

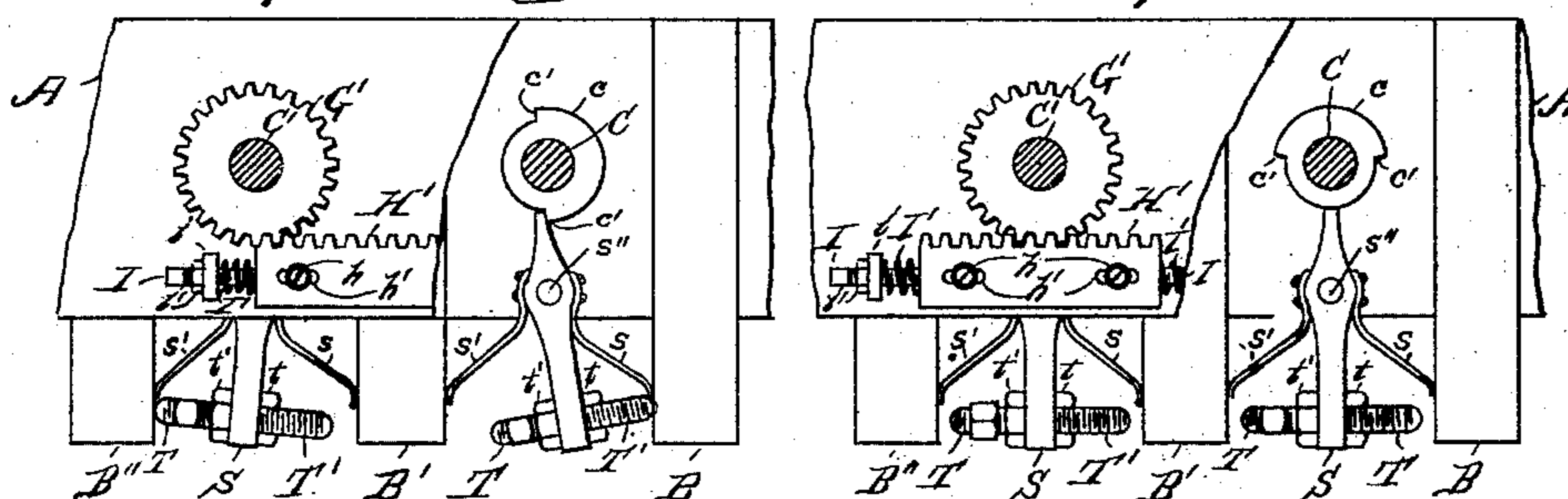
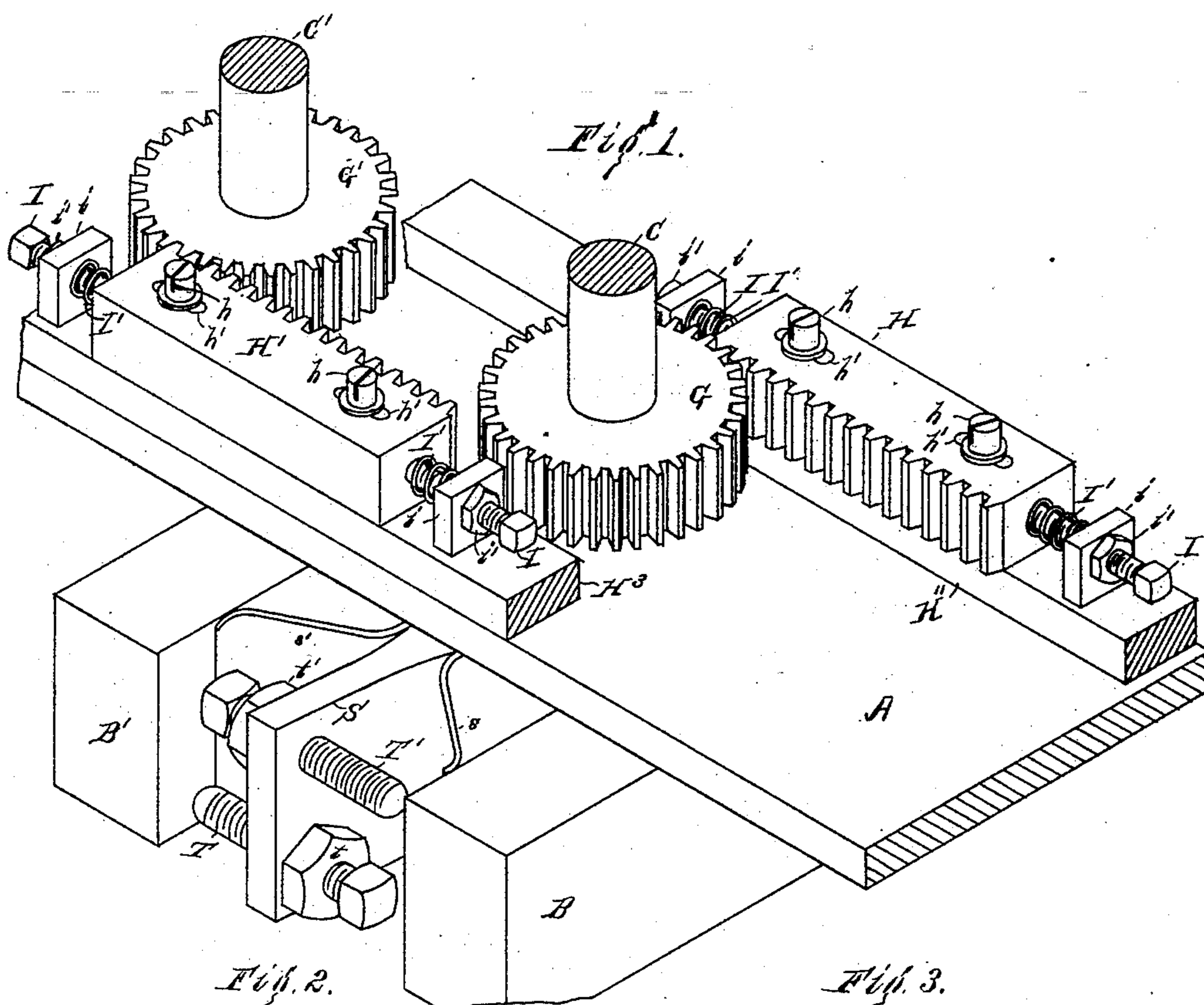
(No Model.)

