

No. 704,114.

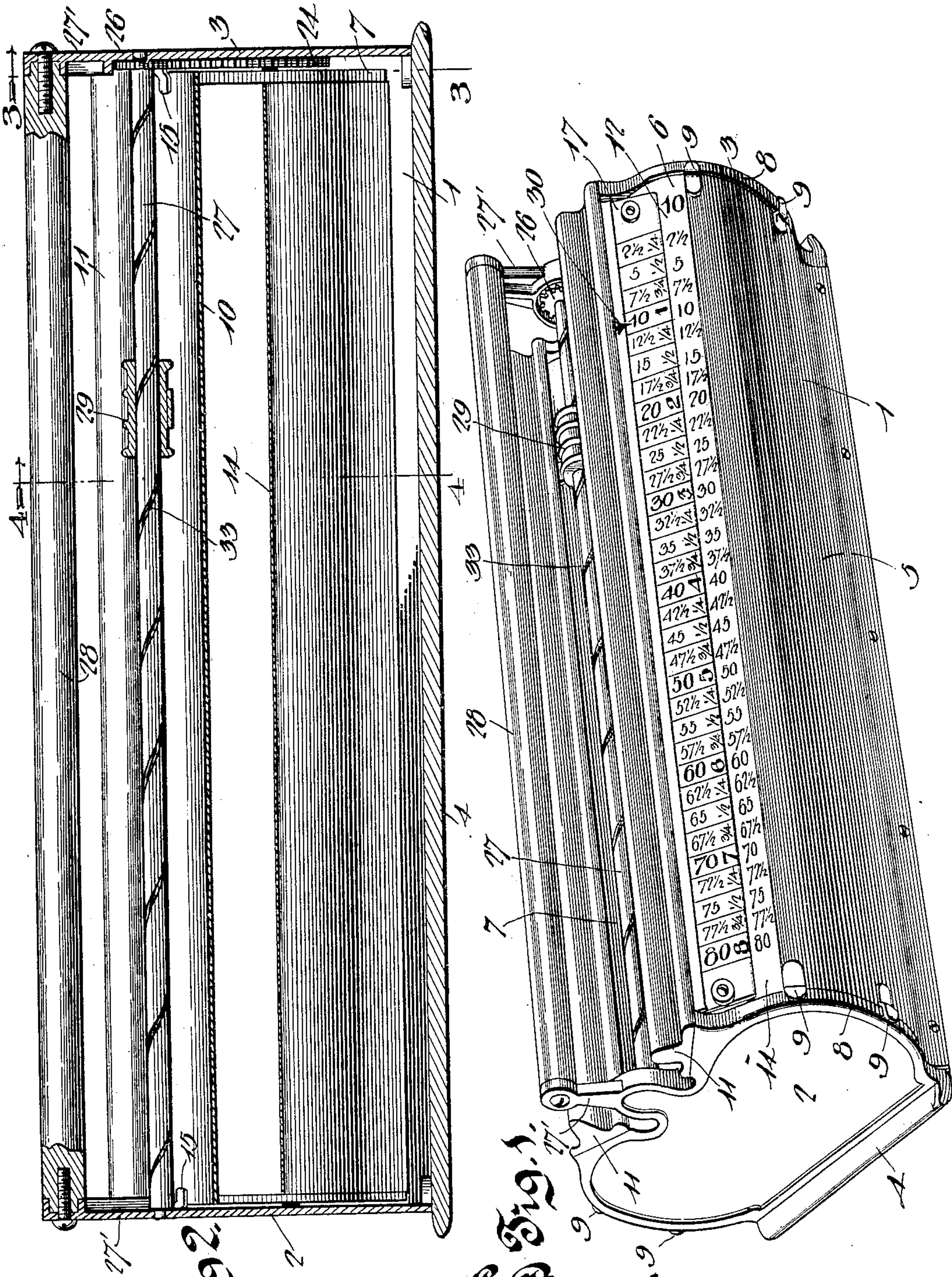
Patented July 8, 1902.

E. ROENIUS.
COMPUTING MACHINE.

(Application filed Apr. 17, 1901.)

2 Sheets—Sheet 1.

(No Model.)



