Sept. 13, 1955 N. J. SPINDLER ET AL 2,717,699

LOOP FILE

Filed Feb. 24, 1954 5 Sheets-Sheet 1

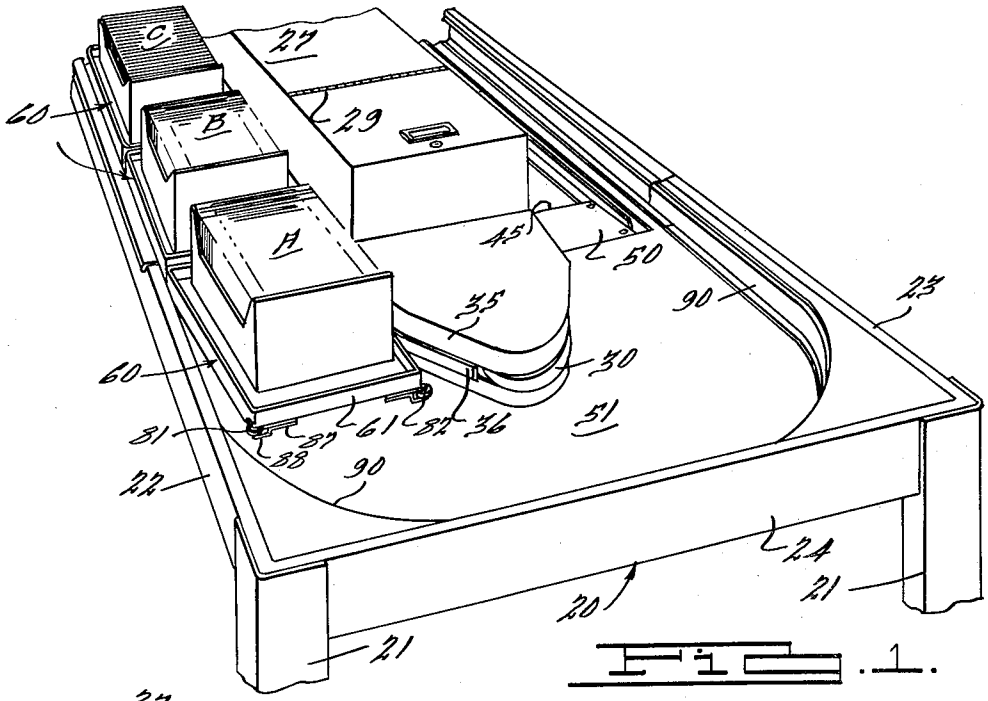


Fig. 1.

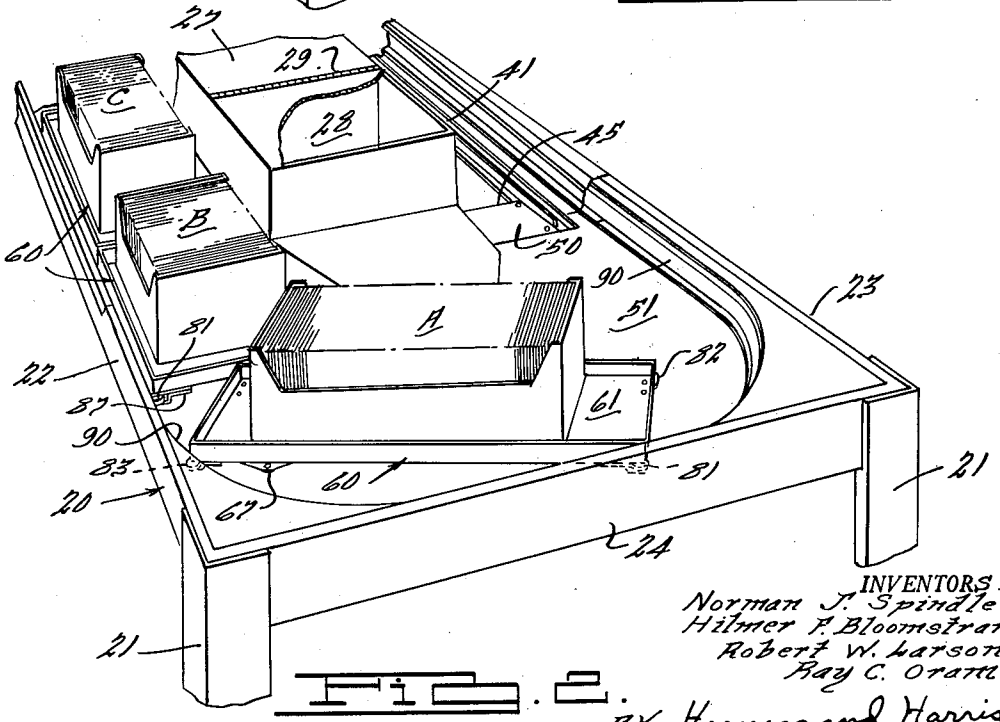


Fig. 2.

INVENTORS.
Norman J. Spindler.
Hilmer F. Bloomstran
Robert W. Larson.
Ray C. Oram.

BY Harness and Harris
ATTORNEYS.

