

A. F. HAMACEK.
 INTERMITTENT MOTION DEVICE.
 APPLICATION FILED MAY 18, 1908.

903,469.

Patented Nov. 10, 1908.

Fig. 3.

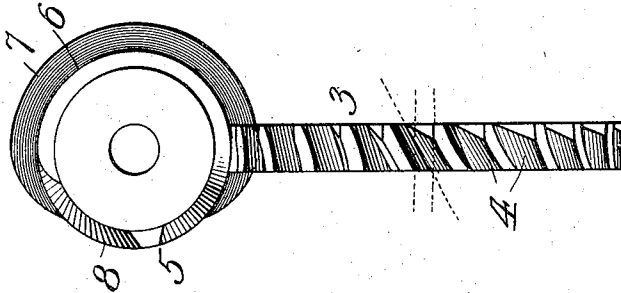


Fig. 2.

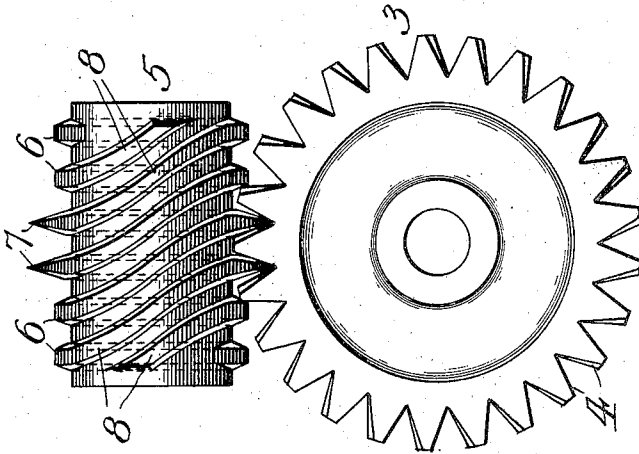
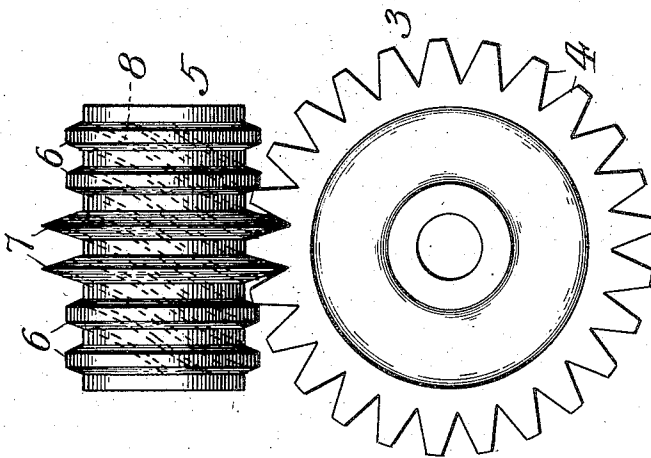


Fig. 1.



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UNITED STATES PATENT OFFICE.

ADOLPH F. HAMACEK, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO D. B. BAKER, OF CHICAGO, ILLINOIS.

INTERMITTENT-MOTION DEVICE.

No. 903,469.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ADOLPH F. HAMACEK, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Intermittent-Motion Devices, of which the following is a specification.

My invention relates to an improvement in a device for producing intermittent rotary motion to adapt it for use in moving-picture machines for feeding a picture-film intermittently across a lens, which is the particular use for which I have devised the invention, though it is intended for various other uses to which it may be applicable.

In the accompanying drawing, Figure 1 is a face view presenting one side of the two intermeshing gear-members forming my improved device, and showing the inclined-thread portion of the driving-member by dotted lines; Fig. 2, a similar view presenting the opposite side of the two intermeshing members with the circular-thread portion of the driving-member shown by dotted lines, and Fig. 3, an end-view of the device.

The driven member is a cog-wheel 3 on a rotary shaft (not shown), said wheel having outwardly tapering teeth 4 formed to extend parallel with the axis of rotation with each side of a tooth beveled from near its circumferential center toward one face of the wheel to extend inclinedly to the remainder of the tooth. The driving member is a shaft, or sleeve 5 on a rotary shaft (not shown) extending at a right-angle to the axis of rotation of the driven member and having formed to extend at intervals apart corresponding with those of the teeth of the member 3 and partway, say approximately two-thirds, about its circumference, teeth or threads having circular portions 6 and 7, the ends of successive ones of these circular portions being joined by similar inclined portions 8 extending about the remaining part of said circumference. The ends of each inclined portion 8 extend approximately at a right-angle to the axis of rotation of the member 5 and between said ends it describes a somewhat steep inclination. The circular thread-portions 6 are blunt-faced with beveled sides and are adapted to mesh with the teeth of the member 3 to hold the latter against rotation, while the circular thread portions 7, which constitute the important feature of my improvement and of which

two are shown about the central part of the driving member (although one may suffice), are pointed and of greater diameter than the thread-portions 6 to extend deeply between the teeth of the driven-member 3 and lock the latter against "back-lash".

Throughout part of the rotation of the member 5 the inclined portions of the threads engage the beveled parts of the teeth of the member 3 to drive the latter, first with a relatively slow movement, then with a rapid movement and ending with the same slow movement, by reason of the described relation of the end and intermediate portions of the inclined threads of the driving member. Throughout the remainder of the rotation of the member 5 its teeth engage with the circular parts of the threads of the member 3, and of these the shallower portions 6 hold the driven member against further rotation until they are again engaged by the inclined portions, and the diametrically wider portions 7 lock it, by their close fit between teeth 4, against lost motion or "back-lash". The driving member thus produces intermittent rotation of the driven member, between the partial rotations of which the circular thread-portions 6 hold it against movement and are supplemented by the locking action of the thread-portions 7.

This device is rendered peculiarly effective for producing the required timed intermittent feed of the traveling film, in a moving-picture taking or exhibiting machine, across the lens thereof, by reason of the provision of the locking thread-portion 7. This is because the film-feeding motion is so rapid that, in case of inaccuracy of engagement between the thread-portions 6 and teeth 4 due to wear or other cause, the sudden stoppage of the motion by the former will cause the back-lash, referred to, of the wheel 3, thereby disorganizing the required accuracy and steadiness in the presentation of the picture-sections of the film to the lens. The locking-thread-portion 7, by its fuller and accurate engagement with teeth 4, locks the driven-member against any possibility of appreciable back-lash and thereby insures the required regularity in the intermittent feed of the film.

I claim:

1. An intermittent-motion device comprising a rotary toothed wheel forming the driven member, and a driving member pro-

vided about part of its circumference with circular thread-portions including a pointed locking thread-portion of relatively greater diameter than the others, and about the remainder of its circumference with inclined thread-portions, for the purpose set forth.

2. An intermittent-motion device comprising a rotary toothed wheel forming the driven member having beveled teeth extending at a right-angle to the axis of rotation, and a driving member provided about part of its circumference with circular thread-portions including a pointed locking thread-portion of relatively greater diameter than the others, and about the remainder of its circumference with thread-portions curvedly-inclining between their ends, for the purpose set forth.

3. An intermittent-motion device comprising a rotary toothed wheel forming the driven member having beveled teeth extending at a right-angle to the axis of rotation, and a driving member provided about part of its circumference with circular thread-portions including one or more locking thread-portions of relatively greater diameter than the others, and about the remainder of its circumference with thread-portions having straight ends and curvedly-inclining intermediate portions and joining the ends of successive said circular thread-portions, for the purpose set forth.

ADOLPH F. HAMACEK.

In presence of—

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