

No. 813,099.

PATENTED FEB. 20, 1906.

F. L. KREIL.
NUMERATOR FOR SAWING MACHINES.
APPLICATION FILED MAR. 9, 1904.

2 SHEETS—SHEET 1.

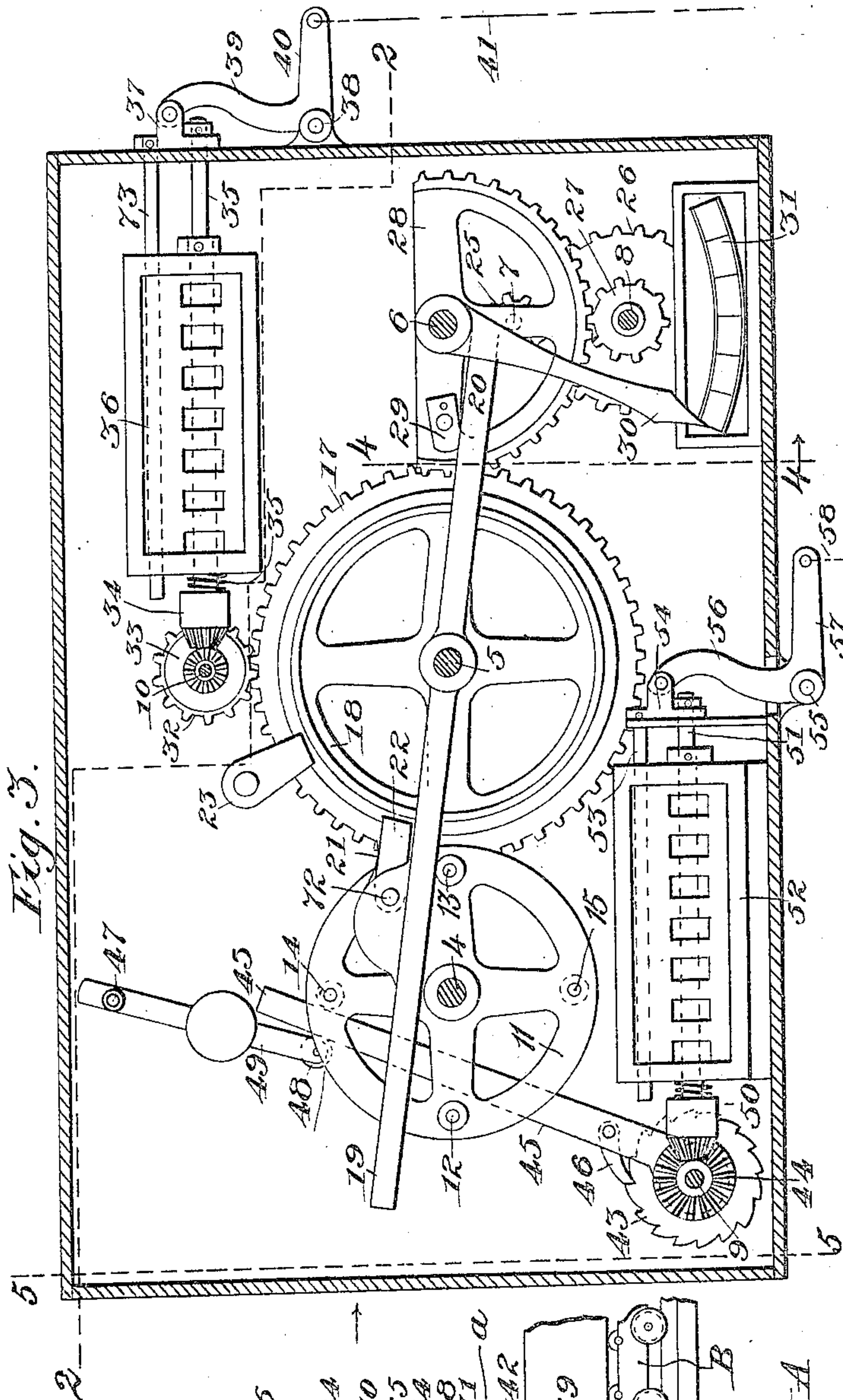
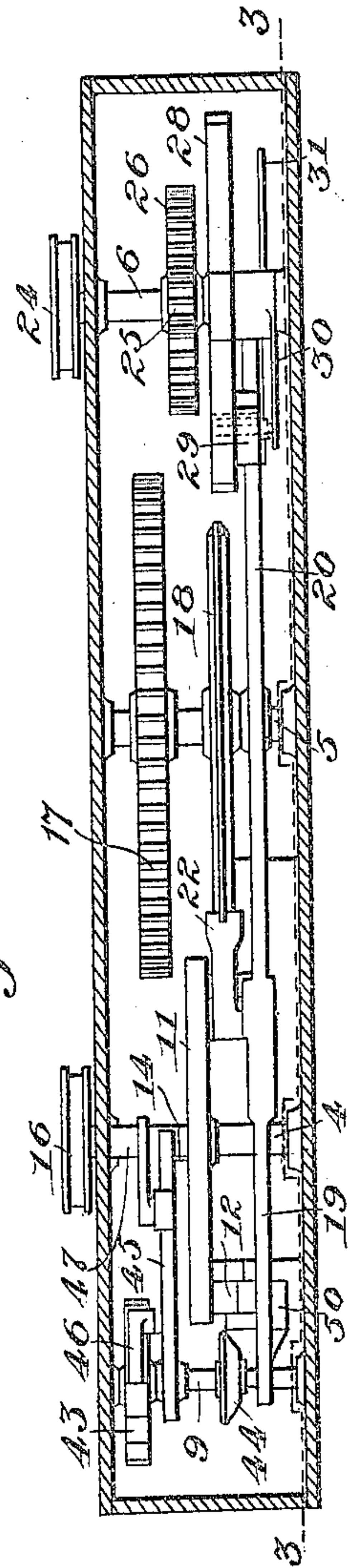