Witnesses

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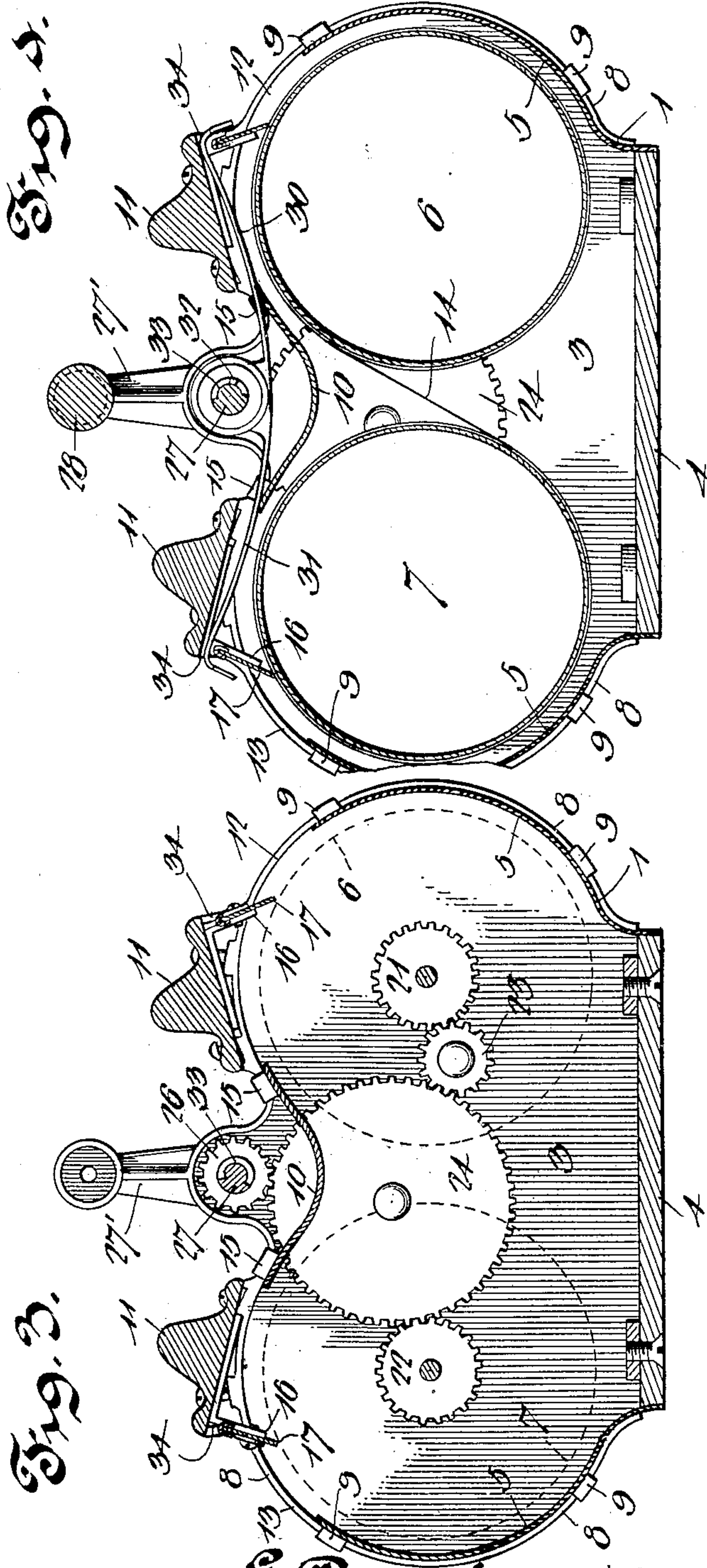
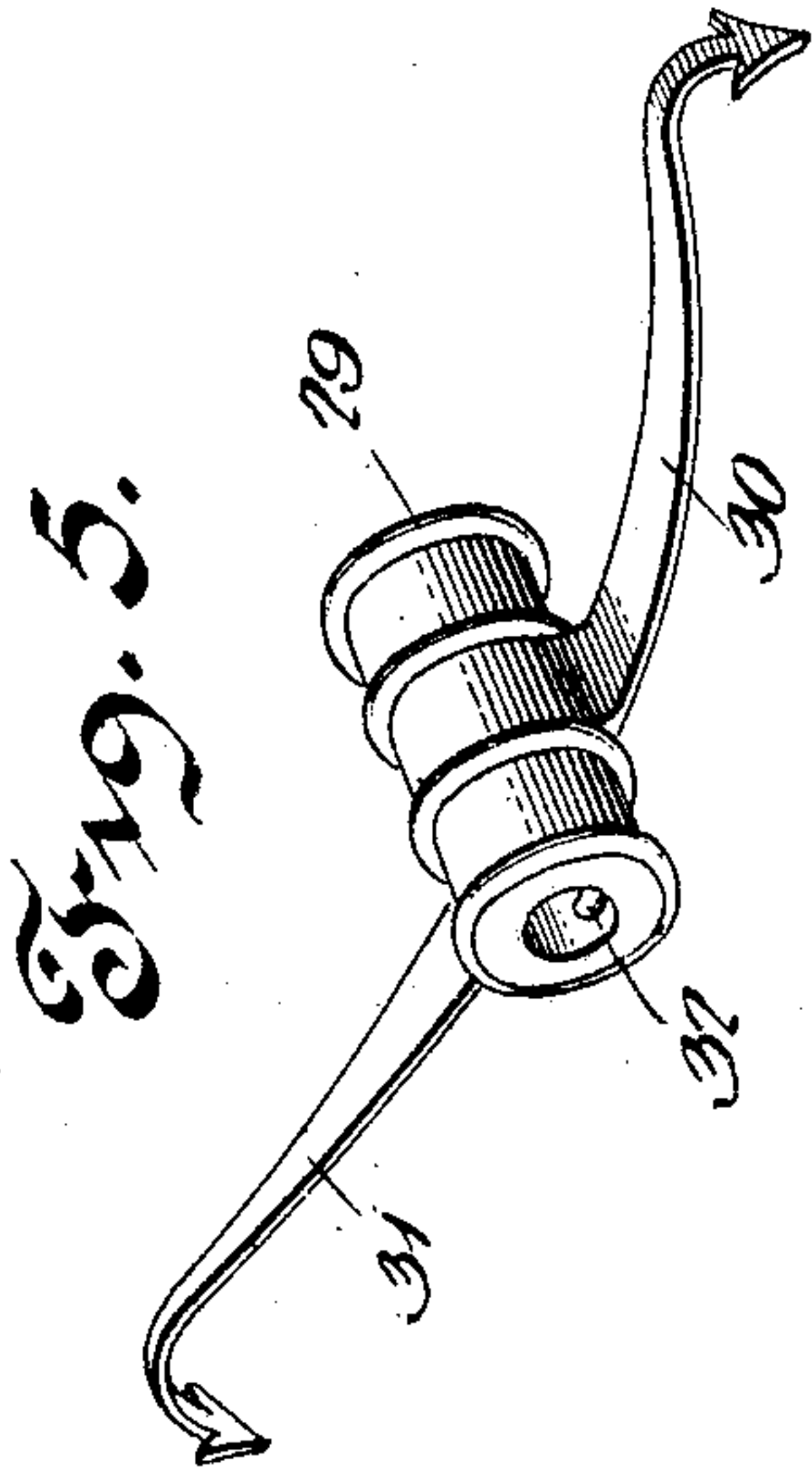
