C. S. CAPLE.

Plaiting-Machine.

No. 198,488. Patented Dec. 25, 1877.

Fig. 3.

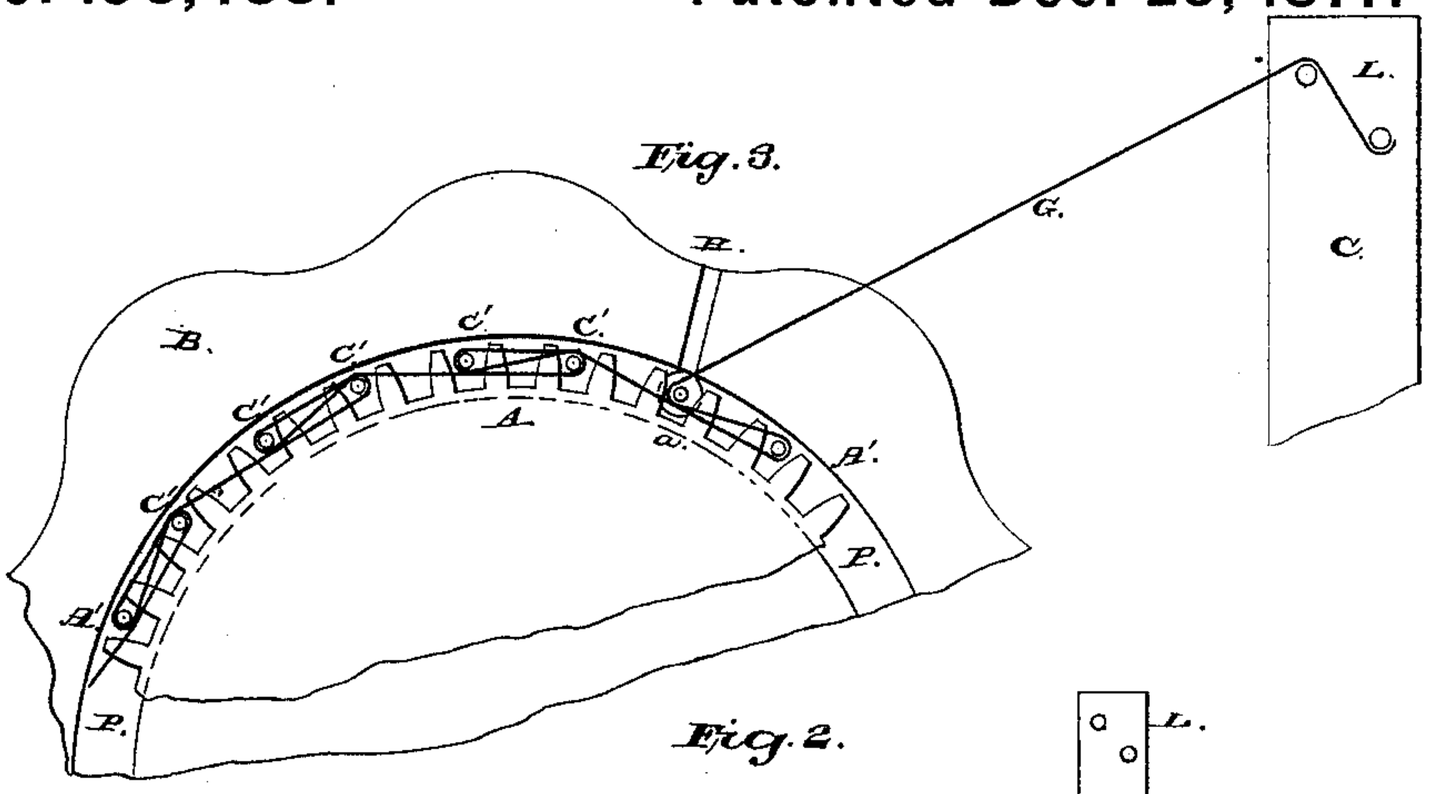


Fig. 2.

