United States Patent

[11] 3,629,910

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[54] **HANDLE ASSEMBLY FOR PICTURE PROJECTION SCREEN**
1 Claim, 8 Drawing Figs.

[52] U.S. Cl. **24/201,** 160/24, 248/171
[51] Int. Cl. **G03b 21/56**
[50] **Field of Search** ..... 160/24; 350/117; 24/201 SL, 201 LP; 248/171

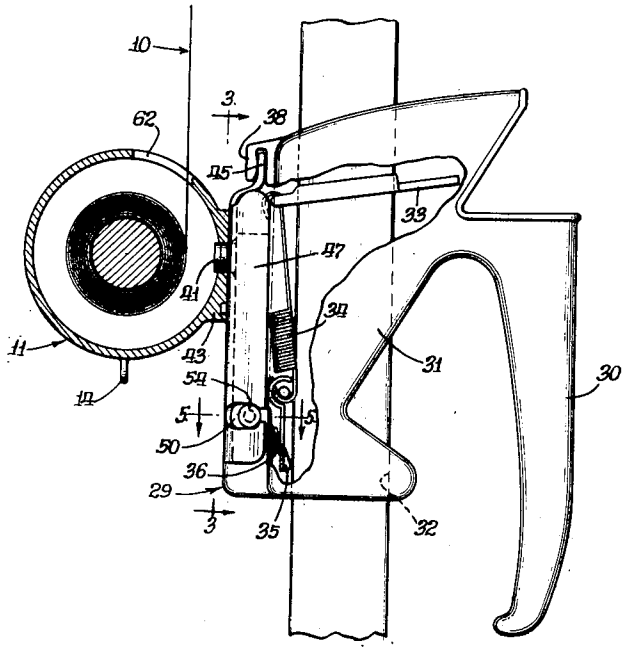
[56] **References Cited**

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3,022,816	2/1962	Petrick et al.	160/24
3,182,714	5/1965	Petrick	160/24
3,289,737	12/1966	Kozel	160/24

Primary Examiner—Donald A. Griffin
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ABSTRACT: A rollup-type screen for receiving projected pictures and constructed to operate either on a floor stand or hung from a wall or ceiling. The construction includes a releasable latch mechanism between the screen roll housing and the floor stand.



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SHEET 1 OF 2

Fig. 1.

