

No. 869,729.

PATENTED OCT. 29, 1907.

S. W. PUTNAM, 3D.  
DRIVING DOG.

APPLICATION FILED MAR. 18, 1907.

Fig. 1.

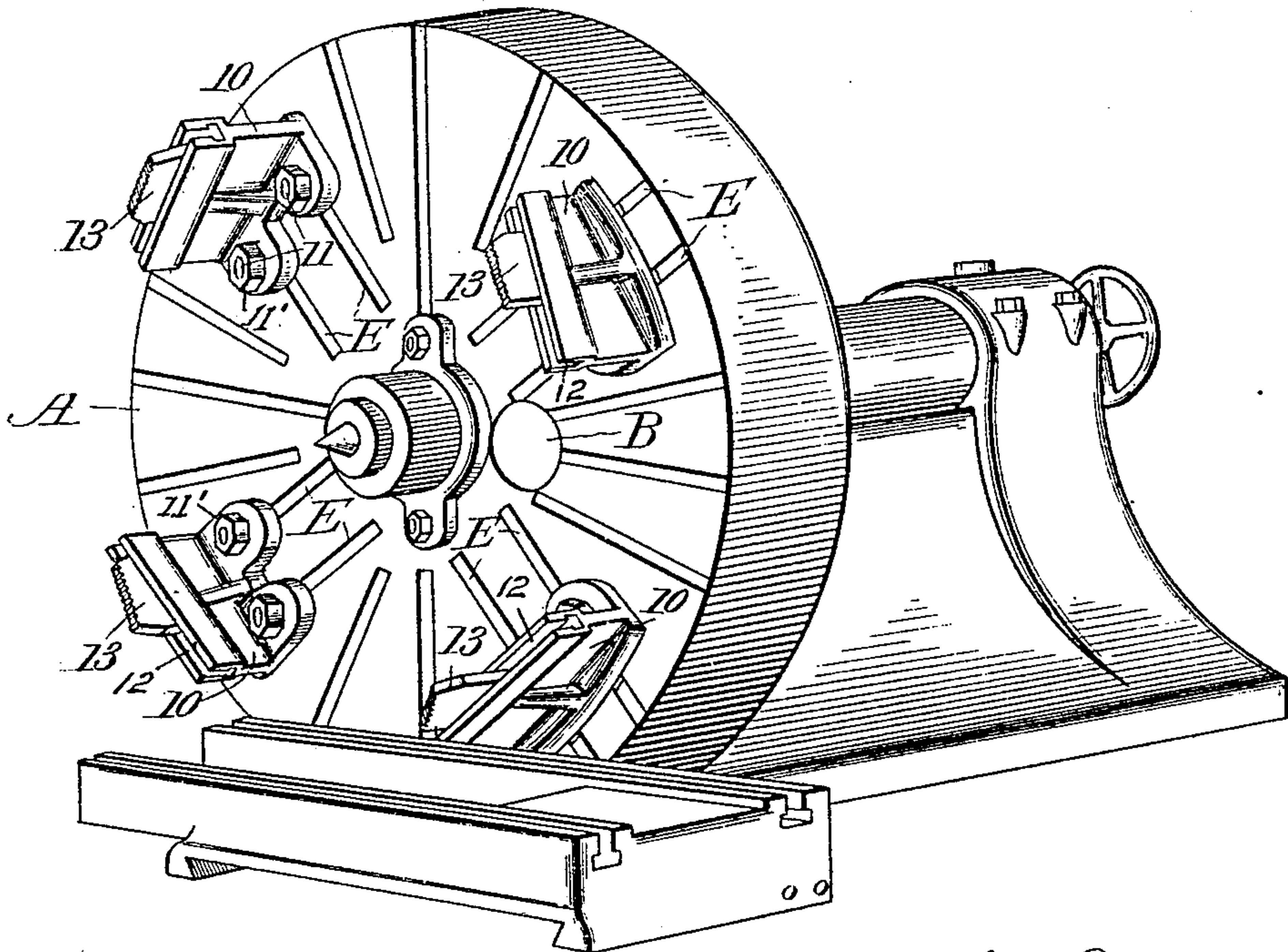


Fig. 2.