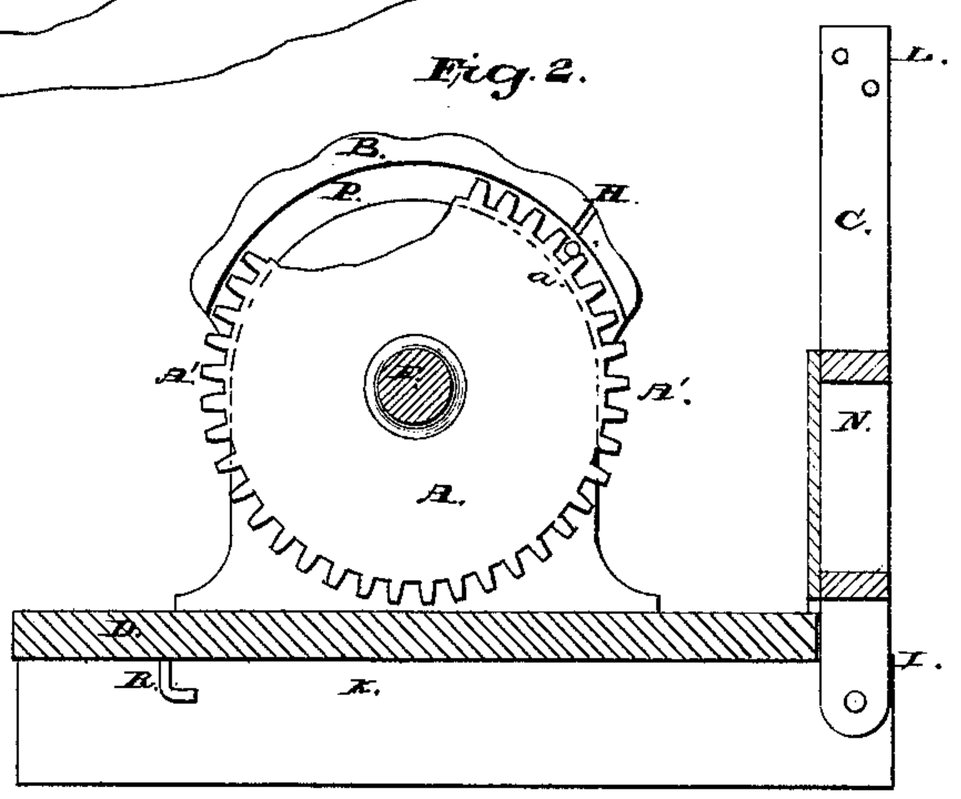
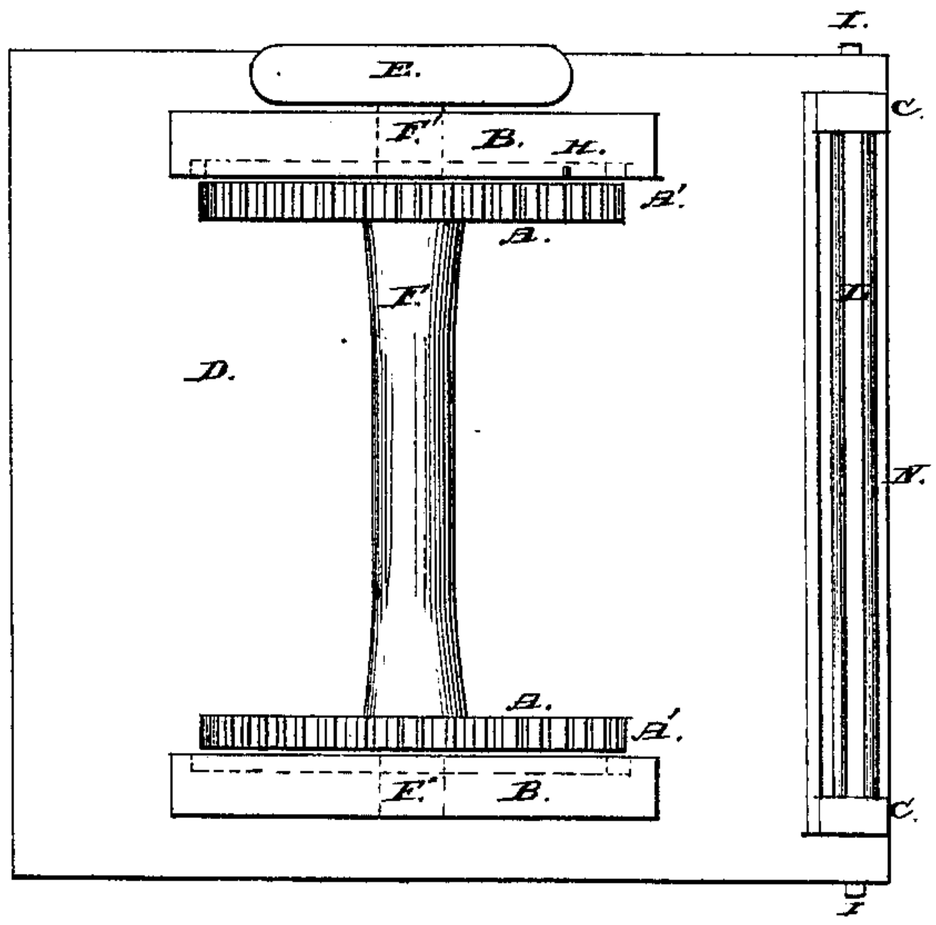