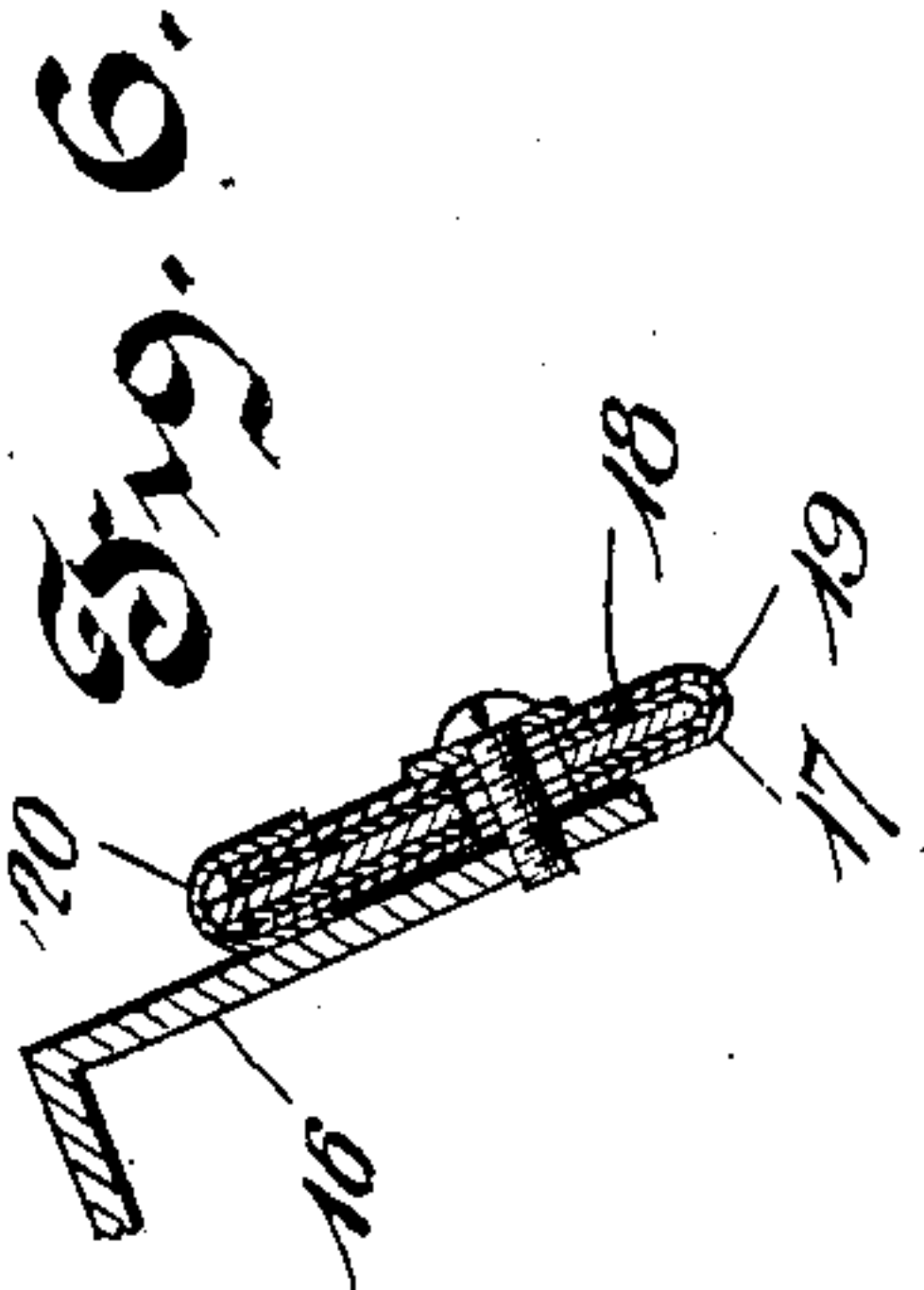
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(No Model.)

