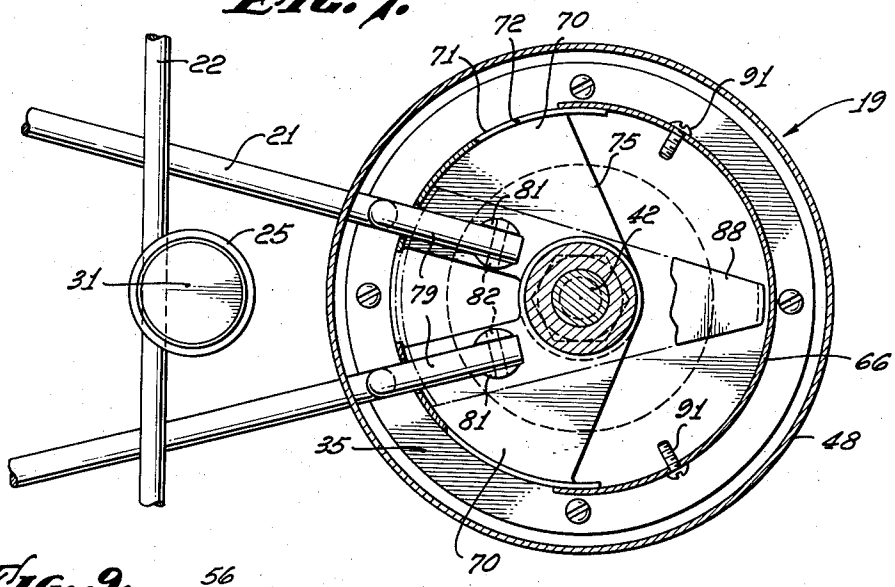


FIG. 9.

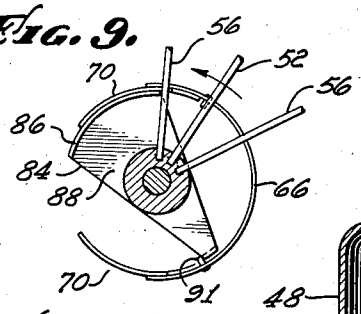


FIG. 8.

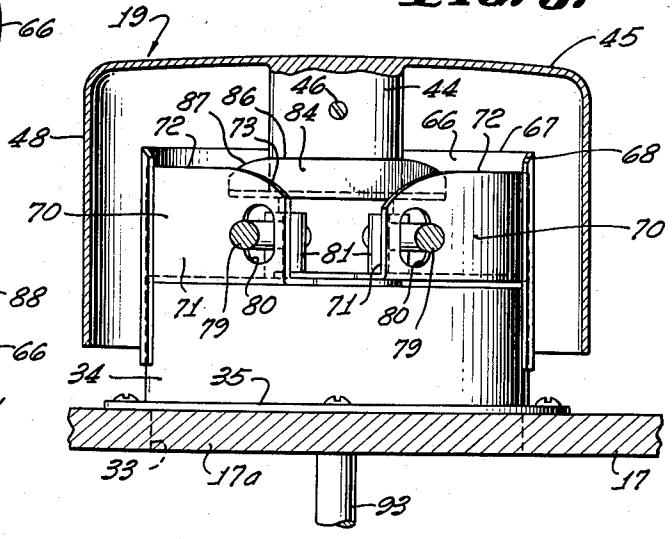


FIG. 10.

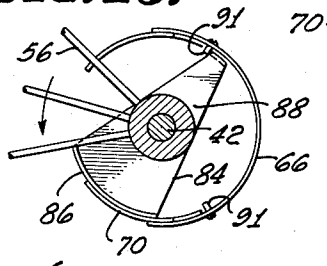
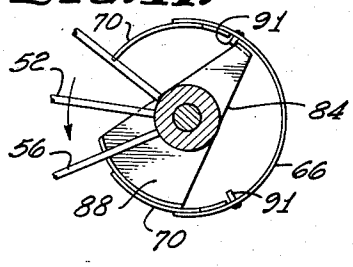


FIG. 11.



