May 8, 1945. S. P. KELSEY 2,375,228

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Fig. 1.

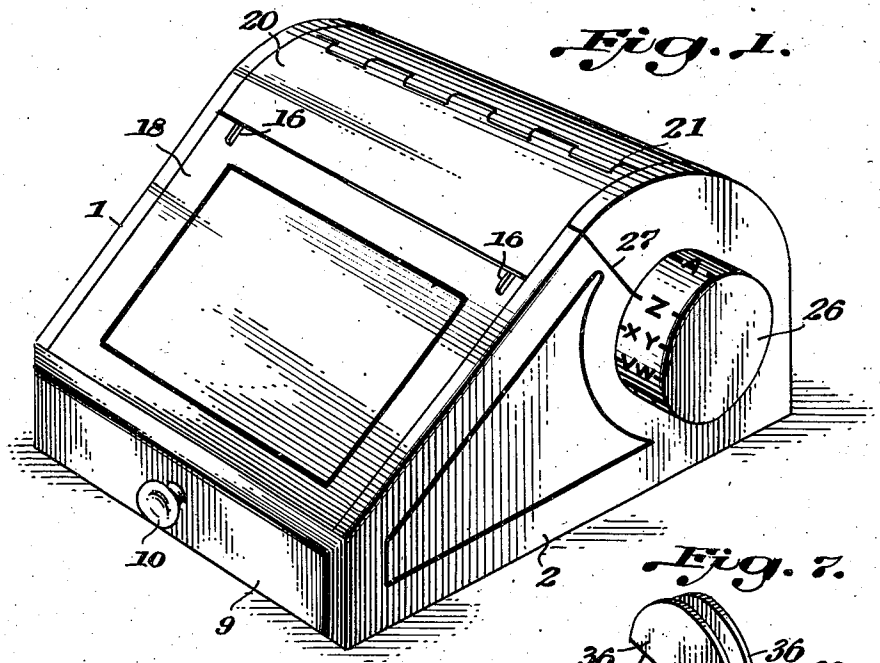


Fig. 7.

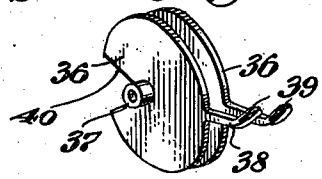


Fig. 2.

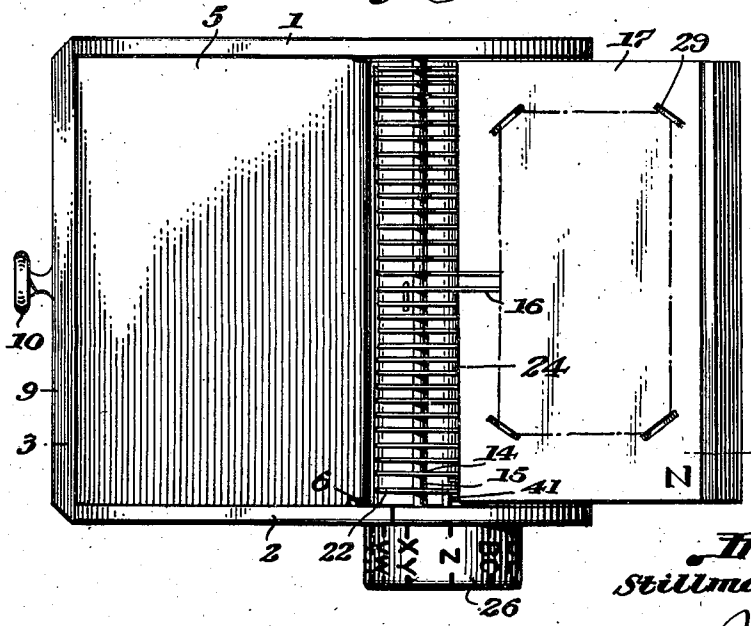
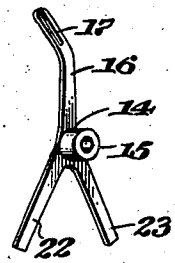


Fig. 8.



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Fig. 5.

