

(No Model.)

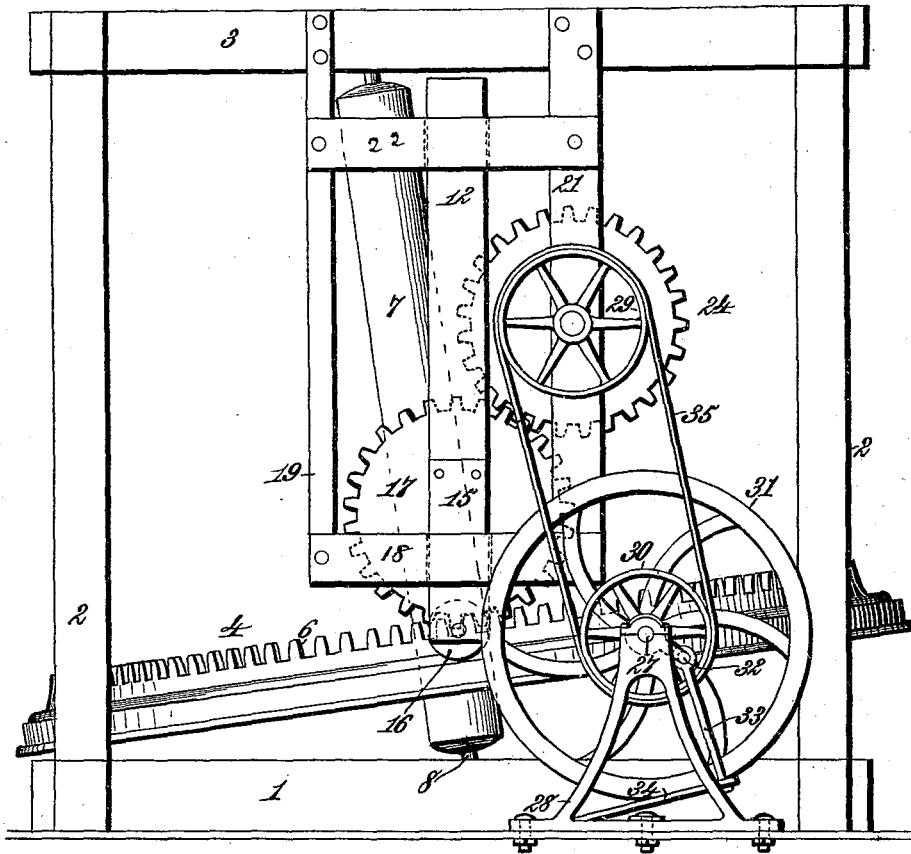
2 Sheets—Sheet 1.

B. F. C. BROOKS.  
APPARATUS FOR TRANSMITTING MOTION.

No. 461,399.

Patented Oct. 13, 1891.

*Fig. 1.*



*Witnesses.*  
*Robert Everett,*  
*A. H. Norris.*

*Inventor.*  
*Benjamin F. C. Brooks.*  
*By James L. Norris,*  
*Atty.*

(No Model.)

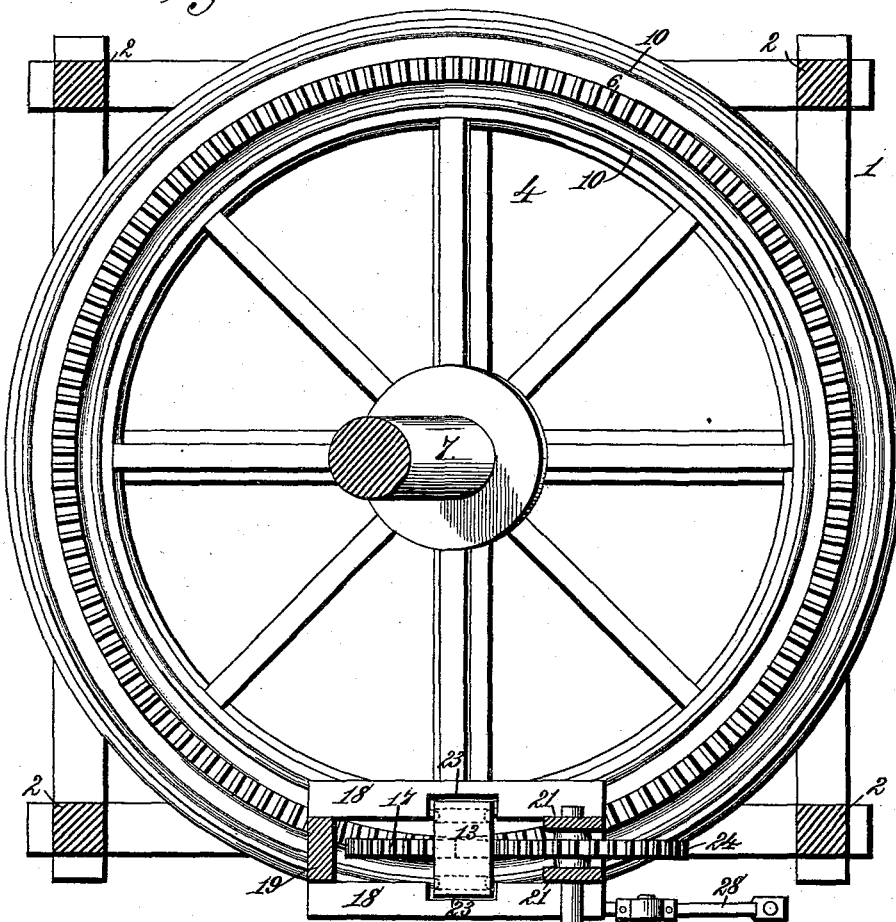
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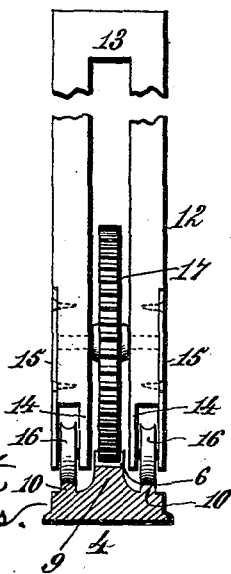
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*Fig. 2.*



