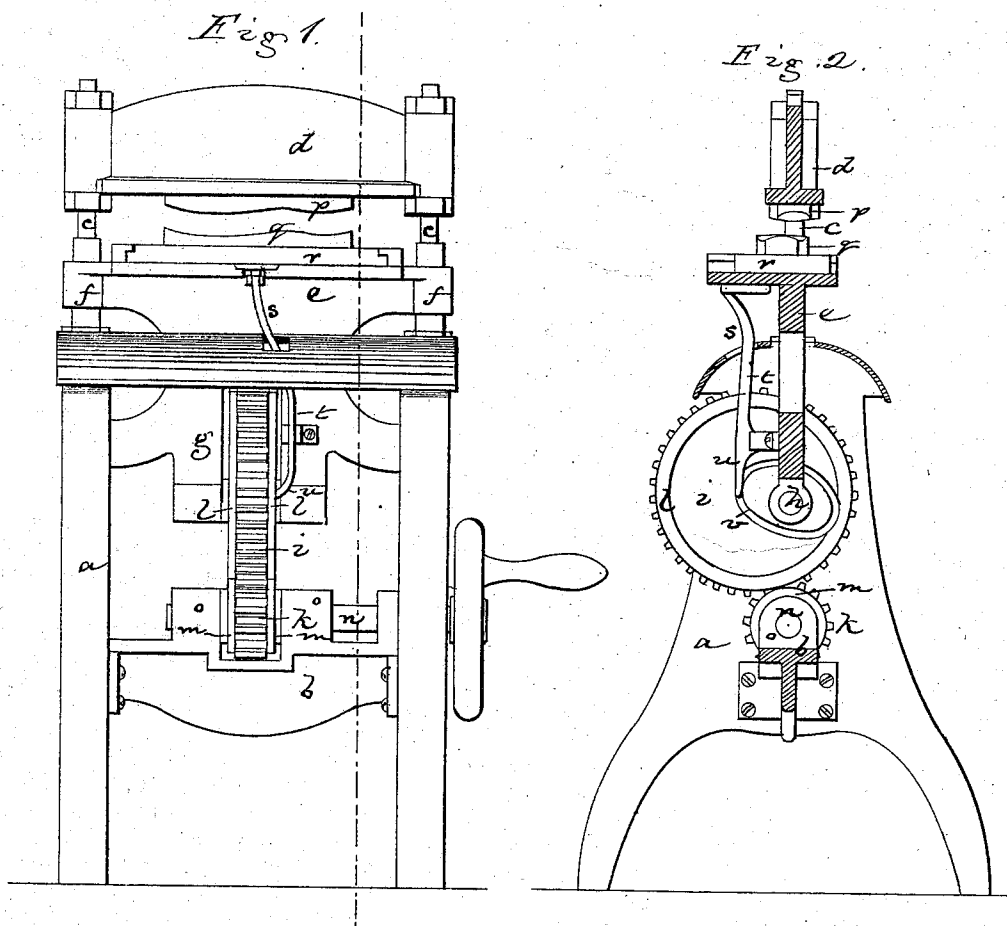


F. W. COY.

Machines for Pressing Soles.

No. 136,706.

Patented March 11, 1873.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN MACHINES FOR PRESSING SOLES.

Specification forming part of Letters Patent No. 136,706, dated March 11, 1873.

To all whom it may concern:

Be it known that I, F. W. COY, of East Cambridge, in the county of Middlesex and State of Massachusetts, have invented an Improved Press for Pressing Soles, &c.; and I do hereby declare that the following, when taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

