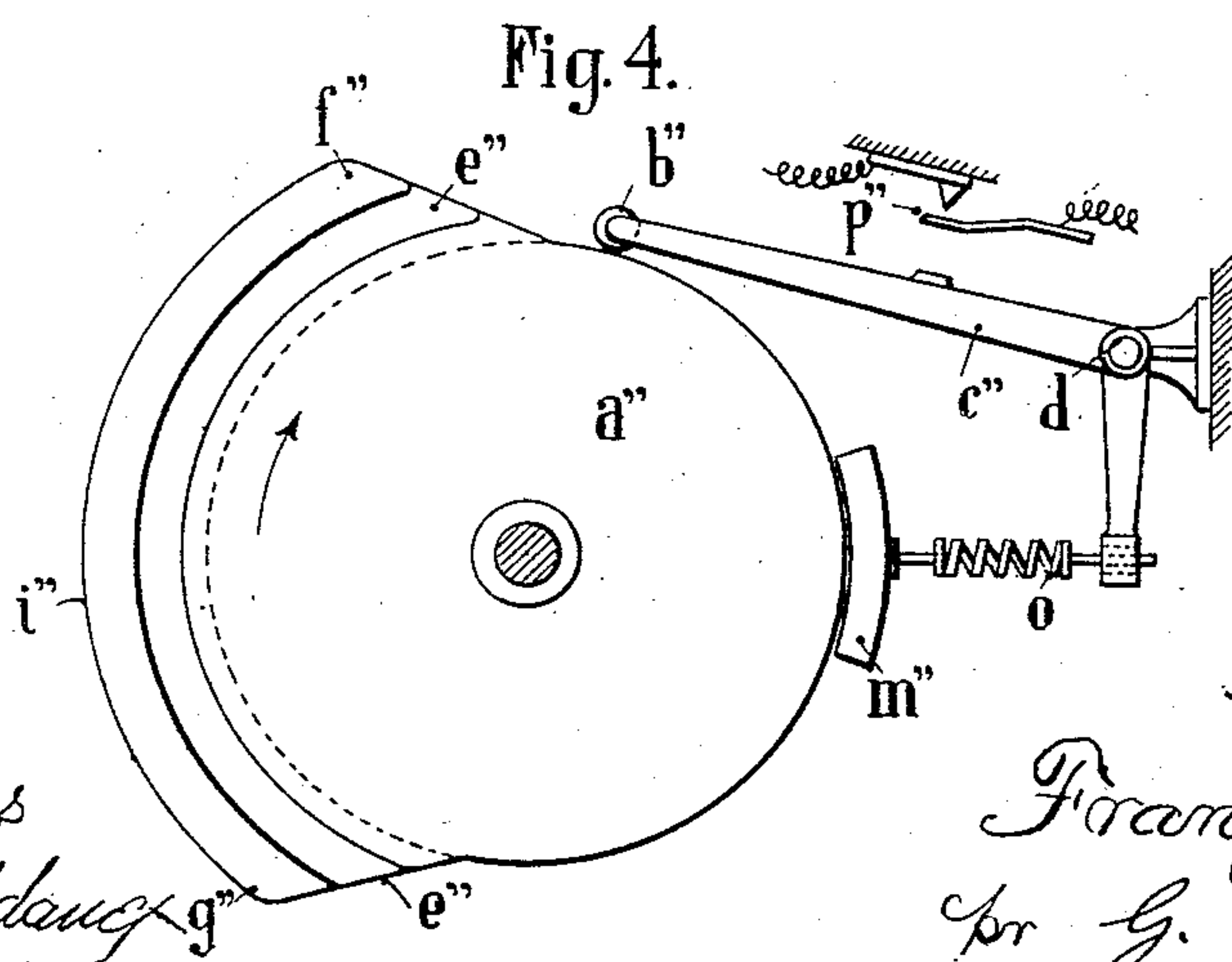
