No. 881,573. PATENTED MAR. 10, 1908.

O. & A. GRAF.

MACHINE FOR STRINGING UP TOBACCO LEAVES.

APPLICATION FILED AUG. 16, 1906.

3 SHEETS—SHEET 1.

Fig. 1.

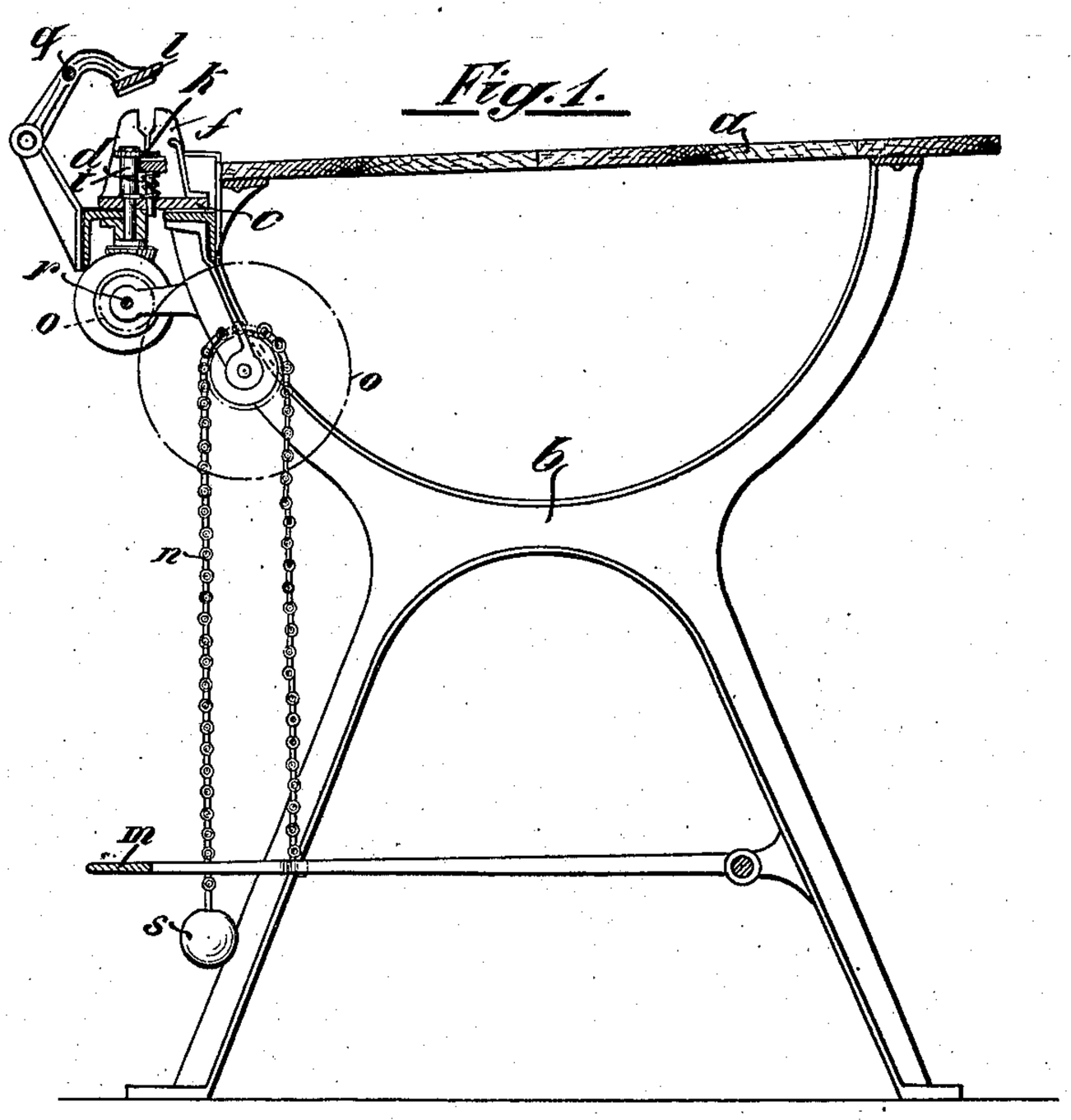


Fig. 4.

