Feb. 4, 1958 N. A. WELCH 2,822,202

BACKSET EXTENSION LINK

Filed Jan. 19, 1956

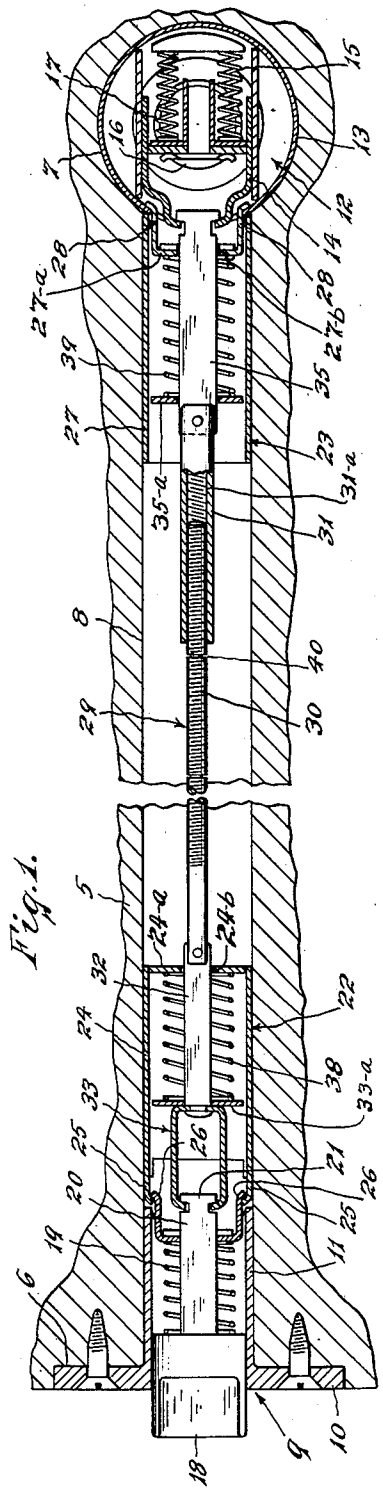


Fig. 1.

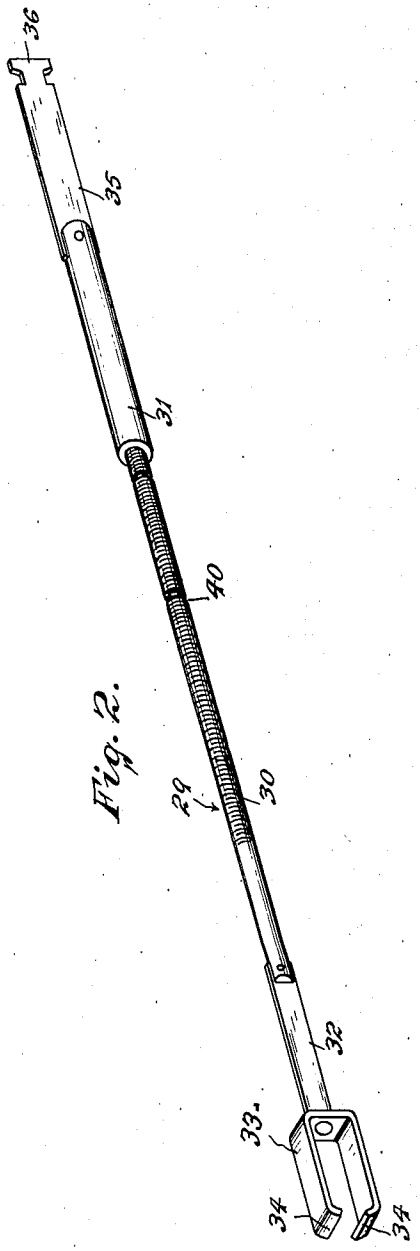


Fig. 2.

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United States Patent Office 2,822,202 Patented Feb. 4, 1958

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BACKSET EXTENSION LINK

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Application January 19, 1956, Serial No. 560,237

1 Claim. (Cl. 292—1)

This invention relates to a backset extension link and more particularly to a device which is primarily intended for use with cylindrical latch or lock sets for connecting the operating unit thereof to the latch bolt unit when it is desired to materially increase the backset of the operating unit with respect to the edge of the door in which the lock set is installed.

An object of the present invention is to provide a backset extension link which may be readily adjusted for locating the operating unit at different distances from the edge of the door.

A further object of the invention is to provide a backset extension link which may be adjusted from the operating unit end thereof after the link has been attached to the latch bolt unit and inserted into the door so as to permit proper alignment thereof with the operating unit and thereby assure proper operation of the lock set.

A still further object of this invention is the provision of an adjustable backset extension link which is highly efficient in its operation, durable and economical to manufacture.

Further objects and advantages of the present invention will be more clearly seen from the following description and the accompanying drawings in which:

Fig. 1 is a side view, partially in central vertical section, showing my improved backset extension link installed in a door between the operating unit and the latch bolt unit of a conventional cylindrical lock set; only a portion of said door being shown.

Fig. 2 is an isometric view illustrating the adjustable link structure included in my improved backset extension link.