Sept. 13, 1955 N. J. SPINDLER ET AL 2,717,699

LOOP FILE

Filed Feb. 24, 1954 5 Sheets-Sheet 2

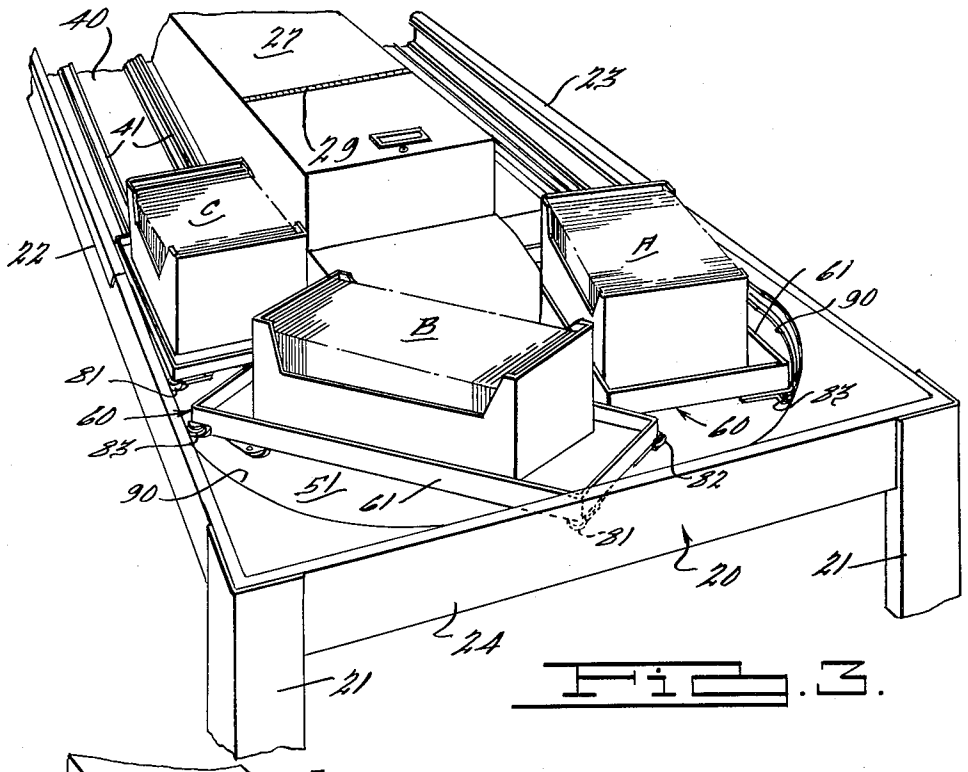


Fig. 3.

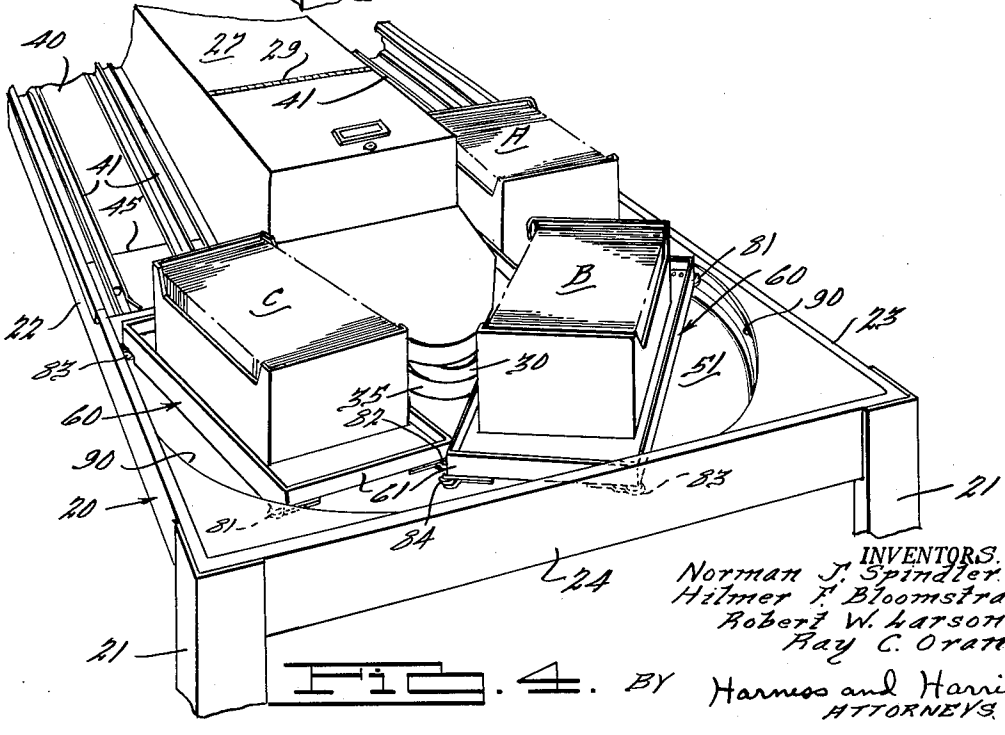


Fig. 4.

INVENTORS.
Norman J. Spindler.
Hilmer F. Bloomstran.
Robert W. Larson.
Ray C. Oram.
BY Harness and Harris
ATTORNEYS.

