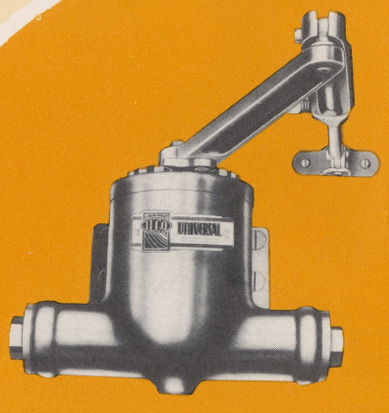
DOOR CLOSERS

CATALOG
No. 17C



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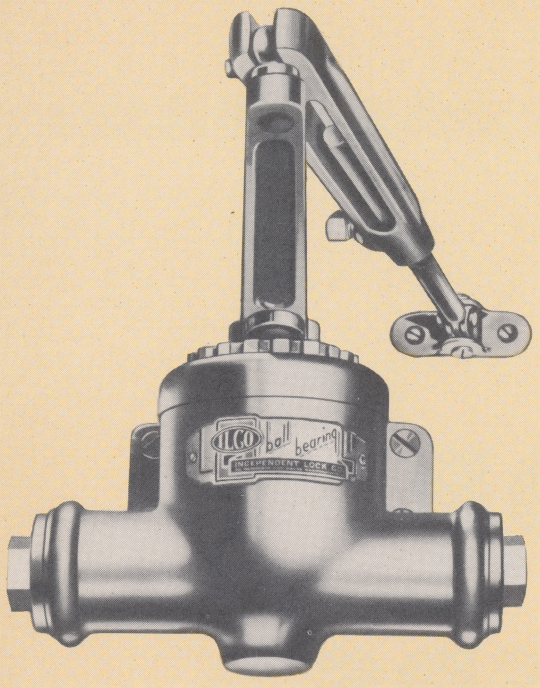
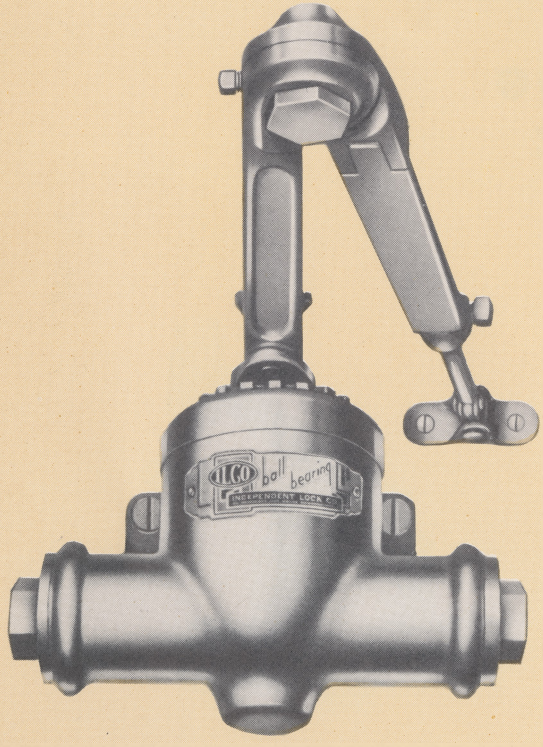
Independent Lock Company
Fitchburg, Mass.

BALL-BEARING DOOR CLOSERS



Ball-Bearing, Rack and Pinion Door Closer with Regular (Non-holding) Arm



With 135° Holder Arm

THESE ARE THE ESSENTIAL FEATURES OF GOOD DOOR CLOSER PERFORMANCE

1. PERMITS OPENING WITH MINIMUM EFFORT

The first requirement of a good door closing device is that it offer as little resistance to manual opening as possible. Doors requiring unusual effort to open are an obviously continuous source of irritation in usage of the building of which they are a part.

2. IMMEDIATE CHECKING CONTROL AT ANY ANGLE

For completely satisfactory control under all conditions of installation, it is necessary that the checking mechanism be brought into action instantly upon manual release of the door, regardless of the angle to which it has been opened. Closers which, because of mechanisms with "dead center" areas in the closing arc, allowing doors to swing under uncontrolled spring power, can frequently cause embarrassing, if not serious, difficulties.

3. ADEQUATE POWER FOR ANY INSTALLATION

Since the spring is the source of power, it must be extremely durable and capable of a range of finely adjustable force sufficient to close the door under all conditions of installation. Ideal conditions require only light to medium spring power. Adverse conditions, such as closing against strong drafts, frequently require abnormally strong spring power.

4. LEAKPROOF CONSTRUCTION — ALL-WEATHER LIQUID

In any door closing device depending upon a hydraulic medium, the fluid used is the "life blood" of performance. First, there must be no means for its dissipation. (Inadequate fluid causes jerky checking action.) Second, its viscosity (ability to flow) must not be impaired by extremes of temperature. Third, it must not coagulate (form gummy masses) in use, thus clogging the valve ports and causing failure in performance.

5. RUGGED MECHANISM — PRECISION MADE

Door closing devices are often subject to severe strains and stresses in performance of their functions. All vital mechanical parts, therefore, must be solid, durable and precision-made in order to assure long, trouble-free performance.

ONLY ILCO HAS ALL THESE ESSENTIAL FEATURES

1. DOORS OPEN EASILY — CLOSE WITH HIGHEST EFFICIENCY

Internal friction and resulting wear and resistance to opening in the ILCO Ball-Bearing, Rack and Pinion closer is reduced to an absolute minimum by the use of ball-bearings at the two main bearing points of the shaft. The pistons are ground to close, yet free-passing tolerance in the cylinders. The result is efficiency greater by a substantial margin than all other makes of closers submitted to an impartial test.

2. CHECKING CONTROL IS INSTANTANEOUS AT ANY ANGLE

The precision made rack and pinion mechanism has no dead center and the pistons are immediately in motion with the swing of the door. Upon manual release of the door, the spring power is simultaneously under control of the checking action. Thus, there can be no unexpected quick closing swing on the heels of the passer-thru.

3. RESERVE POWER FOR THE MOST ADVERSE CONDITIONS

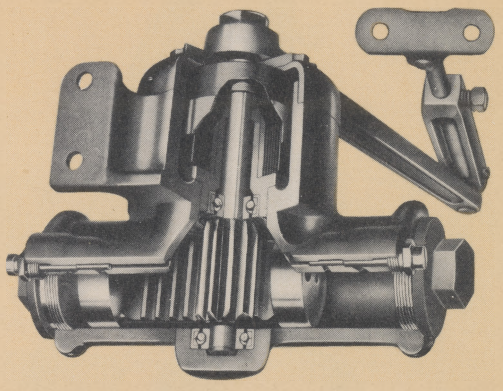
The spring is substantially extra-powered. It is capable of sufficient reserve force to close the door against the most extreme draft conditions. Breakage is extremely rare. The ratchet by which the spring is wound is of unusually large diameter and is notched around its entire circumference, thereby providing finer adjustment of controlled power.

4. LEAKPROOF GLAND — CLIMATIC LIQUID

The ILCO principle of gland design eliminates direct contact between shaft and gland except at a point safely above the "splash and bubble" line, thus defeating the principle of capillary creeping. Only light packing is therefore required to prevent spilling in handling before application. ILCO'S Climatic (All-Weather) Liquid is the best door closer checking medium ever developed. Unaffected by extreme temperature changes and non-gumming it contributes much to trouble-free performance (see page H25 for further information).

5. STURDIEST SHAFT AND PINION — IN ONE PIECE

Visibly, the ILCO shaft is by far the sturdiest used in a surface closer today. In addition, both shaft and pinion are machined in one piece, so that the full strength of the large diameter shaft is maintained through the pinion. In all the years of their operation in the field, a twisted or bent shaft has never been found in a ILCO Ball-Bearing, Rack and Pinion Door Closer.

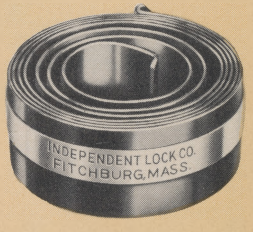


Internal Assembly — Friction-Free Rugged, Precision Built

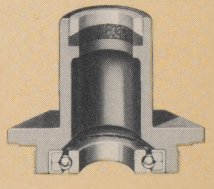
The Spring Ratchet
Continuously notched for precise adjustment.



The Spring
Finest spring steel. Fully tempered. Scientifically wound and tested. Extra-powered.

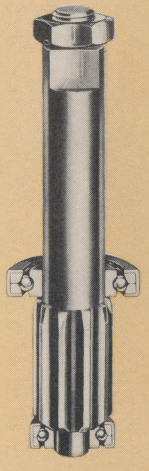


The Packing Gland (Patented)
New design principle. Positively prevents leakage up shaft.

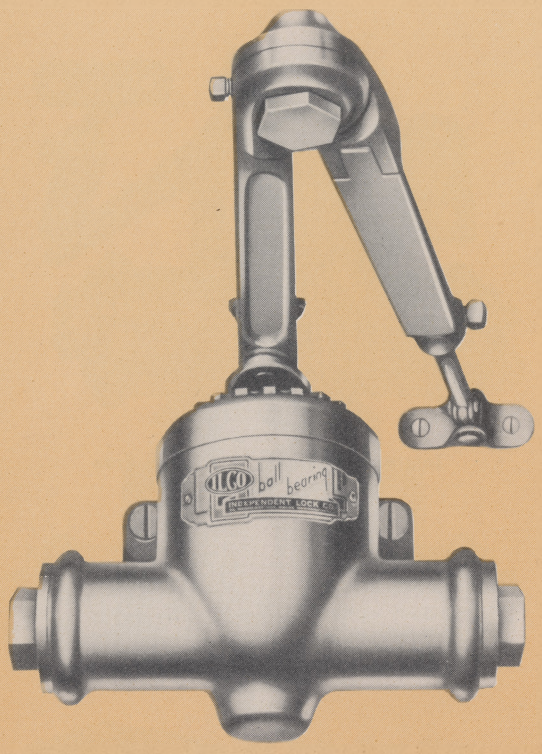


The Shaft and Pinion
Over-sized shaft prevents twisting or bending. One-piece construction eliminates loosened pinions.

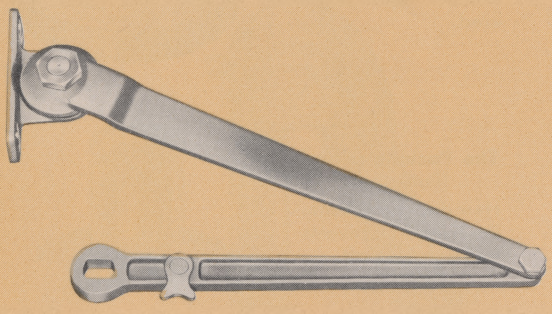
The Ball-Bearings
Reduce internal friction. Permit easier opening. Reduce wear on vital parts.