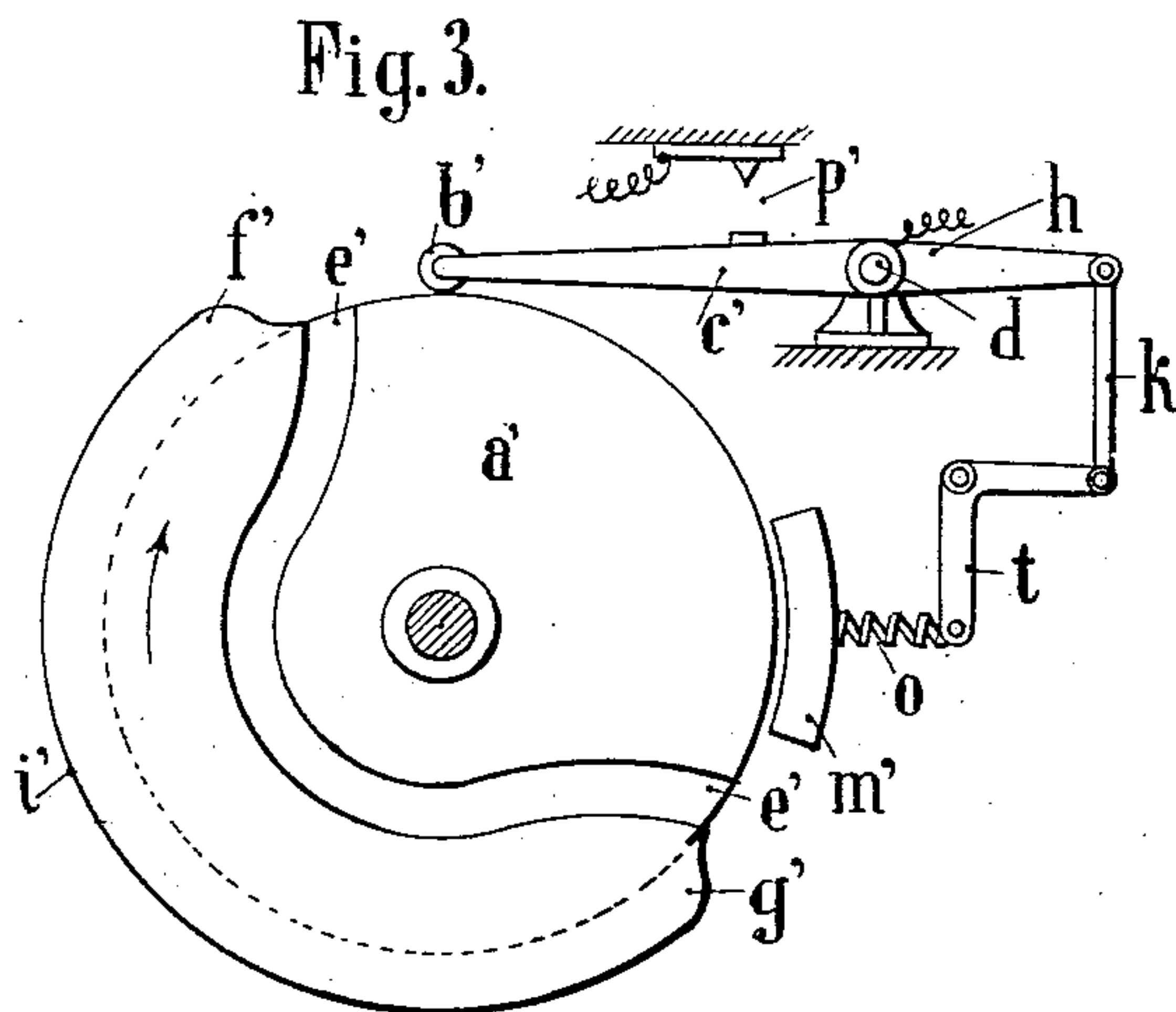
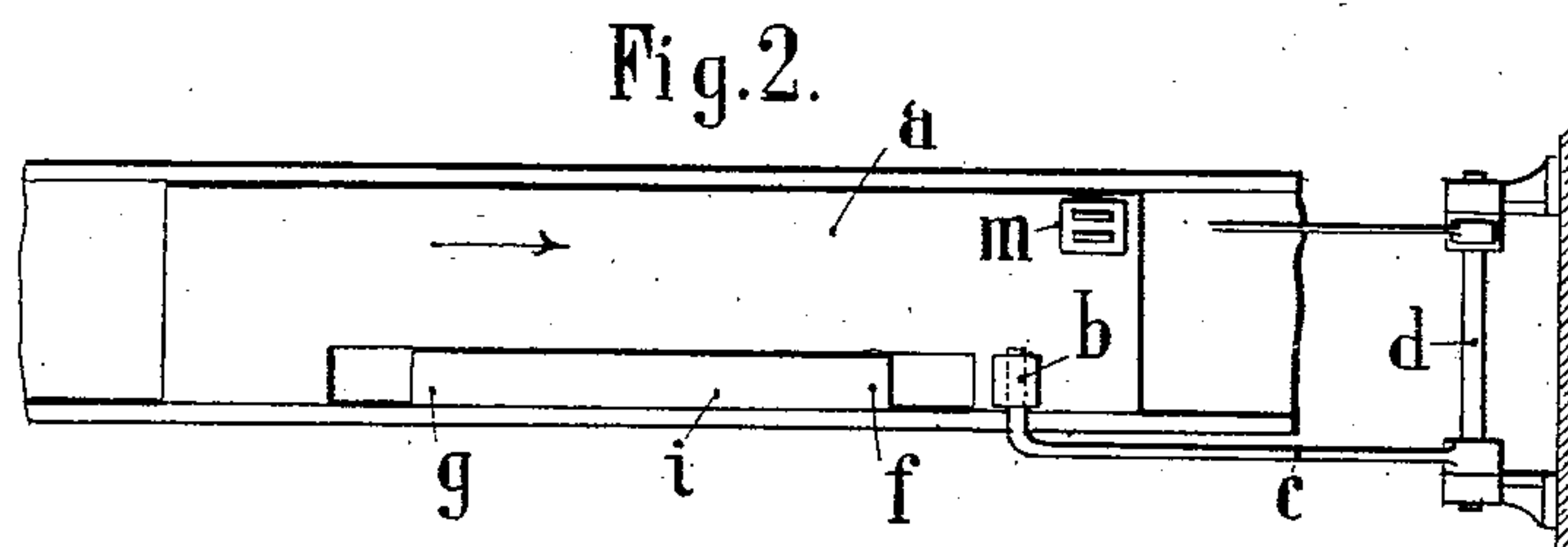
