

POSSIBLE ANSWERS FOR:

MOTOR MECHANICS SG

QUESTION 1

1.1	B	(2)
1.2	C	(2)
1.3	B	(2)
1.4	B or C	(2)
1.5	B	(2)
1.6	C	(2)
1.7	C	(2)
1.8	B	(2)
1.9	A	(2)
1.10	C	(2)
1.11	C	(2)
1.12	B	(2)
1.13	B	(2)
1.14	B	(2)
1.15	A	(2)
		[30]

QUESTION 2

2.1	Decrease in compression pressure.	(2)
2.2	Consists of <u>copper</u> and <u>steel</u> . Copper <u>expands more rapidly</u> than <u>steel</u> .	4x1=(4)
2.3	<ul style="list-style-type: none"> • Emitter • Collector • Base 	3x2=(6)
2.4	Brake Power (RD) = $2 \pi NT$ = $2 \pi \times \frac{3000}{60} \times 560$ = 175929 W	4x1=(4)
2.5	The distance the plunger travels from <u>covering the inlet port</u> to <u>uncovering the spill port</u> (Helixs)	4x1=(4)

2.6

- Provides the driver with the necessary leverage
- Eliminates road shocks
- Converts the rotary motion of the steering wheel into a reciprocating motion of the front wheels.

2x1=(2)

2.7 Make use of:

- Catalyst
- Heat
- Pressure

3x2=(6)

2.8

- 1, 3, 4, 2
- 1, 2, 4, 3

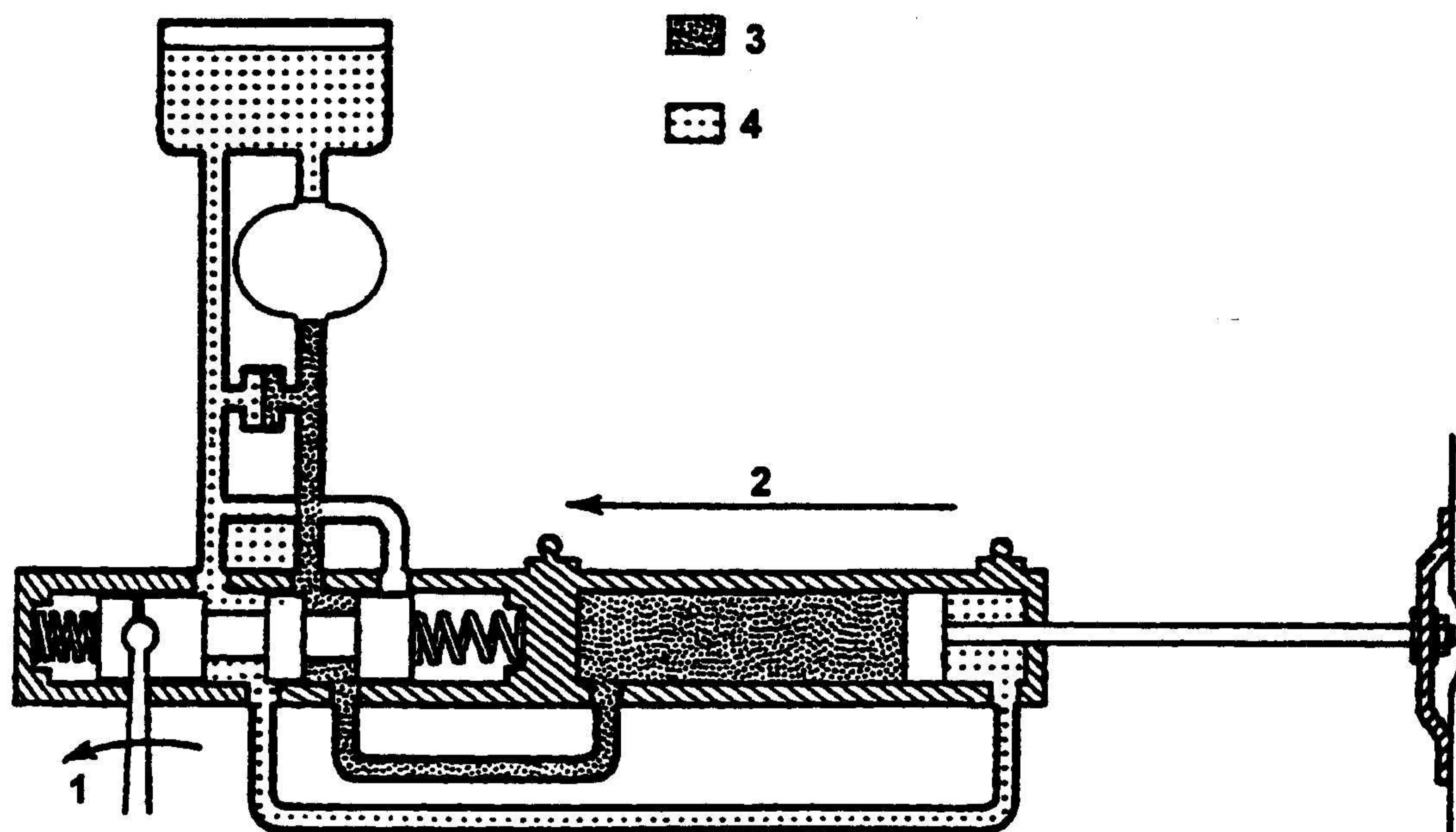
2x2=(4)

2.9

- It's compact
- Better gear ratios
- No shifting of gears

2x2=(4)

2.10



Correctness

10x2=(20)

- 2.11 - Less effort required
- Direct steering
- Dampener of road shocks

2x2=(4)

- | | | | |
|------|---------|-------|-----|
| 2.12 | 2.12.1 | False | (1) |
| | 2.12.2 | True | (1) |
| | 2.12.3 | True | (1) |
| | 2.12.4 | False | (1) |
| | 2.12.5 | True | (1) |
| | 2.12.6 | False | (1) |
| | 2.12.7 | True | (1) |
| | 2.12.8 | True | (1) |
| | 2.12.9 | False | (1) |
| | 2.12.10 | True | (1) |

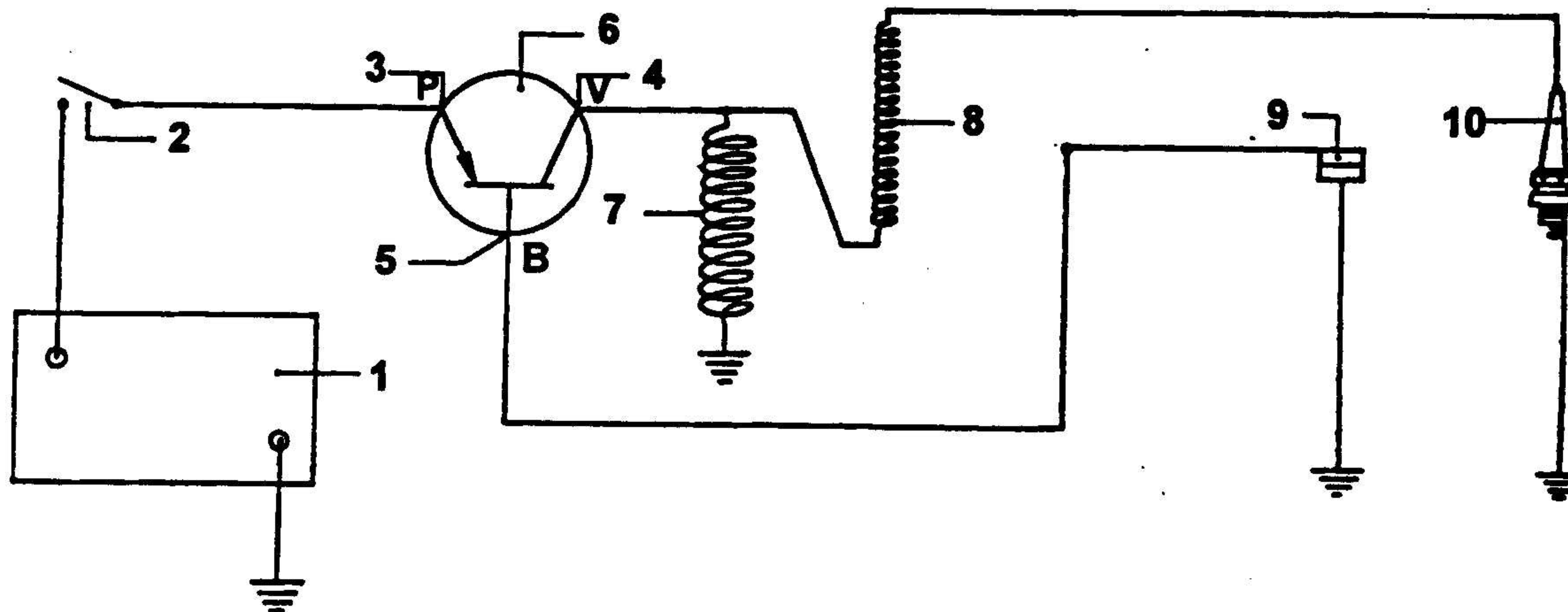
[70]

TOTAL FOR SECTION A: [100]

