(No Model.)

J. F. CRAEMER.

PERFORATING MACHINE.

No. 493,753. Patented Mar. 21, 1893.

fig. 1

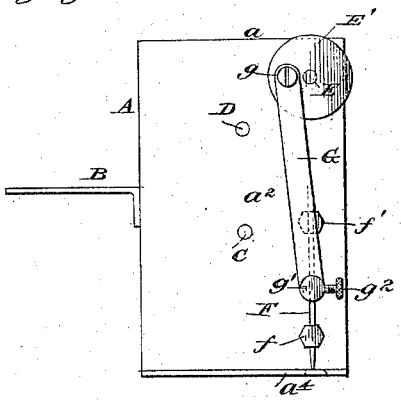


fig. 2

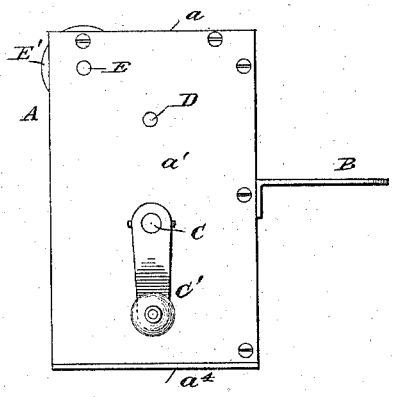


fig. 3

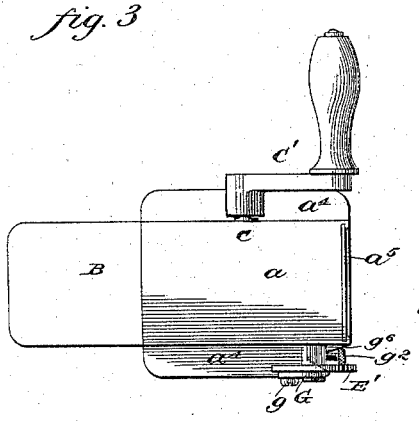


fig. 4

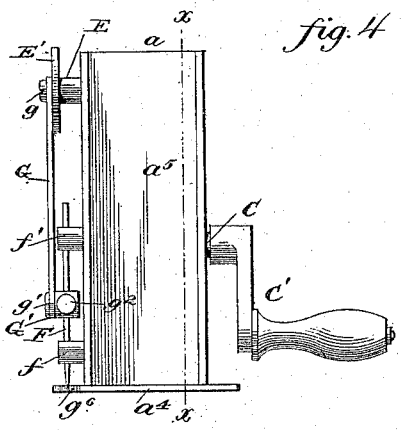
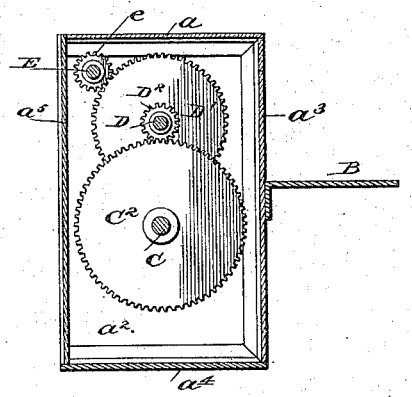


fig. 5



Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN FERDINAND CRAEMER, OF OGDEN, UTAH TERRITORY.

PERFORATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 493,753, dated March 21, 1893.

Application filed September 14, 1892. Serial No. 445,883. (No model.)

To all whom it may concern:

Be it known that I, JOHN FERDINAND CRAEMER, a citizen of the United States, residing at Ogden, in the county of Weber and Territory of Utah, have invented certain new and useful Improvements in Perforating-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in implements for perforating paper, cloth and other materials in the making of needle-work designs, copying the same, &c.

The object is to provide a cheaply constructed, small implement which can be readily operated by hand, and shall have parts compactly arranged but adapted to reciprocate a needle or punching tool with great rapidity.

Figure 1 is a view from one side, of an implement embodying my improvements. Fig. 2 is a view from the opposite side. Fig. 3 is a plan view. Fig. 4 is a front view. Fig. 5 is a section on the line x—x.

