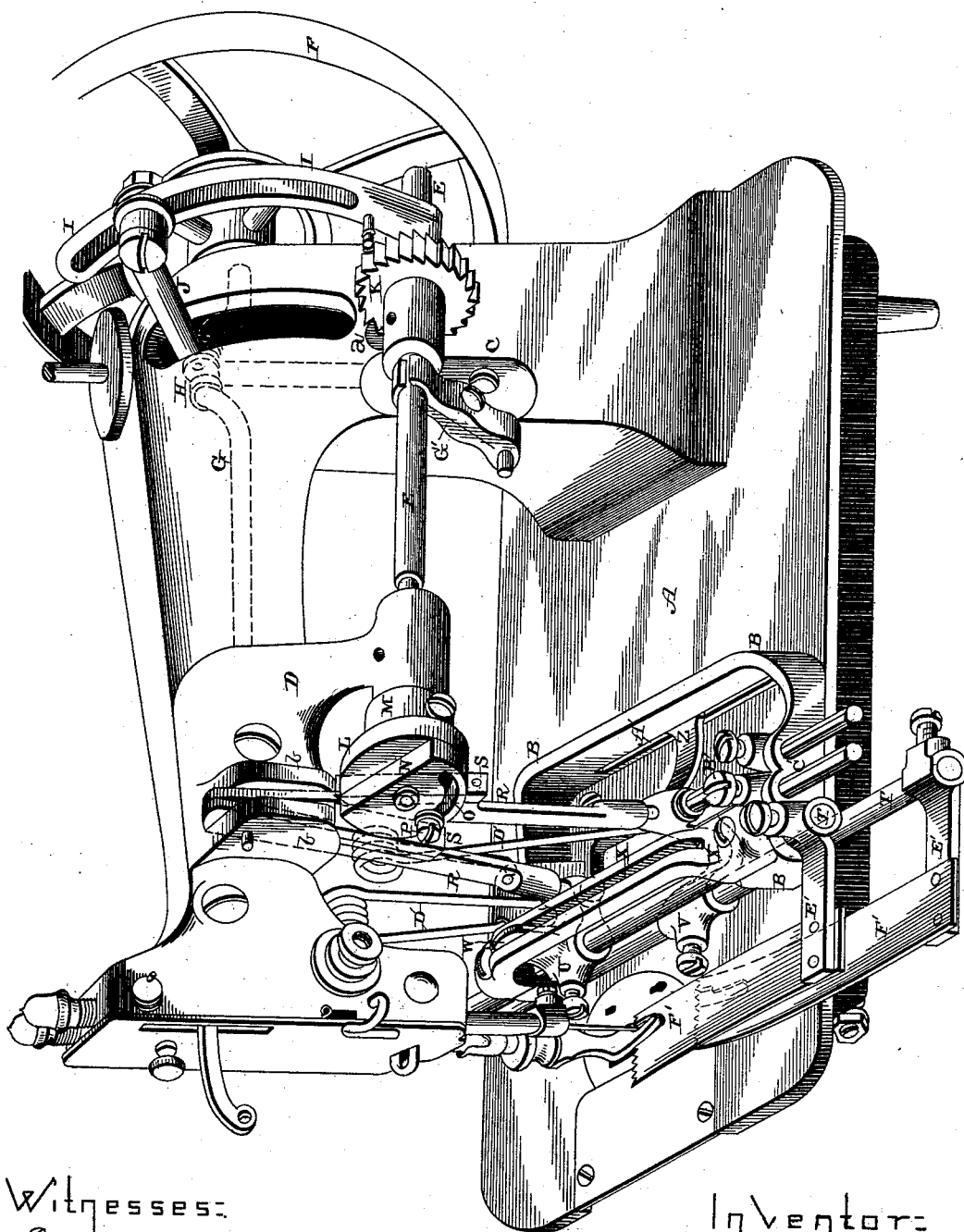


(Model.)

C. M. HINE.
PLAITING MACHINE.

No. 420,382.

Patented Jan. 28, 1890.



