No. 719,853. PATENTED FEB. 3, 1903.

R. R. OSGOOD.

FRICTION BRAKE.

APPLICATION FILED MAY 9, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 2.

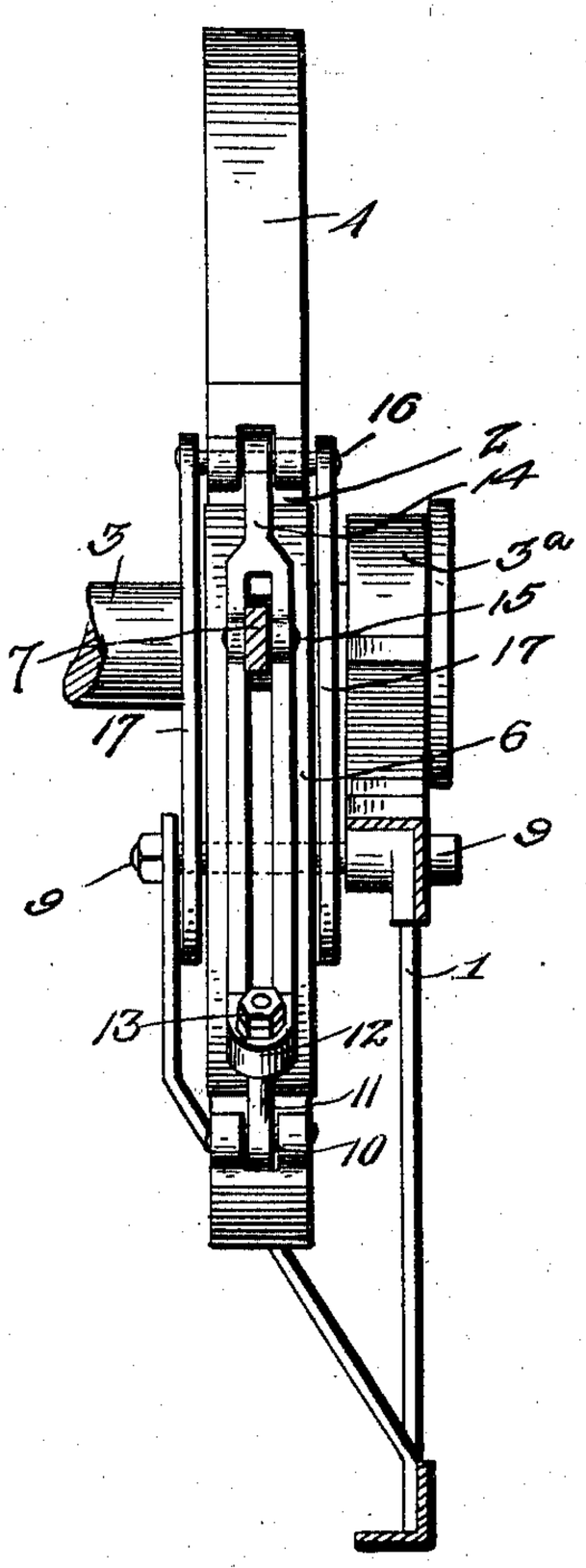
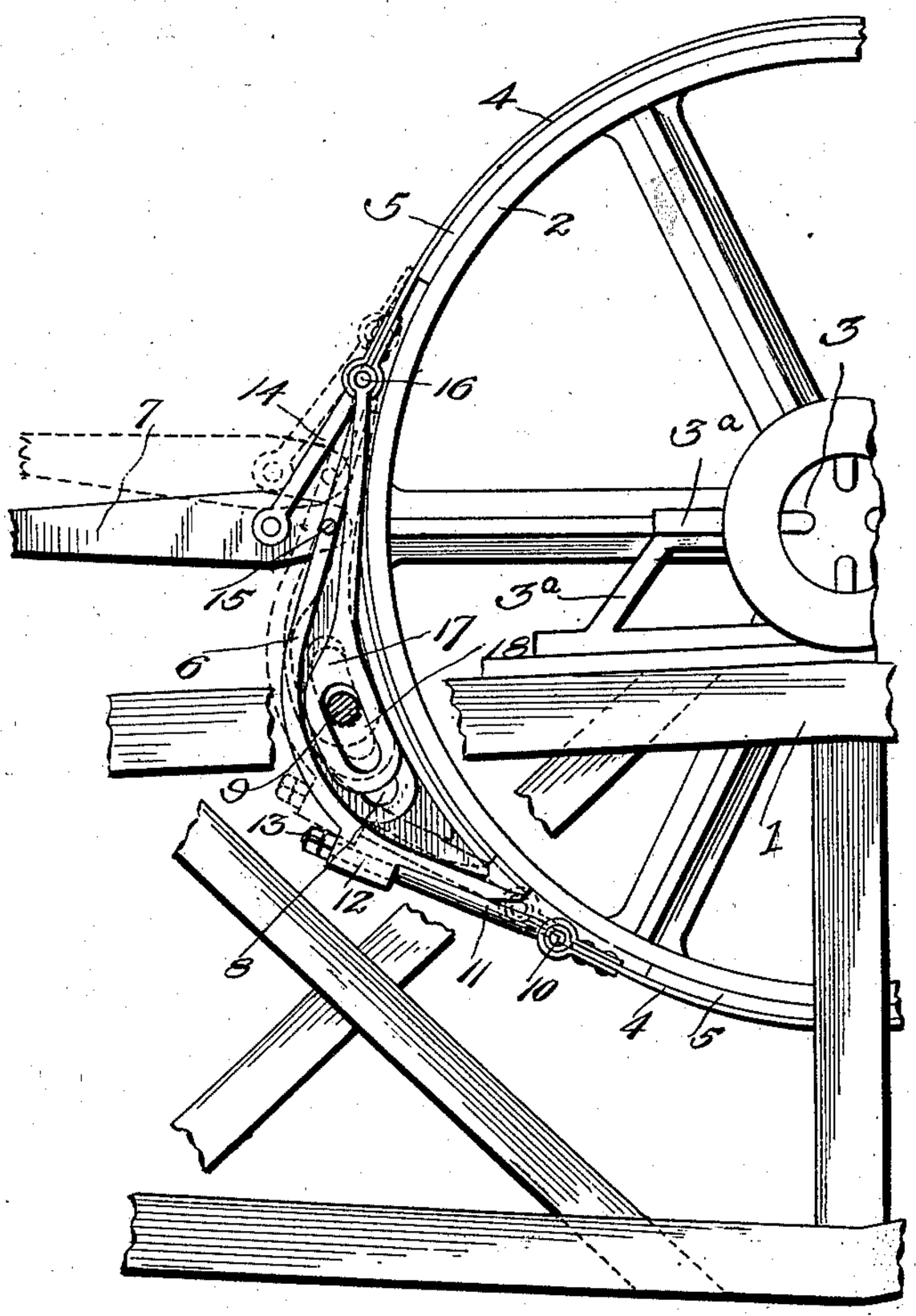


