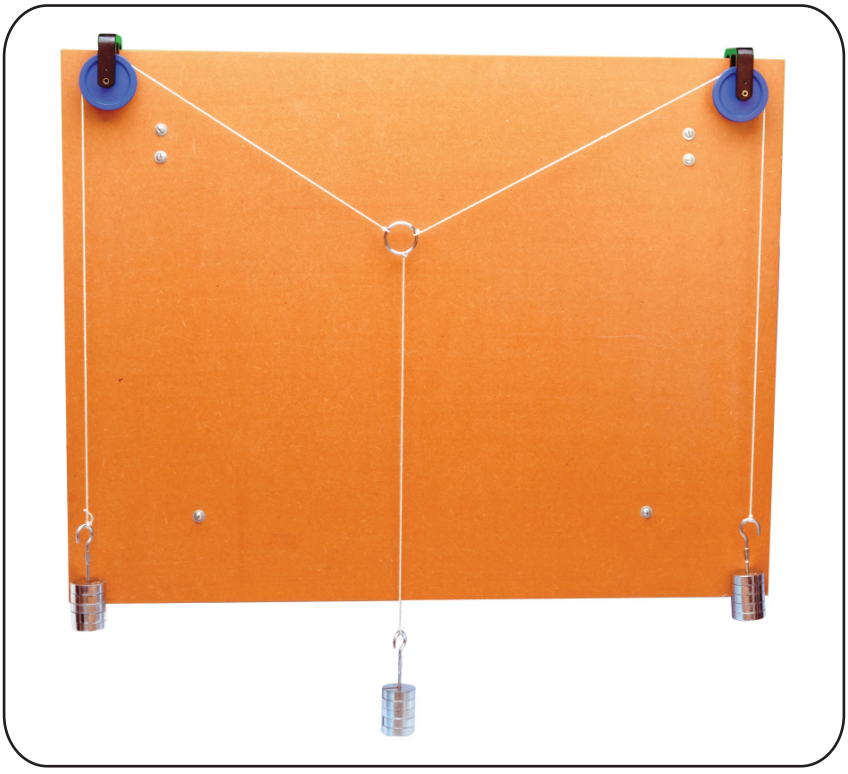
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PARALLELOGRAM OF FORCE APPARATUS

CAT NO. PH0346



Instruction Manual

INTRODUCTIONS:

It is a useful apparatus for verifying and demonstrating the principle of parallelogram and polygon of forces and to study and verify law s of composition of forces and resolution of forces.

SPECIFICATIONS:

The apparatus comprises a strong drawing board 75x60 cm. Fitted with there metal sockets and brackets for fixing it to a wall. The design is such that a clear space is left all round the edges of board for attachment pulleys. The board is supplied with mounting brackets but with cords pulleys and masses. In this apparatus the board is fixed vertically along the wall with brackets. It has a clear space all round the edges for pulleys. Normally two pulleys are fixed on the upper side of board and two on downward side as per convenience. Thread or cord passes round the ring.

OPERATION:

Fix the board vertically by fitting metal socket & bracket. Brackets to be perpendicular to the wall used.

Take a drawing sheet 70x60 cm. Fix it on the board with drawing pins firmly on the board. Adjust and tie thread or fine cord round the ring so that all forces are taut as represented by threads and there are no Knikle in the cord anywhere.

Adjust the weight and position of pulleys so that ring is in the centre and forces are in equilibrium as shown in figure. Take a plane mirror 5x8 cm and mark points on the sheet to represent forces W^1 W^2 W^3 W^4 and resultant.

Repeat by changing the direction of forces by changing the position of pulley or weights on another sheet. To find the resultant we used polygon rule.

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CALCULATION AND RESULT:

In the fig. II We have four forces W^1 W^2 W^3 and W^4 acting at a common point.

Let the W^1 represented force along ab

Let the W^2 represent force along bc

Let the W^3 represent force along cd

Let the W^4 represent force along de

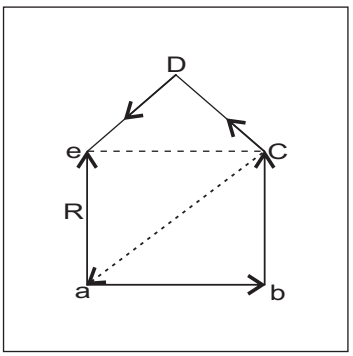


Fig . II

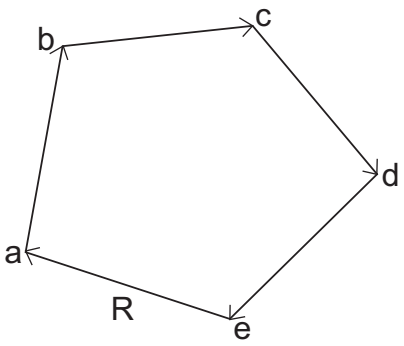


Fig. III

In direction as well as magnitude these lines are drawn to scale as well as direction with respect to forces acting as shown in illustrated diagrams.

R = ae on calculation will be found equal resultant ie_5 W.

Therefore the Result is as follows.

If a number of force are represented by the sides of an open polygon taken in order, the resultant is represented both in magnitude and direction by the closing side of the polygon taken in the opposite order.

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POINTS TO BE CONSIDERED WHILE PERFORMING THE OPERATION:

Mark the position forces representing forces points so that there in no parallax between thread and its image.

The cords should not touch the board.

Directions of forces are to be marked on the sheet.

Lines of representation of forces should meet at one point.

The point of representation are to be marked when the system is in equilibrium.

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