2 Sheets—Sheet 1.

C. B. & J. K. CLARK.

Fluting-Machine.

No. 212,191. Patented Feb. 11, 1879.

Fig. 1.

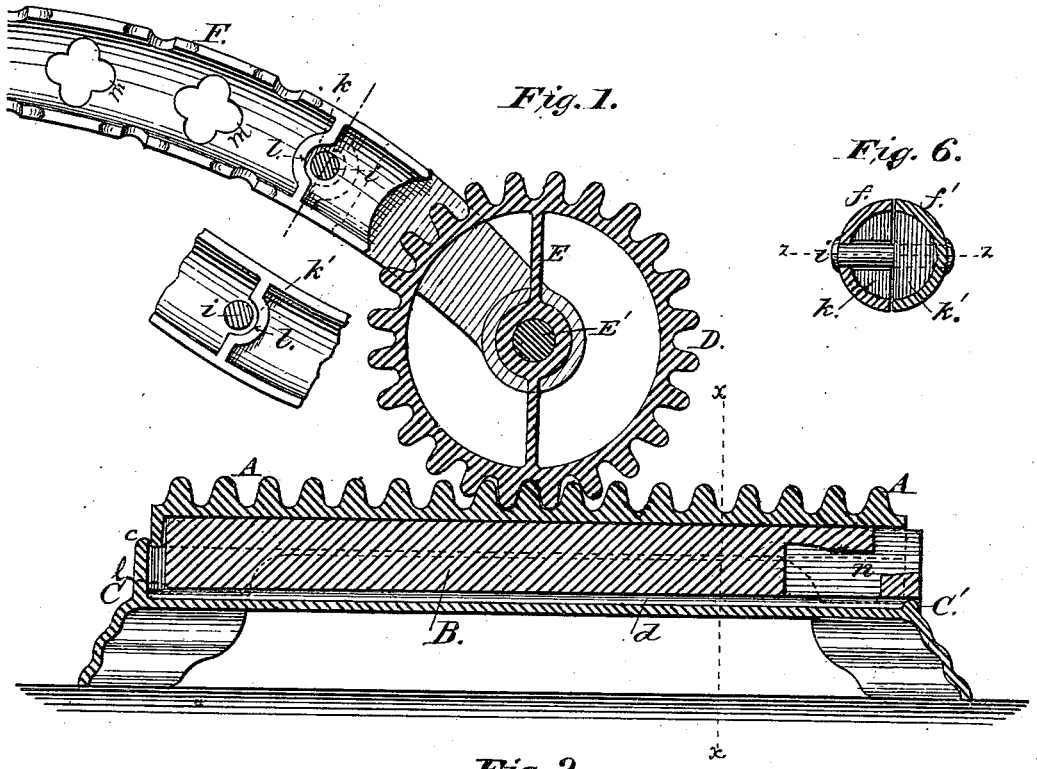
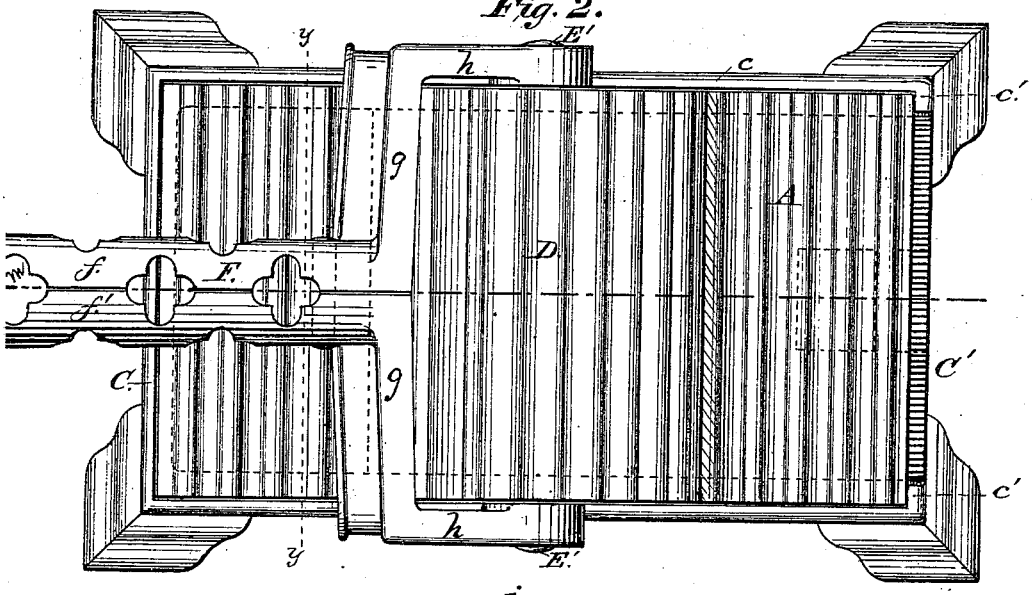


Fig. 6.

