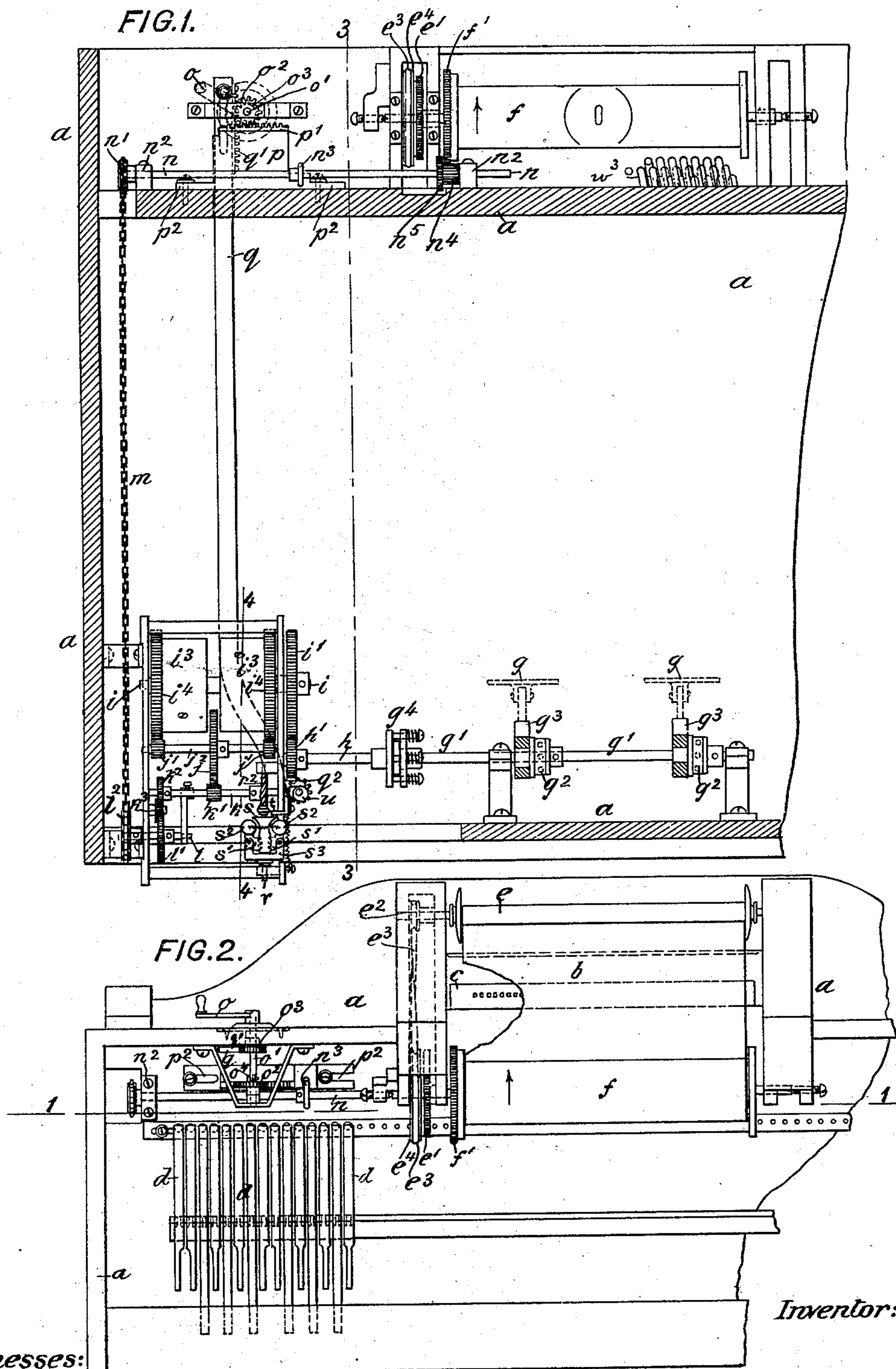


F. ENGELHARDT.
MUSIC ROLLER ACTUATING MECHANISM.

(Application filed Dec. 20, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

John Becker.
John Hickman.

