

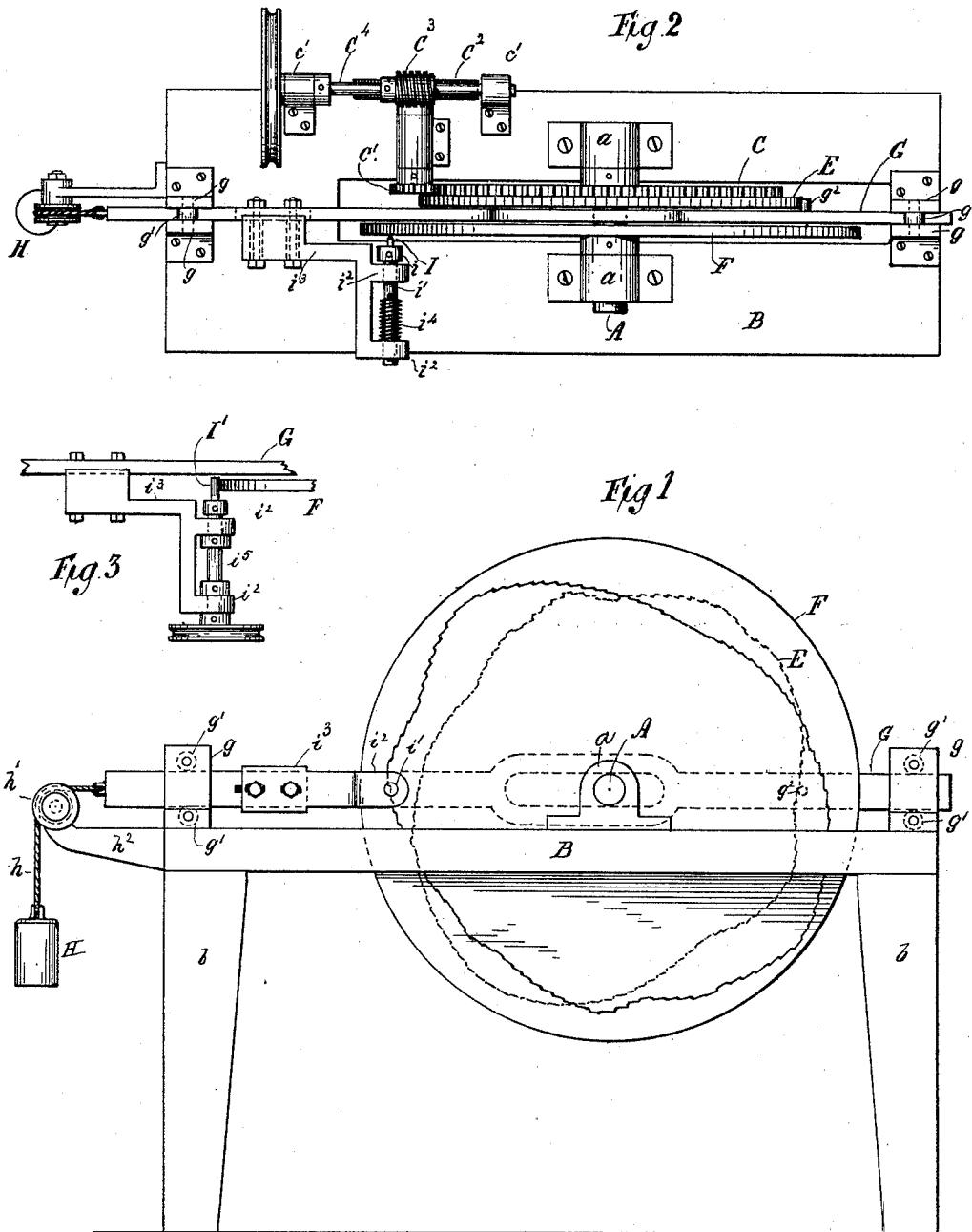
(No Model.)

L. SCHULTZ.

MACHINE FOR LAYING OUT OR CUTTING CAMS.

No. 466,757.

Patented Jan. 5, 1892.



Witnesses
 C. R. Ferguson
 Wm. M. Shiff

Inventor
 Louis Schultz
 By his attorney
 Edwin H. Pearson

UNITED STATES PATENT OFFICE.

LOUIS SCHULTZ, OF NEW YORK, N. Y.

MACHINE FOR LAYING OUT OR CUTTING CAMS.

SPECIFICATION forming part of Letters Patent No. 466,757, dated January 5, 1892.

Application filed April 9, 1891. Serial No. 388,228. (No model.)

To all whom it may concern:

Be it known that I, LOUIS SCHULTZ, of New York, in the county and State of New York, have invented a certain new and useful Improvement in Machines for Laying Out or Cutting Metal Used for Cams, of which the following is a specification.