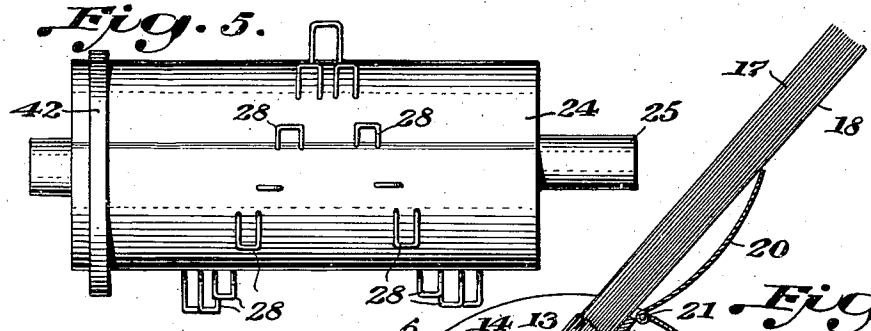
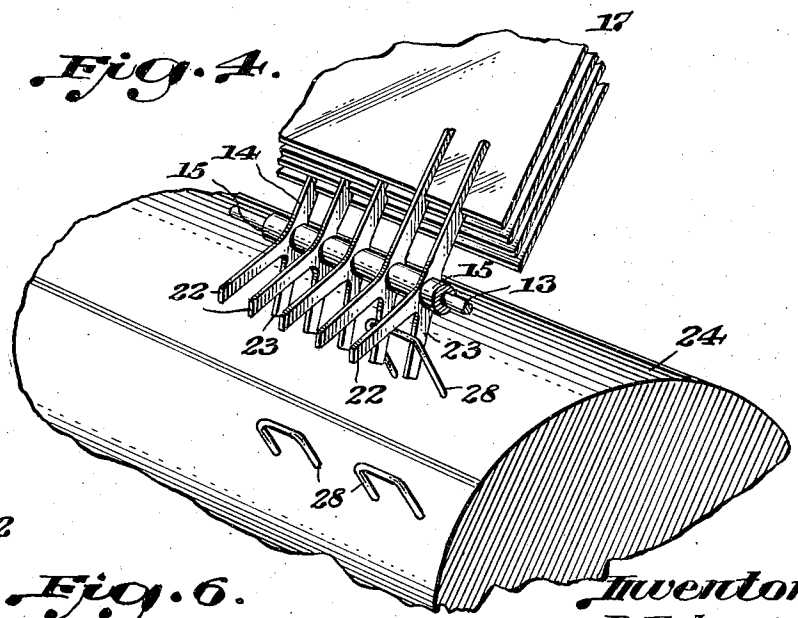


Fig. 3.

Fig. 4.



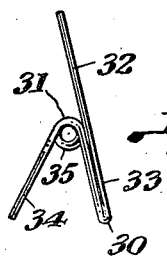


Fig. 6.

