M. GLUCK.

PUNCHING AND SHEARING MACHINE.

No. 192,646. Patented July 3, 1877.

Fig. 1.

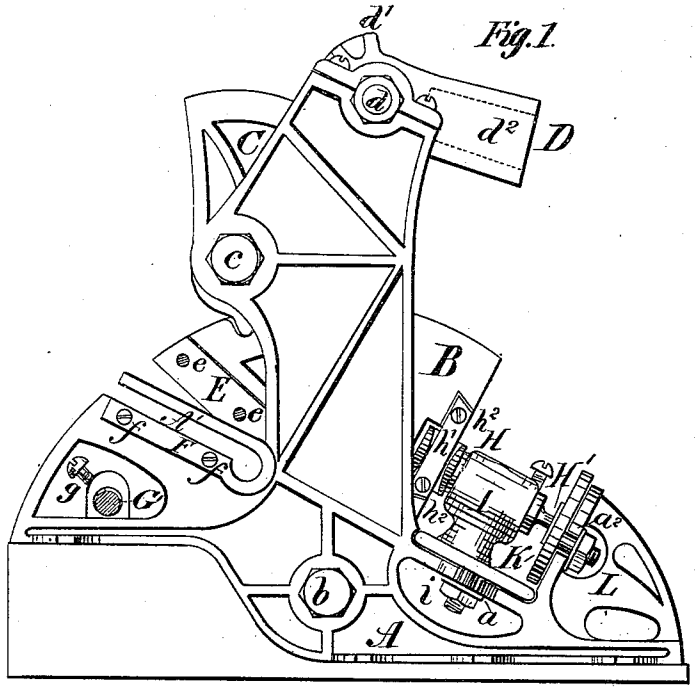



Fig. 2.

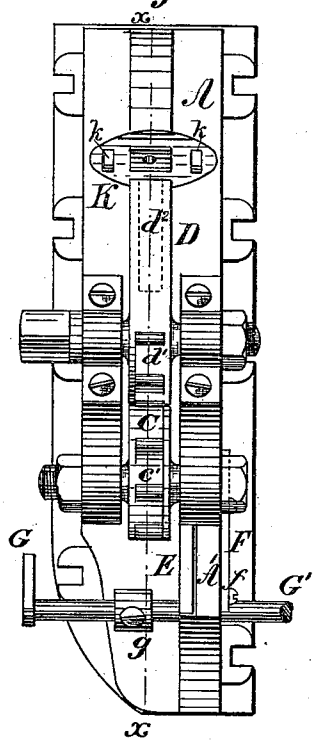



Fig. 3.

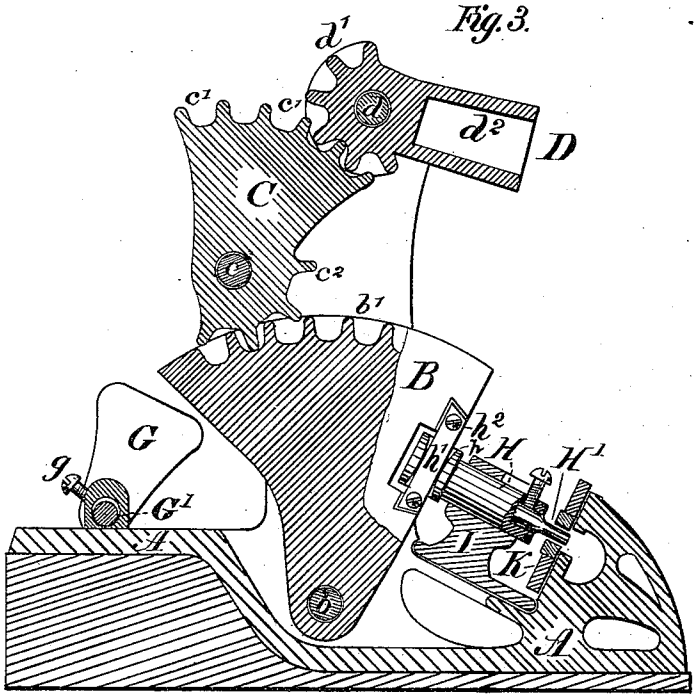
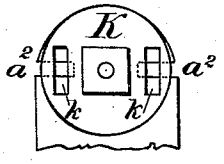



Fig. 4.




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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN PUNCHING AND SHEARING MACHINES.

Specification forming part of Letters Patent No. **192,646**, dated July 3, 1877; application filed May 19, 1877.

