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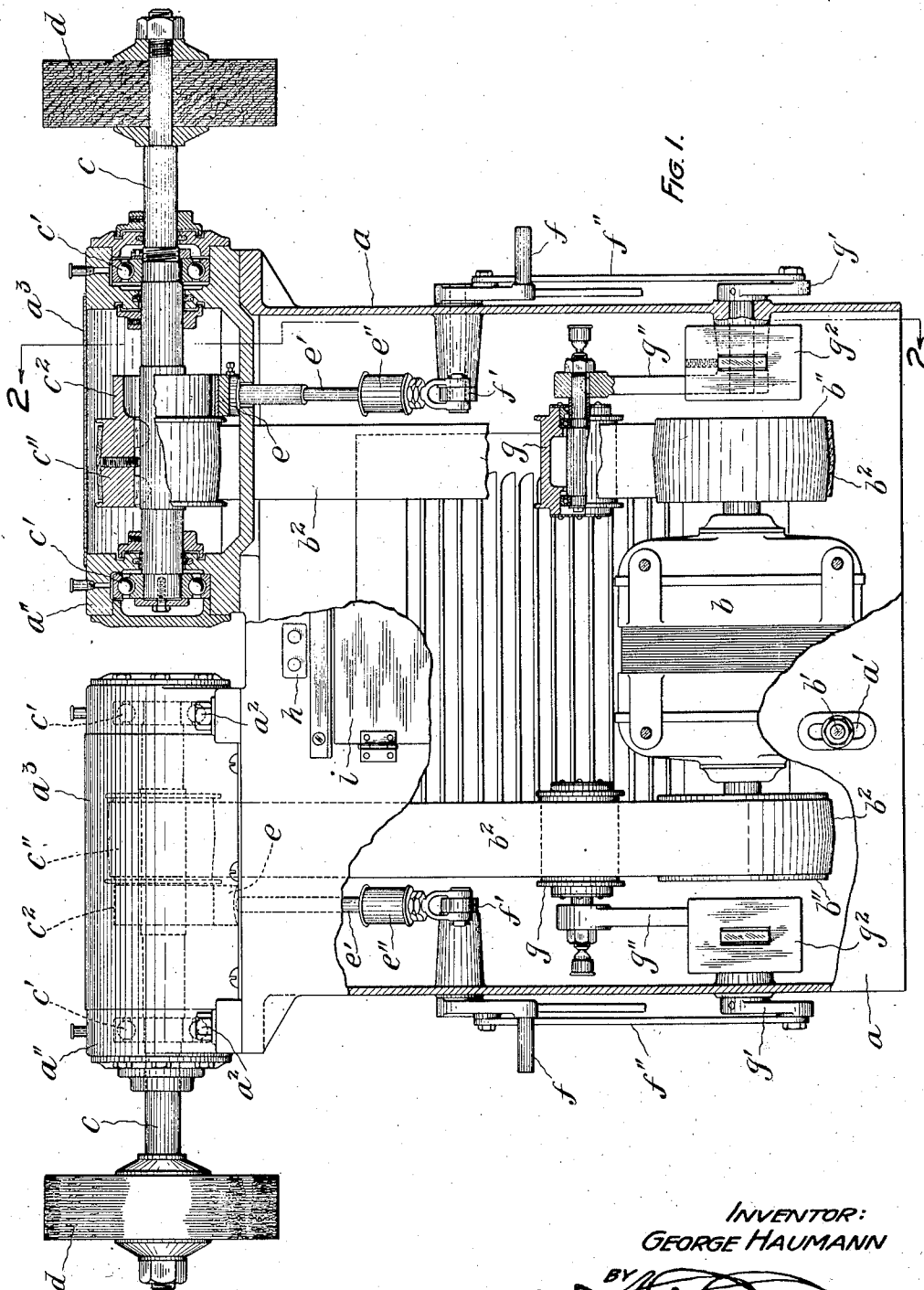
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G. HAUMANN


