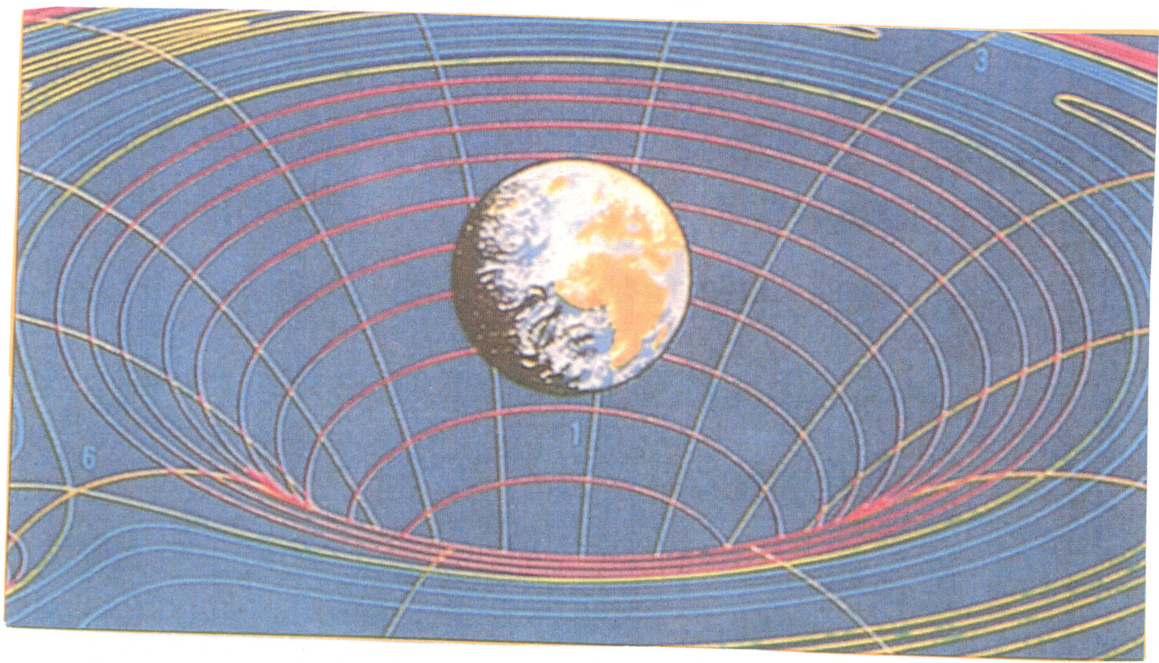
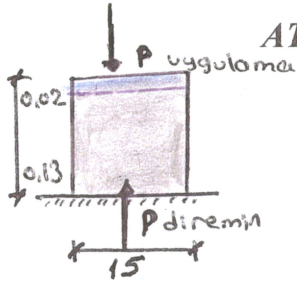


*3. BÖLÜM*  
*ATOMİK DENKLEM İLE*  
*UYGULAMALAR*





### ATOMİK DENKLEM İLE BETON HESABI

25 sn de 0.02 m ezilmesi olan Betonun

Küp boyunu alması için uygulanacak kuvvet ne olmalı

veriler :  $B_s 160$   $h = 0.02$  m  $t = 25$  sn

$$G = P^2/h^2/v \quad v = h/t ; 0.02/25 = 0.0008 \text{ m/sn}$$

|  |                    |
|--|--------------------|
| 0.01 m de 1600 000 = $P^2/0.01^2/0.0008$ | $P = 44.7$ kg sn/m |
| 0.02 m de 1600 000 = $P^2/0.02^2/0.0008$ | $P = 894$ kg sn/m  |
| 0.03 m de 1600 000 = $P^2/0.03^2/0.0008$ | $P = 1342$ kg sn/m |
| 0.04 m de 1600 000 = $P^2/0.04^2/0.0008$ | $P = 1789$ kg sn/m |
| 0.05 m de 1600 000 = $P^2/0.05^2/0.0008$ | $P = 2236$ kg sn/m |
| 0.06 m de 1600 000 = $P^2/0.06^2/0.0008$ | $P = 2683$ kg sn/m |
| 0.07 m de 1600 000 = $P^2/0.07^2/0.0008$ | $P = 3130$ kg sn/m |
| 0.08 m de 1600 000 = $P^2/0.08^2/0.0008$ | $P = 3537$ kg sn/m |
| 0.09 m de 1600 000 = $P^2/0.09^2/0.0008$ | $P = 4025$ kg sn/m |



$$0.10 \text{ m de } 1600\ 000 = P^2/0.10^2/0.0008 \quad P=4412 \text{ kg sn/m}$$