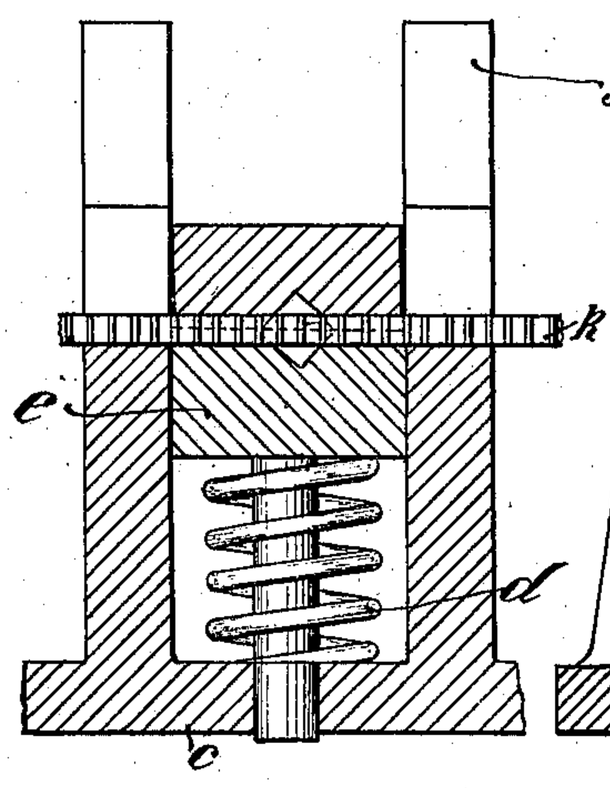
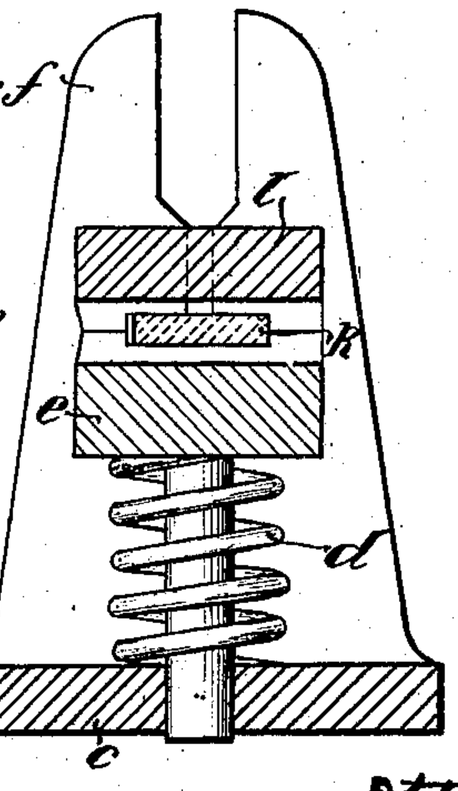


Fig. 5.

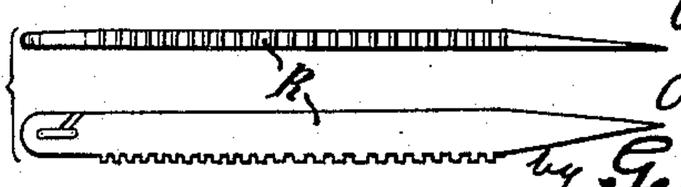


Witnesses:

M. Taylor.

R. M. Elliott

Fig. 6.



Inventors:

Otto Graf and

Alfred Graf

by Georgii & Massie

attorneys

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3 SHEETS—SHEET 2.

