

[54] MICROFILM READING APPARATUS

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[56] **References Cited**

UNITED STATES PATENTS

2,256,178 9/1941 Stuart 353/27
3,352,201 11/1967 Brownscombe..... 353/27
3,560,083 2/1971 Brownscombe..... 353/27

FOREIGN PATENTS OR APPLICATIONS

942,117 1/1949 France..... 353/27

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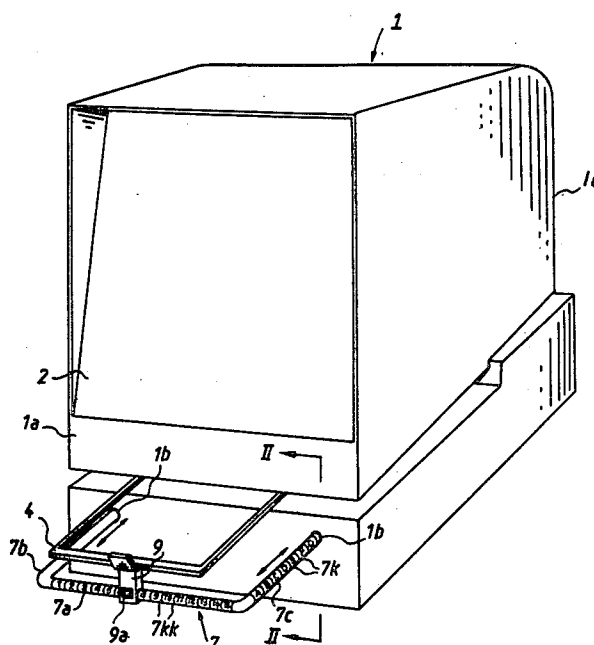
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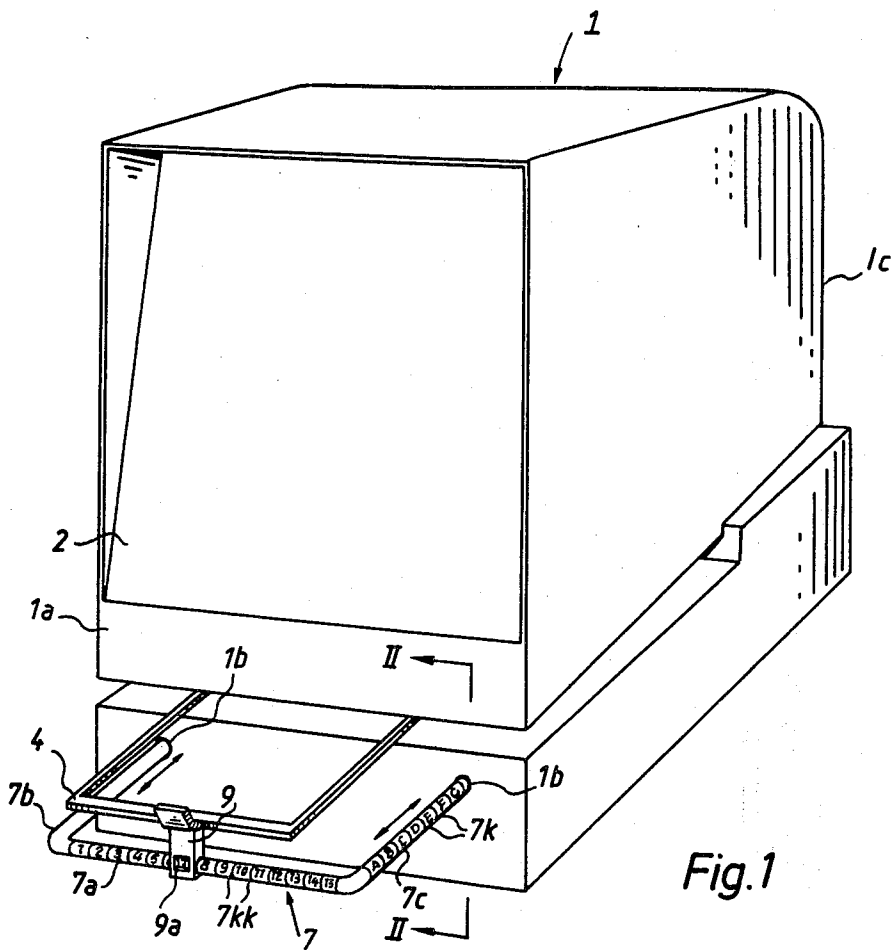
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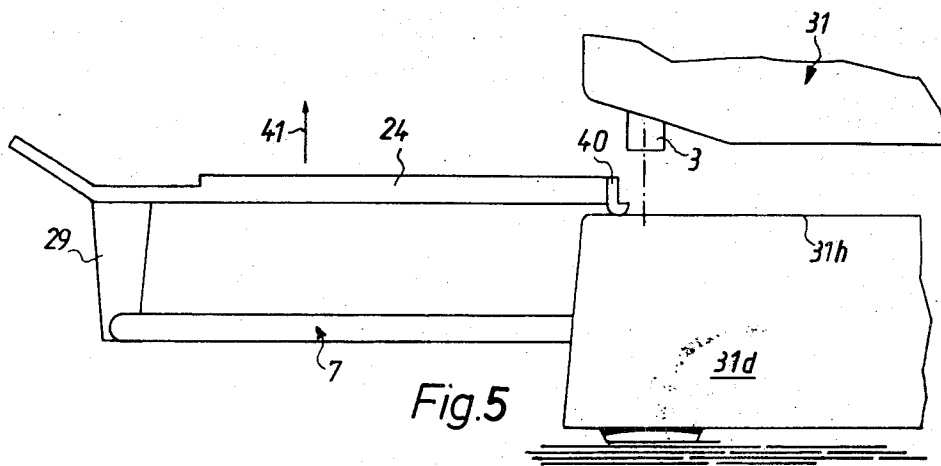
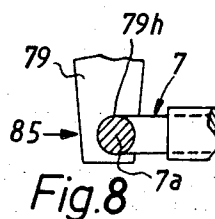
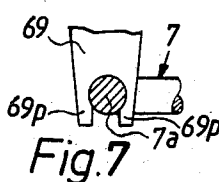
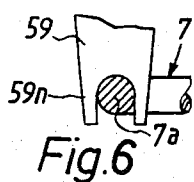
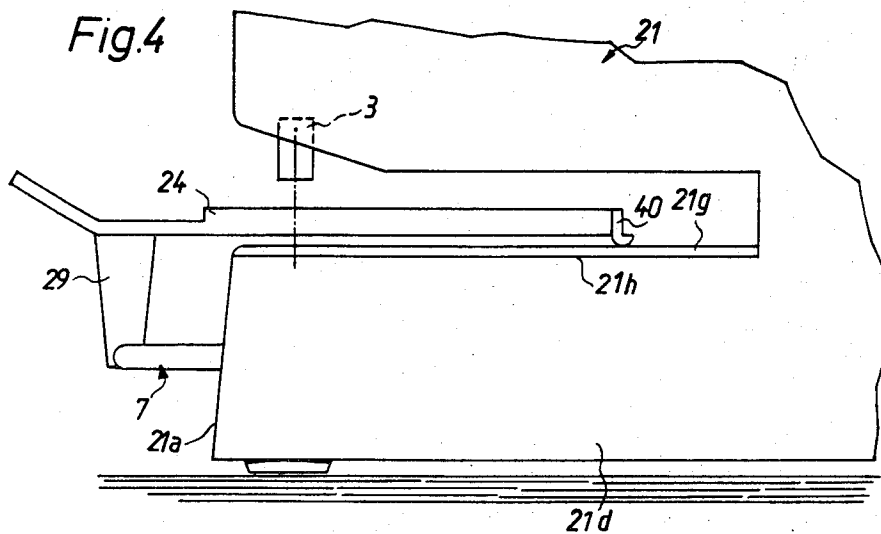
[57] **ABSTRACT**

