No. 648,571. Patented May 1, 1900.

F. O. ORTENGREN.

RAILROAD RAIL END GRINDER.

(No Model.) (Application filed Jan. 8, 1900.)

3 Sheets—Sheet 1.

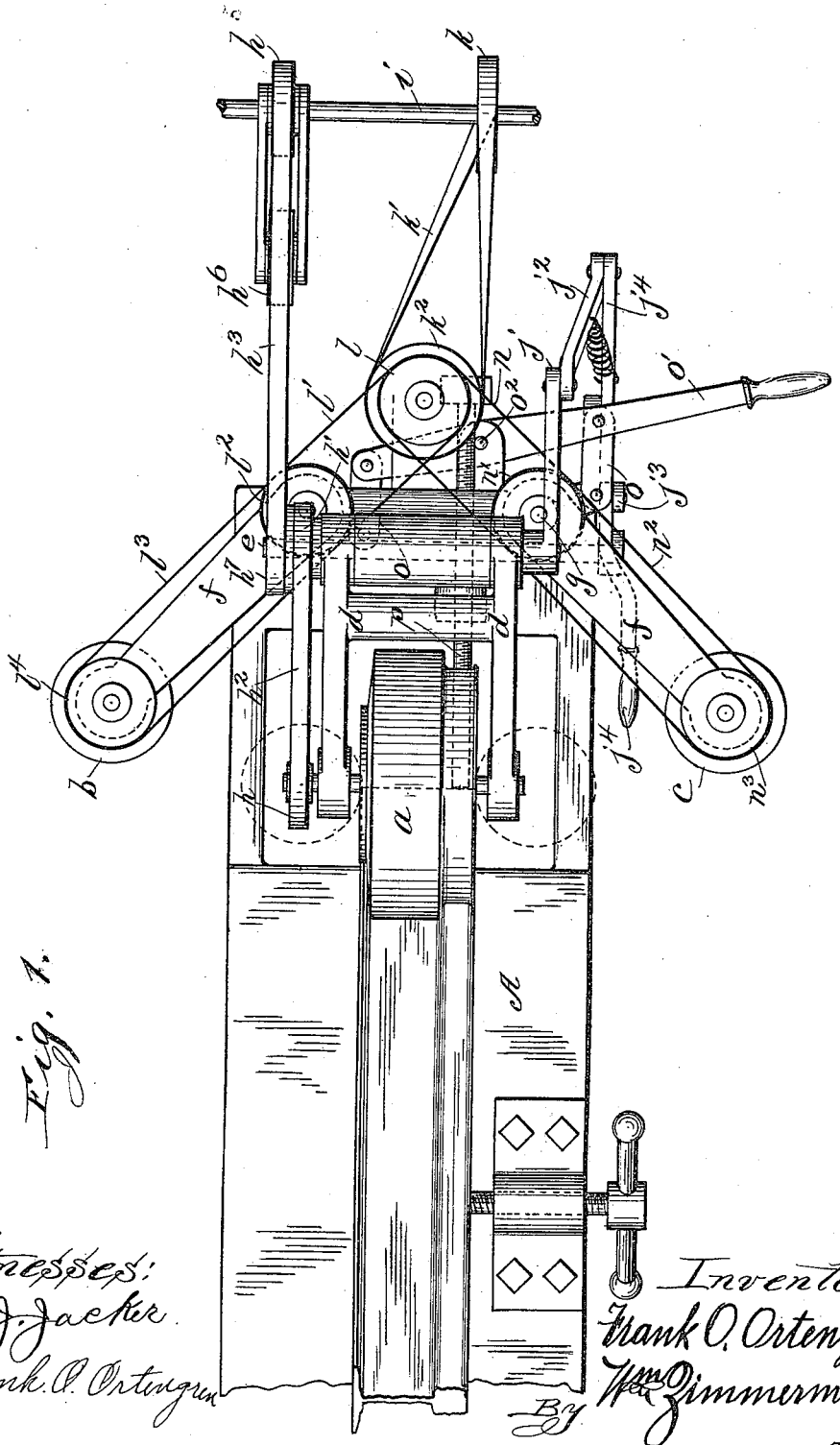

Fig. 1.