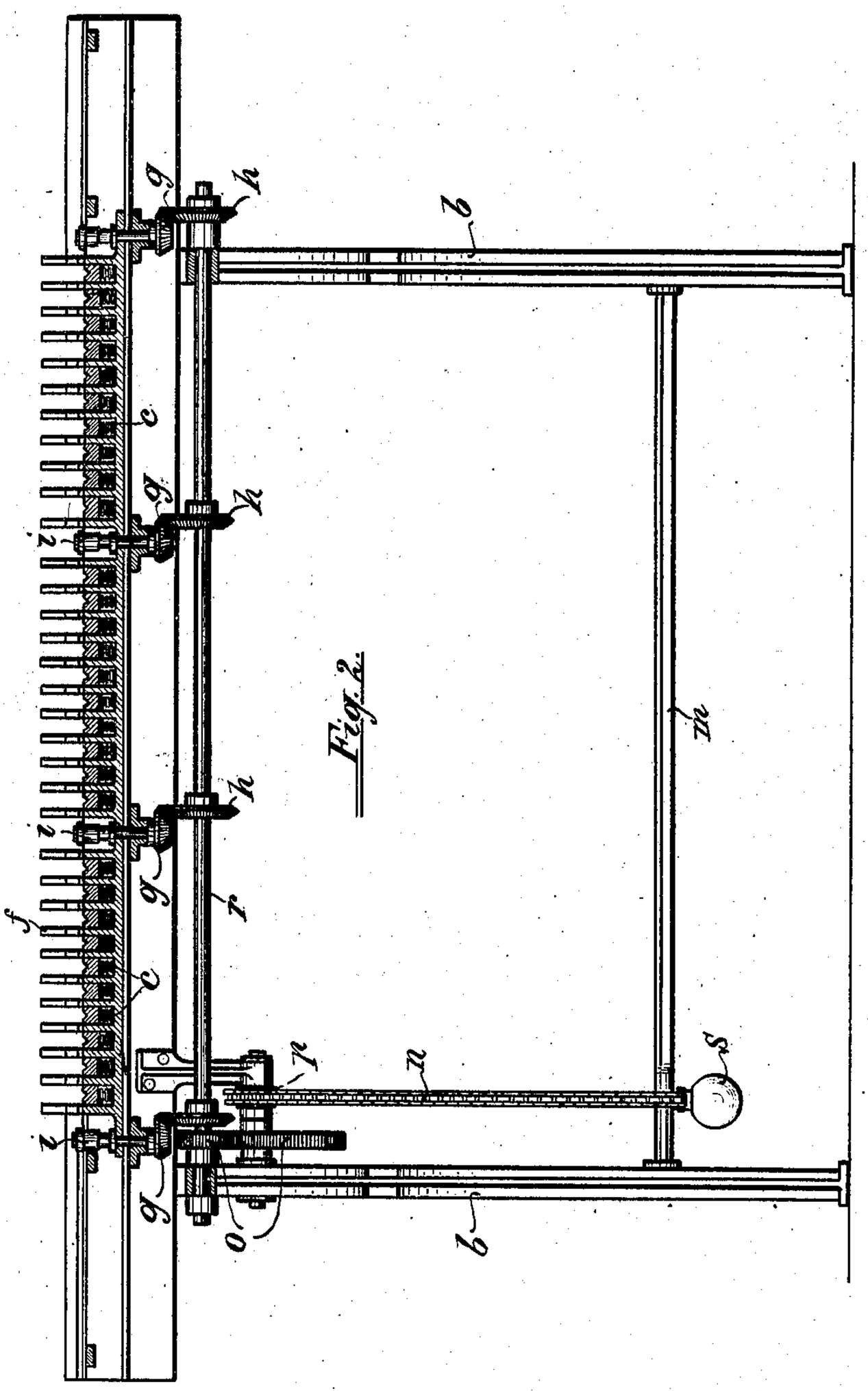

Fig. 2.

Witnesses:

M. Taylor.

R. M. Elliott

Inventors:
Otto Graf and
Alfred Graf
by Georgii & Maasch
attorneys

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O. & A. GRAF.

MACHINE FOR STRINGING UP TOBACCO LEAVES.