A microfilm reading apparatus wherein the projection lens or lenses are mounted in the housing behind the front wall at a level above one or more microform holders which are movable in horizontal planes to place selected portions of microforms therein into register with the single lens or with one of several lenses. The outwardly extending portions of the holders rest on a supporting device which resembles a U-shaped yoke and has two parallel legs slidably mounted in the housing and one or more webs (one for each holder) which extend between the legs and are parallel to the front wall of the housing. Each holder has a prop which slidably engages the respective web whereby the webs insure that the respective holders maintain their microforms in planes which are normal to the optical axis or axes of the projection lens(es). The legs and/or the web or webs of the supporting device may be provided with graduations to facilitate the placing of selected portions of microforms into register with the lens or lenses by moving the web or webs with the holder or holders toward or away from the front wall of the housing and/or by moving the holder or holders lengthwise of the respective web or webs. Those portions of the housing, holder(s), prop(s) and supporting device which move relative to each other may consist of or may be coated with a synthetic plastic material having a low coefficient of friction (such as "Teflon").

19 Claims, 9 Drawing Figures







MICROFILM READING APPARATUS

BACKGROUND OF THE INVENTION

The present invention relates to improvements in microfilm reading apparatus, and more particularly to improvements in reading apparatus for discrete microfilm sheets or microforms. Still more particularly, the invention relates to improvements in microfilm reading of microimage retrieving apparatus of the type wherein one or more discrete microform containing holders are movable relative to the housing to place selected portions of microforms into register with one or more projection lenses.