Fig. 1.



Attest:

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CHAUNCEY S. CAPLE, OF FRANKFORT, NEW YORK.

IMPROVEMENT IN PLAITING-MACHINES.

Specification forming part of Letters Patent No. **198,488**, dated December 25, 1877; application filed September 6, 1877.

To all whom it may concern:

Be it known that I, CHAUNCEY S. CAPLE, of Frankfort, in the county of Herkimer and State of New York, have invented new and useful Improvements in Plaiting-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Similar letters of reference indicate the same devices in all the figures.

To enable others skilled in the arts to comprehend, make, and use my invention, I will proceed to describe its nature, construction, and operation.

The nature of my invention consists in two circular plates or disks, having teeth or pins in their peripheries, forming receptacles for the insertion of plaiting-needles, said disks being rigidly connected by means of a shaft placed through their centers, the shaft having bearings provided, upon which the whole can revolve freely; also, in construction of standards for supporting said shaft, the standards extending above the radius of the circular disks, and following their peripheries about one-sixth of their diameters on each side of a perpendicular line above the shaft. In the projecting portion of said standards a groove is cut next to the face of the disk, and following its periphery, which is for the purpose of holding the needles in position while the article being plaited is entering the machine.

It further consists in providing a folding frame, to which is attached a receptacle for the needles when not in use; also, in providing rods or bars, which are firmly fixed to one end of the folding frame, through or between which the article being plaited is interwoven, for the purpose of holding it in position while it is being drawn into the machine.

Figure 1 is a top view of the machine. Fig. 2 is a sectional elevation of the same, showing one of the disks with a segment cut away to show the groove in the standards, also the folding frame in position for operating; and Fig. 3 shows a segment of revolving disk, upper portion of standard, portion of folding frame, also a portion of fabric plaited in machine.

A represents the disks; *a*, recess to receive end of needles; A′, teeth or pins in disk; B, standards; C, sides of folding frame; C′ C′, needles; D, base of machine; E, hand-wheel; F, shaft; F′, bearings; G, fabric entering machine; H, channel for needles to enter machine; I I, pivots to folding frame; K, sills or cleats to bed-piece; L, rods, between which fabric is interwoven while entering machine; P, grooves cut in standards for holding needles in machine while the fabric is being plaited; N, receptacle for needles; and R, hook for securing folding frame when closed under side of machine.