R. WHITE.

DEVICE FOR REGULATING THE MOVEMENT OF OSCILLATING SHAFTS.

No. 353,191.

Patented Nov. 23, 1886.



Witnesses_

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UNITED STATES PATENT OFFICE.

ROLLIN WHITE, OF LOWELL, MASSACHUSETTS.

DEVICE FOR REGULATING THE MOVEMENT OF OSCILLATING SHAFTS.

SPECIFICATION forming part of Letters Patent No. 353,191, dated November 23, 1886.

Application filed May 17, 1886. Serial No. 202,470. (No model.)

To all whom it may concern:

Be it known that I, ROLLIN WHITE, a citizen of the United States, residing at Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a new and useful Improvement in Devices for Regulating the Movement of Oscillating Shafts; and it consists in the devices hereinafter shown and described.

My invention relates to an improvement in devices for regulating the throw or movement of automatically moving or oscillating shafts, and is especially applicable to the carrier-shafts of automatic machines for drawing cartridge-blanks and similar articles.

In the accompanying drawings, Figure 1 is an isometric view of a part of the cross-girt of a machine and part of two carrier-shafts, the rack and gears by which the shafts are moved, and the swinging stops; Fig. 2, a top view of the same, with the top plate of the girt partially broken away to show one position of the stop; Fig. 3, the same view as Fig. 2, showing the stop in another position.

In the drawings, A refers to the cross-girt of a machine, upon which are placed the vibrating bars $H'' H^3$. The arrangement and position of said cross-girt and vibrating bars, and the necessary mechanism for operating the same, being well known and not a part of this invention, need not be shown or described here, being fully shown and described in another application filed May 17, 1886, Serial No. 202,469.