2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

EDMUND ROENIUS, OF GRAND RAPIDS, WISCONSIN.

COMPUTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 704,114, dated July 8, 1902.

[Application filed April 17, 1901. Serial No. 56,298. (No model.)]

To all whom it may concern.

Be it known that I, EDMUND ROENIUS, a citizen of the United States, residing at Grand Rapids, in the county of Wood and State of Wisconsin, have invented a new and useful Computing-Machine, of which the following is a specification.

The invention relates to improvements in computing-machines.

10 The object of the present invention is to improve the construction of computing-machines and to provide a simple and comparatively inexpensive one of increased capacity designed for computing wages, interest, &c.,
15 and adapted to be readily operated to indicate the wages due at a given rate for a given length of time or an analogous result, whereby all mental calculation in ascertaining such results will be obviated.

20 The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

25 In the drawings, Figure 1 is a perspective view of a computing-machine constructed in accordance with this invention. Fig. 2 is a longitudinal sectional view. Figs. 3 and 4
30 are transverse sectional views on the lines 3 3 and 4 4 of Fig. 2. Fig. 5 is a detail perspective view of the slide. Fig. 6 is an enlarged detail sectional view illustrating the manner of mounting the rate-scale.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a casing composed of ends 2 and 3, a bottom 4, and opposite sides 5, which are curved and bowed outward to conform to the configuration of rolls 6 and 7, which are mounted within the casing. The ends of the casing are provided with curved side edges to conform to the configuration of the sides 5, and they have curved flanges 8, receiving
45 and supporting the sides, which are preferably constructed of light sheet metal; but any other suitable material may be employed in the construction of the casing. The sides, which are arranged within the curved marginal flanges 8, are provided with tongues 9,
50 which are outwardly offset from the sides 5 and which are arranged on the exterior of the