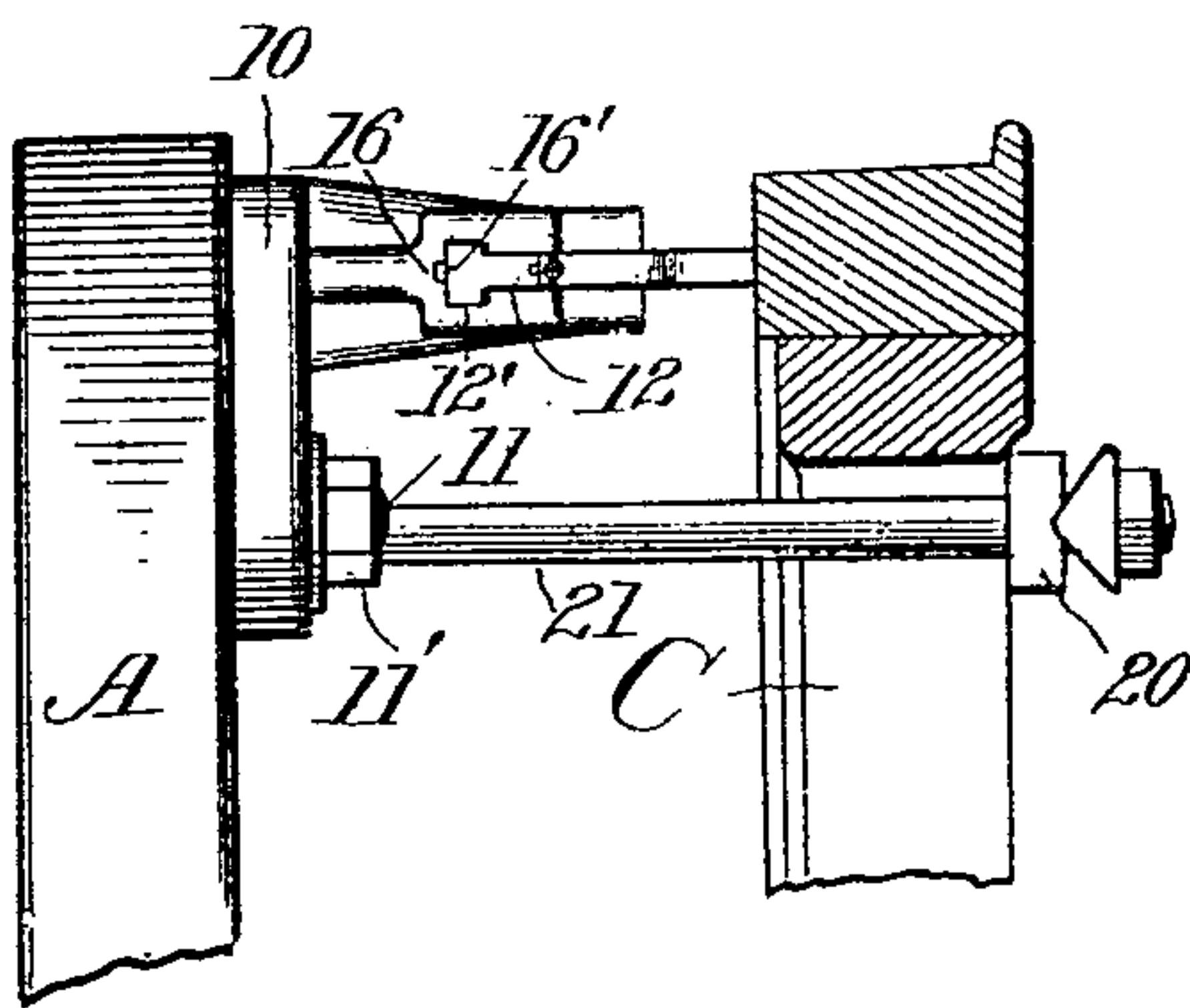
