No. 628,655.

Patented July 11, 1899.

L. L. FILSTRUP.

SAW SHARPENING MACHINE.

(Application filed Apr. 10, 1899.)

(No Model.)

2 Sheets—Sheet 1.

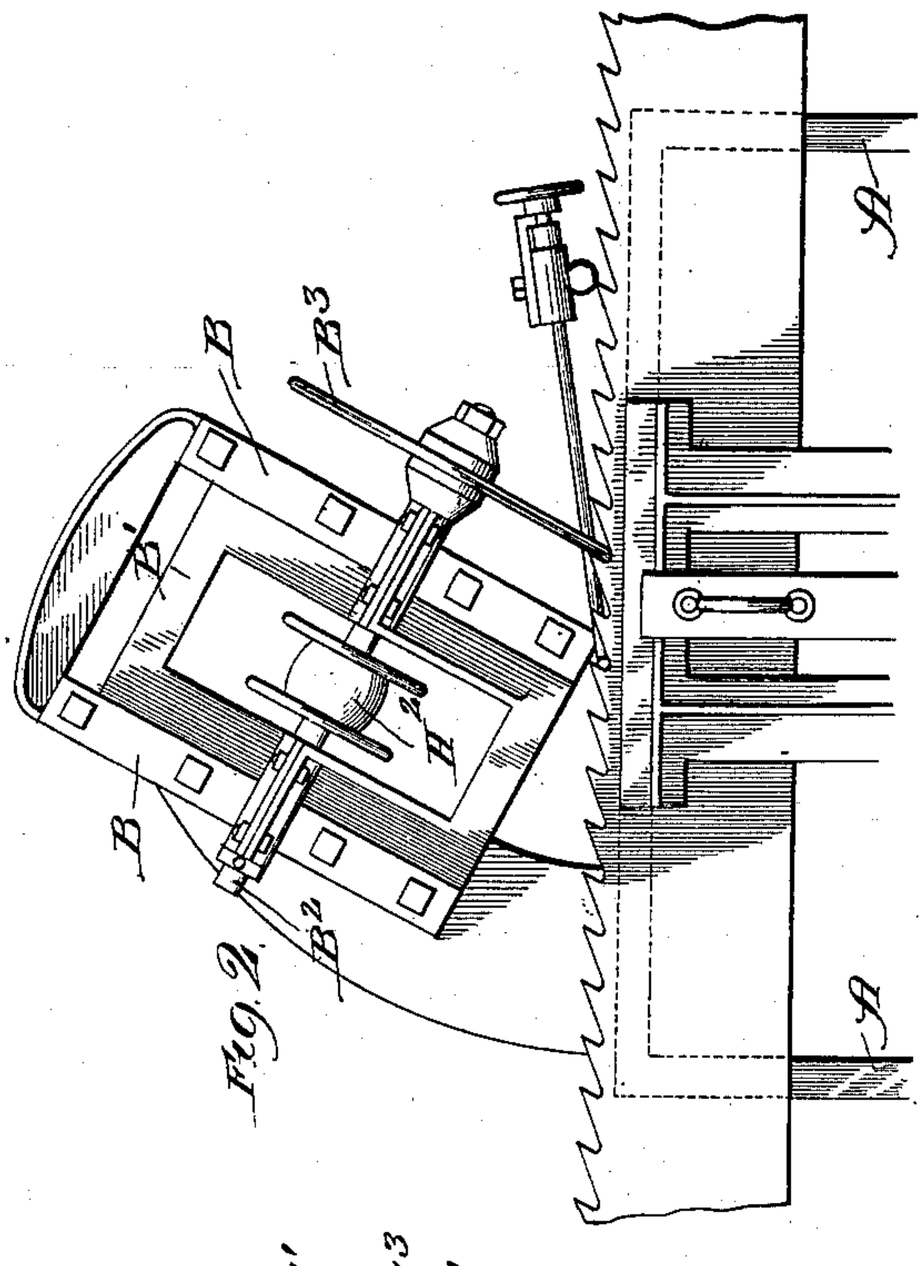

Fig. 2.

