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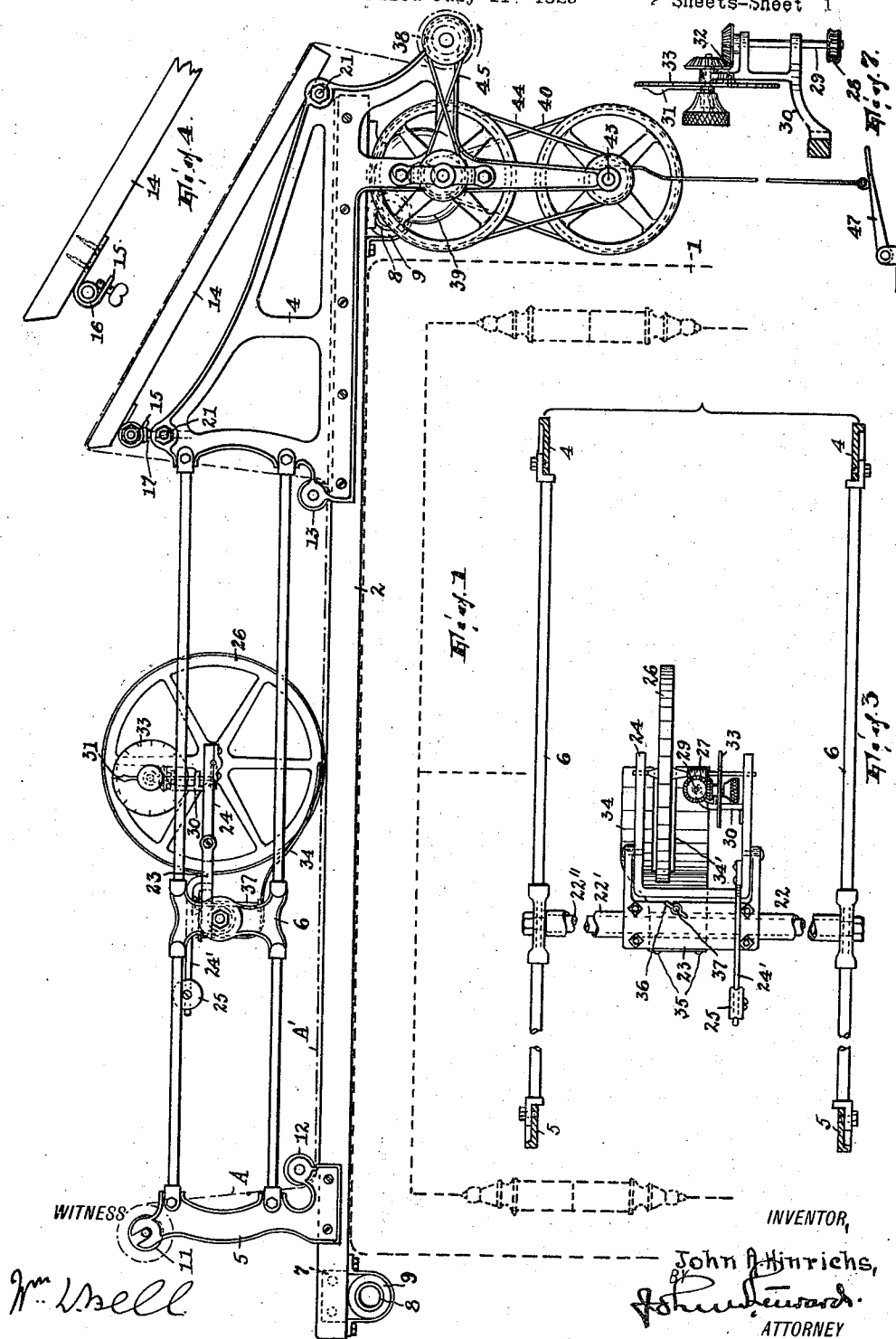
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CLOTH MEASURING MACHINE

