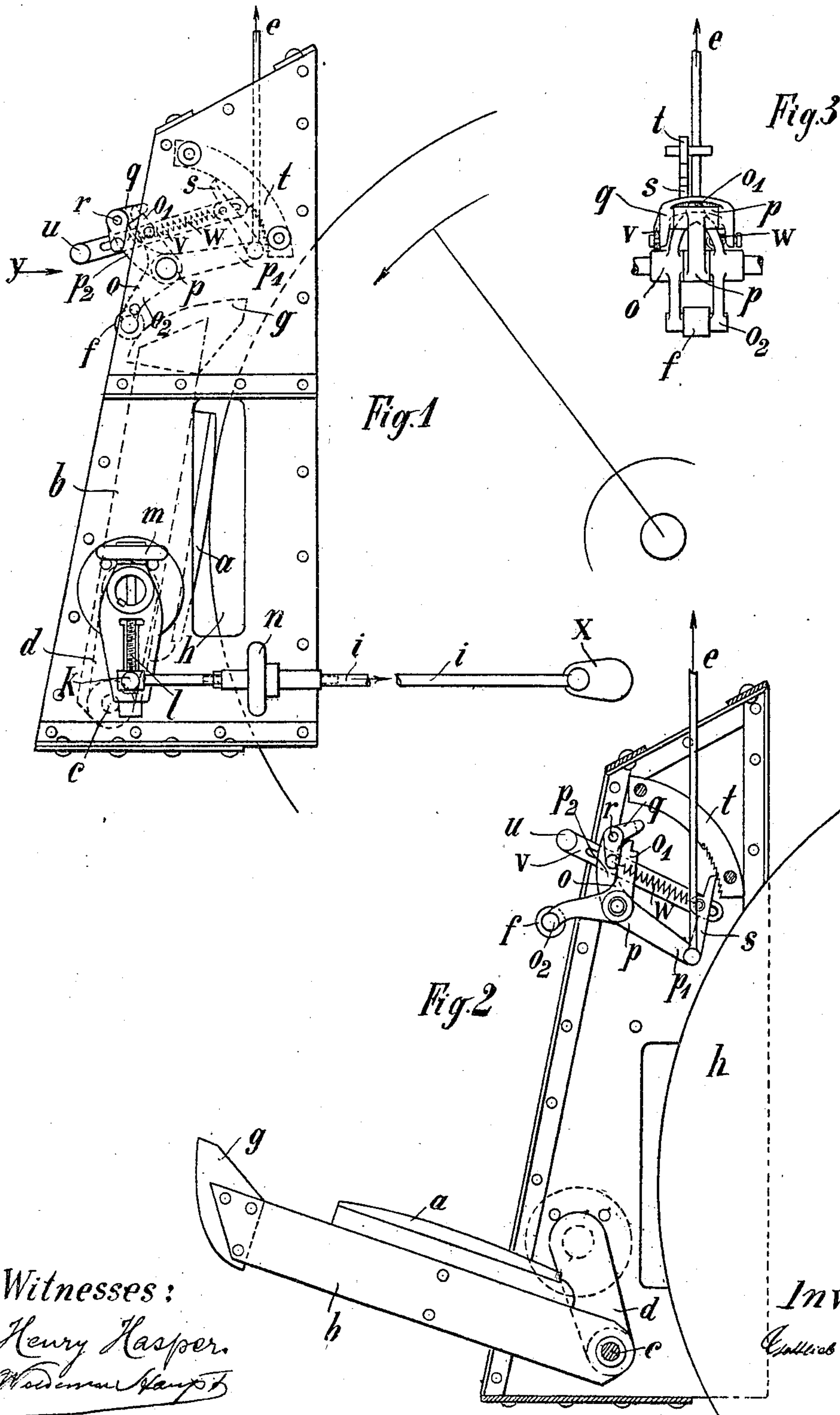


No. 837,715.

PATENTED DEC. 4, 1906.

G. PEISELER.  
GRINDING MACHINE.  
APPLICATION FILED FEB. 28, 1906.



Witnesses:  
Henry Hasper.  
Waldemar Kapp.

Inventor:  
Gottlob Peiseler



# UNITED STATES PATENT OFFICE.

GOTTLIEB PEISELER, OF CHARLOTTENBURG, GERMANY.

