

No. 753,945.

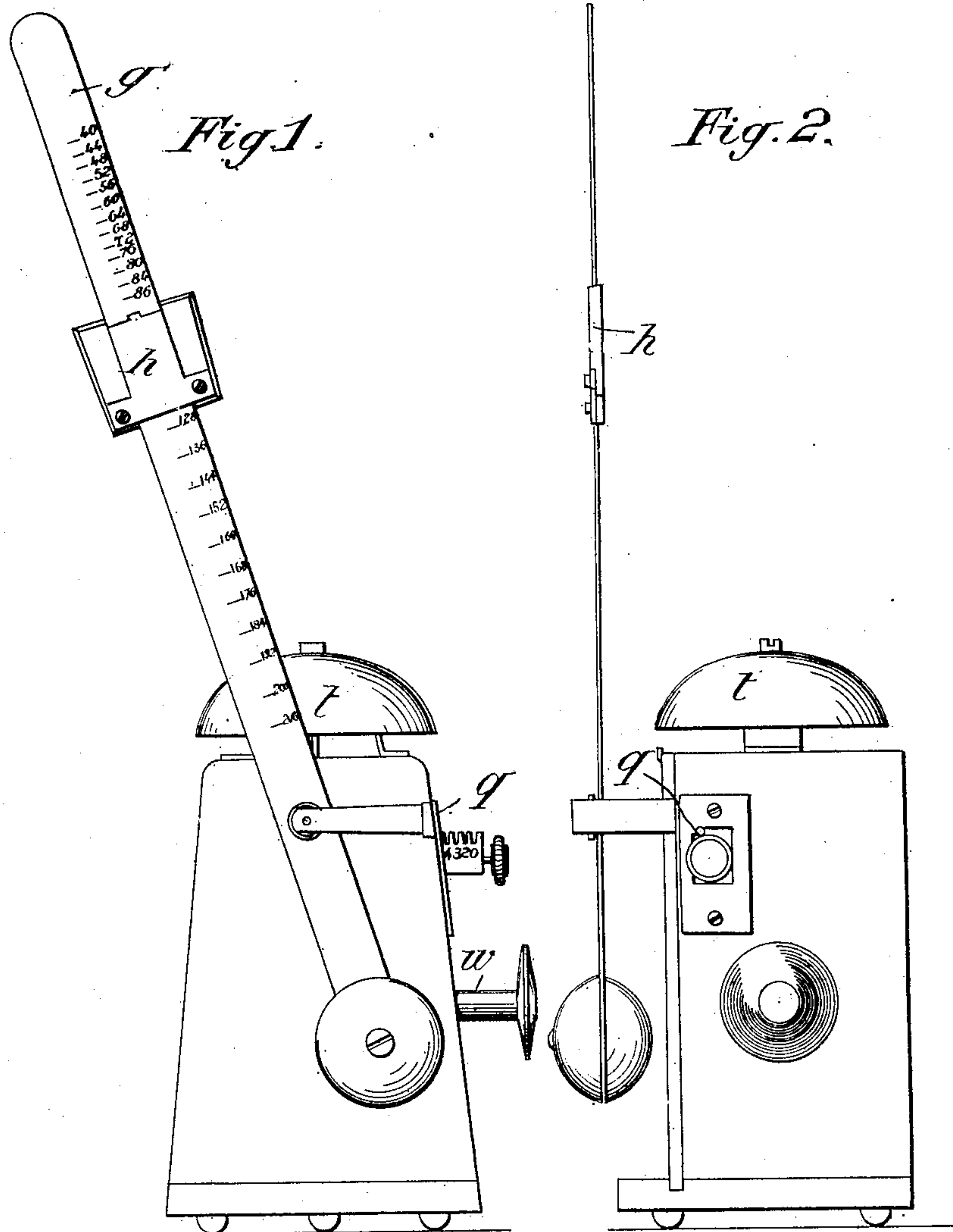
PATENTED MAR. 8, 1904.