Fig. 2.



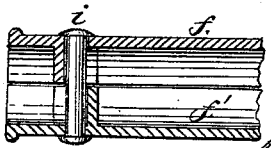


Fig. 7.

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Fig. 3.

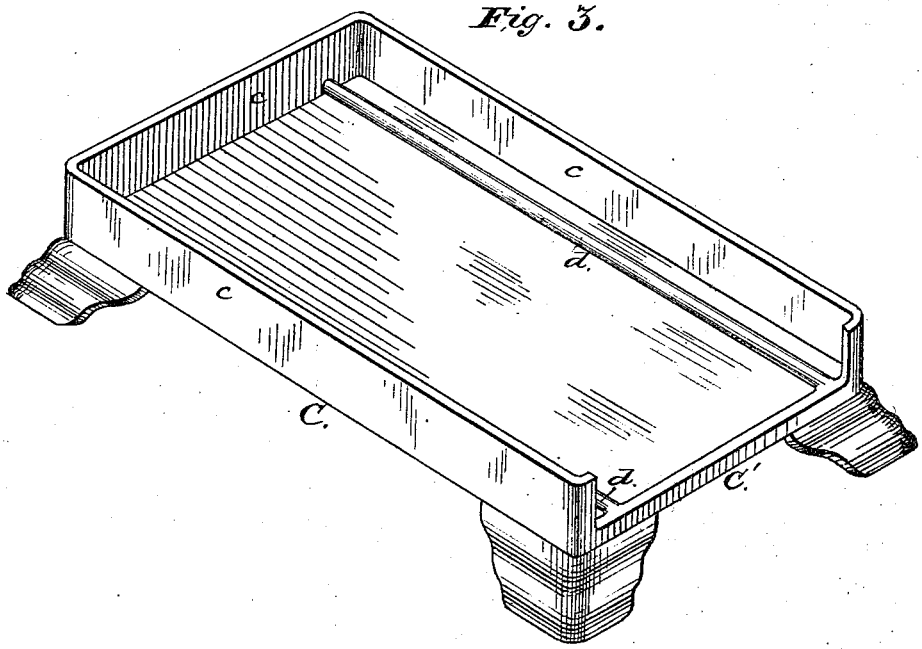


Fig. 4.

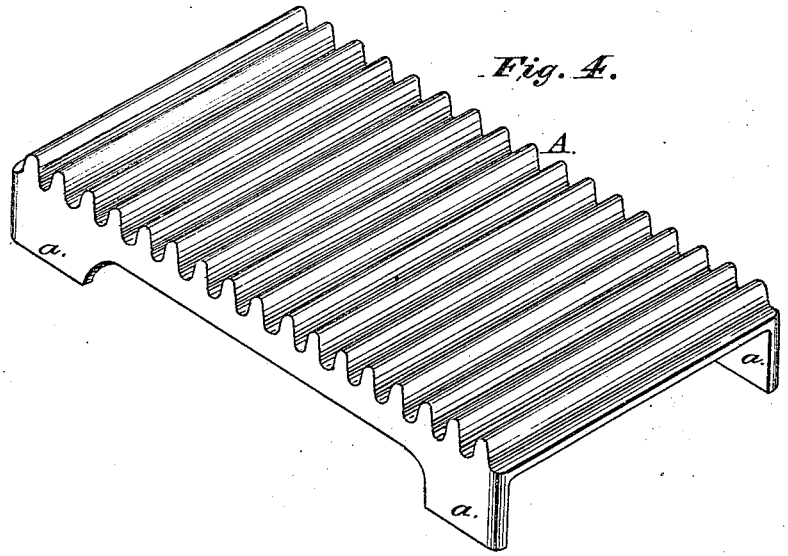
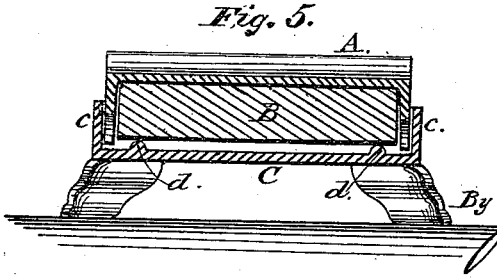


Fig. 5.