It is already known to provide a microfilm reading apparatus with at least one holder whose preferably rectangular frame receives a microfilm sheet between two transparent panels and is movable relative to the housing in its own plane (preferably forwardly and backwards as well as sideways) so as to facilitate convenient and time-saving placing of a selected portion of the microfilm sheet into register with a projection lens whereby the image of the selected sheet portion can be projected onto a viewing screen. As a rule, the projection lens is located close to the front wall of the housing, i.e., close to that wall which is nearest to the person using the apparatus. This creates problems when the microfilm sheet portion which is to be observed is adjacent to the rear or inner edge portion of the holder, namely, at a maximum distance from and behind the screen which is normally mounted in the top portion of the front wall of the housing. Thus, if the user wishes to view a remote portion of the microfilm sheet, it is necessary to withdraw the major part of the holder forwardly and beyond the front wall of the housing. This means that the user must stand or sit at a considerable distance from the controls in or on the housing of the microfilm reading apparatus. Furthermore, if the holder is relatively large i.e., if the microfilm sheet is large, the weight of the exposed portion of the holder tends to tilt the holder so that the microfilm sheet is moved out of an optimum position relative to the projection lens.

In order to avoid such undesirable tilting of relatively large and heavy holders for microfilm sheets, certain microfilm reading apparatus are provided with fixedly mounted shelves, bases, platforms or analogous supports which extend forwardly beyond the front wall of the housing and serve to insure that the microfilm sheet in a fully or nearly fully withdrawn holder is maintained in a plane which is normal to the optical axis of the projection lens. A drawback of such fixedly mounted supports is that they contribute substantially to the space requirements of the microfilm reading apparatus, not only in actual use but especially in storage or during transport. Furthermore, the top surface of a fixedly mounted platform or shelf is likely to accumulate a layer of dust or other foreign matter which penetrates into and contaminates the microfilm reading apparatus in response to repeated extraction and retraction of the holder for microfilm sheets.

Another drawback of presently known microfilm reading apparatus is that the holder or holders for microfilm sheets cannot be readily removed from or reinstalled in the housing. This is due to the fact that the holders of presently known apparatus are movable relative to accurately machined and/or finished guide

means which insure that the microfilm sheets in such holders invariably remain in planes which are normal to the optical axis of the projection lens. Moreover, accurate guidance of holders for microfilm sheets is considered necessary in order to enable the user to rapidly locate a selected portion of a microfilm sheet, for example, relative to graduations or other indicia applied to the guide means. As a rule, the holder or holders are movable in a single plane. This presents problems when it becomes necessary to rapidly exchange a previously examined microfilm sheet with a different sheet or to detach the holder or holders for other reasons, for example, to gain access to parts which are mounted in the housing at a level below the plane of the holder or holders.

SUMMARY OF THE INVENTION

An object of the present invention is to provide a microfilm reading apparatus with novel and improved means for guiding and supporting one or more holders for microfilm sheets or microforms in such a way that the holder or holders can be moved to and fully supported in extended positions but that the apparatus still occupies little room during storage or in transport.

Another object of the invention is to provide a microfilm reading apparatus with novel and improved means for supporting one or more holding devices or holders for microfilm sheets in partly or fully extended positions.

A further object of the invention is to provide the microfilm reading apparatus with novel and improved means for releasably locating one or more microfilm containing holders in selected position(s) relative to one or more projection lenses and with novel and improved means for facilitating rapid and effortless placing of selected portions of microfilm sheets into register with the optical system of the apparatus.

An additional object of the invention is to provide a microfilm reading apparatus with one or more holders which can receive sheets of microfilm and can be readily removed from or reinserted into the housing without affecting the accuracy of guidance and positioning of microfilm sheets during movement and in selected positions relative to the optical system.

The invention is embodied in a microfilm reading apparatus which comprises a housing, at least one projection lens mounted in the housing, preferably close to the front wall of the housing below the customary projection screen, at least one holding device or holder for sheet-like microforms or microfilms which is preferably removably mounted in and is movable relative to the housing between a plurality of positions (preferably in a substantially horizontal plane at a level below the projection lens) to thereby place selected portions of the microform therein into register with the projection lens whereby a portion of the holding device extends from the housing in at least one position of the holding device so that the holding device tends to tilt forwardly and downwardly, and a supporting device which is preferably (but not necessarily) a U-shaped yoke and is movably mounted in the housing at a level below the holding device to be movable to and from an operative position in which the supporting device provides a rest for the aforementioned portion of the holding device. The apparatus may further comprise propping means which is mounted on the supporting or holding device and is movable along the holding or supporting device.

If the supporting device is a U-shaped yoke having two parallel legs which are movably mounted in the housing and a web which is normal to and extends between the legs outside of the housing, the propping device may be rigidly secured to the aforementioned portion of the holding device and its lower end portion may be separable from and in sliding engagement with the web. Such lower end portion of the propping device may engage the web by snap action and is preferably designed in such a way that it surrounds the web from three sides.