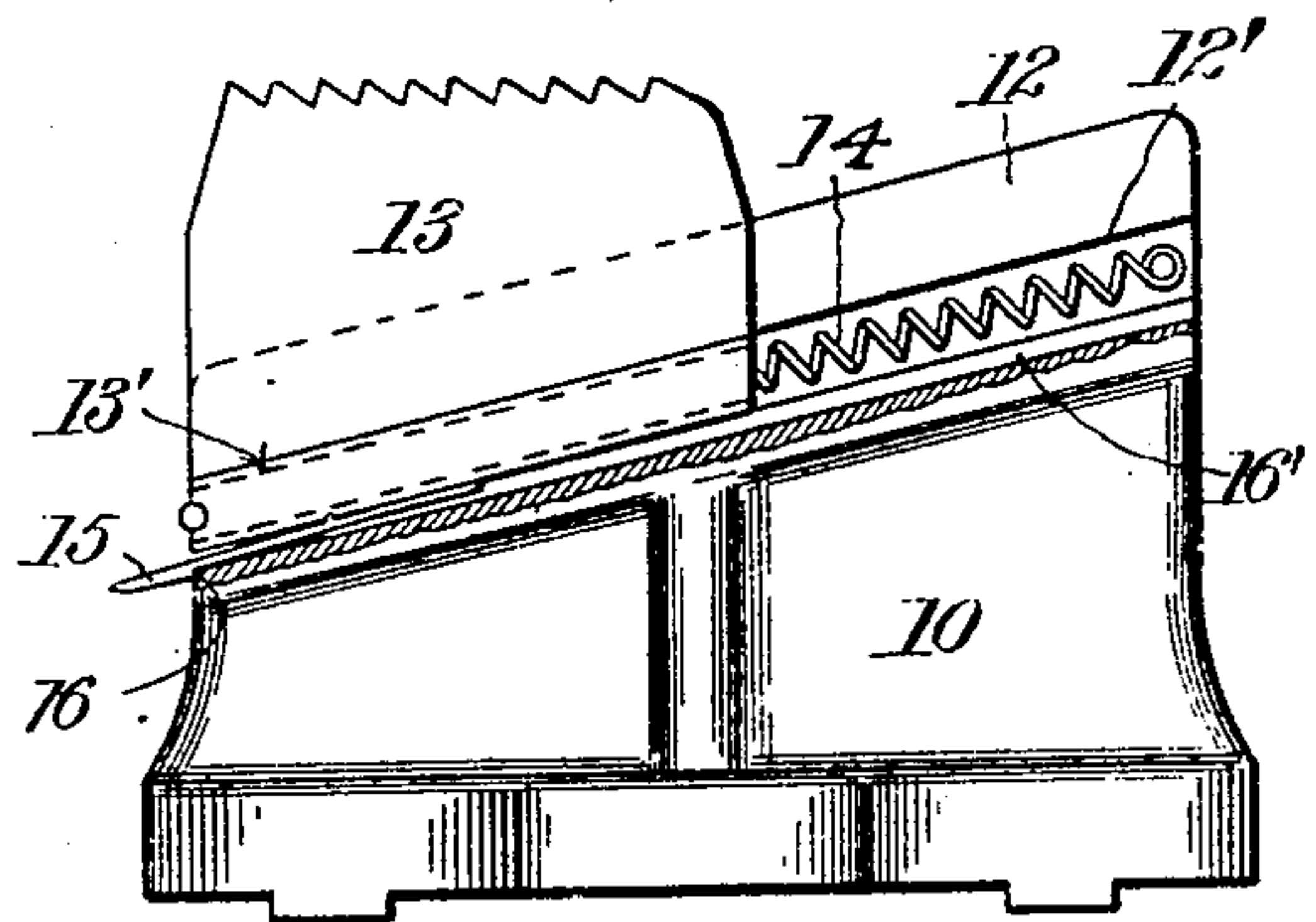