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AUTOMATICALLY ADJUSTABLE PAGE TURNER

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Application May 13, 1957, Serial No. 658,780

15 Claims. (Cl. 40—104)

This invention relates to a means for automatically and mechanically turning pages of an open book, magazine or other bound, printed material. More particularly, this invention relates to an improved apparatus adapted to be operated by an incapacitated, immobilized individual, such as a polio patient, unable to use his hands to turn book pages, but at least capable of moving some portion of his body a slight distance. The present invention is an improvement of a page turner apparatus described and claimed in a co-pending application Serial No. 355,550, filed May 18, 1953, now Patent No. 2,791,847 issued May 14, 1957, in the name of Ernest F. Hagman.

In the said co-pending application, a page turner apparatus has been described in which a page turner arm is swingably movable across opened pages of a book in order to turn a page. Since books and magazines are of different sizes and widths, adjustment must be made of guide means for the page turner arm so that a page-contacting element strikes a page to be turned at a particular spaced distance from the edge of the page to most effectively turn a page. In the apparatus of the co-pending application, such adjustment was manually made by relatively rotating a pair of circular, concentric cam guide elements defining a depressed path for the page-turning arm. Each time a book of different size was used, the guide elements were separately manually adjusted. Moreover, it has been found that such adjustment of the guide elements was not necessarily symmetrical with respect to a line passing through the axis of the page turner means and the center line or binding line of an opened book. It was found desirable to cause the page-contacting element to lift or depart from the page being turned at a preselected distance after it had passed the center of the opened book. The present invention is particularly directed to a page turner means of a type such as described in said co-pending application, but in which improvements have been made therein so that the adjustment of the guide elements for the page turner arm may be automatically made according to the size of a book page and retained by book hold-down means cooperable with the guide elements.

The present invention also contemplates an improved, novel guide means for the page turner arm so that the page turner arm will be lifted from a page being turned at a preselected point with respect to the center line of a book regardless of direction of rotation.

The primary object of this invention, therefore, is to disclose and provide an apparatus for selectively turning pages of an open book by mechanical means electrically actuated and having automatic adjustment means for the point of contact of a page turner arm with a page to be turned, and the point of departure from a page being turned. An object of the present invention is to disclose and provide an apparatus for turning pages of a book wherein positioning of book-retaining means on a book support means automatically adjusts the path of a page-turning arm to the page size of a book.

Another object of this invention is to disclose and provide a page-turning means wherein cam guide means for a page turner arm is not only automatically adjusted to the page size of a book, but is readily and conveniently clamped and held in position.

A still further object of this invention is to disclose and provide a page-turning means wherein the adjustment of the cam guide elements for the page turner arm includes book hold-down rods or retainer arms which are clamped in position by pressure means.

Still another object of this invention is to disclose and provide a page turner means including follower arms for a page turner arm which are operable to smoothly complete turning of a page and to press said page into ultimate turned position.

A general object of this invention is to disclose and provide a page turner means which includes a simple and inexpensive construction which may be readily and easily manufactured and assembled.

Other objects and advantages of this invention will be readily apparent from the following descriptions of the drawings in which an exemplary embodiment of this invention is shown.

In the drawings:

Fig. 1 is a top plan view of a page turner apparatus embodying this invention, the page turner arm being in neutral inoperative position.

Fig. 2 is a smaller top plan view of the means shown in Fig. 1 illustrating the page turner arm rotated into contact with a book page.

Fig. 3 is a view similar to Fig. 2, showing a further step in the turning of a page.

Fig. 4 is a view similar to Figs. 2 and 3, showing the page turner arm leaving the page to be turned and a follower arm smoothing the page.

