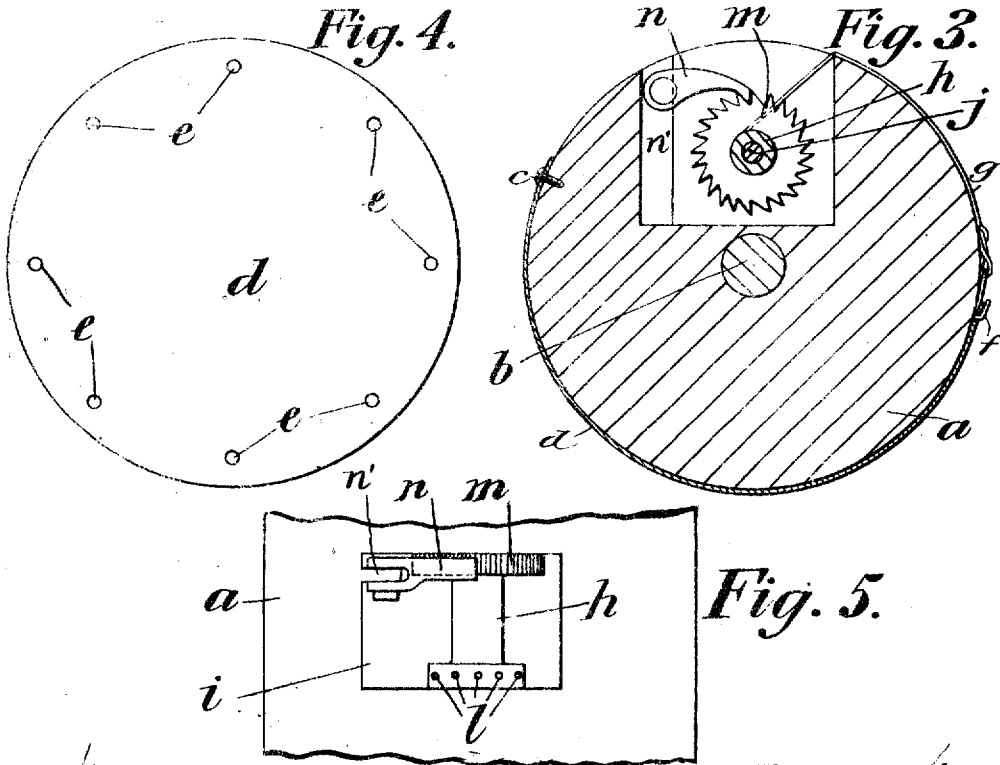
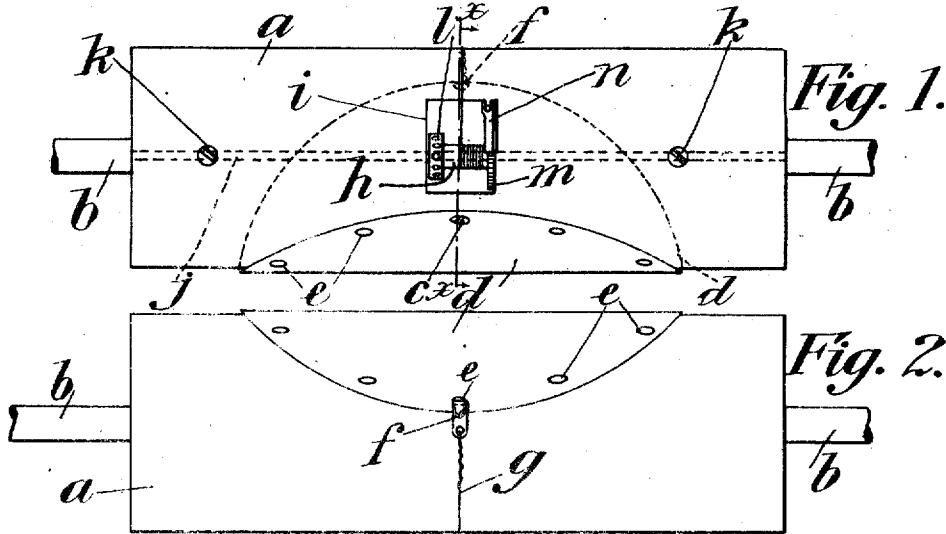


905,708..

Patented Dec. 1, 1908.



Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES ALISON KER, OF GLASGOW, SCOTLAND.

ENGRAVING-MILL.

No. 905,708.

Specification of Letters Patent.

Patented Dec. 1, 1908.

Application filed October 9, 1908. Serial No. 456,871.

To all whom it may concern:

Be it known that I, CHARLES ALISON KER, a subject of the King of Great Britain, residing at Glasgow, Scotland, have invented certain new and useful Improvements in or Connected with Engraving-Mills, of which the following is a specification.

This invention relates to engraving mills or rolls and it has for its object, instead of engraving the mill as usual, to fit on the mill a thin metal plate or sheet with the engraving thereon.