Quilting - machines commonly comprise cams used in couples to cause or determine the movements of certain parts necessary for the production of desired patterns. One cam of each couple produces movement in one direction and its fellow restricts the movement in that direction. One cam of such a couple is therefore the reverse of the other, and the distance from any point of each cam to a diametrically-opposite point of the other cam of a couple will always be the same.

My present improvement is intended for laying out or cutting the second cam of such a couple after the first cam shall have been produced.

I will describe a machine embodying my improvement, and then point out the novel features in the claims.

In the accompanying drawings, Figure 1 is a side view of a machine embodying my improvement. Fig. 2 is a top view thereof. Fig. 3 is a top view of certain parts, illustrating a modification.

Similar letters of reference designate corresponding parts in all the figures.

A designates a shaft intended to support a cam blank or plate from which a cam is to be laid out or from which a cam is to be cut. It is journaled in brackets *a*, fastened to a bed B, which, as here shown, is sustained by legs *b*.

On the shaft A is affixed a gear-wheel C, that engages with a gear wheel or pinion C', affixed to a shaft carrying a worm-wheel C² and journaled in a bracket *c*, fastened to the bed B. With the worm-wheel C² engages a worm C³, that is affixed to a shaft C⁴, journaled in brackets *c'*, fastened to the bed B. Motion may be imparted to the shaft C⁴ by means of a belt applied to a wheel or pulley affixed to said shaft or in any other suitable manner. The motion of the shaft C⁴ will be transmitted through the worm C³ and worm-wheel C² to the shaft carrying the gear wheel or pinion C', and thence through the gear-wheel C

to the shaft A. A cam E, for which it is desired to lay out or cut a counterpart, is affixed to the shaft A, and there is also affixed to this shaft a cam-blank F, upon which a cam is to be laid out or from which a cam is to be cut. The bed B is shown as being longitudinally slotted to allow the gear-wheel C, cam E, and cam-blank F to pass through it.

G designates a bar fitted to slide between brackets *g*, which are fastened to the bed B and additionally sustained and guided by rolls *g'*, journaled in said brackets. This bar G is provided with a pin *g*², which bears against the periphery of the cam E. A weight H holds this pin in contact with the cam and, as here shown, is suspended by a cord *h*, that passes over a pulley *h'*, sustained by a bracket *h*², extending from the bed B, and is fastened to one end of the bar G. Whenever a portion of the cam of less projection than that formerly opposite the pin *g*² is by the rotation of the cam brought opposite said pin, the weight moves the bar G to the left, and when a portion of the cam having greater projection is brought opposite the pin *g*² it will move the bar G in the reverse direction against the resistance offered by the weight. In this way the bar G will be reciprocated.

I designates a marker carried by the bar G and contacting with one side of the cam-blank. Obviously as the bar is reciprocated this marker will scratch or otherwise mark the cam-blank. As the marker will always be at the same distance from the pin *g*², it will obviously mark out upon the cam-blank a cam which will be the counterpart of the cam E, in that every portion of its periphery will be equidistant from the diametrically-opposite portion of the periphery of the cam E. The marker I, as here shown, is secured in the socket *i*, provided at the end of a rod *i'*, which is capable of sliding toward and from the cam-blank in bearings formed in lugs *i*², extending from a bracket *i*³. The bracket *i*³ is connected by screws to the rod G, and preferably it or the rod G, or both, will be longitudinally slotted, so as to provide for adjustments of the bracket and consequently of the marker lengthwise of the bar G. A spring *i*⁴, surrounding the pin *i'* between a pin passing transversely through the latter and one of

the lugs z^2 , impels the marker toward the cam blank.

5 In Fig. 3 I have shown a milling-tool I' as substituted for the marker, and mounted upon a shaft i^5 , which is substituted for the rod i' and provided with a wheel whereby it may be rotated. Thus modified the machine will be capable of cutting a cam.

10 What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a rotary shaft for carrying a cam and a cam-blank, of a horizontally-reciprocating bar moved by said cam and carrying a tool for operating upon the 15 cam-blank, substantially as specified.

2. The combination, with a rotary shaft for carrying a cam, a cam-blank, and means substantially such as described for imparting motion to said shaft, of a horizontally-reciprocating bar moved by said cam and carrying 20 a tool for operating upon the cam-blank, substantially as specified.

3. The combination, with a rotary shaft for carrying a cam and a cam-blank, of a horizontally-reciprocating bar moved in one di- 25 rection by said cam, a weight for moving it in the other direction, and a tool connected to said bar for operating on the cam-blank, substantially as specified.

4. The combination, with a rotary shaft for 30 carrying a cam and a cam-blank, of a horizontally-reciprocating bar moved in one direction by said cam, a weight for moving it in the other direction, and a tool adjustably connected to said bar for operating on the cam- 35 blank, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LOUIS SCHULTZ.

Witnesses:

EDWIN H. BROWN,
MONTAGUE D. COHEN.