

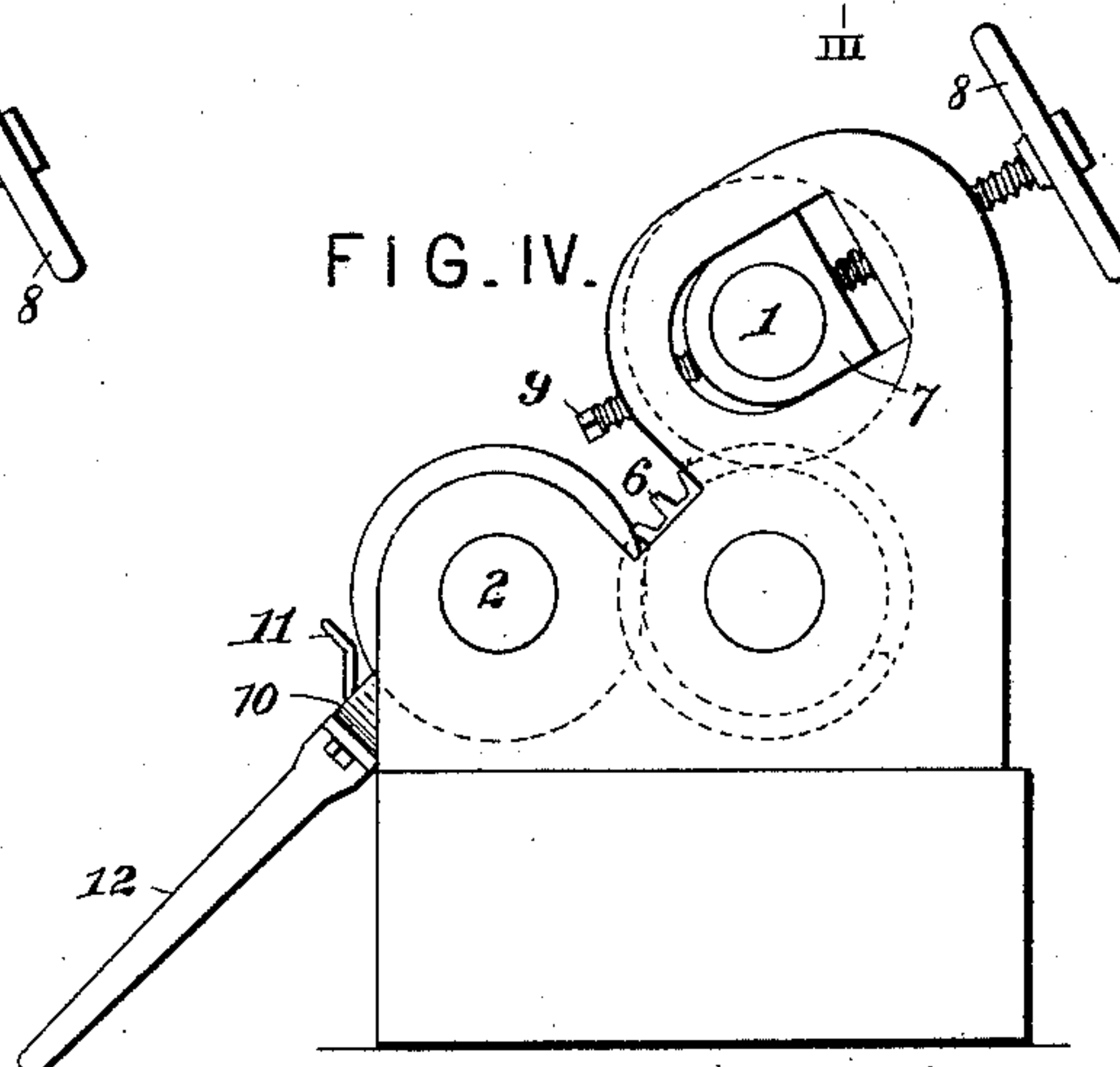
