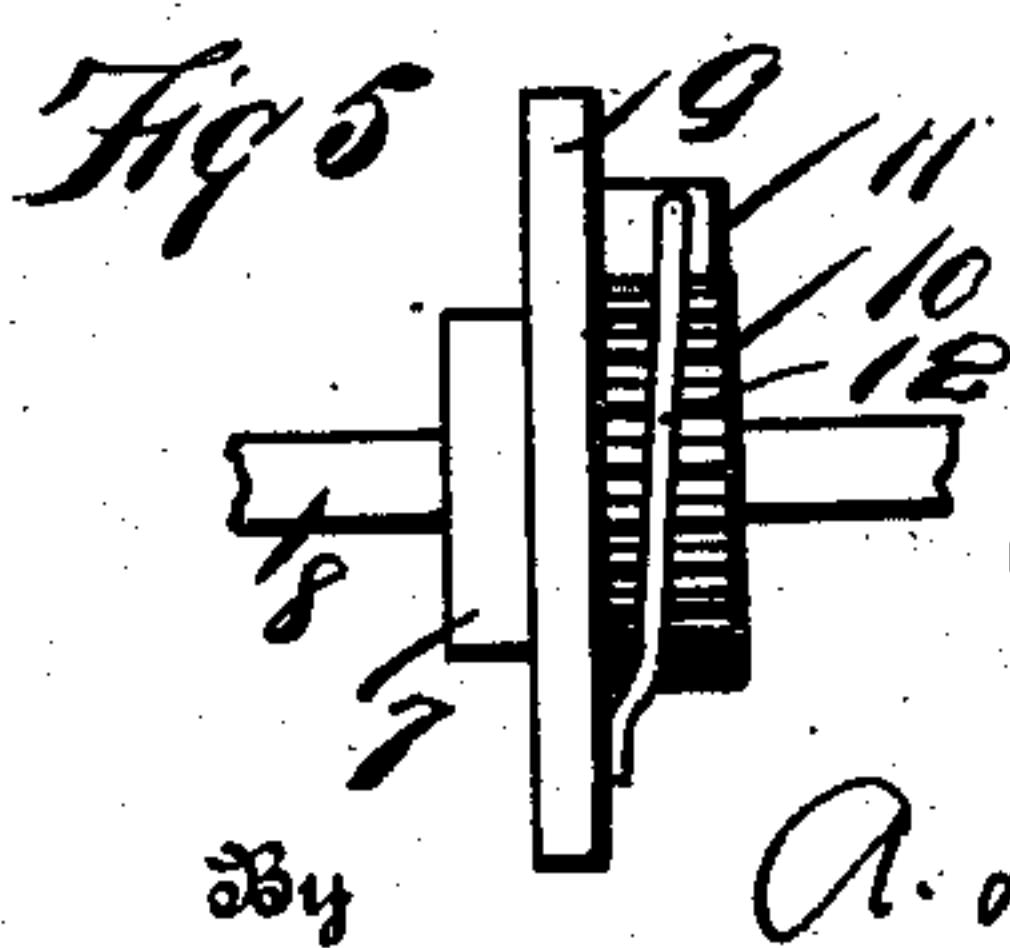
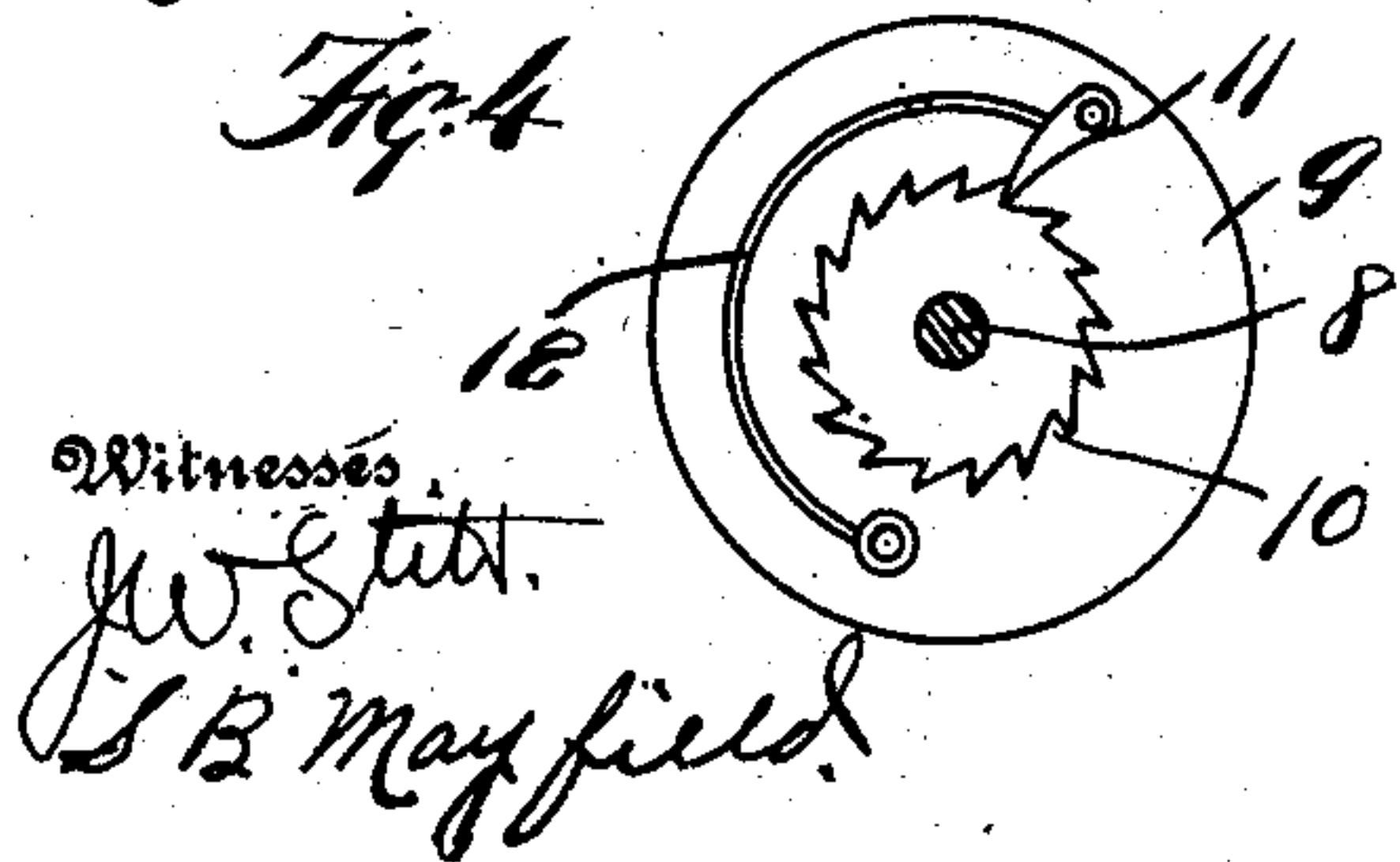
