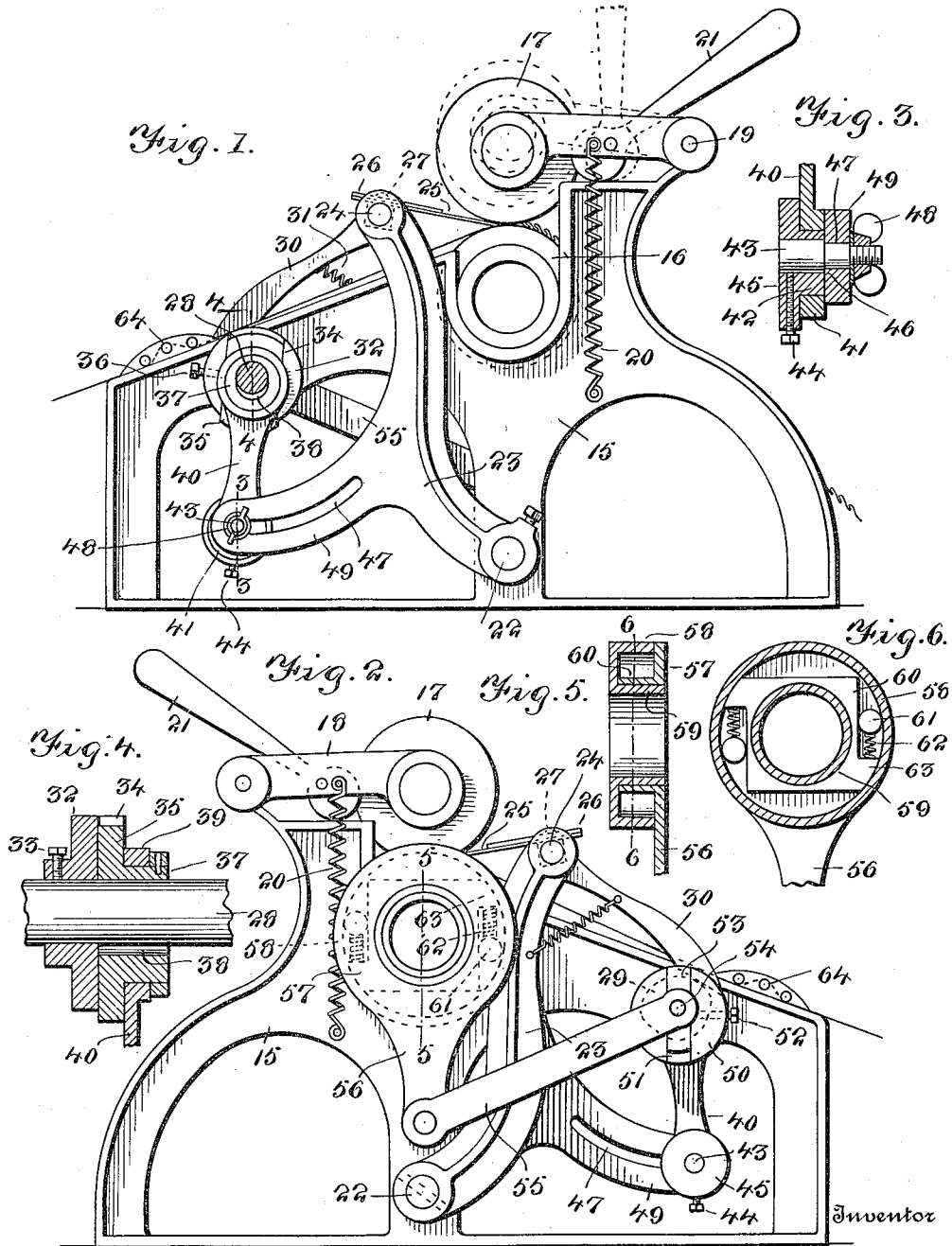


T. F. HAGERTY.
PLAITING MACHINE.
APPLICATION FILED OCT. 2, 1914.

1,154,857.

Patented Sept. 28, 1915.



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PLAITING-MACHINE.

1,154,857.

Specification of Letters Patent.

Patented Sept. 28, 1915.

Application filed October 2, 1914. Serial No. 864,684.

To all whom it may concern:

Be it known that I, THOMAS F. HAGERTY, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Plaiting-Machines, of which the following is a specification.