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FIG. 9

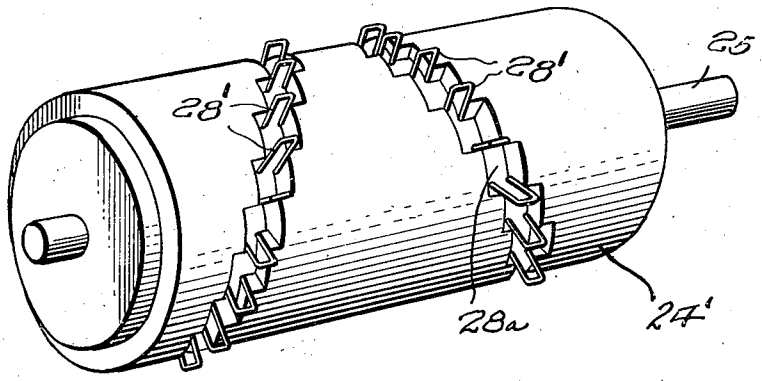


FIG. 10

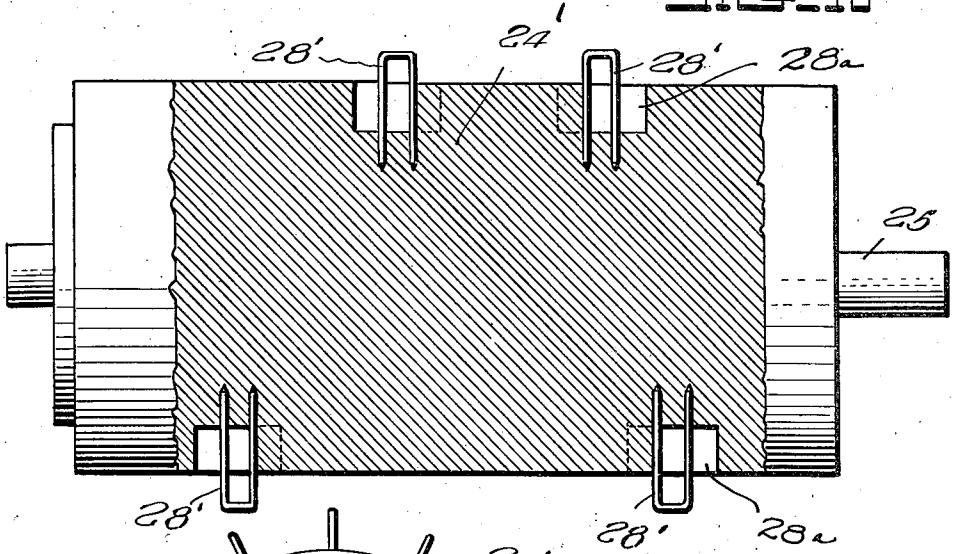
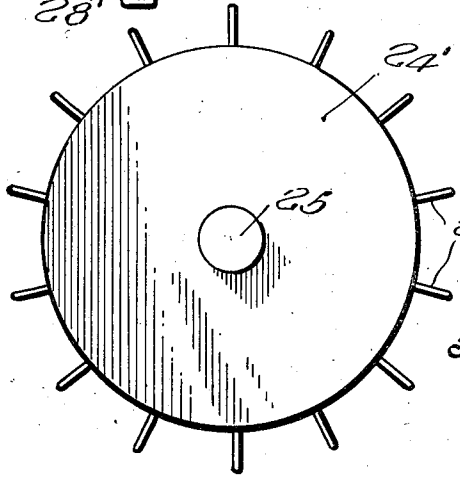


FIG. 11



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Patented May 8, 1945 2,375,228

UNITED STATES PATENT OFFICE

2,375,228

INDEX DIRECTORY

Stillman P. Kelsey, Washington, D. C.

Application October 20, 1941, Serial No. 415,844

16 Claims. (Cl. 40—104)

My invention relates to new and useful improvements in indexing devices or directories, and more particularly to the mechanical or leaf-turning type of device, the primary object being to provide a device of this character capable of being carried on the desk and readily and quickly operated to facilitate the location of names, addresses, material or other data which may be recorded therewithin.

A further object of the invention resides in providing an improved leaf-turning means of simple and inexpensive construction and operation which will quickly and effectively produce the desired results.

Still another object of the invention resides in providing a device which in itself may be utilized to carry data, as well as index such data, or which may be utilized to carry or support cards or other material upon which data may be inscribed.

A still further object resides in providing a leaf or card supporting means which will enable the leaves or cards to be interchanged or replaced as desired.

A still further object of the invention resides in providing a device which is simple and durable in construction, inexpensive to manufacture and one which will be very efficient and useful in operation.

With these and numerous other objects in view, my invention consists in the novel features of construction, combination and arrangement of parts, as will be hereinafter referred to and more particularly pointed out in the specification and claims.

In the accompanying drawings forming a part of this application,

Figure 1 is a perspective view of an indexing device embodying my improvements;

Figure 2 is a plan view thereof with the leaves or cards of the indexing device disposed to their extended or outwardly adjusted positions;

Figure 3 is a vertical section through the device as seen on the line 3—3 of Figure 2;

Figure 4 is an enlarged perspective view, with parts in section and parts broken away, clearly illustrating the details of construction of the leaf-turning mechanism;

Figure 5 is an elevation of the roller or turning means removed from the casing;

Figure 6 is a side elevation of a slightly modified form of the leaf-supporting and turning means;

Figure 7 is a perspective view of a further modified form of leaf-supporting and turning means,

Figure 8 is a perspective view of the preferred form of leaf-supporting means.

Fig. 9 is a perspective view of a modified form of roller.

Fig. 10 is a view showing the roller of Fig. 9 in longitudinal section.

Fig. 11 is an end elevation of the modified form of roller.