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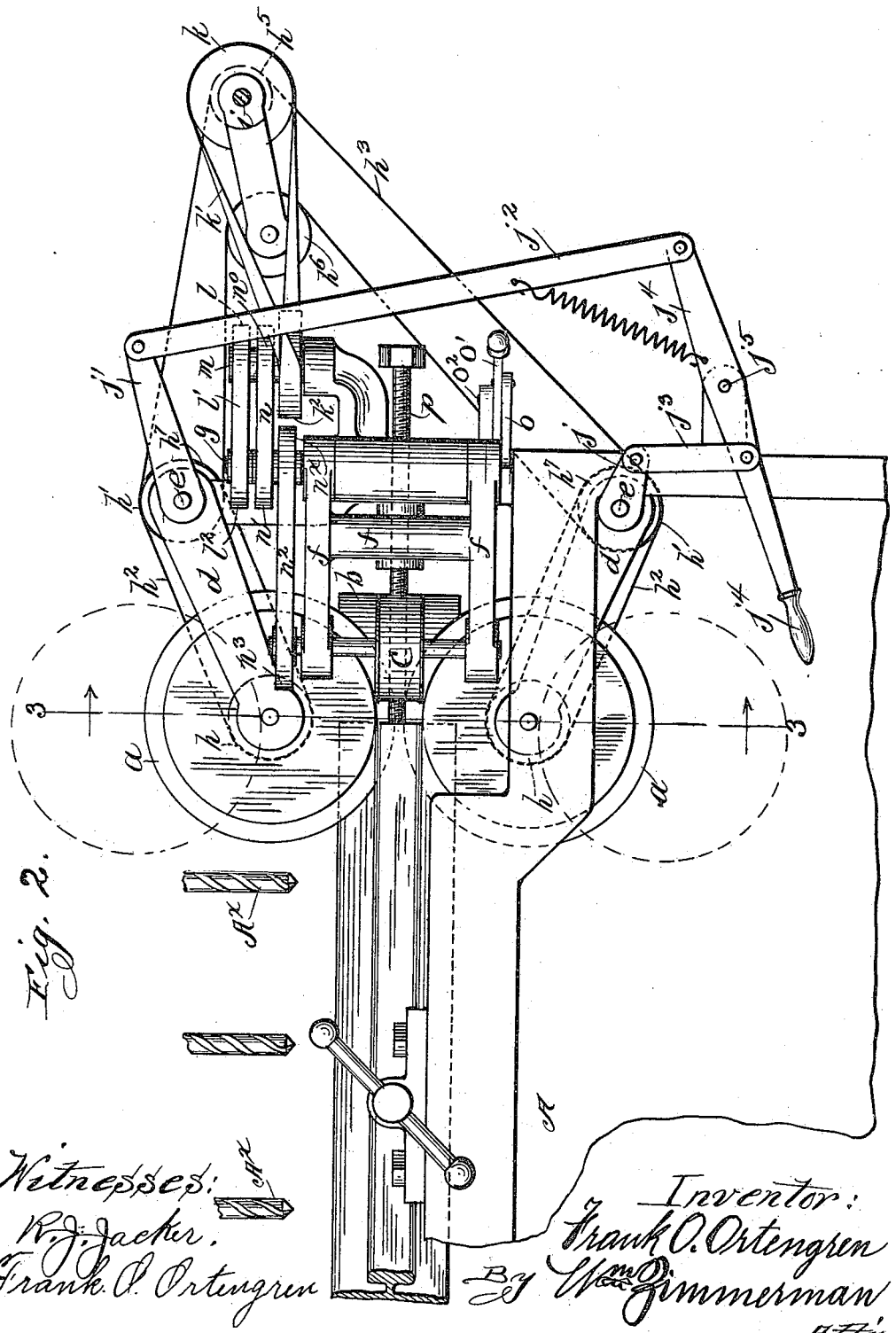

Fig. 2.