Sept. 13, 1955 N. J. SPINDLER ET AL 2,717,699

LOOP FILE

Filed Feb. 24, 1954 5 Sheets-Sheet 3

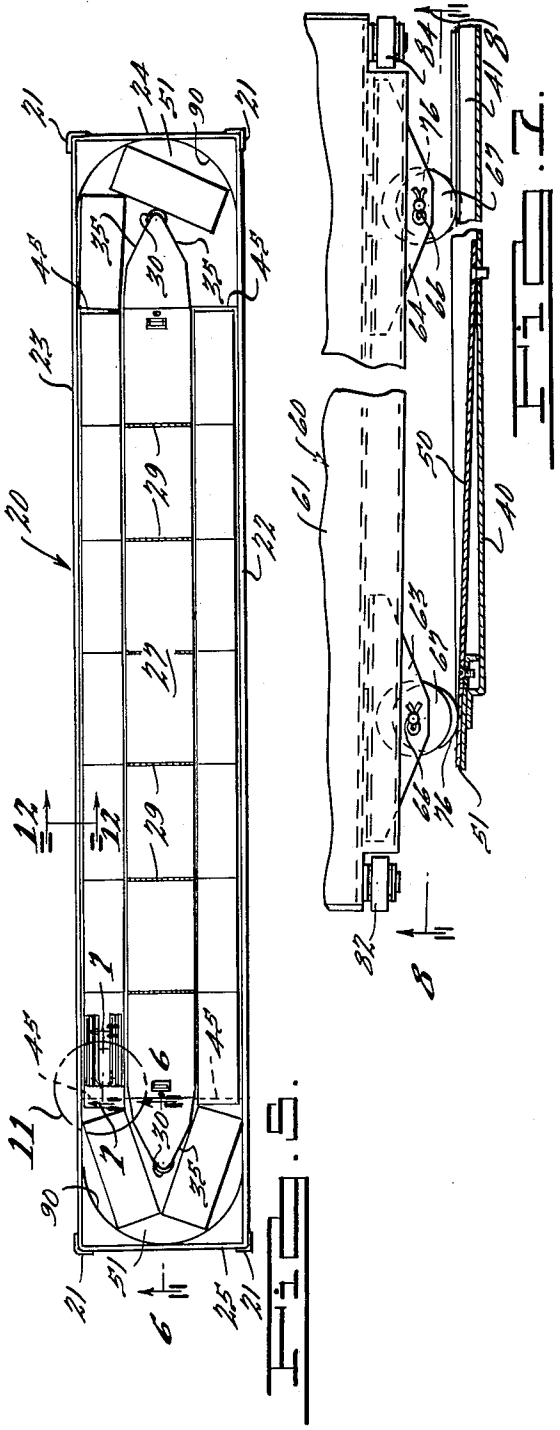


Fig. 5.

Fig. 7.

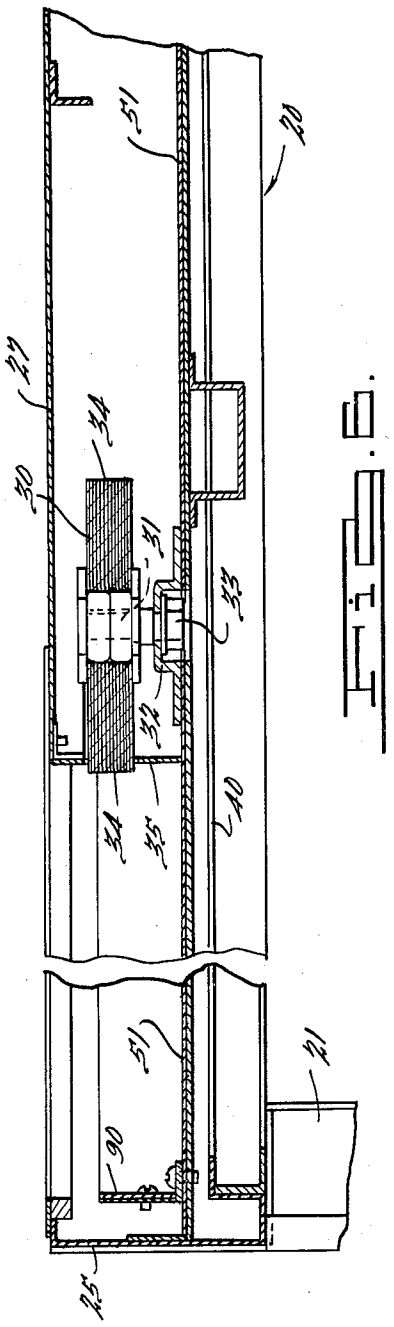


Fig. 6.

INVENTORS.
Norman J. Spindler.
Hilmer F. Bloomstran
Robert W. Larson.
Ray C. Oram

BY Harness and Harris
ATTORNEYS.

Sept. 13, 1955 N. J. SPINDLER ET AL 2,717,699

LOOP FILE

Filed Feb. 24, 1954 5 Sheets-Sheet 4

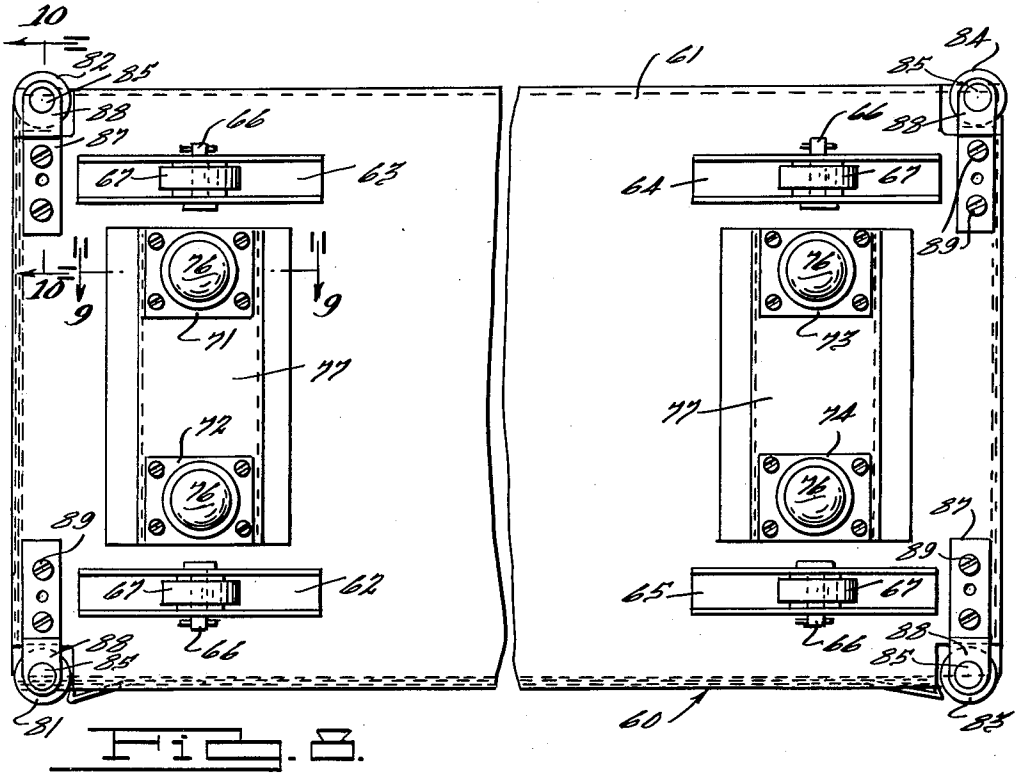


Fig. 8.

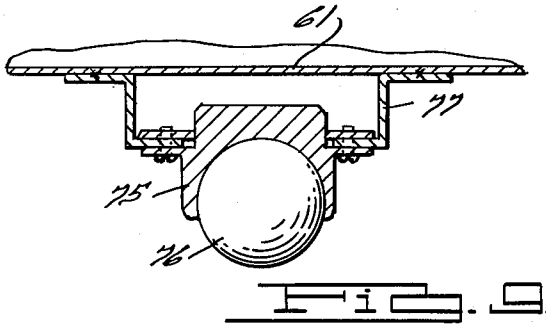


Fig. 9.