Fig. 5 is a top plan view similar to Fig. 1, showing a book of reduced size on the page turner apparatus.

Fig. 6 is an enlarged fragmentary sectional view taken in a vertical plane bisecting the page turner apparatus, the section being taken in the plane indicated by line VI—VI of Fig. 5.

Fig. 7 is a transverse horizontal sectional view taken in the planes indicated by line VII—VII of Fig. 6.

Fig. 8 is a vertical sectional view taken in the plane indicated by line VIII—VIII of Fig. 6.

Fig. 9, Fig. 10 and Fig. 11 are schematic plan views showing successive steps in a positioning of a floating cam member to cause a page turning arm to depart from a page being turned at a select point in rotation of the arm.

An exemplary apparatus for turning pages of an open book embodying this invention is generally indicated at **15** in Fig. 1. A book **16** may be supported on a book support means **17** which may comprise a flat table top **17***a* of any suitable material providing a top flat surface **18** of an antifriction material such as cork or suitable composition. The table top **17***a* may be of any suitable shape and configuration and may be supported by legs or other support means (not shown) in a suitable position relative to a patient. The book **16** is positioned on the lower central portion of surface **18** and centered below a page-turning means generally indicated at **19**, centrally positioned adjacent the top edge of the book support means **17**.

Means for holding the book **16** against movement when positioned on the surface **18** may comprise a pair of book hold-down or retainer rods or arms **21** radially extending downwardly in divergent relation from page turner means **19** and movable relative to each other about the axis of rotation of the page turner means **19** as later described. When a book is properly positioned in the lower central portion of the top surface **18** with

its center line or binding line aligned with the axis of the page turner means, the hold down rods **21** may be positioned over opened cover portions of the book. The divergence of the book hold down rods **21** should permit the rods to respectively intersect the top edge of the book cover in a zone varying between about one quarter and one third of the width of a page to position guide means for the page turner means as later described.

The book hold-down means may also comprise a transverse pressure member **22** provided with depending bent ends **23** which are slidably received in spaced bores **24** provided in table top **17***a*. The pressure member **22** overlies the hold-down rods **21** and may pass through a centrally disposed pressure-transmitting collar **25** provided with an axially offset transverse bore through which the pressure member **22** extends. The pressure collar **25** is also provided with an axial bore **26** through which a pressure-applying bolt **27** slidably passes. The bolt **27** is provided with threaded engagement at **28** with a threaded nut **29** carried by a transverse stiffening member **30** secured to the bottom surface of table top **17***a*. Tightening of bolt **27** urges the transverse pressure-applying member **22** downwardly so as to clamp the book hold-down rods **21** against top surface **18** of the table top **17***a*. Thus the book is securely held against movement.

The page turner means **19** may be best seen in Figs. 6, 7 and 8. Table top **17***a* may be provided with an enlarged circular opening **33** positioned below page turner means **19** for accommodation of upwardly extending drive means therefor. An inverted cup-shaped base member **34** may be provided with an out-turned peripheral flange **35** bearing against margins of said opening **33** and secured thereto in any suitable manner by screw bolts. A top wall **36** of the base member **34** may be provided with an axial opening **37** which is adapted to receive a non-rotatable axially ported bearing member **38**, said bearing member having a threaded portion extending beneath top wall **36** and engaged by a threaded securing nut **39**. The bearing member **38** is provided with a downwardly facing shoulder **40** seated on wall **36**. A top drive shaft portion **42** extends through the bore of the bearing member **38** and above the top face thereof to be received within a downwardly opening aligned bore **43** provided in a central depending internal hub **44** of relatively thick metal section carried by an inverted rotatable cup-shaped cover member **45**. A set screw **46** secures hub **44** on portion **42** against relative rotation therewith. The bottom face **47** of hub **44** may be spaced above bearing member **38**. The cover member **45** is provided with a depending circumferential or cylindrical cover wall **48** which terminates in spaced relation above surface **18** and which serves to conceal the mechanism of the page turner means.