SECTION B

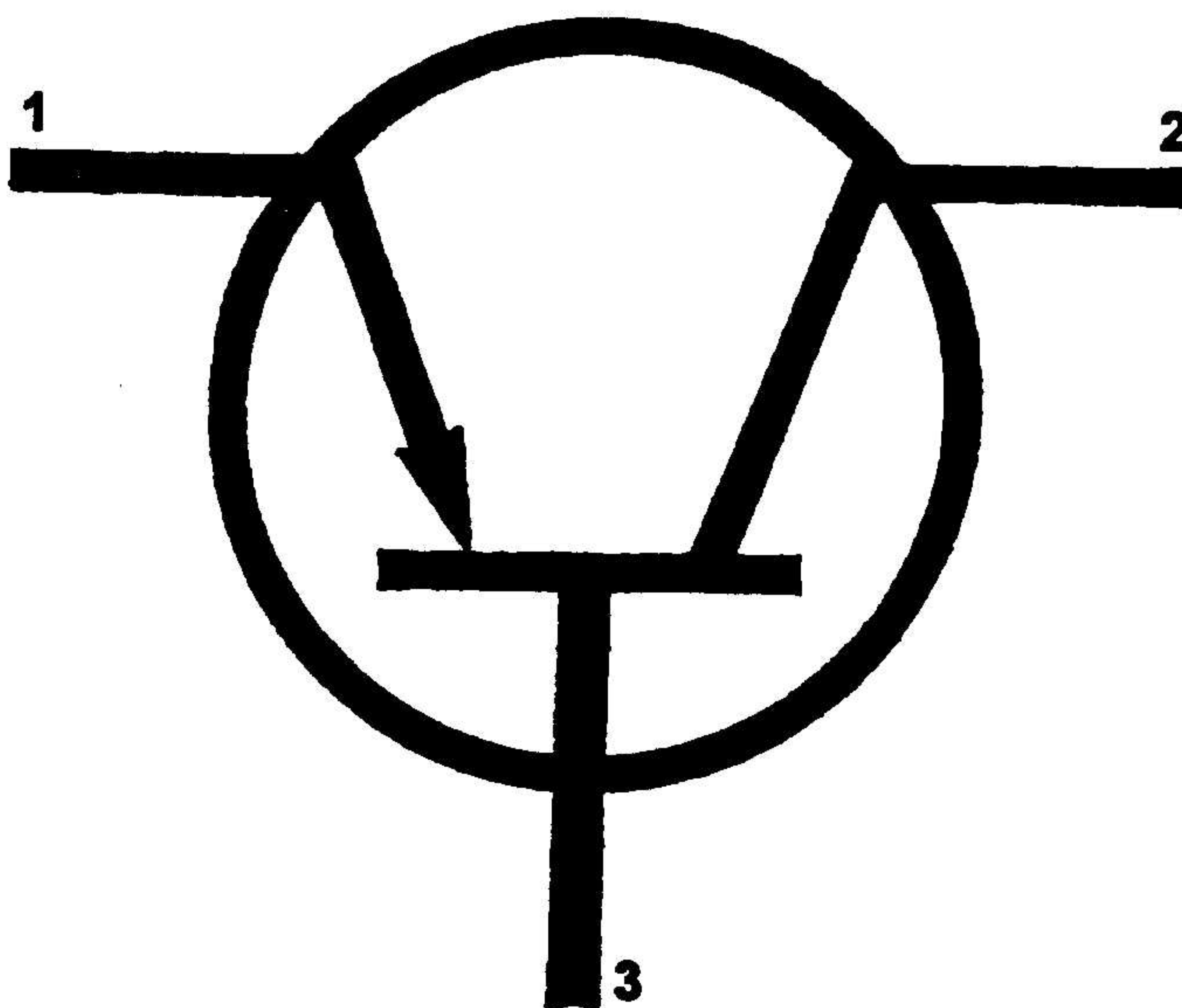
QUESTION 3

3.1



(10)

3.2



(4)

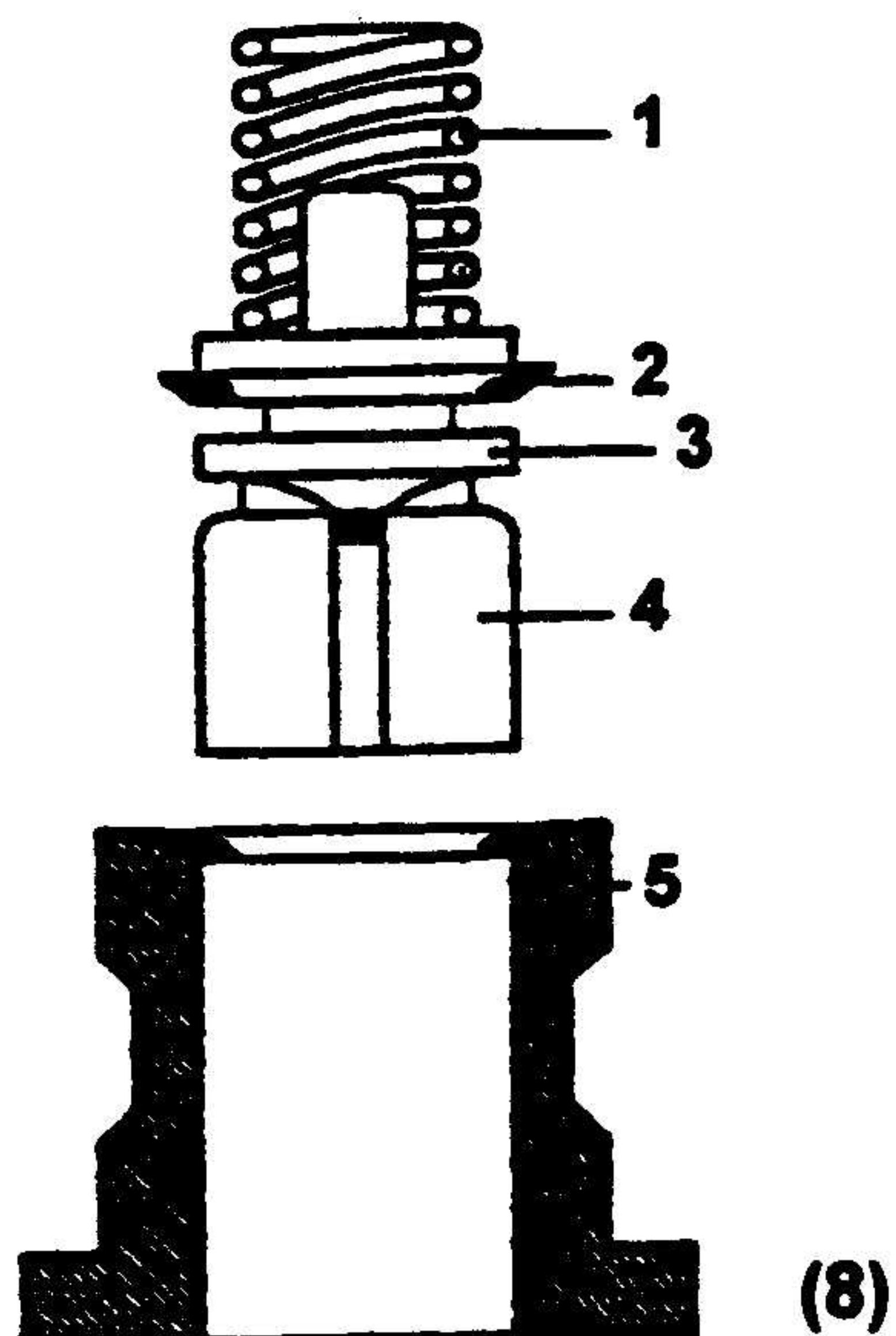
3.3

- No deterioration of contact points.
- No change in the ignition timing.
- Better coil saturation.
- Improves secondary induction.
- Improves secondary induction at high speed.

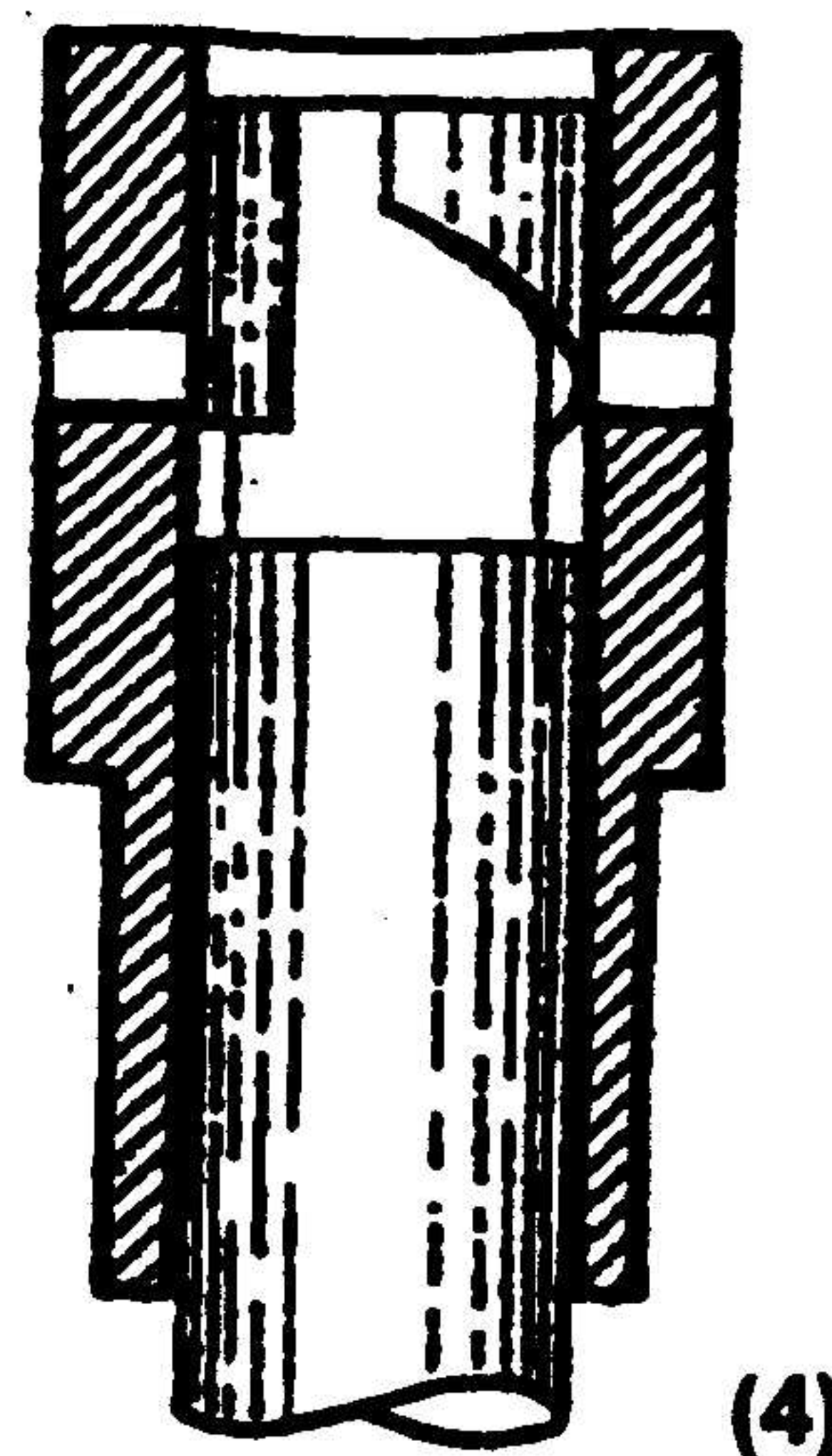
3x2=6
[20]

QUESTION 4

4.1 4.1.1



4.1.2



4.2 Delivery valve.

(2)

4.3

- Rotor type.
- Plunger type.