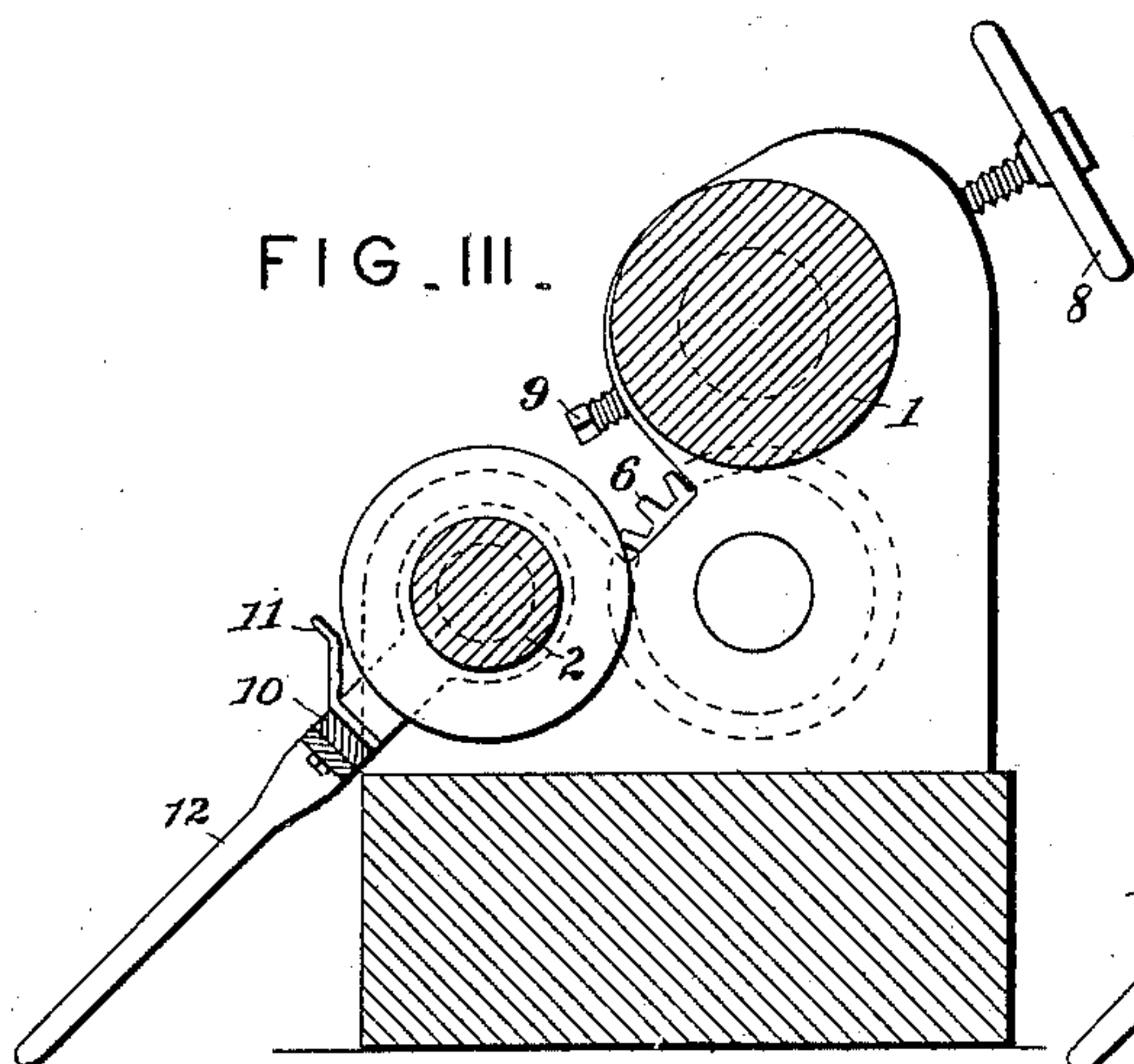