Witnesses:

Edm. J. Ellis,
Allen S. Patterson

Inventor:

C. M. Hine,
per
F. A. Lehmann,
att'y.

UNITED STATES PATENT OFFICE.

CHARLES M. HINE, OF NEW YORK, N. Y., ASSIGNOR TO THE STANDARD
PLAITER COMPANY, (LIMITED,) OF PITTSBURG, PENNSYLVANIA.

PLAITING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 420,382, dated January 28, 1890.

Application filed January 18, 1889. Serial No. 296,786. (Model.)

To all whom it may concern:

Be it known that I, CHARLES M. HINE, of New York, county of New York, State of New York, temporarily residing in the city of Pittsburg, State of Pennsylvania, have invented a new and useful Improvement in Plaiting-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawing, which form part of this specification.

My invention relates to an improvement in plaiting-machines, and which is intended as an improvement upon my application, Serial No. 290,049, filed November 5, 1888; and it consists in the combination and arrangement of parts, to be more fully described hereinafter, and particularly pointed out in the claims.

The object of my invention is to furnish a very durable and stable plaiting-machine, which is simple in construction, and which admits of the quick and easy adjustment of the plaiting-blades, the regulating of the length or distance of their movement, and also for their removal for the purpose of sharpening their teeth, or for replacing with blades of a different width, or with a different kind of blade.

The accompanying drawing represents a perspective of my invention complete.

A represents the frame of the machine. To the bed thereof in the rear of the needle-bar is secured the plaiter-frame B, which is either an integral part of the machine-frame or may be a separate frame, and then secured to the machine-frame in any suitable manner that may be most appropriate. Secured to the vertical arm of the machine-frame is a rear bracket C, and to the front end of the horizontal arm of the machine-frame is a bracket D, in which is journaled the horizontal plaiter-operating shaft E.

F indicates the driving-pulley, that is rigidly secured to the rear end of the needle-driving shaft G, which is provided with a crank H, both of which are shown in dotted lines.

Fastened to the rear end of the plaiter-driving shaft is an upwardly-extending slotted arm I, to which the outer end of the connecting-pitman J is secured, while the opposite end of said pitman is journaled upon the crank H. Secured to the shaft E, near its rear end, is a ratchet-wheel K, with which a pawl *a*, placed upon the lower end of the arm I, engages as it is reciprocated, and thus imparts a rotary movement to said shaft.

The above parts are fully described in my application herein referred to, and need no further description here.

Placed upon and secured to the outer end of the plaiter-driving shaft E is a cam L, which is provided with a collar M, through which passes a set-screw for securely fastening it to said shaft. The end of the shaft E passes through the cam L sufficiently far to receive a second cam N, which is provided with a circular slot O, through which passes the screw P, by means of which said cam is secured to the cam L and rigidly held in any desired relation to the cam L. The front bracket D is provided with a slot formed by the projections *b*, between which the upper ends of the operating-levers R are pivoted. These levers are provided with hardened bearing-surfaces S, against which the cams L and N bear, for the purpose of moving the levers inward.

Moving in suitable bearings or openings formed in the plaiter-frame B are the sliding rods or bars T, to which are secured the adjustable sockets U V, to which are loosely connected the lower ends of the operating-levers R, respectively. The sockets are secured to the sliding bars by means of set-screws, which enable their free and ready adjustment in relation to each other, thus regulating the relative position of the plaiter-blades in relation to each other and in relation to the presser-bar, as will be seen from the description hereinafter given. Extending upward from the socket U is a guiding arm or projection W, which slides in the vertical groove X, made in the front portion of the plaiter-frame, and extending horizontally outward from the socket V is the guiding-arm Z, which has its outer end engaging the

horizontal groove A', made in the rear side of the said frame. These guiding-arms are provided for the purpose of preventing the sliding bars T from turning in their bearings, as they otherwise would do.

Extending inward and adjustably secured to the plaiter-frame B by means of the set-screws B' are the stop pins, bars, or rods C', which regulate the outward movement of the levers T by engaging the sockets U V, to which the lower ends of said levers are loosely connected.