The cover wall **48** may be provided with three circumferentially spaced vertically elongated slots **50** adjacent the top portion thereof. The center slot **50** may receive therethrough a page turner arm **52** which may be pivotally connected at its inner end to hub **44** in a recess **53** provided therein by a transverse horizontal pivot pin **54**. Pin **54** extends through a port in the inner end of arm **52** so as to permit vertical pivotal movement of page turner arm **52**. Each of the side slots **50** may receive therethrough a follower arm **56** which may be similarly pivotally mounted in hub **44** for movement about a horizontal axis so as to permit vertical movement of the follower arms **56**. The pivotal mounting of inner ends of arms **56** is similar to that of the page turner arm **52** and is not shown.

The page turner arm **52** is provided at one end with a page-contacting element **58** comprising a spherical element **59** having wrapped around a transverse spherical zone a band, tape or ribbon **60** of suitable material having a sticky or tacky surface. The tape **60** may be a well-known brand of masking tape or may include a tape having coating of liquid latex. The element **58**

may be adjustably positioned about the axis of arm **52** by loosening a knob **61** so that when a surface area of tape **60** becomes coated, glazed, dirty or slippery from repeated contact with pages, the element **58** may be slightly turned so as to position a clean surface area of tape **60** for engagement with a page.

The page turner arm **52** may also include a weight **62** slidably adjustably positioned along the length of arm **52** so as to selectively vary the pressure with which the page-contacting element **58** contacts a page. It is understood that pages of paper stock material of different weight, finish, and composition may require different pressure contact of page-turning element **58** so that positive effective pickup of the page will be made by element **58**.

The angularly spaced follower arms **56** on each side of arm **52** are provided to smoothly complete the turning of a page partially lifted and folded by the page-turning arm. The follower arms **56** in this example may be provided with plain ends interconnected by a partially circular page hold-down wire element **64**, said wire element **64** being of relatively thin circular section and being adapted to continuously overlie upper portions of opened pages of a book so as to hold the pages in opened position against unwanted turning thereof caused by air currents or stiffness of the binding of the book. The follower arms **56** are mounted as described above for pivotal movement at their inner ends about horizontal axes in hub **44** of cover **45**.

Guide means for page turner arm **52** and follower arms **56** are provided for causing respective arms **52, 56** to vertically move in a variable path so as to contact a page at a selected point in said path and so as to depart from a page at a preselected point in the path to accomplish the turning of a page. The guide means also provide a guide for properly positioning the wire element **64** in page-holding-down position after a page has been turned.

The guide means, in this example, may comprise a fixed generally semi-cylindrical wall **66** secured as by welding to base member **34**, the wall **66** being disposed opposite to the position of a book **16** and providing a top arm edge **67**. End sections of cam edge **67** smoothly curve downwardly as at **68**. Cam edge **67** supports the follower arms **56** and page turner arm **52** in slightly upward inclined positions as shown in Fig. 6, so that the wire element **64** presses downwardly against the pages of a book in page-hold-down position.

The guide means may also comprise a pair of cam segments or elements **70**, each cam segment comprising an upstanding arcuate wall portion **71** having an outer diameter slightly less than the inner diameter of the wall **66** to permit movement of portion **71** inwardly of wall **66**. The wall portion **71** is provided with a top cam edge **72**, the major portion of which lies in a plane spaced below the plane of cam edge **67** and its downturned ends **68**. Adjacent opposed ends **73** of edges **72** may also be smoothly curved downwardly, the lowermost end of each downwardly curved cam edge **73** lying below the bottom edge **74** of slot **50** in cover wall **48** so that the arms **52, 56** may be supported by edge **74** in lowermost position and cannot drop below cam edge **73**. It may be that edge **74** of slot **50** is low enough so that the arms **52, 56** will just contact top surface **18** of the book support means so that even when a magazine with a thin cover sheet is held on surface **18**, the last page thereof may be contacted and turned by arm **52**.