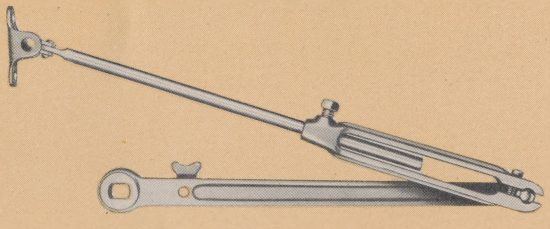
HOLDING DEVICES AND ARMS



Ball-Bearing Rack and Pinion
Closer Equipped with 135° Holder Arm



Holder Arm for Holding Doors Open
at any Angle Between 135° and 180°



Extra Long Arms Required
for Certain Installations

WITH HOLDER ARM FOR HOLDING DOORS OPEN AT ANY ANGLE UP TO 135°

For closer controlled doors which are required at times to stand open at an angle up to 135°, this holder arm attachment is designed on a principle long proved by actual use as most satisfactory. It functions easily and automatically when the door is swung to the hold-open point, by means of contacting frictional surfaces at the joint of the main and forked arms. The degree of door opening at which these surfaces contact and hold is easily adjusted by turning the regulating nut at the arm joint. Can be used for installations either on door or on bracket. Should not be used for holding beyond 135°.

WITH HOLDER ARM FOR HOLDING DOORS OPEN AT ANY ANGLE BETWEEN 135° AND 180°

When the hold-open angle is between 135° and 180° a different type holder arm attachment must be used. This device is similar in principle, but the contacting frictional surfaces are located at the joint of the arm and door bracket, where the arc of travel of the frictional surfaces is lesser in relation to the degree of door opening. Adjustment of the degree at which the door is held open is accomplished by means of the regulating nut at the friction joint. When door is to open 180°, the closer must be installed on a bracket (corner bracket is recommended). (See pages 8 and 9 for information on proper bracket.)

WITH EXTRA LONG NON-HOLDER ARMS

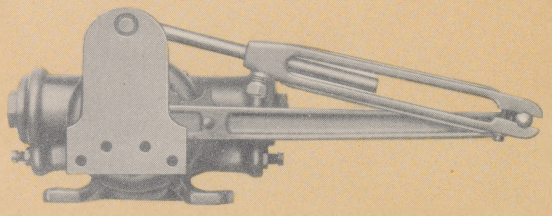
Where obstructions may require that the closer be set out farther than usual from the hinged edge of door, an extra long arm will be required to give both complete opening and normal parts travel. Extra long arms are also necessary for closers with non-holder arms mounted on brackets and required to open to 180°. The following Extra Long Arms are available:

For Closer sizes C30 and D30 — 13″, or 16″
E30 and F30 — 14″, or 16″

WITH PARALLEL ARM FOR INSTALLATION TO RECESSED SIDE OF DOOR — WITHOUT BRACKET

Where closers are to be installed on recessed side of door, but brackets are undesirable due to lack of sufficient headroom, parallel arm closers may be used. In this installation the closer is attached directly to recessed side of door and the main arm stands parallel to the door when closed. A Soffit Extension Foot No. 977 (See page 9) is used in place of the usual jamb bracket. Thus when door is swung open, the closer is carried out of the opening, leaving headroom free.

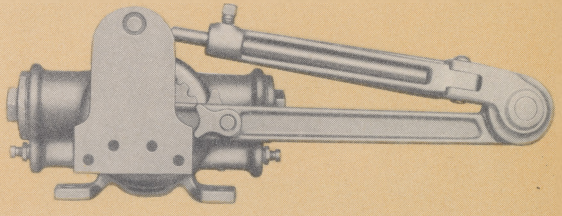
In developing its line of parallel arm closers, ILCO engineers have revised leverages inherent in the basic design for normal installation, so that ample spring power is maintained at all times. This development is another in the long list of technical advancement in door closer design contributed by ILCO.



Closer with Parallel Arm

WITH PARALLEL HOLDER ARM FOR HOLDING DOORS OPEN UP TO 135°

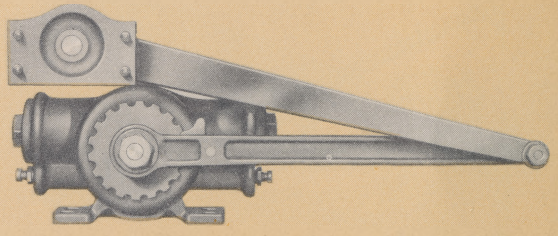
This device permits application of closer to recessed side of door, without brackets, where the door is required to hold open at any point up to 135°. Its means of attachment is the same as the non-holding parallel arm closer affording maximum headroom in the opening. Extension Foot No. 977 is furnished. See page 9.



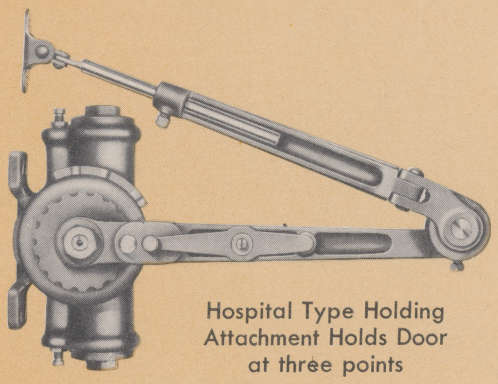
Closer with Parallel Holder Arm for Holding Doors Open Up to 135°

WITH PARALLEL HOLDER ARM FOR HOLDING DOORS OPEN FROM 135° TO 180°

Where the advantages of parallel arm installation, as described above, are desired and door is to be held open at any point between 135° and 180° a closer with a slightly different arm is provided, as shown at right. The holding device in this arm is located at the joint of the arm and soffit bracket where the arc of travel of the frictional surfaces is lesser in relation to the degree of door swing. Where installation is to be made with depth of jamb less than 5″, order Extension Plate No. 978. See page 9.



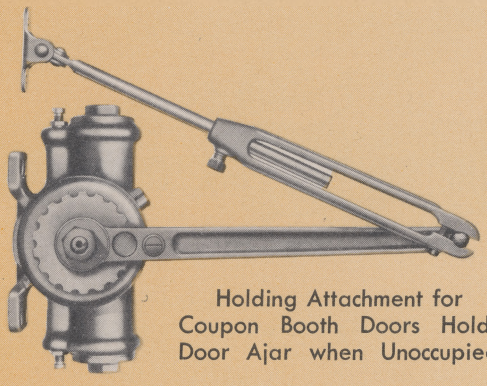
Closer with Parallel Holder Arm for Holding Doors Open from 135° to 180°



Hospital Type Holding Attachment Holds Door at three points

WITH THREE-POINT HOSPITAL TYPE HOLDING ATTACHMENT

This attachment is especially designed for use on Patient Room doors in hospitals. Its function is to hold doors open for ventilation purposes only, or for passage through. For ventilation, two hold-open points are provided, spaced at approximately 10° and 45°. For passage through, the hold-open angle is adjustable from 90° to 135° in the same manner as the 135° holder arm. To hold the door open at either of the ventilation points it is necessary to swing it open to that point, holding it there briefly and allowing the holding trigger to engage and hold. In ordinary operation the door will close past these points without interruption.



Holding Attachment for Coupon Booth Doors Holds Door Ajar when Unoccupied

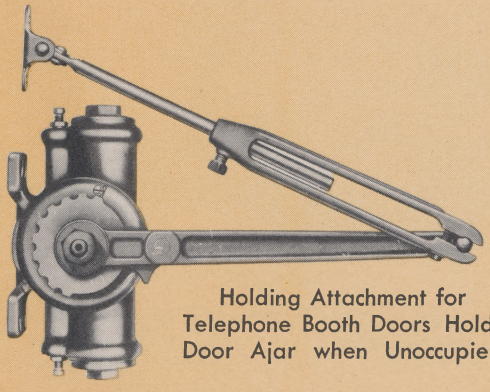
DELAYED ACTION CLOSERS

For doors such as hospital room doors, where a delayed closing action is desired, these closers can be adjusted to momentarily retard the initial speed of the closing swing.

In ordering, merely suffix the words "Delayed Action" to the number of the closer wanted.

WITH COUPON BOOTH DOOR HOLDING ATTACHMENT

Designed to perform the special functions required for efficient coupon booth door operation, this attachment closes the door all the way when the occupant enters and again when he leaves. The attendant then examines the booth and when in order for the next occupant, leaves the door ajar by means of the special holding trigger which engages a lug on the cover of the closer when door is held momentarily in the ajar position.



Holding Attachment for Telephone Booth Doors Holds Door Ajar when Unoccupied

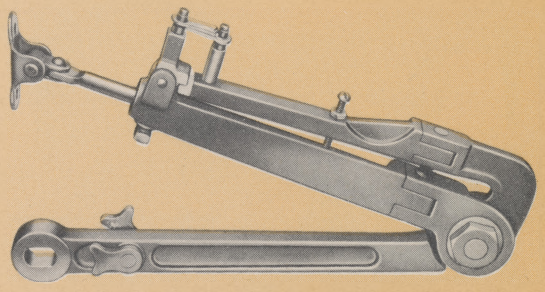
WITH TELEPHONE BOOTH DOOR HOLDING ATTACHMENT

The function of this attachment is to automatically hold the door slightly ajar each time it is opened and released. This permits ventilation, when the booth is not in use. When occupied, the user merely pulls the door closed, since the hold-open feature is accomplished by means of a lightly sprung trigger in engagement with a lug on the cover of the closer.

WITH FUSIBLE LINK HOLDER ARM FOR AUTOMATIC RELEASE IN CASE OF FIRE

(Approved by National Board of Fire Underwriters)

This type holder arm is designed to release the holding mechanism and automatically cause the door to close in case of fire. A link of fusible metal (as shown in illustration at right) retains the frictional holding members in operating position at all times in normal temperatures. When the temperature rises to 160°, the link fuses, releasing the hold-open mechanism and the door quickly closes under power of the spring. This device has been tested and approved by The National Board of Fire Underwriters for use on Underwriters' Labeled Doors.



Fusible Link Holder Arm
Approved by
Underwriters' Laboratories

DOOR HOLDERS — FOR HOLDING DOORS OPEN WHERE NO CLOSER IS REQUIRED

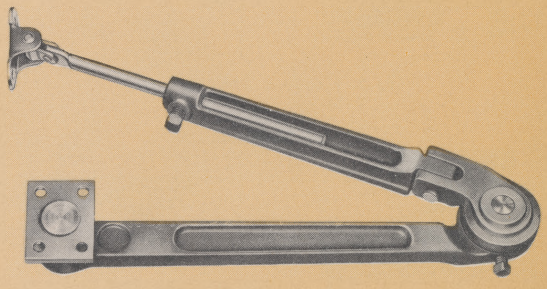
These door holders are efficient, easily installed devices for holding doors open on installations where no closer is required. They are installed on the recessed side of door by means of a plate attached to the door. Their frictional holding mechanisms are the same as those used in the 135° and 180° closer holder arms.