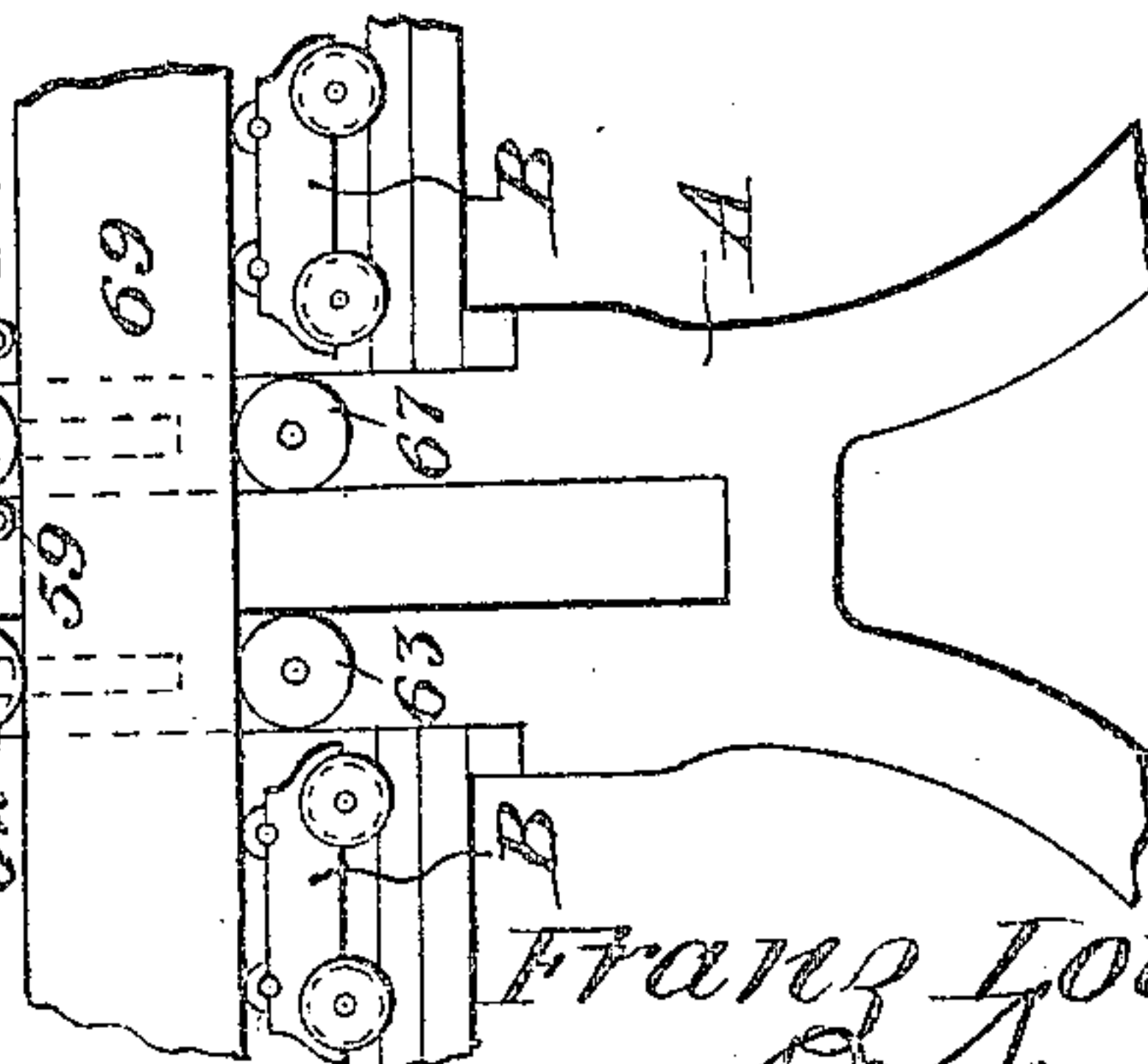
Fig. 3.