2x2=(4)

4.4 After the covering of the inlet port by the top of the plunger.

(2)
[20]

QUESTION 5

5.1 Data:

$$P = 900 \text{ kPa}$$

$$L = \frac{86}{1000} \times 0,086$$

$$A = \frac{\pi}{4} D^2 = \frac{\pi}{4} (0,084)^2 = 0,00554 \text{ m}^2$$

$$D = \frac{84}{1000} = 0,084 \text{ m.}$$

$$\text{OPM} = \frac{2000}{60} = 33,3 \text{ r/sec.}$$

$$R = \frac{420}{1000} = 0,42 \text{ m.}$$

$$F = 25 \times 9,8 = 245 \text{ N.}$$

Calculate I.P.

$$\begin{aligned} \text{I.P.} &= PLANn \\ &= 900 \times 0,086 \times 0,00554 \times 33,33 \times 2 \\ &= 28,6 \text{ KW.} \end{aligned} \quad (6)$$

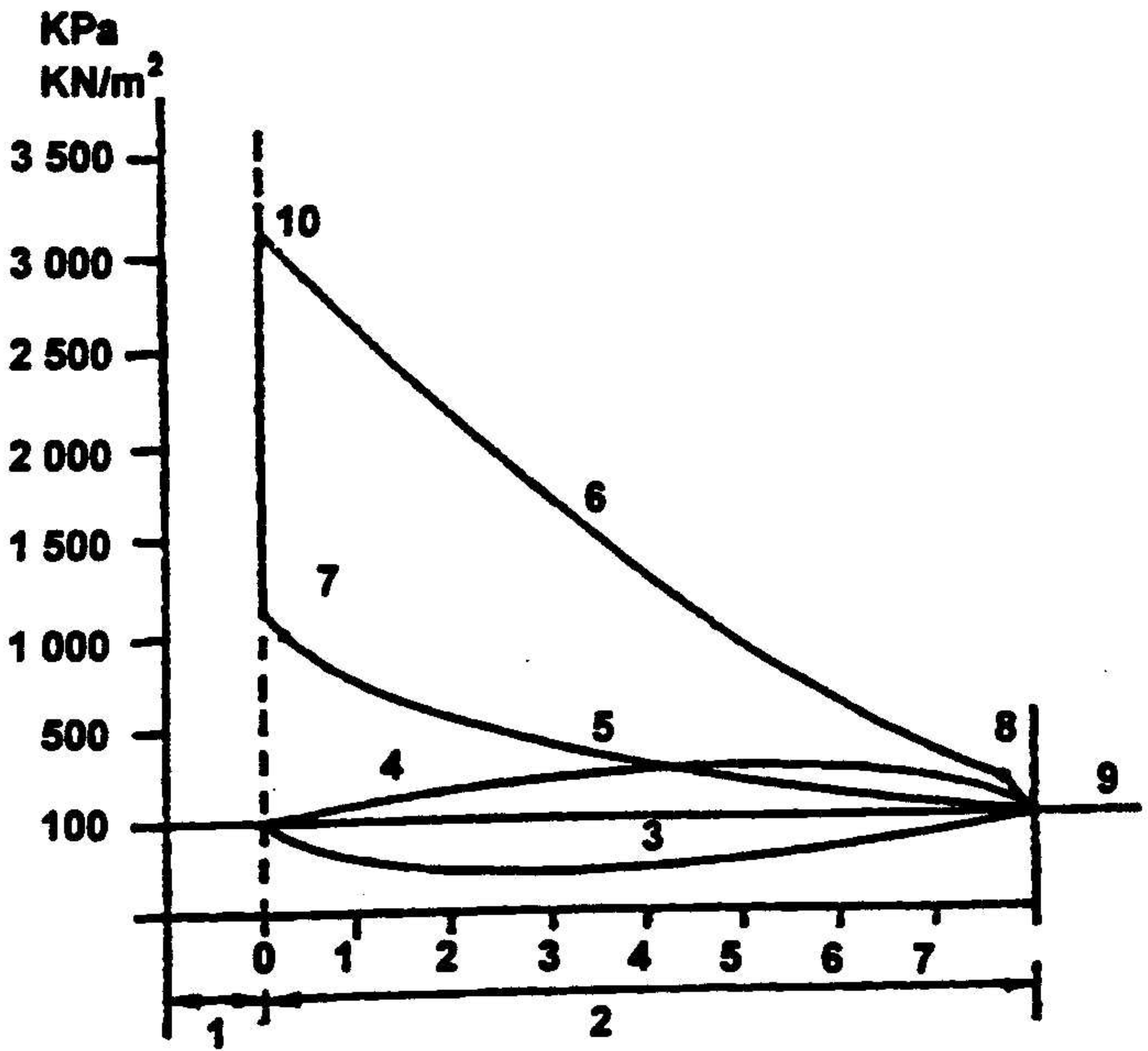
Calculate B.P.

$$\begin{aligned} \text{B.P.} &= 2 \pi \text{ FRN.} \\ &= 2 \pi \times 245 \times 0,42 \times 33,33 \\ &= 21549 \text{ W.} \\ &= 21,6 \text{ KW.} \end{aligned} \quad (4)$$

Calculate M.E.

$$\begin{aligned} \text{M.E.} &= \frac{BP}{IP} \times \frac{100}{1} \\ &= \frac{21,6}{28,6} \times 100 \\ &= 0,7552 \times 100 \\ &= 75,5\% \end{aligned} \quad (2)$$

5.2

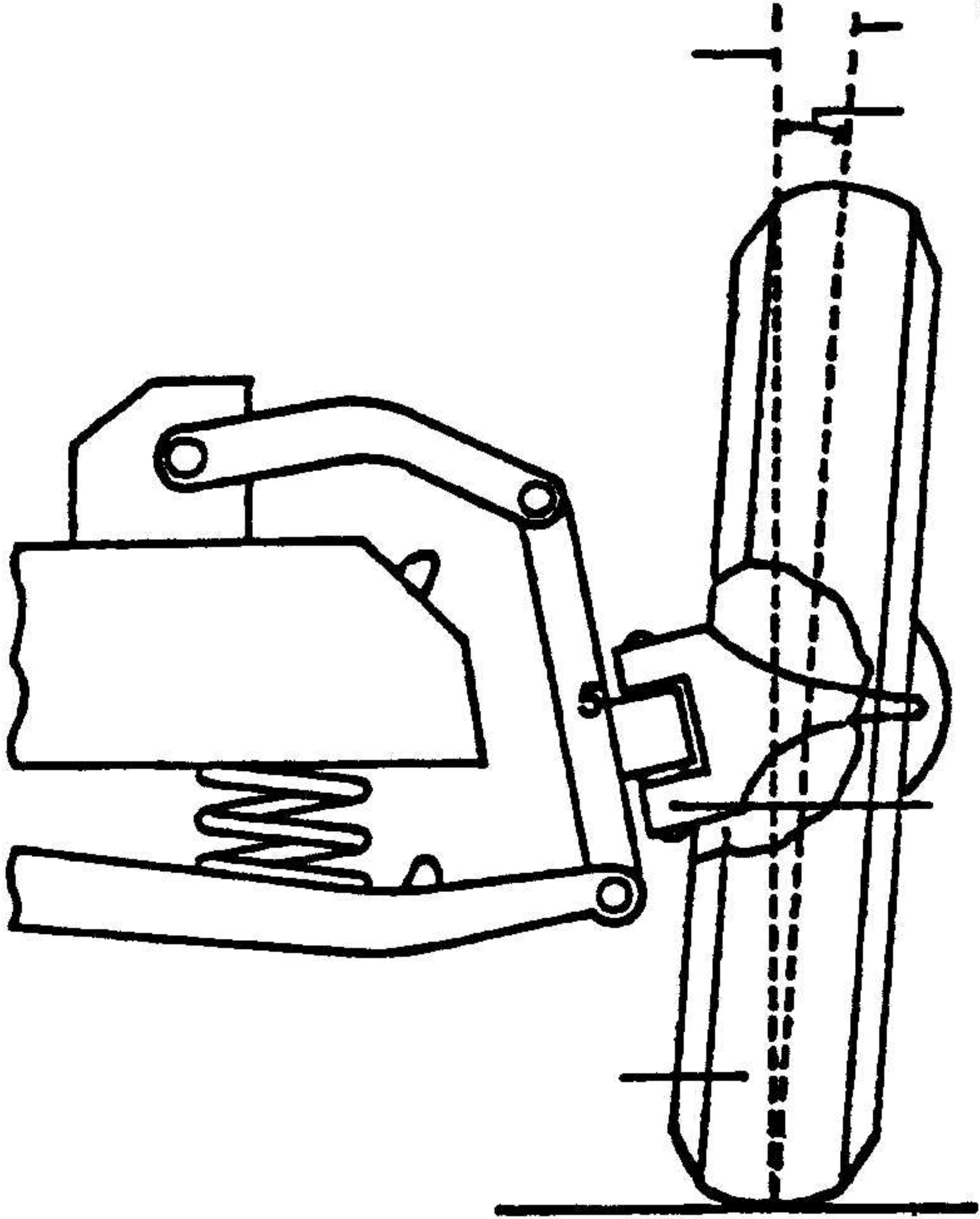


8x1=8

[20]