The novel features which are considered as characteristic of the invention are set forth in particular in the appended claims. The improved microfilm reading apparatus itself, however, both as to its construction and its mode of operation, together with additional features and advantages thereof, will be best understood upon perusal of the following detailed description of certain specific embodiments with reference to the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view of a microfilm reading apparatus which embodies one form of the invention;

FIG. 2 is a fragmentary transverse vertical sectional view as seen in the direction of arrows from the line II—II of FIG. 1;

FIG. 3 is a fragmentary perspective view of a second microfilm reading apparatus;

FIG. 3a is a fragmentary plan view of a modification of the structure shown in FIG. 3;

FIG. 4 is a fragmentary side elevational view of a third microfilm reading apparatus;

FIG. 5 is a similar fragmentary side elevational view of a microfilm reading apparatus which constitutes a slight modification of the apparatus shown in FIG. 4;

FIG. 6 illustrates a first form of a separable connector between a microform holding device and its supporting device;

FIG. 7 illustrates a modified connector; and

FIG. 8 illustrates a further connector.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring first to FIGS. 1 and 2, there is shown a microfilm reading or microimage retrieving apparatus which comprises a housing 1 having a front wall 1a provided with an opening for a projection screen 2. The projection lens 3 is mounted in the housing 1 close to the front wall 1a and at a level below the screen 2. The housing 1 further accommodates guide means for a single microfilm sheet or microform holding device or holder 4 which is movable to parallelism with as well as at right angles to the plane of the front wall 1a. The guide means for the holding device or holder 4 comprises two parallel horizontal guide rods 6 (only one shown) which extend at right angles to the plane of the front wall 1a and are tracked by followers 5a constituting supporting brackets for a further guide rod 5 which is parallel to the plane of the front wall 1a and pivotably supports the rear or inner edge portion of the holder 4. The front or outer edge portion of the holder 4 is provided with a handgrip portion or handle 4a which can be grasped by hand to pull or push the followers 5a along the respective guide rods 6 whereby the holder 4 is being withdrawn from or pushed into the housing

1, or to move the holder 4 lengthwise of the guide rod 5 whereby the holder moves sideways. Such mounting of the holder 4 renders it possible to place any selected portion of the microfilm sheet or microform therein into register with the projection lens 3 so that the latter projects the image of the selected microfilm sheet portion onto the screen 2 in a manner well known from the art and not forming part of the present invention. The light source of the microfilm reading apparatus is preferably installed at a level below the holder 4, and the upper portion of the housing 1 contains one or more mirrors which reflect the image of the selected microfilm portion onto the screen 2. The holder 4 normally comprises a rectangular frame and transparent upper and lower panels which may consist of vitreous material and are mounted in the frame at the opposite sides of the microfilm sheet or microform. The upper panel is preferably pivotable relative to the lower panel to allow for rapid exchange of microfilm sheets. Such exchange normally necessitates nearly complete withdrawal of the holder 4 from the housing 1 so that the upper panel can be pivoted about the axis of the guide rod 5.

In accordance with a feature of the invention, the housing 1 further supports a substantially U-shaped supporting device or yoke 7 which is mounted at a level below the holder 4 and has two legs 7b, 7c extending in parallelism with the guide rods 6. These legs are reciprocally mounted in guide elements here shown as brackets 8 mounted in the interior of the housing 1. The front wall 1a has circular openings 1b for the legs 7b and 7c, and the supporting device 7 further comprises a horizontal web 7a which extends between the front ends of the legs 7b, 7c and is parallel to the guide rod 5 and front wall 1a.

The holder 4 is provided with or connected to a downwardly extending propping device 9 (hereinafter called prop) which can be separably coupled to the web 7a of the supporting device 7 to insure that the exposed portion of the partially or nearly fully extended holder 4 maintains the microfilm sheet between its panels in a plane which is normal to the optical axis and coincides with the focal plane of the projection lens 3. The prop 9 can slide lengthwise of the web 7a and can move with the web toward and away from the outer side of the front wall 1a. As shown in FIG. 2, the lower end portion of the prop 9 is bifurcated, as at 9n, so as to surround the adjacent portion of the web 7a from three sides. This insures that the holder 4 cannot perform stray movements (toward and away from the rear wall 1c of the housing 1) while it is caused to move sideways, i.e., while the prop 9 travels lengthwise of the web 7a. It was found that, in combination with the guide rod 5, the prop 9 suffices to insure an accurate positioning of the holder 4 and of the microfilm sheet therein in any selected position of the microfilm sheet relative to the projection lens 3. If desired, the width of the space between the two downwardly extending prongs of the lower end portion 9n of the prop can be selected in such a way that it is somewhat less than the diameter of the preferably (but not necessarily) round web 7a so that the prop can engage the web by snap action. Also, the material of the prop 9 may be at least slightly elastic to allow for convenient attachment or detachment of the lower end portion 9n from the web 7a. It is further clear that the prop 9 or an analogous propping device can be mounted on the web 7a; the

upper end portion of the prop is then preferably detachably connected with the front edge portion of the frame of the holder 4 so that the latter can be moved relative to the prop during movement in the longitudinal direction of the web 7a. The web 7a provides a rest for the exposed portion of the holder 4.