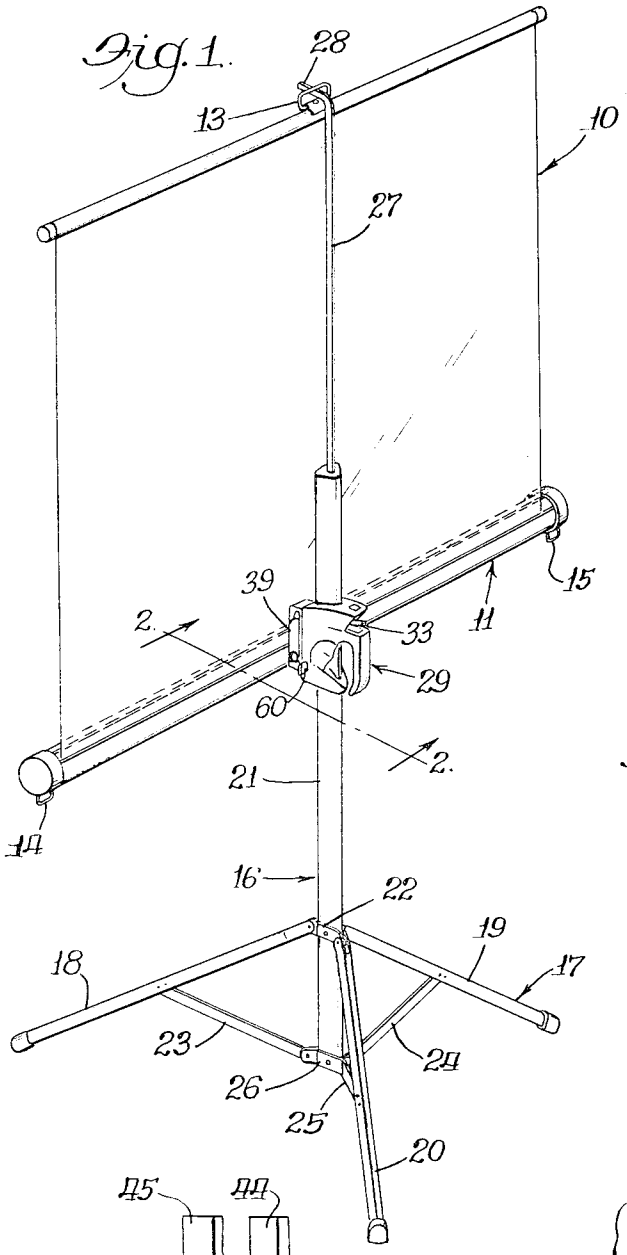


Fig. 3.

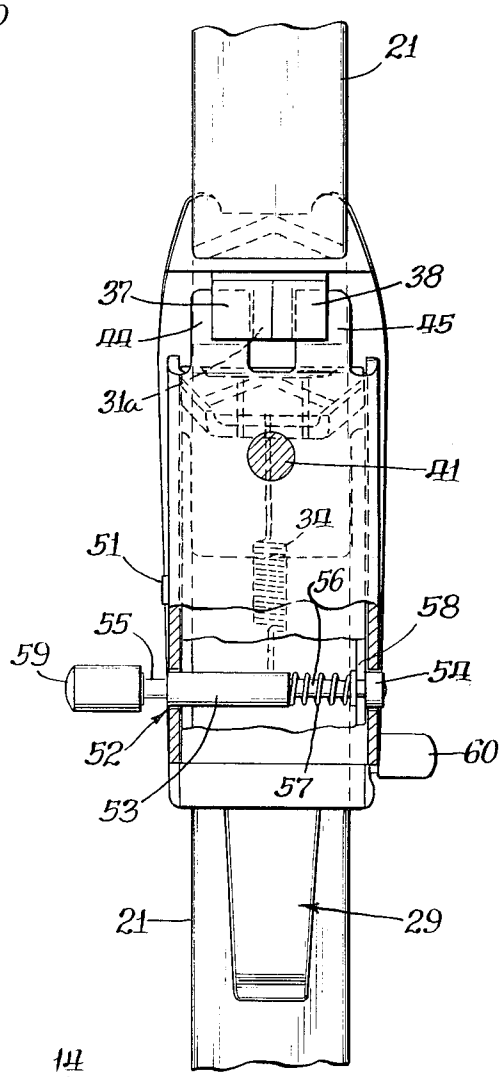


Fig. 7.

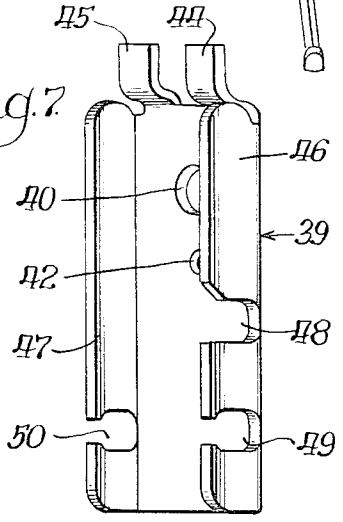
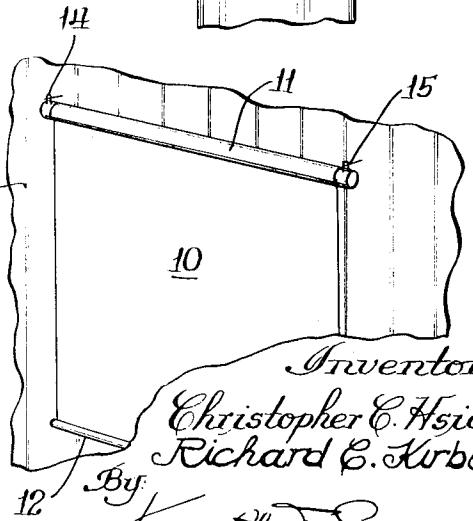


Fig. 8.



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Fig. 2.