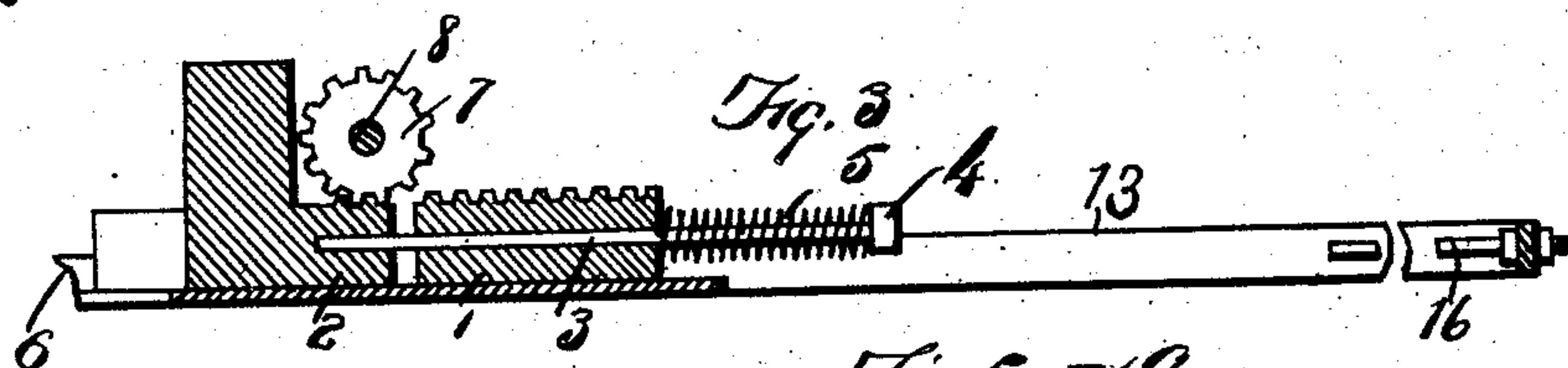