Witnesses:

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J. A. Rutherford

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UNITED STATES PATENT OFFICE

CHARLES B. CLARK AND JOHN K. CLARK, OF BUFFALO, NEW YORK.

IMPROVEMENT IN FLUTING-MACHINES.

Specification forming part of Letters Patent No. **212,191**, dated February 11, 1879; application filed October 7, 1878.

To all whom it may concern:

Be it known that we, CHARLES B. CLARK and JOHN K. CLARK, of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Fluting-Machines, of which the following is a specification:

This invention relates to improvements in that class of fluting-machines in which a corrugated or fluted cylinder traverses a flat bed-plate having corresponding corrugations, and provided with a replaceable core or heater.

Its object is to provide for a thorough utilization of the heat of the replaceable cores, to prevent the communication of heat to the hand of the operator, and to facilitate the casting of the cylinder-handle in its improved non-heating form.

It consists, first, in the combination, in a fluting-machine, of a flat corrugated bed-plate, chambered on its under side, and having a straight downwardly-projecting wall or rim at each side and one end, a supporting-stand, chambered on its upper surface, and having a straight upwardly-projecting wall or rim at each side and one end, said stand and plate being fitted together with the walls or rims of one lapping those of the other and forming an expansible chamber, and a heating-core arranged between said stand and plate and forming a support for the latter, whereby a close contact between said plate and core is insured, and the sides and end of the core separated from the outer air, and loss of its heat by radiation is prevented; second, in providing the rimmed or chambered supporting-stand of a fluting-machine with one open end and suitable shoulders for preventing the fluted corrugated bed-plate from sliding out at said end, as will be hereinafter more particularly described; third, in forming the supporting-stand and the fluted bed-plate of a fluting-machine with rims on two sides and one end of each, whereby, when they are placed together, a chamber is formed having one open end, and in providing said machine with a heater or core somewhat thicker than the depth of said chamber, so that when the heater or core is inserted therein the fluted bed-plate will be slightly raised and rest entirely upon said core or heater, whereby a thorough communication of heat to the fluted bed-plate is secured; fourth, in a novel construction of the handle of the corrugated cylinder of a fluting-machine; fifth, in the novel construction of the fluting-cylinder, whereby an extended fluting-surface is obtained, combined with great strength, and without inconvenient weight.

In the accompanying drawings, Figure 1, Sheet 1, is a longitudinal vertical section of the machine. Fig. 2, Sheet 1, is a plan view. Fig. 3, Sheet 2, is a perspective view of the supporting-stand. Fig. 4, Sheet 2, is a perspective view of the corrugated or fluted bed-plate detached. Fig. 5, Sheet 2, is a section on line *x x*, Fig. 1. Fig. 6, Sheet 1, is a transverse section of the handle on line *y y*, Fig. 2. Fig. 7, Sheet 1, is a section on line *z z*, Fig. 6, but showing the rivet in full lines.

The letter A indicates the flat bed-plate, having its upper surface transversely corrugated or fluted. It is provided with legs *a* at its corners, and with rims or flanges at its side edges and at one end, so that its under surface forms a portion of an open chamber to receive the iron core or heater B, which is of a size to fit easily therein. This core B is supported by the stand C, the top of which has at its sides and one end an upward-projecting rim, *c*, within and lapping which fits the rim of the fluted bed-plate, so that the sides and one end of the core B, when placed within the chamber thus formed, are entirely concealed, and radiation of heat therefrom retarded.

When the fluted bed-plate and the stand are placed together, the bed-plate being supported by its legs *a*, the chamber thus formed is open at the end C′ of the machine, and at this open end the core or heater is inserted and removed without necessitating the handling or separation of the bed-plate and stand. These legs *a* prevent the bed-plate from losing heat by too close contact with the stand, and support said plate at a proper elevation to permit the ready insertion of the heater.

At the open end of the stand its rim is extended slightly inward to form shoulders *c′*, which, as will be seen, prevent the fluted bed-plate A from slipping out at said end.

The top surface of the stand C is provided

with two longitudinal parallel ridges, *d*, which form the immediate supports of the core B, and by keeping said core from direct contact through its entire under surface with the surface of the stand tend in a great degree to prevent loss of heat from the said core by convection. These ridges also serve as guides, upon which the core slides easily.