In describing the invention I shall refer to the drawings, in which similar reference characters designate corresponding parts throughout the several views and in which the numerals 1 and 2 represent, respectively, the side walls of a casing, said walls being supported on a bottom 3. The upper edges of the side walls 1 and 2 are inclined downwardly toward the forward or front ends thereof. The rear edges of these side walls join with the inclined upper edges through the arcuate formation of said upper edges adjacent the rear ends of the walls, as clearly shown in Figures 1 and 3 of the drawings. A rear wall 4 is provided for this casing or housing which is secured to the side walls and bottom and designed to conform to the curvature of the upper edges at the rear ends thereof, this rear wall terminating at a predetermined point adjacent the top of the casing.

A partitioned wall or plate 5 is hingedly supported between the side walls 1 and 2 on a rod or shaft 6 carried between said walls and normally rests in a plane parallel to and below the plane of the inclined edges of said side walls, being retained normally in this position by supporting strips 7 secured to the inner faces of said side walls, as clearly shown in Figure 3 of the drawings.

A drawer 8 is adapted to slide on the bottom 3 between the side walls 1 and 2, the front wall 9 of said drawer constituting the front wall of the casing, same being provided with a handle 10.

Supported between the side walls 1 and 2, just above the drawer 8 and below the supporting strips 7, is a partition wall 11 which has mounted or formed on the top face thereof a plurality of compartments 12 adapted to receive paper clips or other small office supplies and appliances. Obviously, the drawer 8 may be utilized to support therein a pad or any other device or devices which may be used conveniently in association with an indexing device.

Supported between the side walls 1 and 2, in a vertical plane rearward of the rod 6 and in a horizontal plane above said rod 6, is an additional rod or shaft 13 upon which are loosely and pivotally supported a plurality of substantially Y-

shaped members 14. These Y-shaped members may be stamped from a single piece of metal, as particularly shown in Figure 8 of the drawings, or the same may be made of more than one piece of metal, as may be desired. To space these members 14 apart and assist in the pivotal support of each of said members on the shaft or rod 13, I provide the sleeves 15 which are preferably soldered or otherwise secured to the faces respectively of the members 14, as clearly shown in Figure 8. If desired, however, the sleeves 15 may remain separated from the members 14 to act merely as spacers for the latter.

The one arm of each of said members 14 designated by the numeral 16 is designed to engage a leaf member 17. Various means for securing this arm 16 to a leaf member may be utilized but a simple means for accomplishing the desired end is by providing a wedge-shaped slot 16' in the free end of the arm 16 for receiving therein the edge of a sheet or leaf 17, the latter being formed of cardboard, metal, celluloid or any other desired material, although cardboard is preferable in view of its slight cost and light weight.

I provide a minimum of twenty-six such members 14, two being provided for each sheet or leaf 17 and each face of each sheet or leaf is lettered consecutively with the letters of the alphabet. The arms 16, for instance, of the outermost members 14 on the shaft 13 engage a sheet or leaf which has one face thereof lettered A and the other face thereof lettered B. The second from the outermost members 14 on the shaft 13 have the arms 16 thereof engaged with the second sheet or leaf, the latter having its faces lettered, respectively, C and D. In other words, each sheet or leaf is engaged or supported by a pair of members 14, the last sheet or leaf being supported by the two innermost members 14, as best illustrated in Figure 4 of the drawings.

A top or cover sheet 18 is preferably also provided which necessitates an extra pair of members 14 for the support thereof and, obviously, as many such members 14 may be provided as desired or necessary, according to the number of leaves or sheets provided in the device.

These members 14 are adapted to be swung or pivoted on the shaft 13 and a rest plate or support 19 is carried between the walls 1 and 2 adjacent the top edges thereof, as clearly shown in Figure 3 of the drawings. To cover the space between the front edge of the rear wall 4 and the supporting pivoted plate 5, I provide a hinged cover plate 20 which is hinged on a shaft 21 carried at the forward edge of the rear wall 4. Springs may be provided in the hinges of this cover 20 so that when the leaves or sheets are in their lowermost position resting on the plate or wall 5, this cover plate will return to its lowermost position, as shown in Figure 1 of the drawings. The movement of the leaves to an extended position, as shown in Figure 3, will automatically raise the cover plate 20, as shown in said figure.

