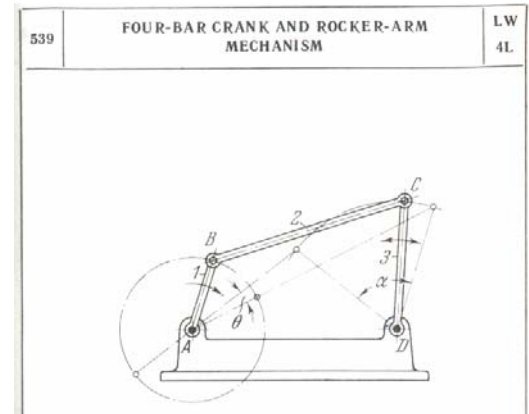
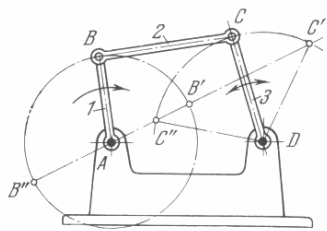


Atlante di Artobolewsky

Gruppo 3. Meccanismi con membri mobili (n>3)
Sottogruppo 1. Meccanismi con 4 membri per uso generico
 Parte Prima

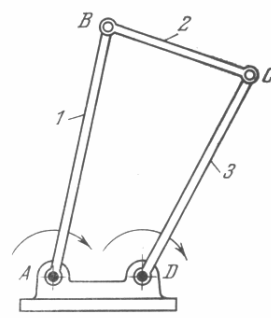


540	FOUR-BAR CRANK AND ROCKER-ARM MECHANISM	LW 4L
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The extreme positions, $C'D$ and $C''D$ of rocker arm 3 lie on a straight line passing through point A . The angles of forward and reverse oscillation of rocker arm 3 correspond to 180° of rotation of crank 1. Length $C'C''$ equals two lengths of crank 1.

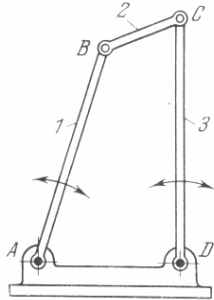
541	FOUR-BAR DRAG-LINK MECHANISM	LW 4L
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Links 1 and 3 make complete revolutions, i.e. they are both cranks, under the conditions that $\overline{AB} + \overline{AD} < \overline{BC} + \overline{CD}$ and $\overline{AB} > \overline{DC} > \overline{BC} > \overline{AD}$.

542

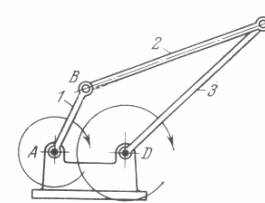
FOUR-BAR DOUBLE-SWING MECHANISM

LW
4L

The lengths of the links comply with the conditions:
 $\overline{BC} < \overline{AD} < \overline{AB} < \overline{DC}$
 and $\overline{AB} + \overline{BC} < \overline{AD} + \overline{DC}$. Links 1 and 3 are both rocker arms in the sense that they do not rotate completely about points A and D, but oscillate.

543

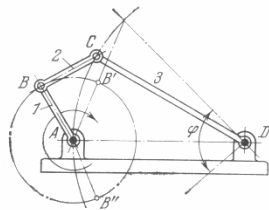
FOUR-BAR RHOMBOID DRAG-LINK MECHANISM

LW
4L

The lengths of the links comply with the conditions: $\overline{AB} = \overline{AD}$ and $\overline{BC} = \overline{CD}$. Link 3 makes one revolution to two revolutions of link 1. At the extreme positions (dead points) axes B and D of the links coincide and there is no positive motion of the mechanism unless some device is provided to pass through these dead points or unless the driving link has sufficient flywheel mass.

544

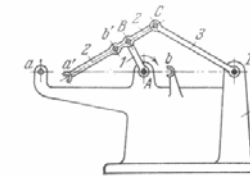
FOUR-BAR RHOMBOID CRANK AND ROCKER-ARM MECHANISM

LW
4L

The lengths of the links comply with the conditions: $\overline{AB} = \overline{BC}$ and $\overline{AD} = \overline{CD}$. Angle φ of total swing of rocker arm 3 equals $\varphi = 4 \arcsin \frac{\overline{AB}}{\overline{AD}}$. At the extreme positions, axes A and C of the links coincide and, unless a special device is provided, driving crank 1 and connecting rod 2 may begin to rotate about axis A as a single link. In this case, rocker arm 3 will be stationary and its axis DC will coincide with the direction AD.

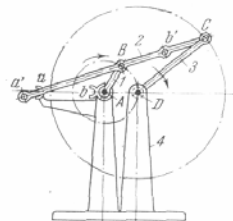
545

FOUR-BAR RHOMBOID MECHANISM WITH SAFETY STOPS

LW
4L

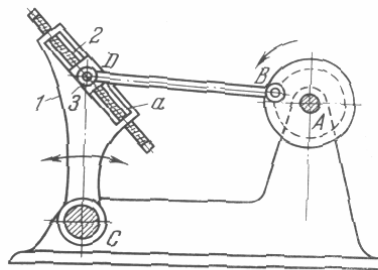
The lengths of the links comply with the conditions: $\overline{AB} = \overline{BC}$ and $\overline{DC} = \overline{DA}$. At the extreme positions (dead points), socket a' and pin b' abut against stops a and b of fixed link 4. As a result, uncertainty of motion of the mechanism is eliminated. The dimensions \overline{Aa} and \overline{Ab} equal: $\overline{Aa} = \overline{AB} + \overline{Ba'}$ and $\overline{Ab} = \overline{AB} - \overline{Bb'}$.