Referring to the drawings, the numeral 5 denotes a portion of a door with parts thereof being broken away in order to reduce the length of the drawing. As is conventional in the installation of cylindrical lock sets, said door is provided with a recess 6, a hole 7, which extends transversely through the door, and a bore 8 extending inwardly from the recess 6 and intersecting the hole 7.

A conventional cylindrical lock set is installed in said door and includes a latch bolt unit 9 having a faceplate 10 fitting in the recess 6 and a tubular case 11 extending into the bore 8. The operating unit 12 is mounted within the hole 7 and includes a cylindrical housing 13 and a retractor 14 which is slidably mounted in said housing and is biased into normal position by means of springs 15—15. The retractor is actuated against said springs by a roll-back 16 that extends from a spindle 17 which is rotatably mounted in the housing and has a suitable knob connected thereto, not shown.

The latch bolt unit includes a latch bolt 18 which is slidably mounted in the tubular case 11 and is biased into normal position, wherein it projects from the faceplate 10, by means of a spring 19. A retractor bar 20 extends inwardly from the latch bolt 18 through the end of the case and has a T-shaped end portion 21 normally adapted to interlock with the retractor 14.

My improved backset extension link preferably includes a latch bolt connecting unit 22 and a retractor connecting unit 23, both of which units are adapted to fit within the bore 8.

The connecting unit 22 comprises a tubular shell 24 having conventional hook portions 25—25 which interlock with the hook portions 26—26 normally provided on the case of the latch bolt unit for connecting it to the operating unit. The shell 24 has an end wall 24–*a* with a slot 24–*b* therein. The connecting unit 23 comprises a tubular shell 27 having hook portions 28—28 by means of which the said unit is connected to the housing 13 of the operating unit in the conventional manner. Said unit also has an end wall 27–*a* containing a slot 27–*b*.

Said units slidably support an adjustable link 29 which includes a threaded rod 30 and a sleeve 31 having a threaded hole 31–*a* therein which receives the threaded rod 30. Said adjustable link also includes connecting members at the opposite ends thereof; the connecting member at the outer end comprising a flat bar 32 which is secured to the rod 30 and has a U-shaped head member 33 having opposed hook portions 34—34 that are engageable with the end portion 21 of the retractor bar 20 of the latch bolt. The connecting member at the inner end of the link is in the form of a flat bar 35 which is connected to the sleeve 31 and has a T-shaped end 36 by means of which it is connected to the opposed finger portions 37—37 of the retractor 14 in the conventional manner.

When the backset extension is assembled, the flat bar 32 projects through and is slidably supported in the slot 24–*b* in the end wall 24–*a* of the shell 24 and the head 33 is supported in the said shell by a slidable circular disk 33–*a* which is slipped over the bar 32. The flat bar 35 extends through and is slidable in the slot 27–*b* in the end wall 27–*a* of the shell 27 and is supported therein by a disk 35–*a* which is slidable in the shell 27. A suitable spring 38 is provided within the connecting unit 22 to force the link 29 toward the left, as seen in Fig. 1, and the connecting unit 23 is provided with a similar spring 39 that also forces the link toward the left. The said springs, while not entirely necessary, are provided merely to compensate for any drag on the latch bolt and operating unit that may result from the use of the backset extension.

The rod 30 is preferably provided with a series of spaced annular grooves 40 so that it may be broken off to any length that may be required for the selected spacing between the latch bolt unit and operating unit of the lock set as it is installed in the door.

In installing a lock set which is to include my improved backset extension, the connecting unit 22 is first attached to the case of the latch bolt unit as shown. The extension, including the connecting units 22 and 23 with the adjustable link 29 therebetween is then inserted into the bore 8 until the faceplate 10 of the latch unit is properly seated against the bottom of the recess 6 and the connecting unit 23 projects into the hole 7. The backset extension link herein described may then be adjusted by inserting the fingers into the hole 7 and rotating the connecting unit 23 so as to turn the sleeve 31 on the rod 30 and thereby adjust the length of the link 29 to locate the connecting unit 23 so that the hook portions 28—28 thereof will correctly engage the edges of the housing 13 of the operating unit 12 as it is inserted into the hole 7. It will be understood that when the installation is completed as above described, the retractor 14 is connected to the latch bolt 18 by the extension link so that upon rotation of either the inner or the outer knob of the operating unit, the latch bolt will be withdrawn.

I claim:

A backset extension link for a lock set which includes a latch bolt housing and latch bolt, said housing being fastened to a door and positioned in an elongated bore

formed within the plane of said door, and an operating unit housing and retractor therein spaced from said latch bolt housing and positioned in a transverse bore formed through said door and intersecting said elongated bore; the said link including a first connecting means having its outer end non-rotatably attached to said latch bolt, a second connecting means having its outer end extending into said transverse bore and normally non-rotatably connected to said retractor, and an adjustable link joining the inner ends of said first and second connecting means, said adjustable link comprising a pair of relatively rotatable threadedly connected members non-rotatably attached to said first and second connecting means, whereby the latch bolt and extension link may first be inserted into said

elongated bore and fastened therein and the length of said link may then be accurately adjusted by manual rotation of the outer end of said second connecting means by reaching into said transverse bore before insertion of the operating unit housing and retractor into said bore for final assembly of the lock.

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