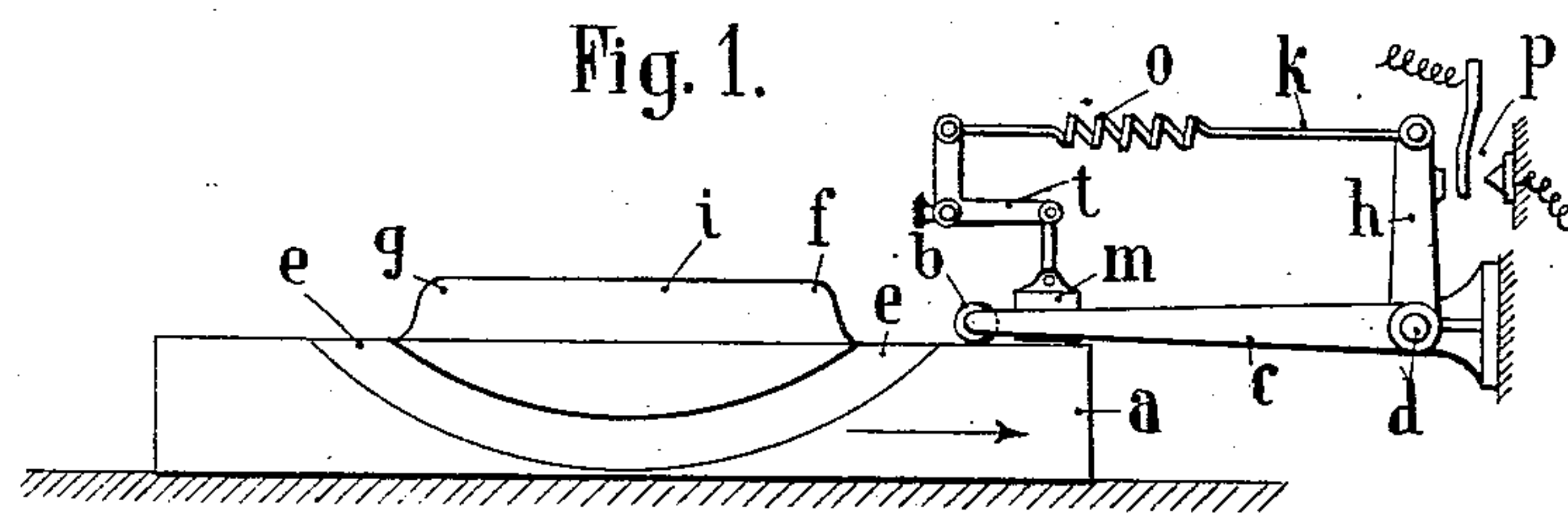