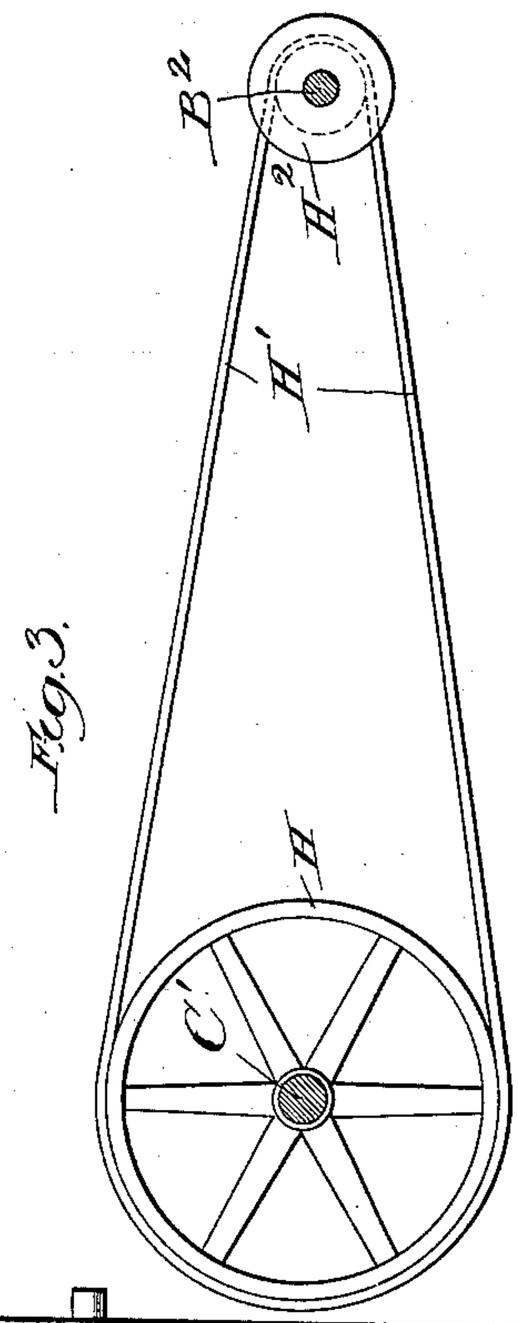

Fig. 3.

Fig. 1.

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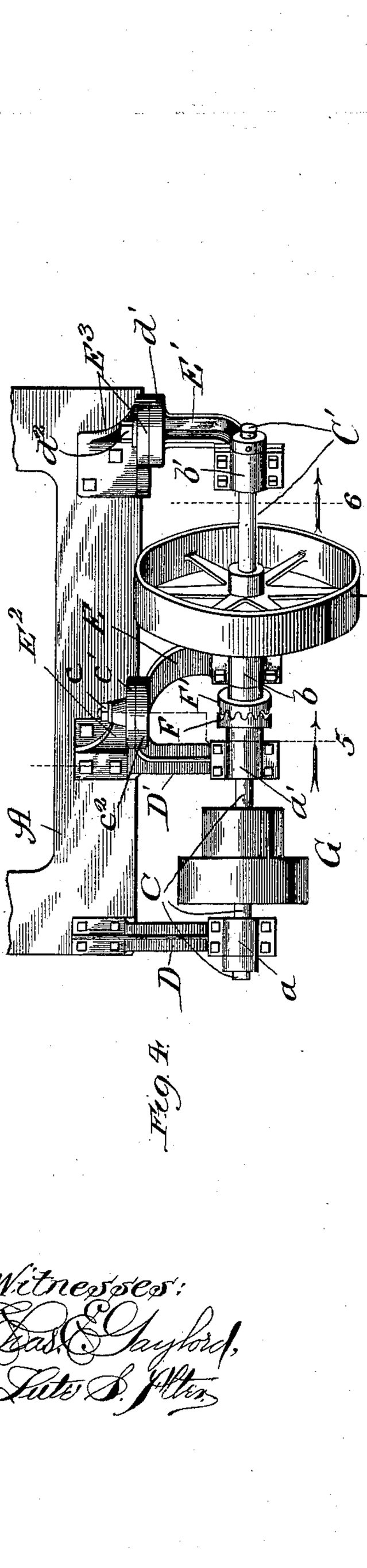

Fig. 4.