Heretofore it has been usual to engrave the periphery of the solid mill itself and, with this system, after the mill has been used, it has to be stored or laid aside entire until again required so that a great many expensive mills have to be made, or when it is not necessary to keep the engraving for further use, the entire mill is useless until it has been "turned" down so as to make it ready for re-engraving, and, further, with this system, when it is desired to "toss" (i. e. to turn the engraving through an angle, in which it will be seen the angle of any portion of the plate to the elemental lines making up the surface of the roll will be changed) an entirely new mill has to be engraved with the "tossed" design. Under my invention I overcome these disadvantages by using one plain mill in place of a series and fitting on the periphery thereof a flat, preferably steel, plate or sheet having the design engraved on the surface thereof, and when this plate has been used it can be readily removed and another fitted in its place, and after the plates have been used, they can be stored without inconvenience. Further, the plates can readily be turned on the mill through any desired angle, being adapted to receive a number of "tosses".

In order that this invention may be clearly understood I have hereunto appended explanatory drawings, which show, by way of illustration or example, the preferred method of carrying out the invention.

Figure 1 is a side elevation of one side of the mill. Fig. 2 is a side elevation of the opposite side of the same. Fig. 3 is a cross section of the same on the line $x-x$. Fig. 4 is a plan view of the sheet or plate d . Fig. 5 is an enlarged view of the winding drum h .

In the arrangement shown, a plain mill a having a spindle b is used and secured to this mill, by means of a set screw or pin or the like c , is a circular sheet or plate d of steel or

other suitable metal, having the design or pattern engraved thereon by any of the usual engraving processes. The set pin c is passed through one of a series of holes e , arranged at equal distances apart and near to the edge of the plate, and is screwed into a hole provided for its reception in the mill, and with the hole e diametrically opposite that through which the set pin c is passed, a hook f is engaged, the said holes providing engaging means for the hook and pin. Secured to this hook f is a wire or its equivalent g which is passed round the mill and is wound upon a small drum h fitted in a recess i in the mill and carried on a spindle j passed longitudinally through the mill and held securely in place by means of set screws or pins k . The drum h is provided at one end thereof with a series of "tommy" holes l and at the opposite end with a ratchet wheel m with which engages a pawl n pivoted to a rib n^1 on the side wall of the recess i , the drum h being capable of rotation by means of an instrument inserted in the "tommy" holes and being also prevented from releasing by means of the pawl and ratchet. With this arrangement the engraving is made upon the surface of the plate d , which is thereafter secured, by means of the set screw or pin c , to the mill, the hook f being then engaged and the drum h turned so as to tighten up the wire g and draw the plate circumferentially firmly and tightly round the mill. When it is necessary to "toss" the plate the pawl n is disengaged so as to enable the wire g to be slackened and the set pin c then withdrawn and passed through one of the other holes e in the plate and again into the same hole in the mill, the hook f being engaged with that hole e which is now diametrically opposite the set screw or pin whereupon the plate is drawn tightly round the mill as before. The plates may be of other form instead of circular.

If so desired, in the case of large plates, a series of tightening devices may be employed. In this manner removable patterns are applied to mills whereby the expense of fresh mills for each pattern is avoided, and the process of engraving, and the time occupied thereby, are very much economized.

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

1. The combination of a roll, an engraved plate, means upon the roll for fastening said

plate to said roll and additional means also upon the roll for tightly wrapping the plate over the surface of the roll.

2. The combination of a roll, an engraved plate, a pin for securing said plate to said roll and means upon the roll for drawing the plate tightly over the surface of the roll.

3. The combination of a roll, an engraved plate, means for fastening one edge of said plate to the roll, a circumferential tightening device in the roll and means connecting the said tightening device with the opposite edge of said plate.

4. An engraving roll, a circumferentially wrapped impression die therefor, and means for securing the ends of the die to the roll and tightening the same at any of a plurality of angles with reference to the elemental lines of the surface of said roll.

5. An engraving roll, an impression die therefor having a plurality of engaging means thereon and means carried by the roll for connection with selected ones of said engaging means to bring tension thereon.

6. The combination with a roll, of a circu-

lar metal plate, means for fastening said plate at one part of its circumference to the roll, a tightening drum in the roll, pawl and ratchet mechanism connected with said tightening drum and a flexible connection fastened at the one end to said drum and at the other end detachably fastened to said plate.

7. The combination with a roll having a recess therein, of a drum rotatably located in said recess, ratchet and pawl mechanism connected with said drum, a circular metallic disk having a number of holes around its circumference, a set pin capable of being passed through one of said holes into a hole in the roll and means connecting said disk to said drum circumferentially in such manner that by the winding of the drum the disk can be tightly wrapped on the roll.

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

CHARLES ALISON KER.

Witnesses:

GEORGE WOLFE BRUCE,
ROBERT A. THOMSON.