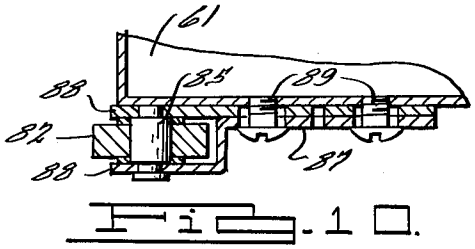


Fig. 10.

INVENTORS.
Norman J. Spindler.
Hilmer F. Bloomstran.
Robert W. Larson.
Ray C. Oram

BY Harness and Harris
ATTORNEYS

Sept. 13, 1955 N. J. SPINDLER ET AL 2,717,699

LOOP FILE

Filed Feb. 24, 1954 5 Sheets-Sheet 5

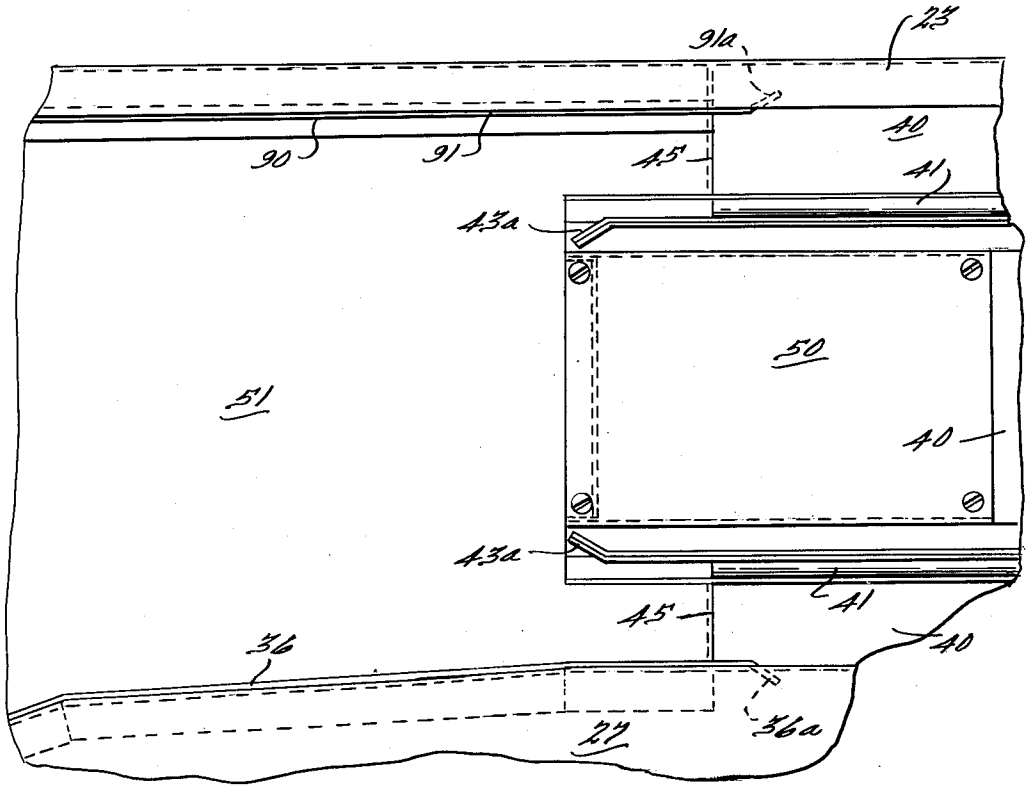


Fig. 11.

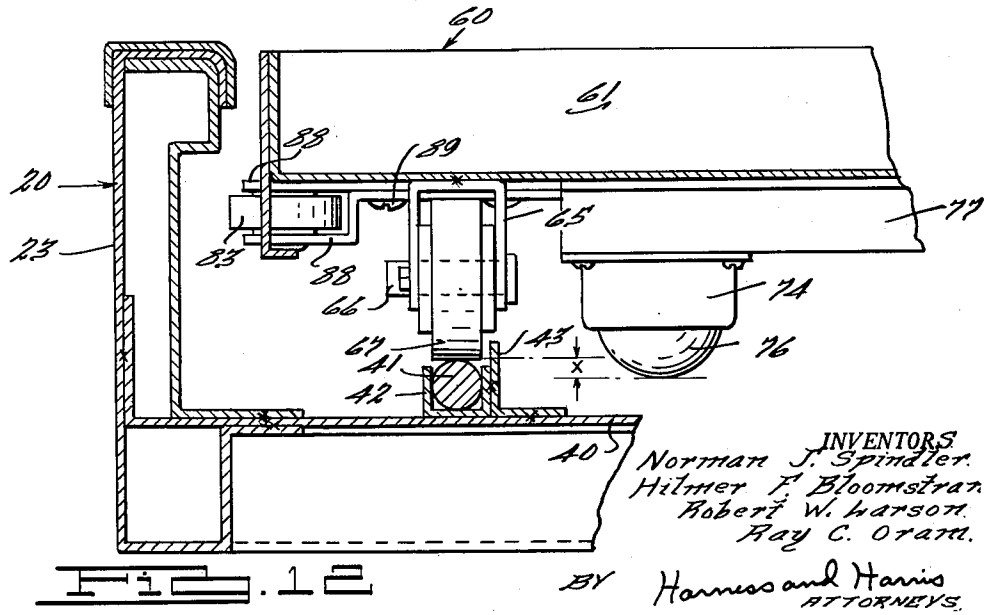


Fig. 12.

INVENTORS
Norman J. Spindler.
Hilmer F. Bloomstran.
Robert W. Larson.
Ray C. Oram.

BY Harness and Harris
ATTORNEYS.