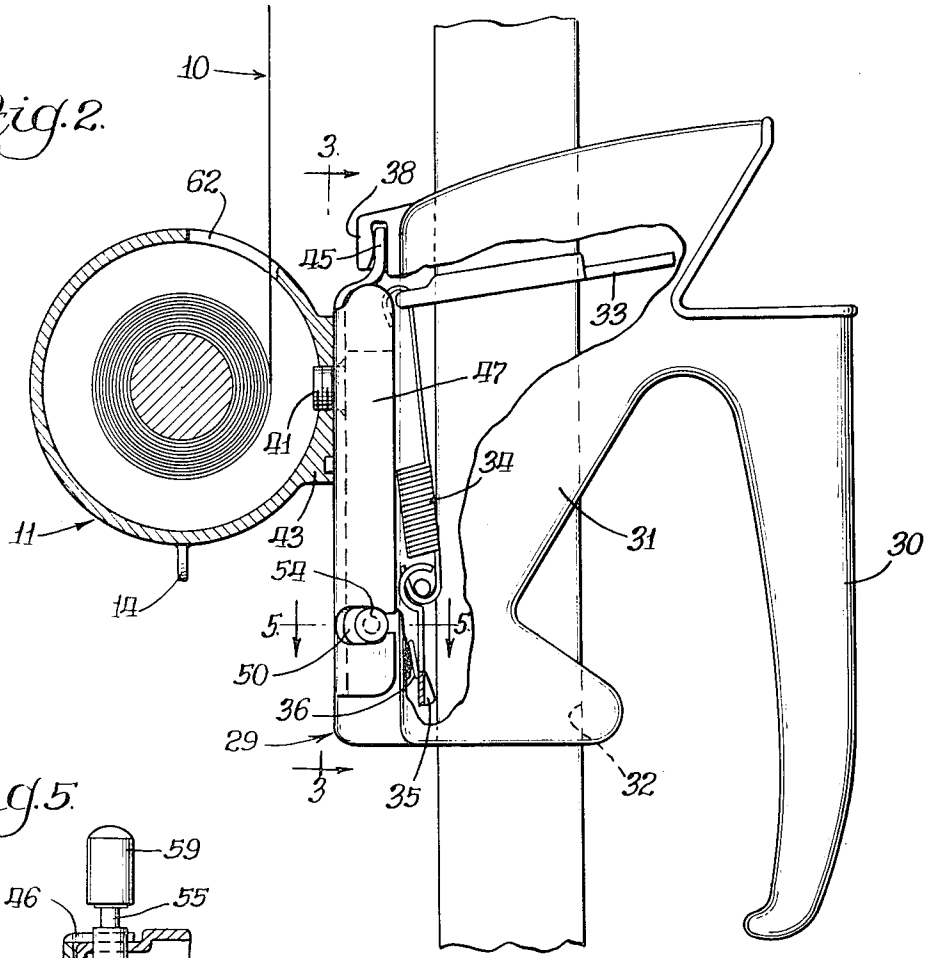


Fig. 5.

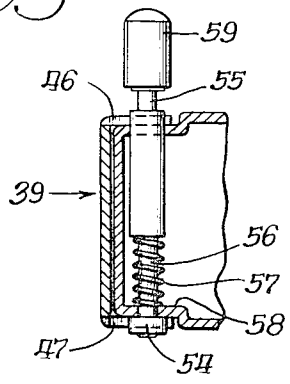


Fig. 6.

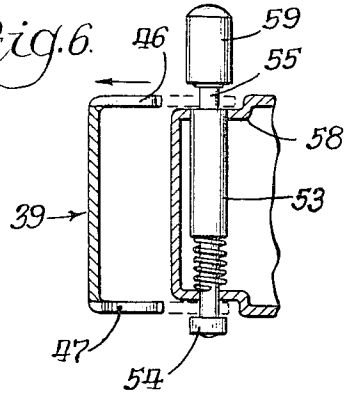
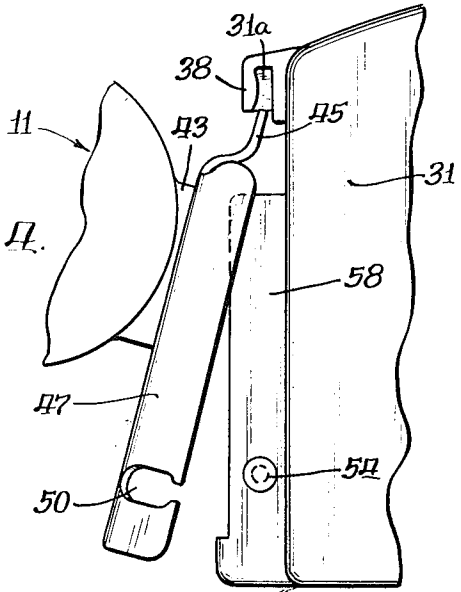


Fig. 4.