Inventor:

Frederick Engelhardt
by his attorneys
Roeder & Briesen

No. 691,898.

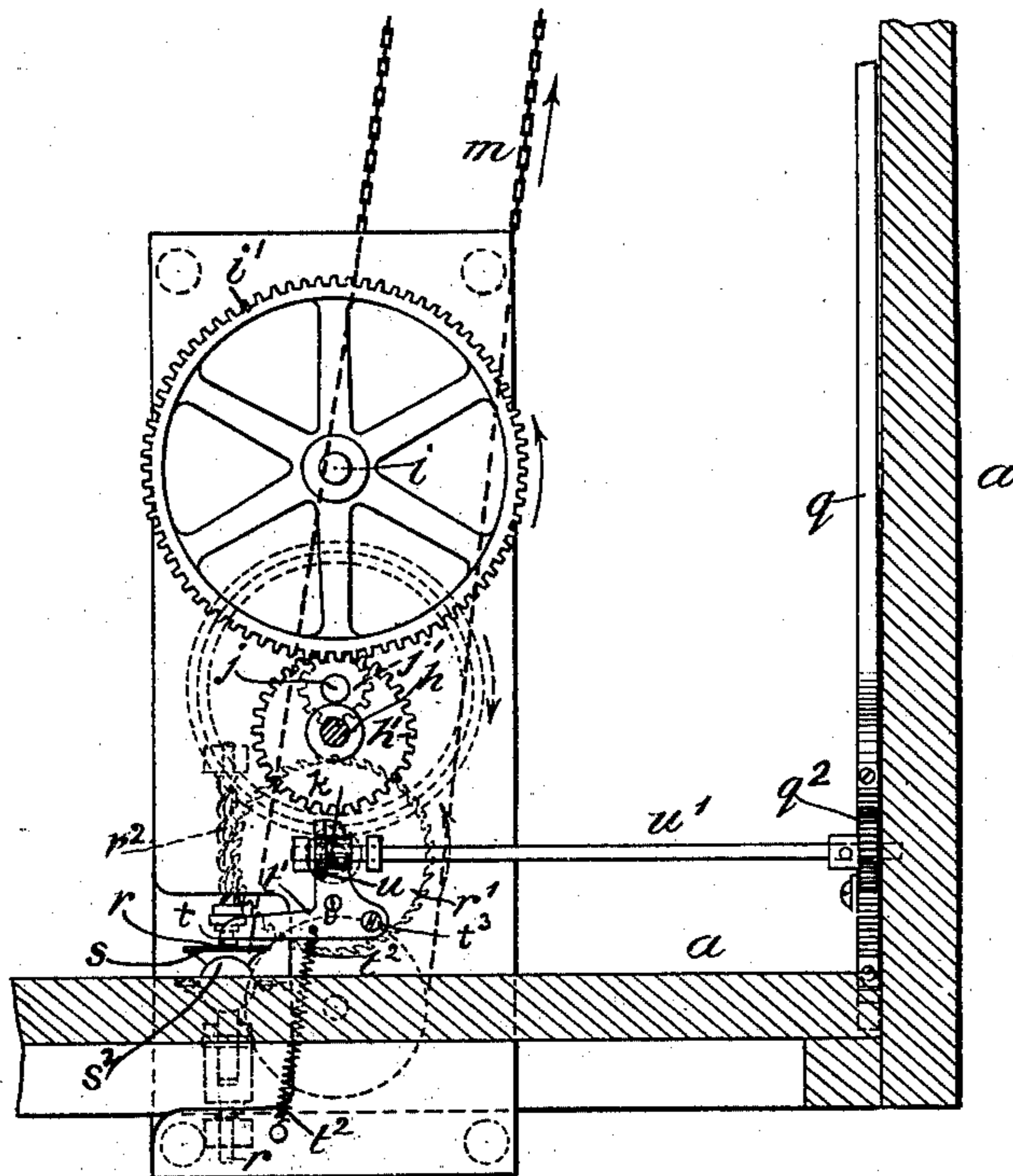
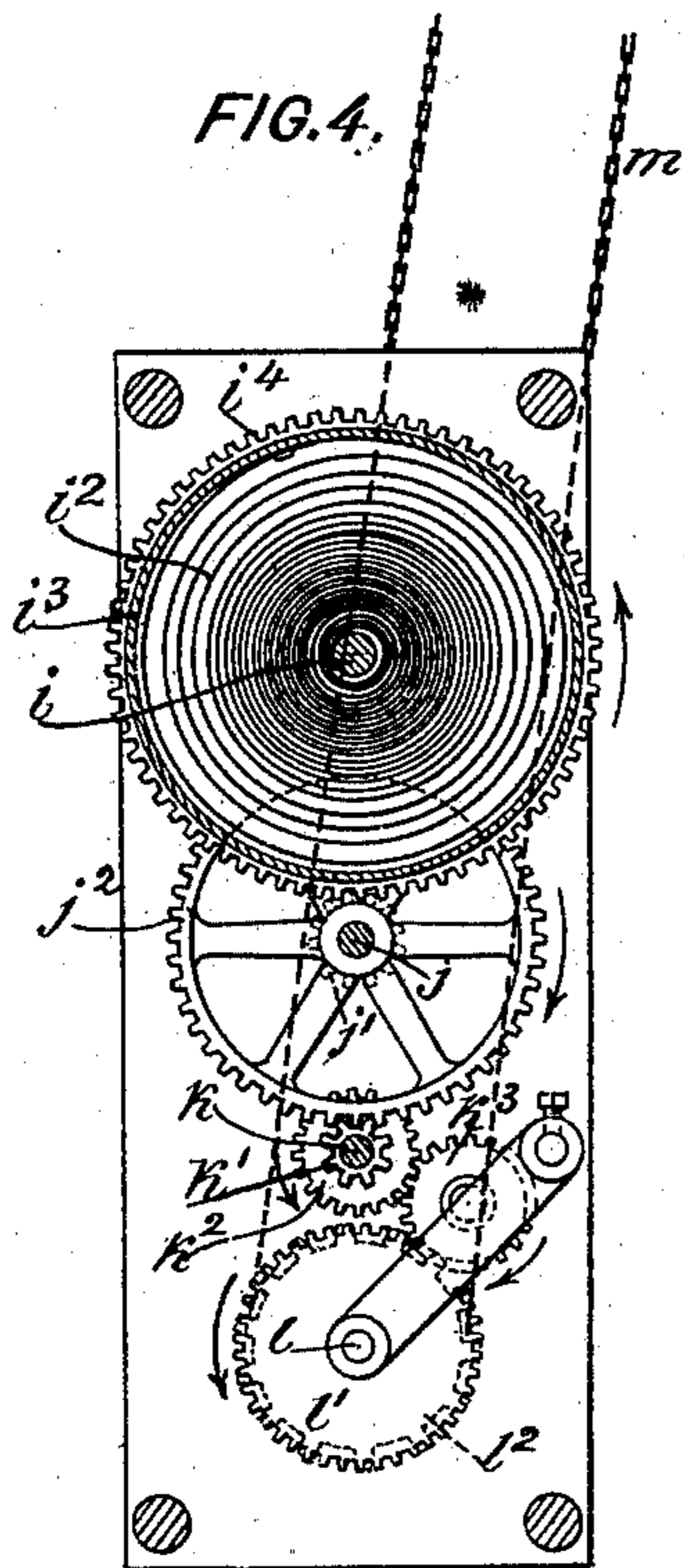