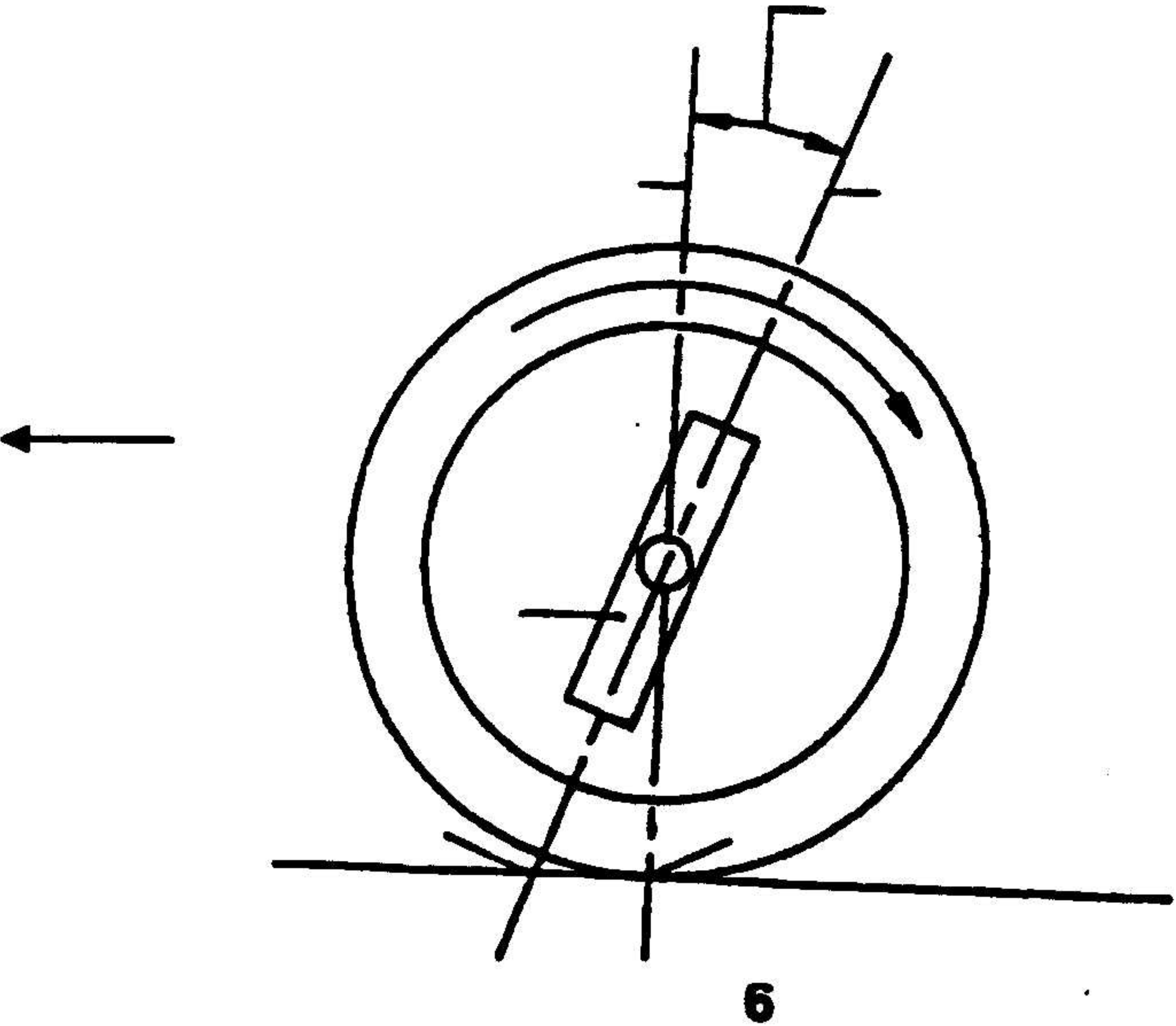
QUESTION 6

6.1 6.1.1



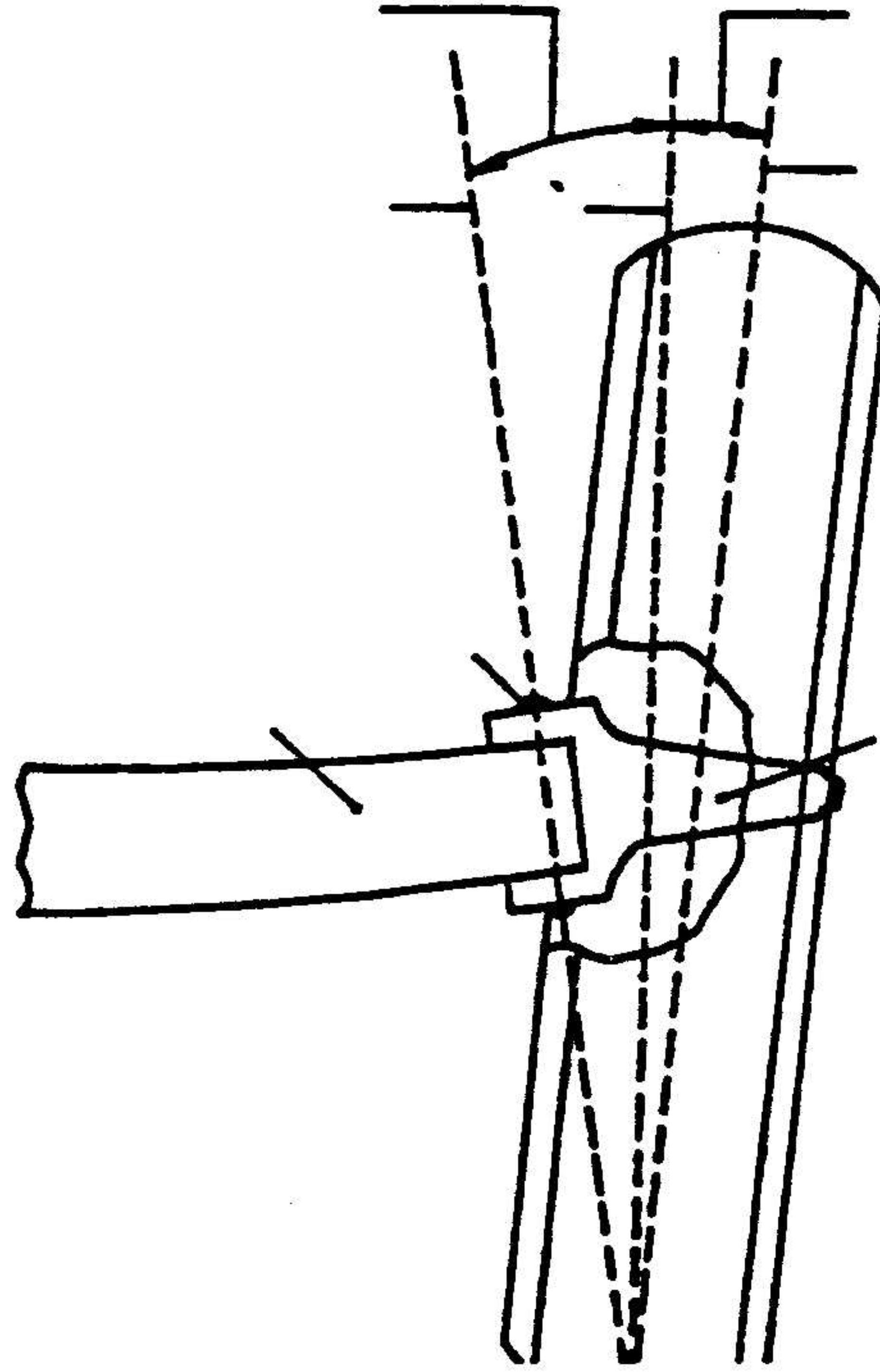
4x1=(4)

6.1.2



4x1=(4)

6.1.3



4x1=(4)

6.2

- Chassis may be bent.
- Steering arms may be bent.
- Control arms may be bent.
- Adjustment of the rods may be uneven.

2x2=(4)

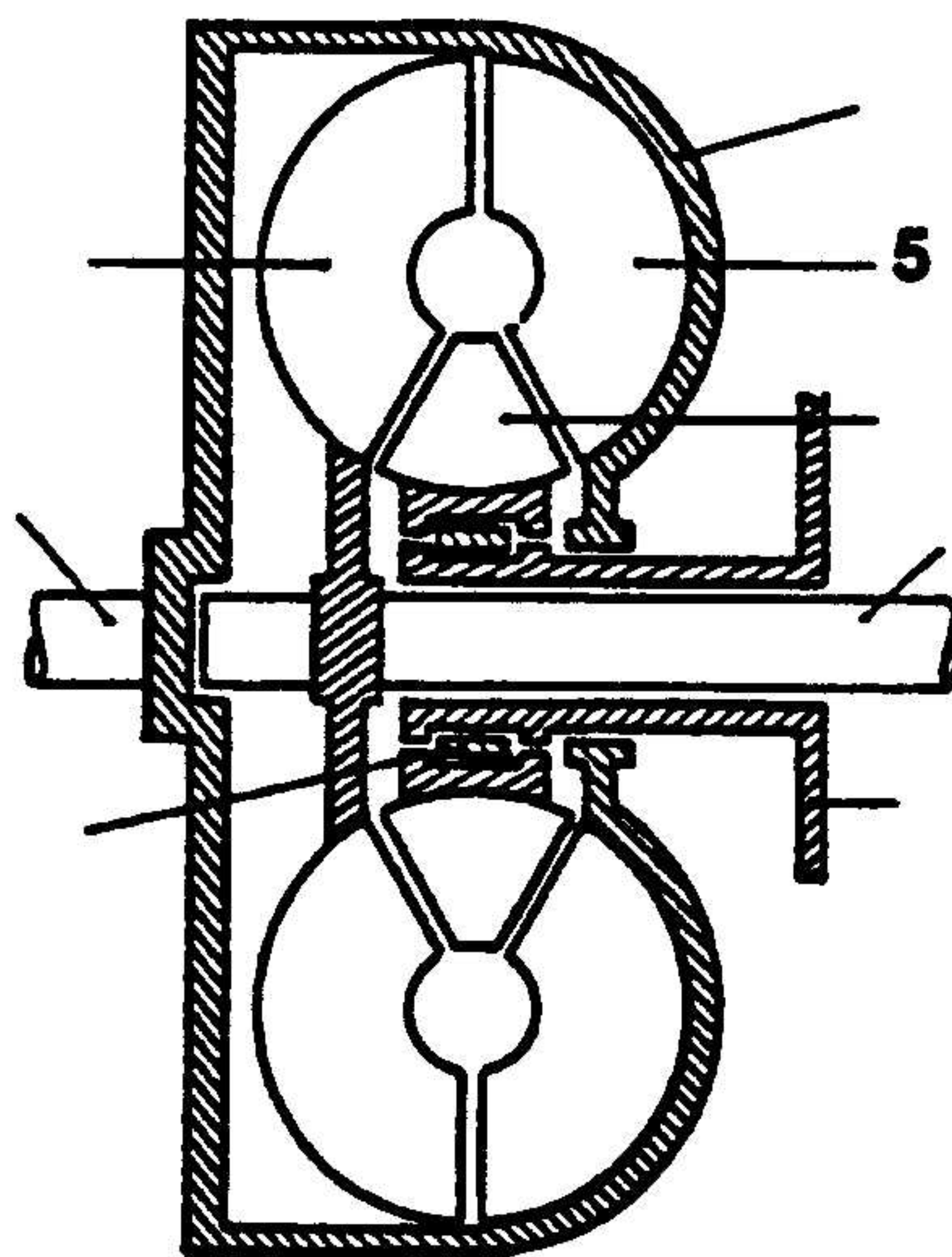
6.3

- Front end of the vehicle is lifted when the wheels are turned.
- Eliminate crosswinds
- Lighter steering obtained.

2x2=(4)
[20]

QUESTION 7

7.1



Detail = (8)

Labels any 4 = (4)

(12)

7.2

- Stator added
- Curved vanes

2x2=(4)

7.3

- Increases torque automatically
- Torque is transferred smoothly
- Minimum servicing is required

2x2=(4)
[20]**QUESTION 8**

8.1

1. Venturi
2. Idle screw
3. Choke valve
4. Primary barrel
5. Secondary barrel
6. Primary throttle
7. Secondary throttle
8. Float
9. Needle and seat
10. Air Jet

1x10=(10)

8.2

- A. Idle-speed circuit
- B. Float circuit
- C. High-speed circuit

3X2=(6)

8.3

- Piston-type
- Diaphragm-type

2x1=(2)

8.4

Tapered needle

(2)
[20]**TOTAL FOR SECTION B: [100]****TOTAL: 200****END**

MOONTLIKE ANTWOORDE VIR:

MOTORWERKTUIGKUNDE SG

VRAAG 1 MEERKEUSEVRAE

1.1	B	(2)
1.2	C	(2)
1.3	B	(2)
1.4	B of C	(2)
1.5	B	(2)
1.6	C	(2)
1.7	C	(2)
1.8	B	(2)
1.9	A	(2)
1.10	C	(2)
1.11	C	(2)
1.12	B	(2)
1.13	B	(2)
1.14	B	(2)
1.15	A	(2)
		[30]

VRAAG 2

2.1	Verlaging van kompressiedruk.	(2)
2.2	Bestaan uit <u>koper</u> en <u>staal</u> . Koper <u>sit vinniger uit</u> as staal.	4x1=(4)
2.3	<ul style="list-style-type: none"> • Pulsender • Versamelaar • Basis 	3x2=(6)
2.4	Remdrywing (RD) = $2 \pi NT$ = $2 \pi \times \frac{3000}{60} \times 560$ = 175929 W	4x1=(4)
2.5	Dit is die afstand wat die plunjer beweeg vandat die <u>plunjerkroon</u> die <u>inlaatpoort sluit</u> totdat die <u>heliks</u> die <u>stortpoort open</u> .	4x1=(4)

2.6

- Verleen hefvoordeel aan bestuurder.
- Absorbeer padskokke
- Verleen kinkbeweging aan voorwiele.