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HANDLE ASSEMBLY FOR PICTURE PROJECTION SCREEN

BACKGROUND OF THE INVENTION

1. Field of the Invention

Rollup picture-receiving screens of the type generally found on foldable tripod stands are enclosed within a tubular housing. The tubular housing is arranged for positioning either horizontally or vertically relative to a vertical floor standard. The screen is in storage position when the tubular housing is vertically disposed adjacent the floor-engaging standard. When the tubular housing is horizontally disposed the screen is pulled out like a rolled-up shade causing it to be extended for reception of a projected picture. The juncture of the tubular housing and the floor standard generally comprises a single device which includes a handle, a means for adjustably supporting the standard relative thereto, and a connection to the tubular housing. It is this connection which in the past has been only a swivel connection and in the present invention has been made separable by a quick disconnect so the tubular housing with its included rolled-up screen may be removed from the floor support and hung from a wall or ceiling and the screen thereupon extended to receive projected pictures.

2. Description of the Prior Art

A search of the prior art discloses that the patent to Braddon, U.S. Pat. No. 3,207,206 relates to a combination camera mount and screen mount on a tripod support. Braddon has no quick disconnect and the providing of a single mounting for two devices is a different concept than the present invention. The prior patent to Petrick et al., U.S. Pat. No. 3,022,816 shows a disconnect on a tripod-supported projection screen, but the Patrick et al. device is quite different in construction from the device in the present invention.

SUMMARY OF THE INVENTION

It is a principal object of the present invention to provide a quick disconnect for a rollup-type picture-receiving screen from a floor standard for use as a hanging screen.

An important object of this invention is to provide a tubular housing for a rollup-type picture screen with a bracket attached thereto at substantially its center and a combination handle and floor standard removably connected to the bracket.

Another important object of this invention is to provide a pushbutton latch mechanism intermediate a floor standard handle and a tubular housing for a rollup picture-receiving screen.

Other and further important objects of this invention will become apparent from the disclosures in the following specification and accompanying drawings.

IN THE DRAWINGS

FIG. **1** is a perspective view of a projected picture-receiving screen mounted on a floor stand.

FIG. **2** is a sectional view taken on the line **2—2** of FIG. **1**.

FIG. **3** is a sectional view taken on the line **3—3** of FIG. **2**.

FIG. **4** is a view similar to FIG. **2** with the screen roll in the process of being removed.

FIG. **5** is a sectional view taken on the line **5—5** of FIG. **2**.

FIG. **6** is a view similar to FIG. **5** with the screen roll in the process of being removed.

FIG. **7** is a detail perspective view of the bracket utilized intermediate the screen roll and the handle on the floor stand.

FIG. **8** is a perspective view showing the screen roll carried on a wall and used as a picture-receiving screen separately from the floor stand.

AS SHOWN IN THE DRAWINGS

The reference numeral **10** indicates generally a picture-receiving screen to be used for projected slide or movie pictures. The screen **10** is provided with a tubular housing **11** into

which it rolls in the manner of a shade for storage. When the screen is used on a floor stand such as shown in FIG. **1** of the drawings the tubular housing **11** constitutes the bottom of the screen during its extension. When the screen is to be hung on a wall such as depicted in FIG. **8** of the drawings the tubular housing **11** constitutes the top of the screen which is extended downwardly therefrom as a viewing surface. The screen **10** has a cross rod **12** at its end opposite the tubular housing **11** as shown in FIGS. **1** and **8**. This rigid rod keeps the flexible screen **10** generally flat in its transverse extension and provides the pulling means for extending the screen to and from its enclosure within the tubular housing **11**. The rod **12** is used as a pulling means for extending the screen **10**. The rod **12** is provided with a hook **13** in the center thereof to act in the dual capacity of a hand-pulling means and a device to hold the screen in an extended condition. The tubular housing **11** is provided for the purpose of hooking the screen to wall supports such as shown in FIG. **8** of the drawings.