It is also within the purview of the invention to provide the lower end portion of the prop 9 with a suitable detent, such as a leaf spring, which bears against the web 7a with sufficient force to prevent accidental or unintentional displacements of the holder 4.

The holder 4 will be withdrawn to its outer end position in order to allow for exchange of microfilm sheets as well as to permit convenient cleaning of its light-transmitting panels. When the microfilm reading apparatus is not in use, the holder 4 is depressed into the interior of the housing 1 whose front wall 1a may be provided with a suitable opening to accommodate or to permit passage of the handgrip portion 4a; this enables the operator to practically completely conceal the holder 4 in the housing 1. The supporting device 7 is also depressible into the housing 1 so that only the web 7a remains exposed when the microfilm reading apparatus is to be stored away, transported to a different locale of use, or introduced into a suitable carrying case or box.

The legs 7b, 7c (or at least one of these legs) can be provided with suitable graduations (e.g., in the form of narrow circumferential or arcuate grooves 7k) which enable the operator to rapidly move the supporting device 7 to a selected position with reference to the front wall 1a, i.e., to locate the web 7a at a selected distance from the front wall. The graduations 7k can be numbered and the guide elements 8 for the legs 7b, 7c can be provided with leaf springs 8n which can penetrate into the nearest graduations 7k to thus serve as detent means to yieldably hold the supporting device 7 in a selected position. This facilitates the operator's work in rapidly placing a selected portion of the microfilm sheet in the holder 4 into register with the projection lens 3. Similar graduations 7kk can be provided on the web 7a, and the prop 9 then carries a leaf spring which can snap into the nearest graduation 7kk of the web 7a to yieldably hold the holder 4 in a selected lateral position (as considered in the longitudinal direction of the guide rod 5). As shown in FIG. 1, the graduations 7k of the leg 7b and/or 7c can be denoted by capital letters and the graduations 7kk of the web 7a can be denoted by numerals. A system of coordinates, similar to those used on geographic maps, can be provided on (e.g., etched into) the upper panel of the holder 4 to further facilitate the work of the operator who wishes to place a selected portion of the microfilm sheet into register with the lens 3.

The lower end portion 9n of the prop 9 is provided with an index (e.g., a window) 9a which enables the user to immediately locate that graduation 7kk on the web 7a which indicates the momentary position of the holder 4, as considered in the longitudinal direction of the guide rod 5.

FIG. 3 illustrates a portion of a modified microfilm reading apparatus which comprises two discrete holding devices or holders 14 and 14' each of which can receive and move a separate microfilm sheet or microform. The front edge portions of frames of the holders 14, 14' are respectively provided with centrally located downwardly extending props 19, 19' which can separa-

bly engage the webs 17a, 17a' of a U-shaped supporting device 17. The legs of the supporting device 17 are shown at 17b and 17c. These legs are mounted in the housing 11 in the same way as described in connection with FIG. 2 for the legs 7b, 7c.

The holder 14 is movable lengthwise of the web 17a as well as with the entire supporting device 17, depending upon whether the user wishes to move the holder 14 sideways or forwardly or rearwardly. The same applies for the holder 14' and the web 17a'.

The props 19, 19' are respectively provided with windows or indices 19a, 19a' which expose the adjacent graduations of the respective webs 17a, 17a' to thus enable the user to rapidly determine the momentary lateral positions of the holders 14, 14'. In this embodiment of the invention, the movements of the holder 14 forwardly and rearwardly, i.e., toward and away from the rear wall of the housing 11, must be shared by the holder 14', and vice versa. The microfilm reading apparatus of FIG. 3 may be provided with two projection lenses, one for each of the holders 14 and 14'. Reference may be had to the commonly owned copending U.S. Pat. application Ser. No. 240,981, filed Apr. 14, 1972 by Pfeifer et al. Alternatively, the microfilm reading apparatus of FIG. 3 may be provided with a single projection lens whose mount can "ride" from the upper panel 14p of the holder 14 onto the upper panel 14p' of the holder 14' or vice versa, for example, in a manner as disclosed in the common owned copending U.S. Pat. application Ser. No. 238,762 filed Mar. 28, 1972 by Pfeifer et al.