To the under side of base D are firmly secured sills or cleats K, and to the upper side of base are attached the standards B, through which holes are bored at F′ to admit bearings of the shaft F. To the shaft F are secured the circular disks A, with their teeth or pins A′, and on one end of the shaft, outside of the standard, is secured the hand-wheel E, by means of which the shaft with its disks are made to revolve.

A groove, P, is cut in the inner face of each standard B, for the purpose of holding the needles in position while the fabric and needles are being manipulated; and a channel is also cut in a vertical position in the standards, to be used as guides for inserting the needles C′ C′; and the recess *a* is for the purpose of allowing one end of the needle to pass by the bottom of the groove P, in order that the opposite end of the needle may drop freely into its place between the teeth A′ A′.

Between the sides C of the folding frame is a box, N, to be used as a receptacle for the plaiting-needles when not in use.

Rods L are also firmly secured at the opposite end of the frame, for the purpose of guiding the fabric into the machine, and for the further purpose of producing a tension upon the fabric, that the plaits may be made equally and smoothly.

At I I are pivots, by means of which the sides C of the folding frame are hinged to the sills or cleats K. By means of these pivots the frame is raised to a vertical position, where it is retained while the machine is in operation, and when not in use can be folded under the machine, where it is securely held in a closed position by means of the hook R.

To operate the machine, the hook R is disengaged from the frame-work, the needles removed from their receptacle N, and the frame turned to a vertical position. The fabric to be plaited is interwoven between the rods L, and a needle secured to one end of the fabric. The needle is then inserted between two of the teeth A′, directly under the guide H, and thrust into the recess *a*. The opposite end of the needle is then allowed to drop to its position between two teeth, directly opposite to where the first end was inserted. The needle is then retracted from the recess *a* until it comes in contact with the bottom of the groove on the opposite standard. By placing one hand upon the hand-wheel E the disks are revolved forward two spaces, and another needle is inserted in the machine, over the fabric. The disks are then revolved backward until the space that has been left between the first and second needle comes under the guide H, and a third needle is then placed under the fabric, and inserted in position between the two needles already in the machine. The disks are again revolved forward, and a fourth needle is placed over the fabric and into the machine, again leaving one space, and another needle placed under the fabric and inserted in the machine in the last space left vacant. Thus the operation is repeated for making what is called "kilt-plaiting." To make wider folds alternate spaces are used, as shown at Fig. 3. Before the first needle inserted in the machine traverses to the end of the groove P, the plaits already made are basted while yet in the machine, which operations are continued until the entire piece is plaited, when the whole can be moistened and compressed with a hot smoothing-iron.

To make what is termed a "box-plait" in connection with what is termed a "kilt-plait," as many of the spaces are missed as the plait is desired in width, and a needle is inserted under the fabric. Another needle is then placed over the fabric ahead of the last one inserted, and the needle and fabric reeved under the last-inserted needle, and up into the last-missed space, where it is inserted. The operation of making the kilt-plaiting is then resumed, and thus continued at the option of the operator or style desired.

By the use of my plaiting-machine a smaller number of needles can be used than with any other machine, for as fast as the plaits are laid they are basted, and the needles removed as they come to the end of the groove P, and thus the same needles are continuously used until the work is completed.

I am aware that plaiting-machines have hitherto been used with detachable needles, and projecting pins or teeth attached to a plane surface; but these are objectionable, from the fact that the work cannot be removed from the machine previous to being moistened and compressed with a hot smoothing-iron, which is an exceedingly tedious and difficult operation, and is not claimed by me.

Having described my invention, what I claim as new, and desire to have secured to me by Letters Patent of the United States, is—

1. The revolving disks A with their pins A′, said disks being secured to the shaft F and rotated by the hand-wheel E, all substantially as described.

2. The standards B, with their grooves P, guides H, and recess *a*, substantially as shown and described.

3. The folding frame, with its standards C, receptacle N, guide-rods L, and pivots I, all being constructed and arranged for operating substantially as herein described and shown.

CHAUNCEY S. CAPLE.

Witnesses:
M. D. MYERS,
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