

(No Model.)

2 Sheets—Sheet 1.

H. E. CUNNINGHAM.
CARD FORMING MACHINERY.

No. 437,021.

Patented Sept. 23, 1890.

fig. 1.

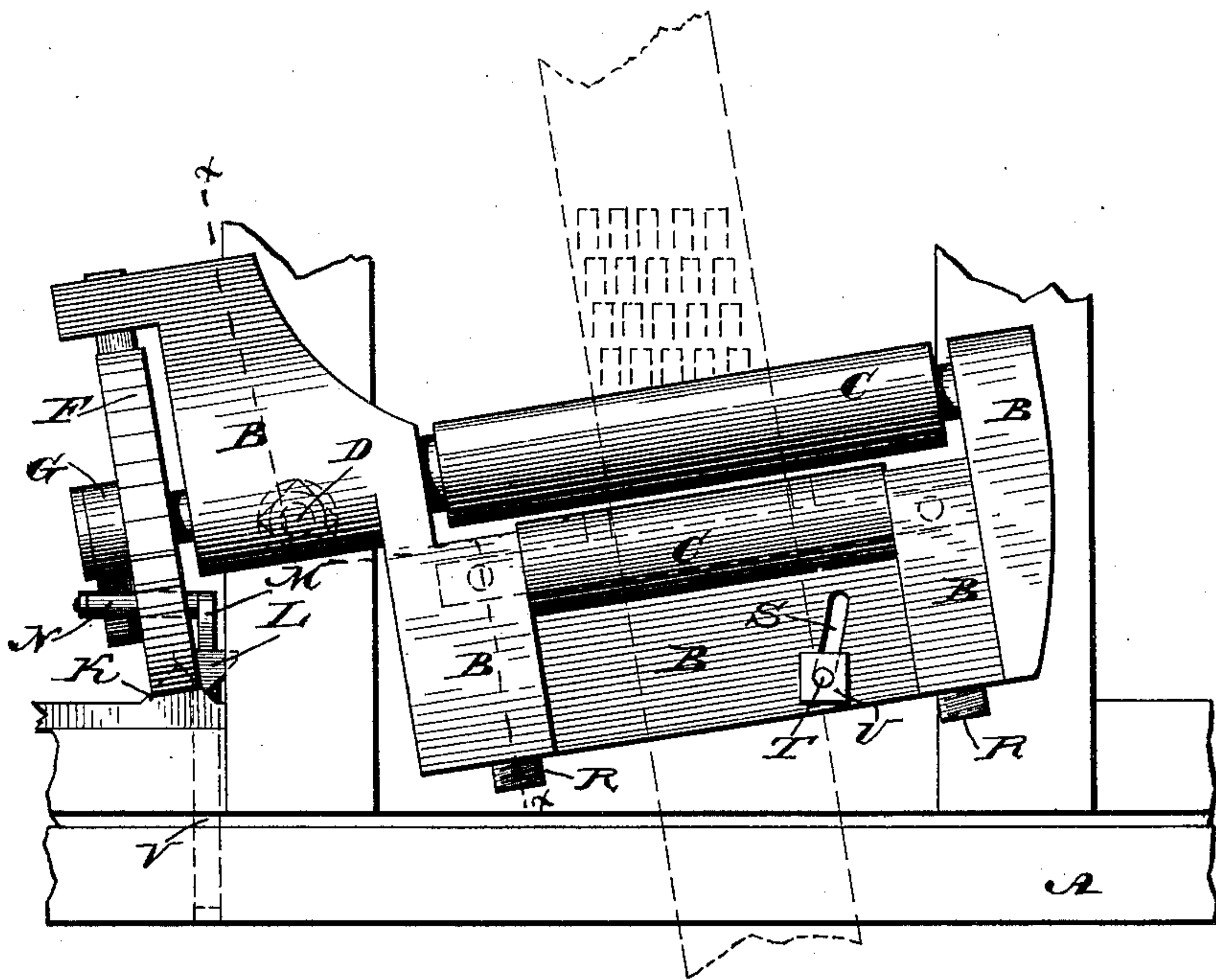
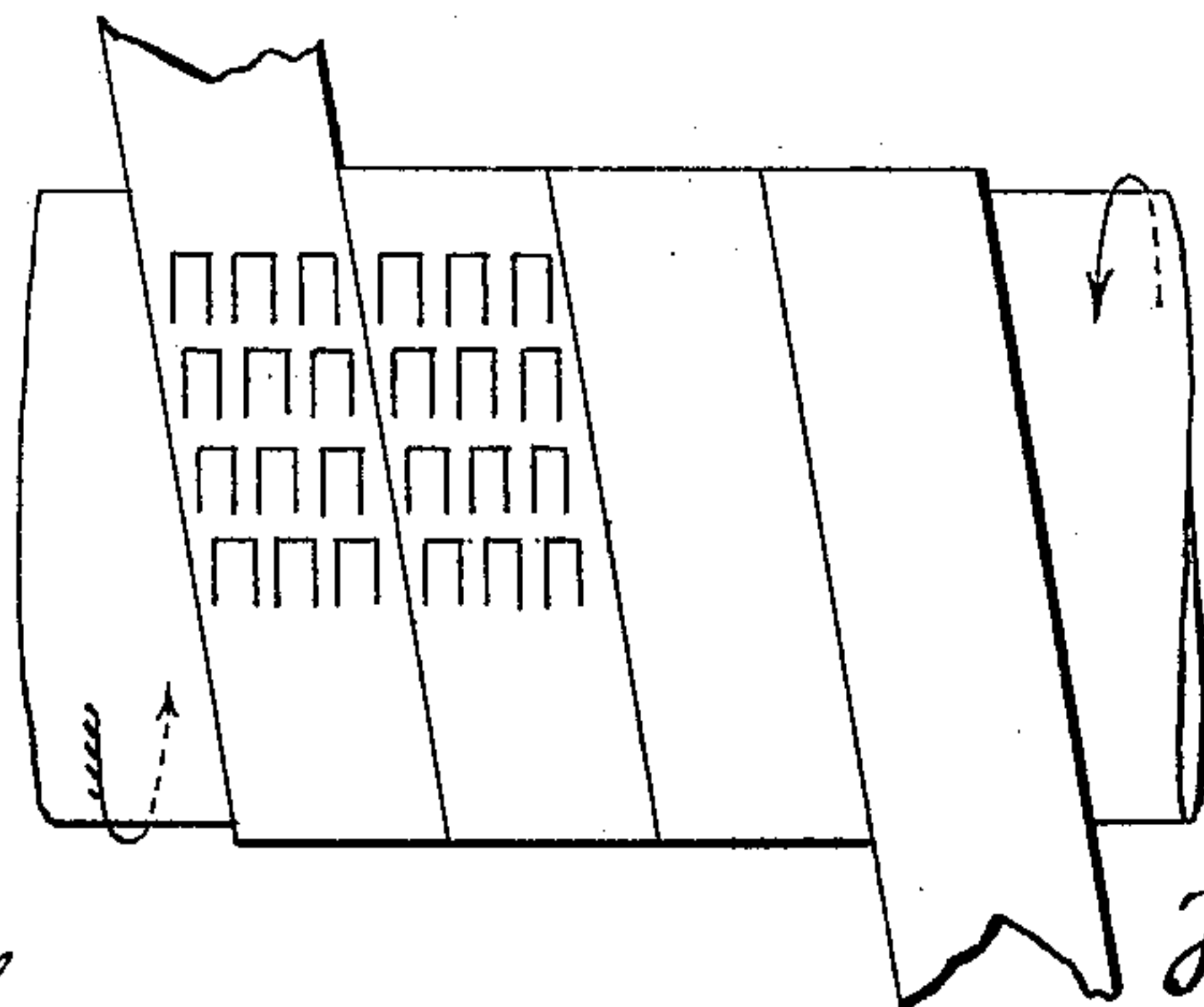