Fig. 3.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

SALMON W. PUTNAM, 3D, OF FITCHBURG, MASSACHUSETTS.

## DRIVING-DOG

No. 869,729.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed March 18, 1907. Serial No. 363,044.

*To all whom it may concern:*

Be it known that I, SALMON W. PUTNAM, 3d, a citizen of the United States, residing at Fitchburg, in the county of Worcester and State of Massachusetts, have  
5 invented new and useful Improvements in Driving-Dogs, of which the following is a specification.

My invention relates to certain new and useful improvements in driving-dogs particularly designed for use in turning the steel tires of locomotive driving-wheels, coach-wheels, truck-wheels and all other wheels  
10 employing a steel or other tire, the turning being performed while the wheels are mounted upon their axles. Lathes of this type are well known, and it is usual in performing the turning operation to mount the axle,  
15 with its wheels, on the centers of a double-head driving-wheel lathe, such lathes commonly presenting a face-plate contiguous to the outer face of each driving-wheel when mounted upon the axle, as before mentioned. By suitable mechanism the two face plates are driven  
20 in unison.

The object of my invention is to equip such a lathe as mentioned, or any other style of turning lathe, or different kinds of face-plates or table work on both the usual form of so-called engine lathe, and boring or  
25 turning mills etc., with a novel driving-dog which may be applied, with little or no modification, to form a positive and effective driver which is equalizing, and capable of adjusting itself automatically to the load, or in other words to the resistance offered by the cutting  
30 tool.

With the foregoing and other objects in view, my invention consists of the parts and the constructions and combinations of parts which I will hereinafter describe and claim.

35 In the accompanying drawings forming part of this specification and in which similar reference characters indicate like parts in the several views:—Figure 1 represents a perspective view of the tail-stock portion of a driving-wheel-lathe having a face-plate with driving-dogs constructed according to my invention. Fig. 2 is  
40 a side elevation of a portion of one of the face-plates of a driving-wheel-lathe in connection with a portion of a driving-wheel, and one of my improved driving-dogs. Fig. 3 is an enlarged side elevation partly in section of  
45 one of the driving-dogs.

While the driving-dog shown is designed primarily for use in connection with steel-tired-lathes and driving-wheel-lathes, its use is not to be understood as limited to these machines alone, although for present  
50 purposes I will describe the dogs in connection with a driving-wheel-lathe for the purpose of turning the steel tires on locomotive driving-wheels when the same are mounted on their axle.

As a matter of simplicity, I show only the tail-stock  
55 portion of the lathe, but it will be understood that the lathe will have the usual head-stock and tail-stock

with face-plates between which the axle with its wheels will extend.

The head-stock and tail-stock of the lathe will be provided with the usual and well known form of internal  
60 spindles carrying centers and having any of the usual means of adjustment longitudinally.

The face-plates A, only one of which is shown in the drawings, will also have the holes B, or crank-pin pockets, adapted to receive the crank-pins with which  
65 locomotive driving-wheels are usually provided and which project to a considerable distance outward from each wheel C, said crank-pins adapted to be entered into the holes or pockets B thus bringing the rim of the wheels at a minimum distance from the face-plates at  
70 the points of maximum rigidity.

The face plate is otherwise of the usual or any appropriate and designed construction and designed to be driven in any well known manner; it is also radially  
75 channeled or provided with slots, E, in which my improved driving-dogs are adjustably secured, there being as many of these dogs carried on the face-plate as I may find necessary or useful for my purpose; it is understood that the face-plates of both the tail-stock and head-stock will be supplied with said dogs.  
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The improved dog is shown in detail in Fig. 3. It consists of a flange or member 10 secured to and outstanding from the face of the face-plate, the means for securing this flange or member comprising such well known fastenings as the bolts 11 and nuts 11', said  
85 bolts having heads slidably operating in the radial-channels or slots in the face-plate and being capable of adjustment radially from the centers. The outer end of the flange or member 10 is channeled at 12 to receive and form a guide for the slidable, serrated jaw 13, the  
90 rear wall of the channel in which said jaw operates being inclined relative to the base of the flange and to the face-plate to which said base is secured.