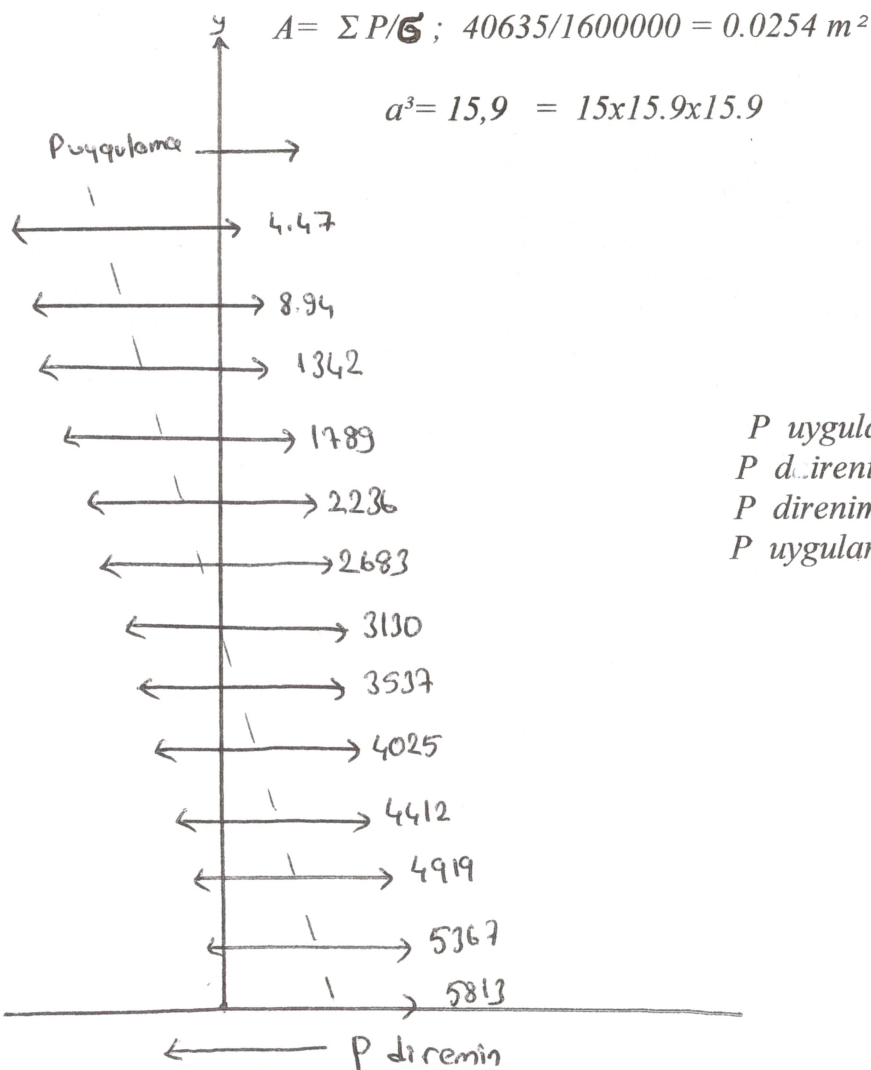
$$0.11 \text{ m de } 1600\ 000 = P^2/0.11^2/0.0008 \quad P=4910 \text{ kg sn/m}$$

$$0.12 \text{ m de } 1600\ 000 = P^2/0.12^2/0.0008 \quad P=5367 \text{ kg sn/m}$$