No. 8910 Holds up to 135°

Malleable Iron

Main arm 11″ long. Soffit plate 2¼″ x 1½″

Door bracket ¾″ x 2¼″



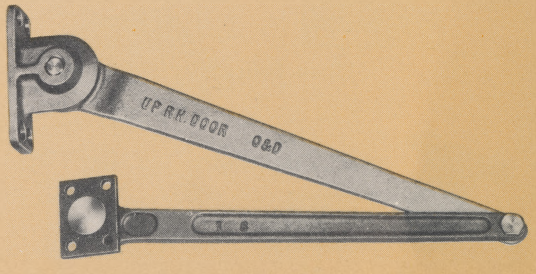
DOOR HOLDER NO. 8910
For holding doors open at any point up to 135°

No. 8911 Holds up to 180°

Malleable Iron

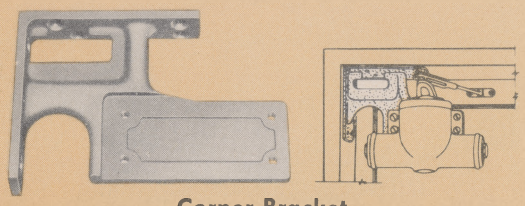
Main arm 11″ long. Soffit plate 2¼″ x 1½″

Door bracket 4″ x 1⁵⁄₁₆″

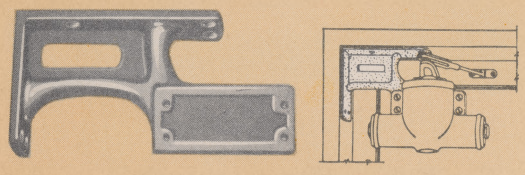


DOOR HOLDER NO. 8911
For holding doors open from 135° to 180°

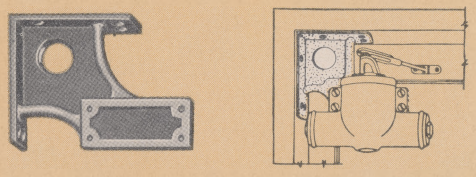
BRACKETS—FOR BALL BEARING CLOSERS



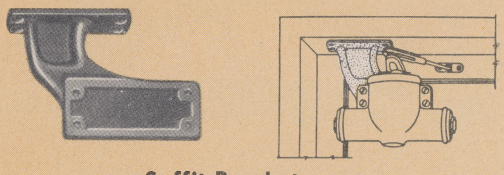
Corner Bracket



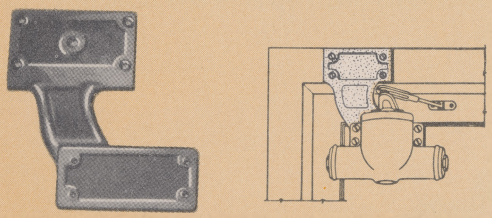
B. C. Corner Bracket



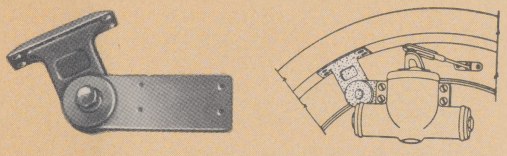
G. J. Corner Bracket



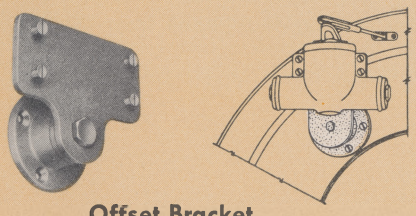
Soffit Bracket



Flush Bracket



Adjustable Bracket



Offset Bracket

MALLEABLE IRON

CORNER BRACKETS This bracket is for use where door is required to swing 180°, or for the purpose of gaining headroom on a bracket installation, by placing closer in corner of frame.
If hold-open feature beyond 135° is required, closer with 180° holder arm must be used.

For Closer Size	B	C	D	E	F
BRACKET NO.	**B893**	**C894**	**D895**	**E896**	**E896**
Width of Base	1⅛″	1⅛″	1⅛″	1⅛″	1⅛″

B. C. CORNER BRACKETS Recommended for installations where "back check" action is required to avoid contact of door with obstruction at approximately 90°. Permits "back check" at approximately 85°, by means of turning slot only of adjusting screw farthest from hinged edge of door so that slot is vertical.

For Closer Size	B	C	D	E	F
BRACKET NO.	**B923**	**C924**	**D925**	**E926**	**E926**
Width of Base	1 7/16″	1½″	1 11/16″	1 11/16″	1 11/16″

G. J. CORNER BRACKETS For use only where non-holder closers are installed in conjunction with other overhead holding devices.

For Closer Size	B	C	D	E	F
BRACKET NO.	**B933**	**C934**	**D935**	**E936**	**E936**
Width of Base	1 7/16″	1 7/16″	1 7/16″	1 7/16″	1 7/16″

SOFFIT BRACKETS Recommended for use whenever application on a bracket is required and conditions will permit its use. This bracket permits application of closer at proper distance from hinged edge of door and assures better performance.

For Closer Size	B	C	D	E	F
BRACKET NO.	**B903**	**C904**	**D905**	**E906**	**E906**
Width of Base	1½″	1 9/16″	1¾″	1 13/16″	1 13/16″

FLUSH BRACKETS For use where headstop is of insufficient width to permit use of Soffit Bracket.

For Closer Size	B	C	D	E	F
BRACKET NO.	**B943**	**C944**	**D945**	**E946**	**E946**
Width of Base	4 5/16″ x 2 7/16″	4⅞″ x 2⅝″	5″ x 3″	5¼″ x 3⅛″	5¼″ x 3⅛″

ADJUSTABLE BRACKETS For use on circular top doors when closer is to be applied on recessed side of door. Bracket is adjustable to curve of opening.

For Closer Size	B	C	D	E	F
BRACKET NO.	**B953**	**C954**	**D955**	**E956**	**E956**
Size of Base		2″ x 6″ for all closers			

OFFSET BRACKETS For use on circular top doors when closer is to be applied to hinge side of door.

For Closer Size	B	C	D	E	F
BRACKET NO.	**B963**	**C964**	**D965**	**E966**	**E966**
Diameter of Base	3½″		Offset 1⅝″ for all closers		

MALLEABLE IRON

DROP BRACKETS This drop bracket is used with parallel arm closers which are applied to door on recessed side, when top rail of door is too narrow to receive closer.

For Closer Size	B	C	D	E	F
PLATE NO.	**B883**	**C884**	**D885**	**E886**	**E886**
Size	4¾″ x 4⅛″	5⅛″ x 4½″	5⅜″ x 4¾″	5¾″ x 5¼″	5¾″ x 5¼″

OFFSET JAMB BRACKET Designed for use where it might otherwise be necessary to cut expensive trim in order to attach jamb bracket.

OFFSET JAMB BRACKET NO. **980** (for all size closers)

EXTENSION FOOT This arm attachment is regularly furnished with parallel arm closers with non-holder or 135° holder arms. Can be installed on jambs with minimum depth of 1″.

EXTENSION FOOT NO. **977** (for all size closers) SIZE 3″ x 4″

EXTENSION JAMB PLATE Attaches to the head frame and extends beyond trim, providing a solid means of attaching the jamb bracket, without necessity for cutting the trim.

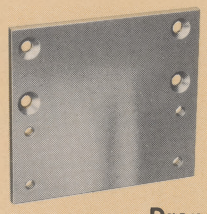
EXTENSION JAMB PLATE NO. **990** (for all size closers)

EXTENSION SOFFIT PLATE This extension soffit plate is for use with parallel arm closers, with 180° holder arms, when jamb is not deep enough to permit application of regular soffit plate directly to jamb. Can be installed on jambs with minimum depth of 1½″.

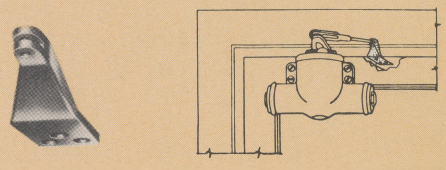
EXTENSION SOFFIT PLATE NO. **978** (for all size closers) SIZE 4″ x 3⅝″

ADAPTER PLATES (Aluminum) This Adapter Plate is for use where top rail of door is too narrow to receive closer in a standard application. Plate is attached to rail by two flathead machine screws. Top closer screws pass through top holes in plate and are screwed into tapped holes in rail. Bottom closer screws are screwed into tapped holes in plate. Machine screws are furnished.

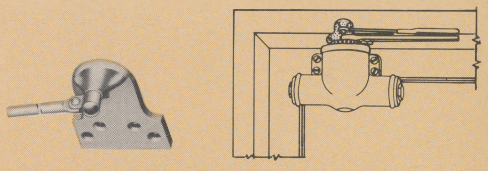
For Closer Size	B	C	D	E
Plate Number	**B873**	**C874**	**D875**	**E876**
Size	2⅛″ x 4½″	2½″ x 5⅛″	2¾″ x 5⅜″	2¾″ x 5¾″
Dimension A	3/32″	1⅛″	1⅛″	1⅛″



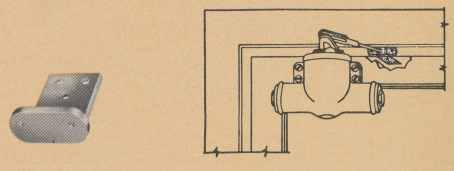
Drop Bracket



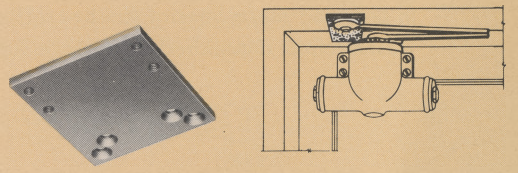
Offset Jamb Bracket



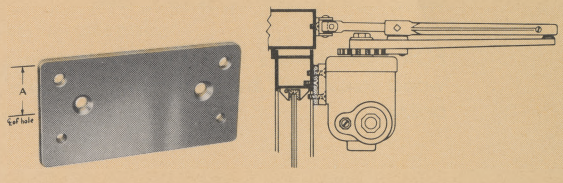
Extension Foot



Extension Jamb Plate



Extension Soffit Plate



Adapter Plate

NUMBERS IN THIS TABLE ARE FOR ORDERING COMPLETE CLOSERS WITH VARIOUS TYPES OF ARMS

Approved by Underwriters' Laboratories, Inc., Nos. B30-F30, C330-F330, B830-F830

	With Regular Arm	*With 135° Holder Arm*	**With 180° Holder Arm*	*With 3 Point Hospital Holder*	*With Coupon Booth Holder*	*** With Approved Fusible Link Arm*	*With Telephone Booth Holder*	*With Parallel Arm*	*With 135° Parallel Holder Arm*	*With 180° Parallel Holder Arm*
CAST IRON UNPOLISHED	B30	B130	B230	....	B630	....	B730	B830	B1130	B1230
	C30	C130	C230	C530	....	C330	....	C830	C1130	C1230
	D30	D130	D230	D530	....	D330	....	D830	D1130	D1230
	E30	E130	E230	....	....	E330	....	E830	E1130	E1230
	F30	F130	F230	....	....	F330	....	F830	F1130	F1230
†CAST BRONZE UNPOLISHED	B60	B160	B260	....	B660	....	B760	B860	B1160	B1260
	C60	C160	C260	C560	....	C360	....	C860	C1160	C1260
	D60	D160	D260	D560	....	D360	....	D860	D1160	D1260
	E60	E160	E260	....	....	E360	....	E860	E1160	E1260
	F60	F160	F260	....	....	F360	....	F860	F1160	F1260

For Closers with Key Valves suffix Symbol "K" to number. Example, B30K. Regularly furnished without key. Specify number of keys required.

* Must be mounted on a Bracket. Corner Bracket recommended.

** Can be furnished with approved type Parallel Fusible Link Arms, when so ordered. In ordering, suffix PA to numbers in "330" Series. Example: C330PA. Regularly furnished with Extension Foot No. 977. (See page 9)

† Furnished polished when so ordered. Suffix symbol "P" and indicate finish wanted.

Example, C60P x 26D. Arms for bronze closers are malleable iron, plated.

FINISHES

All cast iron closers, unless otherwise specified on order, are furnished in a standard Brown Lacquer finish. When so specified they can be furnished Gold Bronze (GB), Silver Bronze (SB), Dead Black (DB), Sprayed Dull Bronze (BZ) and Prime Coat (PC). In ordering these Special Finishes suffix symbol to Number: Example, B30GB.