F. TRINKS.
SPEED CONTROLLER.

(Application filed July 1, 1901.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

FRANZ TRINKS, OF BRAUNSCHWEIG, GERMANY.

SPEED-CONTROLLER.

SPECIFICATION forming part of Letters Patent No. 699,040, dated April 29, 1902.

Application filed July 1, 1901. Serial No. 66,777. (No model.)

To all whom it may concern:

Be it known that I, FRANZ TRINKS, a subject of the Emperor of Germany, residing at Braunschweig, Duchy of Braunschweig, Germany, have invented certain new and useful Improvements in Mechanism for Controlling Rectilinear and Rotary Motion; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

In a former application for United States Letters Patent, Serial No. 19,762, of 1900, I have described with reference to Figures 15 to 20 of the drawings filed in said application certain mechanisms for controlling rectilinear and rotary motion in calculating-machines wherein the part whose speed was to be controlled was brought to a standstill as soon as the normal speed was exceeded.

It is the object of the present invention, instead of effecting the control by bringing the moving part to a standstill, and thus merely giving an indication that the normal speed has been exceeded, to so arrange the controlling mechanism as that when the normal speed of the moving object is exceeded the mechanism will effect a retardation thereof, a signal of such exceeding of the normal speed being, if necessary, at the same time given. I will describe the said mechanism with reference to the accompanying drawings, in which the various parts are represented diagrammatically.

Fig. 1 represents in side elevation means for controlling the speed of an object having a rectilinear motion and for giving a signal when the normal speed is exceeded. Fig. 2 represents the same construction in plan view. Fig. 3 represents in side elevation means for retarding the movement of a rotating body and for giving a signal when the normal speed is exceeded. Fig. 4 represents in elevation a slightly-modified form of the mechanism illustrated in Fig. 3.

a, Figs. 1 and 2, represents a body having a rectilinear to-and-fro motion. Upon this body rests a roller *b*, carried on the right-angular end of an arm *c*, secured to a rock-shaft *d*, journaled in a fixed support. When the body *a* is traveling at normal speed, the roller *b* passes backward and forward through a

curved groove *e* in the body *a*. Above the curved groove is provided a projecting bridge-piece *i*, with curved or inclined ends *f g*. When the body *a* moves at greater than normal speed, the roller *b* will fail to enter the groove *e* and will ride up the curve or incline *f* and pass over the bridge *i*, descending again on the curve or incline *g*. This change of position of the roller *b* and lever *c* will serve to retard the motion of the body *a* in the manner now to be described.

The shaft *d* of lever *c* carries a rigidly-secured lever-arm *h*, connected by a rod *k* and a spring *o* to one arm of an elbow-lever *t*, the other arm carrying a brake-block *m*. Thus it will be seen that the rising of lever *c*, as before described, will cause a downward pressure to be effected by the brake-block *m* upon the moving part *a*, thereby retarding the motion of the latter.

It will be readily understood that other arrangements for actuating the brake-block may be employed and that the latter need not necessarily act upon the part *a* itself, but may act upon some part connected thereto. Notice may also be given of the normal speed having been exceeded by giving an electrical or other audible or visible signal. Thus in the drawings the lever-arm *h*, Fig. 1, is arranged to close the contact *p* of an electrical circuit including a signal-bell as soon as the lever *c* is raised up on the incline or curve *f*, as above described. A mechanically-actuated signal might of course also be employed instead of the electric signal. Such signaling arrangement might be employed either by itself or in combination with the aforedescribed braking arrangement.