## GRINDING-MACHINE.

No. 837,715.

Specification of Letters Patent.

Patented Dec. 4, 1906.

Application filed February 28, 1906. Serial No. 303,426

*To all whom it may concern:*

Be it known that I, GOTTLIEB PEISELER, a citizen of the German Empire, residing at Charlottenburg, in the Province of Brandenburg and Kingdom of Prussia, Germany, have invented certain new and useful Improvements in Grinding-Machines, of which the following is a specification.

This invention relates to and has for its object an improved grinding-machine which differs from machines which have hitherto been known by the surfaces to be ground of the article operated upon being brought into contact with the grindstone by imparting a rolling motion to said article. This is attained by a work-holder or holding-arm carrying the article to be ground being revolutely mounted on a pin and being pressed against the grindstone under the action of a load, the pin carrying the holder being moved according to the nature of the object to be ground.

One form of the new machine is illustrated, by way of example, in the accompanying drawings, in which—

Figure 1 is a side elevation of the machine, the coupling or follower mechanism being in gear and the holder being in its working position. Fig. 2 is a vertical section through the machine, the coupling or follower mechanism being out of gear and the holder lying back to enable the work to be changed, while Fig. 3 shows the coupling or follower mechanism in elevation, as seen by looking in the direction indicated by the arrow *y*, Fig. 1.

In the example illustrated the article *a* to be ground is held in a work-holder or holding-arm *b*, and the latter is revolutely arranged upon the pin *c* of the crank *d*. A rod *e* or other suitable means subjected to the tension of a spring or to a weight provides the necessary pressure with which the article to be ground is pressed against the grinding-stone *h* or the like, which rotates in the direction indicated by the arrow, said pressure being applied through the roller *f* and the templet *g*, fixed in the holder *b* by means of a coupling or follower mechanism, which is described below in detail. The crank *d*, which is oscillated by means of a connecting-rod *i*, which is connected with any suitable means for driving the same—such as, for example, a shaft provided with a cam or a crank *X* or the like—causes the article *a* to be ground to roll upon the grinding-stone to the described extent, this movement being effected in the following

manner: The pressure exerted by roller *f* on the curved outer face of templet *g* tends at a certain point of their combined action in contact to turn the crank *d*, arranged, as shown, from left to right. This pressure is caused by the pull of the rod *e*. The action of rod *i* is to resist this by a counter pull and reverse the movement of crank *d*, making it turn from right to left. The direction of travel of the article to be ground over the periphery of the wheel is determined by the relative strength of pull of the two rods *e* and *i*.

According to the width of the stone and the nature of the article to be ground several holders may of course be arranged at the same time in front of one stone, all of said holders being mounted on the same crank-shaft, but each of them being provided with a separate coupling or follower mechanism.

In order to be able readily to regulate the length of the portion to be ground and the position of the portion to be ground, the virtual length of the arm *k*, with which the connecting-rod *i* engages, can be varied by means of the screwed spindle *l* and hand-wheel *m*, and the length of the connecting-rod *i* can be varied by means of the hand-wheel *n*, provided on an adjusting-thimble, which may be furnished with a lock-nut.

In order to be able readily to remove the holder *b* from the stone after the grinding operation has been finished, a special coupling or follower mechanism is provided between the rod *e* or its equivalent, which is subjected to the action of a weight or a spring and the roller *f*. Said coupling or follower mechanism is constructed and operates in the following manner: In order to be able to turn back the holder *b* on the pin *c* away from the stone *h*, the pressure exerted by the roller *f* must be removed and the arm *o* of the two-armed lever *o*, carrying said roller, must be turned in a clockwise direction in order that the templet *g*, which is revolute on the pin *c*, may be able to pass freely under it. With this object in view the rod *e* engages with the arm *p* of the two-armed lever *p*, which carries on said arm *p* a pivoted detent *s*, which can be inserted with its end in engagement with the teeth of an arc-shaped ratchet-bar *t*, mounted on the machine-frame. By this arrangement the tension in the rod *e* can be taken up by the detent *s* engaging with said arc-shaped



ratchet-bar *t*. The detent *s* is moved by means of a bar *v*, provided with a handle *u*. Said bar *v* operates upon a coupling-piece or catch *q*, arranged revolubly about a pin *r* on the arm *p*<sup>2</sup> of the two-armed lever *p*, but permits of a certain amount of lost motion between itself and the detent, the detent and the catch engaging by means of pins with slots in said bar. Further, the coupling-piece or catch *q* and the detent *s* are connected by means of a spring *w* in tension in such a way that when the one is put into gear the other is disengaged.