Fig. 2.



Witnesses:
C. H. Crawford
C. Heymann

Fig. 1.



Inventor:
Franz Louis Kreil
by P. Kinger.
Attorney

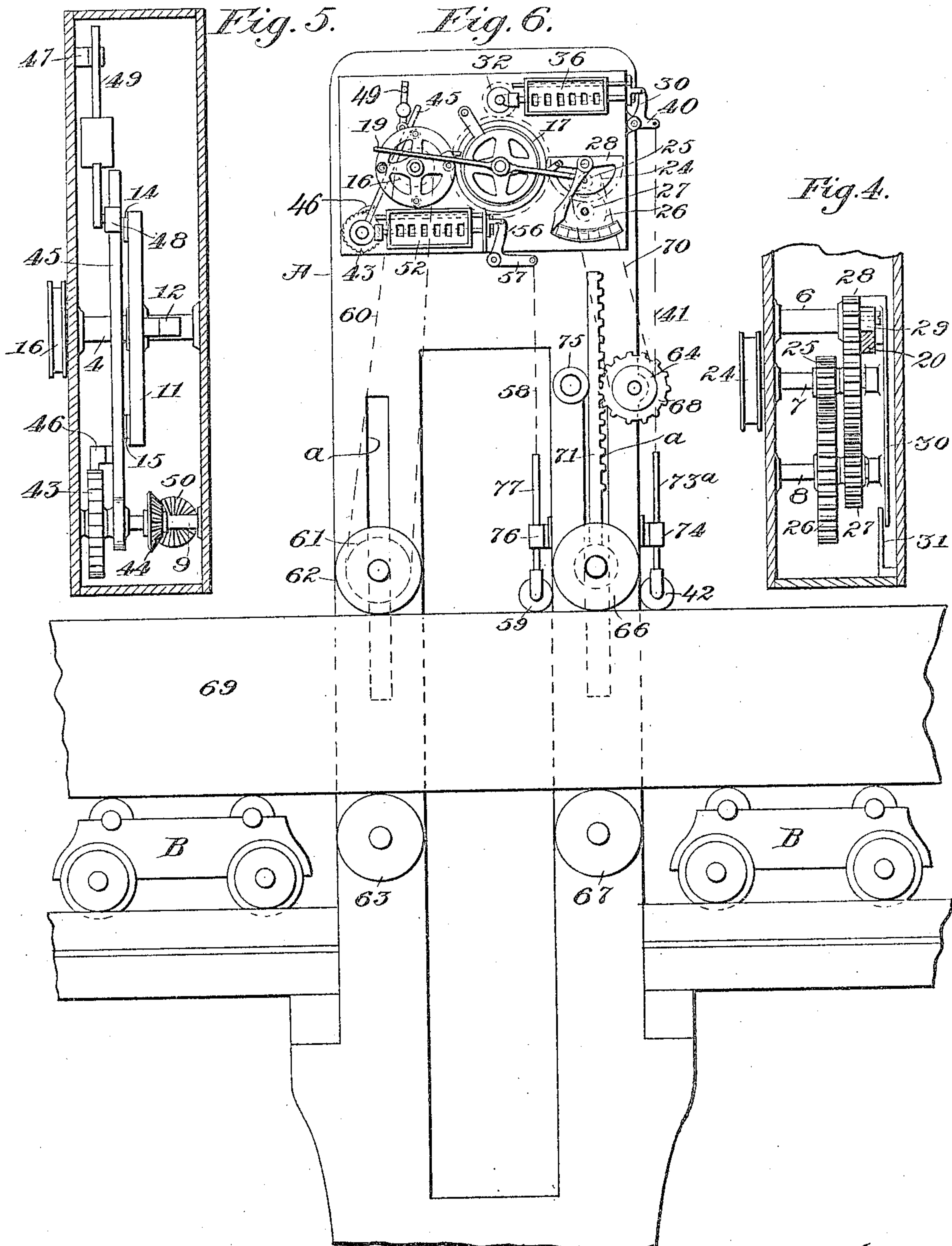
No. 813,099.