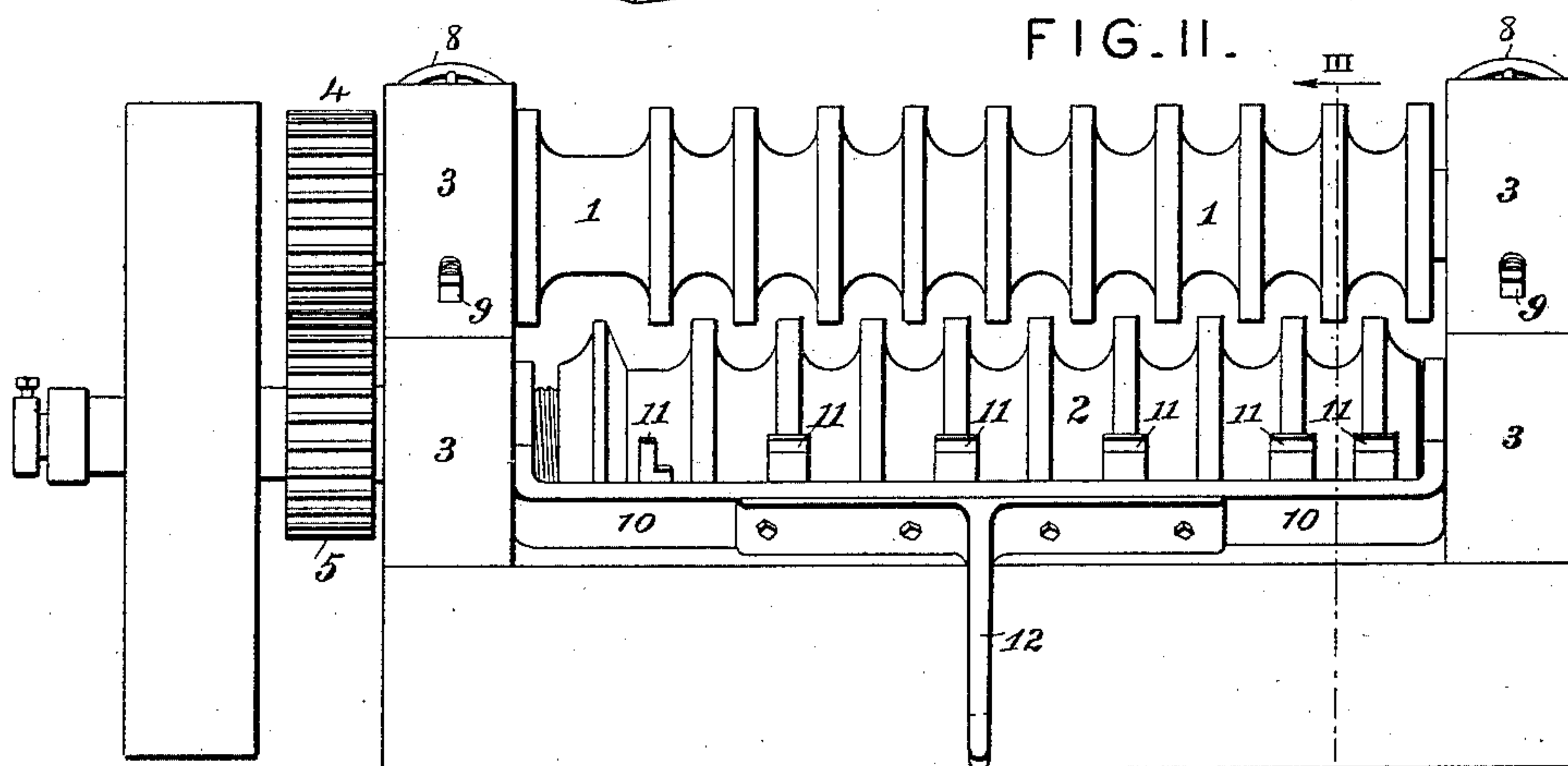