The apparatus of FIG. 3 can be modified by providing a discrete U-shaped, F-shaped or analogous supporting device for each of the two holders 14 and 14'. The illustrated supporting device 17 is then preferably replaced by a simpler supporting device which does not have the second web 17a' and serves as a rest for the holder 14. Still further, the supporting device for one of the holders 14, 14' can be provided in addition to a discrete second supporting device for the holder 14' or 14, and the size of such second supporting device may exceed the dimensions of the first supporting device. The two supporting devices may be mounted in such a way that they are located in a common plane, i.e., one thereof can be disposed within the confines of the other supporting device as shown in FIG. 3a wherein the reference characters 111, 117, 117' respectively denote a housing, a first U-shaped supporting device for one of the holders 14, 14' (not shown) and the supporting device for the other of the holders 14, 14'. The supporting devices 117, 117' are movable in a common plane with or relative to each other. The fact that the holders 14, 14' cannot move freely relative to each other in any and all desired directions does not adversely affect the versatility of the apparatus shown in FIG. 3 or 3a because the user is still able to place any selected portion of the microfilm sheet in the holder 14 or 14' into register with a single projection lens or with one of two discrete projection lenses.

The legs 17b, 17c and the webs 17a, 17a' of the supporting device 17 shown in FIG. 3 are also provided with graduations to facilitate the operator's work in rapidly placing selected portions of microfilm sheets in the holders 14, 14' into register with the projection lens or lenses. The graduations indicating the lateral positions of the holders 14, 14' are observable in the windows 19a, 19a' of the respective props 19, 19'. The

pointers for the graduations on the leg 17b and/or 17c, 17b can be applied to the front side of the front wall 11a. The graduations of the supporting device 17 shown in FIG. 3 are assumed to be notches 17k and 17kk which can receive suitable detent springs (not shown) in the housing 11 (for the notches 17k of the leg 17b and/or 17c) and in the props 19, 19' (for the notches 17kk in the webs 17a, 17a').

In the microfilm reading apparatus of FIG. 4, the rear edge portion of the rectangular frame of a single microfilm holding device or holder 24 is provided with or connected to at least one runner 40 which is slidable along and transversely of elongated projections or ribs 21g provided on a supporting surface 21h of the base 21d of the housing 21. The supporting device 7 of FIG. 4 corresponds to that of FIGS. 1 and 2. The prop 29 is separably coupled to the web of the supporting device 7 so that the device 7 moves with the holder 24 when the latter is being moved forwardly or rearwardly (in a direction to the left or to the right, as viewed in FIG. 4). The prop 29 slides along the web of the supporting device 7 when the holder 24 is moved sideways. The sidewise movement of the holder 24 can take place simultaneously with its forward or rearward movement, i.e., the holder 24 can move simultaneously with as well as relative to the supporting device.

An advantage of the apparatus of FIG. 4 is that the holder 24 can be withdrawn as soon as the prop 29 is disconnected from the web of the support device 7. In order to further reduce the force which must be applied to move the holder 24 relative to the housing 21, the runner 40, the projections 21g, the supporting device 7 and/or the frame of the holder 24 and the adjacent portions of the housing 21 may consist at least in part of a material having a low coefficient of friction, for example, "Teflon" (trademark) or another suitable synthetic plastic substance. The same applies for the corresponding parts of the microfilm reading apparatus shown in FIGS. 1-2, 3 and 3a. Alternatively, the movable and the adjacent stationary parts of the microfilm reading apparatus may be merely coated with layers consisting of a material exhibiting the just outlined characteristics. For example, the prop 9 and web 7a of FIGS. 1-2 or the legs 7b, 7c and the respective guide elements 8 can be coated with "Teflon."

The ribs 21g are preferably normal to the runner 40.

The mounting of the holder 24 in a manner as shown in FIG. 4 can be used with advantage in microfilm reading apparatus which do not embody the improved movable supportive device or devices for one or more holders.

FIG. 5 illustrates a portion of a further microfilm reading apparatus which constitutes a slight modification of the apparatus of FIG. 4. The main difference is that the base 31d of the housing 31 is provided with a smooth supporting surface 31h which does not have any ribs, such as the ribs 21g of FIG. 4. The runner 40 at the rear or inner end of the holder 24 is slidable directly on the surface 31h which can be provided on a layer of "Teflon" or a material exhibiting similar characteristics. The holder 24 is shown in fully extending position in which it is ready to be lifted off the surface 31h (see the arrow 41) as soon as the prop 29 is disengaged from the web of the supporting device 7.

FIG. 6 illustrates in detail the lower end portion of a prop 59 separably connected with the web 7a of a U-

shaped supporting device 7 which may be identical with the supporting device of FIGS. 1-2. The lower end portion 59n of the prop 59 is bifurcated and the width of the slot between its prongs in undeformed condition of the prop 59 is slightly less than the diameter of the web 7a so that the prop can engage the web by friction and is thereby held against accidental detachment from or against accidental movement in the longitudinal direction of the web. As mentioned before, the prop can consist of elastomeric material but it is equally within the scope of the invention to provide the web 7b with an outer layer of elastomeric material so that the prop 59 may be a rigid piece of wood, metal or plastic.