In order to accommodate the thickness of the leaves or sheets 17, the arms 16 of the members 14 commencing with those supporting the next to the last sheet are slightly bent and the bending of these arms is increased from the central members 14 toward those supported adjacent the outer ends of the shaft 13, as best illustrated in Figures 3 and 8 of the drawings. While I have shown the bending of these arms 16 of the members 14 so that the bending increases gradually from the center toward the sides of the device, it will be understood, of course, that this may be reversed so that the outermost members 14 on the shaft 13 have their arms 16 straight and the bending thereof increasing toward the center, this being merely a question of arrangement of the members with respect to the sheets or leaves being supported.

An improved turning means is provided which cooperates with the other two arms 22 and 23 of each of the members 14. To this end, a roller 24 is rotatably mounted in the side walls 1 and 2 of the housing or casing, the one end of which is provided with an extended shaft 25 upon which is mounted a turning handle 26. The peripheral edge of the handle 26 has the lettering of the alphabet printed thereon and lines adjacent to each letter are adapted to register with a line 27 marked on the side wall 2, as clearly shown in Figure 1 of the drawings. Engaged with the surface of the roller 24 are series of loop members 28. Starting with a single loop member, the same are arranged in pairs spirally on the surface of the roller 24 to project radially therefrom in the manner shown in Figures 3 and 5 of the drawings. These loop members may be U-shaped tacks secured in place and arranged to project a predetermined distance from the periphery or surface of the roller or may be formed otherwise, the purpose being to provide a means for extending between and engaging the arms 22 or 23 of the members 14, as the roller is rotated. When the roller 24 is rotated in one direction, the loops 28 engage the arms 22 and when rotated in the opposite direction, the loops engage the arms 23. Obviously, as the loops in pairs engage pairs of arms 23 of the members 14, the leaves will be directed downwardly toward the supporting plate 5 and when moved in the opposite direction will engage the arms 22 of said members 14 to throw the leaves or sheets to the upward position. By selecting the particular letter desired on the handle 26 and rotating the latter so that the letter registers with the line 27, the leaves may be turned or thrown to an outspread position so that the properly lettered sheet or leaf will be facing the operator. The device is synchronized to this extent. Thus, any data or material which may be inscribed on the sheet or leaf may be readily observed when the desired sheet is opened up to face the operator.

While it is possible to inscribe data directly on the sheets or leaves 17, it may be desired to apply cards or other sheets to each leaf or sheet 17. To this extent I have provided each sheet or leaf 17 with diagonal slots 29 into which may be inserted the corners of cards shown in dot-and-dash lines in Figure 2 of the drawings.

As stated hereabove, the leaf supporting and turning elements may be varied in structure, although retaining the basic principle disclosed in the preferred form shown and described. One variation or modification of this structure is illustrated in Figure 6 of the drawings. In this form, a wire may be used which is bent at a predetermined point in its length, as shown at 30, and the wire doubled upon itself and then bent at the point 31 to form a V. Such a formation will form substantially a Y-shaped device providing the arm 32 and the arms 33 and 34. The free end of the arm 32 may be slotted to receive the leaves or sheets therein, or the sheets may be otherwise engaged with said arm. The arms 33 and 34 constitute the means by which the supporting device may be rocked or oscillated on the shaft 13. In this form I also desire to provide a spacing sleeve 35, similar to the sleeve 15 which

may be soldered to the supporting element or permitted to loosely contact the same, as may be desired.

In Figure 7 of the drawings, I have shown a further modified form of leaf or sheet supporting and turning means. In this figure I have shown a pair of discs 36, it being understood that a plurality of such discs are to be provided for loose mounting on the shaft 13. Between each disc is a spacing sleeve 37, which sleeve may be loosely mounted on the shaft 13 or soldered to one face of the disc, as may be found most desirable. Each disc carries on its peripheral edge an arm 38, the outer end of which is curved and provided with a wedge-shaped slot 39 to frictionally receive therein the sheets or leaves 17. These arms 38 may be soldered to the peripheral edges of the discs 36 or may be formed integral therewith or removably secured thereto, as may be found most desirable. While the slotting of the ends of the arms 38 has been found to be a simple, inexpensive and efficient means for supporting the leaves or sheets, I do not wish to be limited to this particular means of securing the leaves or sheets to the device, and other means may be used, if desired.