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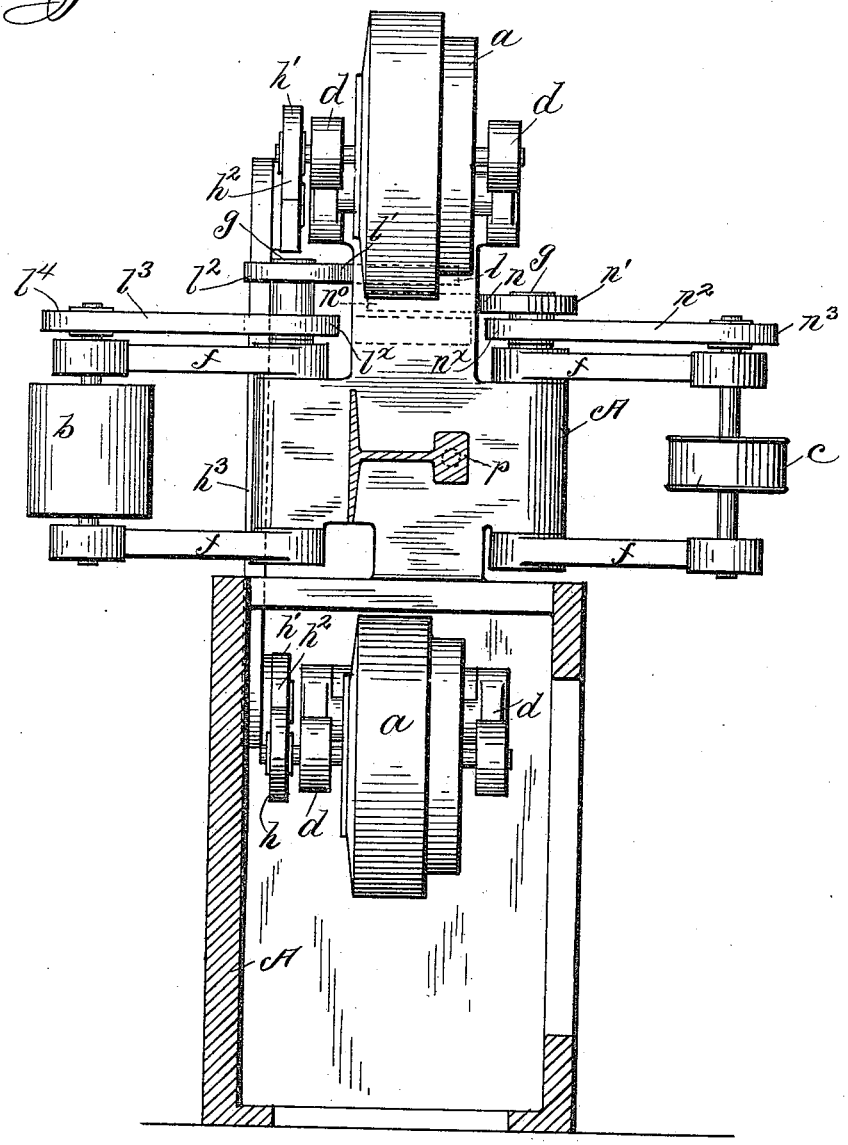
Fig. 3.

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# UNITED STATES PATENT OFFICE.

FRANK O. ORTENGREN, OF CHICAGO, ILLINOIS.

## RAILROAD-RAIL-END GRINDER.

SPECIFICATION forming part of Letters Patent No. 648,571, dated May 1, 1900.