Cast bronze, unpolished closers are furnished sprayed Dull Bronze (BZ) unless otherwise specified.

HOW TO ORDER

FOR STOCK: Select sizes of closers required for various types and sizes of doors, from table on opposite page. Give specific closer number to indicate size, type of arm, material and finish as listed in table on this page. Specify each size in Case Quantities as given on opposite page. (Unless otherwise specified, right hand closers will be furnished.) Furnished with wood screws and machine screws.

FOR CONTRACT: Give all information as indicated above and indicate hand for each closer. Unless otherwise specified wood screws will be furnished. Machine screws, or through bolts with grommet nuts, when so specified. Sex bolts to special order.

STANDARDS FOR SELECTING CORRECT SIZE CLOSER FOR INSTALLATION

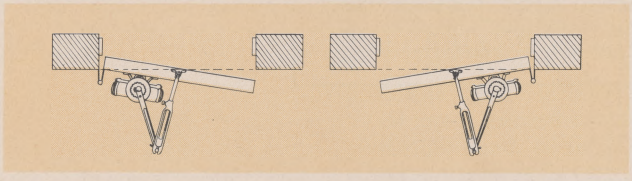
Number of Closer	*Type of Door*	*Maximum Door Size*
B30 to B1230	Heavy screen doors	1⅜″ x 3′0″ x 7′0″
	or light interior doors	1⅜″ x 2′8″ x 7′0″
	or closet doors	1¾″ x 2′8″ x 7′0″
C30 to C1230	Light exterior doors	1¾″ x 2′6″ x 7′0″
	or corridor and office doors of wood or metal	1¾″ x 3′4″ x 7′0″
D30 to D1230	Ordinary exterior doors	2¼″ x 3′0″ x 7′6″
	or heavy interior doors subject to strong drafts	2¼″ x 4′0″ x 7′6″
E30 to E1230	Heavy exterior doors or heavy interior doors subject to strong drafts	3″ x 3′6″ x 7′6″
F30 to F1230	Extra heavy entrance doors, doors of unusual height or width, refrigerator doors, etc.	

CASE QUANTITIES AND SHIPPING WEIGHTS

Closer Number		*Weight Each*	*Quantity in Case*	*Weight Per Case*
B30	One in a box, with screws	12 lbs.	4	48 lbs.
C30	One in a box, with screws	15½ lbs.	4	63 lbs.
D30	One in a box, with screws	18 1/6 lbs.	4	75 lbs.
E30	One in a box, with screws	27½ lbs.	4	110 lbs.
F30	One in a box, with screws	27½ lbs.	4	110 lbs.

HOW TO DETERMINE HAND OF CLOSER REQUIRED

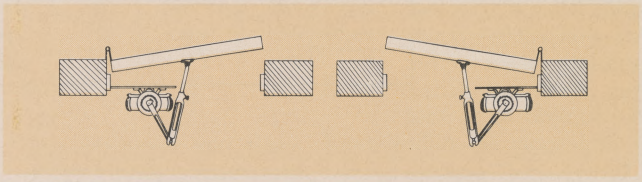
FOR INSTALLATION ON DOOR (FLUSH SIDE)



This installation requires a RIGHT HAND CLOSER

This installation requires a LEFT HAND CLOSER

FOR INSTALLATION ON BRACKET (RECESSED SIDE)



This installation requires a RIGHT HAND CLOSER

This installation requires a LEFT HAND CLOSER

GUARANTEE

The ILCO Ball-Bearing, Rack and Pinion Door Closer is unconditionally guaranteed for two years. Failure to perform efficiently, for any reasons (other than misapplication or misuse) during that time, will be immediately adjusted.

RECOMMENDED DOOR CLOSER SPECIFICATION FOR ARCHITECTS

DOOR CLOSERS shall be of the full rack and pinion type giving complete control for the entire closing cycle. Shaft and pinion shall be of solid one-piece construction and shall be supported by two sets of BALL-BEARINGS, providing a practically frictionless, constantly lubricated bearing.

GLAND shall be leak-proof in construction with an opening large enough around shaft to positively prevent liquid from escaping up the shaft into the spring chamber.

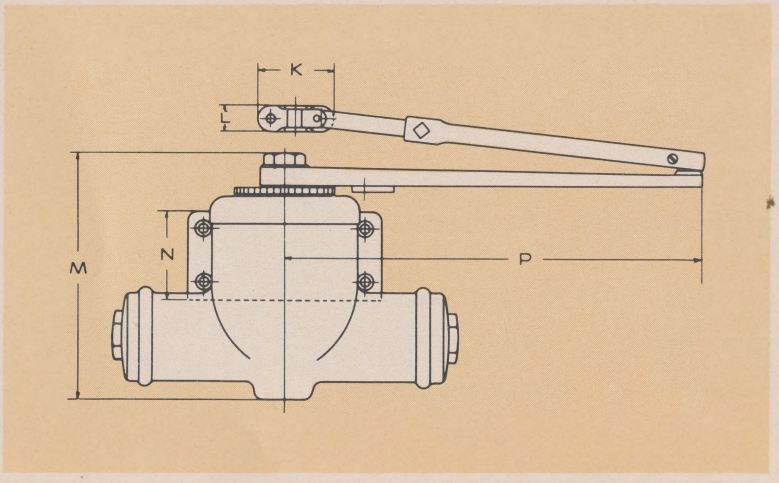
LIQUID shall be a mineral oil with a range in viscosity to provide proper lubrication and closing control within a temperature range of from minus 40 degrees to 140 degrees Fahrenheit.
Closers shall have TWO ADJUSTMENT SCREWS, one of which will provide two-speed control, beginning with the closing of the door, until the door is not less than 2 inches nor more than 5 inches from closed position, at which point the closing speed may be sharply accelerated or decelerated.
The other Adjustment Screw shall provide a decisive back check control or cushion action as required.

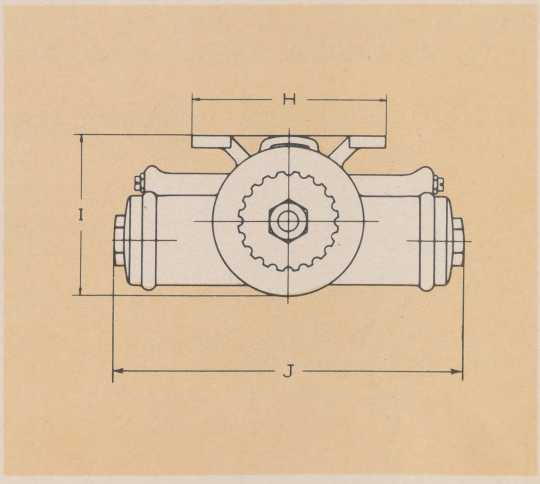
INSPECTION OF CONTRACT OR OTHER LARGE INSTALLATIONS

With reasonable attention to instructions for application furnished with each unit, ILCO Ball-Bearing, Rack and Pinion Door Closers are comparatively simple to install. On occasion, because of unusual conditions, mistakes in application may be made. Since it is the sincere desire of the Independent Lock Company to render any possible assistance in assuring correct installation and thereby completely satisfactory performance of its products, a simple request for inspection of contract, institutional or other installations will be welcomed and promptly complied with.

DIMENSIONS

Closer	H	I	J	K	L	M	N	P
B	4½"	3 5/8"	8"	2¼"	¾"	5 5/8"	1 15/16"	9⅛"
C	5"	3 15/16"	8"	2¼"	¾"	6 3/16"	2 ⅛"	10"
D	5⅝"	4 3/16"	9"	2¼"	¾"	6 11/16"	2 5/16"	10⅞"
E	6"	4 ¾"	10"	2¼"	¾"	7 5/8"	2 5/8"	12"
F	6"	4 ¾"	10"	2¼"	¾"	7 5/8"	2 5/8"	12"





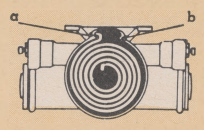
PROCEDURE FOR INSPECTING AN ILCO BALL-BEARING CLOSER

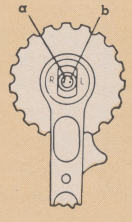
(See Parts List, page 22. See also Special Tools, back cover)

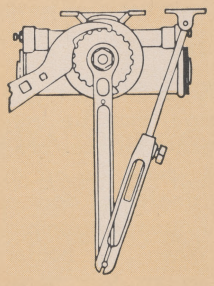
1. Place the closer in a vise and remove the arm, ratchet, cover and spring. Note the direction of hook on spring for guidance in reassembling.
2. Remove the end caps and regulating screws.
3. Remove gland, shaft and piston. Thorough inspection can now be made of all parts. Before reassembling it is advisable to clean end cap and gland seats thoroughly to insure a tight joint. Be sure no dirt or other foreign substance is allowed to remain in liquid chamber. This is important since small particles of solid matter can clog the valve ports, causing loss of speed control.
4. Replace the piston with open side toward the back of closer.
5. Replace both end caps, using sealer on the seats. Replace both regulating screws tightening packing nuts.
6. Insert the shaft (without gland) making sure that first tooth of the pinion is properly meshed between first and second teeth of piston.
7. Place the arm on the shaft (without attaching nut) and fill the liquid chamber with new ILCO Climatic liquid. Rotate the arm several times so that piston moves back and forth and expels all air from pockets. Fill until liquid covers the piston. Do not fill beyond this point.
8. Replace the gland and upper ball-bearing using sealer on gland seat. Tighten well.
9. Replace the spring plate and spring in same position as when removed. (See information on Hand, below.) Replace, also, cover, ratchet and arm. (Main Arm must be at right angles to door.) Adjust Regulating Valves as per instructions below.

TO CHANGE THE HAND

(See Page 11)



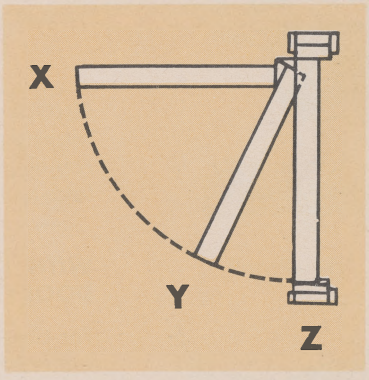




1. Remove the Shaft Nut, Arm, Cover and Spring.
   TO REASSEMBLE, RIGHT OR LEFT HAND
2. Insert Spring so that outside hook engages in recess as at (a) if right hand, or (b) if left hand is desired.
3. Rotate Shaft so that Dot on top is located as at (a) if right hand, or (b) if left hand is desired.
4. Replace Ratchet (be sure to hold shaft stationary) so that inner hook of Spring properly engages notch in sleeve.
5. Replace Arm in position shown.
6. Replace Shaft Nut firmly.
7. Wind Spring (counter-clockwise if right hand; clockwise if left hand) required number of notches and engage Ratchet with Pawl.

TO REGULATE CLOSING SPEED OF DOOR

(Use valve closest to hinged edge of door)

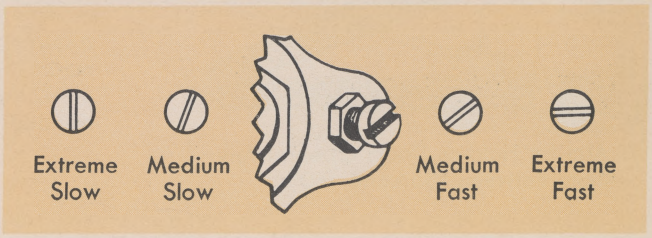


FOR CONTROL OF CLOSING SPEED FROM OPEN POSITION X TO POINT Y (About 5″ from closed position). This is accomplished by screwing the VALVE closest to hinged edge inward. The farther inward the VALVE SCREW is turned, the slower the door speed becomes. Leave the screw driver slot in an oblique position whenever you stop. Keep trying the door until the desired action is achieved.