Each of the discs 36 is notched from the periphery thereof inwardly to form an inverted V, as shown by the numeral 40. Obviously, the walls of this V-shaped notch in each disc will serve the same purpose as the arms 22 and 23 of the members 14 or the arms 33 and 34 of the modification shown in Figure 6, in that the loops or projections on the roller may contact therewith as said roller is rotated in one direction or the other, to oscillate the discs on the shaft and correspondingly turn the leaves or sheets as desired.

In order to stop the rotation of the roller 24 when the leaves or sheets 17 have all been raised to their uppermost positions, as shown in Figure 3, or stop the roller when the leaves have been moved to their lowermost positions, as shown in Figure 1 of the drawings, I have provided a stop member in the form of a pin 41 which projects inwardly from the wall 2 of the housing or casing, as shown in Figure 2. As the roller 24 is rotated in either one direction or the other, the outermost loop or projection 28 on the roller adjacent the wall 2 is adapted to contact with or abut said pin 41 and thus stop the further rotation of said roller. This is clearly illustrated in Figure 2 of the drawings where the sheets or leaves have been raised to their uppermost positions and the one loop or projection 28 is shown in abutment with the pin 41.

In Figures 3 and 5 of the drawings, it will be noted there is illustrated adjacent the one end of the roller 24 a flange 42 which extends for the greater portion of the circumference of the roller, the slight spacing being provided for a specific purpose. This spacing permits the outermost loop on the roller to engage the adjacent arm of the leaf supporting member 14 and permit oscillation thereof on its shaft 13 to raise or lower the cover sheet 18, but once that cover sheet has been moved to its raised position and other leaves or sheets are raised, as shown in Figure 3 of the drawings, the flange 42 will constitute an obstruction to the rocking movement of the outermost support member 14, so that said supporting member could not be rocked on its shaft by merely throwing the sheets downwardly by hand. Under such circumstances it would be necessary to rotate the roller 24 through the handle 26 until the space between the ends of the flange 42 appears below the arm 23 of the member 14, before the cover sheet 18 may be lowered. I have shown and described this one flange 42 as a locking means for the cover sheet 18 as illustrative of a means to lock the sheets in their extended and in their normal lowered positions as against casual or indiscriminate lowering or raising thereof, without turning the handle 26, or without moving same by hand one at a time. This single flange 42, while shown to be coacting with the supporting member for the cover sheet, may be duplicated throughout the area of the roller so that similar flanges coact with corresponding supporting members for the respective sheets or leaves. Thus, when so provided, the leaves will be prevented from being turned other than one at a time.

To illustrate the construction last mentioned, I have shown in Figs. 9 to 11 a modified form of roller. This roller is designated by the numeral 24' and in view of the fact that it is built up to provide a flange for each supporting member, the same is in cylindrical form of a diameter slightly greater than the diameter of roller 24, heretofore referred to. Such a construction with the loops or pins 28' arranged spirally, as previously described and shown, provides substantially spiral grooves 28^a the walls of which are shouldered or offset as clearly shown in Figs. 9 and 10. Each offset portion corresponds to the space between ends of the flange 42 and the offset portions are so arranged that each leaf can only be swung to raised or lowered position when the companion offset portions of the roller are in position to receive arms of the members carrying the leaf.

My invention is capable of various and sundry uses. For certain offices and homes, it may be utilized as a telephone index; for certain small businesses, same may be used as a ledger, either permanent or temporary, to record accounts and in the latter case, the use of removable cards on the sheets or leaves may be advantageous. I do not wish to be limited to the particular use to which this device may be put, as same may be utilized in any manner and in any place and under any conditions where it may be desired that information be located quickly and readily under a system of lettering or numbering.

From the foregoing description of the construction of my improved device, the operation thereof will be readily understood and it will be seen that I have provided a simple, inexpensive and efficient means for carrying out the various objects of the invention. While I have particularly described the elements best adapted to perform the functions set forth, it is apparent that various changes in form, proportion and in the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the principles of the invention.