DRIVE MECHANISM FOR POLISHING LATHES

Filed March 2, 1925

2 Sheets-Sheet 1



INVENTOR:
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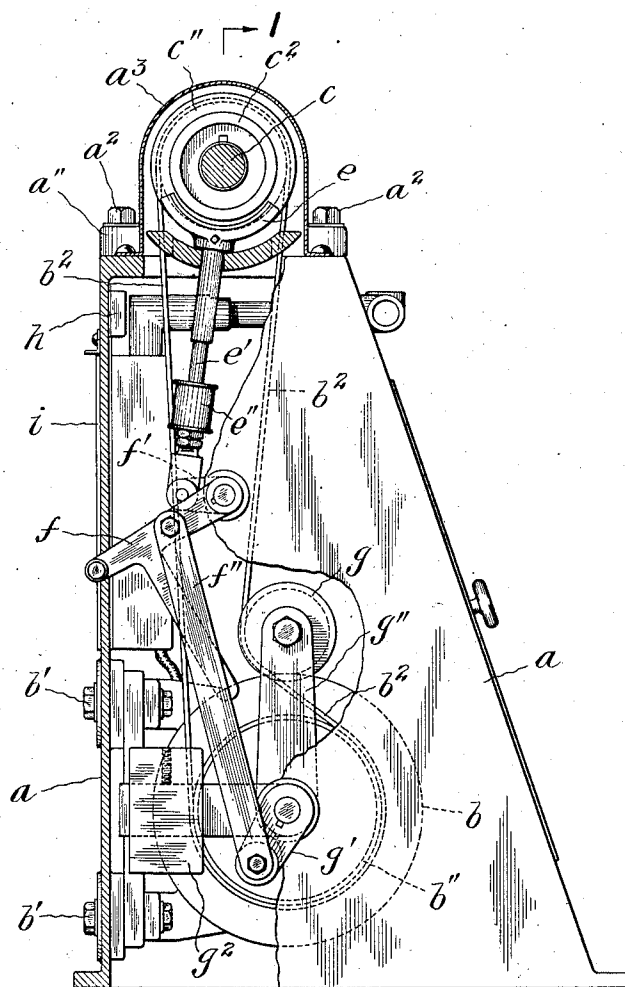


FIG. 2.

INVENTOR:
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UNITED STATES PATENT OFFICE.

GEORGE HAUMANN, OF PAINESVILLE, OHIO, ASSIGNOR TO THE P. A. GEIER COMPANY,
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DRIVE MECHANISM FOR POLISHING LATHES.

Application filed March 2, 1925. Serial No. 12,522.

My invention relates to improvements in polishing lathes and like mechanisms, and has for its object the construction of a self-contained power-driven mechanism having novel and effective control means, including a brake, preferably, unitary mounting of the driven member and the capacity for readily changing the speed-ratio of the drive.

These features, together with other advantageous details of construction, may well be explained in connection with a polishing lathe embodying my improvements; the same being equipped with a double spindle arrangement connected with a common motor which is bodily adjustable with respect to the driven spindles, while the appliance is mounted in a substantially dust-proof housing to insure the best working conditions and safety of operation.

The motor is connected with each of said spindles by a counterweighted belt-tightener, and each spindle is equipped with an individual brake device provided with a resilient self-locking toggle. Each brake and belt-tightener, respectively, is connected to its corresponding member by an alternatively actuating lever for controlling the operation of its associated spindle.

These structural details will be set forth in connection with the accompanying drawings, wherein:

Figure 1 is a view, partially in side elevation and partially in vertical section illustrating a polishing lathe of double spindle type embodying my improvements, and

Fig. 2 is a transverse sectional view on line 2—2, Fig. 1; the end housing wall being partially broken away.

Throughout these drawings I have employed the same character of reference to indicate similar parts.

Inspection of Figure 1 discloses a polishing lathe of a double spindle, self-contained type wherein two unitary spindle housings are associated with a common motor device respectively controllable by their conveniently positioned controlling levers. Each of these levers operates its own belt-tightening device and an alternative, cushioned brake device for the spindle shaft.

Within the housing *a* there is mounted an electric motor *b*, preferably provided with a vertical adjustment by means of securing bolts *b'* within the slots *a'* of the housing *a*.

Terminal pulley wheels *b''* are provided upon the motor shaft which have driving belts *b²* running over the spindle shafts at the upper portion of the appliance and duplicated at either side thereof. Except for the fact that the upper pulley wheel upon the left is indicated as of smaller diameter than the one on the right merely to emphasize the adaptability for operating at different speeds, the two spindle housings are of identical unitary construction.

Referring to the sectionally shown housing *a* associated with the spindle upon the right, Fig. 1, it will be seen that the spindle shaft *c* is provided with ball bearings *c'* and a pulley wheel *c''* over which runs a loose belt *b²*. The polishing disc *d*, or any desired rotatable member, for that matter, is mounted at the outer end of shaft *c* for intermittent rotation by the motor. The pulley wheel *c''* has an integral, laterally disposed brake cylinder *c²* adapted to be engaged and rigidly held by the brake quadrant *e* which is mounted at the upper end of a plunger *e'* with an interposed rubber cushioning member *e''*.

The controlling lever *f* has an internal arm *f'* connected with the plunger *e'* and a link *f''* extending to the external arm *g'* of the belt-tightener, comprising the internal arm *g''*, a counterweight *g²* and its laterally positioned pulley wheel *g* disposed in alignment with the belt *b²*. Thus it will be seen that the spindle shaft is controllable by the conveniently positioned lever *f* which is adapted alternatively to throw the belt-tightener into action for driving the spindle shaft and its attached polishing disc with the release of the brake, or apply the brake with a toggle-locking action upon the release of the belt-tightener. This locking capacity provided for the spindle shaft is of material advantage in changing the polishing discs from time to time.