T. WEISSER.
METRONOME.

APPLICATION FILED FEB. 4, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
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B. Briner

Inventor:
Theodor Weisser
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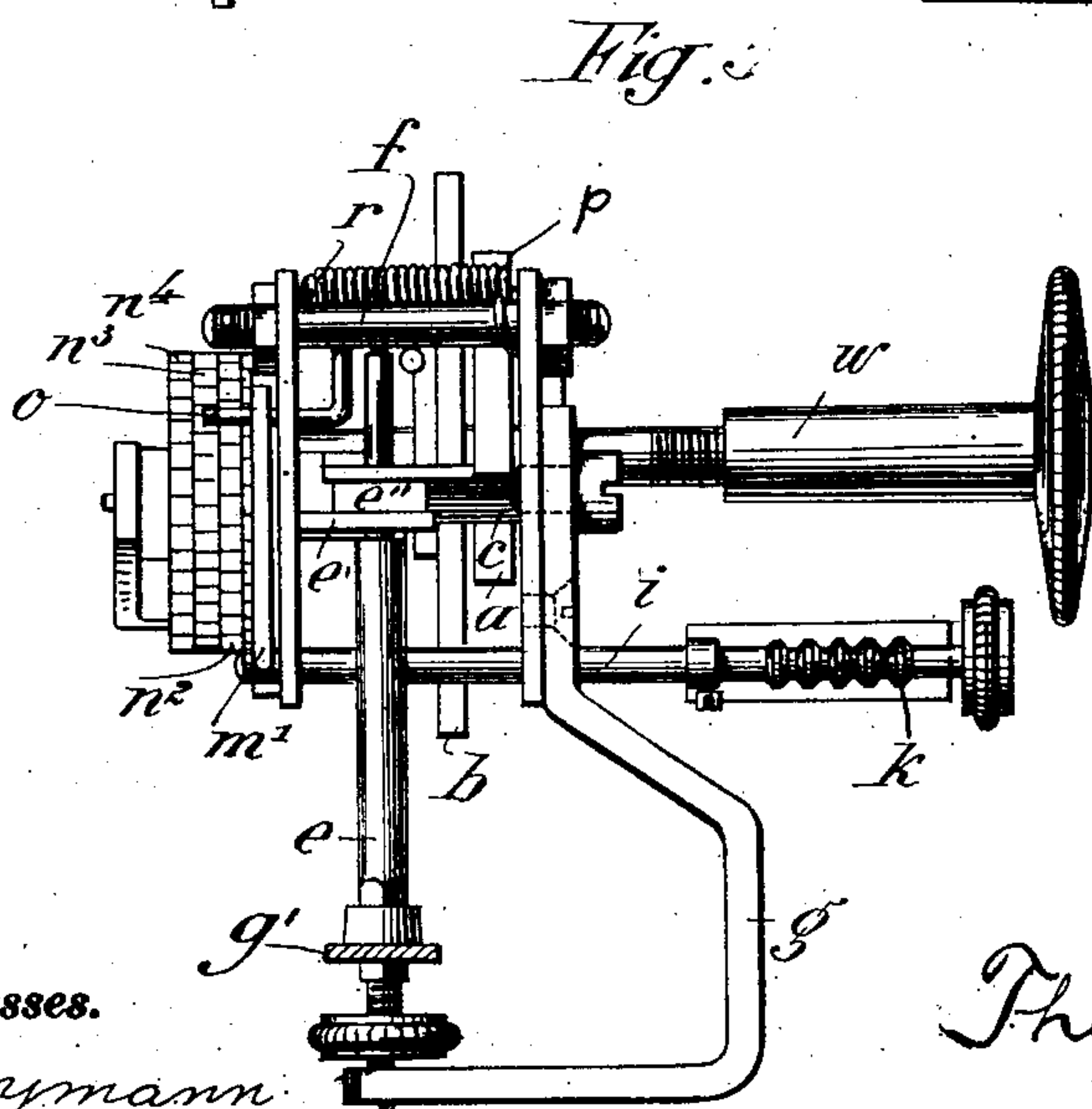