What I claim is:

1. In an indexing device, a housing, a shaft extending horizontally therethrough, leaf supports mounted for rocking movement on said shaft, leaf members engaged with portions of said supports, said supports including a pair of projected edges forming a V-member and rotating means within said housing having portions projected between the arms of said V-member adapted to contact individually with the aforesaid projecting edges to rock said supports individually on said shaft either in one direction or the other.

2. In an indexing device, a housing, a shaft

extending horizontally therethrough, supporting members mounted for rocking movement on said shaft, each of said supporting members being formed with projecting edges to form a V-member thereon, and rotatable means within the housing spirally arranged having portions projected between the arms of said V-member and adapted to engage individually the respective edges of predetermined supporting members and individually and successively rock the latter on said shaft in one direction or another.

3. In an indexing device, a housing, a shaft extending horizontally therewithin, a series of leaf supports mounted for rocking movement on said shaft, leaves carried by portions of said supports, said supports being formed with V-shaped edges projecting therefrom, a roller rotatable in said housing, and means carried by said roller and arranged spirally thereon having portions adapted to project between the arms of the V-shaped edges for engaging the contacting respective edges of said supports to rock the same individually either forwardly or rearwardly on said shaft as the roller is rotated in one direction or the other.

4. In an indexing device, a housing, a shaft extending horizontally therewithin, a series of leaf supports mounted for rocking movement on said shaft, leaves carried by portions of said supports, said supports being formed with V-shaped edges projecting therefrom, a roller rotatable within said housing, means for manually rotating said roller, and means spirally arranged on said roller having portions adapted to project between the V-shaped edges for successively engaging contacting edges of predetermined supports for successively rocking the same on said shaft as the roller is rotated.

5. In an indexing device, a housing, a shaft extending horizontally therewithin, a series of leaf supports mounted for rocking movement on said shaft, leaves carried by portions of said supports, said supports being formed with V-shaped edges projecting therefrom, a roller rotatable within said housing, means for individually and manually rotating said roller, and projections spirally arranged on the periphery of said roller having portions adapted to project between the V-shaped edges for individually and successively engaging the respective contacting V-shaped edges of predetermined supports to individually and successively rock the same on said shaft when the roller is rotated in one direction or the other.

6. In a device of the class described, a housing, a shaft extending horizontally therewithin, a plurality of supporting members mounted for rocking movement on said shaft, leaves engaged with portions of said supporting members, each leaf being engaged with a pair of supports, said supports being each formed with a projecting V-shaped portion to provide edges thereon, a roller within said housing, means for manually rotating said roller in one direction or another, and means spirally arranged on the surface of said roller having portions adapted to project between the arms of said V-shaped portion and adapted for individual engagement with respective edges of predetermined pairs of said supports to individually and successively rock the latter in pairs on said shaft as said roller is rotated in one direction or another.

7. In a device of the class described, a housing, a shaft extending horizontally therewithin, a plurality of supporting members mounted for rocking movement on said shaft, leaves engaged with portions of said supporting members, each leaf being engaged with a pair of supports, said supports being each formed with a projecting V-shaped portion to provide edges thereon, a roller within said housing, means for manually rotating said roller in one direction or another, and projections spirally arranged on the surface of said roller having portions projected between the arms of said V-shaped portion and adapted for individual engagement with the respective edges of pairs of said supports to individually and successively rock the latter in pairs on the shaft as said roller is rotated in either one direction or the other.

8. In a device of the class described, a housing, a shaft extending horizontally therewithin, a plurality of supporting members mounted on said shaft for rocking movement thereon, said supporting members being substantially Y-shaped, a plurality of leaves engaged with the one arm of the supporting members, each leaf engaging the arms of a pair of supports, the opposing two arms of each of said supports constituting edges, a roller mounted within said housing, means for manually rotating said roller in one direction or the other, and means spirally arranged on the surface of said roller having portions projected between the aforesaid opposing arms of the Y-shaped members and adapted to individually engage the respective edges of predetermined pairs of said supports to individually and successively rock said supports in pairs on said shaft, as the roller is rotated in one direction or the other.