The invention relates particularly to an arrangement of mechanism for operating the platen of that class of presses in each of which an upper beam constitutes the bed, against which the direct pressure is exerted, the platen being forced up toward this bed by suitable toggle-levers, or by screw or other mechanism. In my invention I employ, instead of a toggle-lever mechanism, an arrangement of gear and roll mechanism, embodying the advantage of the lever mechanism as to the relative speed of movement and power at required times without the disadvantages resulting from and inseparable from a great number of pivotal connections, such as is found in toggle-lever presses. For this purpose I extend from the movable platen-beam (sliding upon vertical rods) two bearings, supporting the opposite ends of a short shaft, upon which, between the bearings, is an eccentric or cam gear, having side rims that rest and roll upon corresponding rims of a driving-gear pinion, whose shaft rotates in stationary bearings. While the weight of the eccentric and the stress exerted upon it is resisted by the rim-surfaces the rotation is effected by the intermeshing gear-teeth, upon which teeth no strain comes except the leverage and lateral strain required to operate the platen. The relation of the center of the eccentric and the center of its rotation to the movements of the platen is such that the rapid movement of the platen is effected during the first part of the rise of the platen, while as the platen is approaching the completion of its ascent, and is, of course, completing its work, and has to apply the greatest strain, its movement is slow, but is practically effected by the action of the small gear upon the part of the eccentric gear of greatest di-

ameter. This construction, which primarily constitutes my invention, makes an exceedingly strong and enduring press, and a very simple and inexpensive one, and it has for small work, like pressing and molding shoe-soles, &c., important advantages over any press now made. In connection with such press I prefer to use upon the platen a slide that moves to the forward part of the platen for accessibility when the platen is descending, and back under the bed-beam as the platen starts up for the action of the press, and this sliding motion I impart automatically, so that as the platen descends the slide moves to the front with the pressed work, and into position for easy removal of such work and its replacement by material to be pressed, while as the platen starts up the slide is moved back to bring the work under the bed-beam, this provision constituting a part of my invention.

The drawing represents a machine embodying my invention.

Figure 1 shows the press in front elevation. Fig. 2 is a sectional elevation.

a denotes a strong stand, the two uprights of which are connected by a stationary beam, *b*. Through and above the uprights extend rods *c*, bolted to the uprights, and upon these rods is fixed the cross-beam *d*, which forms the bed toward which the platen moves, and against which the pressure is exerted. Under this beam is the platen-beam *e*, made with sleeves *f*, that slide upon the rods *c*, the platen having extending down from it the bearings *g*, in which is supported a shaft or shaft-pin, *h*, that carries a cam or eccentric gear, *i*. The gear-wheel *i* rests upon a gear-pinion wheel, *k*; but, instead of the gear-teeth resting directly upon the pinion-teeth, the wheel *i* is made with a rim, *l*, on each side of the gear-teeth, and the pinion-wheel with a similar rim, *m*, on each side of its teeth, and the rims *l* rest and roll directly on the rims *m*, while the motion of the eccentric is imparted by the meshing of the teeth of the pinion with those of the eccentric. The pinion-wheel is fixed on a driving-shaft, *n*, mounted and rotating in stationary bearings *o* on the top of the cross-beam *b*, and as the shaft is turned the eccentric first

throws up the platen with a rapid motion, and next with a slow motion, but with sufficient power to practically exert the most efficient or greatest pressure upon the material to be pressed between the platen *e* and the bed *d*, the resistive strain coming not upon the gear-teeth, and not upon the shaft-pin *h*, or bearings *g*, but upon the shaft *n* and bearings *o*, which bearings are extensions from the main and stationary beam *b*. The rims not only serve as rollers, but they strengthen the gear-teeth to resist the lateral strain upon them. Under the upper beam *d* is shown a die, *p*, and upon the platen *e* is a correspondingly or reversely shaped mold-plate, *q*, shaped for forming soles. The platen-die or mold-plate is preferably fixed on a slide-plate, *r*, which has a capability of forward-and-back sliding movement upon the platen to bring the die or mold into position for removal or application of the material pressed or to be pressed. To

this slide is jointed one arm, *s*, of a lever, *t*, whose other arm, *u*, extends into a cam-groove, *v*, on one side of the eccentric gear-wheel, this cam being so formed that the platen-slide is automatically drawn to the front as the platen descends, and then under the beam *d* as the platen begins to rise.

I claim—

1. In combination with the movable platen *e*, the eccentric gear-wheel *i* and gear-pinion *k* having roller-rims *l m*, substantially as shown and described.

2. In combination with the movable platen *e*, the platen-slide *r*, automatically moved to the front, and vice versa, substantially as described.

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