In the drawings, A represents, as a whole, the casing, it having the top a, the sides a', a^2, back a^3, bottom or foot piece a^4, and the front plate a^5. The latter is fitted in guide ways in the side pieces a', a^2 and is adapted to be more or less removed so as to permit access to the interior parts.

B is a holder or steadying piece projecting from the back wall a^3.

C represents the driving shaft mounted in suitable bearings in the side walls and having a crank C′ secured to it adjacent to the outer face of the wall a'. It is connected to an intermediate shaft D by a relatively large spur wheel C^2 on shaft C, and a small pinion D^2 on the aforesaid shaft D, the latter being parallel with shaft C, and also mounted in the side walls a', a^2.

Shaft C is connected to the crank shaft E by a spur gear D′ on shaft D, and a pinion e on shaft E, the latter being also parallel to the aforesaid shafts and mounted in a similar manner. Shaft E has a crank head E′ outside of the casing.

The perforating tool is indicated by F, it being made in any suitable way;—for most purposes I find that an ordinary sewing needle is suitable. It reciprocates through and is guided by two or more stud bearings f f' secured to the wall a^2. It is connected to the crank head E′ by means of a pitman G pivoted to the head at g, and at g' pivoted to a cross head G′, which in turn is secured to the perforating tool F. The cross head is provided with a set screw g^2 by means of which the pitman and perforating tool can be adjusted in relation to each other. Preferably a guide way for the point of the perforating tool is provided in the bottom plate a^4 as shown at g^6. The rotating of the crank C′ results in a very rapid reciprocation of the perforating tool.

The manner of operating the device will be readily understood by those acquainted with such implements. One or more sheets of paper are placed upon a suitable bed, such as a layer of felt or cloth, and upon the top is placed a sheet of paper or cloth whereon the desired design is delineated. The implement is then put in such position as to bring the point of the needle on the line of the design. One of the fingers, preferably the thumb of the left hand, is placed on top of the implement, and one or more on the holder B at the back, and one or more beneath the same. The machine can be guided by them along the lines to be perforated, and at the same time the crank can be turned with the other hand in such way as to produce a large number of perforations along said line.

By properly adjusting the perforating tool or needle, it can be so arranged as to pierce a large number of sheets, and thus furnish a corresponding number of the stencil designs at one operation.

I am aware of the fact that various machines actuated by power have been used or proposed for perforating, but believe myself to be the first to have devised a simple hand implement of the character of that herein shown and described.

In some of the said earlier devices use was made of treadles with power transmitting mechanism interposed between the treadles and the perforating tools. In others electric motors were attached to and supported on the tools. And in still others a clock work was combined with the working parts, including a spring-mechanism, together with the governor and other parts made necessary by the spring driver. But as above said, my

purpose is to provide an implement which shall be much simpler, stronger, and more durable than those of any of these earlier sorts; and shall have the smallest possible number of parts, and shall not be liable to get out of order from ordinary usage by those not skilled in the adjustment and repairing of delicate parts. When clock work is employed the number of small parts becomes so large that there is constant liability for the implement to get out of order, and the expense incident to the manufacture is so great that there can be no introduction of them into general use.

In the present implement a faster or slower speed can be imparted to the needle without requiring any of the regulating mechanism that would be necessary with a clock or other automatic motor.

It will be seen that I have so reorganized the parts that the tool can be held with one hand properly, while the other is being used to apply the power through the crank, the needle being situated on the side opposite to the crank, and being so related to the backward projecting handle, that it can be directed along the lines of the design without the latter being concealed by the box, and without impeding the continuous turning of the crank.

What I claim is—

In a design perforating machine, the combination of the casing, the power shaft C, the intermediate shaft D, the driving shaft E extending through the casing, the crank E′ on shaft E at one side of the casing, the needle in guides on said side of the casing, the pitman directly connecting the crank E′ and the needle and moving the needle in both directions, the hand crank C′ on the opposite side of the casing, and a handle B projecting backward from the casing, substantially as set forth.

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

JOHN FERDINAND CRAEMER.

Witnesses:

THEO. SCHAUSENBACH,

SOL. MYER.