The racks $H H'$, which take into gears or mutilated gears $G G'$ on the shafts $C C'$, are adjustably secured to the bars $H'' H^3$ by means of set-screws $h h$, passing through longitudinal slots $h' h'$ in the racks and into screw-threaded holes in the bars $H'' H^3$. For the purpose of adjusting the racks longitudinally, the bars $H'' H^3$ are provided with ears $i i$, through which pass screw-threaded bolts $I I$, provided with check-nuts $i' i'$, which thrust against the ends of the racks. I prefer to drill into the ends of the rack a short distance, so that the end of the bolts $I I$ may enter the end of the rack, and to surround the bolt with a spiral spring, $I' I'$. When the spring $I' I'$ is used, the bolt is not screwed firmly against the rack, but some play may be allowed, which is taken up by the

spring, while the swing-stop S determines the arc through which the shaft moves.

The cross-girt A is provided with ribs $B B' B''$, projecting from its lower side. The swinging stop S is provided with a hole about one-third the distance from one end, through which passes a bolt, s'' , which is secured in a screw-threaded hole in the under side of the cross-girt A. The screw-threaded bolts $T T'$, preferably provided with check-nuts $t t'$, pass through the outer ends of the stops S S, and strike against the ribs $B B' B''$ as the stop is thrown to and fro by the motion of the collar c on the shafts $C C'$. I prefer to provide these swing-stops with springs $s s'$, which strike against the ribs $B B' B''$ as the stops S S are thrown to and fro, and so prevent the sudden jars which would occur were the uncushioned ends of the bolts only to strike.

The bars $H'' H^3$, carrying with them the racks $H H'$, being given a reciprocating longitudinal motion by any well-known device connected with the machine, cause the shafts to oscillate through the arc of a circle. As the racks are moved to the left the shaft C is caused to turn from right to left until the ledge c' on the collar c strikes against the short arm of the swing-stop S and causes it to turn till the end of the bolt T strikes against the rib B' . The length of the vibration of the rack is preferably a little greater than is required to cause the ledge on the collar c to bring the bolts $T T'$ in contact with the ribs $B B'$, the spring $I' I'$ allowing such surplus motion, so that the shaft is held in one direction by the pressure of the rack on the gear and in the other direction by the pressure of the ledge on the collar c against the swing-stop. As the rack is moved in the other direction the shaft revolves in an opposite direction until the edge c'' strikes against the swing-stop and the end of the bolt T' strikes against the rib B. By means of the bolts $T T'$ the arc through which the swing-stop should move may be easily adjusted.

It is evident that the coil-spring $I' I'$ may be replaced by some elastic material interposed between the end of the bolt and the rack, and also that the springs $s s'$ might be of various forms and differently placed. The collar

c might also be dispensed with and any projection which might be cast or forged upon the shaft used in place thereof; but I prefer to construct the devices substantially as shown and
5 described.

I claim as my invention—

1. The combination of an oscillating carrier-shaft, provided with projections thereon, and the swinging stops, substantially as shown
10 and described.

2. The combination of the oscillating carrier-shafts, provided with projections, and the swing-arms provided with adjustable stops, as and for the purpose specified.

15 3. An oscillating carrier-shaft provided with projections which strike against one end of a swinging arm, the other end of said arm being provided with screw-threaded bolts, whereby the movement of said arm may be limited by
20 said bolts striking against a surface on either side of said swing-arm, substantially as shown and described.

4. The combination of an oscillating carrier-shaft provided with projections which strike against one end of a swing-arm, the
25 other end of said arm being provided with screw-threaded bolts, whereby the movement of said swing-arm may be limited by said bolts striking against a surface on either side of said
30 swing-arm, and springs attached to said swing-arm and projecting therefrom and striking against said surfaces, as and for the purpose specified.

5. The combination of a series of carrier-shafts provided with gears, each of said gears
35 engaging with a separate rack, each of said racks being adjusted independently of all the other racks of such series, substantially as shown and described.

ROLLIN WHITE.

Witnesses:

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