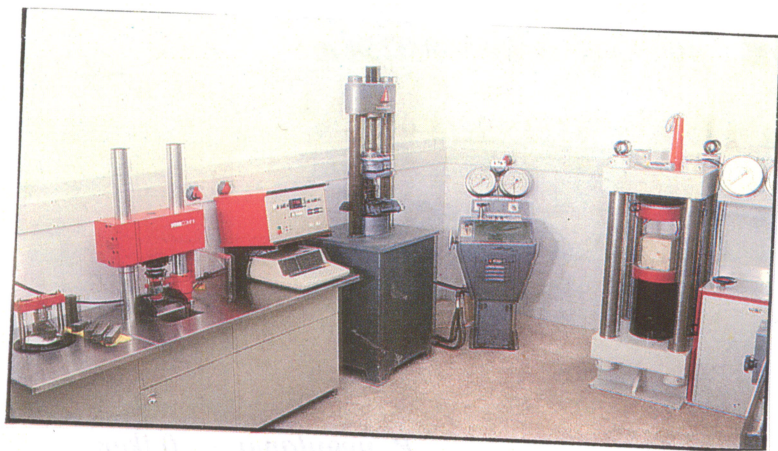
$$0.13 \text{ m de } 1600\ 000 = P^2/0.13^2/0.0008 \quad P=5813 \text{ kg sn/m}$$

$$+ \text{-----}$$

$$\Sigma P = 40635 \text{ kg sn/m}$$



$P$  uygulama = 0 iken  
 $P$  direnim max  
 $P$  direnim = 0 iken  
 $P$  uygulama = max



## BORULARDA BASINÇ VE KESİT TAYİNİ

### VERİLER:

$$Gb = 600 \text{ t/m}^2$$

$$e = 10 \text{ km}$$

$$v = 0.1 \text{ km/sn}$$

$$P = ?$$

$$A = ?$$

$$Gb = P^2 / e^2 / v$$

$$A = P / Gb$$

$$P_9 = 697 \text{ tsn / m}$$

$$V = 0.1 \text{ km / sn}$$

$$A = 1.16 \text{ m}^2$$

$$P_7 = 542$$

$$V = 0.1$$

$$A = 0.90$$

$$P_5 = 387$$

$$V = 0.1$$

$$A = 0.65$$

$$P_3 = 232$$

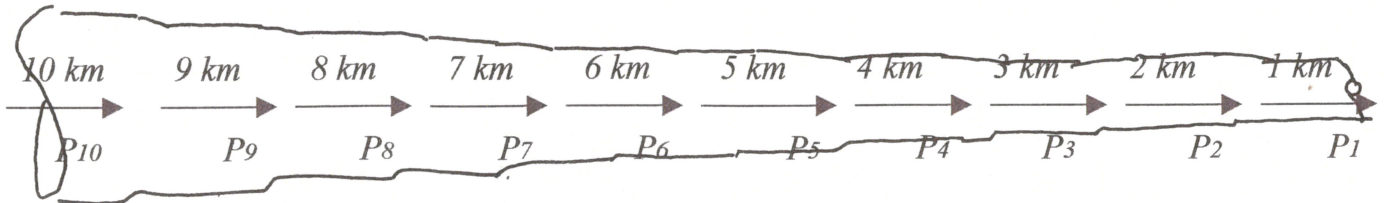
$$V = 0.1$$

$$A = 0.39$$

$$P_1 = 77$$

$$V = 0.1$$

$$A = 0.1$$



$$P_{10} = 775 \text{ tn sn / m}$$

$$V = 0.1 \text{ km / sn}$$

$$A = 1.29 \text{ m}^2$$

$$P_8 = 619$$

$$V = 0.1$$

$$A = 1.03$$

$$P_5 = 465$$

$$V = 0.1$$

$$A = 0.77$$

$$P_4 = 310$$

$$V = 0.1$$

$$A = 0.52$$

$$P_2 = 115$$

$$V = 0.1$$

$$A = 0.26$$



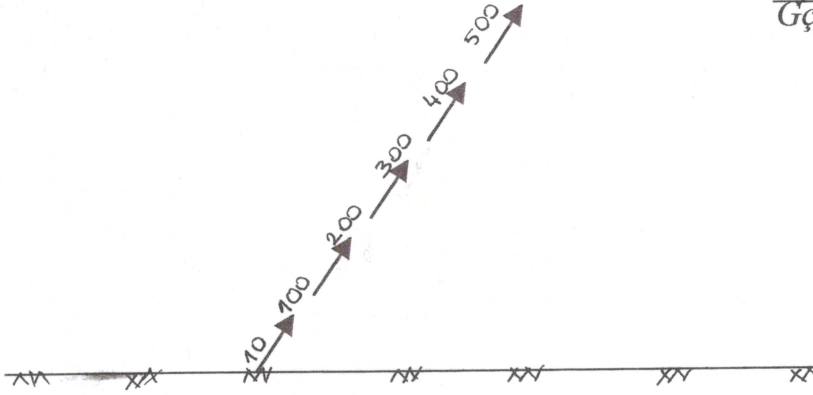


## BİR UYDUNUN 500 km' deki KUVVETİ VE BOYUTLARI

VERİLER:  $L=500 \text{ km}$  ;  $V=10 \text{ km/sn}$   $G\check{c}= 30000 \text{ t/m}^2$