The cam segments **70** each include a bottom segmental wall portion **75** extending inwardly and having an opening **76** therein to receive a reduced portion of bearing member **38** below shoulder **40** so as to provide free pivotal movement of segments **70** about the pivotal axis of the drive shaft portion **42**. As seen in Fig. 6, each segment **70** is movable relative to the other about said axis.

The relative position of cam segments **70** about said axis is automatically adjusted when a book is properly

centrally positioned on surface 18 and book-hold-down rods 21 are secured in proper book-retaining position as described above. The inner end of each hold-down rod 21 is provided with an upwardly-turned portion 78 extending upwardly beneath wall 48 of cover 45 and terminates in a bent end portion 79 which extends horizontally through a vertically elongated slot 80 in upstanding wall 71 of cam segment 70 adjacent to the down-turned cam edge 73. End portion 79 is mounted for pivotal movement about a horizontal axis by a pivotal connection 82 to an upstanding lug 81 carried on wall portion 79. Thus when the book hold-down rods 21 are adjusted across the inner surfaces of a book cover so that they intersect the top edge of the book cover at points between one-fourth and one-third of the width of the respective book pages, the cam segments 70 are automatically relatively adjustably moved about the pivotal axis of the page turner means so as to space cam segments 70 in a predetermined relation.

This automatic spacing of cam segments 70 provides the top cam edge 72 and 73 to be so positioned with respect to the book that when the page turner arm 52 is guided therealong, it will be depressed downwardly so that page-contacting element 58 will strike the top surface of a page to be turned at a point in the upper half of a page and adjacent the free edge margin thereof as seen in Fig. 2. It should be noted that both cam segments 70 must be so positioned with respect to the book so that if it is desired to turn back a page, the other cam segment 70 will guide the page-turning arm into contact with the page to be turned back at a similar corresponding point. There is thus provided through top cam edges 67, 72 and 73, a cam arrangement providing a predetermined pathway for downward movement of the page turner arm 52 which is adjustable automatically to the size of a book or magazine positioned and retained on surface 18 by the book hold-down means.

It has been found desirable that the page-contacting element 58 depart from a page being turned at a selected zone lying past the center line of the book or of the binding of the book so as not to cause creasing or wrinkling of a page being turned. Departure of the page-turning arm 52 at this zone also facilitates smoothening of the page being turned by the succeeding follower arm 56 and wire element 64.

The guide means may also include a floating cam member 84 provided with an upstanding arcuate wall 85 presenting a top cam edge 86 of selected length and including downwardly curved end cam edges 87 which terminate below cam edge 72 of cam segments 70. The cam edge 86 lies above cam edge 72 and slightly below cam edge 67. The outer diameter of wall 85 is slightly less than the inner diameter of wall 71 of cam segment 70 so that the wall 85 may move within wall 71. The cam member 84 includes a generally elongated triangular shaped bottom wall portion 88 provided centrally with a port 89 to freely receive and turn about upper drive shaft portion 42, said wall portion 88 being supported on top of bearing member 38 below the bottom face of hub 44. The wall portion 88 extends past the pivotal axis of the page-turning means into adjacent relation with semi-circular wall 66 and may be provided with an end depending finger 90. Finger 90 is adapted to selectively engage stop members 91 comprising threaded screws threaded in wall 66 in circumferential spaced relation. Stop members 91 limit turning of floating cam member 84 to preselected positions relative to the pivotal axis and center line of the book.

Cam member 84 is first contacted by the follower arm 56 leading page turner arm 52 when it is first rotated to turn a page of a book. This arm 56 pushes cam member 84 until finger 90 engages stop 91. When cam member 84 is positioned against stop 91, the page turner arm 52 is caused to lift from a partially turned page at a selected point past the center line of the book by engagement of arm 52 with cam edges 87 and 86. The follower arms 56 likewise are lifted from the page at that particular zone as later described.