The core B is made of such thickness that when placed in its chamber under the fluted bed-plate said plate will rest directly upon it and be slightly elevated, its legs then not quite touching the top surface of the stand. This arrangement insures a thorough communication of heat from the core or heater to the said bed-plate. In order to facilitate the insertion of the core into its chamber its edges at the end which is first inserted are somewhat beveled or rounded, as shown at *e*, Fig. 1.

The corrugated cylinder D is cast hollow, with a diametric web or wall, E, from the opposite ends of which project journals E′, which fit in bearings formed in the ends of the legs of the bifurcated hollow perforated handle F.

By thus forming the cylinder we are enabled to give it an extensive fluted surface without adding inconvenient weight, and on account of the bracing afforded by the diametric web or wall the cylinder is rendered very strong, and a firm support provided for its journals. This cylinder, so constructed, can be molded without using cores, thus greatly cheapening the casting and distributing the metal to the best advantage.

The handle F is cast in two pieces, *f f′*, each semicircular in cross-section, and each having a lateral extension, *g*, terminating in a leg, *h*, in which is formed a bearing for one of the cylinder-journals.

The half-handles, when placed edge to edge to form the complete handle, are secured together by rivets *i* passing diametrically therethrough; and in order to support these rivets and prevent them from bending inside the handle while being headed, the semicircular half-handles are cast with transverse walls *k k′* at the riveting-points, and these walls have grooves or recesses *l*, semicircular in cross-section, which coincide with the rivet-holes, two walls which come together, edge to edge, having their recesses curved in opposite directions, so that one half of the rivet is partially surrounded by the recess of one wall and the other half by that of the contiguous wall, as shown in Figs. 1, 6, and 7. The rivets are thus thoroughly braced, and all liability of their bending during the process of their heading is obviated.

By forming the handle in the two pieces the casting of the same is very greatly facilitated; so without dividing the handle it would be impossible to cast the journal-seats and ventilating-apertures without the use of cores, which would greatly increase the cost and produce a rough article. Each half of the handle is formed with perforations *m*, which permit a free circulation of air through the handle to keep it cool and protect the hand of the operator from heat.

In practice, each machine should be provided with two cores or heaters, so that one may be heating while the other is in use and becoming cool; and in order to facilitate their insertion and removal from their chamber, each core has an elbow-recess, *n*, formed in one end for the reception of a stove-lid lifter or other suitable instrument by which it may be handled.

In placing the two parts of the handle together the journal-bearing of each part is placed on a journal of the cylinder, and the hand portions are then brought edge to edge, the rivets *i* inserted in the holes formed for them, and headed in any suitable manner.

Having now fully described our invention, what we claim is—

1. The combination, in a fluting-machine, of a flat corrugated bed-plate chambered on its under surface, and having a straight downwardly-projecting wall or rim at each side and one end, a supporting-stand chambered on its upper surface, and having a straight upwardly-projecting wall or rim at each side and one end, said stand and plate being fitted together with the walls or rims of one lapping those of the other and forming an expansible chamber, and a heating-core arranged between said core and plate and forming a support for the latter, whereby close contact between said plate and stand is insured, and the sides and end of the core separated from the outer air, and loss of its heat by radiation is prevented.

2. The combination of the stand C, having its rim *c* terminating at its ends in shoulders *c′*, and the fluted bed-plate A, having the legs *a* fitting within said rim and behind said shoulders, substantially as described.

3. The combination of the rimmed bed-plate A and the rimmed stand C, the rim of one lapping that of the other, and the core B, somewhat thicker than the depth of the chamber formed between said bed-plate and stand, and having its end edges beveled or curved to facilitate its insertion between said bed-plate and stand, substantially as described.

4. The hollow handle F, formed in two pieces, *f f′*, and provided with the transverse rivet-supporting walls, substantially as described.

5. The hollow handle F, composed of the two perforated halves, each having a lateral extension terminating in a leg, *h*, provided with a journal-bearing, substantially as described.

6. The combination, with the stand C, of the vertically-movable chambered bed-plate

A, provided with legs *a*, whereby said plate is prevented from losing heat by too close a contact with said stand, and is supported at a proper distance therefrom to permit the ready insertion of the core or heater between the stand and plate, substantially as described.

In testimony that we claim the foregoing we have hereunto set our hands in the presence of the subscribing witnesses.

CHARLES B. CLARK.
JOHN K. CLARK.

Witnesses:
EDWIN L. FERGUSON,
HENRY R. CLARK.