$$G = P^2 / e^2 / v$$

$$A = \frac{P}{G\check{c}}$$



$$10 \text{ km de } 30000 = P^2 / 10^2 / 10 \longrightarrow P = 547.72 \text{ tsn/m}$$

$$100 \text{ km de } 30000 = P^2 / 100^2 / 10 \longrightarrow P = 5477.22 \text{ tsn/m}$$

$$200 \text{ km de } 30000 = P^2 / 200^2 / 10 \longrightarrow P = 10954.45 \text{ tsn/m}$$

$$300 \text{ km de } 30000 = P^2 / 300^2 / 10 \longrightarrow P = 16431.68 \text{ tsn/m}$$

$$400 \text{ km de } 30000 = P^2 / 400^2 / 10 \longrightarrow P = 21908.90 \text{ tsn/m}$$

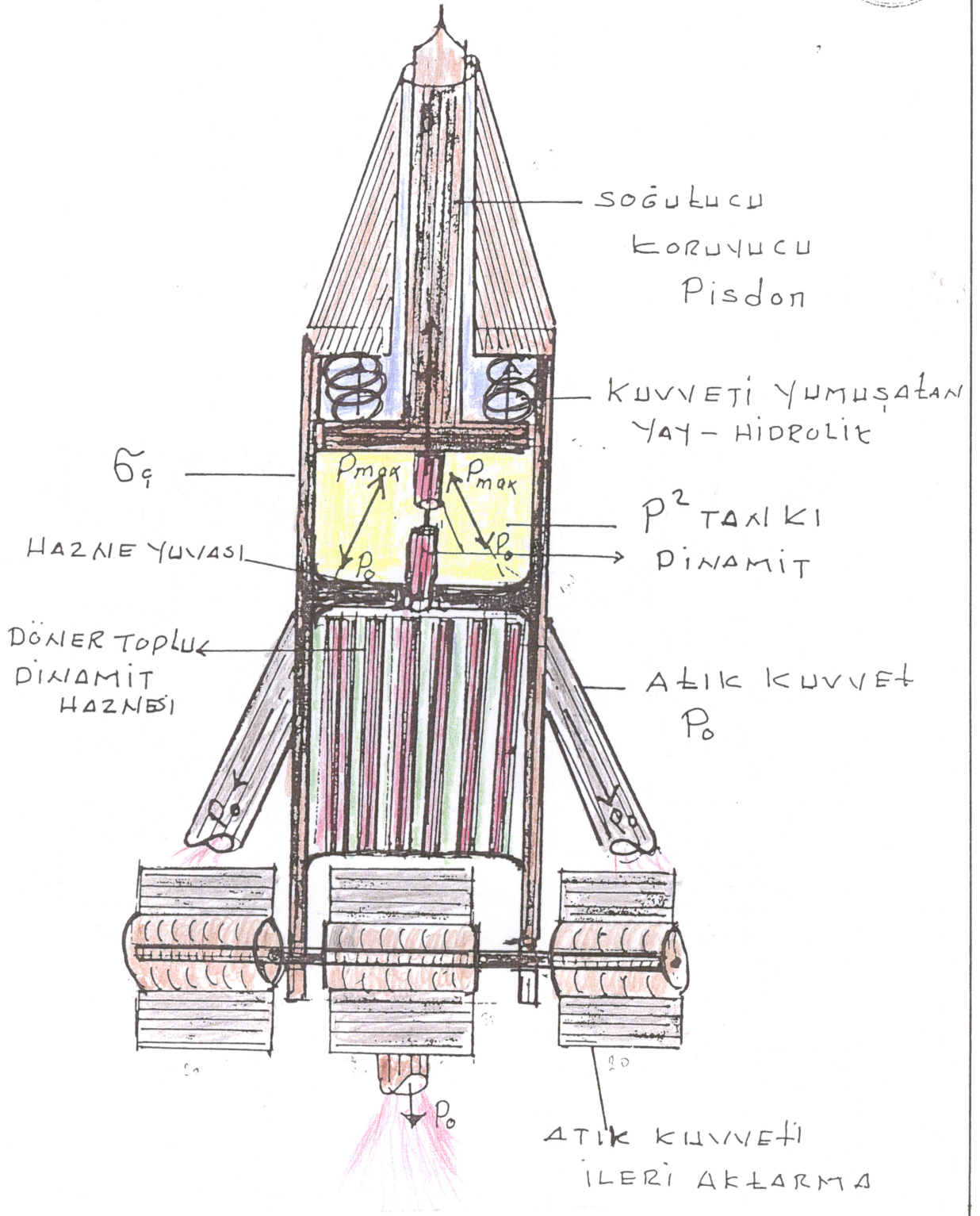
$$500 \text{ km de } 30000 = P^2 / 500^2 / 10 \longrightarrow P = 27386.13 \text{ tsn/m}$$