Filed July 11, 1925

2 Sheets-Sheet 1



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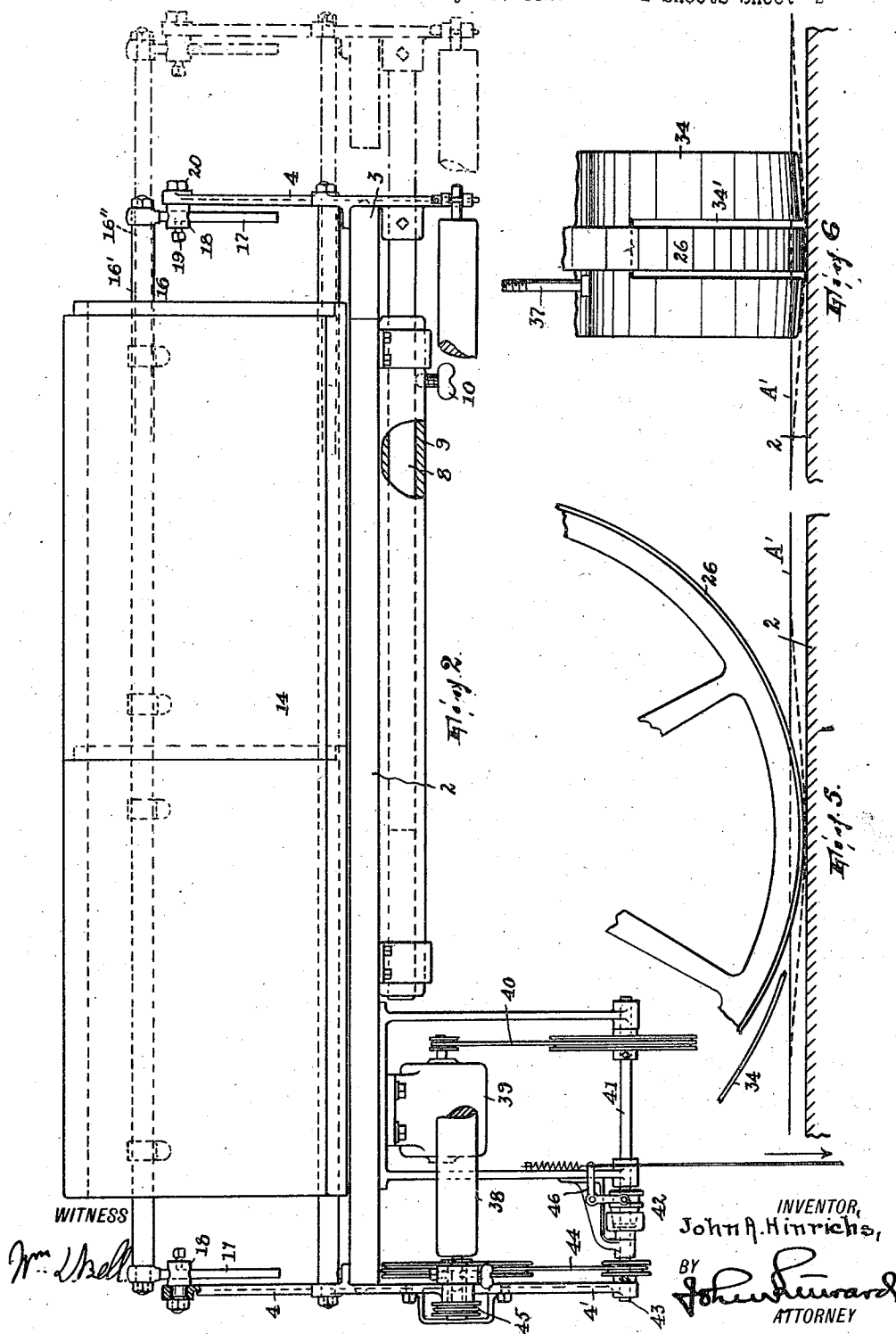
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2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE.

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CLOTH-MEASURING MACHINE.

Application filed July 11, 1925. Serial No. 42,894.

This invention relates to fabric measuring and examining machines of a class in which a measuring wheel forming a part of the measuring or indicating means rests against the fabric, which is suitably supported while being advanced.

According to one novel feature of the invention, the measuring means is held pressing against the fabric and the latter is supported in such a way that the wheel of the measuring means can form a depression or bulge in the fabric so that the wheel obtains adequate traction for causing its rotation by the fabric, which it could not do if the fabric is very thin and is supported flat on a table or other smooth surface, under which condition bouncing of the wheel would result in a false reckoning. To reduce the vibration of the wheel toward and from the fabric as the result of rapid advance of the fabric, thus steadying the measuring means, I preferably provide a fabric support arranged to bear against the same side of the fabric as that with which the wheel has contact.