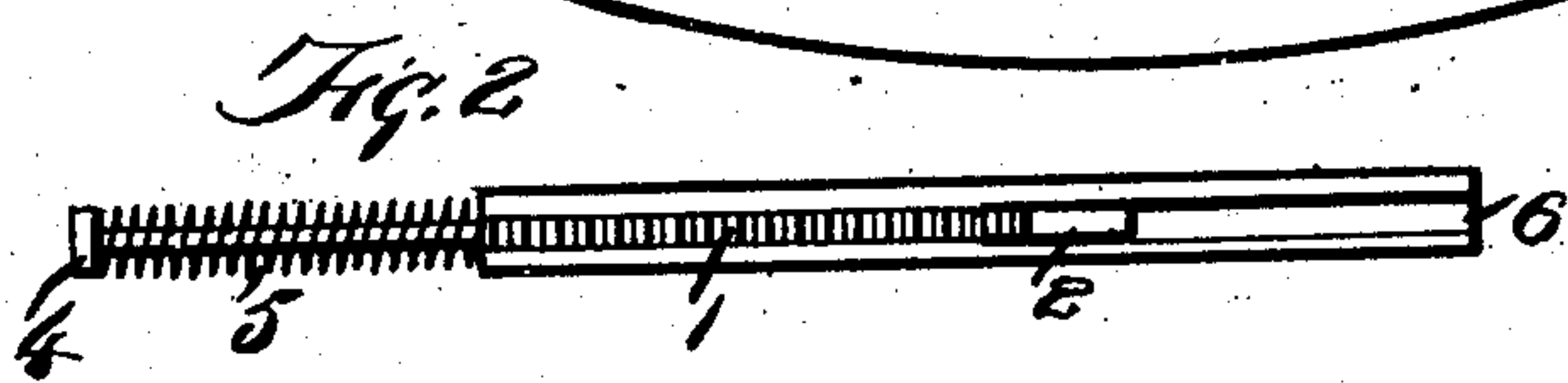
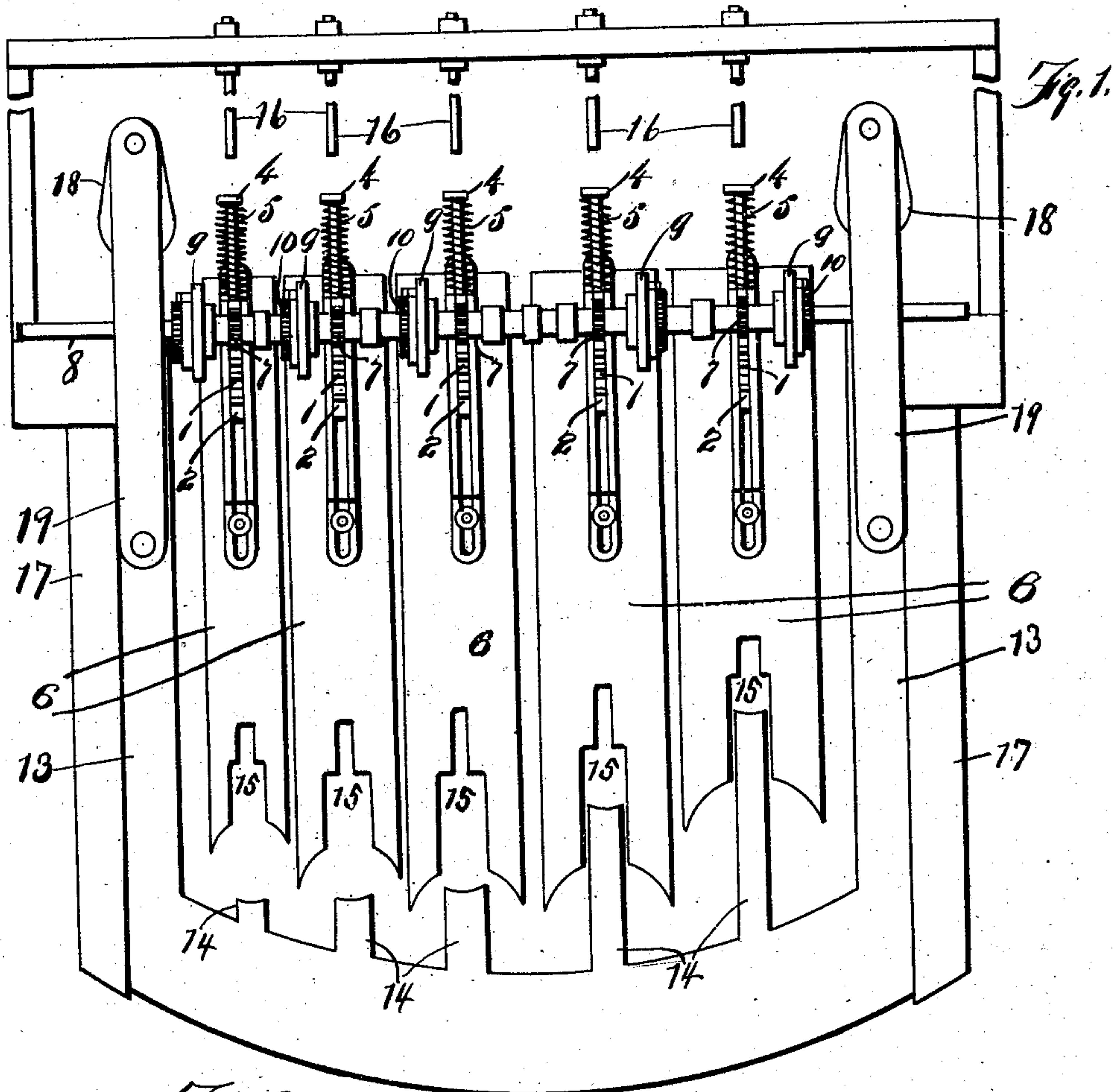