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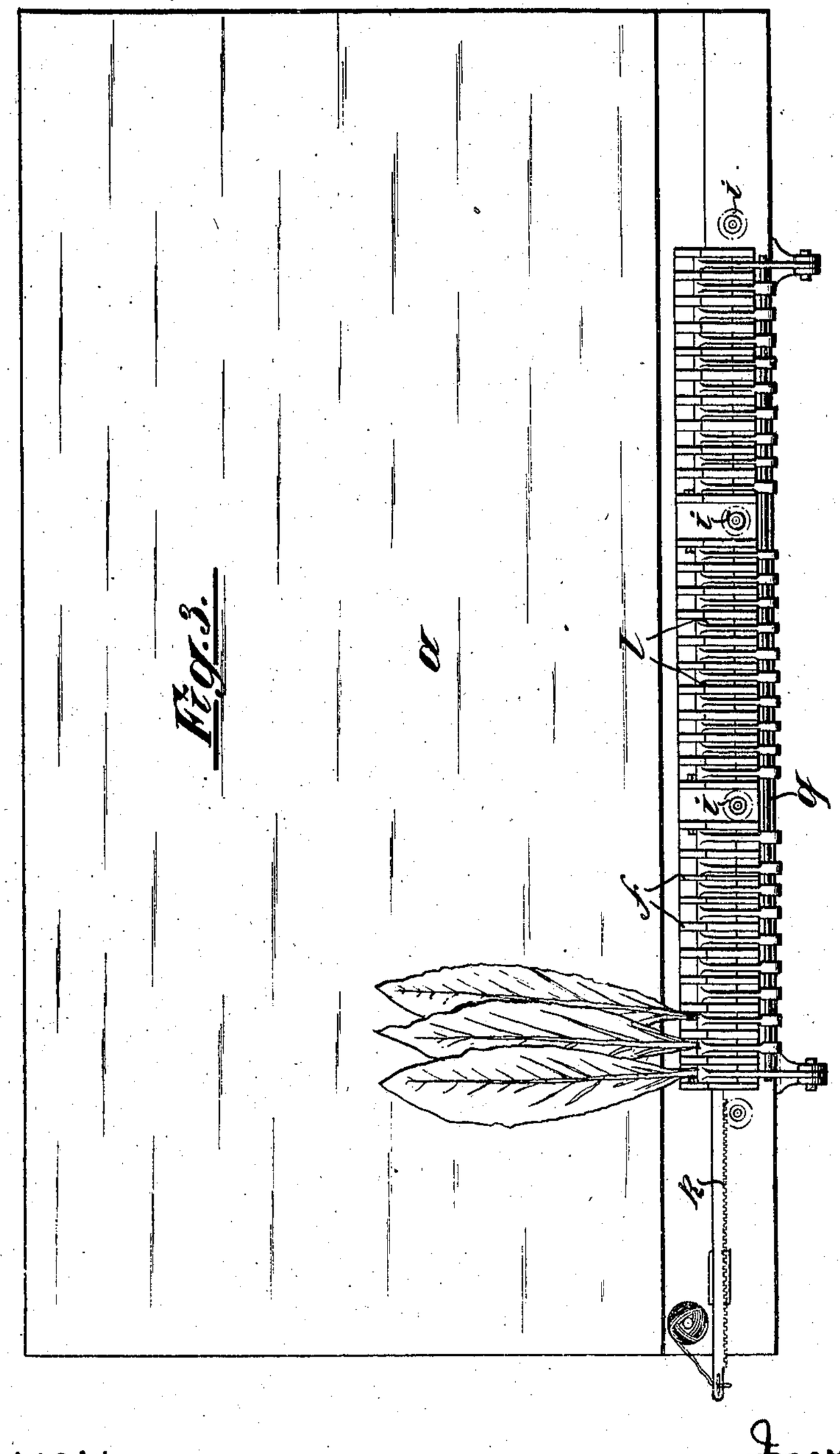
3 SHEETS—SHEET 3

Fig. 3.



Witnesses:

M. Taylor.

R. M. Elliott

Inventors

Otto Graf and

Alfred Graf

by Georgii Brownell

attorneys

UNITED STATES PATENT OFFICE.

OTTO GRAF AND ALFRED GRAF, OF BOEHRINGEN, NEAR RADOLFZELL, GERMANY.

MACHINE FOR STRINGING UP TOBACCO-LEAVES.

No. 881,573. Specification of Letters Patent. Patented March 10, 1908.

Application filed August 16, 1906. Serial No. 330,915.

To all whom it may concern:

Be it known that we, OTTO GRAF and ALFRED GRAF, subjects of the Grand Duke of Baden, both residing at Boehringen, near Radolfzell, in the Grand Dukedom of Baden, Germany, have invented certain new and useful Improvements in a Machine for Stringing Up Tobacco-Leaves; and we 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 appertains to make and use the same.

Our invention relates to the stringing of tobacco and has for its object the provision of means for mechanically distributing the tobacco so as to obtain positive and uniform drying.

The invention, as hereinafter particularly set out in the claims, will be more fully described in connection with the accompanying drawing, illustrating one embodiment of the same, in which drawing,

Figure 1 is a transverse section; Fig. 2 is a longitudinal section; Fig. 3 is a top plan; and Figs. 4 and 5 are detail sections at right angles to each other through one of the tobacco retaining cells and needle.

