

No. 650,202.

Patented May 22, 1900.

R. E. SMITH, W. E. BAKER & J. J. GLAESER.

TENTERING MACHINE.

(Application filed Dec. 30, 1899.)

(No Model.)

FIG. 1.

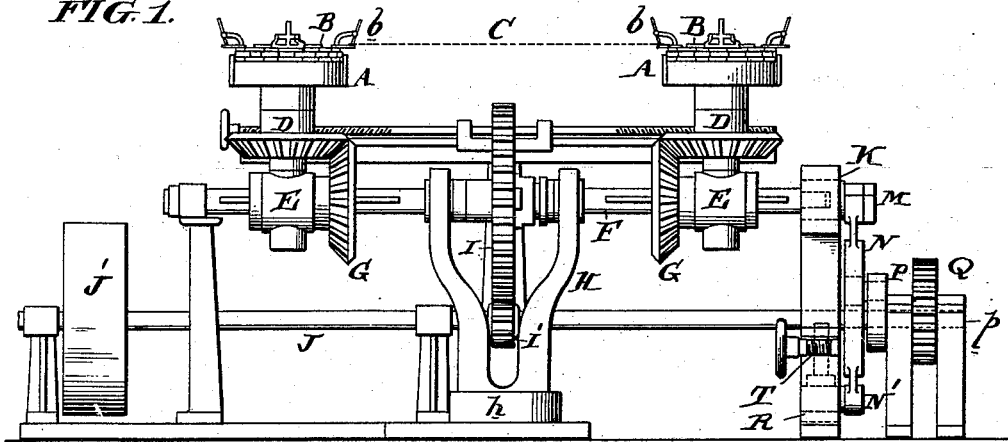


FIG. 2.

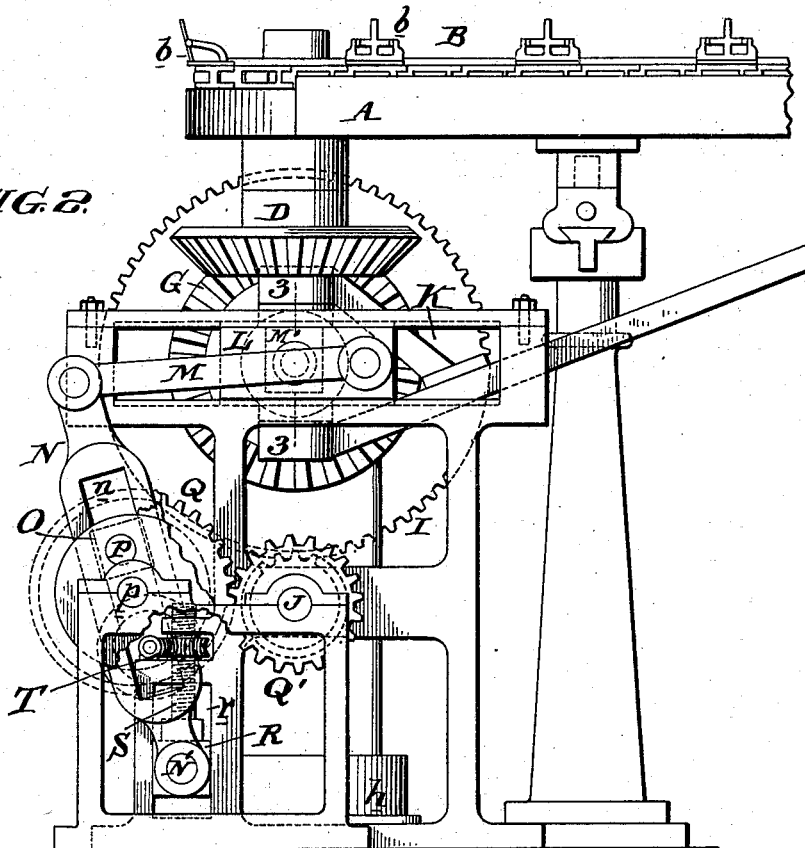


FIG. 3.

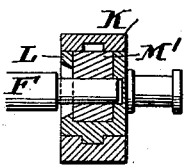
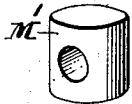


FIG. 4.



Witnesses:
Henry D. Smith
R. M. Kelly

Inventors:
Robert E. Smith
William E. Baker
Jacob J. Glaeser
By their atty *[Signature]*

UNITED STATES PATENT OFFICE.

ROBERT E. SMITH, WILLIAM E. BAKER, AND JACOB JOHN GLAESER, OF
PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO THE H. W. BUTTER-
WORTH & SONS COMPANY, OF PENNSYLVANIA.

TENTERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 650,202, dated May 22, 1900.

Application filed December 30, 1899. Serial No. 742,143. (No model.)

To all whom it may concern:

Be it known that we, ROBERT E. SMITH, WILLIAM E. BAKER, and JACOB JOHN GLAESER, of Philadelphia, Pennsylvania, have invented an Improvement in Tentering-Machines, of which the following is a specification.

Our invention has reference to tentering-machines; and it consists of certain improvements set out in the following specification and shown in the accompanying drawings, which form a part thereof.

This application has special reference to tentering-machines for treating textile fabrics, and comprehends more particularly certain devices for imparting a reciprocating motion to the longitudinal frames upon which clamps are carried and which hold the fabric.

The object of our invention is to provide suitable power devices which shall be simple in construction and capable of properly reciprocating the said longitudinal frames carrying the cloth-clamps and at the same time have capacity for adjustment while in motion for the purpose of varying the extent of the reciprocations.

Our invention is applicable to any of the usual types of tentering-machines, and, more specifically considered, the power devices comprise a reciprocating box structure in which the end of the oscillating shaft of the tentering-machine is journaled, said box being connected with the free end of a pivoted slotted arm, which is oscillated by a crank and sliding box or bearing working in the slot of the arm. Furthermore, the fulcrum-point of the pivoted arm is adjustable to and from the crank-shaft, whereby the throw of the arm may be increased or diminished and such adjustment as is necessary be accomplished while the arm is in motion.

Our improvements will be better understood by reference to the accompanying drawings, in which—

Figure 1 is a sectional elevation at one end of the tentering-machine. Fig. 2 is a side elevation of the driven end of the tentering-machine. Fig. 3 is a cross-section of Fig. 2 on the line 3 3, and Fig. 4 is a perspective

view of the adjustable bearing in the sliding box.

A A are the two longitudinal frames of the tentering-machine and support the endless traveling chains B, having the clamps b, which grasp the selvage edges of the fabric C. These chains are driven by means of sprocket-wheels in the ordinary manner, which receive their motion from the upright shafts of the bevel-gears D, said shafts being journaled in boxes E, sliding upon a transverse oscillating pivoted shaft F, to which motion is imparted for reciprocating the frames A. The shaft F is provided with bevel-gears G, meshing with the gears D, so that the rotation of the shaft F in this manner transmits power to the endless chains B. The shaft F is journaled in an upright frame H, pivoted at h to act as a fulcrum-point, about which it oscillates and constituting a vertical axis. The general construction of the tentering-machine proper, and especially the manner of pivoting the frame H upon its base h, is fully shown in Letters Patent to Gadd, No. 606,780, dated July 5, 1898. The shaft F is provided with a spur-gear I, with which a pinion I' meshes. Pinion I' is secured to the driving-shaft J, and the teeth between the gears I and I' are sufficiently loose to permit the oscillations of the gear I upon the pinion I'. The shaft J is journaled in suitable fixed bearings and is rotated by a band-wheel J'. So much of the structure as is above described is similar to constructions of tentering-machines already well known and in public use. One end of the shaft F projects into a bearing M', the same being cylindrical in plan and journaled within a sliding box L and capable of rotating on a vertical axis. The bearing M' is set in an upright cylindrical recess within the box L and is held in place by the upper bar of the slotted guide K, as shown in Fig. 3. The sides of the box L are perforated to permit the entrance of the shaft F to connect with the bearing within said box. The box L is adapted to slide in a horizontal slotted guide K and is reciprocated therein by means of a link M, connecting with the upper or free end of a pivoted arm N. The

lower end of this arm is journaled at N' to an adjustable support R, adapted to be raised or lowered in a suitable guideway *r* by means of a screw-shaft, which may be adjusted by means of a worm and worm-wheel gearing T or any other suitable means. The arm N is provided with a longitudinal slotted guideway *n*, in which a box O slides. The crank-pin of a crank P is journaled in the box O. The crank is secured to the crank-shaft *p*, which is driven from the shaft J by means of gearing Q Q'.

It will be observed that the rotation of the crank causes the arm N to oscillate upon its pivot N', and thereby reciprocate the box L in its horizontal guide K. This imparts an oscillating motion to the shaft F about its vertical axis of oscillation *h*. By adjusting the support R vertically the pivot-point N' is brought nearer or farther from the crank-shaft *p*, and thereby changes the extent of throw or travel of the free end of the arm N. This likewise changes the extent of oscillation of the shaft F, and consequently enables the extent of reciprocation of the frames A to be varied for securing the proper treatment to the fabric. It will be observed that by our improved construction the adjustment of the extent of reciprocation may be performed while the machine is in motion and when the proper observations of the results can be had.