United States Patent Office 2,717,699 Patented Sept. 13, 1955

2,717,699

LOOP FILE

Norman J. Spindler and Hilmer F. Bloomstran, Jamestown, Robert W. Larson, Ashville, and Ray C. Oram, Jamestown, N. Y., assignors to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware

Application February 24, 1954, Serial No. 412,276

13 Claims. (Cl. 211—10)

This invention relates primarily to filing cabinets or filing tables on which a plurality of file carriages are movably mounted. In particular this invention concerns the means for movably mounting a plurality of carriages in a shallow container or the like such that the several carriages may be readily circulated around a compressed, loop-type, track mounted in the container.

It is a primary object of this invention to provide a filing table or the like comprising a loop-like track and a plurality of movable carriages that may be readily circulated about the table mounted track in either direction.

It is another object of this invention to provide a filing table that supports a loop-type track mounting a plurality of movable carriages, said table occupying the minimum floor area for the function it accomplishes and providing a work area around its periphery with a conveniently arranged storage area located interiorly of the track.

It is another object of this invention to provide a filing table or cabinet wherein workers may be located along opposite sides of the table and means are provided whereby the workers may readily shift the file work from one side of the table to the other or store the work in the island area between the opposed sides of the table.

It is a still further object of this invention to provide a support with a loop-shaped track thereon wherein novel means are provided for circulating movable carriages about the narrow U-shaped ends of the track.

It is still another object of this invention to provide an improved arrangement for circulating work records between adjacently positioned workers while requiring minimum effort on the part of the worker.

Other objects and advantages of this invention will become readily apparent from a reading of the following description and a consideration of the related drawings wherein:

Fig. 1 is a fragmentary perspective view of one end of a filing cabinet or table that embodies this invention;

Fig. 2 is a view similar to Fig. 1 but showing the file carriages of Fig. 1 beginning movement about the U-shaped end of the cabinet trackway;

Fig. 3 is a view similar to Fig. 2 but showing the file carriages at a more advanced point in their movement around the U-shaped end of the cabinet trackway;

Fig. 4 is a view similar to Fig. 3 but showing the completion of movement of the leading file carriage about the U-shaped end of the cabinet trackway;

Fig. 5 is a top plan elevational view of the filing cabinet shown in part in Figs. 1–4;

Fig. 6 is an enlarged sectional elevational view taken along the line 6—6 of Fig. 5;

Fig. 7 is an enlarged sectional elevational view taken along the line 7—7 of Fig. 5;

Fig. 8 is an enlarged bottom plan elevational view taken as indicated by the arrows 8—8 of Fig. 7;

Fig. 9 is an enlarged sectional elevational view taken along the line 9—9 of Fig. 8;

Fig. 10 is an enlarged sectional elevational view taken along the line 10—10 of Fig. 8;

Fig. 11 is an enlarged fragmentary plan elevational view of that portion of the trackway included within the circle 11 of Fig. 5; and

Fig. 12 is an enlarged sectional elevational view taken along the line 12—12 of Fig. 5.

In the drawings the reference numeral 20 identifies the filing cabinet or filing table that embodies this invention. This table 20 includes a number of supporting legs 21 that may be of such a height as to position the work surface of the table at either desk height, such that workers may be seated around the table, or of an increased height, such that the table work surface is conveniently arranged for workers who may be required to stand along the sides of the file table. The table 20 also includes opposed side walls 22, 23 and opposed end walls 24, 25. Located centrally of the table work surface is an elongated, island area 27 that has portions extending above and projecting below the table bottom wall 40.

The island area 27 comprises a series of storage compartments 28 (see Fig. 2) which may be closed by cover sections that can be connected to the table by hinges such as the hinges 29. The compartments 28 in the island 27 provide storage space for file work or the like when this work is not being transported on the movable work carriages that are subsequently described in detail. It will be noted that the opposite ends of the island area 27 are converging or tapered and that there is mounted in each of the tapered end portions a guide wheel 30 (see Fig. 6 particularly). Each guide wheel 30 is rotatably mounted on a vertically extending shaft 31 that is connected to a table mounted bracket 32 by a nut 33. The guide wheels 30 are of such a diameter and are so positioned in the island area end portions that their side surfaces 34 (see Fig. 6) project outwardly beyond the adjacent side walls 35 of the island formation 27. Mounted on and extending along the side walls 35 of each of the tapered ends of the island formation 27 are guide straps 36 (see Fig. 1). These straps 36 are adapted to be engaged by the corner rollers on the file carriages when the file carriages pass around the ends of the island formations 27 as will be subsequently explained.

The cabinet 20 has a horizontally extending bottom surface 40 (see Fig. 12 particularly) that extends between the side walls 35 of the island 27 and the opposed side and end walls 22, 23 and 24, 25 respectively of the table 20. Mounted on the table bottom wall 40, so as to extend longitudinally of the table in the area between the island 27 and the table side walls 22, 23, are sets of trackways that each comprise a pair of spaced apart, rod-type, tracks 41. These track rods 41 (see Fig. 12) may be mounted in channel type supports 42 that are fixedly connected to the table bottom 40 by means of L-shaped support brackets 43. The rod type tracks 41 extend substantially the full length of the table sides between the points 45 (see Fig. 5) where the island formation end portions begin to taper down in cross sectional width.

At each end of each of the rod-type tracks 41 (see Fig. 7) there is mounted on the upper face of the table bottom wall 40 an inclined plate 50. Each plate 50 is positioned between a pair of rods 41 and slopes upwardly to provide an upwardly inclined ramp member that connects the table bottom surface 40 with the elevated bottom wall portion 51 at each end of the table. From Figs. 6 and 7 it is clear that the bottom walls 51, at each end of the table, are raised above the main bottom wall 40 that extends along the major portion of the table. The purpose of the ramps 50 that connect bottom walls 40, 51 will become evident from the subsequent description of the manner of operation of this filing table and its associated file work carriages.