Referring to the drawing in detail, the table *a* is supported on the stand *b* likewise bearing at one side and parallel to the table a frame *c*. In the frame and yieldingly supported by springs *d* are slidably mounted blocks *e* separated from each other by ribs *f* dividing the face of the frame into a series of cells each containing a block *e*. Each block is provided on its upper face with a groove, preferably V-shaped in cross-section, extending transversely of the frame and adapted to receive the stem of the tobacco leaf lying on the table.

Bevel gears *g* and *h* serve to drive toothed pinions *i* arranged at intervals in the frame *c* and dividing the tobacco receiving cells into groups. These pinions mesh with a rack formed along the edge of a needle *k* and serve to propel the same longitudinally of the series of cells together with its cord.

A series of plates *l* mounted on a common rod *q* are arranged one over each block *e* to form therewith a tobacco holder. The blocks *e* and the plates *l* are provided on their opposing faces with a groove extending transversely of the frame and adapted to receive the stem of the tobacco leaf lying on the table *a*. The opposing faces of the blocks *e* and plates *l* are likewise provided with recesses which together form an opening extending longitudinally of the frame and the openings in the several blocks and plates constitute a passage for the needle *k*, the full length of the frame and intersecting the transverse grooves in each holder.

In operation, the tobacco leaves are arranged on the table *a* with their stems in the respective grooves in the blocks *e*. The plates *l* are then brought down to clamp the stems in the grooves. By foot pressure on the treadle *m* the chain *n* rotates the sprocket gear *p* and the gear wheels *o* drive the shaft *r* and with it the bevel gears *g* and *h* and the pinions *i*, whereby the needle *k* with its cord is projected through the longitudinal passage in the tobacco holders, piercing the stem of each leaf in succession and threading them on the cord as will be readily understood. The pressure of the foot being released, the weight *s* reverses the operation, and the plates *l* on the rod *g* being lifted, the strung leaves are easily removed and others placed in position.

Having thus fully described our invention, what we claim is:

1. The combination, of a plurality of leaf holders arranged in series, a needle arranged to traverse the holders in line with the leaves and having its side formed as a rack, and a drive pinion, meshing with the rack to propel the needle through the holders.

2. The combination, of a plurality of leaf holders arranged in series, a comparatively short needle arranged to traverse the holders in line with the leaves, and having its side formed as a rack, and a plurality of spaced drive pinions arranged to succesively mesh with the rack to progressively propel the needle through the holders.

3. The combination, of a frame divided into a series of cells, a plurality of leaf holders one in each cell and comprising an underlying spring-pressed block and an overlying plate, a needle arranged to traverse the holders between the blocks and plates and transfix the leaves, said needle having its side formed as a rack, and a plurality of spaced drive pinions arranged to successively mesh with the rack of the advancing needle to progressively propel the needle through the holders.

4. The combination, of a frame divided into a series of cells, a plurality of leaf holders one in each cell and comprising an underlying spring-pressed block and an overlying

plate, the blocks and plates provided in their opposing faces with transverse grooves to receive the leaf stems and with longitudinal grooves to form a needle passage, a needle arranged to traverse the said passage and transfix the stems, said needle having its side formed as a rack, and a plurality of drive pinions arranged at intervals to successively mesh with the rack of the advancing needle to propel the needle progressively forward.

5. The combination, of a frame divided into a series of cells, a plurality of leaf holders one in each cell, and comprising an underlying spring-pressed block and an overlying plate, the blocks and plates provided in their opposing faces with transverse grooves to receive the leaf stems and with longitudinal grooves to form a needle passage, a needle arranged to traverse the said passage and transfix the stems, said needle having its side formed as a rack, a plurality of drive pinions arranged at intervals to successively mesh with the rack of the advancing needle to propel the needle progressively forward, a foot treadle, a drive shaft actuated thereby, and bevel gears connecting the drive shaft with the drive pinions to effect simultaneous movement thereof.

In testimony whereof we hereunto affix our signatures in the presence of two witnesses.

OTTO GRAF.
ALFRED GRAF.

Witnesses:
ADOLF LEBHERT,
ERNST ENTENMANN.