2x1=(2)

2.7 Maak gebruik van:

- Katalisator
- Verhitting
- Druk

3x2=(6)

2.8

- 1, 3, 4, 2
- 1, 2, 4, 3

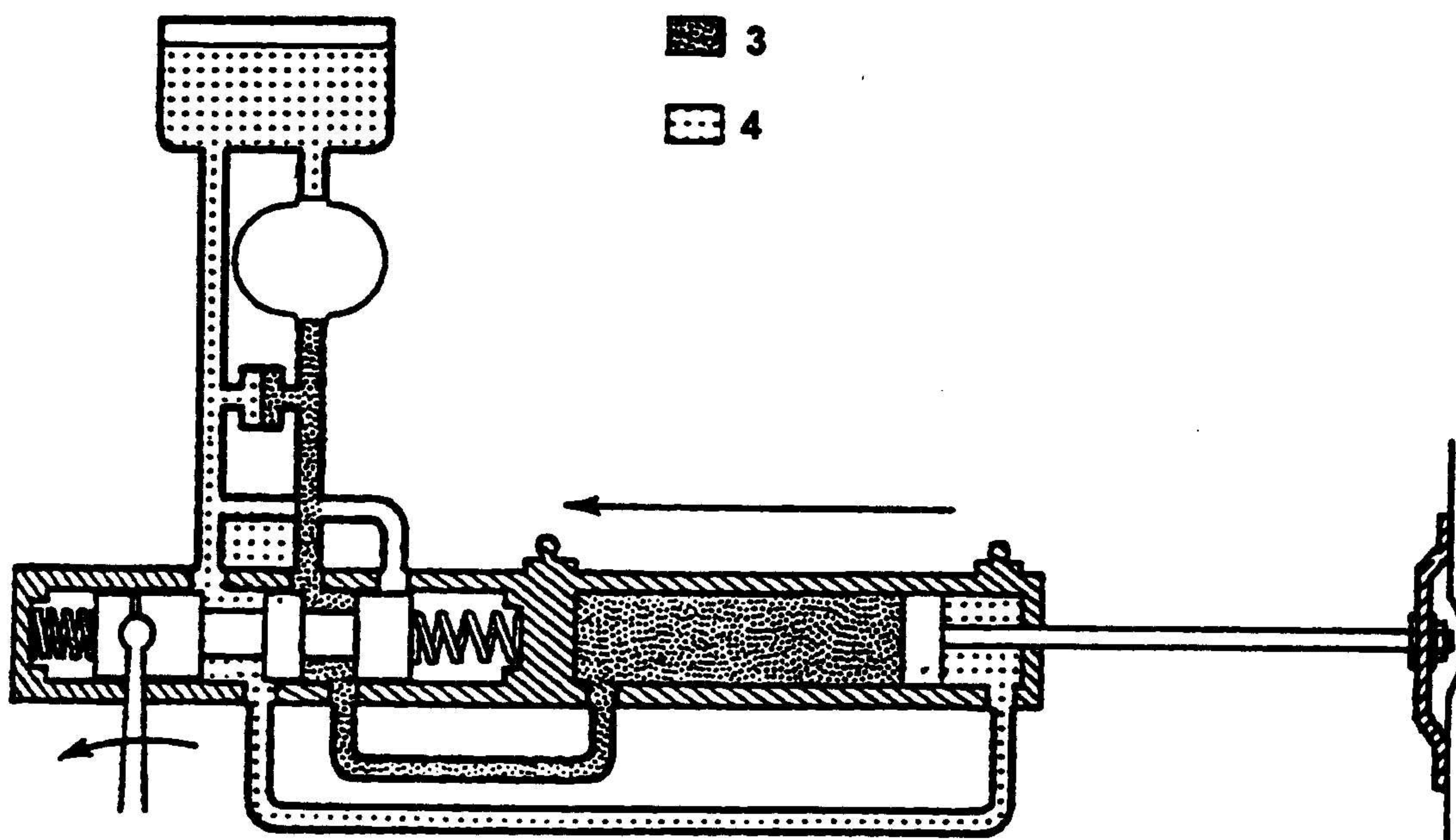
2x2=(4)

2.9

- Kompakt stel.
- Beter ratverhoudings
- Geen ratte wat geskuif word nie.

2x2=(4)

2.10



Korrektheid
1x2 = 20

- 2.11 - Minder inspanning.
 - Direkte stuur.
 - Demper van padskokke.
- 2x2=(4)

- | | | | |
|------|---------|------|-----|
| 2.12 | 2.12.1 | Vals | (1) |
| | 2.12.2 | Waar | (1) |
| | 2.12.3 | Waar | (1) |
| | 2.12.4 | Vals | (1) |
| | 2.12.5 | Waar | (1) |
| | 2.12.6 | Vals | (1) |
| | 2.12.7 | Waar | (1) |
| | 2.12.8 | Waar | (1) |
| | 2.12.9 | Vals | (1) |
| | 2.12.10 | Waar | (1) |

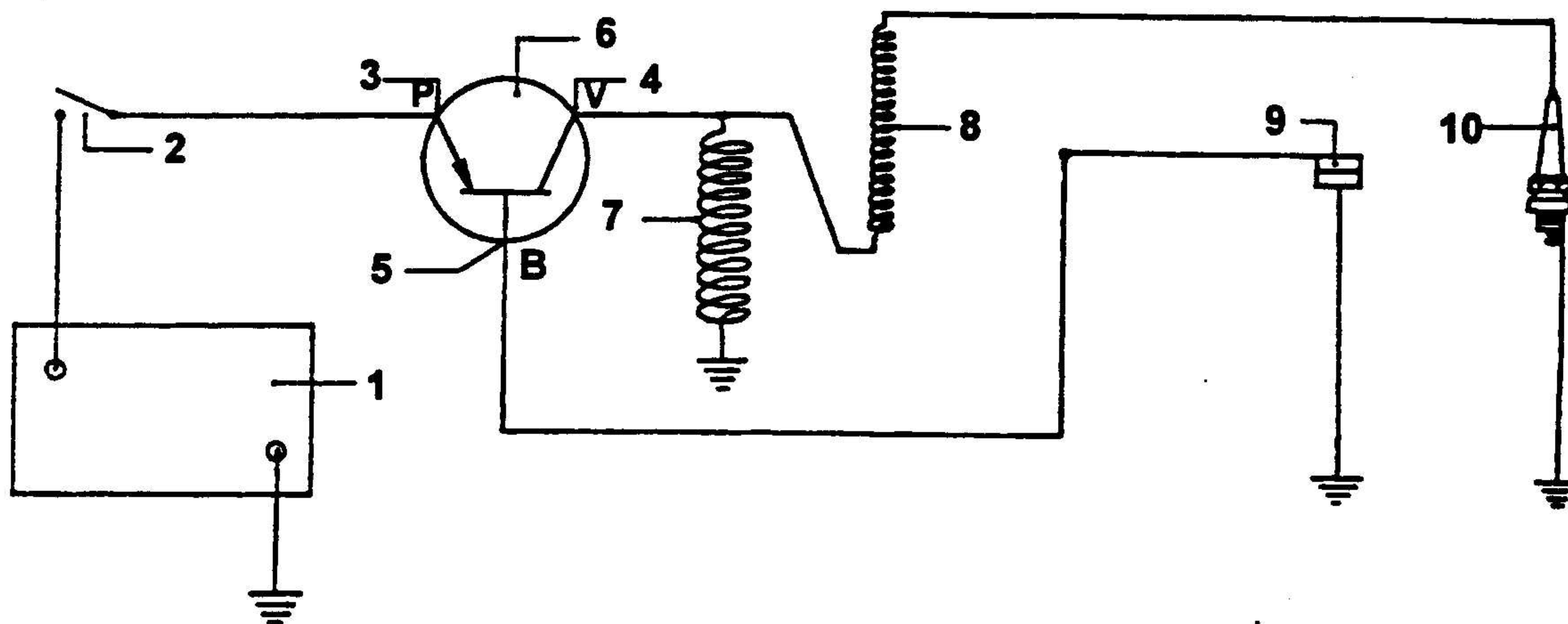
[70]

TOTAAL VIR AFDELING A: [100]