$$\text{Boyutları } A = P_{500} / G\check{c} = 27386.13 / 30000 = 1 \text{ m}^2$$

$$\text{AĞIRLIĞI: } 1 \times 1 \times 1 \times 7.4 = 7.4 \text{ t} \quad \text{St3 çeliği}$$

$$\text{MOTOR GÜCÜ: } 547720 / 775 = 706.74 \text{ Beygir}$$

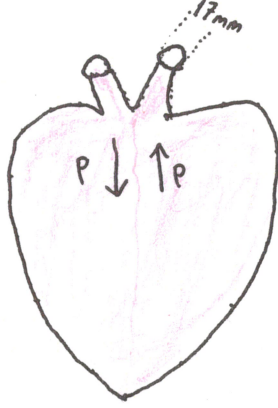




ROKETLİ BİR UZAY ARACI.



### KALP VE DAMAR BASINCI HESABI



$$Gd = \frac{P^2}{\frac{e^2}{v}} ; \quad A = \frac{P}{Gd}$$

#### VERİLER :

$$L = 2500 \text{ mm} , \quad V = 40 \text{ mm/sn} , \quad Gd = 1.8 \text{ gr / mm}^2$$

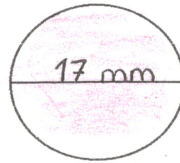
$$1 \text{ mm de } 1.8 = P^2/1^2/40 ; \quad P = 0.212 \text{ gr sn / mm}$$

$$1000 \text{ mm de } 1.8 = P^2/1000^2/40 ; \quad P = 212 \text{ gr sn / mm}$$

$$2500 \text{ mm de } 1.8 = P^2/2500^2/40 ; \quad P = 530 \text{ gr sn / mm}$$

#### Gerekli damar kesiti:

$$A = \frac{530}{1.8} = 294.63 \text{ mm}^2$$





### DİŞE UYGULANAN KUVVETLER

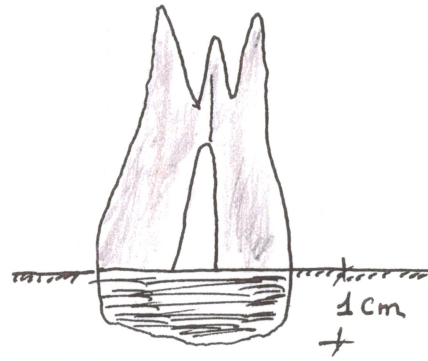
20 sn de 1 cm çekim boyu olan diş için uygulanacak kuvvetler ve boyutları

Veriler:

$$G = \frac{P^2}{\frac{h^2}{v}} \quad t = 20 \text{ sn}$$

$$h = 1 \text{ cm} , \quad G \text{ diş} = 20 \text{ kg/cm}^2$$

$$V = h/t = 1/20 = 0.05 \text{ cm/sn}$$



$$0.1 \text{ cm de } 20 = P^2/01^2/0.05 = 2 \text{ kg sn/cm}$$

$$0.2 \text{ cm de } 20 = P^2/02^2/0.05 = 4 \text{ kg sn/cm} \quad A_2 = \frac{2}{20} = 01 \text{ cm}^2$$

$$0.3 \text{ cm de } 20 = P^2/03^2/0.05 = 6 \text{ kg sn/cm} \quad A_3 = 03 \text{ cm}^2$$

$$0.4 \text{ cm de } 20 = P^2/04^2/0.05 = 8 \text{ kg sn/cm} \quad A_4 = 04 \text{ cm}^2$$

$$0.5 \text{ cm de } 20 = P^2/05^2/0.05 = 10 \text{ kg sn/cm} \quad A_5 = 05 \text{ cm}^2$$

$$0.6 \text{ cm de } 20 = P^2/06^2/0.05 = 12 \text{ kg sn/cm} \quad A_6 = 06 \text{ cm}^2$$