fig. 5.



WITNESSES:

L. Douville,
C. S. Hyer

INVENTOR:

Herman E. Cunningham
BY *John A. Diederichsen*
ATTORNEY.

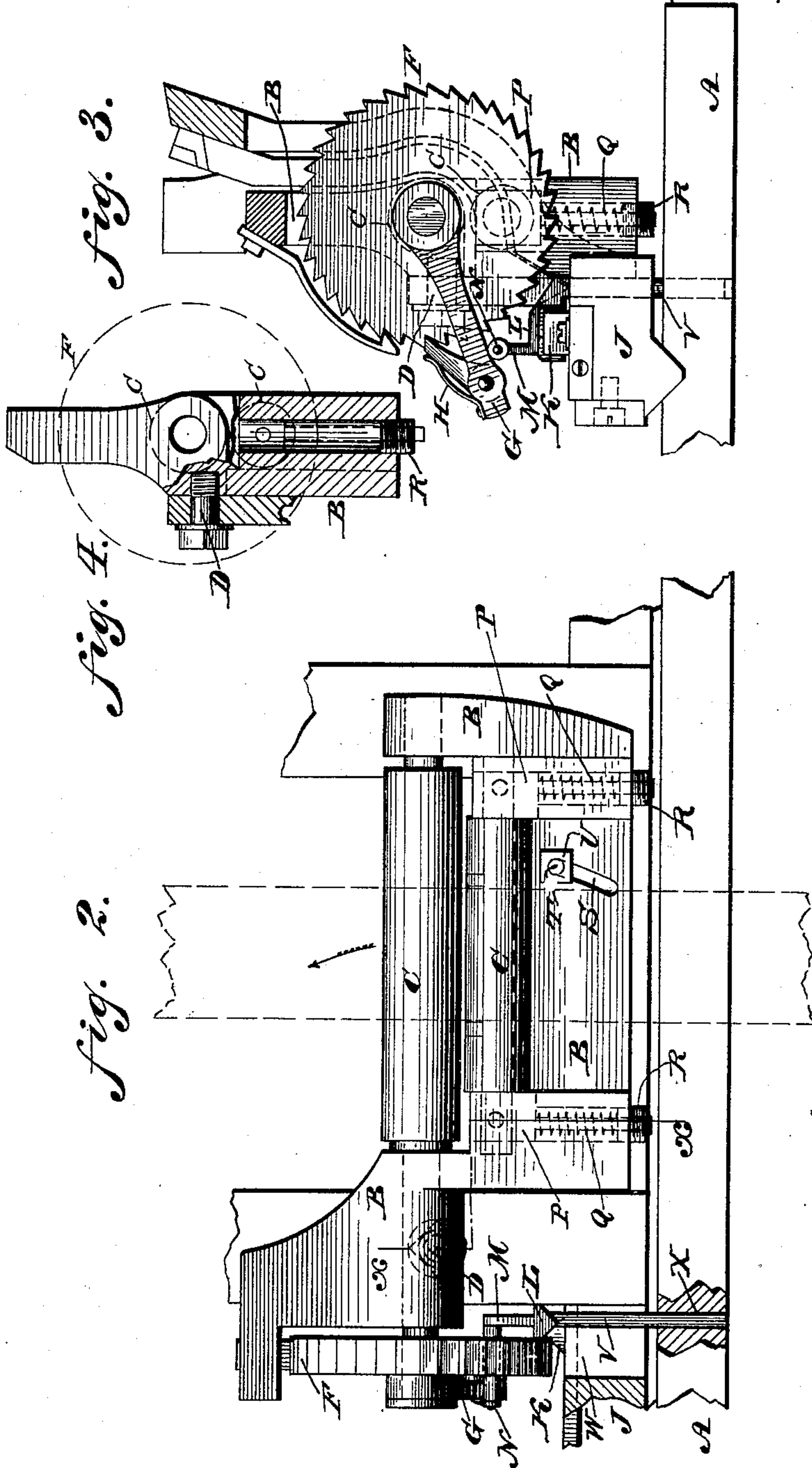
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BY John A. Giedersheim
ATTORNEY.

UNITED STATES PATENT OFFICE.

HERMON E. CUNNINGHAM, OF PHILADELPHIA, PENNSYLVANIA.

CARD-FORMING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 437,021, dated September 23, 1890.

Application filed August 24, 1889. Serial No. 321,858. (No model.)

To all whom it may concern:

Be it known that I, HERMON E. CUNNINGHAM, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Card Setting or Forming Machinery, which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of improvements in the feeding and guiding device of a woolen, cotton, or other card setting or forming machine, the object of the invention being to so feed and guide the band or backing that the wires or teeth enter the same in such manner that when the backing is wound or wrapped around a drum or mandrel the wires are parallel with the axis of said drum or mandrel and both points of each wire simultaneously enter the stock to be carded.

Figure 1 represents a front view of the portion of a card-forming machine embodying my invention. Fig. 2 represents a similar view, the parts being in different position. Fig. 3 represents a side elevation thereof. Fig. 4 represents a vertical section on line *xx*, Fig. 1, showing a part of the bearings of the rollers and their pivotal support. Fig. 5 represents a piece of the work produced.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates a portion of the frame of a card-forming machine.

B designates a saddle, on which are mounted the rollers C, for feeding and guiding the band or backing in which card-teeth are inserted, said saddle being connected with an upright of the frame A by means of a pivoted bolt D, whereby it may be turned on the same as an axis, and thus be placed in oblique position, as shown in Fig. 1, or in horizontal position, as shown in Fig. 2.