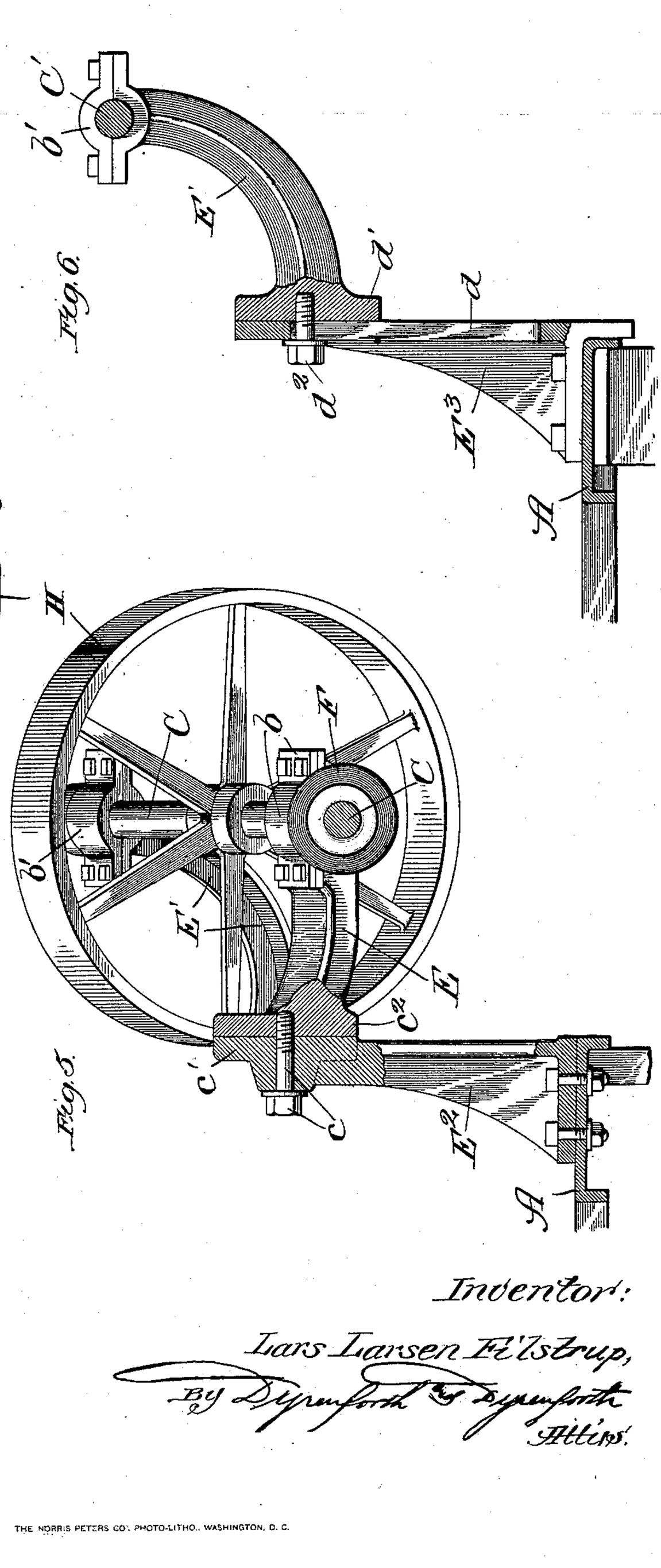

Fig. 5.

Fig. 6.

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UNITED STATES PATENT OFFICE.

LARS LARSEN FILSTRUP, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO H. P. SCHOFIELD, OF SAME PLACE.

SAW-SHARPENING MACHINE.

SPECIFICATION forming part of Letters Patent No. 628,655, dated July 11, 1899.

Application filed April 10, 1899. Serial No. 712,503. (No model.)

To all whom it may concern:

Be it known that I, LARS LARSEN FILSTRUP, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Saw-Sharpening Machines, of which the following is a specification.

This invention relates to improvements in that class of automatic saw-sharpening machines set forth in Patent No. 574,855, dated January 5, 1897, and in Reissue Patent No. 11,733, dated April 11, 1899.

The object of the present invention is to provide a cheaper, more practicable, and more efficient construction for regulating the inclination of the driving-pulley having belt connection with the grinding-wheel-arbor pulley. The pulley on the grinding-wheel arbor of course varies in inclination with a change in inclination of the grinding-wheel gate and the guides within which the latter moves, and it is desired that the driving-pulley shall be capable of adjustment in inclination to enable it to be set in the same plane as the pulley which it drives. The advantages of such a construction are sufficiently set forth in the last patent mentioned above.

In the accompanying drawings, Figure 1 is a rear elevation of a machine embodying my improved features; Fig. 2, a broken front elevation of the same; Fig. 3, a detached side elevation of the driving-pulley and the grinding-wheel-arbor pulley; Fig. 4, a broken plan view; Fig. 5, a broken vertical section taken on the broken line 5 of Fig. 4, and Fig. 6 a similar section on line 6 of Fig. 4.

A represents the main frame, B the inclined guides for the grinding-wheel gate, B′ the grinding-wheel gate moving in said guides, B^2 the grinding-wheel arbor provided with suitable journal-bearing, and B^3 the grinding or sharpening wheel mounted on said arbor. These different parts are capable of being adjusted to any desirable angle in accordance with the form of saw-tooth required and are arranged in the ordinary manner.

At the rear of the upper portion of the frame is journaled a two-part driving-shaft C C′, the horizontal part C of which is journaled in fixed bearings *a a′* on standards D D′ and the inclined part C′ in adjustable bearings *b b′* on arms E E′. The bearings *b b′* are rigid with the arms which bear them, and to permit adjustment of the bearings the arms themselves are movably connected with standards E^2 E^3, secured to the frame.