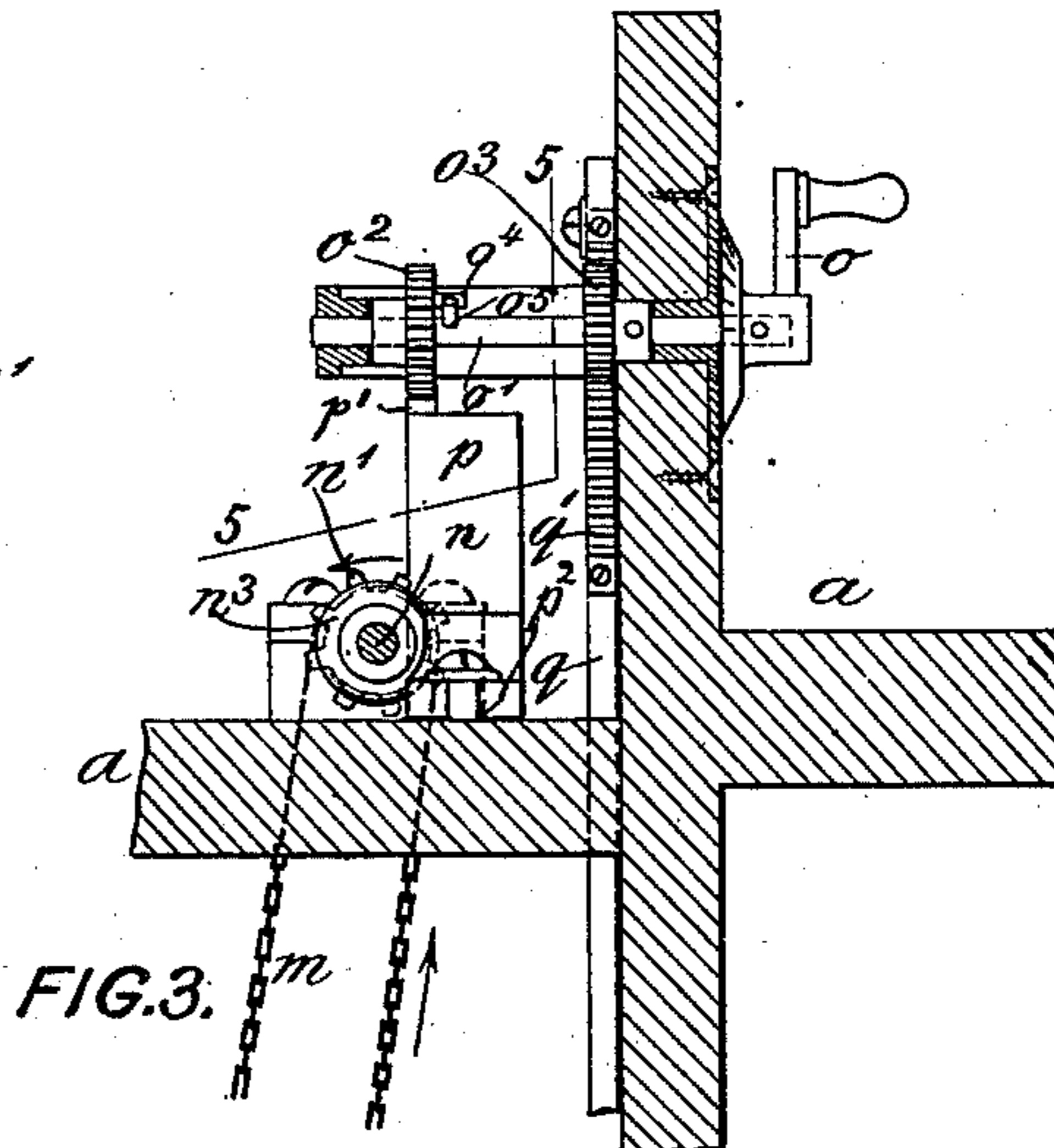
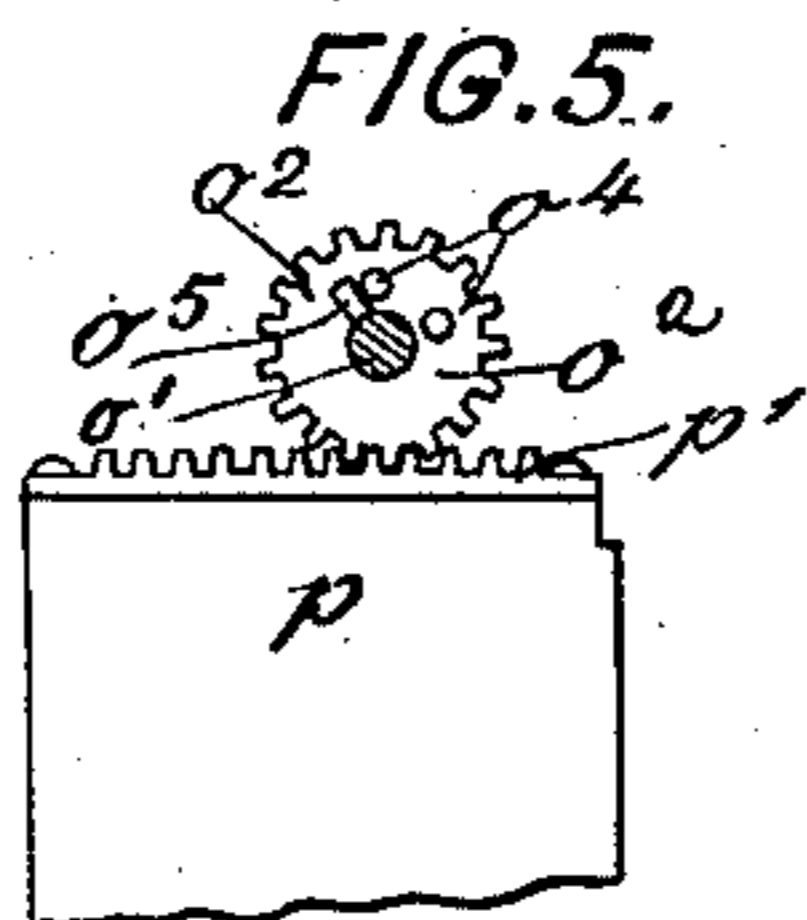