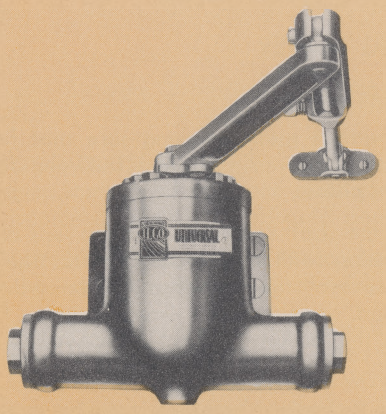
FOR CONTROL OF CLOSING SPEED FROM POINT Y (5″ FROM CLOSED POSITION) TO POINT Z (FULLY CLOSED). Turn the screw slot in the VALVE away from the oblique, SLOWLY toward the horizontal for faster latching or toward the vertical for slower latching.

BACK CHECKING to prevent door from striking the wall, or other obstruction when fully opened, is obtained by turning Adjusting Screw farthest from hinge edge so that screw slot is in vertical position if dead stop is wanted. For more gradual back check turn slot slightly off vertical.

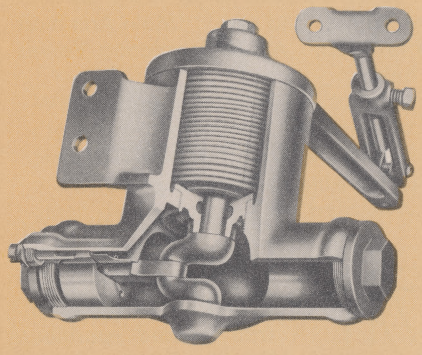
VALVE SLOT SETTING FOR LATCHING SPEED



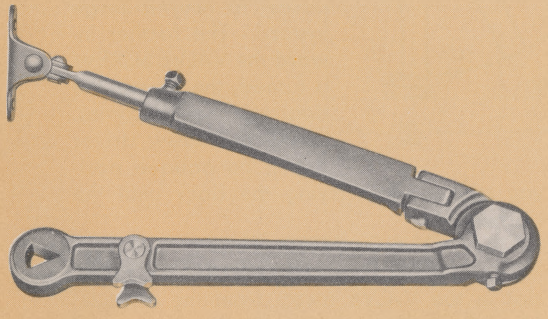
UNIVERSAL DOOR CLOSERS



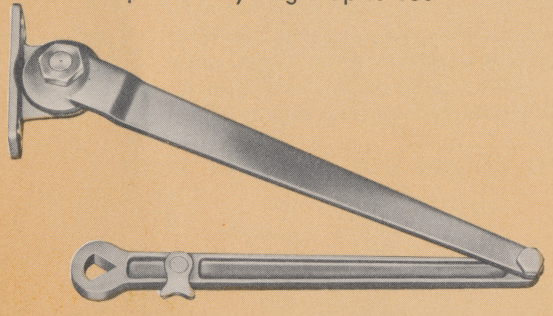
Universal Closer
with Regular Non-Holding Arm



Internal Assembly — Features Automatically Reversing Spring Winding Mechanism



135° Holder Arm for Holding Doors Open at Any Angle Up to 135°



Holder Arm for Holding Doors Open at Any Angle Between 135° and 180°

FOR RIGHT OR LEFT HAND DOORS WITHOUT *CHANGE . . . OTHER FEATURES

HELICAL COIL SPRING — The helical winding of the spring permits the use of an entirely automatic reversing mechanism, so that the closer is ready for right or left hand doors without change. These springs are extra-powered, friction-free, accurately tempered and tested.

FORGED STEEL CRANKSHAFT — The crankshaft is a heavy one-piece alloy-steel drop forging, capable of withstanding severe usage. Shaft has ample bearing, both above and below the crank.

PRECISION-FIT PISTON — WELDED LINK — Dependable checking action is assured by the precision matching of the piston and liquid chamber. The piston is joined to the crankshaft by a welded steel link.

COMBINATION PACKING NUT AND GLAND — By means of an ingeniously contrived capillary chamber and return ports, liquid escaping up the shaft is trapped and returned to the liquid chamber. Leakage, as a serious door closer maintenance problem, is eliminated in the ILCO Universal Door Closer.

SINGLE VALVE CONTROL — A single valve regulates both closing and latching speeds. By a simple manipulation, the door can be made to close rapidly to the latching point and then slowly, or, to close slowly and then latch with a snap to overcome stiff latch springs.

WITH 135° HOLDER ARM FOR HOLDING DOORS OPEN AT ANY ANGLE UP TO 135°

For closer controlled doors which are required at times to stand open at an angle up to 135°, this holder arm attachment is designed on a principle long proved by actual use as most satisfactory. It functions easily and automatically when the door is swung to the hold-open point, by means of contacting frictional surfaces at the joint of the main and forked arms. The degree of door opening at which these surfaces contact and hold is easily adjusted by turning the regulating nut at the arm joint. Can be used for installation either on door or on bracket.

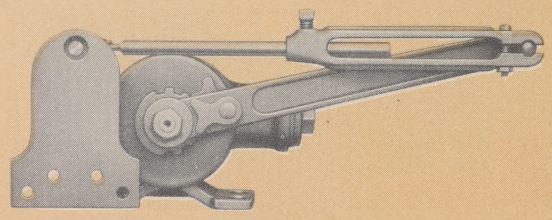
WITH HOLDER* ARM FOR HOLDING DOORS OPEN AT ANY ANGLE BETWEEN 135° AND 180°

When the hold-open angle is between 135° and 180° a different type holder arm attachment (illustrated at left, bottom of page) must be used. This device is similar in principle, but the contacting frictional surfaces are located at the joint of the forked arm and jamb bracket, where the arc of travel of the frictional surfaces is lesser in relation to the degree of door opening. Adjustment of the degree at which the door is held open is accomplished by means of the regulating nut at the friction joint. When 180° holder arm is used, the closer must be installed on a bracket (corner bracket is recommended). (See page H16 for information on proper bracket).

*In ordering Parallel Arm Closers, state hand.

WITH PARALLEL ARM FOR INSTALLATION TO RECESSED SIDE OF DOOR — WITHOUT BRACKET

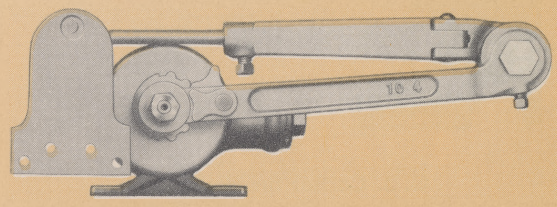
Where closers are to be installed on recessed side of door, but brackets are undesirable due to lack of sufficient headroom, parallel arm closers may be used. In this installation the closer is attached directly to recessed side of door and the main arm stands parallel to the door when closed. A Soffit Extension Foot No. 977 (see page 17) is used in place of the usual jamb bracket. Thus when door is swung open, the closer is carried out of the opening, leaving headroom free. In ordering, state hand.



Closer with Parallel Arm

WITH PARALLEL HOLDER ARM FOR HOLDING DOORS OPEN UP TO 135°

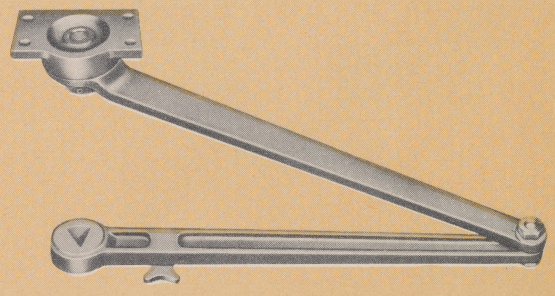
This device permits application of closer to recessed side of door, without brackets, where the door is required to hold open at any point up to 135°. Its means of attachment is the same as the non-holding parallel arm closer affording maximum headroom in the opening. Extension Foot No. 977 is furnished. (See page 17). In ordering, state hand.



Parallel Holder Arm for Holding Doors Open up to 135°

WITH PARALLEL HOLDER ARM FOR HOLDING DOORS OPEN AT ANY ANGLE BETWEEN 135° AND 180°

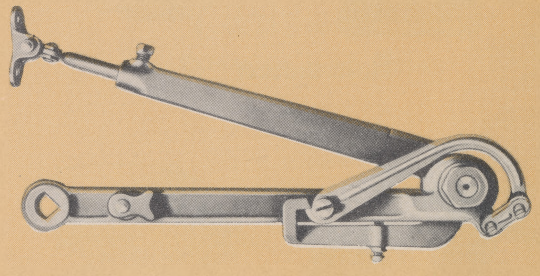
Where the advantages of parallel arm installation, as described above, are desired and door is to be held open at any point between 135° and 180° a closer with a slightly different arm is provided. The holding device in this arm is located at the joint of the arm and soffit bracket where the arc of travel of the frictional surfaces is lesser in relation to the degree of door swing. Where installation is to be made with depth of jamb less than 5″, order Extension Plate No. 978. See page 17. In ordering, state hand.



Parallel Holder Arm for Holding Doors Open from 135° to 180°

WITH FUSIBLE LINK HOLDER ARM FOR AUTOMATIC RELEASE IN CASE OF FIRE

This type holder arm is designed to release the holding mechanism and automatically cause the door to close in case of fire. A link of fusible metal (as shown in illustration at right) retains the frictional holding members in operating position at all times in normal temperatures. When the temperature rises to 160° the link fuses, releasing the hold-open mechanism and the door quickly closes under power of the spring. For similar device tested and approved by The National Board of Fire Underwriters for use on Underwriters' Labeled Doors, see page 7.

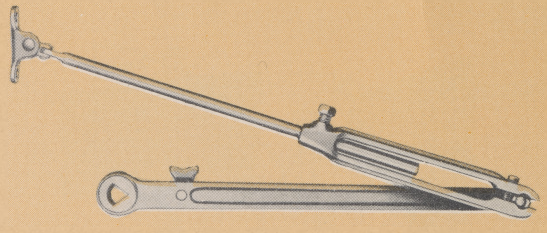


Fusible Link Arm for Automatically Releasing Door in Case of Fire

WITH EXTRA LONG ARMS FOR CERTAIN INSTALLATIONS

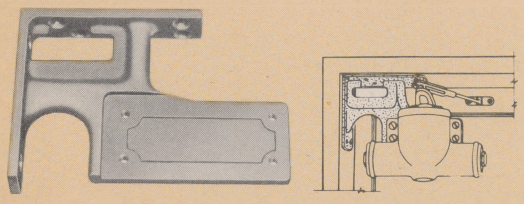
Where obstructions may require that the closer be set out farther than usual from the hinged edge of door, an extra long arm will be required to give both complete opening and normal parts travel. Extra long arms are also necessary for closers mounted on brackets with non-holder arms and required to open to 180°. The following Extra Long Arms are available.