The side walls of the channel 12 are also channeled at 12', and at the rear end the sliding jaw is thickened  
95 or enlarged transversely to conform to and slidably operate in said channels 12', said enlargement or thickened portion affording means for boring or otherwise forming a hole 13' through this portion. The rear end of the sliding-jaw is inclined and parallel with the inclined plane formed on the rear wall of the channel 12  
100 whereby the jaw is accurately guided in its sliding movement; the front face of the jaw is serrated, or provided with teeth, as shown, and said face is preferably arranged at an angle to the inclined rear end and substantially parallel with the face-plate of the lathe.  
105 Some suitable retracting or impelling means is provided for operating the slidable jaw. While various means may be employed for this purpose I herein show a coiled-spring, 14, of suitable power having one end  
110 secured to a fixed point, as the flange or member 10, said spring in the specific construction shown, being



designed to pass through the bore or hole 13' and having its opposite end appropriately connected to the slidable-jaw.

On the inclined back of the jaw is secured a spring-latch-member 15 whose free end is adapted to catch into engagement with a shoulder 16 on the flange or member 10 and thereby hold the jaw retracted and inoperative and with the actuating spring distended, as shown in Fig. 3. To enable the latch member 15 to freely slide with the jaw when said jaw is released from the locked position just mentioned, the rear wall of the channel 12 is grooved or channeled at 16' for that purpose.

The operation of my driving dogs will be fully understood from the following:—Each face-plate will in practice, be equipped with a plurality of these dogs and each dog is capable of adjustment radially from the usual centers of the lathe. Each sliding serrated jaw is drawn back along the inclined plane in such a direction as to move the serrated surface towards the face-plate, and at the point of maximum movement in this direction the spring-latch-member, or other means, is provided for holding jaw in this retracted position. Then by means of the longitudinal adjustment of the tail-stock of the lathe and usual spindles and centers wheels mounted on their axle are mounted in the lathe, the axle being held in the customary manner on the centers. If the wheels have crank-pins projecting from them, these pins are allowed to project into the crank-pin holes or pockets, B, in the face-plate. It is now that the driving dogs are released by tripping the latch member, or other retaining means, when the spring, or other impelling means exerts its power or influence to cause the jaw to be moved along the inclined plane thereby causing the jaw to gradually approach the tire and until the sliding movement of the jaw is arrested at the point when the serrations or teeth of the jaw come in contact with the tire. It is at this point that I bring into use the well known and commonly employed straps or clamp bars 20, and bolts 21, and by screwing up the nuts on the bolts, the straps or clamp bars pull the rim of the wheel against the serrations or teeth on the dogs to thereby hold the latter in position, and overcome the force of gravity.

The tires are now ready to be turned, it being assumed that the series of dogs on the opposing face-plates of the lathe have been adjusted and operatively positioned as explained.

The tire being set in motion, a resistance offered to the tire by virtue of a cut will tend to retard slightly momentarily, the revolving motion of the tire, and by virtue of the grip previously obtained by the serrated surfaces on the tire the result will be that the serrated-jaw will also be retarded directly as is the rim of the wheel, and at the same time since the revolving face-plates are not retarded the result will be that the serrated jaw will have a slight movement along the inclined plane and in so doing its serrations will be embedded into the tire an amount in proportion to the resistance or cut and thereby obtain a grip, capable of overcoming the resistance without slipping. The straps or clamp bars and bolts before mentioned furnish the reactive force due to the embedding of the serrated teeth in the tire and prevent said tire from unduly springing away from the face-plate. The dogs, are, also,

equalizing as well as capable of adjusting themselves automatically to the load, or resistance offered by the cutting tool.