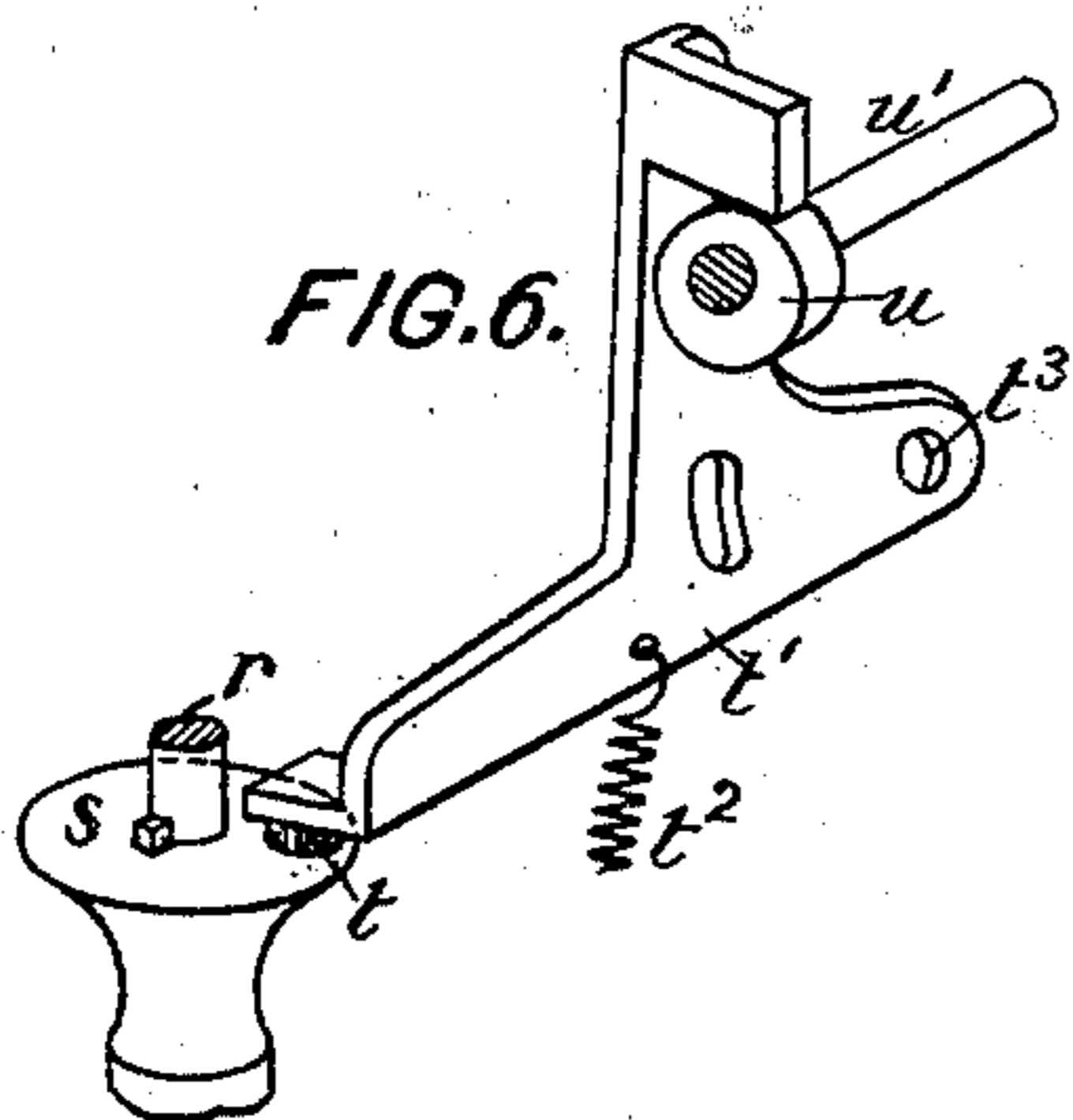
Patented Jan. 28, 1902.