This invention relates to plaiting machines and it may be regarded as an improvement on the device of this class for which Letters Patent of the United States, No. 659,171, were granted to me on the second day of October, 1900.

One object of the present invention is to provide simple and effective means whereby the plaiting blade may be adjusted without unscrewing or displacing it in the holder.

A further object of the invention is to enlarge the range of the throw of the cam which actuates the blade-carrying frame so that a larger sized plait may be made without resorting to the use of different sized cams and the necessity for exchanging and adjusting the same.

A further object of the invention is to simplify and improve the manner of mounting the upper pressure roll to enable said roll to be quickly lifted to an inactive position in order to enable access to be had to the work for examination or in the event of accident.

A further object of the invention is to provide frictional feed means for actuating the feed roller whereby said feed roller may be moved any required distance without limitation to a certain unit or a multiple thereof, as is the case when the feed mechanism consists of a pawl and ratchet, as shown in my previous patent.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawing has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claims may be resorted to when desired.

In the drawing,—Figure 1 is a side elevation of a plaiting machine constructed in ac-

cordance with the invention. Fig. 2 is a side elevation showing the opposite side of the machine. Fig. 3 is a sectional detail view taken on the line 3—3 in Fig. 1. Fig. 4 is a sectional detail view taken on the line 4—4 in Fig. 1. Fig. 5 is a sectional detail view taken on the line 5—5 in Fig. 2. Fig. 6 is a sectional detail view taken on the line 6—6 in Fig. 5.

Corresponding parts in the several figures are denoted by like characters of reference.

The frame 15 of the improved machine is provided with bearings for the lower hollow roller 16 which will be designated as the feed roller. The upper roller 17, known as the pressure roller, is supported for rotation in bearings provided in a pair of arms 18 which are pivoted on the frame at 19, said arms being connected with the frame by tension springs 20. The roller carrying arms 18 may by means of a cam lever 21 be thrown upward against the tension of the springs 20, and the pressure roller may thus be supported in a raised position, as indicated in dotted lines in Fig. 1, thereby rendering the work convenient of access and inspection.

The main frame supports a rock shaft 22 having arms 23 carrying a transverse shaft 24 upon which the plaiting blade 25 is mounted by means of a cap 26 and set screws 27. The main frame also supports the driving shaft 28 which may receive motion from any convenient source of power and which carries a trip cam 29 engaging a trip lever 30 that extends from the blade carrying shaft 24 and which is connected with one of the arms 23 by a contractile spring 31. It is obvious that this construction is designed to impart to the blade carrying shaft a rocking or oscillatory movement which will be so timed that on the feed movement of the blade it will be forced in the direction of the feed roller, while during its retractive movement it will be elevated so as to exert no pressure against the fabric that is being operated upon.

The driven shaft 28 carries a disk 32 fixed thereon by a set screw 33 having in its face a groove or slot 34 wherein a block 35 is adjustably secured by a set screw 36, said block carrying an eccentric 37, said block and eccentric being provided with an oblong slot 38 for the passage of the driving shaft 28. It will be readily seen that by simply changing the position of the block

35 relative to the disk 32 the throw of the eccentric 35 may be varied, the range of adjustment being limited only by the length of the oblong slot 38. It will be seen that by this simple construction I am enabled to provide for a relatively wide range of adjustment which in my previous patent and in previous machines of this class so far as I am aware cannot be effected except by an exchange of cams and the consequent necessity for disconnection and reassemblage of parts.

Mounted on the eccentric 37 by an eye or strap 39 is one end of a link or pitman 40. The other end of said pitman has an eye or strap 41 engaging an eccentric 42 which is mounted rotatably and adjustably on a pin or stud 43 on which, however, it is in practice secured against rotation by means of a set screw 44 extending through a flange 45 with which said eccentric is provided. The pin or stud 43 is shouldered, as best seen at 46, Fig. 3, and said pin is secured adjustably in an arcuate slot 47 in one of the arms 23 by means of a thumb nut 48 threaded thereon. It will be seen that by means of the thumb nut 48 the pin 43 is secured adjustably in the slot 47 without interfering with the adjustment of the eccentric 42; the latter may be independently adjusted about the axis of the pin 43 by first loosening the set screw 44 which latter, when tightened, secures the eccentric against displacement. It will be seen that by adjustment of the eccentric 42 the arms 23 carrying the blade carrying shaft may be adjusted so as to vary the position of said blade carrying shaft with respect to the rollers, thus enabling such adjustment to be effected at any time without necessity for loosening the blade, the latter being an operation of some delicacy which should not be performed except by a skilled mechanic.