PATENTED FEB. 20, 1906.

F. L. KREIL.
NUMERATOR FOR SAWING MACHINES.

APPLICATION FILED MAR. 9, 1904.

2 SHEETS—SHEET 2.



Witnesses:
C. H. Crawford
C. Hymann.

Inventor:
Franz Louis Kreil
by P. Singer.
Attorney

UNITED STATES PATENT OFFICE.

FRANZ LOUIS KREIL, OF GLAUCHAU, GERMANY.

NUMERATOR FOR SAWING-MACHINES.

No. 813,099.

Specification of Letters Patent.

Patented Feb. 20, 1906.

Application filed March 9, 1904. Serial No. 197,353.

To all whom it may concern:

Be it known that I, FRANZ LOUIS KREIL, a subject of the German Emperor, residing at Glauchau, in the Kingdom of Saxony and Empire of Germany, have invented certain new and useful Improvements in Numerators for Sawing-Machines, of which the following is a specification.

My invention relates to numerating or measuring devices adapted to be used in connection with sawing-machines whereby the cubic and linear contents of material passing therethrough may be indicated.

My invention will be more fully described in connection with the accompanying drawings and will be more particularly pointed out in the appended claims.

In the drawings, Figure 1 illustrates in side elevation a carriage or feeding device for a sawmill, showing in connection therewith a log and my improved measuring device, whereby the cubic and linear contents of the log are indicated. Fig. 2 is a section on line 2 2 of Fig. 3. Fig. 3 is a section on line 3 3 of Fig. 2. Fig. 4 is a section on line 4 4 of Fig. 3 looking in the direction of the arrow. Fig. 5 is a section on line 5 5 of Fig. 3 looking in the direction of the arrow. Fig. 6 is an enlarged view of the device shown in Fig. 1.

Like characters of reference designate similar parts throughout the different figures of the drawings.

My invention is herein shown mounted upon a vertically-disposed frame (designated as a whole by A) which carries supporting-rollers 63 and 67 and supporting-carriages B B for the log 69 or like body to be sawed.

Mounted on the frame A are rollers or disks 62 and 66, adapted to directly engage the log 69 or other material to be operated on by the saw, said rollers being slidably mounted in vertically-disposed slots *a a*, formed in said frame. As the log 69 travels forwardly upon the rollers 63 and 67 and upon the carriages B B gravity engagement of the disks 62 and 66 with the log 69 results in rotating the former, each disk changing its vertical position to the irregularities of the surface of the log.

Upon the upper end of the frame A is mounted a numerator 52, designed to visually indicate to the operator the linear contents of the log, the said numerator being connected with the linear disk 62 and being operated therefrom by means hereinafter to be described. The said frame also carries a

numerator 36, which is operated desirably through the medium of devices operating the numerator 52, but is in the preferred construction governed and controlled in its operation by means directly actuated by the cube-disk 66. Means are provided whereby each of the numerators 52 and 36 may be automatically thrown into and out of gear with their respective operating mechanisms upon the entrance and departure of logs or like material passing to the saw.

Next describing in detail the means whereby the indicator 52 is actuated, the same, as shown, desirably comprises belt-sheaves 16 and 61, over which a suitable belt 60 is trained. During the passage of the log 69 rotation of the roller 62 actuates the sheave 16 and the pin-wheel 11, which is rigidly secured with said sheave 16 upon the shaft 4.

In order that the belt 60 may accommodate itself to the different positions which the sheave 61 and disk 62 occupy during the passage of logs of different diameter, the belt 60 is formed of any suitable elastic material permitting the disk 62 and sheave 61 to move up and down in the slot *a*.