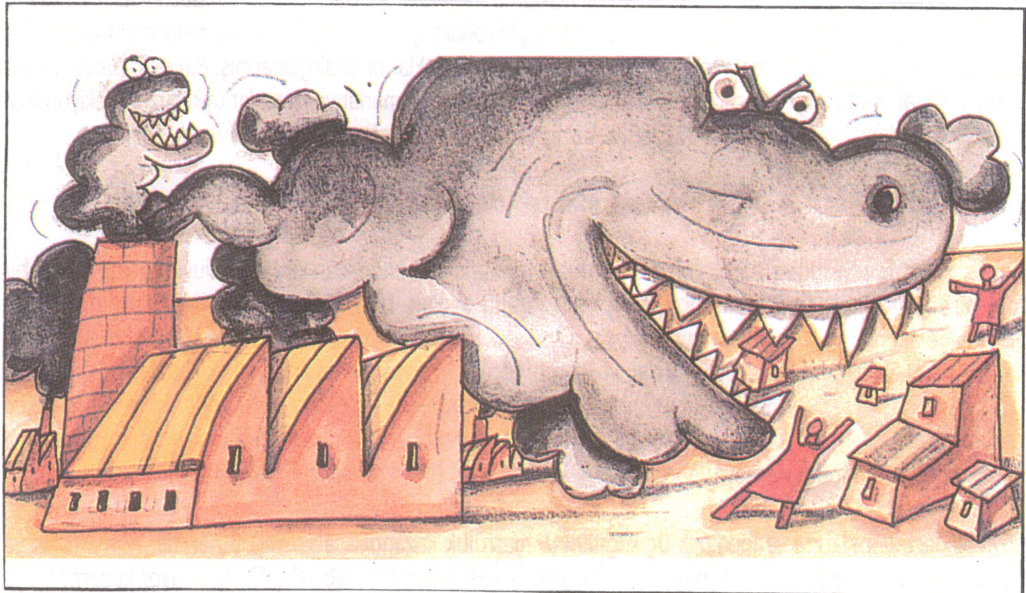
$$0.7 \text{ cm de } 20 = P^2/07^2/0.05 = 14 \text{ kg sn/cm} \quad A_7 = 07 \text{ cm}^2$$

$$0.8 \text{ cm de } 20 = P^2/08^2/0.05 = 16 \text{ kg sn/cm} \quad A_8 = 08 \text{ cm}^2$$