Means for rotating the cover member 45 with hub 44, and the arms 52 and 56 may comprise a reversible fractional horse-power electric motor 95 supported beneath the top 17 in any suitable well known manner (not shown). The motor 70 drives the drive shafts 93 and 42 through a suitably selected gear train (not shown) which may reduce the revolutions per minute of the motor output to approximately six revolutions per minute.

Means for controllably reversing the direction of rotation of shaft 93 and drive shaft portion 42, and arms 52, 56 so as to turn a page either forwardly or backwardly may comprise a pair of normally-open momentary-contact micro-switches 97 and 98 connected respectively to the ends of a pair of relatively long leads 99 so that each micro-switch 97, 98 may be conveniently placed adjacent a movable body part of a patient so that upon slight movement of said body part a selected switch will be momentarily closed. Each switch 97, 98 may be mounted in a suitable casing from which a switch-contact arm may extend. The leads 99 extend to a control panel diagrammatically shown which may provide well known electrical connection to the motor 95 and to a reversing switch means 100 cooperable with a disc 101 provided with a slot 102. The exemplary electrical control means is similar to that shown and described in said co-pending application and may comprise well known electrical control means. The reversing switch means together with the rotatable disc 101 and slot 102 cooperate to limit rotation of shaft 93 and drive shaft portion 42 to one revolution. It is understood that other suitable electrical control means may be employed to limit rotation of the arms 52, 56 to one revolution and such does not form part of the present invention.

Operation of the page turner means of this invention is best shown by a consideration of Figs. 1 to 5 inclusive. A properly positioned book as shown in Fig. 1 will have the center line of the opened book vertically aligned with the axis of the page turner means 19. Hold-down rods 21 will be divergently positioned so as to intersect the top edges of the cover portions of the book in zones between about one-fourth and one-third of the width of the cover portions and inwardly of the side edges of the cover portions. When the hold-down rods 21 are so positioned the rods may be simultaneously clamped against surface 18 to retain the selected position by tightening knob 31 to apply clamping pressure through the transverse rod 22 to hold-down rods 21.

Upon actuation of the drive means by closing one switch 97, the page turner means 19 including cover 45 commences to rotate with the follower arms 56 and page turner arm 52 slidably moving along cam edges 67 and 72. As rotation brings the lead follower arm 52 to the righthand page of the book, the arm moves downwardly along cam edge 73 until the end of the follower arm contacts the page in the immediate vicinity of and above one of the hold-down rods 21 and applies a slight pressure to the page and the pages beneath the top page. This slight pressure helps to break the tendency of the pages to cling together and particularly to separate the top page from the page beneath, but does not turn the page. At about the same time the lead follower arm 56 abuts against an edge of the floating cam member 84 (if cam member 84 is out of position) and causes member 84 to rotate with the lead follower arm. When the floating cam member 84 is rotated into abutment with a stop 91, the lead follower arm 56 has passed over the center line of the book and is caused to lift by engagement of the arm 56 with the cam edge 87, cam edge 86 and ultimately cam edge 67. The lifting of arm 56

off the page of the book is at a zone predetermined by positioning of the cam member **84**.