FIG. 7 shows a slightly modified prop 69 which has elastic prongs 69p defining a slot whose width is greatest at the roots of the prongs 69p. When the prop 69 is pushed downwardly, the elastically deformable prongs 69p yield before the web 7a snaps into the enlarged upper end portion of the slot therebetween.

In FIG. 8, the lower end portion of the prop 79 is provided with a lateral slot 79h which can receive the web 7a in response to movement of the prop 79 in the direction indicated by arrow 85. If desired, the prop 79 can be pivotally mounted on the front portion of the frame of the respective holder so that it can turn during movement into or from engagement with the web 7a. In each of the embodiments shown in FIGS. 6-8, the lower end portion of the prop surrounds the adjacent portion of the web 7a at three sides. Of course, the connection between the prop and the supporting device can be established or terminated in a number of other suitable ways, for example, by resorting to leaf springs, buckles, yokes or otherwise configured connectors. Also, the web 7a can be provided with an inverted T-shaped groove to receive a complementary follower of the prop which allows the prop to slide in the longitudinal direction of the web. Analogously, the web 7a can be provided with a longitudinally extending rib which is tracked by a slotted follower of the prop or holder.

It is further within the purview of the invention to provide the housing of the microfilm reading apparatus with a supporting device which is rotatably secured to the front wall so that it can pivot between a substantially horizontal or operative position and a substantially vertical or inoperative position. If the supporting device is pivotable, the front wall of the housing may be provided with a recess to receive the supporting device when the latter assumes its inoperative position. Such recess can be dimensioned to further receive the prop, especially if the prop is of the type which is separable from the holder. Also, a further recess (not shown), can be provided in the front wall of the housing to receive the prop while the latter remains connected with the holder and while the holder is held in the fully depressed or inserted position. Pivotable supporting devices can be used with advantage in microfilm reading apparatus of the type having a relatively high base or in apparatus wherein the projection lens is not very close to the front wall so that a partial withdrawal of the holder suffices to place the innermost portion of the microfilm sheet therein into register with the lens. For example, if the base 21d of the housing 21 shown in FIG. 4 were somewhat higher and the projection lens 3 were placed further to the right, the legs of the supporting device 7 of FIG. 4 could be pivotably secured to the front wall 21a so that the device 7 could be pivoted down against the front side of or into a re-

cess provided therefor in the front side of the base 21d.

The microfilm reading apparatus may also employ a supporting device with three or more parallel legs or an F-shaped supporting device wherein the web extends beyond one of the legs.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features which fairly constitute essential characteristics of the generic and specific aspects of our contribution to the art and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the claims.

What is claimed as new and desired to be protected by Letters Patent is set forth in the appended claims.

We claim:

1. In a microfilm reading apparatus, a combination comprising a housing; at least one projection lens mounted in said housing; at least one microform holding device mounted in and movable relative to said housing between a plurality of positions to thereby place selected portions of a microform therein into register with said lens, a portion of said holding device extending from said housing in at least one of said plurality of positions; and a supporting device for said portion of said holding device, said supporting device comprising a substantially U-shaped yoke having two parallel legs slidably mounted in said housing and a web extending between said legs, said yoke being movable relative to said housing to and from at least one operative position in which said web provides a rest for said portion of said holding device.

2. A combination as defined in claim 1, further comprising propping means provided between said portion of said holding device and said web.

3. A combination as defined in claim 1, wherein said holding device comprises a frame and said housing is provided with a supporting surface below said frame, said frame having runner means slidably engaging said supporting surface.

4. A combination as defined in claim 3, wherein said frame is of rectangular shape and comprises a rear edge portion normally located in the interior of said housing, said runner means being provided on said rear edge portion of said frame.

5. A combination as defined in claim 1, wherein said housing is provided with a ribbed supporting surface for said holding device and said holding device is slidable along said supporting surface.

6. A combination as defined in claim 1, wherein said housing and said holding device comprise adjacent portions and said last mentioned portion of said holding device is slidable along said portion of said housing, at least one of said last mentioned portions consisting of at least in part synthetic plastic material having a low coefficient of friction.

7. A combination as defined in claim 1, wherein said housing and said holding device comprise adjacent portions and said last mentioned portion of said holding device is slidable along said portion of said housing, at least one of said last mentioned portions being provided with an external layer consisting of synthetic plastic material having a low coefficient of friction.

8. A combination as defined in claim 1, wherein said housing and said supporting device comprise adjacent

portions and said portion of said supporting device includes said legs, at least one of said last mentioned portions consisting of at least in part of a synthetic plastic material having a low coefficient of friction.

9. A combination as defined in claim 1, wherein said portion of said holding device includes a propping device movable along said web, at least one of said propping and supporting devices consisting of a synthetic plastic material having a low coefficient of friction.