AFDELING B

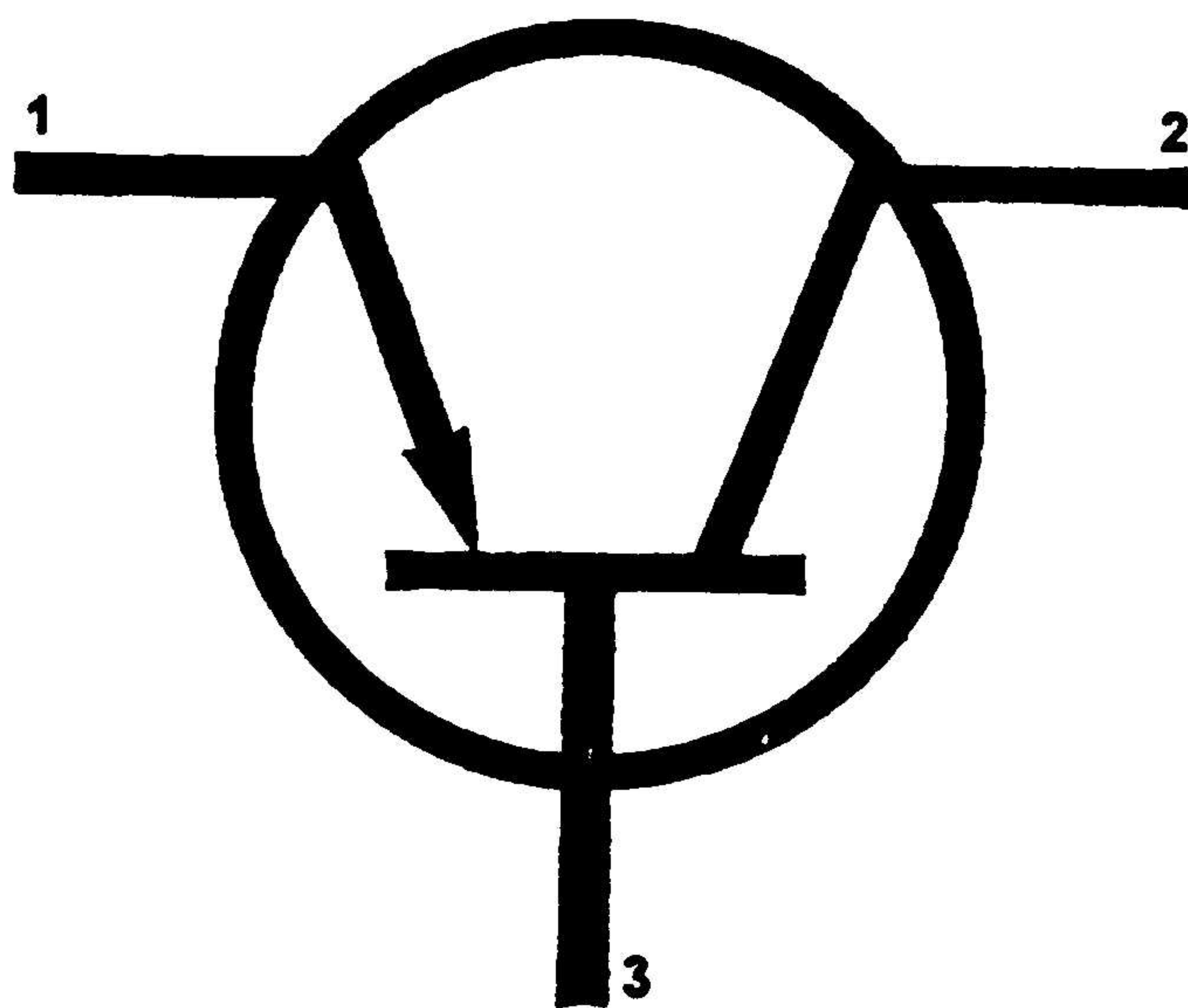
VRAAG 3

3.1



10x1=(10)

3.2



4x1=(4)

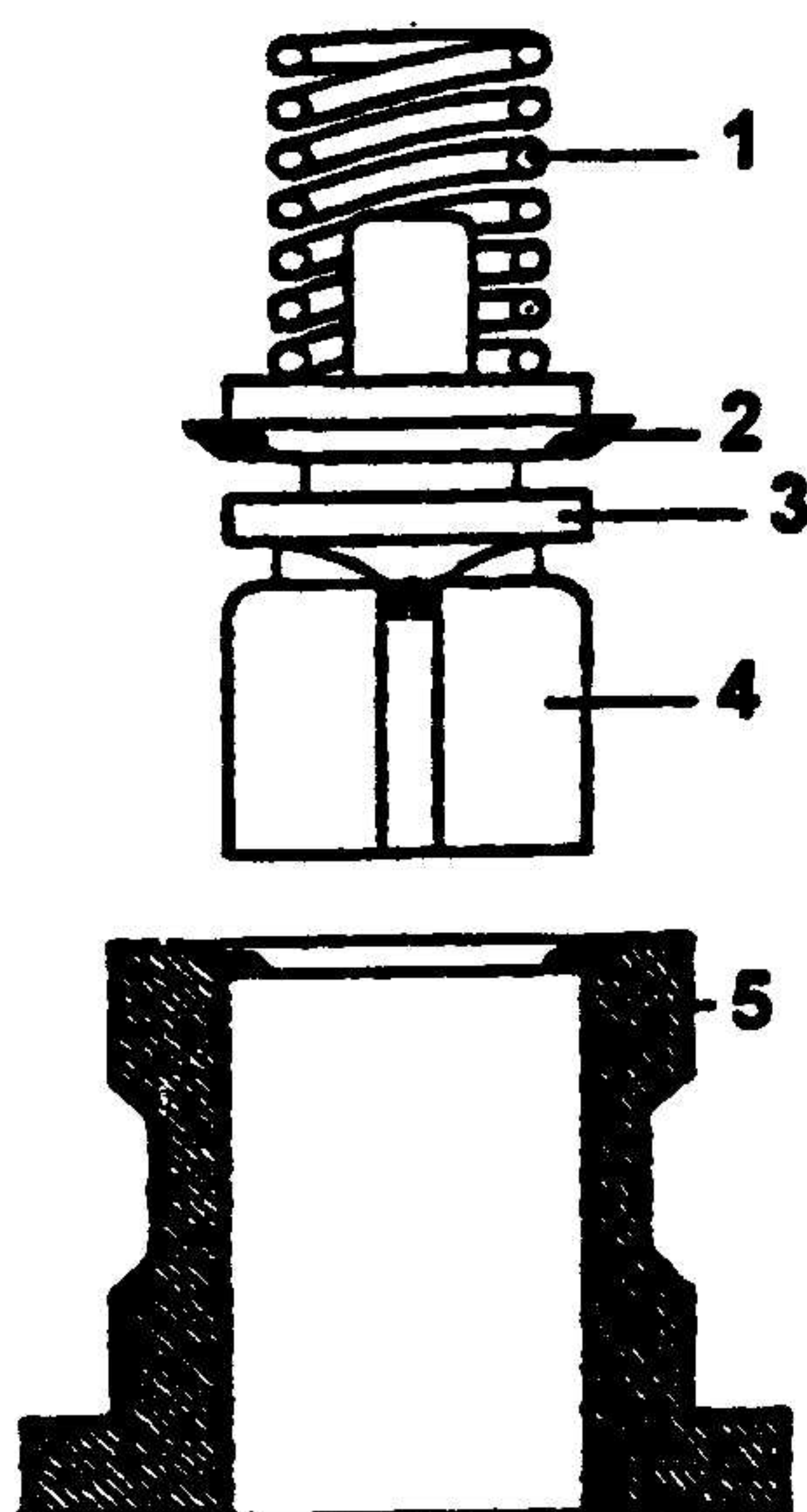
3.3

- Geen vertering van punte nie.
- Geen verandering van vonktyd.
- Beter spoelversadiging (meer Primêre windings)
- Hoër sekondêre induksie.
- Verhoog sekondêre induksie teen hoë enjin spoed.

3x2=6
[20]

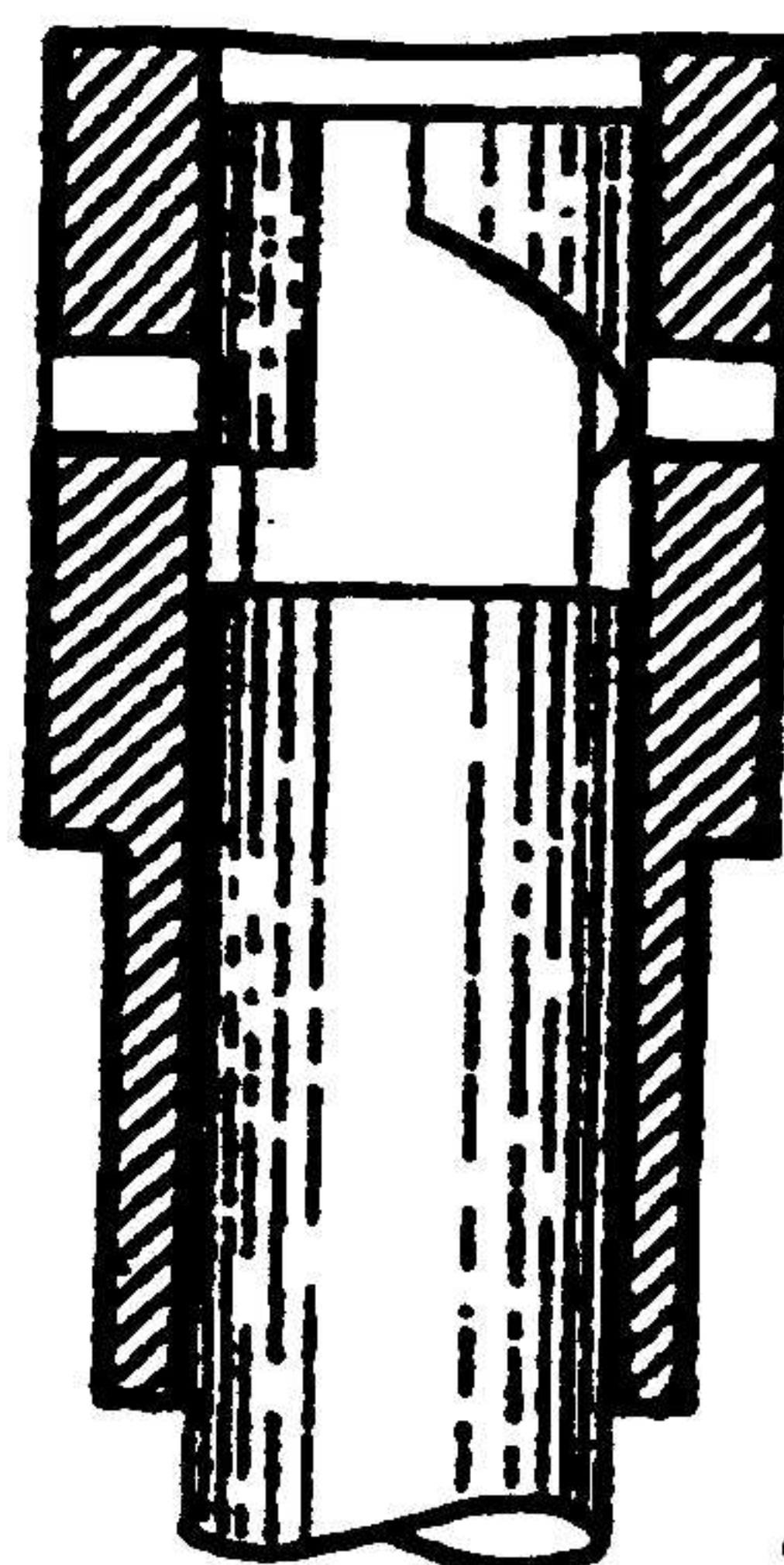
VRAAG 4

4.1 4.1.1



8x1=(8)

4.1.2



4x1=(4)

4.2 Leweringsklep

(2)

4.3

- Rotortipe.
- Plunjertipe.