For Closer sizes 23 and 24 — 12″, or 13″
25 — 14″

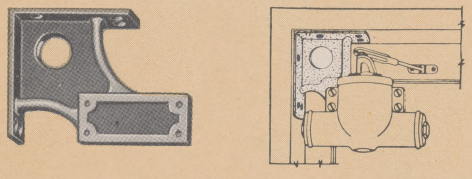


Extra Long Arm

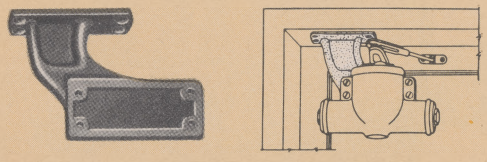
BRACKETS—FOR UNIVERSAL CLOSERS



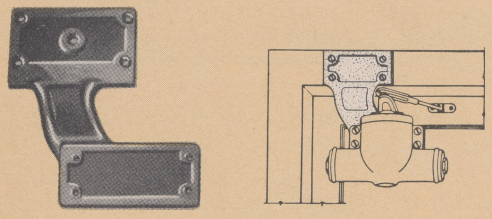
Corner Bracket



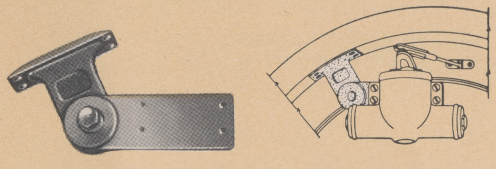
G. J. Corner Bracket



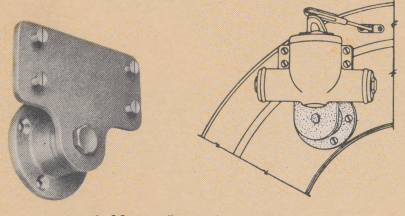
Soffit Bracket



Flush Bracket



Adjustable Bracket



Offset Bracket

MALLEABLE IRON

CORNER BRACKETS This bracket is for use only where door is required to swing 180° or for the purpose of gaining headroom on a bracket installation, by placing closer in corner of frame. If hold-open feature beyond 135° is required, closer with 180° holder arm must be used.

For Closer Size	21	22	23	24	25
BRACKET NO.	**912**	**912**	**B893**	**C894**	**D895**
Width of Base	1 7/16"	1 7/16"	1 1/8"	1 1/8"	1 1/8"

G. J. CORNER BRACKETS For use only where non-holder closers are installed in conjunction with other overhead holding devices.

For Closer Size	23	24	25
BRACKET NO.	**B933**	**C934**	**D935**
Width of Base	1 7/16"	1 7/16"	1 7/16"

SOFFIT BRACKETS Recommended for use whenever application on a bracket is required and conditions will permit its use. This bracket permits application of closer at proper distance from hinged edge of door and assures better performance.

For Closer Size	21	22	23	24	25
BRACKET NO.	**902**	**902**	**B903**	**C904**	**D905**
Width of Base	1 7/16"	1 7/16"	1 1/2"	1 9/16"	1 3/4"

FLUSH BRACKETS For use where headstop is of insufficient width to permit use of Soffit Bracket.

For Closer Size	21	22	23	24	25
BRACKET NO.	**942**	**942**	**B943**	**C944**	**D945**
Width of Base	3 1/2" x 2 3/4"	3 1/2" x 2 3/4"	4 5/16" x 2 7/16"	4 7/8" x 2 5/8"	5" x 3"

ADJUSTABLE BRACKETS For use on circular top doors when closer is to be applied on recessed side of door. Bracket is adjustable to curve of opening.

For Closer Size	23	24	25
BRACKET NO.	**B953**	**C954**	**D955**
Size of Base	2" x 6" for all closers		

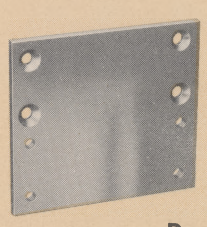
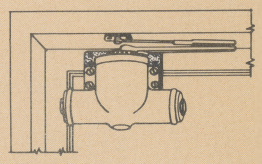
OFFSET BRACKETS For use on circular top doors when closer is to be applied to hinge side of door.

For Closer Size	22	23	24	25
BRACKET NO.	**962**	**B963**	**C964**	**D965**
Diameter of Base 3 1/2"	Offset 1 5/8" for all closers			

MALLEABLE IRON

DROP BRACKETS This drop bracket is used with parallel arm closers which are applied to door on recessed side, when top rail of door is too narrow to receive closer.

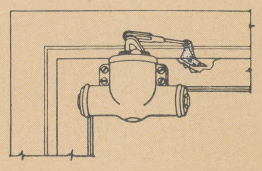
For Closer Size	22	23	24	25
PLATE NO.	**882**	**B883**	**C884**	**D885**
Size	4″ x 3¾″	4¾″ x 4⅛″	5 1/16″ x 4½″	5⅜″ x 4¾″

Drop Bracket

OFFSET JAMB BRACKET Designed for use where it might otherwise be necessary to cut expensive trim in order to attach jamb bracket.

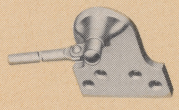
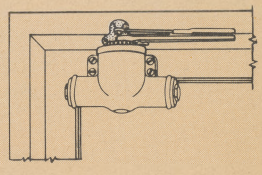
OFFSET JAMB BRACKET NO. **980** (for all size closers)

Offset Jamb Bracket

EXTENSION FOOT This arm attachment is for use with parallel arm closers with non-holder or 135° holder arms, when jamb is not deep enough to permit use of soffit post regularly furnished. Can be installed on jambs with minimum depth of 1½″.

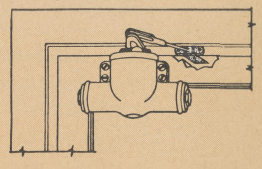
EXTENSION FOOT NO. **977** (for all size closers) SIZE 3″ x 4″

Extension Foot

EXTENSION JAMB PLATE Attaches to the head frame and extends beyond trim, providing a solid means of attaching the jamb bracket, without necessity for cutting the trim.

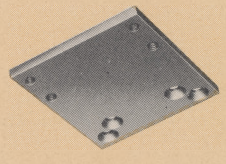
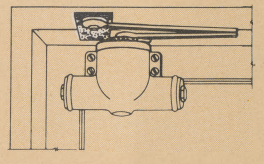
EXTENSION JAMB PLATE NO. **990** (for all size closers)

Extension Jamb Plate

EXTENSION SOFFIT PLATE This extension soffit plate is for use with parallel arm closers, with 180° holder arms, when jamb is not deep enough to permit application of regular soffit plate directly to jamb. Can be installed on jambs with minimum depth of 1½″.

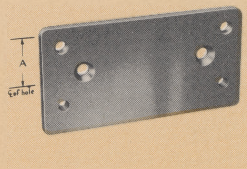
EXTENSION SOFFIT PLATE NO. **978** (for all size closers) SIZE 4″ x 3 5/16″

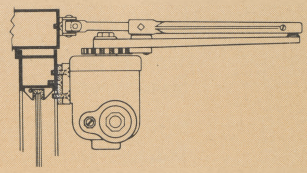



Extension Soffit Plate

ADAPTER PLATES (Aluminum) This Adapter Plate is for use where top rail of door is too narrow to receive closer in a standard application. Plate is attached to rail by two flathead machine screws. Top closer screws pass through top holes in plate and are screwed into tapped holes in rail. Bottom closer screws are screwed into tapped holes in plate. Machine screws are furnished.

For Closer Size	23	24	25
Plate Number	**B873**	**C874**	**D875**
Size	2⅛″ x 4½″	2½″ x 5 1/16″	2¾″ x 5⅜″
Dimension A	31/32″	1⅛″	1⅛″





Adapter Plate

SIZE SELECTION . . . NUMBERS

STANDARDS FOR SELECTING CORRECT SIZE CLOSER FOR INSTALLATION

Number of Closer	*Type of Door*	*Maximum Door Size*
21 to 821	Ordinary screen doors, or light interior doors	1⅛″ x 2′6″ x 6′6″
22 to 822	Heavy screen doors	1⅜″ x 3′0″ x 7′0″
	or light interior doors	1⅜″ x 2′8″ x 7′0″
	or closet doors	1¾″ x 2′8″ x 7′0″
23 to 1223	Light exterior doors	1¾″ x 2′6″ x 7′0″
	or corridor and office doors of wood or metal	1¾″ x 3′4″ x 7′0″
24 to 1224	Ordinary exterior doors	2¼″ x 3′0″ x 7′6″
	or heavy interior doors subject to strong drafts	2¼″ x 4′0″ x 7′6″
25 to 1225	Heavy exterior or heavy interior doors subject to strong drafts	3″ x 3′6″ x 7′6″

NUMBERS FOR ORDERING UNIVERSAL CLOSERS

NUMBERS ARE FOR COMPLETE CLOSERS WITH VARIOUS TYPES OF ARMS

With Regular Arm	*With 135° Holder Arm*	**With 180° Holder Arm*	*With Non-Appr. Fusible Link Arm*	*†With Parallel Arm*	*†With 135° Parallel Holder Arm*	*†With 180° Parallel Holder Arm*
21	. . . .	. . . .	. . . .	821	. . . .	. . . .
22	. . . .	. . . .	. . . .	822	. . . .	. . . .
23	123	223	423	823	1123	1223
24	124	224	424	824	1124	1224
25	125	225	425	825	1125	1225

Above numbers are for cast iron, unpolished closers.
* Must be mounted on a Bracket. Corner bracket recommended.
For closers with Key Valves, suffix symbol K to number. Example, 23K. Regularly furnished without key. Specify quantity of keys required.

†These closers are handed. In ordering, state hand.

FINISHES

All closers, unless otherwise specified on order, are furnished in a standard Brown Lacquer finish. When so specified they can be furnished Gold Bronze (GB), Silver Bronze (SB), Dead Black (DB), Maroon Bronze (MB) and Prime Coat (PC). In ordering these special finishes suffix symbol to number: Example, 23GB.

HOW TO ORDER

FOR STOCK: Select sizes of closers required for various types and sizes of doors from table above. Give specific closer number to indicate size and type of arm. Specify finish if other than standard Brown Lacquer.
Specify each size in case quantities as given on opposite page. Furnished with wood screws and machine screws.

FOR CONTRACT: Give all information, as indicated above. Unless otherwise specified wood screws will be furnished. Machine screws, or through bolts with grommet nuts, when so specified. Sex bolts to special order.

CASE QUANTITIES AND SHIPPING WEIGHTS

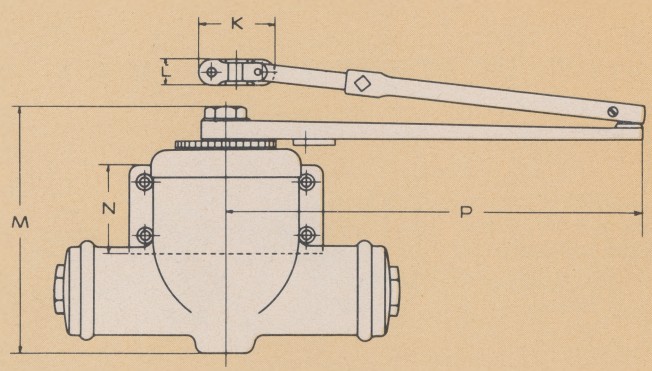
Closer Number		*Weight Each*	*Quantity in Case*	*Weight Per Case*
21	One in a box, with screws	7 lbs.	6	42 lbs.
22	One in a box, with screws	10 5/6 lbs.	4	41 lbs.
23	One in a box, with screws	13 lbs.	4	50 lbs.
24	One in a box, with screws	15 1/3 lbs.	4	62 lbs.
25	One in a box, with screws	20¾ lbs.	4	83 lbs.