The work carriages 60 that are used for circulation

about this loop-type filing table are substantially rectangularly shaped, shallow trays **61** that have suitable roller means on their bottom surfaces to engage the aforementioned tracks **41**, ramps **50** and/or the elevated, end positioned, table bottom wall portions **51** as the carriages **60** are passed around the table track circuit. As all carriages **60** are of identical construction only one will be described in detail. Fixedly connected to the underside of the bottom of the tray **61** (see Figs. 7 and 8) are two pairs of yoke plates **62**, **63** and **64**, **65** respectively. Each of these yoke plates has a pin type wheel axle **66** detachably mounted in the spaced apart legs of the yoke plates. Journalled on each of the pin type axles **66** is a carriage wheel **67** that may be ball bearing mounted on the axle **66** to reduce friction. The wheels **67** can be of metal, wood, pressed paper, rubber, plastic or any other suitable material that can carry the required load without causing an undesired amount of noise. These four axle mounted wheels **67** are located such that they will engage and ride along the rod type tracks **41** (see Fig. 12) as the carriages **60** pass lengthwise of the table **20**. It is thought to be obvious that the wheels **67**, that are mounted on fixed axles **66**, would not provide the optimum means for carrying the carriages **60** around the relatively narrow U-shaped track end portions **51** due to the fact that they would produce a sliding as well as a rolling action.

To carry the carriages **60** around the U-shaped ends **51** of the track circuit with a minimum of friction, there is mounted on the underside of the bottom of each of the trays **61**, between the carriage wheels **67**, two pair of ball-type casters **71**, **72** and **73**, **74** (see Figs. 8 and 9). Each of the ball-type casters comprises a housing member **75** (see Fig. 9) that rotatably seats a ball member **76**. Housings **75** are fixedly connected to channel-type support brackets **77** mounted on the underside of the bottom of the tray **61**. The ball and socket casters permit true rolling during movement of the carriages **60** around the trackway end portions **51**. The reason for mounting the ball-type casters **71**—**74** between the pairs of wheels **62**—**65** will become readily apparent from the subsequent description of the manner of operation of this device. It will be noted from Fig. 12 that the ball casters **76** project below the carriage wheels **67** an amount "X." The purpose of this elevational difference will become readily apparent.

Fixedly mounted on the underside of each of the carriages **61**, at each corner thereof (see Figs. 8 and 10) is a guide roller **81**—**84**. The guide rollers **81**—**84** are identical so only one will be described. Each guide roller, such as roller **82** (see Fig. 10) is rotatably mounted on an axle **85** that is supported in a bracket **87**. The bracket **87** has bifurcated end portions **88** between which the roller **82** is mounted. Bracket **87** is connected to the underside of the tray **61** by the bolts **89**. From Figs. 10 and 12 it is quite clear that the guide rollers **81**—**84** project outwardly beyond the periphery of the trays **61** and thus it is obvious that the rollers **81**—**84** will act as bumpers to guide the carriages **60** around the U-shaped end portions of the track circuit as subsequently pointed out.

From Fig. 11 it will be noted that the ends **43***a* of the rod supporting angle iron brackets **43** are bent inwardly to provide a flared mouth to facilitate alignment of the carriage wheels **67** with the rod tracks **41** as the carriages pass off the U-shaped end portions **51** and on to the tracks **41**. It will also be noted from Fig. 11 that the ends **36***a* of the guide straps **36** on the side walls **35** of the island end portions are bent inwardly to facilitate initial engagement of the carriage guide rollers **82**, **84** with the island side walls **35**. The semi-circular side walls **90** at the outer sides of the ends of the track circuit may also be provided with guide straps **91** that are engageable with the guide rollers **81**, **83**. The ends **91***a* of the straps **91** are bent outwardly to facilitate initial engagement with the guide rollers.

The work table or cabinet **20**, which is substantially a shallow tray supported on legs **21**, has its work surface **40**, **50**, **51**, **27** primarily intended to receive trays of file records or the like. However, it is within the scope of this invention to embody these teachings in any article support for any operation where it is desirable to circulate articles around a circuitous path that may be either closed or open ended. While only a single file tray of records, such as A, B, and C, are shown mounted on each of the carriages **60**, still, it is thought to be obvious that more than one file tray could be mounted on each carriage **60** and the several file trays on each carriage could be arranged to extend in side-by-side relationship either longitudinally or transversely of the supporting carriage **60**. It is also considered to be obvious and a part of this invention to make the separable carriages **60** and supported file trays A, B and C as an integral unit, that is, mount the carriage wheels **67**, casters **76** and guide rollers **82** directly on the file trays A, B and C, etc.

The drawings show rod type tracks **41**, **41** extending along the straight sections of the opposed sides of the loop-file work circuit between the points **45**, **45** (see Fig. 5). At points **45**, **45** the rod type tracks **41**, **41** merge into the substantially U-shaped track end setcions **51**. The U-shaped or substantially semi-circular track end sections **51** are preferably formed from a smooth surfaced plate that is adapted to be engaged by the ball-type casters **76** with a minimum of friction during passage of the carriages around the track ends. It is thought to be obvious that the rod tracks **41**, **41** could be omitted and flat plates used throughout the trackway. When plates alone are used then the ball type casters **76** are the only means that need to be used to support the carriages **60** throughout the entire time the carriages are circulated around the trackway. However, the ball-type casters **76** are not as efficient wheeled mountings for the carriages **60** along the track straight sections as are the wheels **67** so it is preferred to use the combination of ball casters **76** and carriage wheels **67** that is shown in the drawings over any construction using only ball casters for load support. It is also possible to use only ball casters with the trackway shown and have the ball casters ride on the rod tracks **41**, **41**. With the combination of carriage wheels **67** and ball casters **76** each carriage is independently free rolling at all times so that carriage movement is accomplished merely by lightly pushing on the carriages so as to produce a horizontally directed force component.

The loop type file unit herein described is primarily designed to make a large amount of records readily available to a worker with a minimum of effort. It is obvious that the carriages **60** may be circulated in either direction about the loop-type trackway or the carriages can merely be moved back and forth along any selected portion of the trackway. This type of trackway with its laterally compressed 180 degree turns at each end not only occupies the minimum floor area but it also causes the central island unit **27** to be of minimum size and to be readily accessible to the workers stationed along the sides **22**, **23** of the table **20**.