It will be observed that the arcuate slot 47 has been formed in a bracket 49 that extends from one of the arms 23, but as said bracket is an integral portion of the arm, the slot may well be said to be formed in said arm.

The driving shaft 28 carries a disk or chuck 50 having a diametrical groove 51 wherein is secured adjustably by means of a set screw 52 a block 53 having a pin 54 whereon is journaled one end of a pitman 55, the other end of which is pivotally connected with an arm 56 extending from the oscillatory cap plate 57 of a friction device which includes a cylindrical casing 58 mounted on the end of the feed roller 16, said casing being provided with a hub or flange 59 on which the cap plate may rock. The cap plate carries a rectangular shoe 60 between which and the rim of the casing 58 friction rollers 61 are positioned, said rollers being pressed by springs 62, the opposite

ends of which bear against offsets 63 at diagonally opposite corners of the shoe. It will be obvious that by rocking the shoe carrying cap plate in one direction the spring pressed friction rollers will be gripped between the converging walls of the rectangular shoe 60 and the rim of the casing 58, thereby causing the latter to be rotated about its axis, while by rocking movement in the opposite direction, the friction rollers will be released. It is obvious that by this feed device the possible adjustment of the feed movement is limited only by the dimensions of the device and is in no way limited to any particular unit or multiple thereof, as is obviously the case when a pawl and ratchet feed is employed. The practical result is that the width of the under-lay of the plait may be varied almost indefinitely and that when desired a very important saving of material may be effected without detracting from the visible result.

In the use of the machine the material to be plaited is guided between tension rollers, indicated at 64, beneath the plaiting blade and between the coacting rollers. On the retracting movement of the arms on which the blade carrying shaft is mounted the said shaft will be rocked by the trip mechanism provided for the purpose of lifting the blade, which latter on the advancing movement will be moved in the direction of the feed roller by the cam of the trip mechanism so as to engage the material and form a plait which, by the advancing movement of the feed roller caused by the friction feed mechanism, will be carried between the rollers and pressed. The length of the throw which determines the width of the plate will be determined by previous adjustment of the pin 43 in the arcuate slot 47, while the positioning of the plaiting blade with respect to the rollers may be regulated by adjustment of the eccentric 42.

From the foregoing description, taken in connection with the drawing hereto annexed, it will be seen that I have produced a plaiting machine of simple construction, of great capacity so far as the performance of work is concerned, and capable of all necessary adjustments without resorting to skilled labor.

It is to be understood that when the machine is in operation the rollers are to be heated, but inasmuch as means for so doing are well known in machines of this class, detailed illustration thereof is deemed unnecessary.

Having thus described the invention, what is claimed as new, is:—

1. In a plaiting machine, a frame, coacting feed and pressure rollers, a rock shaft having arms extending therefrom, one of said arms being provided with an arcuate

slot, a shaft carried by said arms, a blade
carried by said shaft and extending between
the rollers, a bearing pin adjustably mount-
ed in the arcuate slot, an eccentric mounted
5 upon and adjustable about the axis of the
bearing pin, a driven shaft having an eccen-
tric, and a pitman connecting the last named
eccentric with the eccentric on the bearing
pin to provide for the primary adjustment
10 of the arms carrying the blade carrying
shaft and the positioning of the latter with
respect to the rollers.

2. In a plaiting machine, a frame, coact-
ing rollers, rocking members carrying a
15 blade carrying shaft, one of said rocking
members having an arcuate slot, a shoul-
dered pin adjustable in said slot, an eccen-
tric adjustable about the axis of said pin,
a driven shaft, an eccentric adjustable with

respect to the driven shaft to vary the throw 20
of said eccentric, and a link connection be-
tween the last named eccentric and the ec-
centric which is adjustable about the axis
of the pin; the adjustment of the eccentric
about the axis of the pin providing for the 25
primary adjustment of the rocking members
to vary the position of the blade with re-
spect to the rollers, and the adjustment of
the eccentric on the driving shaft providing
for the varying of the throw of the rocking 30
members without resorting to exchange of
cams.

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

THOMAS F. HAGERTY.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."