On one side of said pin-wheel 11 there is mounted contact-pins 14 and 15, located at diametrically opposite points and projecting outwardly in a manner to engage a pawl-lever 45. Said lever 45 is pivotally and loosely mounted upon a shaft 9, which also carries a ratchet-wheel 43 and a beveled gear 44, each of which is rigidly mounted thereon. Said lever 45 carries a gravity-pawl 46, adapted to engage said ratchet-wheel 43 and actuate the same and in turn the beveled gear 44. The indicator 52 is provided with a main actuating-shaft, one end of which is equipped with a beveled gear 50, meshing with the gear 44 and by means of which motion is communicated from the lever 45 to the shaft of the indicator 52. A spring is interposed between the gear 50 and the casing of the indicator 52 to normally hold said gear 50 in mesh with the gear 44. Rotation of the pin-wheel 11 causes the pins 14 and 15 to engage the lever 45 and serves to rock the same, thereby imparting motion to the shaft 9. The lever 45 is normally held in a position to engage the pins 14 and 15 by a weighted lever 49, pivoted at 47 and provided with a roller 48, normally engaging said lever 45.

I will now describe the means whereby the indicator is automatically thrown into and out of operation upon the entrance and de-

parture of logs or other material passing through the machine. A shaft located adjacent to one end of the indicator carries a bell-crank lever having arms 56 and 57, the former being connected at 54 with the main actuating-shaft of the indicator and also with a guide-rod 53. The arm 57 carries a weighted roller 59, which is supported by a cord of suitable flexible material 58. Said roller is provided with a shank 77, adapted to slide vertically in a guide 76. When the end of the log 69 passes beyond the frame A, the roller 59 will of its own weight move downwardly, causing a corresponding movement of the bell-crank lever and disengaging the gear 50 from the gear 44. When the roller is resting on the log or other material to be sawed, engagement is maintained between the gears 44 and 50 by means of the coil-spring hereinbefore referred to.

It will be obvious that as the log 69 passes through between the rollers 62 and 63 the linear contents or length of the log will be accurately transmitted by means of the foregoing mechanism to the indicator 52.

I will now describe the mechanism whereby the cubic contents of the log are transmitted to the indicator 36. Said indicator is provided with an actuating-shaft 35, carrying on its outer end a beveled gear 34, adapted to mesh with the beveled gear 33. Said gear 33 is mounted on a shaft 10, which carries a rigidly-mounted pinion 32, adapted to mesh with pinion 17, rigidly mounted on shaft 5. A friction-transmitting wheel 18 is also mounted on said shaft and is actuated by a rocking member having oppositely-extending arms 19 and 20. Said arms terminate in a hub which is loosely mounted upon shaft 5. Said arm 19 projects into the path of travel of pins 12 and 13 upon the pin-wheel 11, and as the latter rotates rocking motion is imparted to said arm. Said arm 19 carries a pivotally-mounted friction-dog 22, secured at 72 to a lug upon said arm. Said dog is provided with a spring 21. When the lever 19 is rocked upwardly by the pins 12 or 13, the dog 22 frictionally engages the periphery of the transmitting-wheel 18 and imparts thereto rotary movement corresponding to the upward movement of the arm 19. The disk 18 transmits motion by means of the pinions 17 and 32 and beveled gears 33 and 34 to the indicator 36.

It will be understood that the diameters of the different logs will not only vary, but the diameter of each individual log will also vary throughout its length, and in determining the cubic contents of the same it will be obvious that the rocking movement of the arms 19 and 20 should be made to vary and to cause a corresponding variation of rotative movement of the shaft 35 of the indicator. To this end I provide means whereby this variation of movement is directly effected inde-