For the purpose of returning the levers T after they have been pushed inward by the cams, the springs D' are provided, which have their upper central portions formed into coils, as shown, and their lower ends secured, respectively, to the frame and to the sockets.

Socketed upon and adjustably secured to the outer ends of the sliding rods outside of the frame B are the hangers E', to which are rigidly secured the plaiter-blades F'.

For the purpose of preventing the plaiter-driving shaft from turning backward from the pressure of the spring-actuated levers against the cams which operate them, the brake G' is provided. This brake has its inner end pivoted to the side of the bracket C, and its outer end provided with an opening which surrounds the operating-shaft. The outer side of this opening is provided with a slit, and the brake is split for a suitable distance below the opening. Passing through the brake is a clamping-screw, as shown, for the purpose of causing the brake to clamp the shaft to any desired extent, and thus prevent it from turning backward.

I here show only one form of cams; but it will be readily understood that any form of cam may be used having any peculiar form or shape, or as many cams as desired, without departing from the spirit of my invention, and I do not therefore limit myself in this respect.

From the above description it will be seen that a construction is produced which enables the plaiter-blades to be adjusted or removed, the movement of the sliding bars and levers limited, and the number of times that the levers shall be operated to each revolution of the shaft E regulated by making the cams removable, as here shown, and this adjustment of any part accomplished independent of any other part, whereby the relative position of the plaiter-blades are adjusted and the relative position of the plaiter-bars to the presser-bar regulated.

Having thus described my invention, I claim—

1. The combination, with a sewing-machine, of a plaiter-frame placed thereon having vertical portions provided with rod-bearings and guideways which extend in a line parallel with the feed of the machine, and sliding rods provided with plaiter-blades which move in a line parallel with the feed of the ma-

chine, guiding-arms extending from the rods into the guideways for preventing them from turning, and a mechanism operated by the machine for reciprocating the said rods, substantially as described.

2. The combination, with the plaiter-frame provided with guideways and rod-bearings, of the sliding rods carrying plaiter-blades, operating-levers, sockets adjustably secured to the said rods, having guiding-arms which engage the said guideways, and arms to which the lower ends of the operating-levers are connected, substantially as shown.

3. The combination, with the plaiter-frame having guideways and rod-bearings, of the sliding rods carrying plaiter-blades, the sockets adjustably secured thereto having an arm engaging the guideways and an arm for the operating-levers, the operating-levers pivoted at their upper ends and having their lower ends connected to the said sockets, the driving-shaft, and the cams secured thereto which engage the said levers, substantially as specified.

4. The combination, with the plaiter-frame provided with guideways and rod-bearings, of the sliding rods carrying plaiter-blades, sockets secured thereto having guide-arms, the operating-levers pivoted at their upper ends and connected loosely at their lower ends to the sockets, the driving-shaft, the cams thereon engaging the operating-levers, and the springs which engage the said frame and arms for returning the arms to position, substantially as shown.

5. The combination, with the plaiter-frame having rod-bearings, of the rods, sliding adjustable sockets placed thereon, the operating-levers pivoted at their upper ends and loosely connected at their lower ends to the said sockets, the operating-shaft, the cams, and the hangers carrying the plaiter-blades, which are secured to the rods outside of the frame by means of a socket and screw, whereby they can be adjusted and removed, substantially as set forth.

6. The combination of the plaiter-frame, the rods sliding therein carrying plaiter-blades, the sockets secured thereto, means for reciprocating the sockets, and stop rods or bars adjustably secured to the frame and which are engaged by the sockets for limiting their movement, substantially as specified.

7. In a plaiter, the combination, with the frame, of the sliding rods carrying the plaiter-blades, the operating-levers, the operating-shaft, and the two cams, one secured to the shaft and the other provided with a slot and secured to the other cam by means of a screw, whereby it is adjusted in relation to the other, for the purpose described.

CHAS. M. HINE.

Witnesses:

H. C. AVERY,
M. D. L. HEASTINGS.