2x2=(4)

4.4 Na die afsluiting van die inlaatpoort deur die plunjerkroon.

(2)
[20]

VRAAG 5

5.1 Data:

$$P = 900 \text{ kPa}$$

$$L = \frac{86}{1000} \times 0,086$$

$$A = \frac{\pi}{4} D^2 = \frac{\pi}{4} (0,084)^2 = 0,00554 \text{ m}^2$$

$$D = \frac{84}{1000} = 0,084 \text{ m.}$$

$$\text{OPM} = \frac{2000}{60} = 33,3 \text{ 0/sek}$$

$$R = \frac{420}{1000} = 0,42 \text{ m.}$$

$$F = 25 \times 9,8 = 245 \text{ N.}$$

Bereken A.D.

$$\begin{aligned} \text{A.D} &= P L A n \\ &= 900 \times 0,086 \times 0,00554 \times 33,33 \times 2 \\ &= 28,6 \text{ KW.} \end{aligned}$$

6x1=(6)

Bereken R.D.

$$\begin{aligned} \text{R.D.} &= 2 \pi F R n \\ &= 2 \pi \times 245 \times 0,42 \times 33,33 \\ &= 21549 \text{ W.} \\ &= 21,6 \text{ KW.} \end{aligned}$$

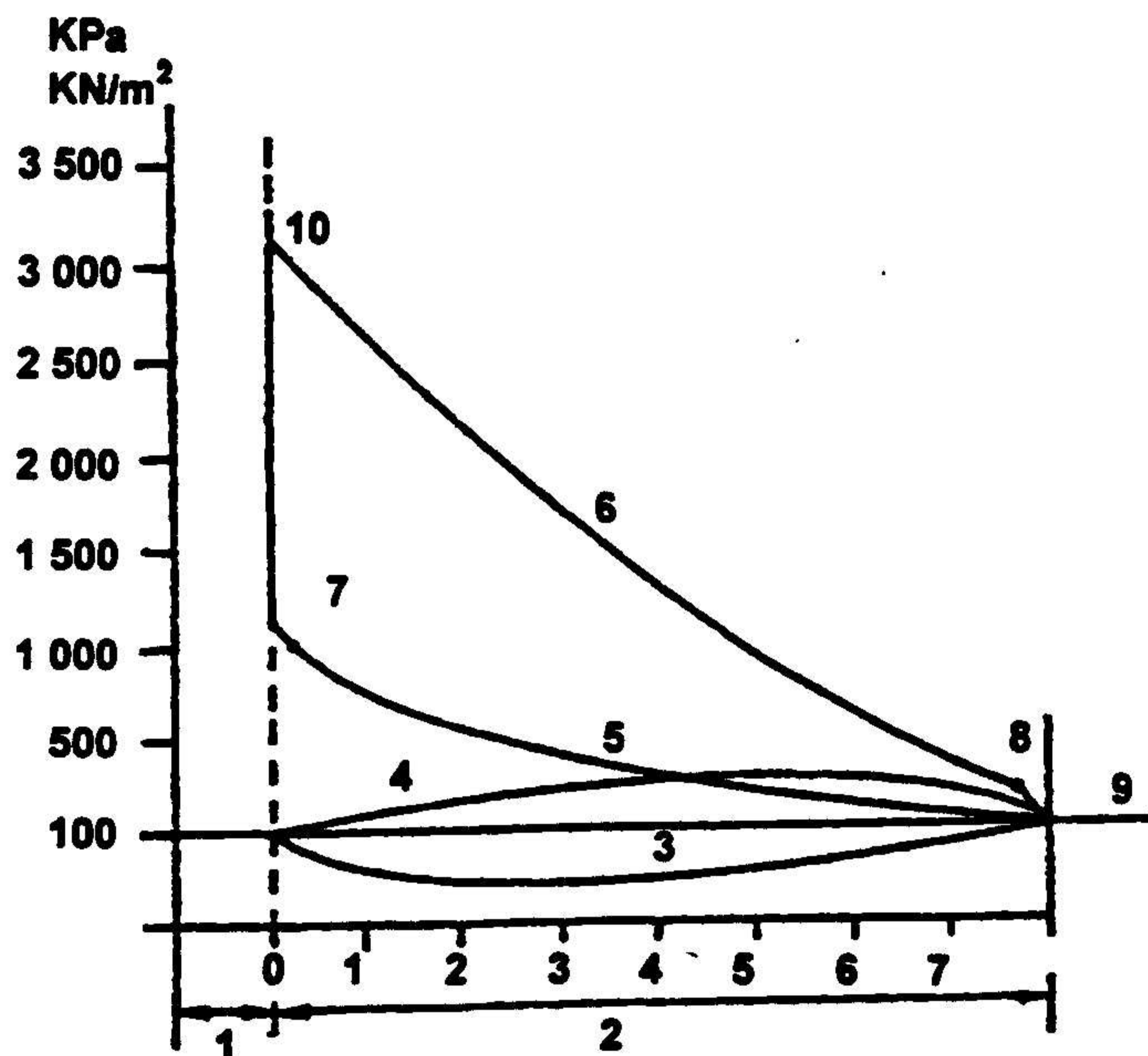
4x1=(4)

Bereken M.D.

$$\begin{aligned} \text{M.D.} &= \frac{RD}{AD} \times \frac{100}{1} \\ &= \frac{21,6}{28,6} \times 100 \\ &= 0,7552 \times 100 \\ &= 75,5\% \end{aligned}$$

(2)

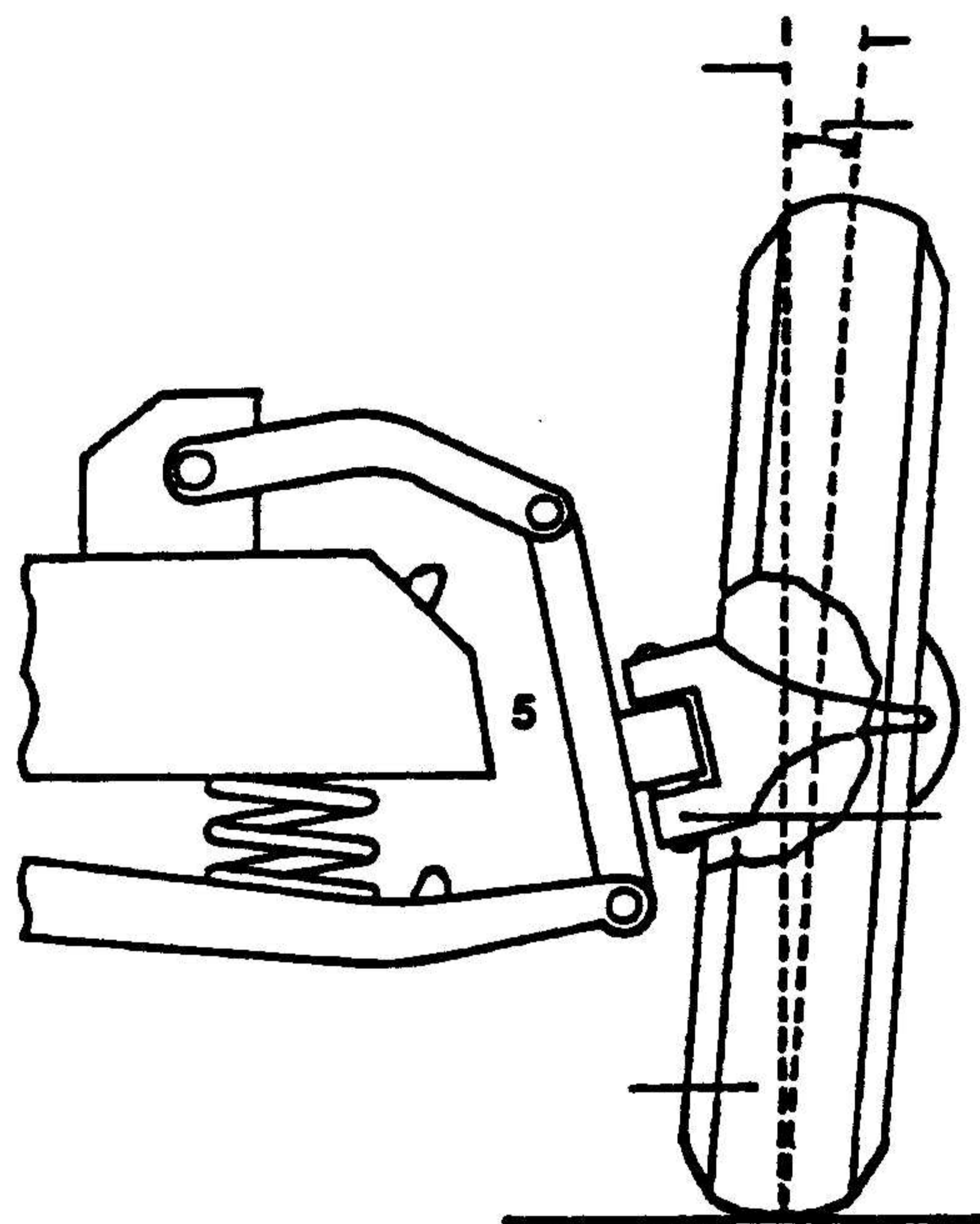
5.2



8x1=(8)
[20]