546

FOUR-BAR RHOMBOID MECHANISM WITH SAFETY STOPS
LW
4L

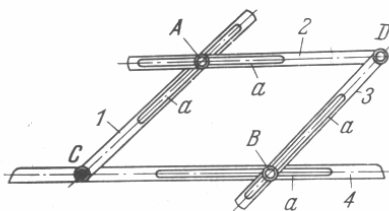
The lengths of the links comply with the conditions: $\overline{AB} = \overline{AD}$ and $\overline{BC} = \overline{DC}$. Link 3 makes one revolution to two revolutions of link 1. At the extreme positions (dead points), pins a' and b' of link 2 abut against stops a and b of base 4. As a result, uncertainty of motion of the mechanism is eliminated. The dimensions \overline{Aa} and \overline{Ab} equal: $\overline{Aa} = \overline{Ba'} - \overline{AB}$ and $\overline{Ab} = \overline{Bb'} - \overline{AB}$.

547

FOUR-BAR MECHANISM WITH A ROCKER ARM OF VARIABLE LENGTH
LW
4L

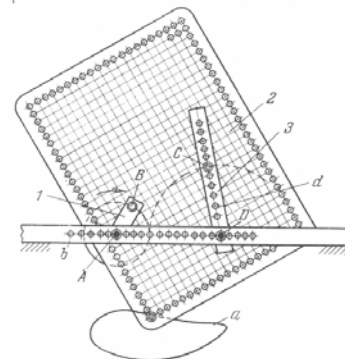
The length \overline{CD} of rocker arm 1 is varied by turning screw 2 which adjusts slider 3 along slot a . This enables the angle of oscillation of the rocker arm to be regulated.

548

FOUR-BAR MECHANISM WITH VARIABLE-LENGTH LINKS
LW
4L

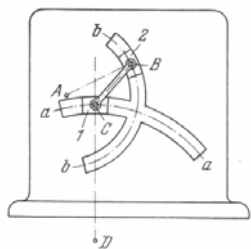
The links of four-bar linkage $ACBD$ have slots a and two clamping screws at points A and B . The lengths of the links of the mechanism can be regulated by sliding pivot pins A and B along the slots a of the links and clamping them in the required positions.

549

RAUH FOUR-BAR MECHANISM FOR STUDYING CONNECTING-ROD CURVES
LW
4L

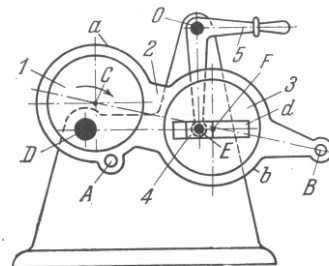
Connecting rod 2 of four-bar linkage $ABCD$ is a plane with a large number of holes for setting up a drawing device. In rotation of crank 1, the drawing device, located in one of the holes of the plane of connecting rod 2, draws the corresponding connecting-rod curve a . Provision is made for varying the lengths of links DC and AD , using holes b and d .

550

**FOUR-BAR MECHANISM WITH
ANNULAR SLIDING BLOCKS**
LW
4L

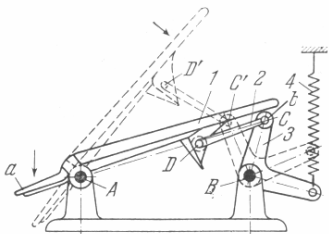
Links 1 and 2 are designed as annular sliding blocks travelling in fixed arc-shaped guides *a-a* and *b-b* about centres *D* and *A*. This mechanism is equivalent to a four-bar linkage *ABCD*.

551

**LINKWORK WITH VARIABLE PATHS
OF POINTS ON THE CONNECTING ROD**
LW
4L

Link 2 of four-bar linkage *DCFE* has two collars *a* and *b* which encircle eccentrics 1 and 3. These eccentrics rotate about fixed axes *D* and *E*. Upon the rotation of eccentrics 1 and 3, points *A* and *B* of link 2 describe connecting-rod curves. The paths of points *A* and *B* can be varied by adjusting slide block 4 with axis *E* along slot *d* in eccentric 3. This is accomplished by turning lever 5 about fixed axis *O*.

552

FOUR-BAR LOCKING LEVER MECHANISM
LW
4L

Link 1 of four-bar linkage *ADCB* turns about fixed axis *A*. In the position shown by continuous lines in the drawing, points *A*, *D* and *C* lie on a straight line and the mechanism, due to the action of spring 4, is locked. Upon depressing pedal *a* of link 1 the mechanism is put into its upper position *AD'C'B* which is shown by dash lines. To return link 1 to its initial locked position, force is applied to its other end. Lug *b* of lever 3 limits the downward motion of link 1.