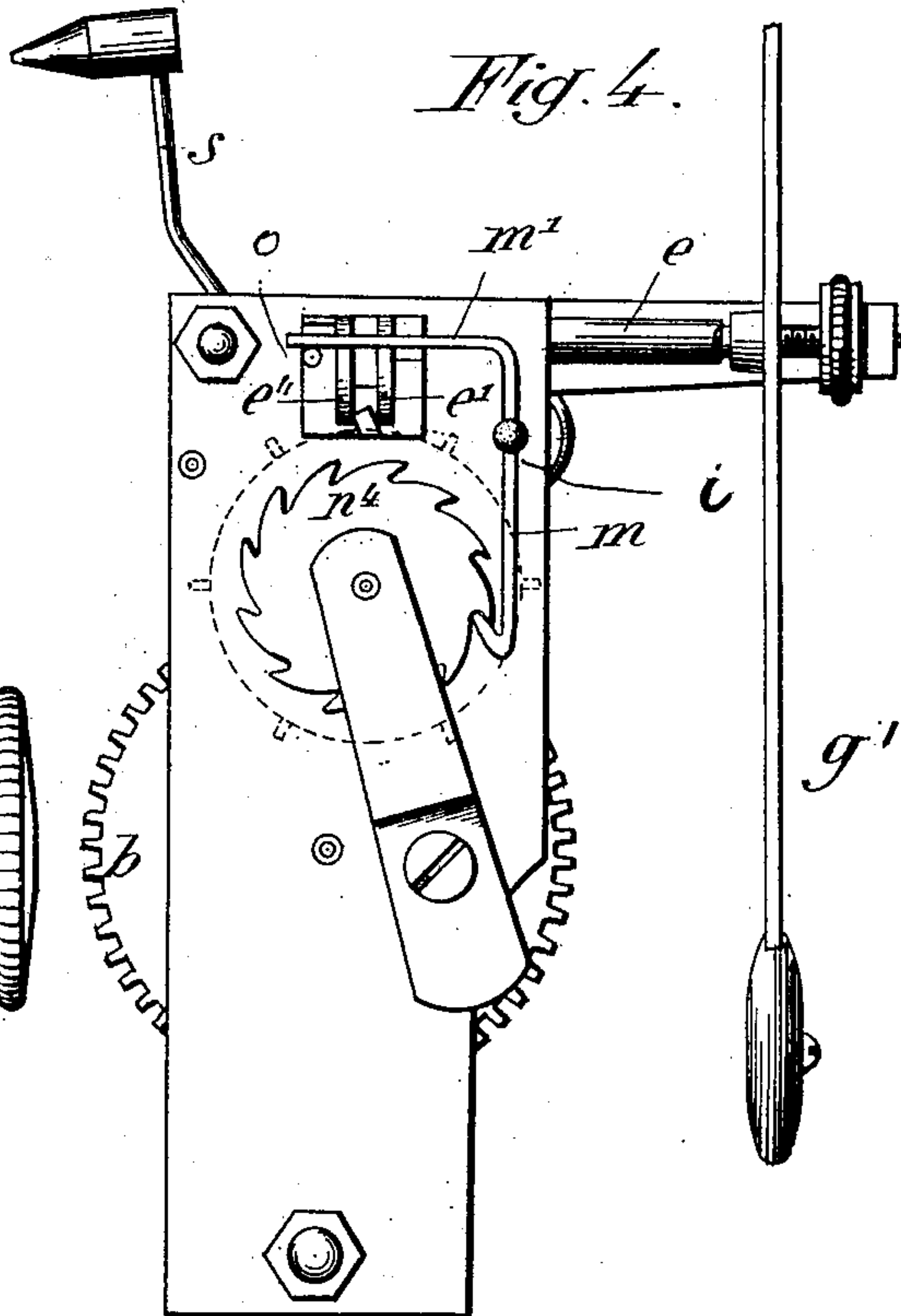
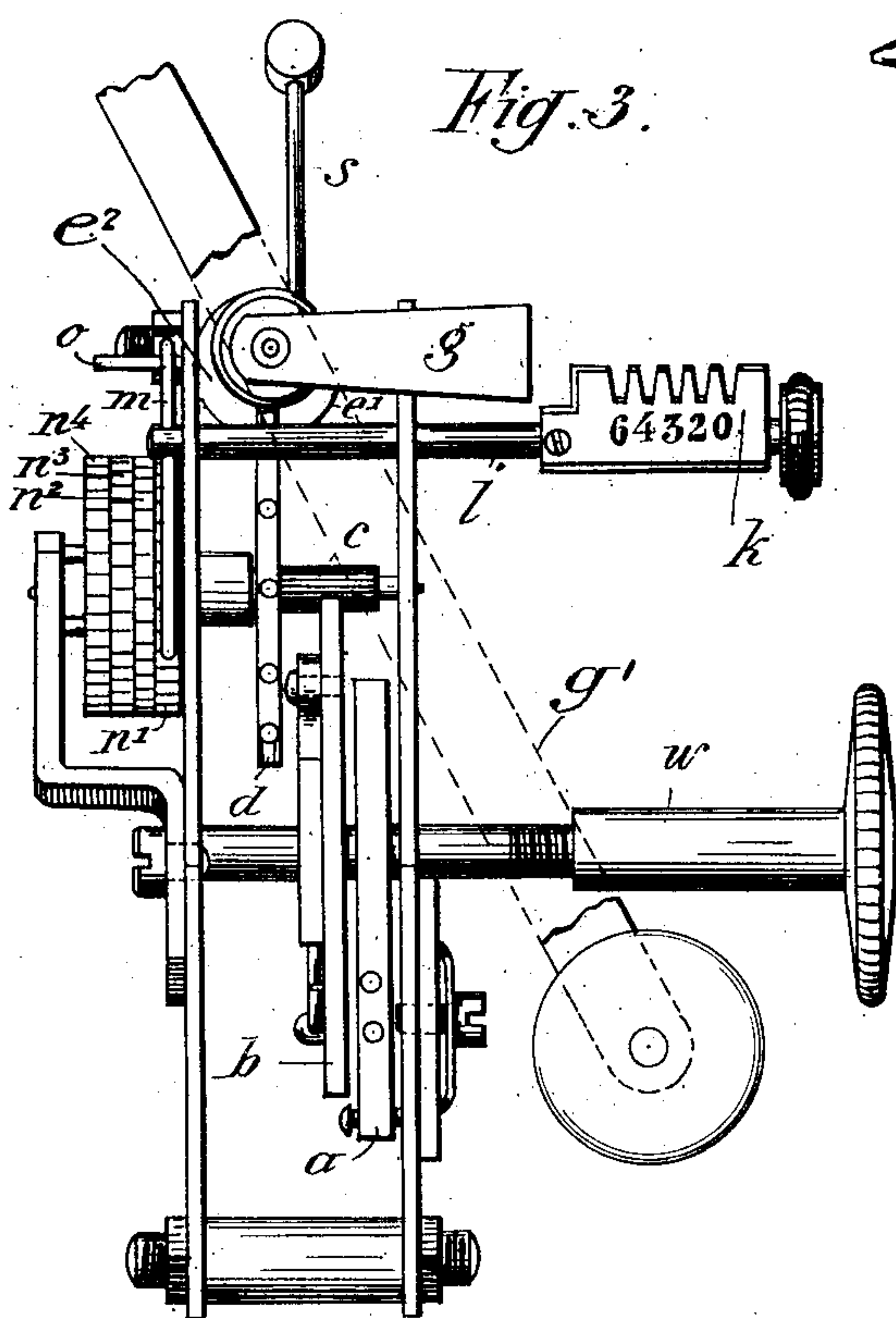
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NO MODEL.