pendently of the wheel 11, which is thus permitted to rotate freely and actuate both the lever 45 and arm 19. Said means consists of a stop 29, rigidly secured to a toothed segment 28, which latter is rigidly mounted on shaft 6. An indicating pointer or finger 30, rigidly mounted on shaft 6, projects downwardly and operates abreast of a graduated scale 31. This scale 31 indicates, by means of the pointer, the diameter of the log. Said segment 28 meshes with a pinion 27, rigidly mounted upon a shaft 8, which also carries a pinion 26, which meshes with the pinion 25, carried upon shaft 7. Said shaft 7 carries a sheave 24, around which is trained a suitable belt 70, which operates upon a sheave 64. Said sheave 64 is rigidly mounted upon a shaft carrying a pinion 68, which in turn is actuated by the rack-bar 71. Said rack-bar is held in meshing engagement with the pinion by roller 75. The lower end of said rack-bar 71, carries the cube-disk 66, which is adapted to directly engage the log 69 and which transmits to the scale 31 by finger 30 any variation in the diameter of the log. The roller 66 and the bar 71 are guided in their vertical reciprocation in the slot *a*. When a log of relatively small diameter is being operated on, the bar 71, together with its roller 66, will slide downwardly, causing a contra-clockwise movement of the indicating-finger 30 and a corresponding movement of the tooth-segment 28. The stop 29 being swung downwardly, the stop 29 will limit the upward rocking movement of arm 20 and will cause a relatively shorter engagement between the arm 19 and the contact-pins 12 and 13. If the logs are of a relatively large diameter, an upward movement of the bar 71 will cause a clockwise movement of the indicating-finger and the stop 29 will be correspondingly raised, permitting a relatively longer engagement between the stop-pins 12 and 13 and the arm 19 and causing a correspondingly greater rotary movement of the transmitting-disk 18. In order to secure an accurate measurement of the cubic contents of the log, braking means are provided whereby the transmitting-disk 18 may be prevented from rotating after the arm 19 has started upon its downward course. Said braking means is preferably provided in the form of a spring-contact 23, which, as shown, normally engages the pinion 17.

Means are provided whereby the indicator 36 may be automatically thrown into and out of gear with its operating mechanism, which consists in part of a bell-crank having arms 39 and 40. The arm 39 is connected at 37 with the shaft 35 and guiding-rod 73, said shaft 35 reciprocating in its bearings and thereby serving to throw the gear 34 into and out of mesh with gear 33. A weighted roller 42, normally engaging the log 69 or other material to be sawed, is provided with a shank

73^a, guided in a bearing 74. When the log 69 passes from under the roller 42, the latter will drop, causing the arm 39 to move outwardly and serving thereby to disengage the gears 33 and 34. A spring interposed between the gear 34 and the indicator 36 serves to normally engage said gear 34 with the gear 33.

While I have herein shown a combined measuring device for taking the linear and cubic contents of lumber, it will be understood that where it is desired to take either the linear or cubic measurement alone said devices are capable of operating independently of each other.

While I have herein shown and described a single embodiment of my invention, it will be understood that the same may be materially altered from the form shown without departing from the spirit of my invention.

Therefore what I claim, and desire to secure by Letters Patent, is—

1. A measuring device for lumber-sawing machines including a linear numerator having an operating-shaft, a vertically-self-adjusting linear disk engaging the log or like material to be sawed, a ratchet-shaft, gears connecting the operating-shaft of said numerator with said ratchet-shaft, a ratchet-wheel for said ratchet-shaft, a pivotally-mounted ratchet-lever having a pawl adapted to engage said ratchet-wheel, a pin-wheel having projecting pins engaging said ratchet-lever and imparting thereto a rocking movement, a flexible belting whereby rotative movement is transmitted from said linear disk to said pin-wheel, and a gravity-acting weighted lever engaging said ratchet-lever and normally holding the same in engagement with said pins.

2. A measuring device for lumber-sawing machines including a linear numerator having an operating-shaft, a linear disk engaging the log or like material to be sawed, a ratchet-shaft, gears connecting the operating-shaft of said numerator with said ratchet-shaft, a ratchet-wheel for said shaft, a pivotally-mounted ratchet-lever having a pawl adapted to engage said ratchet-wheel, a pin-wheel having projecting pins engaging said ratchet-lever and imparting thereto a rocking movement, and means whereby rotative motion is transmitted from said linear disk to said pin-wheel.

3. A measuring device for lumber-sawing machines including a linear numerator having an operating-shaft, a vertically-self-adjusting linear disk engaging the log or like material to be sawed, a ratchet-shaft, gears connecting the operating-shaft of said numerator with said ratchet-shaft, a ratchet-wheel for said shaft, a pivotally-mounted ratchet-lever having a pawl adapted to engage said ratchet-wheel, a pin-wheel having projecting pins engaging said ratchet-lever and impart-

ing thereto a rocking movement, a flexible belting whereby rotative movement is transmitted from said linear disk to said pin-wheel, and means whereby said ratchet-lever is held in engagement with said pins.

4. A measuring device for lumber-sawing machines including a linear numerator having an operating-shaft, a linear disk engaging the log or like material to be sawed, a ratchet-shaft, gears connecting the operating-shaft of said numerator with said ratchet-shaft, a ratchet-wheel for said shaft, a ratchet-lever having a pawl adapted to engage said ratchet-wheel, a pin-wheel having projecting pins engaging said ratchet-lever and imparting thereto a rocking movement, and means whereby rotative motion is transmitted from said linear disk to said pin-wheel.

