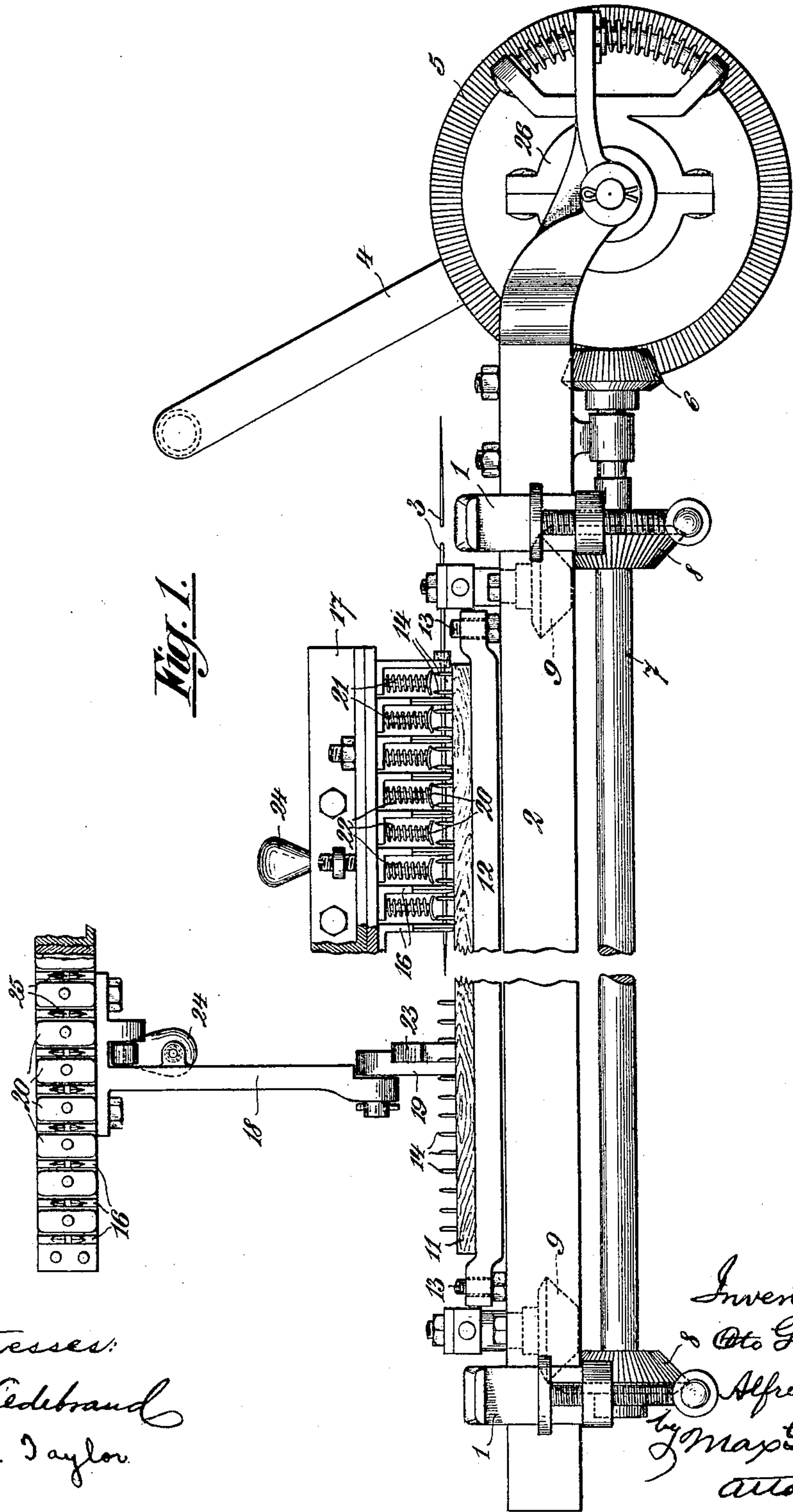


O. & A. GRAF.
MACHINE FOR STRINGING TOBACCO LEAVES.
APPLICATION FILED APR. 13, 1910.

979,287.

Patented Dec. 20, 1910.

3 SHEETS—SHEET 1.



Witnesses:
E. H. Hedbrand
M. B. Taylor

Inventors:
O. & A. Graf and
Alfred Graf
by Max Georgi
attorney

979,287.

Patented Dec. 20, 1910.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Inventors:
Otto Graf and
Alfred Graf
by Max Georgii
attorney

Witnesses:
E. Hildebrand
M. B. Saylor.