As best shown in FIG. **1** the screen **10** is shown mounted on a floor stand **16**. The stand **16** includes a foldable tripod base **17** consisting of diverging floor-engaging legs **18**, **19**, and **20**. The stand further includes a lower vertical standard **21** which is preferably triangular in cross section. A hinge bracket **22** is vertically slidable on the triangular-shaped standard **18**. Braces **23**, **24**, and **25** extend between midpoints of the tripod legs **18**, **19**, and **20** to the base of the vertical standard **21**. A hinge bracket **26** encircles the bottom of the standard **18** and hingedly receives the inner ends of the braces **23**, **24**, and **25**. The floor stand **16** further includes an upper vertical standard **27** which telescopically engages the lower vertical standard **21**. The upper end of the upper vertical standard **27** is bent over at right angles as shown at **28** and constitutes a support to receive the hook **13** mounted centrally of the screen's cross rod **12**. The engagement of the hook **13** with the right-angle bend **28** holds the screen **10** in extended position from the tubular housing **11**.

A handle fixture is designated generally by the numeral **29**. It is by this handle means that the floor stand picture screen is transported. The handle **29** includes a hand-gripping portion **30** and a main body portion **31**. The body portion includes a vertical passage **32**, triangular in cross section, to receive the triangularly shaped lower standard **21**. An angularly disposed, shiftable plate **33** is provided in the upper portion of the passage **32** to cause a locking of the handle relative to the vertical standard by means of the cocking of the plate **33** in the passageway **32**. A coil spring **34** has its upper end engaged to the outer end of the angled plate **33** and its lower end anchored to a lower position on the body portion **31** of the handle fixture **29**. This causes a constant urging of the plate **33** against the standard **21**.

A hinged lock member **35** is provided in the lower portion of the vertical passageway **32** and additionally frictionally engages the vertical standard **21**. A generally horizontally disposed spring **36** engages the hinged lock member **35** urging it into engagement with the vertical standard **21**. It is thus seen that the handle **29** is held to the vertical standard **21** by two spaced-apart frictional locking means.

Centrally spaced overhanging hooks **37** and **38** are provided at the top of the body portion **31** of the handle **29**. The hooks are spaced by a central portion **31***a* of the body portion **31**. An intermediate bracket member **39** is provided between the handle **29** and the tubular screen housing **11**. A large central opening **40** is provided in the bracket **39**. A relatively large threaded pin **41** joins the intermediate bracket **39** through its opening **40** with the tubular housing **11** and it is about this pin **40** that the tubular housing may be rotated to move from a vertical storage position adjacent the vertical standard to a horizontal use position as shown in FIG. **1**. A small projection **42** is provided on the flat surface of the bracket **39** for interlocking engagement with a notch in a built-up portion **43** of the tubular housing **11**. The portion **43** provides a flat engaging surface for the surface of the bracket **39**. The intermediate bracket **39** includes upwardly projecting spaced-apart tongues

44 and 45 for removable engagement with the spaced-apart overhanging hooks 37 and 38. It is the interlocking engagement of the tongues 44 and 45 with the overhanging hooks 37 and 38 that prevents outward separation of the intermediate bracket from the handle 29 except by a hingelike movement of the handle relative to the intermediate member. The central portion of the body 31 between the overhanging hooks 37 and 38 acts to engage the inner surfaces of the spaced-apart tongues 44 and 45 and thereby prevents lateral shifting movement of the intermediate bracket relative to the handle structure 29. The intermediate bracket further includes parallel spaced-apart side flanges 46 and 47 which project away from the tubular housing 11 in the same direction. A first notch 48 is provided in the side flange 46 and there is a further spaced-apart notch 49 in the side flange 46. A notch 50 in the spaced-apart side flange 47 is in axial alignment with the notch 49 in the side flange 46.