*To all whom it may concern:*

Be it known that I, MORITZ GLUCK, of New York city, in the county and State of New York, have invented a new and useful Improvement in Punching and Shearing Machines, of which the following is a specification:

This invention relates to a machine having an operating-lever pivoted to a bed-plate and moving as a sector, the periphery of which is actuated by an intermediate lever, which is also constructed in the form of a sector, and is operated by an actuating-lever. These three principal parts are coupled together, so as to move in harmony, by means of cogged segments.

To one side of the operating-lever is attached a cutting-blade, which performs the shearing operation, and to the other side of it is attached the punch, which moves into a die adjustably attached to the bed-plate, so that it may be easily centered to the punch.

In connection with the shearing part of the machine is an adjustable gage, by which the length of the piece cut off may be properly regulated.

The invention will be readily understood by reference to the accompanying drawings, of which—

Figure 1 is a side elevation of the machine. Fig. 2 is a plan of the same. Fig. 3 is a sectional elevation taken on the line *x x*. Fig. 4 is a detail view of the die-plate, showing the means of adjusting it to position with the punch-center.

The bed-plate A is, preferably, of cast metal, and furnishes all of the bearings or attachments for the operative parts of the machine, principal among which are the holes or seats for the pivot-pins *b c d*, which form the fulcrums for the three levers B, C, and D.

The first or operating lever, B, is made in the form of a sector, with cogs $b'$ formed on its periphery.

The second or intermediate lever, C, is also formed as a sector, with cogs $c^1$ on its periphery, and also cogs $c^2$ on its heel, as shown best in Fig. 3.

The lower or inner end of the actuating-lever D is also formed as a sector, and has upon it the cogs $d^1$.

The other or outer end of the lever D has a socket, $d^2$, formed in it, into which a long wooden lever may be inserted for the purpose of working the machine.

The cogs $d^1$ gear into the cogs $c^1$ of the intermediate lever, and so the lever D acts through the cogs $d^1$ and $c^1$ upon the periphery of the long arm of the said lever C, which is thus moved with a great purchase.

In like manner the cogs $c^2$ on the heel of the lever C gear into the cogs $b'$ on the periphery of the lever B, which connection also gives a powerful purchase or leverage on the piece B to move it.

It will thus be seen that the parts B C D act together as a powerful compound lever.

The lever or operating-plate B carries upon one of its sides the shearing-cutter E, which is secured to the plate B by the screws *e*, so that it may be removed and sharpened or replaced by another at will.

The bed A has a seat, $A'$, upon which pieces will be placed to be cut by the cutter E.

A guard-plate, F, attached to the side of the seat $A'$ by means of the screws *f*, forms a guard or stop to keep down the rear part of the piece being cut, so as to cause the cutter E to cut it off squarely.

A gage-plate, G, is attached to a rod, $G'$, which is seated in the frame A, and, adjustably fixed in position by the set-screw *g*, is used to stop at any desired distance in front of the cutter E the piece that is to be cut off, and thereby gage or measure the length of the finished piece, as desired.

To the other side of the lever or plate B from the cutter E, is attached a punch-stock, H, which has on its end next the lever B a flange or collar, *h*, which is embraced by the clamping-plates $h^1$, which are secured by means of the screws $h^2$ to the sides of the lever B, and these parts are thus easily assembled together, but in such a manner that the punch-stock may be readily taken out when required.

The punch-stock slides easily in the direction of its longitudinal axis in the guide I, which is to be securely fixed to the bed-plate A by the screw-bolts *i*, that pass through slots *a* in the top flange of the said bed-plate, the said slots *a* being large enough to permit

an adjustment of the guide-piece I to its proper axial position.

The front end of the punch-stock carries the punch H′, which may be attached to the stock H in any approved manner.

The punch H′ fits into an adjustable die-plate, K, which is bolted to the bed-plate by means of the bolts L, which pass through slots *k* in the said plate K, as shown in Fig. 4, and through slots $a^2$ in the sides of the top flange of the bed-plate A.

By means of the adjusting-slots *k* and $a^2$ the die-plate may be adjusted to the exact center of the punch H′, or a new die-plate or one of different size may be inserted in the machine when required.

Having described my invention, I claim—

In a punching and shearing machine, the punch-stock H, with the flange or collar *h*, the guide I, the adjustable die-plate K, in combination with the punch H′, bed-plate A, and levers B, C, and D, substantially as and for the purpose set forth.

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Witnesses:
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