B. F. BREWSTER.  
SEPARABLE LOCKING RACK FOR DRIVING MECHANISM.  
APPLICATION FILED MAR. 1, 1909.

974,022.

Patented Oct. 25, 1910.



Inventor  
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# UNITED STATES PATENT OFFICE.

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## SEPARABLE LOCKING-RACK FOR DRIVING MECHANISM.

974,022.

Specification of Letters Patent.

Patented Oct. 25, 1910.

Original application filed June 9, 1908, Serial No. 437,487. Divided and this application filed March 1, 1909. Serial No. 480,731.

*To all whom it may concern:*

Be it known that I, BERTRAM F. BREWSTER, a citizen of the United States, residing at Burrton, in the county of Harvey and State of Kansas, have invented a Separable Locking-Rack for Driving Mechanism, of which the following is a specification.

My invention relates to racks for driving gear and more particularly to a separable locking rack, and the object is to provide a locking rack for general application.

One of the objects of this improved rack is to provide a rack which will drive a pinion or cog wheel a step or a part of a step or a plurality of steps or to drive a shaft a part of a revolution, or a whole revolution, or a predetermined number of revolutions in one operation and then to lock the shaft against further revolutions at a predetermined time.

Other objects and advantages will be fully explained in the following description and the invention will be more particularly pointed out in the claim.

Reference is had to the accompanying drawings which form a part of this application.

Figure 1 is a plan view of a series of racks and pinions operated thereby, showing one application of the improved rack. Fig. 2 is a plan view of a rack without the pinion. Fig. 3 is a vertical longitudinal section of the rack and the lock. Fig. 4 is a side elevation of a ratchet used with the devices illustrated in Fig. 1. Fig. 5 is an enlarged plan view of one of the pinions and one of the ratchet wheels shown in Fig. 1.

Similar characters of reference are used to indicate the same parts throughout the several views.

In operation, the rack 1 and its locking section 2 work as one rack. The rack 1 is loosely mounted on a rod 3 which is screwed into the locking section 2. The rod 3 has a knob 4 rigid on the end thereof and a spiral spring 5 is loosely mounted on the rod 3. The rack 1 is rigid with a slide 6 and moves when the slide 6 moves. As soon as pressure is released from the slide 6 the spring 5 will tend to bring the rack 1 back to the locking section 2. The spring 5 will thus aid in throwing the rack 1 back in mesh with the pinion 7. The advantage of such construction is that the pinion can be turned a predeter-

mined number of times and then locked in position and the rack 1 can move still farther after it has performed its function of turning the pinion 7 and the shaft 8. The pinion 7 is mounted loosely on the shaft 8 and a disk 9 is rigid with the pinion 7 which is also loosely mounted on the shaft 8. A ratchet wheel 10 is rigid with the shaft 8 and means are provided for locking the pinion 7 and disk 9 to the ratchet wheel 10 during a driving operation. A dog 11 is pivotally mounted on the disk 9 and adapted to engage the ratchet wheel 10. A spring 12 is attached to the disk 9 and bears on the dog 11 to hold the same in engagement with the ratchet wheel 10. When the rack 1 and the lock 2 are moving back to starting point, the teeth of the ratchet wheel 10 pass under the dog 11 without being affected thereby, or the dog 11 rides over the teeth without engaging the same. The teeth on the wheel 7 may be limited to turn the wheel a certain number of times when driven by the rack 1 or the rack 1 may be provided with a limited number of teeth to drive the pinion a certain number of times, or to turn the pinion a part of a revolution or one whole revolution, and then lock the pinion with the locking section 2.