Looking now at Fig. 1 particularly, it will be noted that file tray A has passed off the straight section rod tracks **41**, **41** and on to the U-shaped plate track section **51** at the end of the trackway. In passing from the tracks **41** to the elevated end section **51** the ball casters **76** first engage the ramp **50** and at that time the load of the carriage is transferred from the carriage wheels **67** to the casters **76** due to the casters **76** extending below the wheels **67** (see Fig. 12). The casters **76** support the carriages **60** throughout their travel around the U-shaped end section **51** and during the exit of the carriages from the end section **51**. While entering the end section **51** the rear guide rollers **83**, **84** of tray A may be in rolling contact with the side wall guide straps **91**, **36** respectively.

In Fig. 2 the trays A, B, C have advanced somewhat

around the end of the trackway over their position in Fig. 1 and now the outside guide rollers **81**, **83** on the carriage **60** for tray A are engaged with the guide straps **91** on the outer side wall **90**. Also, the guide wheel **30** on the end of island **27** is engaged with the inner side wall of the tray **61** of the carrier **60** for tray A. The rear inside guide roller **84** of the carriage **60** for tray A is engaged with the front end of the tray **60** of the carriage **61** for tray B.

In Fig. 3 the trays A, B, C have each progressed farther around the end of the trackway and now the guide rollers **81**, **83** of the carriage **60** for tray A are engaged with the side wall guide strap **91**. The inner front guide roller **82** of the carriage for tray A may be engaged with the strap **36** on the island side wall **35** and the inner rear guide roller **84** is engaged with the inner side of the tray **61** of carriage **60** for tray B. Tray B at this time has its carriage outer guide rollers **81**, **83** engaged with side wall guide strap **91** and the inner side of the carriage tray **61** for tray B is engaged with the island guide roller **30**. The inner rear guide roller **84** of the carriage for tray B is engaged with the front side of the tray **61** for the file tray C.

Fig. 4 shows the completion of the rounding of the track end by the tray A. Tray A has now passed off the plate track **51** and down ramp **50** so that the load is now being transferred from the ball casters **76** to the carriage wheels **67** that are aligned with the tracks **41**, **41**. Tray B at this time has its inner front guide roller **82** in contact with the rear side of the tray **61** for file tray A. Also the outer guide rollers **81**, **83** are engaged with the outer side wall guide strap **91**. Island guide wheel **30** is engaged with the inner side of the tray **61** for the file tray B. Tray C at this time has its outer guide rollers **81**, **83** engaged with the outer side wall guide strap **91** while its inner front guide roller **82** is engaged with the inner side of the tray **61** for the file tray B. The preceding description is thought to be sufficient to point out that as the trays go around a track end curve that all points of contact are made by roller elements that reduce friction to a minimum so that movement of the tray carriages is both easy and quiet.

We claim:

1. An article support comprising an elongated table, a laterally compressed, loop-type track mounted on the table work surface, a work compartment located in the area surrounded by said track, upstanding inner and outer side walls defining the substantially semi-circular track sections at opposite ends of the loop-track, and one or more work supporting carriages arranged for movement around said loop-type track, each carriage comprising a tray having ball casters mounted thereon adapted to rollingly support the tray on the track and guide rollers that project laterally outwardly beyond the sides of said trays so as to engage the upstanding inner and outer side walls at the ends of said track as the carriage passes around the substantially semi-circular track end sections.

2. A filing cabinet comprising a shallow elongated tray having an elevated island portion extending lengthwise of the central area of its work supporting surface and upstanding side walls encircling said island and defining a loop-type track composed of a pair of transversely spaced apart straight sections having their adjacent ends connected by substantially U-shaped end sections, said island having mounted on each end friction reducing guide means that extend into the U-shaped track end sections, and one or more work supporting carriages adapted to be circulated around said track, each carriage comprising a tray having friction reducing load support means for engagement with said track and friction reducing guide means projecting beyond the sides of the carriage adapted for engagement with the track side walls.

3. A filing cabinet comprising a shallow elongated tray having an elevated island portion extending lengthwise of the central area of its work supporting surface and upstanding side walls encircling said island and defining a loop-type track composed of a pair of transversely spaced apart straight sections having their adjacent ends connected by substantially U-shaped end sections, said island having mounted on each end friction reducing guide rollers that extend into the U-shaped track end sections, and one or more work supporting carriages adapted to be circulated around said track, each carriage comprising a tray having friction reducing load support means for engagement with said track and friction reducing guide rollers projecting beyond the sides of the carriage adapted for engagement with the track side walls.

4. A filing cabinet comprising a shallow elongated tray having an elevated island portion extending lengthwise of the central area of its work supporting surface and upstanding side walls encircling said island and defining a loop-type track composed of a pair of transversely spaced apart straight sections having their adjacent ends connected by substantially U-shaped end sections, said island having mounted on each end friction reducing guide rollers that extend into the U-shaped track end sections, and one or more work supporting carriages adapted to be circulated around said track, each carriage comprising a tray having friction reducing load support means for engagement with said track and friction reducing guide rollers projecting beyond the sides of the carriage adapted for engagement with the track side walls and with adjacently positioned track mounted carriages.

5. A filing cabinet comprising a shallow elongated tray having an elevated island portion extending lengthwise of the central area of its work supporting surface and upstanding side walls encircling said island and defining a loop-type track composed of a pair of transversely spaced apart straight sections having their adjacent ends connected by substantially U-shaped end sections, said island having mounted on each end friction reducing guide rollers that extend into the U-shaped track end sections, and one or more work supporting carriages adapted to be circulated around said track, each carriage comprising a tray having friction reducing load support means for engagement with said track and friction reducing guide rollers projecting beyond the sides of the carriage adapted for engagement with the track side walls, said track straight sections each having track rails extending lengthwise thereof and engageable with certain of the carriage load supporting friction reducing means as the carriage passes over the track straight sections.

6. A filing cabinet comprising a shallow elongated tray having an elevated island portion extending lengthwise of the central area of its work supporting surface and upstanding side walls encircling said island and defining a loop-type track composed of a pair of transversely spaced apart straight sections having their adjacent ends connected by substantially U-shaped end sections, said island having mounted on each end friction reducing guide rollers that extend into the U-shaped track end sections, and one or more work supporting carriages adapted to be circulated around said track, each carriage comprising a tray having friction reducing load support means for engagement with said track and friction reducing guide rollers projecting beyond the sides of the carriage adapted for engagement with the track side walls, said track straight sections each having track rails extending lengthwise thereof and engageable with certain of the carriage load supporting friction reducing means as the carriage passes over the track straight sections and said track end sections being arranged at a different level than said straight section rails and connected thereto by angularly related ramps.