The machine is intended to operate on very delicate and quite sheer fabrics which are likely to pucker or wrinkle as the result of the resistance offered by the wheel. I therefore provide means to guide the portion of the fabric engaged by the wheel in a substantially horizontal plane and between the fabric advancing means and the guiding means and arranged higher than the latter. I place other means to guide the fabric in substantially a horizontal plane, this latter means being useful in the examination of the fabric and also coacting with the first guiding means to maintain the fabric transversely stretched so that it cannot pucker under the draft of the wheel.

Other novel features of the invention will be hereinafter set forth or apparent to those skilled in the art.

In the drawings,

Fig. 1 is a side elevation of the improved measuring and examining machine;

Fig. 2 is a front elevation thereof, partly in section;

Figure 3 is a plan, partly in section, showing principally the measuring means and the manner of supporting the same;

Fig. 4 shows the examining table in side elevation, and how it is supported;

Figs. 5 and 6 are side and front elevations of the measuring wheel and the mentioned fabric support; and

Fig. 7 shows a detail.

A base for the machine frame is indicated in dotted lines at 1, being here illustrated as a safe in which the fabric (silk) may be stored. On this base rests a table which projects at both ends (see Fig. 1). It is preferred that this table be extensible laterally (or as viewed from the right or left in Fig. 2) and for this purpose it includes a main portion 2 and a lateral sliding portion or leaf 3, operatively connected as will appear.

At both sides of the right hand end of the table in Fig. 1 are secured brackets 4 4 which are counterparts of each other excepting that the one at the left in Fig. 2 has a depending extension 4'; at both sides of the left hand end of the table in Fig. 1 are secured brackets 5 5, which are counterparts of each other. The brackets 4 and 5 on each side of the table are connected by a brace structure 6 (Figs. 1 and 3). The bracket 4 which is secured to the leaf 3 and a bracket 7 which depends from the leaf at the left hand end thereof in Fig. 1 are secured on horizontal transverse shafts 8 which are telescopically movable in transverse horizontal tubes or pipes 9 which are secured to the under side of the part 2 of the table; thus the table may be extended laterally and when the leaf has been adjusted to any lateral position it may be secured by set-screws 10 in the pipes 9 arranged to bind against the shafts 8.

The brackets 5 afford bearings for the guideons of the beam 11 on which the fabric A to be measured is wound. This beam is arranged above the table and the fabric then extends down under a transverse roller 12 journaled in the brackets 5 and forming a guide for the fabric. In the brackets 4 is journaled another transverse roller 13 forming a guide under which the fabric extends. The guides 12 and 13 are arranged at such an elevation that there is appreciable clearance between the fabric and the top of the table when the former is held

taut, as when it is being drawn and there-
by advanced in the measuring operation.
From the guide 13 the fabric extends up and
over the examining table 14 forming a guide
5 arranged at an appreciable elevation above
guide 13 and preferably inclined downward
toward the right hand end of the machine
in Fig. 1. Near its upper end this examin-
ing board has on its under side hooks 15
10 adapted to catch over a bar 16 which is
supported at its ends by two posts 17 ver-
tically adjustable in studs 18 that are
swivelled in the upper ends of the brackets
4, the posts being adapted to be held where
15 vertically adjusted by set-screws 19 and the
swivelled studs being adapted to be held
where rotatably adjusted by adjusting nuts
20. The bar 16 may be telescopic, the tubu-
lar portion thereof 16' being carried by one
20 post 17 and the received portion 16'' by the
other post 17. The inclined board 14 rests at
its lower end on one of the two brace rods
21 which connect the two brackets 4.

The two brace structures 6 are connected
25 by a bar (22) which may be telescopic, the
tubular part 22' being connected to one brace
structure and the received part 22'' to the
other brace structure. Suitably secured to
the tubular part of this telescopic bar is a
30 forked-shape bracket 23 in the arms of
which is pivoted on a horizontal axis a
forked frame lever 24 having an arm 24'
on which is adjustable lengthwise thereof
a weight 25. The arms of the forked lever
35 24 afford bearings for the spindle of the
measuring wheel 26, as to which 25 forms
a counterweight. Said spindle has a worm
27 thereon in mesh with the worm-wheel
28 (Fig. 7) on a vertical shaft 29 journaled
40 in a bracket 30 mounted on lever 24; at the
top the bracket affords a horizontal bearing
for the rotary pointer 31 connected by beveled
gearing 32 with the shaft 29, there
being fixed on a bracket 24 a dial 33 to coact
45 with the pointer. When the wheel 26 is
rotated the pointer rotates with respect to
the dial.

