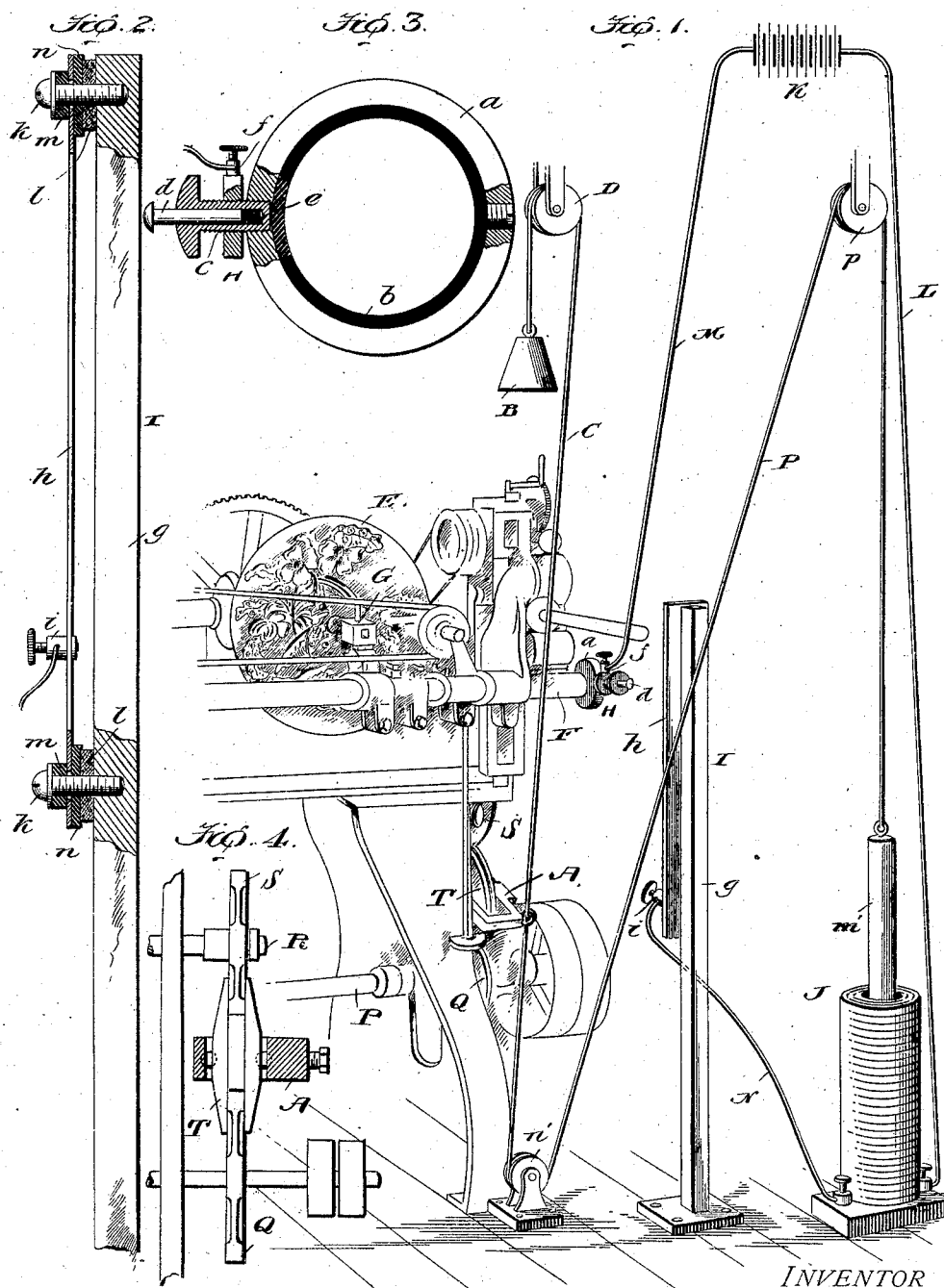


No. 850,550.

PATENTED APR. 16, 1907.

C. A. C. WAGENFÖHR.
ATTACHMENT FOR ENGRAVING MACHINES.

APPLICATION FILED SEPT. 20, 1905.



WITNESSES:

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ATTACHMENT FOR ENGRAVING-MACHINES.

No. 850,550.

Specification of Letters Patent.

Patented April 16, 1907.

Application filed September 20, 1905. Serial No. 279,248.

To all whom it may concern:

Be it known that I, CHARLES A. C. WAGENFÖHR, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Attachments for Engraving-Machines, of which the following is a specification.

My invention pertains to engraving-reducing and die-milling machines; and it contemplates the provision of reliable means for automatically controlling the speed at which the model and die of such a machine are rotated, so as to assure the model and die moving slowly while the drill is cutting the die and fast while the drill is idle, this with a view of materially reducing the time consumed in engraving a die.

With the foregoing in mind the invention will be fully understood from the following description and claims when taken in connection with the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view illustrating my improvements in connection with so much of an engraving-reducing or die-milling machine as is necessary to illustrate the application of the improvements. Fig. 2 is an enlarged detail view, partly in elevation and partly in section, of the fixed or stationary contact of the improvements. Fig. 3 is an enlarged transverse view, partly in elevation and partly in section, of the movable contact as it appears to a person looking at the end of the bar on which it is fixed. Fig. 4 is a detail view illustrating the mechanism through the medium of which the speed of the model and die is changed.