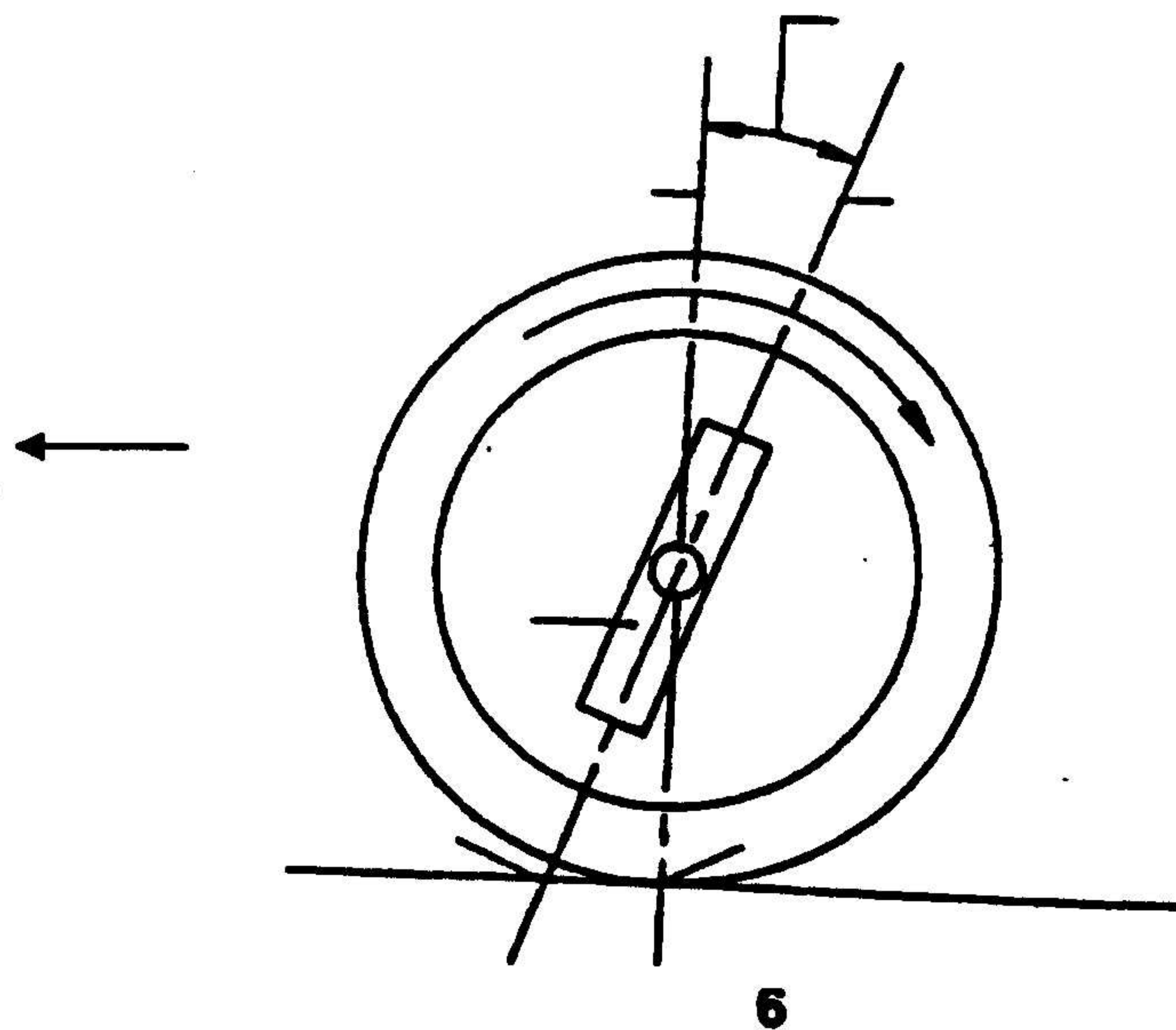
VRAAG 6

6.1 6.1.1



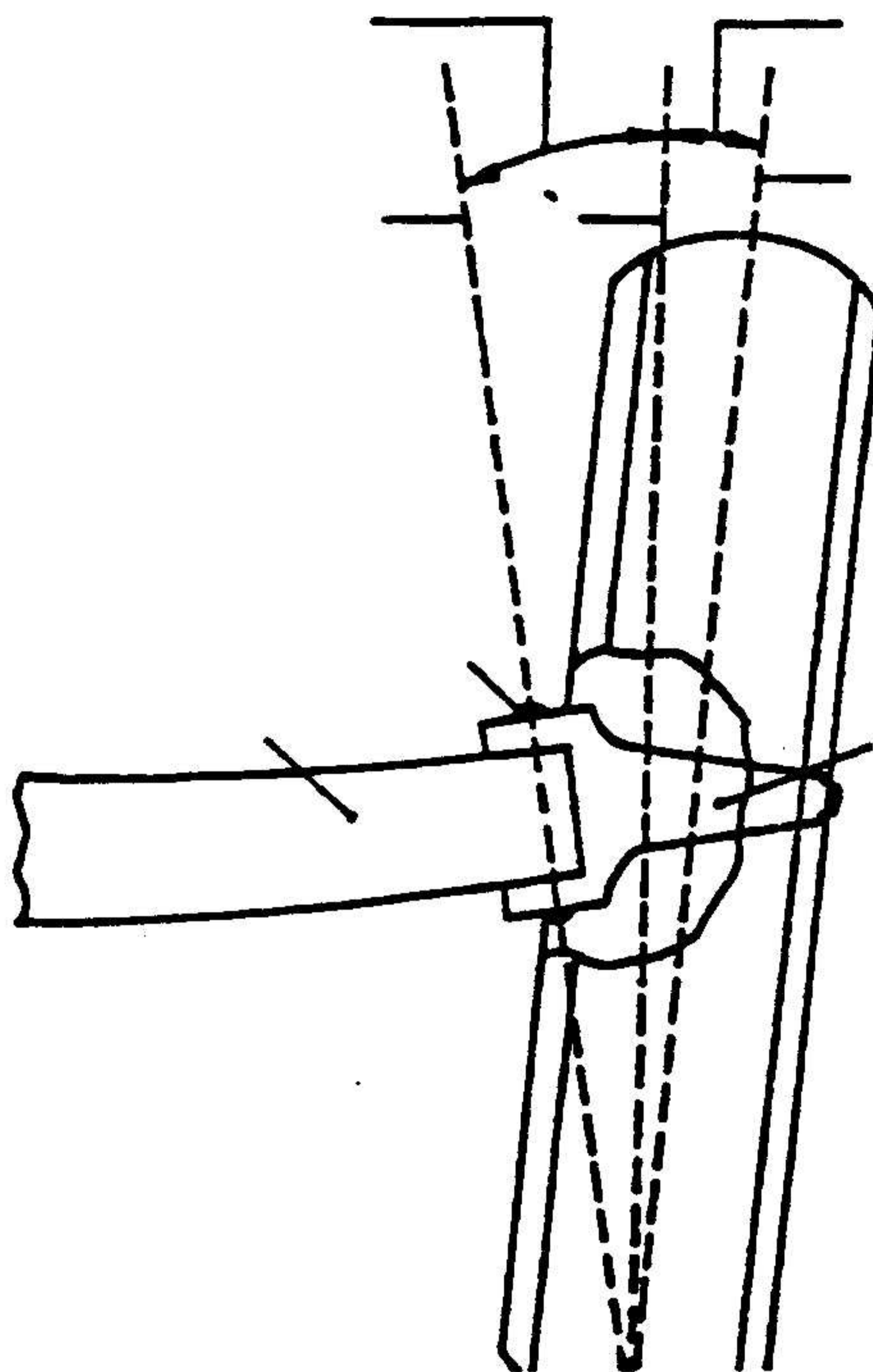
4 x 1 =(4)

6.1.2



4 x 1 =(4)

6.1.3



4x1=(4)

6.2

- Raamwerk Gebuig
- Krinkarms Gebuig
- Gebuigde beheerarms
- Oneweredige verstelling van spoorstange.

2x2=(4)

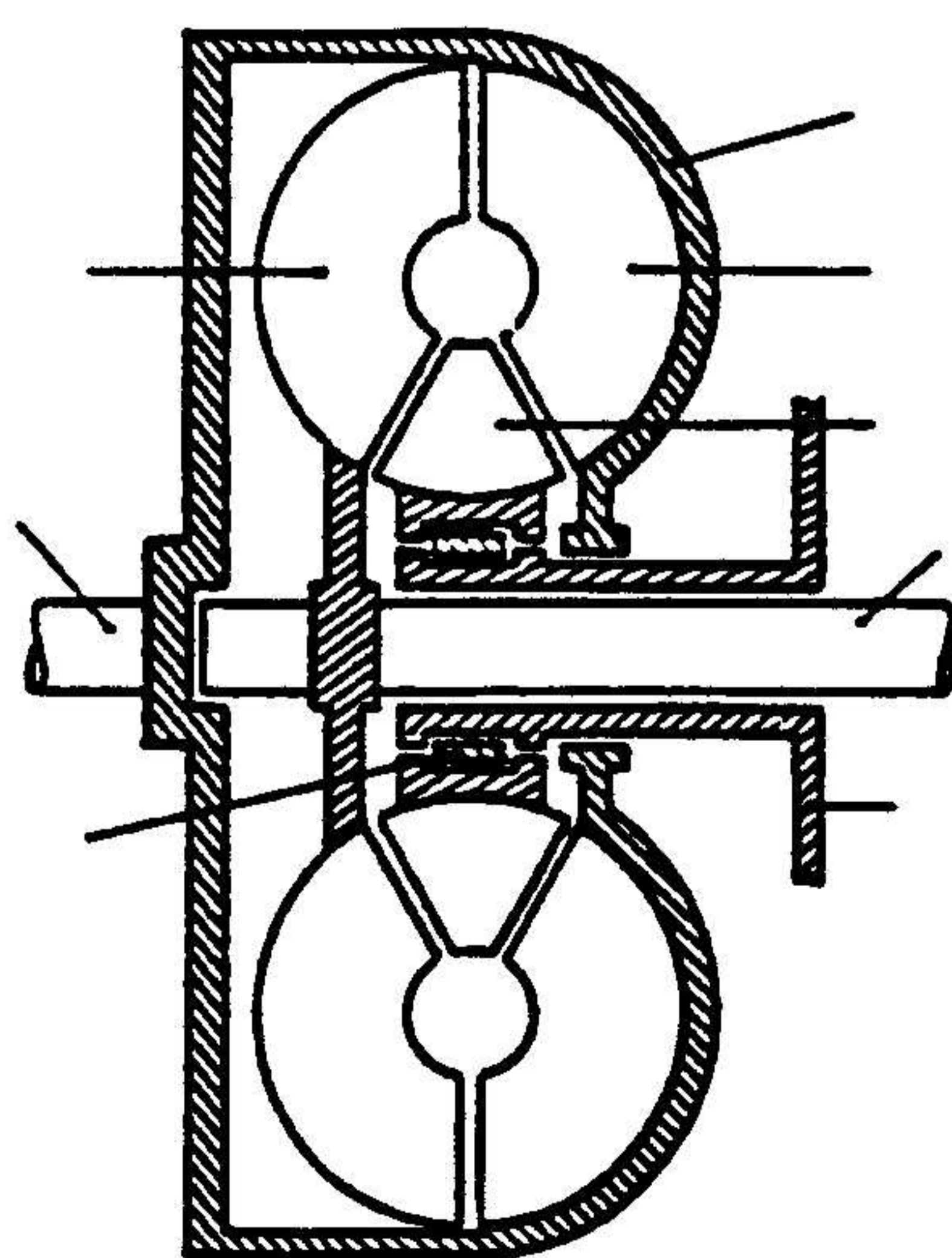
6.3

- Om draaie lig buitewiel die bakwerk.
- Werk dwarswinde tee.
- Verlig stuuraksie.

2x2=(4)
[20]

VRAAG 7

7.1



Detail = 8

Benamings = 4 (enige) (12)

7.2

- Stator
- Gekromde wieke

2x2=(4)

7.3

- Verhoog draaimoment
- Oordraging van draaimoment is gladweg.
- Versiening minimaal.

2x2=(4)
[20]**VRAAG 8**

8.1

1. Venturi
2. Luierskroef
3. Smoorklep
4. Primêrekeël
5. Sekondêrekeël
6. Primêre versnellervleuel.
7. Sekondêre versnellervleuel.
8. Vlotter.
9. Vlottermaald + bedding.
10. Luglatingsproeier

10x1=(10)

8.2

- A. Luierspoed
- B. Vlotter
- C. Hoëspoed

3x2=(6)

8.3

- Suiertipe
- Diafragmatipe.

2x1=(2)

8.4

Tapsenaald.

(2)
[20]**TOTAAL VIR AFDELING B: [100]****TOTAAL: 200****EINDE**