The wheel bears on the portion A' of the
fabric A which bridges the guides 12, 13 and
50 to a certain extent bulges the fabric by its
pressure (Figs. 5 and 6); this results in the
wheel having appreciable contact with the
fabric and so a good tractive grip thereon.
The table is placed under the portion A'
55 principally to support it at the time when
the fabric slackens for any reason.

When the fabric is being advanced the
wheel would undergo some undesirable up
and down vibratory movement unless it were
60 controlled. I therefore prefer to provide a
fabric support 34 which bears against the
top of the fabric and is preferably a blade
apertured or slotted, as at 34', to receive
the wheel. This blade is fixed, as by rivets
65 35, to the back of the bracket 23 and extends

forward under the same; its elasticity
tends to press it downwardly and so it de-
presses the fabric somewhat, but it is ad-
justed upwardly to the proper height by
turning a nut 36 which bears on the bracket 70
and is screwed onto the upper end of a
stem 37 projecting up from the blade.

The advance of the fabric is effected as
follows: In the brackets 4 is journaled the
receiving beam 38. An electric motor 39 75
is mounted on the under side of the table
and through a belt and pulley system 40 it
drives a countershaft 41 (Fig. 2). Through
a clutch 42 this countershaft drives an ex-
tension shaft 43. The shaft 43 drives at 80
proper speed through belt and pulley systems
44, 45 the beam 38. The movable member
of the clutch is operated to close the clutch
by a fork 46 connected with the treadle 47.

The examining board 14 is formed in sec- 85
tions (Fig. 2) and when the main table is
extended or reduced in width one or more
of these sections may be added or removed;
at such times it will also be necessary to
change the beams and guide rollers for ones 90
of different lengths.

Having thus fully described my invention
what I claim and desire to secure by Letters
Patent is:

1. In combination, means to maintain a 95
part of the fabric being advanced under
tension lengthwise of its path of advance
including a guide extending transversely
of said path and under which the fabric ex- 100
tends, means to draw and thus advance the
fabric, measuring means including a meas-
uring wheel arranged relatively rearward of
said guide and in tractive engagement with
said part of the fabric, and guiding means, 105
arranged relatively forward of and higher
than said guide and second-named means
and over which the fabric extends, maintain-
ing the portion of the fabric engaged there-
with and between itself and the second- 110
named means in a substantial plane sloping
downwardly in the direction of advance of
the fabric.

2. In combination, means to maintain a 115
part of the fabric being advanced under
tension lengthwise of its path of advance
including a guide extending transversely of
said path and under which the fabric ex-
tends, means to draw and thus advance the 120
fabric, measuring means including a meas-
uring wheel arranged relatively rearward of
said guide and in tractive engagement with
said part of the fabric, and guiding means,
including a transverse table arranged rela- 125
tively forward of and higher than said guide
and second-named means and over which
the fabric extends, maintaining the portion
of the fabric engaged therewith in a sub-
stantial plane.

3. In combination, spaced means between 130
which the fabric is held stretched while

being drawn lengthwise, the part of the fabric between said means being free to be bulged, and measuring means freely vibratory toward and from and normally urged toward, and including a freely revoluble wheel in tractive engagement with and bulging, said part of the fabric, the path of vibratory movement of said wheel being remote from each of the first means.

4. In combination, means to draw the fabric lengthwise, a pair of spaced guides adapted to be bridged by the advancing fabric, the part of the fabric between said guides being free to be bulged and being normally held taut while advancing, an apertured fabric support against which one face of said part of the fabric moves in wiping contact, supporting means carrying the guides and support and measuring means freely movable in the supporting means toward and from and normally pressing said part of the fabric from said support

and including a freely revoluble wheel bearing against said part in the aperture of the support.

5. In combination, means to draw the fabric lengthwise, a pair of spaced guides adapted to be bridged by the advancing fabric, the part of the fabric between said guides being free to be bulged and being normally held taut while advancing, an apertured fabric support against which one face of said part of the fabric moves in wiping contact, supporting means carrying the guides and support and measuring means freely movable in the supporting means toward and from and normally pressing said part of the fabric from said support and including a freely revoluble wheel bearing against said part in the aperture of the support, said support being adjustable toward and from the fabric.

In testimony whereof I affix my signature.

JOHN A. HINRICHES.