F. ENGELHARDT.
MUSIC ROLLER ACTUATING MECHANISM.

(Application filed Dec. 20, 1900.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses:
John Decker.
John Hickman.

Inventor:
Frederick Engelhardt
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UNITED STATES PATENT OFFICE.

FREDERICK ENGELHARDT, OF ST. JOHNSVILLE, NEW YORK, ASSIGNOR OF
ONE-HALF TO ALFRED P. ROTH, OF NEW YORK, N. Y.

MUSIC-ROLLER-ACTUATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 691,898, dated January 28, 1902.

Application filed December 20, 1900. Serial No. 40,493. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK ENGELHARDT, a citizen of the United States, and a resident of St. Johnsville, Montgomery county, State of New York, have invented certain new and useful Improvements in Music-Roller-Actuating Mechanism, of which the following is a specification.

This invention relates to an improved mechanism for operating the music-rollers in the pneumatic attachments for pianos and other keyed musical instruments. By my invention an even spring-influenced motion is imparted to the music-rollers from a pair of pedals that simultaneously operate the bellows of the pneumatic action. The time of the music may be readily controlled by a handle that also serves to couple either one of the rollers to the power.

In the accompanying drawings, Figure 1 is a vertical section of my improved actuating mechanism for music-rollers on line 1 1, Fig. 2. Fig. 2 is a plan thereof; Fig. 3, a vertical cross-section, on an enlarged scale, on line 3 3, Fig. 1; Fig. 4, a similar section on line 4 4, Fig. 1. Fig. 5 is a section on line 5 5, Fig. 3, showing the side opposite to that illustrated in Fig. 1. Fig. 6 is a detail of the brake-shoe and brake-disk; Fig. 7, a detail of the treadle-lever.

The letter *a* represents the frame of the instrument.

b is the music-sheet, *c* the air-duct bridge, *d* the levers for actuating the keys, *e* the music-sheet-delivery roller, and *f* the receiving-roller, all as usual.

g represents the pedals, which operate simultaneously the pneumatic action and the music-sheet-feed rollers. The levers *g*³ of the pedals are connected to the driving-shaft *g*¹ by a clutch *g*², which is so constructed that the downward strokes of the levers *g*³ will impart an intermittent rotating motion to shaft *g*¹. The shaft *g*¹ is embraced by the levers *g*³, Fig. 1, and constitutes the fulcrum around which such levers oscillate. To the shaft *g*¹ is connected by friction-coupling *g*⁴ a shaft *h*, intergeared by wheels *h*¹ *i*¹ with the arbor *i* of a pair of helical springs *i*², contained within housings *i*³. As the power-shaft *g*¹ is rotated it will wind up the springs

*i*², and these springs will simultaneously unwind at their other end to rotate by wheels *i*⁴ *j*¹ a shaft *j*. This shaft, by wheels *j*² *k*¹, drives a shaft *k*, which by train of wheels *k*², *k*³, and *l*¹ drives a shaft *l*, provided with sprocket-wheel *l*². A chain *m* and sprocket-wheel *n*¹ transmit motion of wheel *l*² to a shaft *n*, which is free to slide in bearings *n*² and is adapted to drive either one of the rollers *e* *f* or to set a speed-governor in manner hereinafter specified.