In Fig. 1 the machine is shown with its parts in their working position, the coupling or follower mechanism consequently being in gear. The tension in the rod *e* is transmitted through the two-armed lever *p* and through the catch *q* to the arm *o'* of the two-armed lever *o*, carrying the roller *f*, and consequently to the roller *f* and thence to the holder *b*. Consequently when the pin *c* is moved the machine will be put in operation. If the machine is to be put out of action, the detent *s* is pressed by means of the handle *u* and the bar *v* against the teeth of the ratchet-bar *t*. During the clockwise rotation of the lever *p* the detent will slide over the teeth, and at the commencement of the counter-clockwise rotation of said lever it will catch in the teeth, and so take up the tension in the rod *e*. Consequently the catch *q* is released from its engagement with the end of the arm *o'* of the lever *o*, and in consequence of the tension in the spring *w* it turns counter-clockwise, so that the lever *o*, carrying the roller *f*, is free to turn in the clockwise direction. It therefore follows that the holder *b* can be conveniently turned back away from the stone *h* and can be turned down about the pin *c*, Fig. 2.

The operation of putting the holder into gear is similar. The holder, with another article to be ground, is brought against the stone, the roller *f* is raised onto the templet *g*, and the catch *q* is placed in the path of the arm *o'* of the lever *o* by pulling the handle on the bar *v*. At the end of the clockwise motion of the lever *o* the catch *q* is caught and the tension in the rod *e* is taken up through the catch *q*. Consequently the detent *s* is released, and on account of the tension in the spring *w* it turns on its pivot away from the ratchet-bar *t*, so that the lever *p* can once more move freely and the machine start working again.

The described coupling-catch mechanism or follower mechanism and the shaft for the crank *d* are each revolubly supported in bearings on the machine-frame.

The method of operation here described can of course be carried out in very many different ways.

Having now particularly described and ascertained the nature of my said invention

and in what manner the same is to be performed, I declare that what I claim is—

1. In combination with a grindstone or grinding-wheel, an oscillating work-holder, means acting on said holder to move the work over the periphery of the wheel in one direction of rotation and additional means acting on said holder to move the work over the periphery of the wheel in the opposite direction of rotation substantially as set forth.

2. In combination with a grinding-wheel, an arm carrying the article to be ground, a shaft carrying a crank on which said arm is pivotally mounted, a templet carried by said arm, a roller arranged for contact with said templet as the latter approaches the wheel and adjustable means for pressing said roller against said templet, the shape of the templet determining the degree of grinding pressure applied to different parts of the article substantially as set forth.

3. In combination with a grinding-wheel, a pivoted work-holder, a device for pressing said holder toward the wheel, a spring-pressed lever for actuating said device, a detent and catch carried by said lever, a spring connecting said detent and catch, a fixed ratchet-bar arranged to engage said detent, a part carrying the aforesaid device and arranged to be engaged by said catch and a rod provided with means whereby either said detent or said catch can be put into such engagement, in order that the pressure of said device may be applied or not to said holder at will substantially as set forth.

4. In combination with a grinding-wheel, an arm serving as a holder for the article to be ground, a crank-shaft having said arm mounted thereon, means for turning said crank-shaft in one direction, a templet carried by said holder, a roller arranged for contact with said holder as the latter approaches the grinding-wheel, a lever *o* carrying said roller, a lever *p*, means for operating said lever *p*, a catch carried by lever *p* and adapted to engage lever *o*, a detent also carried by lever *p*, a fixed rack arranged to be engaged by said detent, a spring connecting said detent and catch and a rod arranged to throw one or the other at will into engagement in order that the said roller may act on the templet or not as desired, such action being opposed to the normal movement of the crank-shaft and these two opposing movements determining by their relative force the direction of travel of the article to be ground over the periphery of the wheel substantially as set forth.

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

GOTTLIEB PEISELER.

Witnesses:

HENRY HASPER,  
WOLDEMAR HAUPT.