One illustration of the advantage of this construction is shown in Fig. 1. A series of pinions 7 are arranged on a shaft 8 and each provided with a disk 9, ratchet wheel 10, dog 11, spring 12, rack 1, and lock 2. The other mechanism shown in Fig. 1 shows how the shaft 8 may be operated one step or a part of a step or revolution or a plurality of steps at one stroke of a driving mechanism in accordance with the presence or absence of an object to be operated upon. The size of the objects will also affect the steps or revolutions to be made by the shaft 8. The slides 6 are of different lengths arranged in series. These slides 6 are actuated by a frame 13 which is provided with a series of plungers 14. These plungers are intended to engage some object and drive the same against the slides 6. If there is no object lying in the path of the plunger or any plunger 14, the plunger will simply move in the slot 15 in the slide 6 and not affect the slide 6. The plungers 14 are graduated so that each one will operate in



succession on objects lying in the path of the plungers. If an object is lying in the path of each plunger, each plunger in succession will drive the object against the slide 5 6 and thus operate a pinion 7 and turn the shaft 8 at one stroke of the frame 13. The frame 13 will thus actuate the shaft 8 a part of a step, or a whole step, or a number of steps on each stroke of the frame. The 10 frame 13 is provided with counter plungers 16 for bringing the racks 1 back to their normal positions. The counter-plungers 16 engage the buttons or knobs 4 to replace the racks.

15 17 indicates guides for the reciprocal movement of the frame 13. The frame 13 may be driven by any suitable power.

18 indicates cranks which may be driven. The cranks 18 are pivotally connected with 20 links 19 which are pivotally connected with the frame 13.

After each rack performs its function, it will move on and the lock 2 will lock the pinion 7 against forward movement. When 25 the rack 1 moves back to normal position it joins its locking section 2 and the two move to starting point. It is shown how one rack and one pinion may be used or a series of racks and pinions may be used.

30 The principal object of the invention is to provide a mechanism for driving a shaft one step or a plurality of steps according to the work to be done. This shaft with its pinions may be used in different arts. A 35 registering machine may be driven by this shaft or an adding machine may be operated by said shaft.

This application is a division of the application filed June 9th, 1908, and which 40 has been issued as Patent No. 918,273, April 13th, 1909.

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

45 1. In a driving mechanism provided with a pinion, a separable locking rack for driving said pinion comprising a locking section and a driving section coöperating therewith and separable therefrom.

50 2. In a driving mechanism provided with a pinion, a separable locking rack for driving said pinion comprising a locking section and a driving section held yieldingly in contact with said locking section but separable 55 therefrom.

3. In a driving mechanism provided with

a pinion, a separable locking rack for driving said pinion comprising a locking section and a driving section and means for holding said sections in alinement with each other. 60

4. In a driving mechanism provided with a pinion, a separable locking rack for driving said pinion comprising a locking section and a driving section, means for holding said driving section yieldingly in contact 65 with said locking section.

5. In a driving mechanism provided with a pinion, a separable locking rack for driving said pinion comprising a locking section and a driving section, and a rod running 70 loosely through said driving section and rigid with said locking section for holding said sections in alinement.

6. In a driving mechanism provided with a pinion, a separable locking rack for driving said pinion comprising a locking section 75 and a driving section separable therefrom, a rod running loosely through said driving section and rigid with said locking section, a knob on the other end of said rod, and a 80 spring on said rod between said knob and said driving section.

7. The combination of a shaft, a pinion mounted loosely thereon, means for locking said pinion to said shaft for driving pur- 85 poses, and a separable locking rack for driving said pinion consisting of a locking section and a driving section separable therefrom.

8. The combination of a shaft, a series of 90 racks and pinions for driving said shaft, each rack being composed of a locking section and a driving section, and a rack carrying a series of plungers for driving said racks whereby said shaft may be driven one 95 step or a plurality of steps.

9. In a driving mechanism provided with a pinion; a separable locking rack for driving said pinion comprising a locking section and a driving section coöperating therewith 100 and separable therefrom, the locking portion of said rack having one or more teeth to engage said pinion and a stop coming against said pinion.

In testimony whereof, I set my hand in 105 the presence of two witnesses, this 19th day of February, 1909.

BERTRAM F. BREWSTER.

Witnesses:

A. L. JACKSON,  
J. W. STITT.