9. In a device of the character described, a housing, a shaft extending horizontally therewithin, a plurality of substantially Y-shaped supporting members mounted for rocking movement on said shaft, a plurality of leaf members, each leaf being engaged by and supported from the longitudinally extending arms of a predetermined pair of said supporting members, the divergent arms of said supporting members forming edges for actuation of said supports on the shaft, a roller within said housing, means for manually rotating said roller, and means spirally arranged on the surface of said roller having portions adapted to be projected between the divergent arms of said Y-shaped members for individually engaging in predetermined pairs the respective edges of the divergent arms of said supporting members, whereby the latter are rocked in pairs on the shaft as said roller is rotated in one direction or the other.

10. In a device of the class described, a housing, a shaft extending horizontally therewithin, a plurality of Y-shaped supporting members mounted for rocking movement in spaced relation on said shaft, a plurality of leaves, each leaf being engaged with the straight arms of a predetermined pair of said supporting members, the divergent arms of the supporting members forming actuating means therefor, a roller within said housing, means for manually rotating said roller in one direction or the other, and a plurality of projections extending from the surface of said roller and arranged spirally thereon having portions adapted to be projected between the divergent arms of said Y-shaped members, said projected portions being adapted for individual contact with the respective divergent arms of the supporting members to rock the latter in pairs

on the shaft as said roller is rotated in one direction or the other.

11. In a device of the class described, a housing, a shaft extending horizontally therewithin, a plurality of leaf supporting members mounted for rocking movement on said shaft, a plurality of leaves engaged with portions of said supporting members, manually operable means mounted within said housing coacting with other portions of said leaf supporting members to oscillate the latter on said shaft, and means carried on the last referred to means adapted to coact with portions of said leaf supports to lock the latter against casual movement on the shaft.

12. In a device of the class described, a housing, a shaft extending horizontally therewithin, a plurality of leaf supporting members mounted for rocking movement on said shaft, a plurality of leaves engaged with portions of said supporting members, manually operable means arranged within said housing and coacting with certain other portions of said supporting members for rocking the latter on the shaft and correspondingly turning the leaves in one direction or the other, and means carried on the last mentioned turning and rocking means and coacting with the last referred to portions of the supporting members to lock the latter against casual movement and prevent turning of the leaves other than one at a time.

13. In a device of the class described, a housing, a shaft extending horizontally therewithin, a plurality of Y-shaped supporting members mounted for rocking movement on said shaft, a plurality of leaves engaged with the longitudinally extending arms of said Y-shaped supporting members, manually operable means mounted within said housing adapted to coact individually with the angularly disposed arms of said Y-shaped supporting members for rocking the latter on said shaft and correspondingly turning the leaves one at a time in one direction or the other, and means carried on the last mentioned turning means adapted to coact with the divergent arms of said supporting members to lock the latter against movement on the shaft except by movement one at a time.

14. In an indexing device, a housing, a roller extending horizontally therethrough, a horizontal shafts on a plane above said roller, card holders loose upon said shaft and each having an upwardly extending card-holding portion and downwardly diverging front and rear portions, abutments extending radially from said roller for actuating said card holders, said abutments being each in position for entering the space between the said front and rear portions of a companion card holder when the roller is turned and engaging one of said portions to individually and successively swing the card holders and cards carried thereby forwardly or rearwardly according to the direction in which the roller is turned.

15. In an indexing device, a housing, a shaft horizontally extending through said housing, card holders loose upon said shaft and each having an inwardly extending card-holding portion and downwardly diverging front and rear arms, a roller in said housing extending longitudinally of said shaft in a horizontal plane below the latter and abutments extending radially from said roller and arranged to individually engage between the arms of companion card holders and contact the front or rear arms to turn the card holders about the shaft and individually and successively swing cards forwardly or rearwardly according to the direction in which the shaft is turned.

16. In an indexing device, a housing, open at its top, a shaft extending horizontally in said housing adjacent the open top thereof, card holders loose on said shaft and supporting cards over the housing for swinging movement from a lowered position forwardly of the shaft to a raised position rearwardly thereof, each holder having downwardly diverging front and rear arms, a roller mounted in the housing under said shaft and extending horizontally therein longitudinally of said shaft, and abutment members carried by said roller and positioned for individually moving between arms of companion card holders and engaging front and rear arms thereof to individually and successively swing cards to raised or lowered position according to the direction in which the roller is turned, said roller being recessed at points where said abutments are mounted thereon to provide clearance allowing tilting of the card holders only when the roller is in position allowing movement of the arms through the recesses.

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