2 SHEETS—SHEET 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

THEODOR WEISSER, OF NEUSTADT, GERMANY.

METRONOME.

SPECIFICATION forming part of Letters Patent No. 753,945, dated March 8, 1904.

Application filed February 4, 1903. Serial No. 141,803. (No model.)

To all whom it may concern:

Be it known that I, THEODOR WEISSER, a subject of the German Emperor, and a resident of Neustadt, Schwarzwald, Germany, have invented certain new and useful Improvements in Metronomes, of which the following is a specification.

This invention relates to improvements in metronomes, in which time in music is measured by clockwork mechanism with pendulum-regulator with and without bell beat; and it consists in the novel construction of metronome hereinafter described, in which hammer-strokes on a fixed bell are regulated by means of a sliding lever, one end of which I form or provide with a toothed or notched scale to indicate the different measures to which the mechanism for operating the bell is set and at the same time to lock said lever in position.

In the accompanying drawings, in which like reference-letters indicate corresponding parts throughout the several figures, Figure 1 shows a front view, and Fig. 2 a side view, of my improved metronome with its actuating mechanism inclosed in a case surmounted by a bell, while Fig. 3 shows a front view, Fig. 4 a side view, and Fig. 5 a top plan view, of the actuating mechanism.

Referring more particularly to Figs. 3, 4, and 5, *a* indicates the mainspring of the clockwork mechanism; *b*, the driving-wheel; *c*, a pinion or equivalent on the main spindle, with which *b* gears; *d*, the swing or escapement wheel; *e*, the pallet-spindle carried between and having its bearings in the rod *f* (one of the rods which bind the frame-plates together) and an arm *g*, which is attached to one of said plates. *e'* *e''* are the pallets, which gear alternately with the escapement-wheel *d*. *g'*, Fig. 1, is the pendulum, which is fixed on the pallet-spindle, is provided with a beat-scale, and carries the slidable adjusting-weight *h*.

Transversely under the pallet-spindle *e* I mount in bearings in the frame-plates the slidable rod *i*. One end of said rod is formed or provided with a scale *k*, which is toothed or notched on one side and marked with the numerals "6 4 3 2 0" to correspond to different time-beats, and its other end carries

the lever-arms *m* and *m'*. The arm *m* rests, according to the position of the rod *i* and its toothed scale *k* relatively to its locking-plate *q*, hereinafter referred to, on one or the other of the four toothed wheels *n'* *n*² *n*³ *n*⁴, which are mounted on the main spindle between one of the frame-plates and an outside bracket, as shown in Fig. 3. Said four toothed wheels are formed with a varying number of teeth—*n*⁴ having the most, *n*³ a less number, *n*² fewer still, and *n'* the least—corresponding like the scale *k* to the different times to be marked by the bell.

The arm *m'* of the lever *i* rests on an extension of the hammer wire or rod *o*, which is normally held at rest by a little spring *p* and which presses against said arm *m'*. The hammer *s* is mounted on said rod *o* and over it on the clockwork-case. The bell *t*, Fig. 1, is fixed on the outside of said case, the plate *q* is let in, and through an opening in said plate the scale *k* projects, so that one or other of the numbered notches of said scale engages with said plate when it is turned with the notches upward, as is normally its position, owing to the pressure of the spring-pressed hammer-rod *o* against the arm *m'*.

The action of my improved metronome is as follows: The mainspring having been wound up by means of the key *w*, said spring actuates the clockwork, and the pendulum having been set in motion is kept swinging by the pallet action, the toothed wheels rotating with the main spindle. By the rotation of these wheels the end of the arm of the rod *i* (see Fig. 4) is raised by each tooth of the wheel on which it rests as such tooth comes in contact with it, which causes the arm *m'* to press the extension of the hammer-rod downward against the action of its spring, thus raising the hammer ready to strike. When the tooth releases the arm *m* the reaction of the spring causes the hammer to strike the bell and at the same time forces the arm *m* into the next notch in the wheel, whence it is gradually raised by the forward movement of the latter in preparation for the next beat of the bell, and so on. By the fact that the small spring fixed upon the hammer-wire presses against

the arm m' the rod and the scale k are maintained in the rest position, the effect whereof is that the plate fixed upon the outer side of the metronome-box always bears in a notch of the scale. If it is desired to place the lever at any special beat, it is pushed after a short rotation to the right in such a way that the plate rests in the notch, the figure whereof corresponds to that measure. The beats of the bell are given in such a way that there is one beat of the bell for the number of strokes of the metronome shown by the figure. For example, if one in six measures be desired the notch marked 6 is engaged with the plate g , which will bring the arm m onto the innermost toothed wheel n' , which has the fewest teeth, and at every sixth swing of the pendulum the bell will be struck by its hammer. When the scale is set to the figure "0," the arrangement is such that the arm m is clear of the toothed wheels, and there are no bell-beats, but only the ordinary click of the pallets against the swing-wheel, which clicks or

beats are regulated by the position of the adjustable weight h on pendulum-rod. 25

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

In a metronome, the combination of a slidable rod i having a notch-scale k , a plate g 30 through which said scale projects, a bent arm on said rod with which said plate is adapted to engage, a plurality of toothed wheels with which one end of said arm is adapted to engage at times and be operated by the teeth 35 thereof, suitable clockwork for operating said wheels, and a bell-hammer adapted to be operated by the other end of said bent arm, substantially as described.

In testimony whereof I have hereunto set 40 my hand in presence of two witnesses.

THEODOR WEISSER.

Witnesses:

KARL KOPP,
JOSEPH MEIER.