The page-contacting arm **52** follows the lead follower arm **56** at a selected spaced interval and since arm **52** is not connected to a wire element **64**, arm **52** is urged into pressure contact with a page to be turned, the amount of such pressure contact being determined by the position of adjustable weight **62**. The non-rotatable page-contacting element **58** and the sticky, tacky surface provided by the tape **60** presses against and frictionally engages the top surface of the page and causes the page to slide relative to the page therebeneath, a folding of the page being turned being illustrated in Fig. 3. Further rotation of page turner arm **52** causes the arm to engage the now positioned floating cam member **84** whereby the page-contacting element **58** is lifted and raised out of contact with the page being turned at the said predetermined zone. The partially folded page tends to expand upwardly as the contacting element **58** is raised. With the page in partially folded upwardly expanding condition as shown in Fig. 3, the succeeding follower arm **56** which has been moved downwardly into sliding contact with the page beneath the page being turned advances to contact the page being turned beneath its fold and to further urge the page to fully turned position. As the succeeding follower arm **56** is lifted at the same point as the page turner arm is lifted, the page hold-down wire element **64** is brought into contact with the page being turned so as to smoothly complete turning of the page. When the page turner arm reaches its top center position, the driving means is de-energized and the wire element **64** lays across the open pages of the book to hold them against unwanted turning.

By actuation of a switch means **98**, a patient may cause the page-turning means to operate in reverse rotation so as to turn back a page. The operation of the cam guide means, follower arms and page turner arm are the reverse of that just described above, the floating cam member **84** being repositioned by the lead follower arm **56** to cause the page-contacting element to disengage from a page being turned back at a similar predetermined departure zone, but located on the other side of the center line of the book.

The improved embodiment of the page-turning apparatus described above provides a simple, positive means for turning pages of an opened book in either direction according to the actuation of the micro-switches **97**, **98**. The initial adjustment of the hold-down rods **21** to the size of a book or page as described above simultaneously adjusts and positions the cam elements **70** for controlling the path of the follower arms and page-turner arm during rotation in either direction so that the page-contacting element will strike a page to be turned at a selected zone. The floating cam member **84** is automatically positioned depending upon direction of rotation of the arms **52**, **56** so that the page-contacting element departs from a page being turned at a preselected zone so as to effectively insure the page being properly turned. It may also be noted that the pivotal connection of the holddown rods **21** to the cam elements permits their ready adjustment to book or magazine covers of varying thickness. The arms **52**, **56** are prevented from moving below can edges **73** by bottom edge walls **74** of the vertical slots **50** in cover **56** so that desired cooperable engagement of the arms with the cam edges is provided.

It will be understood that various other modifications and changes may be made in the cam arrangement for guiding the arms **52** and **56** and for adjusting the relative positions of said cam edges for books or magazines of different size. All such changes and modifications coming within the scope of the appended claims are embraced thereby.

We claim:

1. In an apparatus for turning pages of an open book, the combination of: page turner means including a page turner arm mounted for rotation about an axis; guide means for said arm arranged about said axis and including a pair of relatively movable cam elements, each having a cam edge to cooperably guide said page turning arm, said cam elements being movable about said axis to permit said page turner arm to be lowered at a selected point; and a floating cam member limitedly movable about said axis and positionable to cause lifting of said page turner arm at a preselected point in the rotation of said arm.

2. An apparatus as stated in claim 1 including means on said page turner means to position said floating cam member relative to the direction of rotation of the page turner arm.

3. In an apparatus for turning pages of an open book, the combination of: page turner means including a page turner arm mounted for rotation about an axis; adjustable guide means for said arm arranged about said axis and including a cam element having a cam edge to cooperably guide said arm into engagement with a page to be turned at a selected point in rotation of said arm, said cam element being selectively positionable about said axis, a cam member movably positionable about said axis to cause lifting of said page turner arm out of contact with a page at a preselected point in the rotation of said arm; and means rotatable with said arm and preceding said arm to move said cam member in the direction of rotation of said page turner arm into selected position.

4. In a page-turning apparatus, the combination of: a page turner arm mounted for rotation about an axis for movement over and onto an open page of a book; and guide means for said arm arranged about axis to provide a selected path for said arm and comprising a non-movable partially-circular cam edge for positioning said arm in a non-page-turning portion of its path, a pair of movable cam edges adapted to be adjustably positioned in symmetrical relation to the binding of an open book to vary the commencement of the page-turning portion of the path of said arm in relation to the page size of the book, and a third movable cam edge adapted to be selectively positioned between the positions of the pair of cam edges to end the page-turning portion of said path of said arm at a predetermined point in relation to the direction of rotation of the page turner arm and after the page turning arm has passed said binding.