5. A measuring device for lumber-sawing machines including a linear numerator having an endwise-movable operating-shaft, a vertically-self-adjusting linear disk engaging the log or like material to be sawed, a ratchet-shaft, gears connecting the operating-shaft of said numerator with said ratchet-shaft, a ratchet-wheel for said shaft, a pivotally-mounted ratchet-lever having a pawl adapted to engage said ratchet-wheel, a pin-wheel having projecting pins engaging said ratchet-lever and imparting thereto a rocking movement, a flexible belting whereby rotative movement is transmitted from said linear disk to said pin-wheel, a gravity-acting weighted lever engaging said ratchet-lever and normally holding same in engagement with said pins, a bell-crank lever connected with said operating-shaft, a weighted roller normally engaging the log or like material to be sawed, and means connected with said roller and bell-crank whereby said numerator may be automatically thrown into and out of operation.

6. A measuring device for lumber-sawing machines including a linear numerator having an operating-shaft, a linear disk engaging the log or like material to be sawed, a ratchet-shaft, gears connecting the operating-shaft of said numerator with said ratchet-shaft, a ratchet-wheel for said shaft, a pivotally-mounted ratchet-lever having a pawl adapted to engage said ratchet-wheel, a pin-wheel having projecting pins engaging said ratchet-lever and imparting thereto a rocking movement, means whereby rotative motion is transmitted from said linear disk to said pin-wheel, and gravity-acting means engaging the log or like material to be sawed and serving to throw the linear numerator into and out of operation.

7. A measuring device for lumber-sawing machines including a linear numerator having an operating-shaft, a vertically-self-adjusting linear disk engaging the log or like material to be sawed, a ratchet-shaft, gears connecting the operating-shaft of said nu-

merator with said ratchet-shaft, a ratchet-wheel for said shaft, a pivotally-mounted ratchet-lever having a pawl adapted to engage said ratchet-wheel, a pin-wheel having projecting pins engaging said ratchet-lever and imparting thereto a rocking movement, a flexible belting whereby rotative movement is transmitted from said linear disk to said pin-wheel, means whereby said ratchet-lever is held in engagement with said pins, and gravity-acting means engaging the log or like material to be sawed and serving to throw the linear numerator into and out of operation.

8. A measuring device for lumber-sawing machines including a linear numerator having an operating-shaft, a linear disk engaging the log or like material to be sawed, a ratchet-shaft, gears connecting the operating-shaft of said numerator with said ratchet-shaft, a ratchet-wheel for said shaft, a ratchet-lever having a pawl adapted to engage said ratchet-wheel, a pin-wheel having projecting pins engaging said ratchet-lever and imparting thereto a rocking movement, means whereby rotative motion is transmitted from said linear disk to said pin-wheel, and gravity-acting means engaging the log or like material to be sawed and serving to throw the linear numerator into and out of operation.

9. A measuring device for lumber-sawing machines including a linear numerator, a linear disk engaging the log or like material to be sawed, a rotating element operated by said linear disk, means whereby said rotating element intermittently operates said numerator, and gravity-acting means engaging the log or like material to be sawed and serving to throw the linear numerator into and out of operation.

10. A measuring device for lumber-sawing machines including a linear numerator, a linear disk engaging the log or like material to be sawed, a rotating element operated by said linear disk, means whereby motion is imparted to said numerator by said rotating element, and gravity-acting means engaging the log or like material to be sawed and serving to throw the linear numerator into and out of operation.

11. A measuring device for lumber-sawing machines including a linear numerator, means mechanically connected with said numerator and frictionally engaging the log or like material to be sawed whereby the linear contents of the same may be indicated by said numerator, and gravity-acting means engaging the log or like material to be sawed and serving to throw the linear numerator into and out of operation.

12. A measuring device for lumber-sawing machines including a linear numerator, a linear disk engaging the log or material to be sawed, a pin-wheel operated by said linear disk, said pin-wheel having projecting pins, a

rocking member having oppositely-extending arms one of said arms engaging said pins, an adjustable stop engaged by the other of said arms, a frictional dog carried by the pin-engaging arm, a transmitting-wheel intermittently engaged with and rotated by said dog, a cubic numerator having an operating-shaft, gears whereby rotary motion is transmitted by said transmitting-wheel to said numerator, braking means serving to prevent movement of said numerator-shaft when engagement of the dog and transmitting-wheel is released, a cubic disk normally engaging the log or material to be sawed and adjustably mounted in a vertically-disposed slot, a rack-bar for said cubic disk, a pinion meshing with said rack-bar, a segment carrying said adjustable stop, an indicating-pointer carried by said segment, a graduated scale for said pointer, and means whereby rotary motion is transmitted from said bar-engaging pinion to said segment thereby serving to vary the movement of said rocking member.