Fig. 1.



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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.

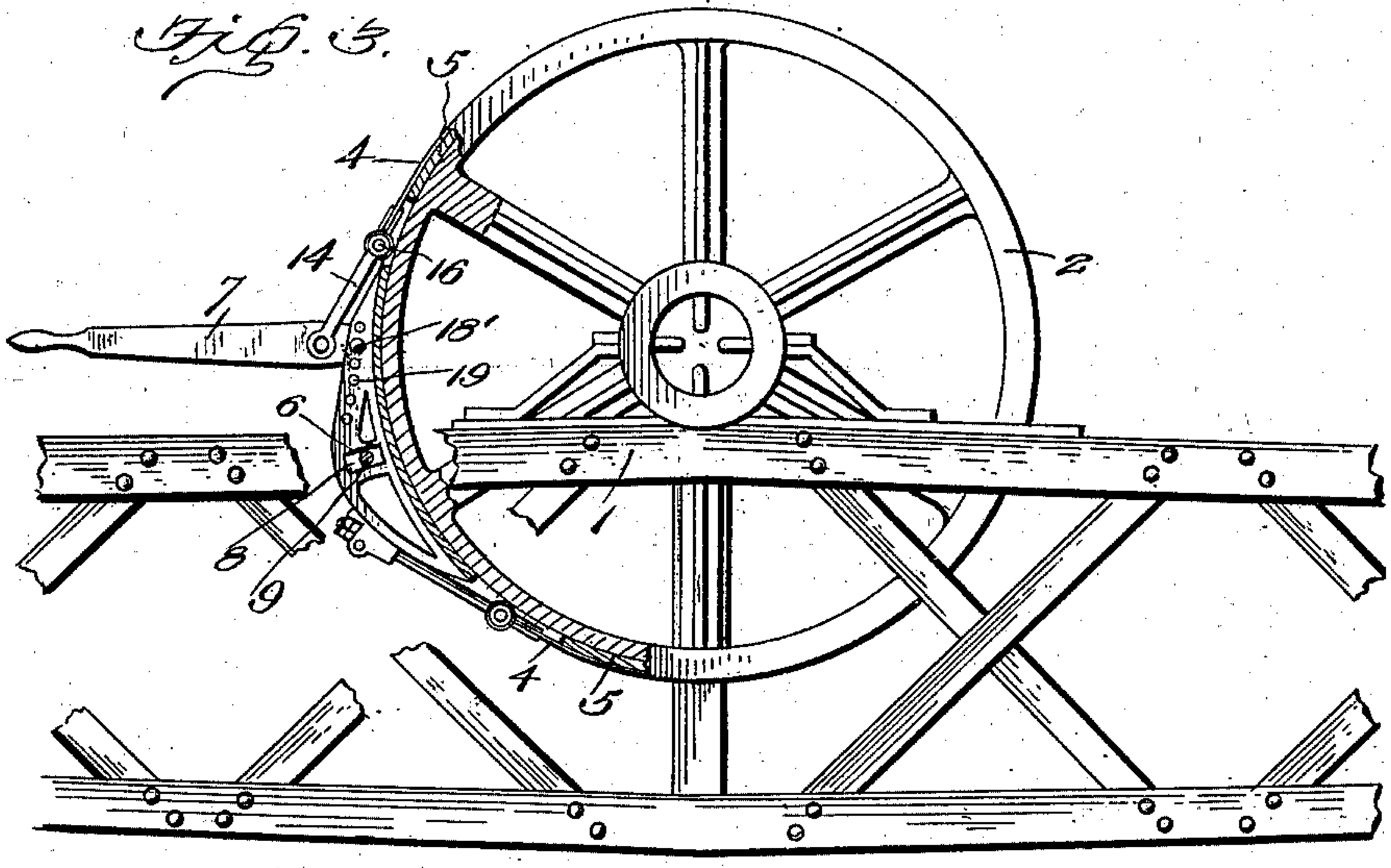
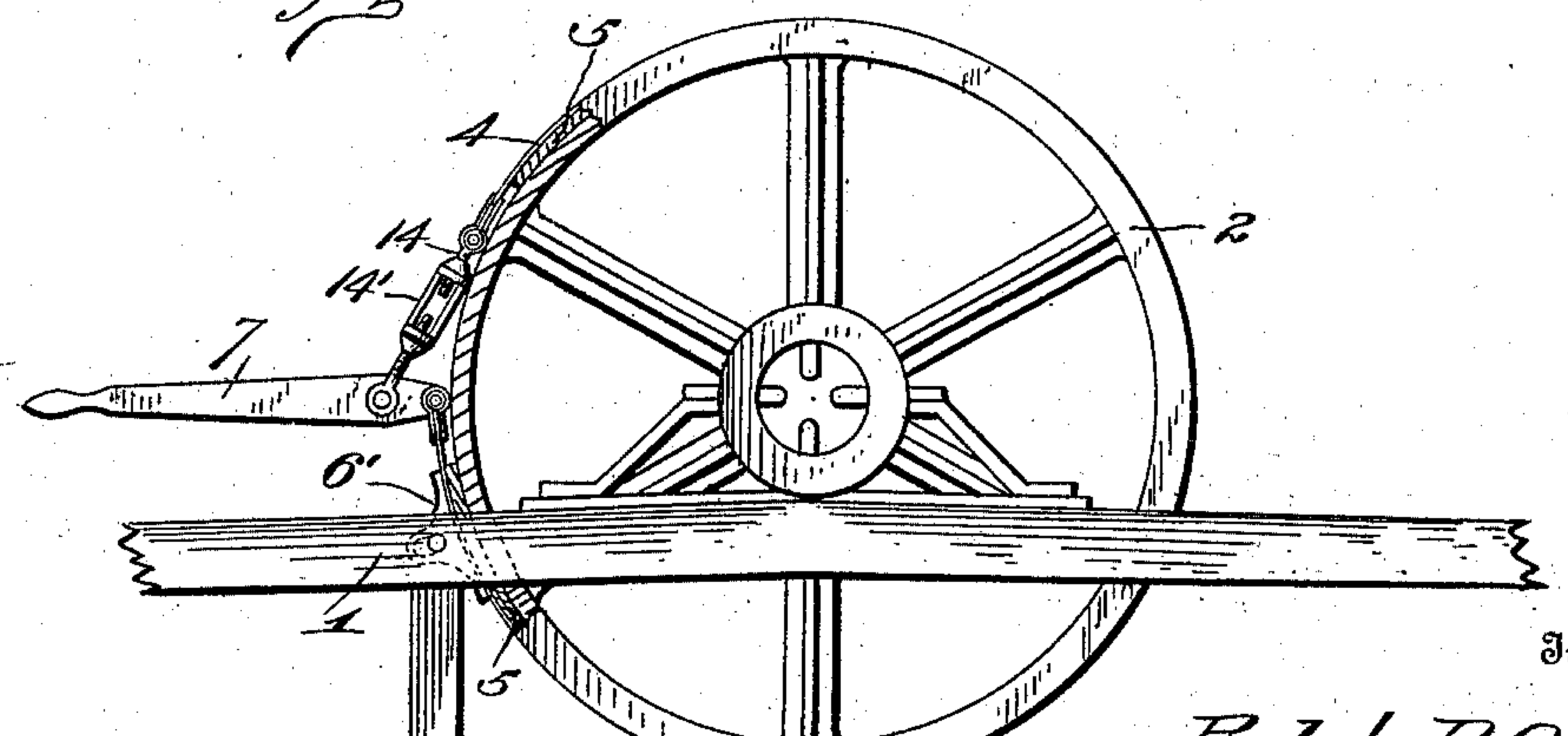