The adjacent ends of the two-part driving-shaft are connected by gears F F′, the teeth of which are of such a construction as to permit the inclination of the part C′ of the shaft to be changed without interfering with the running of the gears.

The arm E is mounted to swing upon a horizontal stud *c*, which passes through a vertical head *c′* on the arm E^2 and screws into a vertical head c^2 on the swinging arm. The arm E is curved, as shown, and projects rearwardly from the point of support. The pivotal point is directly in front of the upper portion of the periphery of the gear F and in the plane of engagement of the gears. In other words, the axis about which the arm and part C′ of the shaft move as a whole lies, preferably, in or close to the line of intersection of a horizontal plane tangential to the periphery of the gear F at its upper portion and a vertical plane corresponding to the central plane of engagement of the gears.

The standard E^3 is provided with a curved slot *d* and with a plane vertical rear surface over which moves a vertical head *d′* on the lower forward end of the curved arm E′. The head *d′* is secured to the standard E^3 by means of a stud d^2, which passes through the slot and screws into the vertical front surface of the head. The slot *d* is concentric with a circle about the axis of the arm E.

The horizontal part of the shaft is provided with a pulley G, through the medium of which motion is imparted to it, and the inclined part with a pulley H, connected by means of a belt H′ (see Fig. 3) with a pulley H^2 on the grinding-wheel arbor. It is obvious that by loosening the studs *c* and d^2 the inclination of the shaft part C′ may be changed to bring the pulley H to the plane of the arbor-pulley when the latter is in any given position desired. The teeth of the gears F F′ will of course be of a proper conformation to insure contact whatever the position of the shaft C′.

It may be added that the power to be transmitted in a machine of this character is not

great and that very good results may be obtained even though the gear-teeth are not cut theoretically correct and though the axis about which the inclined shaft part swings is not located exactly as described. Variations in details are therefore to be considered within the spirit of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a saw-sharpening machine of the class described, the combination with the inclined grinding-wheel gate and its arbor, of a two-part driving-shaft one part of which is of adjustable inclination, gears in mesh at the adjacent ends of the two-part shaft, an arm provided with a bearing adjacent to the gear on the inclined shaft part and mounted to swing on a horizontal axis, and means for transmitting motion from the inclined shaft part to said arbor, substantially as and for the purpose set forth.

2. In a saw-sharpening machine of the class described, the combination with the inclined grinding-wheel gate and its arbor, of a two-part driving-shaft one part of which is of adjustable inclination, gears in mesh at the adjacent ends of the two-part shaft, an arm provided with a bearing adjacent to the gear on the inclined shaft part and mounted to swing on a horizontal axis, an adjustable bearing for the outer end of the inclined shaft part, and means for transmitting motion from said inclined shaft part to said arbor, substantially as and for the purpose set forth.

3. In a machine of the character described, the combination with an inclined driven pulley, of a two-part driving-shaft, one portion of which is inclined, gears in mesh at the adjacent ends of the two shaft parts, a curved arm provided with a bearing adjacent to the gear on the inner end of the inclined shaft part and mounted to swing on a horizontal axis lying substantially at the intersection of a horizontal plane tangential to the upper surface of the gear on the horizontal shaft part and a vertical plane corresponding to the central plane of engagement of the gears, means for fixing the inclined shaft part in a given position, a pulley on the inclined shaft part, and belt connection between said pulleys, substantially as and for the purpose set forth.

4. In a saw-sharpening machine of the class described, the combination with the inclined grinding-wheel gate and its arbor, of a two-part driving-shaft, one part of which is of adjustable inclination, gears in mesh at the adjacent ends of the two-part shaft, an arm provided with a bearing adjacent to the gear on the inclined shaft part and mounted to swing on a horizontal axis, a standard connected with the machine-frame provided with a slot and a plane vertical rear face, an arm provided with a bearing and a head contacting with said vertical face, a stud connecting said parts, and means for transmitting motion from the inclined shaft part to said arbor, substantially as and for the purpose set forth.

5. In a saw-sharpening machine of the class described, the combination with the inclined grinding-wheel gate and its arbor, of a two-part driving-shaft, one part of which is of variable inclination, fixed bearings for the horizontal shaft part, gears at the adjacent ends of the shaft parts, a fixed standard provided with a perforated vertical head, a swinging arm provided with a vertical head secured to the first-named head and provided at its free end with a shaft-bearing, an adjustable bearing for the outer end of the inclined shaft part, and means for transmitting motion from said inclined shaft part to said arbor, substantially as and for the purpose set forth.

LARS LARSEN FILSTRUP.

In presence of—
R. T. SPENCER,
ARTHUR DYRENFORTH.