5. In an apparatus for turning pages to an open book, the combination of: means for supporting a book in opened position; page turner means including a page turner arm mounted for swinging movement in a selected pathway across an open book; adjustable guide means for the page turner arm; means to retain a book in open position on said book supporting means and comprising a pair of retaining members carried by and movably, adjustably positioned in accordance with the adjustment of said guide means; and means to simultaneously secure said retaining members and adjustable guide means in a selected position; said page turner arm being guided in said selected pathway by said guide means and initially striking a page to be turned at the immediate vicinity of one of the retaining members.

6. In an apparatus for turning pages of an open book, the combination of: means for supporting a book in open position; page turner means mounted for swinging movement across an open book; guide means for said page turner means including pivotally mounted relatively movable cam elements; means for retaining a book in open position relative to the page turner means on the book-supporting means and including retaining members, each member being mounted at one end to a respective cam element whereby selective adjustment of the retaining members relative to book page size automatically adjusts the cam elements to guide the page turning means

into preselected contact with a page; and means to secure said retaining members and cam elements in said selected position.

7. In an apparatus as stated in claim 6 including pressure means for clamping the retaining members against a book-supporting means.

8. In an apparatus for turning pages of an open book, the combination of: book support means having a supporting surface; hook hold down means including a pair of arms extending along the supporting surface, a presser member crossing above both of said arms, and means to apply pressure to the presser member to clamp the arms against the supporting surface.

9. In an apparatus as stated in claim 8 including guide means for the transverse presser member in the support means.

10. In an apparatus as stated in claim 8 wherein said retaining arms are pivotally mounted for movement about an axis parallel to the supporting surface.

11. An adjustable guide means for guiding the path of a page turner arm adapted to swing across an open book about a pivotal axis, comprising: a cam element having a cam edge arranged concentric to said axis, said cam element being adjustable about said axis; a floating cam member movable about said axis and provided with a cam edge concentric to said axis; means for positioning said floating cam member depending upon the direction of rotation of said page turner arm; and means to adjust said cam element to vary the space between said cam element and cam member.

12. An adjustable guide means as stated in claim 11 wherein said means to adjust said cam element includes a book-retaining arm pivotally connected to said cam element.

13. An adjustable guide means for a page turner arm comprising: cam means including a plurality of cam elements movable about an axis; means for securing certain of said cam elements in relation to sides of an open book from which a page is to be turned; each of said certain cam elements being positionable in relation to book page size; and one of said cam elements being limitedly and freely movable about said axis and in

relation to said certain cam elements when the latter elements are secure, said limitedly movable cam element being positionable in relation to the direction of rotation of said page turner arm for initially lifting said arm from a page being turned.

14. In an apparatus for turning pages of an open book, including a page turner arm, the combination of: book retaining means including a pair of divergently related book retainer arms, means mounting adjacent ends of said book retainer arms for pivotal movement about an axis parallel to the support surface; means carrying said arm mounting means and pivoted for movement about an axis for moving said arms laterally over said surface into selected spaced relation, said carrying means including cam means for guiding the path of movement of the page turner arm during the page turning portion of travel of said arm; and means to secure said retainer arms in selected position.

15. In an apparatus for turning pages of an open book, the combination of: means for supporting a book in opened position; page turner means including a page turner arm mounted for swinging movement across an open book and about an axis spaced from a transverse edge of said book; adjustable guide means for the page turner arm arranged about said axis; means to retain a book in open position on said book supporting means and including a pair of retaining members carried by and extending from said guide means; said guide means being adjustable to adjust the swinging movement of the page turner arm for books of different size; and means engaging said retaining members to secure said retaining members and adjustable guide means in a selected position.

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