Similar letters designate corresponding parts in all of the views of the drawings, referring to which—

A is the ordinary vertically-movable lever of an engraving-reducing or die-milling machine which controls the speed at which the model and the die are rotated. This lever A is normally held in a raised position to assure slow rotation of the model and die through the medium of any suitable means—such, for instance, as a weight B and a cable C, which is passed over a sheave D and is connected to the lever and the weight, as shown in Fig. 1. When the said lever A is moved downwardly and retained in such position, the speed at which the model and die are rotated is materially increased.

E is a model which is mounted on the ma-

chine in the ordinary well-known manner. This model, however, differs from the models usually employed in that all of its face is elevated or raised with the exception of the portion in which the design is formed.

F is the usual movable bar of the machine, which carries the tracer G and the drill or cutter, (not shown,) and H is a contact carried by the said bar. This contact H may be of any construction compatible with the purpose of my invention without involving a departure from the scope thereof. I prefer, however, to have the said contact comprise a ring *a*, mounted on the bar F, a ring *b*, of insulating material, interposed between the bar F and the ring *a*, so as to electrically isolate the former from the latter, a tube *c*, screwed into or otherwise connected with the ring *a*, a plunger *d*, movable in said tube and backed by a spring *e*, and a binding-post *f*, mounted on the said tube *c*.

In connection with the contact H, carried by and movable with the bar F, I provide a stationary contact I. This latter is preferably made up of a support *g*, a springy plate *h*, of thin metal or other suitable conductive material, provided with a binding-post *i*, headed bolts *k*, connecting the plate *h* to the support *g*, pieces of soft rubber *l* or other suitable highly-resilient material mounted on the bolts *k* and interposed between the support and the plate, so as to add to the resiliency of the plate, pieces of insulating material *m*, arranged on the bolts at the outer side of the plate *h*, and pieces of insulating material *n*, arranged on the bolts at the inner side of the plate *h*.

J is an electromechanical device, preferably a solenoid.

K is a source of electric energy.

L is a conductor intermediate one pole of the source of electric energy and the solenoid.

M is a conductor intermediate the other pole of the source of electric energy and the contact H.

N is a conductor intermediate the contact I and the solenoid, and P is a cable connecting the lever A and the piston *m'* of the solenoid J and passed under a sheave *n'* and over a sheave *p*, so that when the solenoid is energized and the piston *m'* is drawn downwardly the lever A will also be drawn downwardly to increase the speed of rotation of the model and the die.

On the primary drive-shaft P of the engraving-machine is fixed a friction-disk Q,

and on an upper shaft R, which is connected by the usual driving connection (not shown) with the model and die, is fixed a friction-disk S. The lever A is fulcrumed at one end, so as to swing vertically, and is connected at its opposite end to the cable C, Fig. 1, and it is equipped at an intermediate point of its length with friction-disks T, disposed at opposite sides of and frictionally engaging the disks Q and S. Thus it will be seen that when the lever A is swung downward the speed of the model and die will be increased, while when said lever is swung upward the speed of the model and die will be diminished. The said speed-changing mechanism is of the ordinary construction and is simply shown by me as one type of speed-changing mechanism that may be employed in the practical application of my invention.

In the practical operation of my improvements the model and the die will, as before stated, be rotated at a low rate of speed so long as the tracer is presented to a depressed portion of the model and the drill is cutting the die, this because the weight B retains the lever A in its raised position. When, however, a part of the raised surface of the model is presented to the tracer, the said tracer and the bar F will be moved outwardly or in a direction away from the model. This will carry the contact H against the contact I, with the result that the circuit in which the solenoid and the source of electric energy are arranged will be closed, the solenoid will be energized, and the piston *m'* and the lever A will be lowered, so as to materially increase the speed at which the model and the die are rotated. The model and the die will be rotated at a high rate of speed until a depressed portion of the model is presented to the tracer, when the bar F and the contact H will resume their normal positions, the electric circuit will be interrupted to release the piston *m'*, and the weight B will operate to raise the said piston *m'* and the lever A and through the medium of the latter reduce the speed of rotation of the model and the die.

It will be gathered from the foregoing that when my improvements are employed the time necessary to engrave a die will be materially reduced; also, that the improvements are entirely automatic in operation and em-

body no delicate parts, such as are liable to get out of order after a short period of use.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an engraving-machine, the combination of a speed-controlling device, a model, a tracer, a contact movable with the tracer, a contact arranged to be engaged by the first-mentioned contact, means for moving the speed-controlling device in one direction and normally holding it in one position, and electromechanical means for moving said device in the opposite direction and holding it in another position; said electromechanical means being arranged in an electric circuit with the said contacts and a source of electric energy.

2. In an engraving-machine, the combination of a model, a tracer, a contact movable with the tracer, a contact arranged to be engaged by the first-mentioned contact, a speed-controlling device, means for moving said device in one direction and normally holding it in one position, and a solenoid for moving said device in the opposite direction and holding it in another position; the said solenoid being arranged in an electric circuit with the said contacts and a source of electric energy.

3. In an engraving-machine, the combination of a model, a tracer, a tracer-carrying bar, a contact comprising a collar mounted on but insulated from the tracer-carrying bar and a spring-pressed plunger carried by said collar, a fixed contact comprising a support, a plate connected to but insulated from the support, means backing said plate for adding to its springiness, a speed-controlling device, means for moving said device in one direction and normally holding it in one position, and an electromechanical device connected with the speed-controlling device; the said electromechanical device being arranged in an electric circuit with the said contacts and a source of electric energy.

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

CHARLES A. C. WAGENFÖHR.

Witnesses:

GEORGE W. SIMPSON,
MAUDE E. HENNIG.