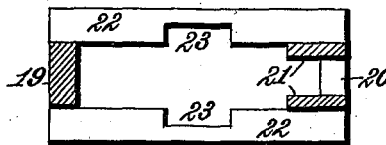
*Fig. 3.*



Witnesses:

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*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

BENJAMIN F. C. BROOKS, OF NASHVILLE, TENNESSEE, ASSIGNOR OF FOURTH-TIETHS TO JOEL E. YOWELL, AMOS R. DUNCAN, BUCHANAN LANIER, AND FRANK M. SEARIGHT, ALL OF SAME PLACE.

## APPARATUS FOR TRANSMITTING MOTION.

SPECIFICATION forming part of Letters Patent No. 461,399, dated October 13, 1891.

Application filed January 8, 1891. Serial No. 377,139. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN F. C. BROOKS, a citizen of the United States, residing at Nashville, in the county of Davidson and State of Tennessee, have invented new and useful Improvements in Apparatus for Transmitting Motive Power, of which the following is a specification.

My invention relates to certain novel improvements in apparatus for the application of motive power, and the purpose thereof is to provide a simple and comparatively inexpensive mechanism by which mechanical forces may be applied and transmitted to the point where it is used with the greatest attainable ease and with the least possible loss of power.

The invention consists to these ends in the several novel features of construction and new combinations of parts hereinafter fully set forth, and then particularly pointed out and defined in the claims following this specification.

To enable others skilled in the art to make, construct, and use my said invention, I will proceed to describe the same in detail, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a motive power embodying my invention. Fig. 2 is a plan view of the fly-wheel frame, together with the belt-pulleys and the gears. Fig. 3 is an elevation of the gear meshing with the inclined crown-wheel, the latter being shown in section. Fig. 4 is a detail partly sectional plan view of one of the frames inclosing the structure shown in Fig. 3.

In the said drawings, the reference-numeral 1 designates the base of the supporting-frame of the mechanism, which, as there shown, is substantially rectangular, though it may be of any preferred and suitable form. From the four corners of this base rise uprights 2, of suitable height, the upper part of the frame being stiffened by strong beams 3, running from one corner-post 2 to the adjacent post. Within the frame thus formed is arranged a large crown-wheel 4, which is mounted upon an inclined axis, whereby the face of the wheel is inclined at an angle of about

five to eight degrees, be the same more or less, as shown in Fig. 1. The upper face of this wheel is provided with teeth 6, rising from said surface at a point somewhat removed from the outer circumference

The numeral 7 denotes the main shaft of the crown-wheel, having a gudgeon 8, which seats in a bearing arranged about in the center of the frame.

The teeth 6 of the crown-wheel are formed upon a rib 9, raised somewhat above the upper face thereof and arranged centrally, or thereabout, upon the rim. Upon each side of this rib are arranged parallel rails 10 of metal, concentric with the crown-wheel, their upper surface being half-round to support and guide grooved wheels.

The numeral 12 denotes a frame composed either of two parallel uprights, or, if preferred, of a single casting having two parallel vertical arms or bars united at their upper ends by a bar 13, but disconnected at the lower ends. The vertical arms 12 are separated by a space a little greater than the width of the rib 9 on the crown-wheel, and they are rabbeted at their lower ends to form inner depending pieces 14. Upon their outer faces are attached plates 15, of metal or other suitable material, the ends of which drop to a point about opposite the ends of the depending pieces 14. Between the latter and the ends of said plates are arranged grooved rolls 16, journaled in the parallel parts 14 and 15 and resting upon the rails 10 on each side of the toothed rib 9.