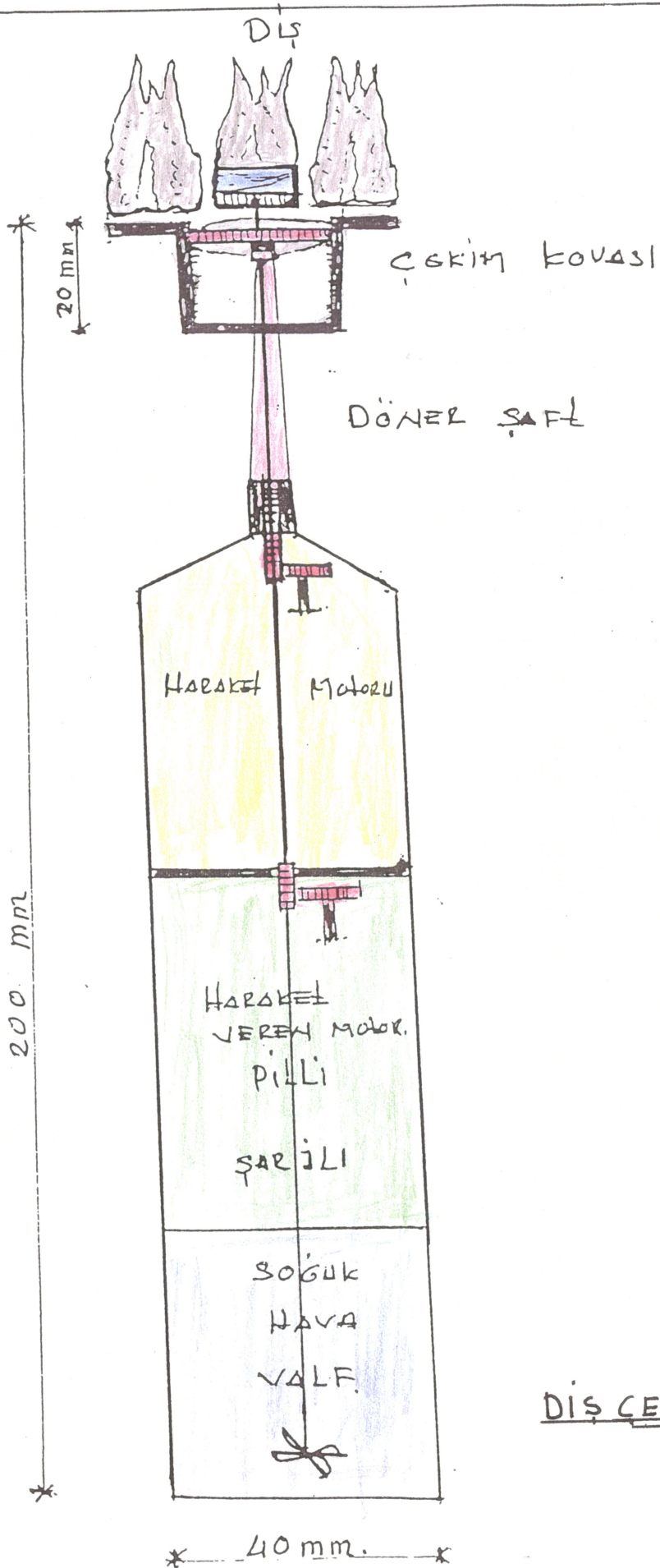
$$0.9 \text{ cm de } 20 = P^2/09^2/0.05 = 18 \text{ kg sn/cm} \quad A_9 = 09 \text{ cm}^2$$

$$1 \text{ cm de } 20 = P^2/1^2/0.05 = 20 \text{ kg sn/cm} \quad A_{10} = 1 \text{ cm}^2$$

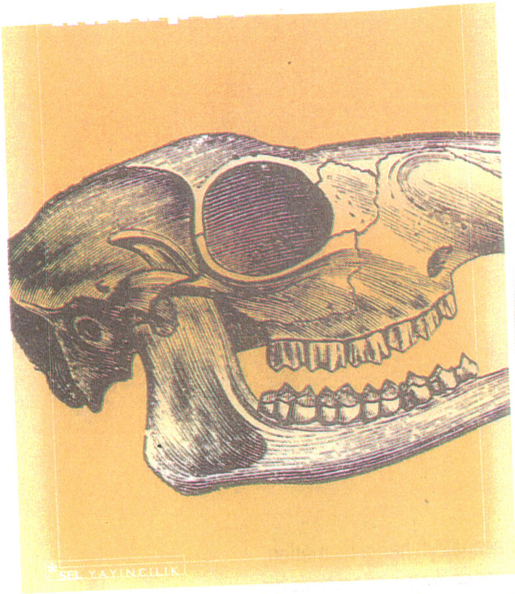
$$\text{Diş Alanı} \quad A = \frac{P}{Gd} = \frac{20}{20} = 1 \text{ cm}^2$$