Moreover, it will be observed that the spindle housings *a''* are mounted removably upon the upper portion of the main housing *a* by means of bolts *a²*, while a cover *a³* completely encloses the pulley wheel and brake in dust-tight relation. Such unitary spindle housing is capable of ready replacement in order to substitute one having a different speed ratio of pulley wheels, for example, or a different driven member. This is contributed to by the under-acting brake member,

so that a change of the shaft housing is very readily and quickly effected.

The slotted adjustment of the motor *b* permits the ready positioning of said motor with respect to the driving belts so that the idlers of the belt-tightening mechanism will operate to the best advantage in conjunction with their respective brake devices. This motor is connected with a push button type of switch *h* so that the power unit is conveniently controlled by the operative. A dust-tight door *i* provided in the housing affords access to the interior thereof when necessary.

Each belt-tightener is provided with its adjustable weight *g*² for throwing the proper tension upon the belt by means of its associated idler or pulley wheel; said weight assisting in maintaining a toggle action for the cushioned locking brake upon the complete elevation of the associated controlling lever *f*.

Having now described the preferred embodiment of my invention, I claim as new and desire to secure by Letters Patent, the following:

1. In an appliance of the class described, the combination with a power shaft and a stationarily mounted driven shaft, of a potentially loose belt adapted operatively to connect the same, an associated belt-tightener, a brake device associated with the driven shaft, and a controlling lever connected with the belt-tightener and brake device, comprising a self-locking toggle connection with the latter for rendering the one or the other alternatively operative, substantially as set forth.

2. In an appliance of the class described, the combination with a driven shaft, of means for driving the same, a brake device associated with said driven shaft, a controlling lever for the driving means, and a self-locking toggle connection between said lever and the brake device for alternatively actuating the same with respect to the driving means, substantially as set forth.

3. In an appliance of the class described, the combination with a driven shaft, of means for applying power thereto, a brake device and its actuating toggle associated with said shaft, a power controlling lever, and a cushioned connection between said lever and brake device for alternatively actuating the same with the disconnection of the power, substantially as set forth.

4. In an appliance of the class described, the combination with a driven shaft, of a motor device, a housing rotatably mounting said shaft, a belt operatively connecting the motor with the driven shaft, and vertical adjusting means provided upon the housing for effecting the relative adjustment of the motor and driven shaft, substantially as set forth.

5. In an appliance of the class described,

the combination with a driven shaft, of its driving motor, a housing, a belt operatively connecting the motor with the driven shaft, means for tightening and loosing said belt, and a slotted adjustable support for the motor provided upon the housing, substantially as set forth.

6. In an appliance of the class described, the combination with a housing, a motor secured in the lower portion of the housing, a driven shaft, a journal frame and terminal journals securely mounted in said frame and rotatably mounting said shaft; the journal frame being positioned above the motor and secured to the housing, a belt operatively connecting the driven shaft and the motor, and means for tightening and for relaxing said belt, substantially as set forth.

7. In an appliance of the class described, the combination with a housing, of a motor adjustably mounted in the lower portion of said housing, a driven shaft, a journal frame and terminal journals rotatably mounting said shaft; the journal frame being removably secured to the housing above the motor, a belt operatively connecting the driven shaft and motor, and means for tightening and for relaxing the belt, substantially as set forth.

8. In an appliance of the class described, the combination with a housing, of a motor adjustably mounted in the lower portion of said housing, a driven shaft mounted at the upper portion of the housing, a brake device associated therewith, a belt operatively connecting the shaft and the motor, belt-tightening means including an overthrowing counterweight, and an operating lever connected with said means and with the brake device for alternatively actuating the same, substantially as set forth.

9. In an appliance of the class described, the combination with a power shaft and a driven shaft, of a potentially loose belt adapted operatively to connect the same, an associated belt-tightener, including a pulley-wheel and an overthrowing counterweight, a brake device associated with the driven shaft, and a controlling lever connected with the counterweight and brake device adapted alternatively to render one or the other operative, substantially as set forth.

10. In an appliance of the class described, the combination with a power shaft and a driven shaft, of a potentially loose belt adapted operatively to connect the same, an associated belt-tightener, a brake device, including a self-locking toggle associated with said driven shaft, a counterweight, and a controlling lever connected with said toggle and counterweight, adapted alternatively to overthrow the latter in position to render the belt-tightener or the brake operative, substantially as set forth.

11. In an appliance of the class described,

the combination with a driven shaft, of locking toggle and associated brake, substantially as set forth.
means for driving the same, a brake device associated with said driven shaft, a self-locking toggle connected to actuate the brake, an interposed resilient member, and a controlling lever for the driving means connected alternatively to actuate the self-

In testimony whereof I do now affix my signature at Cleveland, Ohio, this 27th day of February, A. D. 1925.

GEORGE HAUMANN.