No. 785,931. PATENTED MAR. 28, 1905.

D. W. AXE.

MECHANICAL MOTOR.

APPLICATION FILED DEC. 28, 1904.

Fig. 1.

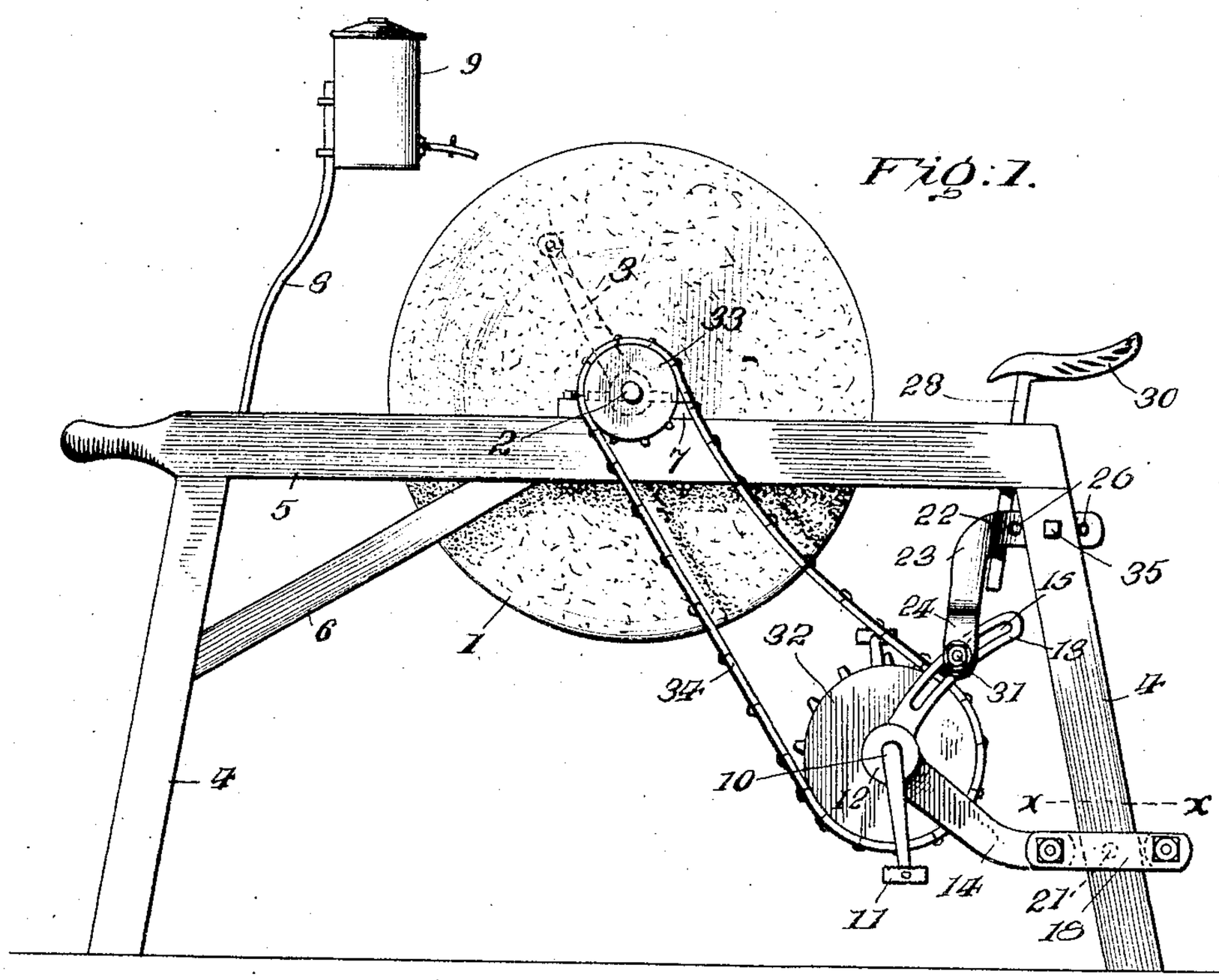


Fig. 2.