13. A measuring device for lumber-sawing machines including a linear numerator, a linear disk engaging the log or material to be sawed, a pin-wheel rotated by said linear disk, said pin-wheel having projecting pins, a rocking member having oppositely-extending arms one of said arms engaging said pins, an adjustable stop engaged by the other of said arms, a frictional dog carried by the pin-engaging arm, a transmitting-wheel intermittently engaged with and rotated by said dog, a cubic numerator having an operating-shaft, gears whereby rotary motion is transmitted by said transmitting-wheel to said numerator, braking means serving to prevent movement of said numerator-shaft when engagement of the dog and transmitting-wheel is released, a cubic disk normally engaging the log or material to be sawed and adjustably mounted in a vertically-disposed slot, a rack-bar for said cubic disk, a pinion meshing with said rack-bar, a segment carrying said adjustable stop, an indicating-pointer carried by said segment, a graduated scale for said pointer, means whereby rotary motion is transmitted from said bar-engaging pinion to said segment thereby serving to vary the movement of said rocking member, a bell-crank connected with the operating-shaft of said cubic numerator, and a weighted roller engaging the log or like material to be sawed and connected with said bell-crank whereby the numerator may be thrown into and out of operation.

14. A measuring device for lumber-sawing machines including a rocking member, means for operating said rocking member, an adjustable stop adapted to engage said rocking member, a frictional dog carried by said member, a transmitting-wheel intermittently engaged with and rotated by said dog, a cubic numerator having an operating-

shaft, gears whereby rotary motion is transmitted by said transmitting-wheel to said numerator, braking means serving to prevent movement of said numerator when engagement of the dog and transmitting-wheel is released, a cubic disk normally engaging the log or material to be sawed and adjustably mounted in a vertically-disposed slot, a rack-bar for said cubic disk, a pinion meshing with said rack-bar, a segment carrying said adjustable stop, an indicating-pointer carried by said segment, a graduated scale for said pointer, and means whereby rotary motion is transmitted from said bar-engaging pinion to said segment thereby serving to vary the movement of said rocking member.

15. A measuring device for lumber-sawing machines including a rocking member, means for operating said rocking member, an adjustable stop adapted to engage said rocking member, a frictional dog carried by said member, a transmitting-wheel intermittently engaged with and rotated by said dog, a cubic numerator having an operating-shaft, gears whereby rotary motion is transmitted by said transmitting-wheel to said numerator, braking means serving to prevent movement of said numerator when engagement of the dog and transmitting-wheel is released, a cubic disk normally engaging the log or material to be sawed, a segment carrying said adjustable stop, an indicating-pointer carried by said segment, a graduated scale for said pointer, and means whereby said cubic disk serves to operate said segment thereby serving to vary the movement of said rocking member.

16. A measuring device for lumber-sawing machines including a rocking member, means for operating said rocking member, a stop adapted to engage said rocking member, a frictional dog carried by said member, a transmitting-wheel intermittently engaged with and rotated by said dog, a cubic numerator having an operating-shaft, gears whereby rotary motion is transmitted by said transmitting-wheel to said numerator, braking means serving to prevent movement of said numerator when engagement of the dog and transmitting-wheel is released, a vertically-movable cubic disk normally engaging the log or material to be sawed, a segment carrying an adjustable stop, means whereby vertical movement of said cubic disk is transmitted to said segment, serving to vary movement of said rocking member, an indicating-pointer carried by said segment, and a graduated scale for said pointer.

17. In combination a linear numerator for sawing-machines, driving means engaging the material sawed for operating said numerator, a cubic numerator, intermediate mechanism operatively connecting said cubic numerator and driving means, and devices engaging the material sawed and said intermediate mechanism for varying the operation of said cubic numerator with respect to said linear numerator.

In testimony whereof I affix my signature in presence of two witnesses.

FRANZ LOUIS KREIL.

Witnesses:

MORRIS LIPMAN,

FREDERICK J. SIETZMAN.