Fig. 4.



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UNITED STATES PATENT OFFICE.

RALPH R. OSGOOD, OF UPPER TROY, NEW YORK.

FRICTION-BRAKE.

SPECIFICATION forming part of Letters Patent No. 719,853, dated February 3, 1903.

Application filed May 9, 1902. Serial No. 106,531. (No model.)

To all whom it may concern:

Be it known that I, RALPH R. OSGOOD, a citizen of the United States, residing at Upper Troy, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Friction-Brakes; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in friction-brakes of that character in which a band is employed to act upon a brake-wheel.

The object of the invention is to provide a brake of this kind which is simple, strong, and durable, which gives a practically continuous braking-surface, which is anchored by means applied directly to the band, which gives substantially the same holding power at all points and in either direction of rotation of the brake-wheel, and which is free from the many objections incident to prior braking devices of this character.

The invention consists of certain novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, in which similar characters of reference designate corresponding parts throughout the several views.

Figure 1 is a view in side elevation, parts appearing in section, of a friction-brake embodying my invention. Fig. 2 is an end view of the same. Figs. 3 and 4 are views similar to Fig. 1, showing modifications in the construction of the brake.

Referring to Figs. 1 and 2 of the drawings, 1 represents a suitable support or framework, and 2 the brake-wheel, which is fixed upon a drum-shaft 3, journaled in bearings 3^a, mounted upon the support 1, and is engaged by the friction-band 4, which is preferably provided with renewable wooden linings 5 to bear upon the periphery of said wheel. The band 4 is connected at one end with a block or shoe 6 and at the opposite end with a floating operating-lever 7. As shown clearly in Fig. 1, the block or shoe 6 approximately fills the space between the ends of the band when the latter is applied to grip the wheel and is formed with a slot 8 to receive a pin or bolt 9, fixed to the support 1, whereby said block is held from moving around with the wheel 2, except to a limited initial extent, in shifting the point of anchorage, as hereinafter set forth, but is adjustable toward and from said wheel. One end of the band has pivoted thereto at 10 a bolt 11, which passes through an eye or socket 12 on the block or shoe and is adjustably secured by nuts 13, while the opposite end of the band is connected by a link 14 with the lever 7. The lever is pivoted, as at 15, to the block 6 at the end of the latter opposite the point of attachment to the bolt 11, so that the points of connection of said bolt and lever are on opposite sides of the slot 8.

The position of the lever 7 and band 4 (shown in full lines in Fig. 1) is the position which these parts will take automatically when the brake-wheel rotates to the left, owing to the drag of the band upon the moving wheel. When pressure is applied to the lever when in this position, both ends of the band are drawn upon to bind the band tightly against the wheel, and at the same time the block or shoe 6 will be forced into engagement with the wheel to augment or supplement the braking action of the band. By thus drawing the ends of the band together and simultaneously forcing the block against the periphery of the wheel both ends of the band exert substantially the same pressure and holding power, making the braking action uniform, while the block or shoe coöperates to provide a practically continuous braking-surface. It will be noticed that in this position the block serves as the anchor, since the upper end of the slot 8 engages the pin or bolt 9.

Hung upon the pivot 16, which connects the link 14 with the band, are anchor-links 17, which are formed at their free ends with slots 18, receiving the pin or bolt 9, said links being arranged on opposite sides of the shoe 6. These slots or openings 18 allow the links to have freedom of motion in the adjustment of the lever. When the brake-wheel is reversed—that is, when it turns to the right—the drag of the band upon the rotating wheel will automatically shift or throw the lever 7 and band 4 to the position shown in dotted

lines in Fig. 1, and when power is applied to the lever when in this position the lower ends of the links contact with the pin or bolt 9 and anchor the band securely against movement in that direction. On the other hand, as before stated, when the wheel turns to the left the upper end wall of the slot in the brake-shoe comes into contact with the pin or bolt 9 and anchors the band against movement in that direction. By the provision of these links it will be seen that the strain upon the shoe is the same in either direction of rotation of the wheel and that by thus shifting the anchorage from one end of the band to the other the holding power is equalized in both directions and excess power is carried and utilized on that end of the band that drags away from the anchor. Furthermore, it will be noticed that in either direction of rotation of the brake-wheel the lever and band will automatically assume the position to apply the braking power for that direction and should a certain pressure be applied to the lever when the wheel turns to the left the reversing of the wheel to the right simply shifts the point of anchorage from one end of the band to the other and does not relieve the pressure or friction of the band and shoe upon the wheel—that is to say, the same braking power will be maintained after the wheel has been reversed as was applied before the reversing.

In the construction shown in Fig. 3 the links 17 are dispensed with and the lever is adjustably connected to the block or shoe 6 by means of a pin or bolt 18′, adapted to engage either one of a series of openings 19 in said shoe. In this modification a double adjustment is provided for to enable the band to be taken up to a maximum extent to compensate for wear; but the construction of the band and brake-shoe and manner of connecting the same to the lever are the same. Thus in both constructions it will be seen that a powerful and effective leverage may be exerted to lock the friction-wheel against movement, that the lever may be adjusted to compensate for wear and variations in the length of the band, and that the block 6 is adapted to subserve the function of a brake-shoe, thus increasing the friction between the brake members and power of the brake, so that the movement of the wheel may when required be quickly arrested.