said flanges 8. The casing is also provided with a top composed of a central section 10 and side bars or sections 11, spaced from the upper edges of the curved sides 5 to form longitudinal apertures 12 and 13 for exposing portions of a result-sheet 14, arranged on the rolls 6 and 7 and designed to be provided on both its faces with numerals or other characters for indicating the various results desired, and the said result-sheet is so arranged on the rolls that one of its faces is exposed at one of the sight apertures or openings and its other face is exposed at the other aperture or opening. The central section 10 of the top is preferably constructed of sheet metal and is curved, as shown, presenting a concave upper face and provided at its ends with tongues 15 for engaging the upper edges of the ends. The side sections or bars 11 are preferably constructed of wood, designed to be in the form of ornamental molding or the like, and provided with depending arms 16 for supporting a rate-bar 17. The rate-bars, which are preferably constructed of sheet metal, have their lower edges arranged adjacent to the surfaces of the result-sheet, and the rate-scale 18 preferably consists of a strip of paper having printed numerals or other characters for indicating the various rates of wages, interest, or the like. The strip of printed paper is preferably arranged within a transparent casing consisting of a strip 19, of thin celluloid or other transparent material. The celluloid strip is folded longitudinally and arranged on the upper and lower faces of the rate-bar, covering the rate-scale, the lower side being interposed between the rate-bar and the depending arms and the upper edges being engaged by a longitudinal metallic binding-strip 20, as clearly illustrated in Fig. 6 of the accompanying drawings. The printed strip may be folded longitudinally to arrange it on the upper and lower faces of the rate-bar, as illustrated in Fig. 6, to facilitate its attachment to the same.

The rolls, which may be constructed in any desired manner, preferably consist of hollow cylinders provided at their ends with journals arranged in suitable bearing-openings of the ends 2 and 3 of the casing 1, and they are connected rigidly with pinions 21 and 22,

which may be keyed or otherwise secured to the adjacent journals of the rolls. The pinion 21 meshes with an intermediate pinion 23, which meshes with a gear-wheel 24, and the other pinion 22 meshes directly with the gear-wheel 24. By this arrangement of gears the rolls are caused to rotate in the same direction, so that the result-sheet will be unreeled from one of the rolls and wound upon the other roll when the gearing is actuated. The result-sheet extends downward and inward from the top of the roll 6 to the bottom of the roll 7, and one of its faces will be exposed at the sight-aperture 12, and its other face will be displayed at the sight-aperture 13. By this construction and arrangement both faces of the result-sheet are displayed and the capacity of the machine is increased, and, if desired, one side of the machine may present continuations of the calculations displayed at the other side to provide a large range of similar calculations; but entirely different results may be displayed at the two sides of the casing, if desired.

The large gear-wheel meshes with an upper pinion 26 of a feed shaft or screw 27, extending longitudinally of the casing and located above the central section 10 of the top, as clearly illustrated in Figs. 3 and 4 of the accompanying drawings. The central section 10 forms a depression or groove at the top of the casing to receive the feed-screw, which is located at a point below the tops of the bars 11. The ends of the casing are provided with central upwardly-extending arms 27', and the feed shaft or screw is journaled in suitable bearings at the lower portions of the arms. The upper pinion 26 is housed within a portion of the marginal flange of the adjacent end 3 of the casing, and the upper ends of the arms are connected by a rod 28, which forms a convenient handle or grip for carrying the machine and for holding the same while an operating-slide 29 is being manipulated. The operating-slide, which is mounted on the longitudinal feed shaft or screw and which is provided with oppositely-disposed pointers or indicators 30 and 31, has a central bore to receive the shaft or screw and is also provided with an interiorly-arranged projection or pin 32, extending into a spiral groove 33 of the shaft or screw, whereby when the slide is reciprocated longitudinally of the shaft or screw the latter will be rotated and will operate the gearing and rotate the rolls. By this construction the result-sheet is caused to move backward and forward under the apertures 12 and 13 of the casing 1 and any of its characters may be brought into a position to be displayed.