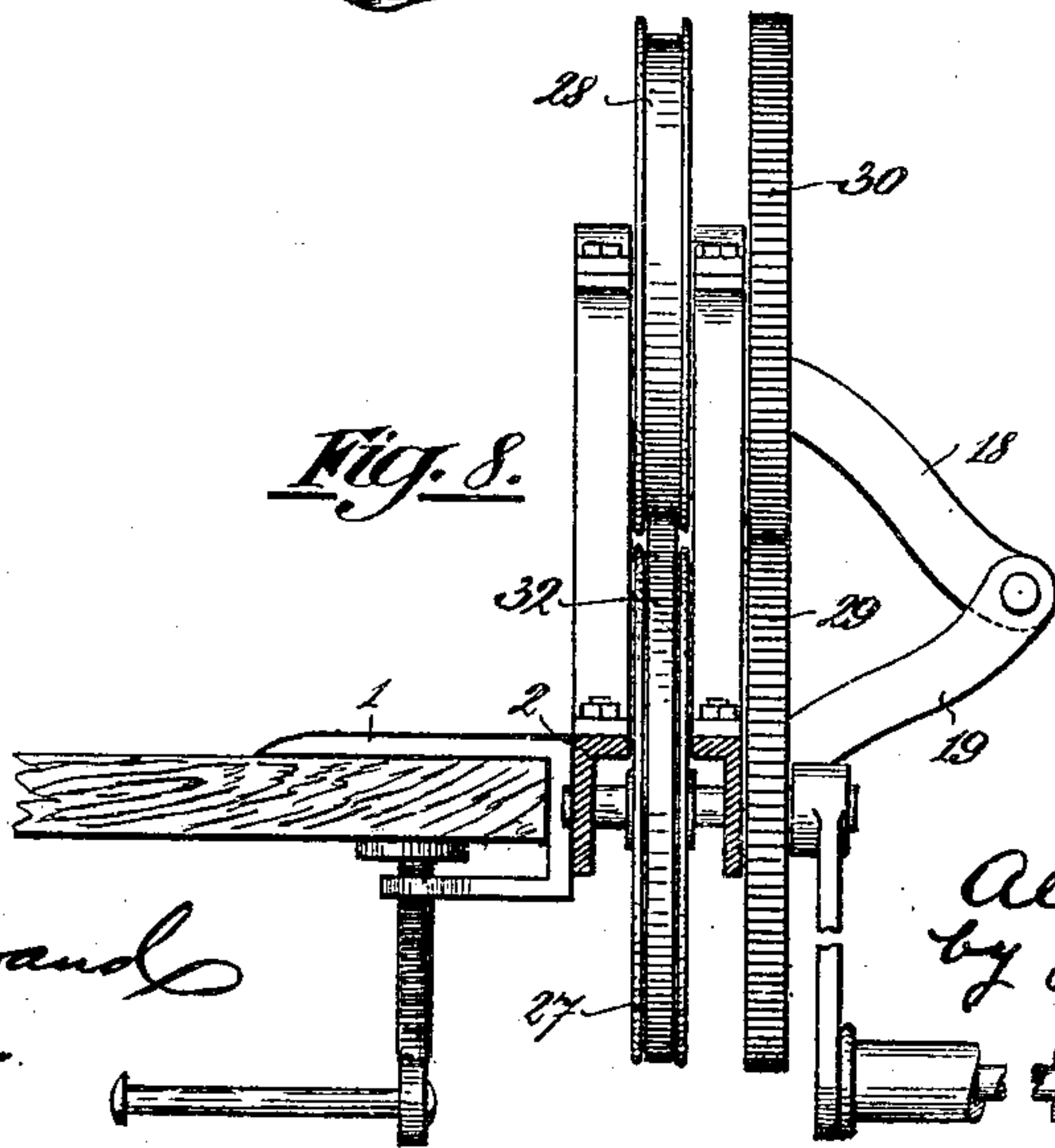
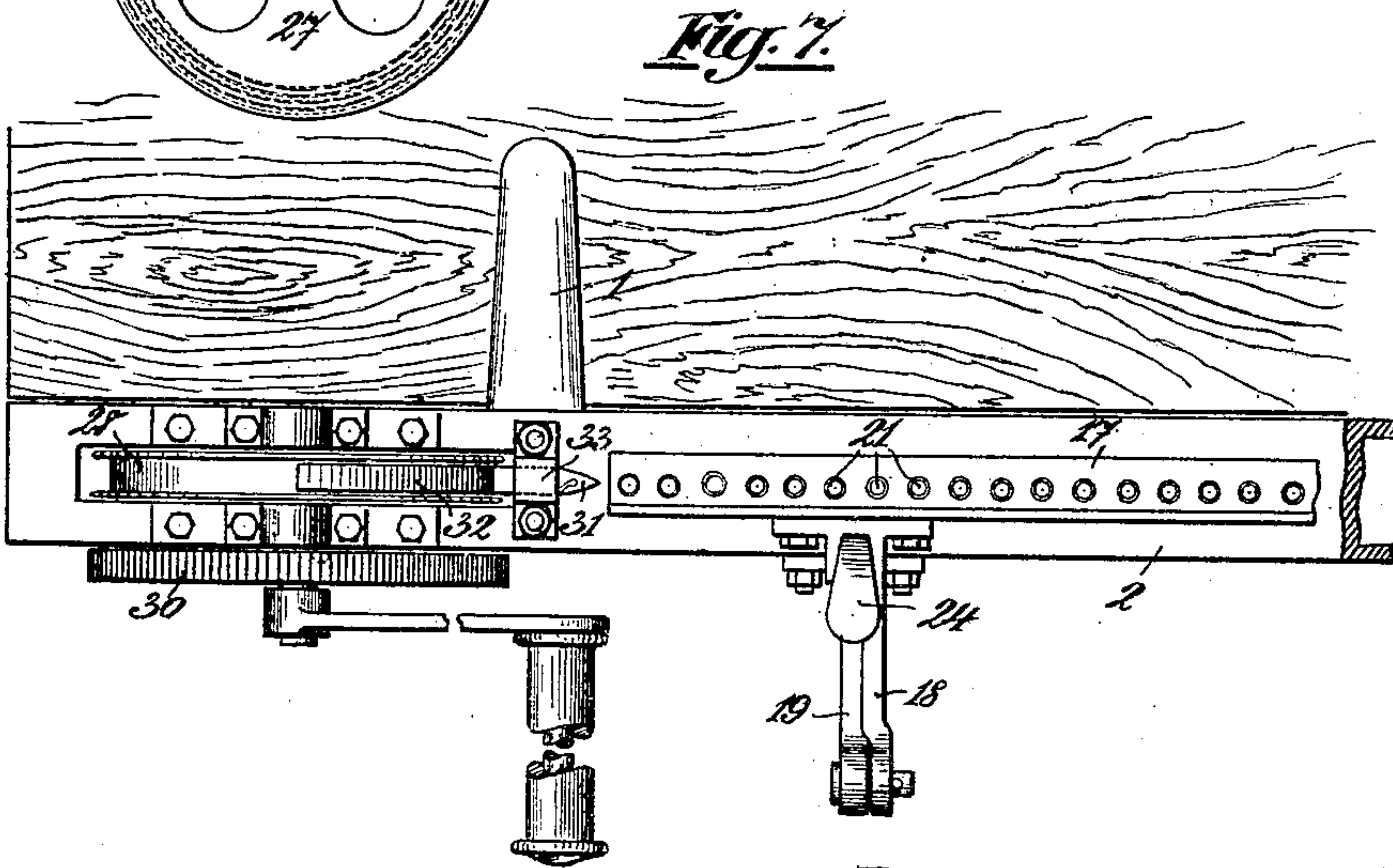