10. In a microfilm reading apparatus, a combination comprising a housing; at least one projection lens mounted in said housing; at least one microform holding device mounted in and movable relative to said housing between a plurality of positions to thereby place selected portions of the microform therein into register with said lens, a portion of said holding device extending from said housing in at least one of said plurality of positions; a supporting device for said portion of said holding device, said supporting device comprising a substantially U-shaped yoke having a pair of legs movably mounted in said housing and a web extending between said legs, said yoke being movable relative to said housing to and from at least one operative position in which said web provides a rest for said portion of said holding device; and a propping device provided on said portion of said holding device and having a lower end portion straddling a portion of said web.

11. A combination as defined in claim 10, wherein said lower end portion of said propping device is movable lengthwise of said web and surrounds said web from three sides.

12. A combination as defined in claim 10, wherein said lower end portion of said propping device clampingly engages said web.

13. In a microfilm reading apparatus, a combination comprising a housing; at least one projection lens mounted in said housing; first and second microform holding devices mounted in and movable relative to said housing between a plurality of positions to thereby place selected portions of the microform therein into register with said lens, a portion of each of said holding devices extending from said housing in at least one of said plurality of positions of the respective holding device, said second holding device being disposed in a plane which is parallel with and adjacent to the plane of said first holding device; and a supporting device for said portions of said holding devices, said supporting device comprising two legs movably mounted in said housing and first and second webs extending between said legs, said supporting device being movable relative to said housing to and from at least one operative position in which said first and second webs respectively provide rests for said portions of said first and second holding devices.

14. A combination as defined in claim 13, wherein said housing comprises a front wall and said webs are parallel with and located in front of said front wall in the operative position of said supporting device, and further comprising two discrete propping devices each extending between one of said webs and the respective holding device.

15. In a microfilm reading apparatus, a combination comprising a housing; at least one projection lens mounted in said housing; at least one microform holding device mounted in and movable relative to said housing between a plurality of positions to thereby place selected portions of the microform therein into

register with said lens, a portion of said holding device extending from said housing in at least one of said plurality of positions; and a supporting device for said portion of said holding device, said supporting device comprising a U-shaped yoke having two legs movably mounted in said housing and a web extending between said legs and provided with graduations, said yoke being movable relative to said housing to and from at least one operative position in which said web provides a rest for said portion of said holding device, said holding device being movable lengthwise of said web and comprising a propping device slidably engaging said web and having index means for pinpointing selected graduations on said web.

16. A combination as defined in claim 15, wherein said propping device comprises a lower end portion which separably engages said web and said index means comprises a window provided in said lower end portion of said propping device.

17. In a microfilm reading apparatus, a combination comprising a housing; at least one projection lens mounted in said housing; at least one microform holding device mounted in and movable relative to said housing between a plurality of positions to thereby place selected portions of the microform therein into register with said lens, a portion of said holding device extending from said housing in at least one of said plurality of positions; a supporting device for said portion of said holding device, said supporting device comprising a U-shaped yoke having two parallel legs movably mounted in said housing and a web extending between said legs, at least said web of said yoke being provided with graduations and said yoke being movable relative to said housing to and from at least one operative position in which said web provides a rest for said portion of said holding device; and a propping device secured to said portion of said holding device and movable lengthwise of said web whereby said graduations indicate the selected position of said holding device relative to said projection lens.

18. In a microfilm reading apparatus, a combination comprising a housing; at least one projection lens mounted in said housing; at least one microform holding device mounted in and movable relative to said housing between a plurality of positions to thereby

place selected portions of the microform therein into register with said lens, a portion of said holding device extending from said housing in at least one of said plurality of positions; and a supporting device for said portion of said holding device, said supporting device comprising a U-shaped yoke having two parallel legs movably mounted in said housing and a web extending between said legs, said yoke being movable relative to said housing to and from at least one operative position in which said web provides a rest for said portion of said holding device and said holding device being movable in the longitudinal direction of said legs, at least one of said legs being provided with graduations to facilitate the positioning of said holding device relative to said projection lens.

19. In a microfilm reading apparatus, a combination comprising a housing; at least one projection lens mounted in said housing; at least one microform holding device mounted in and movable relative to said housing between a plurality of positions to thereby place selected portions of the microform therein into register with said lens, a portion of said holding device extending from said housing in at least one of said plurality of positions; and a supporting device for said portion of said holding device, said supporting device comprising a U-shaped yoke having a pair of parallel legs movably mounted in said housing and a web extending between and at right angles to said legs, said yoke being movable relative to said housing to and from at least one operative position in which said web provides a rest for said portion of said holding device, said web and at least one of said legs being provided with graduations in the form of notches and said holding device being movable in the longitudinal direction of said web and of said legs and having a propping device slidably engaging said web, said propping device having detent means arranged to extend into a selected graduation of said web to thereby yieldably hold said holding device in a selected position relative to said web, said legs being movable lengthwise into and from said housing and said housing comprising detent means arranged to enter a selected graduation of said one leg to thereby yieldably hold said yoke in a selected position relative to said housing.

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