The indicators or pointers 30 and 31, which are arranged at right angles to the feed shaft or screw, extend outward beneath the side sections of the top of the casing and project through spaces 34 between the rate-bars and the said side sections 11. The rate-bars are spaced from the side sections 11 of the top,

and the outer ends of the pointers or indicators are curved downward and are arranged on the exterior of the rate-bars.

The result-sheet is designed to be provided with columns of figures or other characters, which columns extend longitudinally of the machine and are adapted to be successively brought opposite the sight-apertures by the rotation of the rolls. The rate-scale is provided with numbers or other characters indicating the different rates of wages per day and with numbers or other characters indicating the units of time, and the numbers of the columns of the result-sheet will correspond to the numbers of the rate-scale. When it is desired to ascertain the amount due for a given length of time, the slide is first operated to carry the pointer to the number indicating the rate per day. This actuates the rolls and will bring the column corresponding to the position of the pointer opposite the opening, and the result may be readily ascertained by finding the number of the column opposite the character or number indicating the unit of time entering into the calculation. Various results may be ascertained, and the machine may be constructed for indicating any character of result, such as wages, interest, or the like; but as the contents of the result-sheet and the rate-scale do not constitute a portion of the present invention further description thereof is deemed unnecessary.

It will be seen that the machine is exceedingly simple and inexpensive in construction, that it is easily operated, and that the oppositely-disposed pointers are simultaneously actuated by the slide.

What I claim is—

1. A computing-machine comprising the casing provided at its ends with upwardly-extending arms and having a central transversely-curved top section 10 forming an exterior groove or depression, said casing being provided at opposite sides of the central top section with opposite longitudinal apertures, rolls housed within the casing at opposite sides thereof, a result-sheet arranged on the rolls and exposed at the apertures of the casing, the longitudinal feed-screw arranged on the exterior of the casing in the longitudinal groove or depression of the top section 10, gearing arranged at one end of the casing and connecting the feed-screw with the rolls, the slide arranged on the feed-screw and adapted to actuate the same and provided with pointers or indicators extending to the said apertures, and the longitudinal rod connecting the said arms and located directly above and adjacent to the feed-screw and adapted to facilitate the operation of the machine and forming a guard for the screw and the slide, substantially as described.

2. A computing-machine comprising a casing provided at its ends with centrally-arranged supporting-arms and having a groove or depression extending between the arms at

the top of the casing, said casing being provided at opposite sides with longitudinal apertures, rolls housed within the casing, a result-sheet arranged on the rolls and exposed at the
5 said apertures, the longitudinal feed-screw arranged on the exterior of the casing between the said arms at the groove or depression, the pinions 21 and 22 connected with the rolls, the pinion 26 mounted on the feed-screw, the
10 gear-wheel 24 meshing with the pinions 22 and 26, the pinion 23 meshing with the gear-wheel 24 and with the pinion 21, the exteriorly-arranged slide mounted on and adapted to rotate the feed-screw, and provided with transversely-disposed pointers or indicators, and
15 the rod fixed to the arms and located directly above the feed-screw and forming a grip and a guard, substantially as described.

3. A computing-machine comprising a casing provided at opposite sides with apertures and having centrally-arranged upwardly-extending arms, a rod connecting the arms and forming a handle, rolls arranged within the casing, a result-sheet mounted on the rolls, a
25 longitudinal feed shaft or screw located beneath the rod, gearing connecting the shaft or screw with the rolls, and a slide mounted on the feed shaft or screw and actuating the same and provided with oppositely-disposed pointers or indicators arranged to move longitudinally of the apertures, substantially as described.

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4. A computing-machine comprising a casing provided at opposite sides with apertures and having a top composed of central and side
35 portions, arms depending from the side portions of the top, rate-bars mounted on the arms and spaced from the said side portions to provide longitudinal openings, rolls arranged within the casing, a result-sheet disposed on the rolls, a longitudinal feed shaft or screw mounted above the central portion of the top of the casing, gearing connecting the feed shaft or screw with the rolls, and a
40 slide mounted on and engaging the feed shaft or screw and provided with oppositely-disposed pointers or indicators extending beneath the side portions of the top and projecting through the longitudinal openings and arranged on the exterior of the rate-bars, substantially as described.
50

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

EDMUND ROENIUS.

Witnesses:

D. E. SQUIRES,

FRANK S. APPLEMAN.