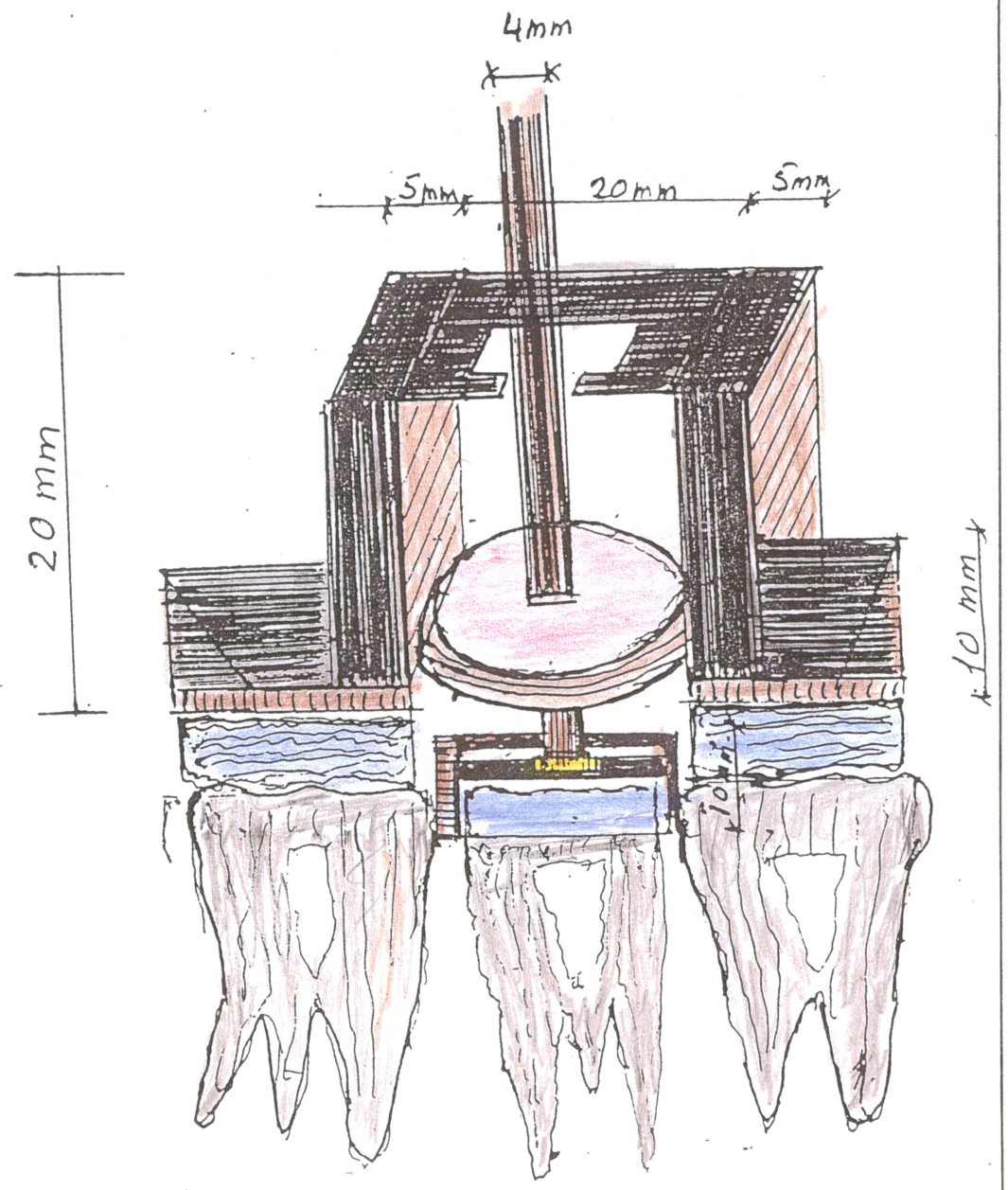


DİŞ ÇEKME MAKİNASI.



\*SEL YAYINCILIK

ÇEKİM KOVASI DETAYI.





## ATOMİK DENKLEMİN EKONOMİ'YE UYGULANMASI

100 krş paranın 050 artışı ile 23 saatte yapacağı kâr  
ne kadar olur?

Veriler:  $G_p = 1000$  krş  $l = 23$  saat  $v = 050$

$$G_p = P^2 / e^2 / v$$

$$1 \text{ saatte } 1000 = P^2 / 1^2 / 050, P = 44,72 \text{ krş}$$

$$12 \text{ saatte } 1000 = P^2 / 12^2 / 050, P = 536,66 \text{ krş}$$

$$24 \text{ saatte } 1000 = P^2 / 24^2 / 05, P = 1073,31 \text{ krş}$$

Bir başka soru: 100.000.000.000 paranın

90 günde 10.000.000.000 TL kârı isteniyor

$V = ?$  İşletme hızı  $P_1 = ?$  1 günlük kârı,  $\% = ?$

$$v = G \times e^2 / P^2 = 100.000.000.000 \times 90^2 / 10.000.000.000^2$$

$$v = 00000081$$

$$1 \text{ günlük kârı } 100.000.000.000 = \frac{P_1^2}{\frac{1^2}{00000081}}$$

$$P_1 = 111.111.111.1 \text{ TL}$$

$$\text{Artış } \% \text{ si } 111.111.111.1 / 100.000.000.000 = \% 001$$