In some cases the block may be secured directly upon one end of the band, as shown by the block 6′ in Fig. 4, and the lever pivotally connected with both ends of the band, and the link 14 may also be provided with a turnbuckle 14′, all as shown in said figure, whereby the parts may be adjusted to compensate for variations in the length of the band and the anchoring purposes of the block utilized without the necessity of employing the same as a brake-shoe. This construction provides a brake which is efficient for lighter work than the devices shown in Figs. 1, 2, and 3 and yet is adapted to furnish a comparatively heavy friction action on the brake-wheel.

From the foregoing description, taken in connection with the accompanying drawings, it is thought that the construction, mode of operation, and advantages of my improved friction-brake will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

1. In a friction-brake, a support, a brake-wheel, a brake-band to engage the wheel, means for permitting the band to have a limited circumferential movement with the wheel and for anchoring the band to the support and transferring the anchorage from one to the other end of the band under the drag of the band upon the wheel as the latter rotates in one direction or the other, and means for variably adjusting the band when anchored at either end to bear with greater or less force or pressure upon the brake-wheel, said means being adapted to permit of such limited circumferential movement of the band without interference, substantially as described.

2. In a friction-brake, a support, a brake-wheel, a brake-band to engage the wheel, means for permitting the band to have a limited circumferential movement with the wheel and for anchoring the band to the support and transferring the anchorage from one to the other end of the band under the drag of the band upon the wheel as the latter rotates in one direction or the other, and means for applying the band, said means being movable with the band as the latter is adjusted circumferentially to change the point of anchorage from end to end of the band, substantially as described.

3. In a friction-brake, a support, a brake-wheel, a brake-band to engage the wheel, a brake-block having a limited adjustable anchorage connection with the support to move a prescribed distance in the direction of revolution of the wheel to allow the band to have a limited circumferential movement with the wheel and to anchor one end of the band to the support, means for connecting the other end of the band to the support to also permit of such circumferential movement of the band and to anchor the opposite end of the band to the support, and a band-applying device independent of connection with the support and movable circumferentially with the band, substantially as set forth.

4. In a friction-brake, the combination of a support, a brake-wheel, a brake-band to engage the wheel, a floating lever for applying the band, and means independent of the lever for anchoring the band to the support,

whereby the dragging strain of the band is removed from the lever and transferred to the support, allowing all the power applied to the lever to be employed to apply the band.

5. In a friction-brake, the combination of a support, a brake-wheel, a brake-band to engage the wheel, means for anchoring one end or the other of the band to the support according to the direction of rotation of the wheel while allowing the band as a whole to have a limited circumferential movement under the drag of the wheel, a lever for applying the band, and a fulcrum for the lever shiftable circumferentially with the band, substantially as described.

6. In a friction-brake, a brake-wheel, a band to engage the same, a brake-shoe connected to one end of the band and anchored to the support to prevent rotation of the band but to move toward and from the brake-wheel, an operating-lever connected to the brake-shoe and opposite end of the band, and links 17 connected to the latter-named end of the band and support for transferring the anchorage to said end of the band when the rotation of the brake-wheel is reversed, substantially as set forth.

7. In a friction-brake, a support, a brake-wheel, a band to engage the same, a brake-shoe connected to one end of the band and anchored by a slot-and-pin connection to the support to prevent rotation of the band but to move toward and from the brake-wheel, an operating-lever connected to the brake-shoe and opposite end of the band, and links 17 connected to the latter-named end of the band and having a slot-and-pin connection at their opposite ends with the support and adapted to automatically transfer the anchorage to said end of the band when the movement of the brake-wheel is reversed, substantially as set forth.

8. In a friction-brake, the combination of a support, a brake-wheel, a brake-band to engage the wheel, a brake-block anchored to the support and linked to one end of the band, and a floating lever fulcrumed to the block and linked to the other end of the band, substantially as described.

9. In a friction-brake, the combination of a support, a brake-wheel, a brake-band movable circumferentially as a whole to a limited extent with the wheel, means for anchoring one or the other end of the band to the support according to the direction of rotation of the wheel, and a floating-band-applying lever shiftable with the band, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

RALPH R. OSGOOD.

Witnesses:
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FRANK A. WALDRON.