A projection or button 51 is provided on the body portion 31 of the handle 29 and is adapted for engagement by the notch 48 in the side flange 46. A latching mechanism comprises a transverse pin 52 which is journaled for slidable support within the body 31 of the handle 29. An extended large-diameter portion 53 of the transverse pin 52 is adapted to have one end engage the notch 49 in the side flange 46 of the intermediate bracket 39. The pin further includes a short large-diameter portion 54 spaced from the portion 53 and it is this large-diameter portion 54 which is adapted for engagement with the notch 50 in the side flange 47. The pin 52 further includes a small-diameter portion 55 adjacent the outer end of the extended large diameter 53. The pin further includes an extended small-diameter portion 56 between the inner end of the extended large-diameter portion 53 and the short large-diameter portion 54. A spring 57 surrounds the extended small-diameter portion 56 and causes a spring biasing of the transverse pin 52 axially in a leftward direction as viewed in the sectional view of FIG. 3. The spring 57 has one end abutting the inner end of the large-diameter portion 53 and at its other end abuts a wall 58 of the body portion 31 of the handle 29. Thus the pin 52 is urged by the spring in an axial extension relative to the body portion 31 of the handle structure 29. The latching pin 52 includes a hand-engaging knob 59 and it is by this means that an operator can push the pin 52 against the action of the spring to effectively cause removal of the handle structure from the intermediate bracket 39.

The open-ended notches 49 and 50 are provided with restricted mouths or reduced-size passageways as clearly shown in FIG. 7. The restricted mouths do not permit passage of the large-diameter portions 53 and 54 of the transverse pin 52 but when the pin 52 is moved in an axial direction by the operator moving the handle 59 in a rightward direction as viewed in FIG. 3 the small-diameter portions 55 and 56 are disposed within the aligned notches 49 and 50. These small-diameter portions of the transverse pin 52 easily pass through the restricted mouths of the notches 49 and 50 and thus permit an outward swinging of the lower portion of the intermediate bracket 39 and this permits the tongues 44 and 45 to be pulled out from the overhanging hooks 37 and 38 of the handle structure 29.

As best shown in FIG. 8 the tubular housing 11 has been removed from the handle structure 29 in the manner just described and has been shown applied to a vertical wall 61 by reason of the hooks 14 and 15.

As best shown in FIG. 2 the tubular housing 11 is provided with an elongated slot 62 to permit passage of the screen 10 in its rolling upwardly or downwardly depending on whether it is used on the floor stand 16 or hung on the wall 61 as shown in the FIGS. 1 and 8.

In the operation of this device it is apparent that with the particular handle mechanism including the quickly detachable intermediate bracket 39 the screen 10 may be optionally used on a floor stand such as shown at 16 in FIG. 1, or on a wall 61 by hanging the tubular housing 11 to the wall by its spaced-apart hooks 14 and 15. The separation of the handle mechanism from the tubular housing 11 is accomplished as previously stated by axially moving the spring-biased locking or latching pin 52. The pin 52 has alternately spaced large-diameter portions and small-diameter portions so that in the spring-extended position the large-diameter portions are disposed within the notches 49 and 50 of the intermediate bracket 39 and are prevented from outward movement therefrom by reason of the restricted mouths of these notches. However, when the spring 57 has been overcome by an operator moving the hand knob 59 axially in a rightward direction as viewed in FIG. 3 the small-diameter portions of the locking pin 52 are disposed within the aligned notches 49 and 50 and in this position the handle and the intermediate plate 39 may be easily separated by reason of the free passage of the small-diameter portions through the restricted mouths of the notches.

What is claimed is:

1. A latch mechanism for joining a tubular housing for a picture-receiving screen and a handle forming part of a floor standard comprising a bracket attached to said tubular housing, said bracket having spaced-apart side flanges, said handle having a portion thereof for disposition between the bracket side flanges, said bracket side flanges having generally axially aligned notches and said notches having restricted mouths to the flange edge, and said handle portion between the bracket side flanges having openings axially aligned with the openings in the bracket flanges, and an axially slidable latch pin disposed within said aligned openings, said latch pin having large-diameter portions and small-diameter portions and spring means normally urging said large-diameter portions to a position within the bracket flange notches, and means to axially slide said latch pin against the action of the spring means to cause said small-diameter portions to be located within the bracket notches whereby the handle and the bracket may be separated by swingably sliding the small-diameter portions through the reduced-size passageways.

* * * * *