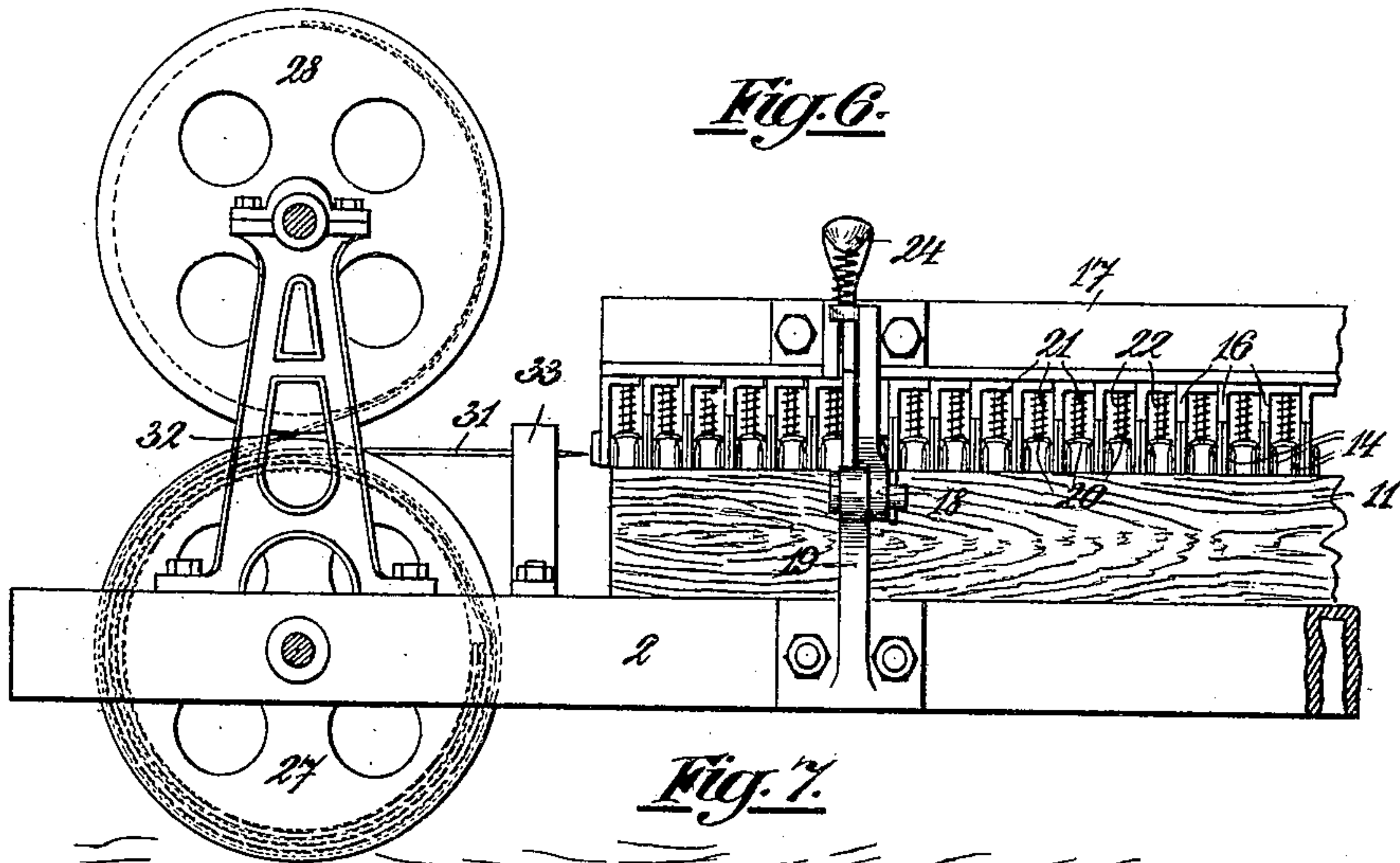
Inventors:
Otto Graf and
Alfred Graf
by Max Georgii
attorney