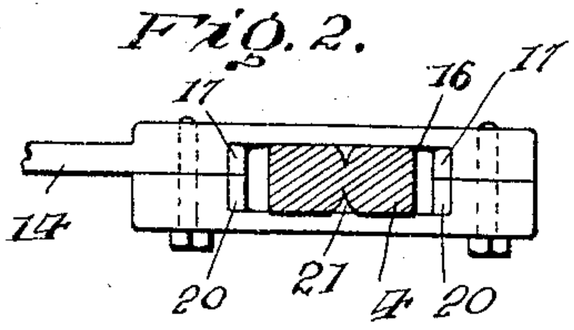
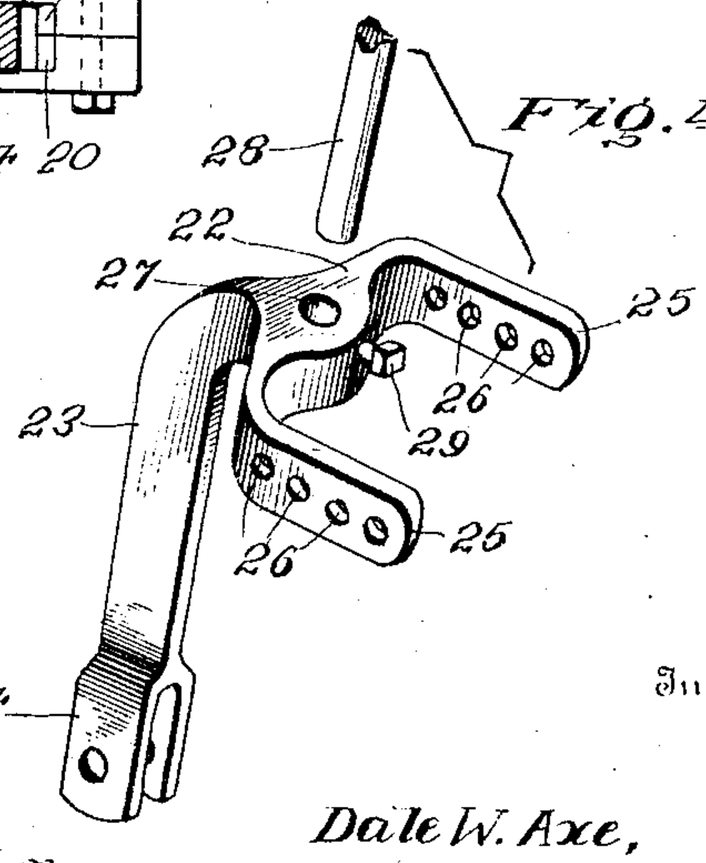


Fig. 3.

Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

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MECHANICAL MOTOR.

SPECIFICATION forming part of Letters Patent No. 785,931, dated March 28, 1905.

Application filed December 28, 1904. Serial No. 238,579.

To all whom it may concern:

Be it known that I, DALE W. AXE, a citizen of the United States, residing at Threecreek, in the county of Owyhee and State of Idaho, have invented certain new and useful Improvements in Mechanical Motors, of which the following is a specification.

This invention appertains to motors of the type driven by foot-power, and designed more especially for operating light machinery, such as grindstones, lathes, scroll-saws, and the like. In its specific adaptation the motor is intended for grindstones and is shown in this application in the accompanying illustrations, the purpose being to leave both hands of the operator free, whereby the tool or other part to be ground may be manipulated and the operator is comfortably seated during the performance of the work.

The invention is in the nature of an attachment, so as to be fitted to the framework of grindstones as commonly found upon the market, the several parts being adjustable to admit of adapting their position to the requirements of the operator and the relative proportions of the parts, whereby the operator may assume a natural and comfortable position, so as to relieve the operation of arduous and fatiguing features and enable driving force to be advantageously applied.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and accompanying drawings.

While the invention may be adapted to different forms and conditions by changes in the structure and minor details without departing from the spirit or essential features thereof, still the preferred embodiment thereof is shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a grindstone provided with a motor embodying the invention. Fig. 2 is a horizontal section of one of the hind legs of the frame on the line *x x* of Fig. 1, showing the manner of attaching a fork member of the lower portion of the frame thereto. Fig. 3 is a detail perspective view of the lower section or part of the frame. Fig. 4 is a detail perspective view of the upper section or part of the frame, showing the lower end of the seat-post.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The grindstone 1 is provided with the usual shaft or axle 2, having a crank 3 at one end to admit of its operation by hand. The framework is of the usual construction and comprises legs 4, bed 5, and braces 6. The axle or shaft 2 is mounted in bearings 7, such as commonly provided for grindstones, whereby friction is minimized and provision had for protecting the bearings from water and grit and at the same time admitting of the grindstone being placed in position upon the frame or removed. A standard 8 is located at one end of the framework and is provided with the usual dripping-can 9, by means of which water is supplied to the grindstone when in operation.

The motor is of the type adapted to be propelled by foot-power and comprises a crank-shaft 10, having its crank-arms equipped with pedals 11 such as commonly provided for bicycles and velocipedes. The lower section or part of the motor-frame comprises crank-hanger 12, curved arm 13, and fork 14, the parts 13 and 14 curving in opposite directions from the crank-hanger 12. The arm 13 is slotted, as shown at 15, and the fork members have their rear portions recessed in a side, as shown at 16, to form seats to receive corresponding legs 4 of the grindstone-frame work. The shoulders 17, formed at the ends of the recess or seats 16, are oppositely curved to admit of the lower section of the motor-frame having a pivotal movement upon the legs without binding, while at the same time providing for contact of the shoulders 17 with opposite edges of said legs 4. A clamp-plate 18 is pro-

vided for each member of the fork 14 and is recessed upon its inner side to form a seat 19, corresponding to the seat 16, the shoulders 20 at the ends of the recess or seat 19 being curved to conform to the curvature of the shoulders 17. A spur or pivot-point 21 is formed upon the inner side of the clamp-plates 18 and recessed portions of the fork members, and are centrally disposed with reference to the seats and are adapted to enter opposite sides of the legs 4, to which the motor-frame is attached to prevent slipping of the lower part of the frame, while at the same time admitting of its having a limited pivotal movement.