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

1. A movable work-driver comprising a driving-dog, latching means for holding the dog retracted out of engagement with the work, and impelling means tending to move the dog into driving contact with the work. 75

2. A movable work-driver comprising a slidably-mounted driving-dog, and a guide therefor, latching-means for holding the dog normally retracted out of engagement with the work, an impelling means tending to move the dog into driving contact with the work. 80

3. In a machine of the character described, the combination of a driving-member, an inclined plane carried thereby, a driving-dog slidably-mounted on said inclined plane, a detent-mechanism for holding the dog out of working position, and means having a tendency to move the dog along said inclined plane into working position, said dog, when in engagement with the work, adapted to retard in unison with said work and relative to the driving member. 85

4. In a machine of the character described, the combination of a driving member, a slidably-mounted driving-dog, an inclined guide therefor, a detent means on said member for detaining the dog at one position of the guide, said detent means adapted to release the dog to enable it to automatically move to a higher point on the guide and in contact with the work. 90

5. In a machine of the character described, the combination of a rotatable face plate having an inclined guide, a dog slidably-mounted on said guide and having a cam-face, to engage the work, detent-means for holding the dog out of working position, said means when released allowing the dog to be moved into working position. 95

6. In machines of the character described, the combination of a rotatable face-plate, an inclined guide carried thereby, a dog slidably mounted relative to the guide and having a serrated driving face, means for holding the dog normally under restraint out of contact with the work, and means for impelling the dog along its guide into contact with the work when said dog is relieved of its restraint. 100

7. The combination of a driver, a dog connected thereto and having a gripping portion constrained to move in a path oblique to the direction of movement of the dog, and a detent on the driver adapted to hold the dog out of working position. 105

8. The combination of a driver, a slidable-dog connected thereto and having a gripping portion constrained to move in a path oblique to the direction of movement of the dog, a detent on the driver adapted to hold the dog out of working position, and a means for moving the dog into working position. 110

9. The combination of a driver, a dog connected thereto and having a gripping motion constrained to move in a path oblique to the direction of movement of the dog, a detent on the driver adapted to hold the dog out of working position, and a spring connecting with said dog for moving the dog into working position after it is released by the detent. 115

10. In machines of the character described, a non-pivoted, slidably-mounted driving-dog supported relative to the work, means for holding the dog normally retracted and in inoperative position; and means for automatically projecting the dog into operative position to cause its working face to engage the work. 120

11. In machines of the character described, a slidably-mounted driving-dog supported relative to the work; said dog having a rear surface inclined relative to its driving-face; an inclined-plane in contact with which the rear surface of the dog slides; means for holding the dog normally retracted at a relatively low portion of said inclined-plane; means for releasing the dog from its retracted position; and means for inducing the dog to travel along said inclined-plane and to approach and contact with the work. 125

12. In machines of the character described, a slidably-mounted driving-dog supported relative to the work, said 130

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dog having a rear surface inclined relative to its driving face; an inclined-plane in contact with which the rear surface of the dog slides; means for holding the dog normally retracted at a relatively low portion of said inclined-plane, and releasing said dog; and means for inducing the dog to travel along said inclined-plane and to approach and contact with the work, said last-named means comprising a spring connected with the dog and with a fixed point said spring allowing the dog to adjust itself automatically to the resistance offered by the cutting tool.

13. In machines of the character described the combination of a rotatable face-plate, a dog carried by the face-plate and slidable in a path oblique to the plane thereof; means for holding the dog normally retracted and out of contact with the work, and releasing the dog from its retracted position; and means whereby the dog is moved along its path to bring its working-face into contact with the work, said last-named means holding the dog with a yielding pressure and allowing said dog to adjust itself

automatically to the resistance offered by the cutting tool.

14. The combination with a revoluble face-plate, of a flange or member carried thereon having a channeled front portion with an inclined-plane forming a wall of the channel; a dog slidably-mounted in the channel of the flange or member, said dog having a serrated front face and a rear face to slide in contact with said inclined-plane; a latch-member for holding the dog in a locked position at the lower portion of the inclined-plane; and a spring connected to the dog adapted to project said dog towards the work when the dog is released by its latch-member, said spring holding the released dog with a yielding pressure.

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

SALMON W. PUTNAM, 3D.

Witnesses:

EDWIN J. TILTON,  
ALFRED C. ANDERSON.