Application filed January 8, 1900. Serial No. 711. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK O. ORTENGREN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Railroad-Rail-End Grinders, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part hereof, and in which—

Figure 1 shows my said new device in plan view, the larger grinders at work on a rail and the smaller grinders at their extreme outer position away from the rail, their inner or working positions being indicated by dotted outlines. Fig. 2 shows a front side elevation of my said machine with the large grinders in operative position and the smaller grinders at their extreme outer position. Broken outlines also indicate the extreme outer position of the larger grinders. Fig. 3 shows a transverse section of the machine on a plane 3 3 of Fig. 2 when looking in the direction indicated by the arrows of the cutting plane.

Like letters of reference denote like parts of the drawings.

The object of my invention is to produce a machine whereby the bur produced by the saw at the edges of the rail end may be ground away at the same time that the bolt-holes for the fish-plates are being drilled and to thereby save all that time which is now required in trimming said corners by hand and the separate handling of the rails for such work. To attain said desirable end, I attach to preferably any ordinary boring-machine used for said purpose, as A, my mechanism, consisting of four emery-wheels or grindstones, two of which grind the opposite sides of the rail and the other two grinders grind the top and bottom thereof. The profile of each of said grinders is of the form of the profile of the rail it grinds. Said grinders are held to their work and brought away from it by means of oscillating arms so placed relatively to each other as to allow the alternate operation of the opposed sets of grinders on the end of the rail as it is held in the machine to be bored by the drills $A^{\times}$. My grinders $a\ a\ b\ c$ are held in the outer ends of the two double sets of arms $d$ and $f$, which swing on the pivots $e$ and $g$, respectively. Said pivots are held in supports or brackets, substantially such as shown, attached to the machine A. On the shafts of the grinders $a$ are pulleys $h$, and on their pivotal arm-centers are pulleys $h'$, which are connected by belts $h^2$, and said pulleys $h'$ are driven by a belt $h^3$ from the pulley $h^5$ on the main driving-shaft $i$, on which hangs an idler-pulley $h^6$ and pulleys $h^7$ on the shaft $e$. Said grinders $a\ a$ are swung on their centers $e$ by means of the arms $j\ j'$, which, with said arms $d$, are fixed to said centers $e$ and connected, by means of the links $j^2\ j^3$, to the operating-lever $j^4$, which is fulcrumed at $j^5$. The grinder $b$ is driven by the pulley $l^4$ by belt $l^3$ from the connected pulleys $l^{\times}\ l^2$, which are driven by the belt $l'$ from the pulley $l$, and the grinder $c$ is driven by the pulley $n^3$, belt $n^2$, connected pulleys $n^{\times}\ n'$, belt $n$, and pulley $n^0$. The pulleys $k^2$, $n^0$, and $l$ are connected and turn on the fixed stud $m$, and the sets of pulleys $l^{\times}\ l^2$ and $n^{\times}\ n'$ are each connected to each other and turn together on their respective studs $g$, and thus allow the swinging of the arms $f$ while the machine is in operation by the lever $o'$, fulcrumed at $o^2$ and connected to the respective arms $f$ by the links $o$. The adjustable stop $p$ is a part of the drilling-machine A, which also serves to stop the rail at the right point for the work of the grinders.

The description of the machine as above given also makes plain its operation.

What I claim is—

1. The combination with a pair of opposed reciprocable grinders, each grinder provided with both driving and supporting mechanism, at a pivotal point, of a pair of reciprocable grinders, each grinder provided with both driving and supporting mechanism, at a pivotal point at right angles to said first pair of grinders, and means to alternately reciprocate and simultaneously rotate said grinders, substantially as specified.

2. The combination with a pair of opposed reciprocable grinders, each grinder provided with both driving and supporting mechanism, at a pivotal point, of a pair of reciprocable grinders, each grinder provided with both driving and supporting mechanism, at a pivotal point at right angles to said first pair of grinders and means to alternately reciprocate and simultaneously rotate said grinders and mechanism to connect said pivotal points with actuating mechanism, substantially as specified.

FRANK O. ORTENGREN.

Witnesses:
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