While we prefer the construction shown as being excellently adapted to the purpose, we do not confine ourselves to the minor details, as these may be varied without departing from the principles of our invention.

Having now described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a tentering-machine, the combination of the reciprocating cloth-clamp-carrying frames, with a transverse oscillating shaft pivoted upon a vertical axis intermediate of the frames whereby said frames may be oscillated, a stationary horizontal guide-frame located at one end of the oscillating shaft, a sliding box adapted to reciprocate in the guide-frame and provided with a movable bearing in which the end of the oscillating shaft is journaled with freedom for end motion, a pivoted arm having its free end connected with the sliding box with provision for vertical movement and adjustment and having its other end provided with a fixed pivot so that the length of the arm between the pivot and its end connection with the sliding box remains the same for all adjustments, a crank connection directly operating upon the arm to oscillate it between its pivot and end connected with the sliding box, a vertical guide, and means to adjust and fixedly hold the fixed pivot of the pivoted arm in various adjusted positions in said vertical guide.

2. In a tentering-machine, the combination of the reciprocating cloth-clamp-carrying frames, with a transverse oscillating shaft

pivoted upon a vertical axis intermediate of the frames whereby said frames may be oscillated, a stationary horizontal guide-frame located at one end of the oscillating shaft, a sliding box adapted to reciprocate in the guide-frame and provided with a movable bearing in which the end of the oscillating shaft is journaled with freedom for end motion, a pivoted arm having its free end connected with the sliding box with provision for vertical movement and adjustment and having its other end provided with a fixed pivot so that the length of the arm between the pivot and its end connection with the sliding box remains the same for all adjustments, a crank connection directly operating upon the arm to oscillate it between its pivot and end connected with the sliding box, and means to adjust the pivot-point of the arm to or from the crank-shaft whereby the throw of the arm may be varied.

3. In a tentering-machine, an oscillating shaft movable upon a vertical axis for reciprocating the endless chains of clamps, in combination with a sliding box in which the end of the oscillating shaft is journaled, a guide-frame for the sliding box, a pivoted arm connected to the box with provision for permitting the arm to be raised and lowered and in which said arm is provided with a pivot-bearing fixedly attached to it, a rotating crank acting upon the pivoted arm through a sliding connection, and means for adjusting the pivoted arm vertically and raising and lowering its fixed pivot-bearing whereby the latter is adjustable nearer or farther from the axis of the crank.

4. In a tentering-machine, an oscillating shaft movable upon the vertical axis for reciprocating the endless chains of clamps, in combination with a pivoted arm, a rotating crank acting upon the arm through a sliding connection, means connecting the free end of the arm with the end of the oscillating shaft, and means to adjust the pivot or fulcrum point of the pivoted arm and the arm itself bodily so as to adjust its pivot-point nearer or farther from the crank-shaft to adjust the throw of the free end of the arm and thereby the extent of the movement of the oscillating shaft.

5. In a tentering-machine, the combination of the two reciprocating frames each carrying an endless chain of cloth-clamps, and a pivoted oscillating shaft F for driving the endless chains and oscillating the longitudinal frames, with a stationary longitudinal guide K, a sliding box L adapted to reciprocate in the guide K, an upright bearing structure M' journaled on a vertical axis in the box L and in which is journaled one end of the oscillating shaft F, a pivoted slotted arm N having its upper or free end connected with the sliding box L by a link M, and a crank P mechanically connected with the arm N through a sliding connection.

6. In a tentering-machine, the combination

of the two reciprocating frames each carrying
an endless chain of cloth-clamps and a piv-
oted oscillating shaft F for driving the end-
less chains and oscillating the longitudinal
5 frames, with a stationary longitudinal guide
K, a sliding box L adapted to reciprocate in
the guide K, an upright bearing structure M'
 journaled on a vertical axis in the box L, and
in which is journaled one end of the oscillat-
10 ing shaft F, a pivoted slotted arm N having
its upper or free end connected with the slid-
ing box L by a link M, a crank P mechan-
ically connected with the arm N through a

sliding connection, and an adjustable pivot
device for the lower end of the pivoted arm 15
N whereby its pivot-point may be moved to
or from the crank-shaft.

In testimony of which invention we have
hereunto set our hands.

ROBERT E. SMITH.
WM. E. BAKER.
JACOB JOHN GLAESER.

Witnesses:

HERBERT ALRICH,
WILBUR ALRICH.