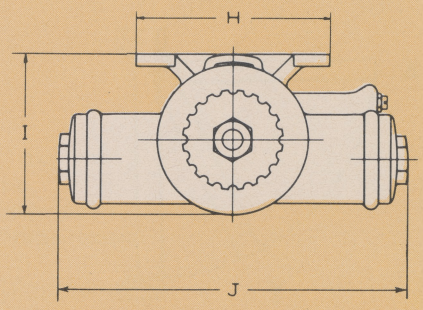
GUARANTEE

The ILCO Universal Door Closer is unconditionally guaranteed for two years. Failure to perform efficiently, for any reasons (other than misapplication or misuse) during that time, will be immediately adjusted.

DIMENSIONS

Closer	H	I	J	K	L	M	N	P
21	4″	3 ½″	6″	2¼″	¾″	4¾″	1 1⁄16″	7¼″
22	4 1⁄16″	3 7⁄8″	7¼″	2¼″	¾″	5 7⁄8″	1 5⁄16″	8⅜″
23	4½″	4″	8″	2¼″	¾″	6 9⁄16″	2 5⁄16″	9 1⁄16″
24	5 1⁄16″	4 3⁄8″	8⅛″	2¼″	¾″	7 3⁄16″	2 9⁄16″	10 5⁄16″
25	5 7⁄16″	4 11⁄16″	9″	2¼″	¾″	8″	2 13⁄16″	11 3⁄16″





PROCEDURE FOR INSPECTING OR SERVICING ILCO UNIVERSAL DOOR CLOSERS

(See Parts List, page 23. See also Special Tools, back cover)

1. Place the closer in a vise and remove the arm. Pry off ratchet and cover.
2. To remove plate, spring and driver assembly; using wrench, turn driver slightly anti-clockwise. Raise until disengaged and remove.
3. Remove end caps, regulating screw, regulating screw nut and washers. (Have container handy to catch liquid.)
4. Remove gland (see special wrenches, page 24). Remove piston pin. Take out crankshaft and connecting rod in one unit. Remove the shaft packing nut and washers. Thorough inspection can now be made of all parts. Clean all parts thoroughly. Be sure no foreign substances are allowed to remain in liquid chamber. (This is important since particles of solid matter can clog valves causing loss of speed control.)
5. Replace regulating screw nut with new washers. Replace regulating screw, piston, crankshaft and connecting rod assembly. Replace piston pin. Make sure to stake the pin securely so that it cannot back out and damage the piston chamber.
6. Replace gland with sealer on gland seat. Replace shaft packing nut, using new washers.
7. Replace end cap on regulating screw end of shell, using sealer. Refill with Climatic Liquid. (Rotate crankshaft slowly to ensure completely filled chamber.) Replace second end cap tightly, using sealer.
8. To replace spring plate, spring and driver assembly. (First, note how hook on spring engages notch on plate when properly assembled.) Drop one plate (both are same) into position over gland, with projections up. With spring hook lined up with notch in plate, press or tap spring down into proper engagement with plate.

8a. Replace driver over crankshaft, pronged end first. Replace second spring plate engaging hook in notch, same as first.

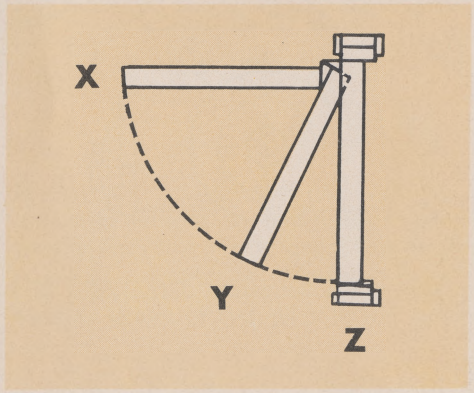
8b. Holding down top plate and spring, turn entire assembly counter-clockwise until both spring and driver stop. Using wrench on driver and allowing spring plate to rise just high enough to clear projection on shell, turn driver counter-clockwise against tension, at the same time turning top plate so that its cam passes projection on shell. When cam is ⅜" clear of projection, press down sharply on spring plate and entire assembly will lock into engagement.

9. Replace top cap, ratchet (with teeth toward front of closer) arm and crankshaft nut. In re-applying closer on door, be sure forked arm and rod are at right angle to door.

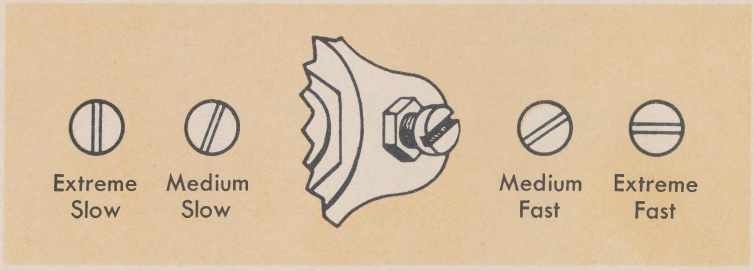
TO REGULATE CLOSING SPEED OF DOOR

FOR CONTROL OF CLOSING SPEED FROM OPEN POSITION X TO POINT Y (About 5" from closed position). This is accomplished by screwing the VALVE inward. The farther inward the VALVE SCREW is turned, the slower the door speed becomes. Leave the screw driver slot in an oblique position whenever you stop. Keep trying the door until the desired action is achieved.

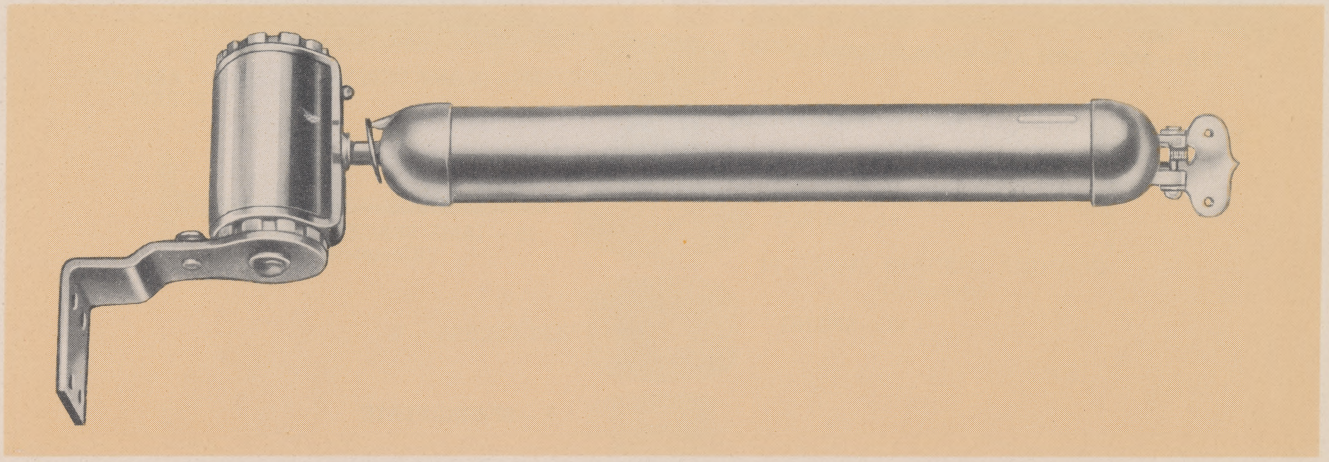
FOR CONTROL OF CLOSING SPEED FROM POINT Y (5" FROM CLOSED POSITION) TO POINT Z (FULLY CLOSED). Turn the screw slot in the VALVE away from the oblique, SLOWLY toward the horizontal for faster latching or toward the vertical for slower latching.



VALVE SLOT SETTING FOR LATCHING SPEED

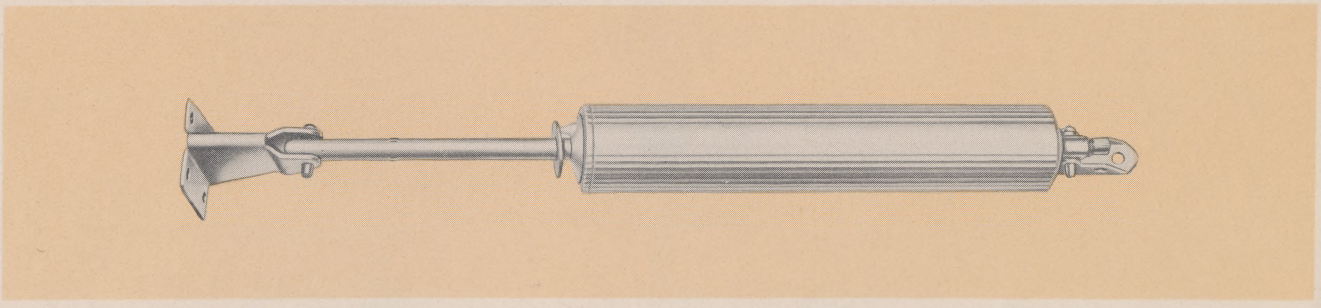


PNEUMATIC



NO. 3002 "DELUXE"

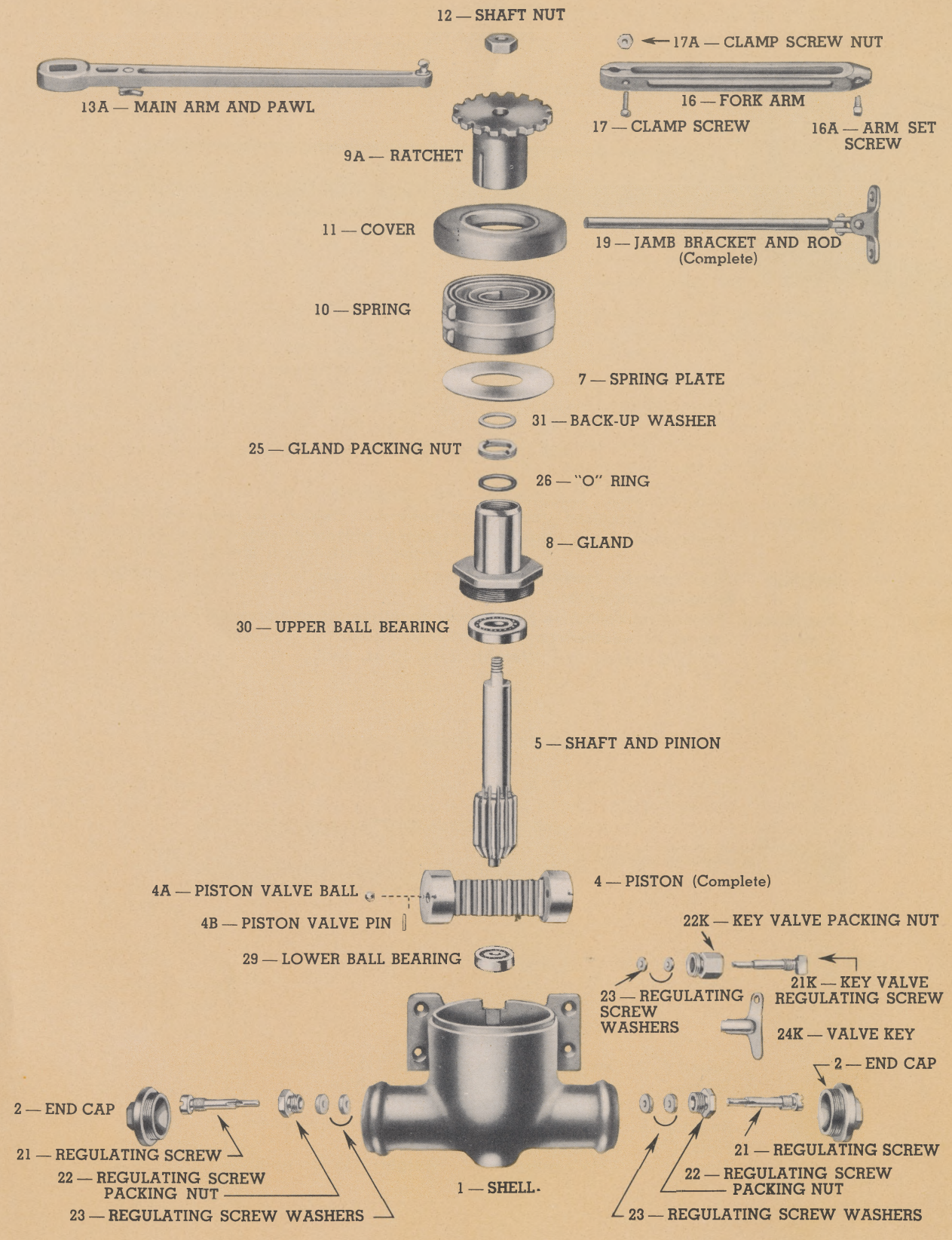
Tube: Seamless steel. Extra heavy. 1⅜ in. diameter.
Spring: Specially processed steel. Extra powerful. Enclosed for protection and smart appearance. Has bumper spring to prevent damage from slamming open.
Ratchet: Double ratchet feature makes closer ready for doors of either hand without reversing ratchet.
Regulation: New spring-ball valve gives precise speed control and prevents "rebound".
Finish: Attractive, weather-resisting Gray Metalescent.
Size: 16½ in. overall. **Weight:** 2 lbs. 13 oz. each.