The arrangement shown in Fig. 3 is practically the same as those described with reference to Figs. 1 and 2 as applied to rotating bodies. The corresponding parts are all designated by the same letters of reference as in Figs. 1 and 2, with different exponents, *a'* being the rotating body, *e'* the curved groove thereof for the roller *b'*, *f' i' g'* the raised part or bridge over which the roller travels when the normal speed is exceeded, *c'* the roller-lever, *m'* the brake-block, and *p'* the electrical signal-contact.

In Fig. 4 the parts are the same as in Fig. 3, but arranged in a slightly-modified order,

a'' being the rotating body, e'' the curved groove for roller b^2 , f'' , i'' , and g'' the bridge-piece, c'' the roller-lever, m'' the brake-block, and p'' the electrical signal-contact.

5 The operation of the parts shown in Figs. 3 and 4 is the same as those in Fig. 1, with the exception, of course, that the body a rotates instead of moving rectilinearly.

10 Although I have described the said invention more particularly with reference to mechanism for calculating-machines, yet it will be obvious that it is equally applicable for controlling motion for other purposes.

15 Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In mechanism for controlling rotary or rectilinear motion the combination with a moving part having a grooved path of a lever 20 c a roller b thereon which passes through said path when the moving part is traveling at the normal speed, a projection or bridge over such grooved path upon which the roller is caused to mount, when the normal speed is exceeded, and means whereby the motion thus 25 imparted to the lever is caused to effect the retardation of the moving part, substantially as described.

2. In mechanism for controlling rotary or 30 rectilinear motion the combination with a moving part having a grooved path, of a lever c , a roller b thereon which passes through said path when the moving part is traveling at the normal speed, a projection or bridge over 35 such grooved path upon which the roller is caused to mount when the normal speed is exceeded, and means whereby the motion thus imparted to the lever is caused to actuate a signaling device, substantially as described.

40 3. In mechanism for controlling rotary or rectilinear motion the combination with a moving part having a grooved path of a lever c a roller b thereon which passes through said path when the moving part is traveling at 45 the normal speed, a projection or bridge over such grooved path upon which the roller is caused to mount, when the normal speed is exceeded, and means whereby the motion thus imparted to the lever is caused to effect 50 the retardation of the moving part and to actuate a signaling device, substantially as described.

4. In mechanism for controlling rotary or 55 rectilinear motion the combination with a moving part having a grooved path of a lever c a roller b thereon which passes through said path when the moving part is traveling at the normal speed, a projection or bridge

over such grooved path upon which the roller is caused to mount, when the normal speed 60 is exceeded, and means whereby the motion thus imparted to the lever is caused to actuate the circuit-closer in an electric signaling-circuit, substantially as described.

5. In mechanism for controlling rotary or 65 rectilinear motion the combination with a moving part having a grooved path of a lever c a roller b thereon which passes through said path when the moving part is moving at the normal speed, a projection or bridge 70 over such grooved path upon which the roller is caused to mount when the normal speed is exceeded, and means whereby the motion thus imparted to the lever is caused to move a brake-block into contact with the moving 75 part, substantially as described.

6. In mechanism for controlling rotary or rectilinear motion the combination with a moving part having a grooved path of a lever 80 c a roller b thereon which passes through said path when the part is traveling at the normal speed, a projection or bridge over such grooved path upon which the roller is caused to mount when the normal speed is exceeded, and means whereby the motion thus imparted 85 to the lever is caused to move a brake-block into contact with the moving part and close an electric signaling-circuit, substantially as described.

7. The combination with a moving body 90 having a curved groove or path and a bridge-piece projecting over said path and having inclined ends, of a rock-shaft journaled in fixed bearings, a lever projecting therefrom, a roller on said lever, a second lever on the 95 rock-shaft, an elbow-lever, a brake-block on one arm thereof and a spring connected to the second lever of the rock-shaft and the other arm of the elbow-lever, substantially as described. 100

8. The combination with a moving body having a curved groove or path and a bridge-piece projecting over said path and having inclined ends, of a rock-shaft journaled in 105 fixed bearings, a lever projecting therefrom, a roller on said lever, a second lever on the rock-shaft, an electric signaling-circuit, and a circuit-closer therefor in the path of movement of the second lever, substantially as described. 110

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

FRANZ TRINKS.

Witnesses:

JULIUS SECKEL,
MARIE SCHINKE.