One of the journals of the upper roller C is extended outside of its bearings on the saddle B, and has secured to its end a ratchet F, and carries a loose arm G, the latter having a spring-pressed pawl H mounted upon it, the same being adapted to engage with the teeth of the ratchet F.

J designates a carriage, which is supported

upon the frame A and receives motion in a line parallel with the rollers C.

Secured to or formed with the carriage J is a wedge-shaped block K, which engages with a wedge-shaped block L, the latter depending from and secured to an elbow M, the upper limb N whereof engages with or bears against the under side of the arm G near the outer end thereof.

The journals of the lower roller C rest on boxes P, against which bear the springs Q, the tension of which latter is regulated by screws R, it being evident that the sides of the saddle B are properly recessed to receive said journals, the boxes, springs, and screws, and by the operation or rotation of said screws the tension of the springs may be varied and the lower roller C adjusted near to or farther from the upper roller C.

In the saddle B is a segmental slot S, which receives a bolt T, which is connected with the adjacent portion of the frame A, so that by means of a nut U on said bolt the saddle may be retained in either of its adjusted positions, whether horizontal or oblique. It will be seen that the strip of material forming a band or backing may be fed through and guided by the roller C in a direction at a right angle to said rollers, whereby the card-teeth may be subsequently inserted in said backing at right angles to the sides thereof. When, however, it is desired to insert card-teeth in the backing where the latter will be subsequently wrapped or wound spirally around the drum or mandrel, it is essential to feed and guide said band to the card-forming machine in an oblique direction, as shown in Fig. 1. For this purpose the saddle B is placed in the oblique position shown in Fig. 1, the nut U having been properly previously loosened and afterward tightened, when the adjustment of the saddle is completed. The backing will now be presented to the card-forming machine in such manner that the teeth are inserted in an oblique direction, as will be seen dotted in Fig. 1. When the backing is wrapped or wound around the drum or mandrel, the card-teeth will assume a position parallel with the axis of said drum or mandrel, as illustrated by the dotted diagram, Fig. 5.

The ratchet F receives intermitting motion

by the action of the pawl H, arm G, blocks L
K, and carriage J, it being noticed that as the
carriage is advanced in one direction the in-
clined side of the block K presses against the
5 inclined side of the block L, thus raising said
block L, and consequently elevating the elbow
or lifting piece M. This raises the arm G and
causes the pawl H to move the ratchet F a
distance equal to the throw of said arm G.
10 The carriage J now returns, whereby the block
L, and consequently the elbow M, are permit-
ted to drop, thus releasing the arm G and per-
mitting it and the pawl H to lower, so that
said pawl may take hold of another tooth pre-
15 paratory to its next operation, it being evi-
dent that the motion of the ratchet is imparted
to the upper roller C, between which and the
lower roller C the backing is passed to the
card-forming machine. When the saddle is
20 placed in oblique position, as in Fig. 1, the
connected parts thereof assume a similar po-
sition. This, however, does not affect the
action of the elbow M upon the arm G, as said
elbow has a free connection with said arm.
25 The elbow M, which carries the block L, has
a depending stem V, which passes freely
through a slot W in the carriage J and a re-
cess X in the base of the frame, said slot W
permitting the carriage to pass said stem V.
30 Having thus described my invention, what
I claim as new, and desire to secure by Let-
ters Patent, is—
1. In a feeding and guiding device for a

card setting or forming machine, a saddle with
parallel rollers in connection therewith, said 35
saddle having an extended end pivotally at-
tached to the frame and through which the
extended journal of one of said rollers projects
to receive operating mechanism therefor, sub-
stantially as described. 40

2. Feeding and guiding rollers and a sup-
port therefor, in combination with a ratchet
mounted on the journal of one of said rollers,
a pawl engaging with said ratchet, a swinging
arm carrying said pawl, a lifting-piece engag- 45
ing said arm, an inclined block secured to said
lifting-piece, and a carriage which is pro-
vided with an inclined block adapted to en-
gage the inclined block on the lifting-piece,
the latter being sustained on the frame, sub- 50
stantially as described.

3. In a card-forming machine, the feeding
and guiding rollers, combined with a pawl
and ratchet for operating the guiding and
feeding rollers of a card setting or forming ma- 55
chine and a rising and falling piece which en-
gages with the pawl-carrying arm, said piece
being guided in the frame and provided with
an inclined block which is connected to a car-
riage, the parts named being combined sub- 60
stantially as described.

HERMON E. CUNNINGHAM.

Witnesses:

JOHN A. WIEDERSHEIM,
JAMES F. KELLY.