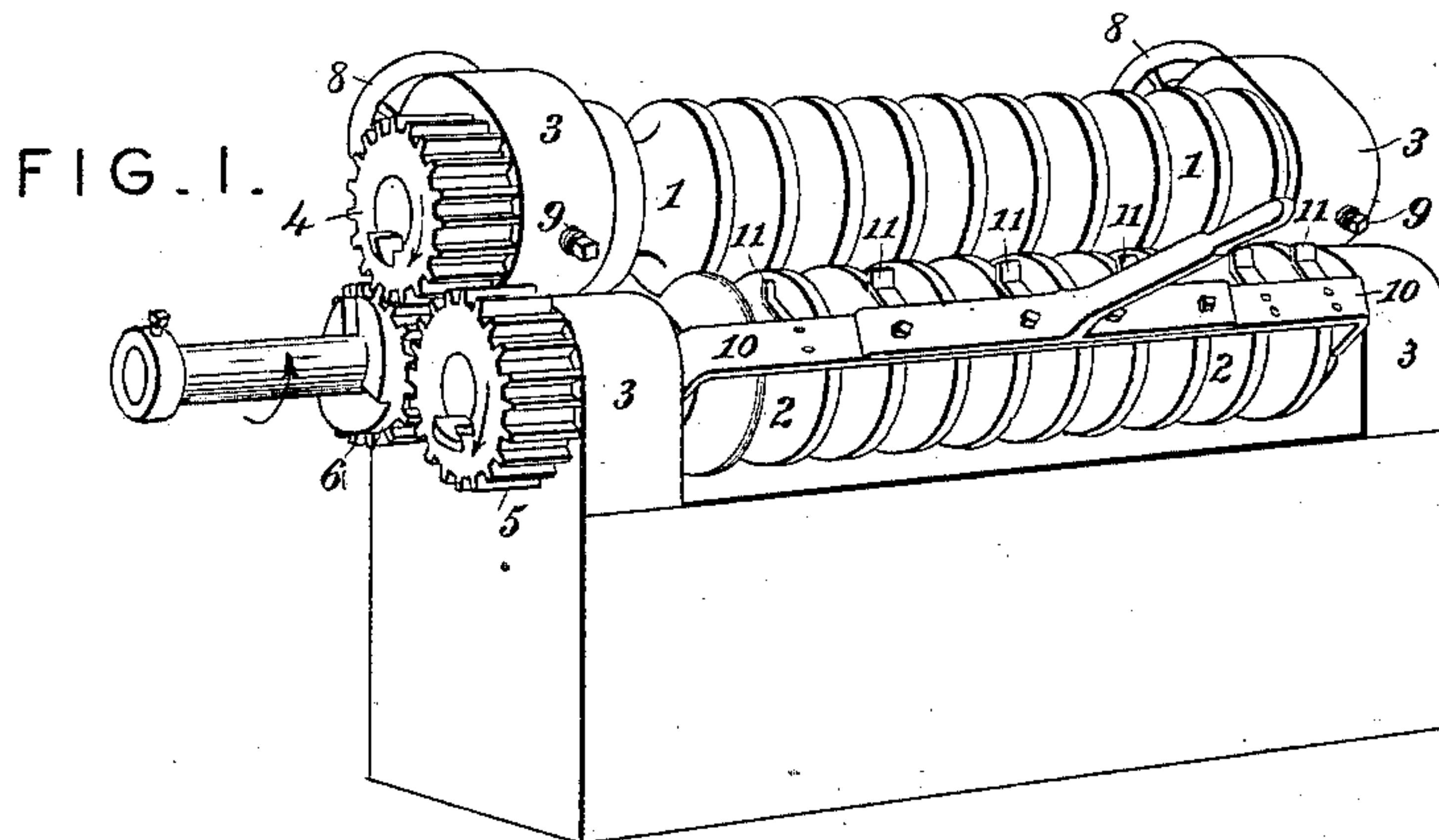
(No Model.)