7. A filing cabinet comprising a shallow elongated tray having an elevated island portion extending lengthwise of the central area of its work supporting surface and upstanding side walls encircling said island and defining therebetween a loop-type track composed of a pair of

transversely spaced apart straight sections having their adjacent ends connected by substantially U-shaped end sections, said island having mounted on each end a friction reducing guide roller that projects over a portion of the associated U-shaped track end section, and one or more work supporting carriages adapted to be circulated around said track, each carriage comprising a tray having load supporting means adapted for rolling engagement with said track, said track straight sections each having track rails extending lengthwise thereof and engageable with certain of the carriage load supporting means as the carriage passes over the track straight sections, and said track end sections being arranged at a different level than said straight section rails and connected thereto by angularly related ramps, said ramps and track end sections being engageable with certain of said carriage load supporting means as the carriage passes over the track end sections.

8. A filing cabinet comprising a shallow elongated tray having an elevated island portion extending lengthwise of the central area of its work supporting surface and upstanding side walls encircling said island and defining a loop-type track composed of a pair of transversely spaced apart straight sections having their adjacent ends connected by substantially U-shaped end sections, said island having mounted on each end friction reducing guide rollers that extend into the U-shaped track end sections, and one or more work supporting carriages adapted to be circulated around said track, each carriage comprising a tray having friction reducing load support means for engagement with said track and friction reducing guide rollers projecting beyond the sides of the carriage adapted for engagement with the track side walls, said track straight sections each having track rails extending lengthwise thereof and engageable with certain of the carriage load supporting friction reducing means as the carriage passes over the track straight sections and said track end sections being arranged at a different level than said straight section rails and connected thereto by angularly related ramps engageable with other of the carriage load supporting friction reducing means as the carriage passes over the track end sections.

9. A filing cabinet comprising a shallow elongated tray having an elevated island portion extending lengthwise of the central area of its work supporting surface and upstanding side walls encircling said island and defining therebetween a loop-type track composed of a pair of transversely spaced apart straight sections having their adjacent ends connected by substantially U-shaped end sections, said island having mounted on each end a friction reducing guide roller having portions thereof that project over portions of the associated U-shaped track end section, and one or more work supporting carriages adapted to be circulated around said track, each carriage comprising a tray having load supporting rolling means engageable with said track and friction reducing guide rollers projecting beyond the sides of the carriage adapted for engagement with the track side walls, said track straight sections each having track rails extending lengthwise thereof and engageable with certain of the carriage load supporting rolling means as the carriage passes over the track straight sections, said track end sections being plate type surfaces arranged at a different level than said straight section rails and connected thereto by angularly related ramps.

10. A filing cabinet comprising a shallow elongated tray having an elevated island portion extending lengthwise of the central area of its work supporting surface and upstanding side walls encircling said island and defining therebetween a loop-type track composed of a pair of transversely spaced apart straight sections having their adjacent ends connected by substantially U-shaped end sections, said island having mounted on each end a friction reducing guide roller having portions thereof that project over portions of the associated U-shaped track end section, and one or more work supporting carriages adapted to be circulated around said track, each carriage comprising a tray having load supporting rolling means engageable with said track and friction reducing guide rollers projecting beyond the sides of the carriage adapted for engagement with the track side walls, said track straight sections each having track rails extending lengthwise thereof and engageable with certain of the carriage load supporting rolling means as the carriage passes over the track straight sections, said track end sections being plate type surfaces arranged at a different level than said straight section rails and connected thereto by angularly related ramps, said track ramps and plate type end sections being engageable with other of the carriage load supporting rolling means.

11. A filing cabinet comprising a shallow elongated tray having an elevated island portion extending lengthwise of the central area of its work supporting surface and upstanding side walls encircling said island and defining therebetween a loop-type track composed of a pair of transversely spaced apart straight sections having their adjacent ends connected by substantially U-shaped end sections, said island having mounted on each end a friction reducing guide roller that has edge portions thereof extending over portions of the associated U-shaped track end section, and one or more work supporting carriages adapted to be circulated around said track, each carriage comprising a tray having load supporting wheels and casters arranged for alternate engagement with said track and guide rollers projecting beyond the sides of the carriage adapted for engagement with the track side walls, said track straight sections each having track rails extending lengthwise thereof and engageable with the carriage load supporting wheels as the carriage passes over the track straight sections, and said track end sections having plate-like surfaces arranged at a different level than said straight section rails and connected thereto by angularly related ramps that are engageable with the carriage load supporting casters as the carriage passes around the track end sections.

12. A work support comprising a shallow elongated tray having an elevated island portion extending lengthwise of the central area of its work supporting surface and upstanding side walls encircling said island and defining therebetween a loop-type track composed of a pair of transversely spaced apart straight sections having their adjacent ends connected by substantially U-shaped end sections, said island having mounted on each end a friction reducing guide roller that has portions projecting above portions of the associated U-shaped track end section, said track straight sections each having track rails extending lengthwise thereof and said track end sections being arranged at a different level than said straight section rails and connected thereto by angularly related ramps.

13. An article support comprising an elongated table, a laterally compressed, loop-type track mounted on the table work surface, a work supporting area formed on the portion of the table encircled by said track, upstanding inner and outer side walls defining the substantially semi-circular track sections at opposite ends of the loop-type track, and one or more work supporting carriages arranged for movement around said loop-type track, each carriage comprising a tray having rolling means mounted thereon adapted to rollingly support the tray on the track and means carried by said tray arranged to engage the upstanding side walls at the ends of said track to assist in guiding the carriage around the substantially semi-circular track end sections.

References Cited in the file of this patent

UNITED STATES PATENTS

429,657	Spivey	June 10, 1890
597,837	Castle	Jan. 25, 1898
597,838	Castle	Jan. 25, 1898