

INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

Second School Year

SIMPLE LIFTING DEVICES

1. They make hard work easier. They are *simple* and easily *transferable*.

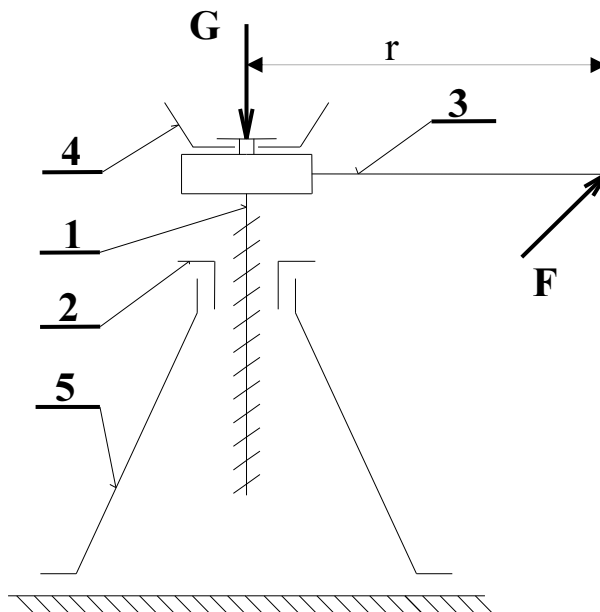
2. *Simple lifting device* can be:

- *manual*
- electrical
- pneumatic
- hydraulic

3. We know:

- 1) *Jacks*
- 2) *Pulley blocks*
- 3) *Winches*

4. In the diagram you can see a *screw jack*.



4.1 The numbers in the picture mean:

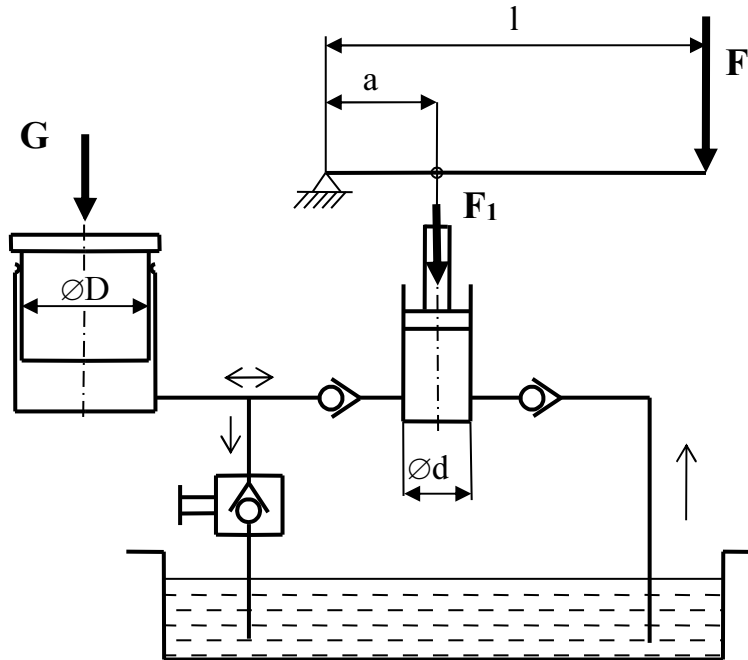
- 1 *screw spindle*
- 2 *nut*
- 3 *lever*
- 4 *rotating support*
- 5 *stand*

4.2 Description of a screw jack

In an *immovable nut* a *screw spindle* rotates. The *nut* is fixed in a *stand*.

INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

5. In the diagram you can see a hydraulic *jack*.



5.1 There are the following basic parts in the picture for example:

- big *piston*
- small *piston*
- *lever*
- *oil tank*

Can you find them in the diagram?

5.2 Principle on how it works

It works on the principle of Pascal's Law. It means that *pressure* in a liquid *expands* in all directions *uniformly*.

INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

VOCABULARY

expand	šířit
immoveable	nehybný
jack	zvedák
lever	páka
lift	zvedat
lifting device	zdvihadlo
manual	ruční
nut	matice
oil tank	nádrž na olej
piston	píst
pressure	tlak
pulley block	kladkostroj
rotating support	otočná opěrka
screw	šroub, šroubový
simple	jednoduchý
spindle	vřeteno
stand	stojan
transferable	přemístitelný
uniformly	rovnoměrně
winch	navíjedlo

COMPREHENSION QUESTIONS

1. What is the main purpose of a simple lifting device?
2. What simple lifting devices do you know?
3. Can you describe the basic parts of a hydraulic jack?
4. How does a hydraulic jack work?

INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

EXERCISES

1. Word search puzzle - 12 words were placed into the puzzle.

Simple lifting devices

S	D	S	P	W	J	L	I	K	G	U	L	S	K	I
W	I	N	B	R	I	I	J	X	K	U	J	Y	E	W
E	Y	M	A	D	I	R	O	T	A	T	E	E	I	P
R	K	B	P	P	D	N	F	R	D	J	L	O	A	E
C	N	W	P	L	X	I	C	S	U	P	P	O	R	T
S	G	H	R	X	E	E	M	I	L	H	L	N	U	X
B	R	L	P	I	F	G	E	M	P	E	O	P	B	J
D	I	R	E	C	T	I	O	N	O	L	V	P	B	W
J	N	C	B	N	F	T	L	Y	U	V	E	E	I	I
V	X	X	D	H	O	F	C	O	L	Q	A	N	R	I
P	E	D	B	D	Q	T	V	E	O	M	C	B	F	L
O	L	R	E	F	C	B	S	D	H	H	X	Q	L	S
Y	I	M	C	J	O	R	F	I	Z	B	H	K	U	E
H	Y	D	R	A	U	L	I	C	P	U	A	R	V	I
Q	B	C	N	J	F	Q	B	P	K	U	Q	T	N	Y

DIRECTION
IMMOVABLE
PRINCIPLE
SIMPLE

EXPAND
LEVER
ROTATE
SUPPORT

HYDRAULIC
PISTON
SCREW
WINCH



evropský
sociální
fond v ČR



EVROPSKÁ UNIE



MINISTERSTVO ŠKOLSTVÍ,
MLÁDEŽE A TĚLOVÝCHOVY



OP Vzdělávání
pro konkurenceschopnost



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

2. Rearrange letters to make words:

Simple lifting _____ (ceevdis) are simple and easily _____ (raensbeltfra). Simple lifting device can be manual and _____ (cmaietnp).

Simple lifting device can be classified as pulley blocks and _____ (echwisn).

In an _____ (avimmoabl) nut a screw _____ (nedlsip) rotates. The nut is _____ (dxief) in a stand.

3. Now translate the sentences from the exercise 2.

INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

KEY – For teachers only

1.

Solution

```

S D + P + + + + + + + + + +
W I N + R + + + + + + + + +
E + M A + I R O T A T E + + +
R + + P P + N + + + + + + + +
C + + + L X I C S U P P O R T
S + + + + E E M I L + + + + +
+ + + + + + + + M P E + + + +
D I R E C T I O N O L V + + W
+ + + + N + + + + + V E E I +
+ + + + + O + + + + + A N R +
+ + + + + + T + + + + C B + +
+ + + + + + + S + + H + + L +
+ + + + + + + + I + + + + + E
H Y D R A U L I C P + + + + +
+ + + + + + + + + + + + + +
    
```

(Over, Down, Direction)

DIRECTION (1, 8, E)
EXPAND (7, 6, NW)
HYDRAULIC (1, 14, E)
IMMOVABLE (7, 5, SE)
LEVER (10, 6, SE)
PISTON (10, 14, NW)

PRINCIPLE (4, 1, SE)
ROTATE (7, 3, E)
SCREW (1, 6, N)
SIMPLE (1, 1, SE)
SUPPORT (9, 5, E)
WINCH (15, 8, SW)

2. Simple lifting **devices** (ceevdis) are simple and easily transferable (raensbeltfra). Simple lifting device can be manual and **pneumatic** (cmauietnp).

Simple lifting device can be classified as pulley blocks and **winches** (echwisn).

In an **immovable** (avimmoebl) nut a screw **spindle** (nedlsip) rotates. The nut is **fixed** (dxief) in a stand.

3. Jednoduchá zdvihadla jsou jednoduchá a snadno přemístitelná. Jednoduché zdvihadlo může být ruční nebo pneumtické.

Jednoduchá zdvihadla rozlišujeme na kladkostroje a navíjedla.

V nehybné matici se otáčí šroubové vřeteno. Matice je upevněna ve stojanu.