Between the arms of the frame 12 is placed a spur-gear 17, its teeth meshing with those of the crown-wheel and its shaft journaled in the vertical arms of said frame, the arrangement being such that no part of the weight of the frame 12 shall rest upon said gear, but the whole thrown upon the grooved rolls 16 and rails 10, as shown, substantially, in Fig. 3.

Dropping from one of the beams 3, forming part of the upper portion of the rectangular frame, is a frame-work consisting of two horizontal and parallel beams 18, raised a little above the crown-wheel and connected at one end to a vertical beam 19, the upper end of which is attached to the beam 3. At

their other ends said beams 18 are bolted to an interposed block 20 through vertical strips or plates 21, which extend upward and are fastened to the beam 3. A little below the latter is a second pair of horizontal parallel beams 22, similar to those already described, and in the inner faces of these beams, at or about their central portion, are formed recesses or seats 23, Figs. 2 and 4. Similar seats or recesses are formed in the lower beams 18, and in these seats the frame 12 is arranged, the construction being such that it may rise and fall freely therein to permit the very slight play due to inequalities in the rails 10.

Between the plates or strips 21 is arranged a gear 24, meshing with the spur-gear 17. The shaft of this gear 24 is prolonged at one end and extends outward to receive a tight pulley 25, belted to a pulley 26, the shaft 27 of the latter having bearing in brackets 28, bolted to the flooring. Upon the shaft of the gear 24 I also mount a loose pulley 29, a similar pulley 30 being also placed upon the shaft 27, which also carries a fly-wheel 31.

Upon the shaft of the fly-wheel is a crank or other device 32, capable of being operated through the agency of a pitman 33, which is worked by a foot-lever 34, of ordinary form. The pitman 33, belt 35, and spur-gear 34 are used to overcome the friction of the parts and continue the motion of the wheel. When once this motion is established, a comparatively small expenditure of power will maintain it, the operation of the mechanism being facilitated by the inclination of the gear 4 and the freedom of the frame 12 and gear 17 to rise and fall vertically. This inclination, plus the gravity of the gear 17 and its frame, gives a tendency toward rotation to the said gear, and if a counter-shaft is so arranged that a pinion thereon may mesh with the gear 17 a moderate power applied through the belt 35 and gear 24 will drive said counter-shaft, together with any machinery geared thereto, such, for example, as a Gordon or other press, a lathe, pump, or other apparatus.

The belt 35 is shifted by any ordinary means. (Not shown in the drawings.)

It will be seen that the mode of operation thus embodied and combined with an inclined wheel or crown-gear of large diameter may also be attached and used with a vertical gear, with a spur-gear encircling it on the outside, and used as a driving power.

What I claim is—

1. In an apparatus for transmitting motive

power, the combination, with a crown-gear of large diameter, having its axis inclined, of a frame having grooved wheels journaled in its lower end and resting upon concentric half-round rails on the upper face of the wheel, and a spur-gear journaled in the lower end of the frame and meshing with the teeth of the crown-gear, substantially as described.

2. In an apparatus for transmitting motive power, the combination, with a crown-gear of large diameter, having its axis inclined, of a frame having grooved wheels resting upon concentric rails upon the upper face of the wheel between the highest and lowest points of its inclination, a spur-gear journaled in said frame and meshing with the crown-teeth between the rails, and gearing driven by said spur-gear to transmit motion to machinery, substantially as described.

3. In an apparatus for transmitting motive power, the combination, with a crown-gear of large diameter, having its axis inclined, of a frame supported by wheels which rest upon rails upon the side of the wheel, a spur-gear journaled in said frame and meshing with the crown-teeth between the rails, an independent gear meshing with said spur-gear, which is arranged between the points of highest and lowest inclination, a fly-wheel journaled in brackets on the flooring and having its shaft geared by a belt to pulleys on the shaft of the independent gear, and a foot-lever connected by a pitman to a crank or other propelling device on the fly-wheel shaft, substantially as described.

4. In an apparatus for transmitting motive power, the combination, with a frame-work of a crown-gear of large diameter, having an inclined axis, of a frame supported by wheels or rolls resting on rails on opposite sides of the teeth of the crown-wheel, a spur-gear journaled in said frame and meshing with the teeth of the crown-wheel, a spur-gear journaled in a frame in which the frame resting on the crown-wheel is supported, and a shaft having a pulley belted to a pulley on the shaft of said spur-gear, substantially as described.

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

BENJAMIN F. C. BROOKS. [L. s.]

Witnesses:  
 ANDREW T. YOUNG,  
 JIMMIE D. HYDE.