M. KRUMM.

MACHINE FOR STRAIGHTENING RODS, &c.

No. 362,287.

Patented May 3, 1887.



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UNITED STATES PATENT OFFICE.

MARTIN KRUMM, OF COLUMBUS, OHIO.

MACHINE FOR STRAIGHTENING RODS, &c.

SPECIFICATION forming part of Letters Patent No. 362,287, dated May 3, 1887.

Application filed July 10, 1884. Serial No. 137,353. (No model.)

To all whom it may concern:

Be it known that I, MARTIN KRUMM, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Machines for Straightening Round Rods, Bars, Pipes, &c., of which the following is a specification.

The invention consists in certain features of novelty hereinafter pointed out in the claims.

In order that those skilled in the art to which my invention appertains may fully understand the same, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure I is a perspective view of the machine with the driving-pulley removed. Fig. II is a front elevation thereof. Fig. III is a vertical transverse section on the line 3 3, Fig. II, and Fig. IV is an end elevation.

1 2 represent a pair of rolls, journaled at their ends in pillow-blocks 3 and provided with cog-wheels 4 5, respectively, with which meshes a third cog-wheel, 6, secured to the driving-shaft.

The rolls should be fully as long as the rod or bar to be straightened, and are each provided at regular distances apart throughout their entire length with circumferential grooves so disposed that the ridges of the one roll (consequent to the formation of the grooves) will work opposite to the grooves of the other. They are preferably located in such positions relatively to each other that a line drawn through their axes will have an angle of forty-five degrees (more or less) to the horizon, for the reason which will appear hereinafter.

It will be seen that by placing each of the cog-wheels 4 5 into engagement with the driving-cog 6 the rolls 1 2 will both be revolved in the same direction, which gives their contiguous faces a consequent movement in opposite directions.

The rolls 1 2 may be rotated in the direction shown by the arrows, or vice versa. In other words, their contiguous faces are caused to move inwardly and outwardly, respectively. The circumferential speed of the inwardly-moving roll is slightly greater than that of the outwardly-moving roll, the increase being produced by forming the working part of the one

of a greater diameter than the other, or by using differential cog-wheels 4 5 on their shafts. The shaft of the roll 2 has stationary bearings in the pillow-blocks 3, while the shaft of the roll 1 is mounted in bearings 7, which are adjustable to and from the roll 2 by means of set-screws 8 9 impinging against their opposite sides, as fully shown in Fig. 4. I do not, however, limit myself to the precise arrangement herein shown and described, as it is obvious that the relations of the two rolls may be reversed, the roll 2 being made to travel inward at greater speed and have adjustable bearings, while the roll 1 travels slower outwardly and is stationary.

A feeding device is employed for evenly forcing or carrying the rod or bar to be operated upon throughout its entire length to its place between the oppositely-moving contiguous faces of the rolls and holding it in such position until it is gripped. This feeding device consists of a bar, 10, running the whole length of the rolls, said bar being bent at right angles at both ends and pierced with holes for the reception of the shaft of the roll 2, on which it is supported, and pivots. The bar 10 is provided throughout its length with any necessary number of fingers 11, which support the rod being operated upon and feed it forward to be gripped by the differentially-traveling rolls, and also with one or more handles or levers, 12, for prehension, according to the length or capacity of the machine.

The operation of the machine is as follows: The rolls are first so adjusted that the space between the contiguous faces of the ridges is a little less than the diameter of the rod to be operated upon. The rod is then placed upon the feeder and carried into the space between the rolls, with its axis parallel therewith. It will now be seen that the rod being operated upon will be turned or revolved by the oppositely-moving contiguous faces of the rolls, and if the circumferential speed of said rolls were the same it would neither pass through between them nor fall out backward, but would maintain about the same position relatively thereto; but by imparting to them a differential circumferential speed it will be carried in the direction of the adjacent moving face of the roll having the greater speed. The rapidity with

which the rods are carried through the rolls is therefore proportional to the increase in speed of the one roll over the other, and may be changed or regulated by making such increase
5 in speed greater or less, as may be necessary. The straighter the rod or bar gets the closer it is confined in the space between the ridges of the rolls, and when it gets directly in the plane of their axes it will be kinked or crooked
10 in a degree corresponding to the difference between its diameter and the distance between the faces of the ridges, thereby destroying all crooks which it had on entering the machine and preventing the liability of springing back.
15 As the rod passes beyond this position it is revolved and the crooks formed by the rolls gradually taken out, the least motion of the rolls having a tendency to destroy the kinks, until the rod reaches a point where the distance between said rolls is equal to or greater
20 than its diameter, when it falls from the machine straightened.

Having thus described my invention, the following is what I claim as new therein and
25 desire to secure by Letters Patent:

1. In a machine for straightening round rods, bars, &c., the combination of a pair of rolls

having alternate circumferential grooves and ridges so disposed that the ridges of the one will work opposite the grooves of the other, 30 and suitable gearing rotating them in the same direction at different circumferential speeds, as and for the purpose explained.

2. In a machine for straightening round rods, bars, &c., the combination, with a pair of rolls 35 rotating in the same direction, of a feeding device consisting of a bar running the entire length of the rolls, pivoted to the shaft of one of said rolls and provided with a handle for prehension, as explained. 40

3. In a machine for straightening round rods, bars, &c., the combination, with a pair of rolls rotating in the same direction, of a feeding device consisting of a bar pivoted at its ends to 45 the shaft of one of said rolls and provided with a number of fingers for supporting the rod to be operated upon, and a handle for prehension, as set forth.

MARTIN KRUMM.

Witnesses:

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