The upper part or section of the motor-frame comprises a head 22, a pendent arm 23, terminating in a fork 24, and rear extensions 25, having a corresponding series of openings 26. The head 22 has a vertical opening 27, in which is adjustably fitted the seat-post 28, same being held in the located position by means of a set-screw 29, threaded into an opening in a side of the head 22 and intersecting with the vertical opening 27. The seat 30 may be of any type and connected to the upper end of the seat-post 28 in any determinate way. The curved slotted arm 13 passes through the space formed between the members of the fork 24 and is held in the required position by means of a clamp-screw 31, passed through openings in the end portions of the fork members 24 and through the slot 15. The space between the members of the fork 24 is such as to comfortably receive the arm 14 and admit of its free movement when the clamp-screw 31 is loosened, and when said clamp-screw is tightened the fork members 24 are drawn tight against opposite sides of the arm 13 and hold it in the required position. The seat 30 may be raised or lowered after the said screw 29 has been loosened and is held in the required position by retightening said set-screw.

A sprocket-wheel 32 is attached to the crank-shaft 10 and a companion sprocket-wheel 33 is fitted to the axle or shaft 2, a sprocket-chain 34 connecting the two sprocket-wheels and transmitting motion from the crank-shaft to the grindstone. The sprocket-chain 34 is preferably of the type adapted to be lengthened and shortened by means of detachable links. The seat may be moved toward and from the grindstone either by shifting the upper portion or section of the frame forward or backward, provision being had for this adjustment by means of the series of openings 26 in the rear extensions 25, the bolts or fastenings 35 employed for connecting the same to the legs being inserted through any one of the openings 26. The seat may likewise be inclined more or less and at the same time thrown to the front or to the rear by turning the upper portion of the frame on the fastenings 35. To accomplish this, it is necessary to loosen the clamp-screw 31, the manner of connecting the lower portion of the frame to the legs 4 admitting of its adapting itself to the adjustment of the upper member or section of the frame. Should it be required to take up any slack in the drive-chain or to adjust the crank-shaft, the clamp-screw 31 is loosened and the lower part of the frame may be turned upon the spurs or pivot-fastenings 21, and when the required adjustment has been had the parts are fixed by retightening the clamp-screw 31. It is to be understood that any great difference in the distance between the shafts 2 and 10 resulting from adjustment of the motor-frame with reference to the grindstone-frame is compensated for by either inserting or removing links of the drive-chain 34.

Having thus described the invention, what is claimed as new is—

1. In a foot-propelled motor, the combination of upper and lower frame-sections, means for adjustably connecting said sections to a support, other means for adjustably connecting said sections, a seat attached to the upper frame-section, a crank-shaft journaled in the lower frame-section, and means for transmitting motion from the said crank-shaft to the part to be operated, substantially as set forth.

2. In a foot-propelled motor, the combination of an upper frame-section provided with a seat and having a pendent portion, a lower frame-section provided with a crank-shaft and having a slotted arm, means for adjustably connecting the frame-sections to a support, and other means for adjustably connecting the pendent portion of the upper frame-section to the slotted arm of the lower frame-section, substantially as set forth.

3. In a foot-propelled motor, the combination of an upper frame-section comprising a head, a pendent portion, rear extensions, a seat adjustably connected with said head, means for adjustably connecting the rear extensions to a support, a lower frame-section comprising a crank-hanger, an upper curved arm, and a lower fork, means for adjustably connecting said curved arm to the pendent portion of the upper frame-section, means for pivotally and adjustably connecting the members of the fork to a support, and a crank-shaft mounted in said crank-hanger, substantially as set forth.

4. In a foot-propelled motor, the combination of an upper frame-section provided with a seat, a lower frame-section provided with a crank-shaft and comprising a fork, the fork members having depressions to form seats and having the shoulders at the ends of the depressions oppositely curved, clamp-plates recessed upon their inner sides and having

the shoulders at the ends of the recess curved, and pivot-points extended inward from the recess of the clamp-plates and fork members for pivotally connecting the lower frame-section to a support, and means for connecting the upper and lower frame-section in an adjusted position, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

DALE W. AXE. [L. S.]

Witnesses:
C. H. HELSLEY,
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