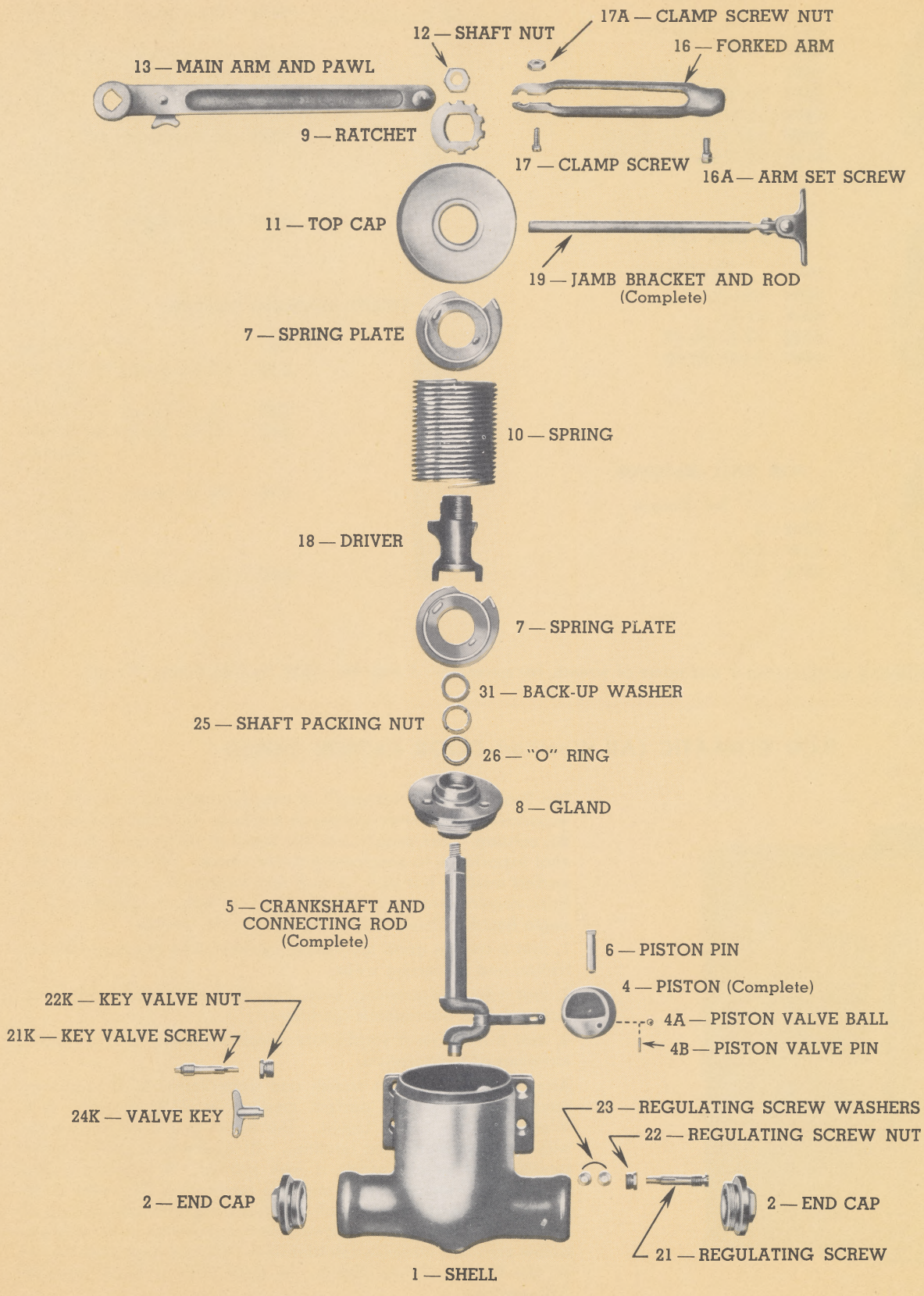


NO. 3006 CLOSER

Tube: One-piece forged aluminum, 1½" diameter.
Spring: Heavy, concealed, compression type.
Hand: Universal, for either right or left hand doors.
Regulation: Precision speed control meets any requirement.
Finish: Bright aluminum and nickel.
Size: 17¼" overall. **Weight:** 1¼ lbs. each.

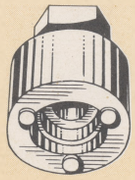
PARTS LIST FOR BALL-BEARING DOOR CLOSERS




17A — CLAMP SCREW NUT
12 — SHAFT NUT
16 — FORKED ARM
13 — MAIN ARM AND PAWL
9 — RATCHET
17 — CLAMP SCREW
16A — ARM SET SCREW
11 — TOP CAP
19 — JAMB BRACKET AND ROD (Complete)
7 — SPRING PLATE
10 — SPRING
18 — DRIVER
7 — SPRING PLATE
31 — BACK-UP WASHER
25 — SHAFT PACKING NUT
26 — "O" RING
8 — GLAND
5 — CRANKSHAFT AND CONNECTING ROD (Complete)
6 — PISTON PIN
4 — PISTON (Complete)
4A — PISTON VALVE BALL
4B — PISTON VALVE PIN
22K — KEY VALVE NUT
21K — KEY VALVE SCREW
24K — VALVE KEY
23 — REGULATING SCREW WASHERS
22 — REGULATING SCREW NUT
2 — END CAP
2 — END CAP
21 — REGULATING SCREW
1 — SHELL

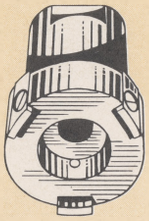
TOOLS FOR SERVICING ILCO DOOR CLOSERS

PACKING GLAND WRENCHES



3 PIN TYPE

No.	For Closers
44W	— (1)
45W	— (2-3-4-5-6)
58W	21-(650)
59W	22-(31-2B)
60W	23-24 (32-33-3B-4B)
61W	25 (26-34-35-5B-6B)



3 LUG TYPE

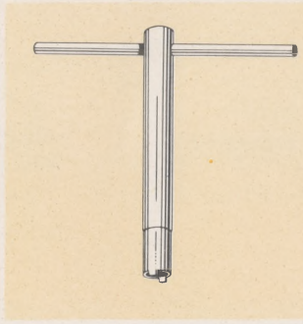
No.	For Closers
46W	650-30-1B
47W	31-2B
48W	32-33-3B-4B
49W	34-35-5B-6B



FOR BALL-BEARING

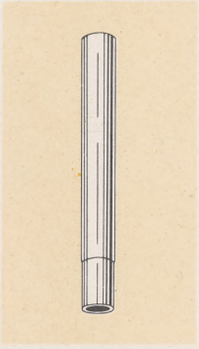
No.	For Closers
62W	B
63W	C-D
65W	E-F

SHAFT PACKING NUT WRENCHES



No.		For Closers
50W	(7/16 in. Shaft)	21 (1B-30-650)
51W	(9/16 in. Shaft)	22 (2B-31)
52W	(5/8 in. Shaft)	B-23-24 (3B-4B-32-33)
53W	(3/4 in. Shaft)	C-D-25 (26-5B-6B-34-35)
66W	(7/8 in. Shaft)	E-F

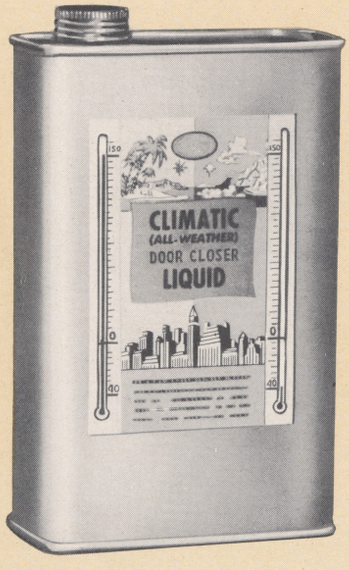
SHAFT PACKING DRIVER



No.		For Closers
54D	(7/16 in. Shaft)	21 (1B-30-650)
55D	(9/16 in. Shaft)	22 (2B-31)
56D	(5/8 in. Shaft)	B-23-24 (3B-4B-32-33)
57D	(3/4 in. Shaft)	C-D-25 (26-5B-6B-34-35)
67D	(7/8 in. Shaft)	E-F

When ordering specify number and name of wrench, for example: 1 only No. 48W Packing Gland Wrench.

ILCO CLIMATIC (All Weather) DOOR CLOSER LIQUID



The liquid is the "life blood" of any hydraulic door closer. The importance of preventing leakage has been discussed elsewhere in this catalog. The condition of the liquid at all times is of equally vital importance to satisfactory performance. The search for the perfect medium has been a long and tedious one since all of the basic requirements are difficult either to find, or compound in a single liquid. These basic requirements are briefly:

1, that it contain good lubricating qualities, thus reducing internal friction and minimizing wear;

2, that it be non-gumming, even after long hard usage under the most adverse atmospheric conditions;

3, that it maintain a satisfactory viscosity (ability to flow) under extremes of temperature.

After years of diligent search and experiment, ILCO engineers have developed the perfect medium in ILCO Climatic (All-Weather) Door Closer Liquid. This liquid is a mineral oil base with excellent lubricating qualities. Its ability to stand up under conditions of severe usage is well proved. It is entirely non-coagulating (non-gumming) and will never clog the valve ports and thus prevent free flow of the liquid, impeding the closing of the door. It remains free flowing at temperatures of 40 degrees below zero (the minimum established for tests of door closer liquid by the Bureau of Standards). Its flash point is approximately 350 degrees.

ILCO Climatic (All-Weather) Door Closer Liquid is furnished in pint, quart, gallon and 5 gallon cans and 25 gallon drums.

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