To shift the shaft *n*, I provide a hand-lever *o*, keyed to a shaft *o*¹, upon which are mounted a loose gear-wheel *o*² and a fast gear-wheel *o*³. The loose wheel *o*² is provided with abutments *o*⁴, Fig. 5, adapted to be engaged by a pin *o*⁵ on shaft *o*¹. The wheel *o*² engages a rack *p*¹, fast on a slide *p*, adapted to move on guides *p*² and engaging a collar *n*³ of shaft *n*, so that by turning the handle *o* the shaft *n* may be moved in its bearings *n*² either toward the right or toward the left.

Upon the shaft *n* are mounted a pair of gear-wheels *n*⁴ *n*⁵, of which the wheel *n*⁴ is adapted to intergear with a wheel *f*¹ of roller *f*, while the wheel *n*⁵ is adapted to intergear with a loose wheel *e*¹, that drives roller *e* by wheel *e*², crossed belt *e*³, and pulley *e*⁴. The wheels *n*⁴ *n*⁵ are set closer together than the wheels *f*¹ *e*¹, so that when either one of the rollers *e* *f* is driven the other roller becomes disengaged. The fast gear-wheel *o*³ of shaft *o*¹ engages a rack *q*¹ of a bar *q*, which sets the brake of a speed-regulating governor. This governor is provided with a spindle *r*, driven from shaft *k* by worm-wheel *r*¹ and worm *r*². Upon the spindle *r* is free to slide a toothed sleeve or brake-disk *s*, engaged by toothed sectors *s*¹, carrying the centrifugal balls *s*². The sectors *s*¹ are pivoted to a rotatable yoke *s*³, so that when the balls are thrown outward the brake-disk *s* will be raised upon the spindle *r*. Against the brake-disk *s* is adapted to bear a brake-shoe *t*, Fig. 6, secured to one end of an elbow-lever *t*¹, influenced by spring *t*² and turning on fulcrum *t*³. The lever *t*¹ is operated by a cam *u*, fast on shaft *u*¹, which is intergeared with bar *q* by wheel *q*².

The operation is as follows: When the instrument is played by means of the pedals *g*, the pneumatic action will be operated, and

the music-sheet will be simultaneously fed over the air-duct bridge. The handle o is manipulated to rotate wheel o^3 and to thereby set the brake-shoe t , and thus regulate the
 5 time of the music. Simultaneously the wheels $n^4 f'$ remain in gear, so that the music-sheet b is drawn over the bridge c . By means of the play of the pin o^5 between the abutments o^4 of loose wheel o^2 the brake-shoe may be
 10 freely operated without simultaneously moving the slide p , and thus disengaging wheel n^4 from wheel f' . To rewind the music-sheet, the handle o is turned to shift shaft n toward the left from the position shown in Fig. 1, and
 15 to thus cause an engagement of the wheels $n^5 e'$, while the wheels $n^4 f'$ become disengaged.

The object of the friction-coupling g^4 is to cause the shaft g' to slip at its connection with the shaft h whenever the power applied is so

great that it would cause an excessive strain- 20
 ing of the springs i^2 .

What I claim is—

The combination of a pedal-lever with a shaft embraced by said lever and constituting a fulcrum for the same, a clutch between 25
 the lever and shaft, a spring tensioned by the shaft, a pair of rollers, a second sliding shaft adapted to be coupled to either of said rollers, and means for operatively connecting
 said second shaft to the spring, substantially 30
 as specified.

Signed by me at St. Johnsville, Montgomery county, State of New York, this 4th day of December, 1900.

FREDERICK ENGELHARDT.

Witnesses:

EDWARD R. HALL,
 ALFRED P. ROTH.