O. & A. GRAF.
MACHINE FOR STRINGING TOBACCO LEAVES.
APPLICATION FILED APR. 13, 1910.

979,287.

Patented Dec. 20, 1910.

3 SHEETS—SHEET 3.



Witnesses:

O. Schielebrand
M. B. Taylor

Inventors:

Otto Graf and
Alfred Graf
by Max Georgii
Attorney

UNITED STATES PATENT OFFICE.

OTTO GRAF AND ALFRED GRAF, OF MESSKIRCH, GERMANY.

MACHINE FOR STRINGING TOBACCO-LEAVES.

979,287.

Specification of Letters Patent.

Patented Dec. 20, 1910.

Application filed April 13, 1910. Serial No. 555,179.

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 Messkirch, in the Grand Dukedom of Baden, Germany, have invented certain new and useful Improvements in Machines for Stringing 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.

The present invention relates to a machine for the stringing of tobacco leaves upon tape or thread. The apparatus is distinguished by the arrangement that the leaves are placed side by side upon a removable pin plate, which after it has been filled is placed in the machine, in which the leaves are held fast by the spring lid of the machine, and are penetrated by means of a long needle impelled forward by means of a suitable mechanism. In this needle the stringing thread is inserted so that it is also drawn through on the passage of the needle, and the spring lid is provided with pressure bearings influenced by springs between which are placed partitions provided with T-shaped slots. The horizontal limbs of the slots serve as a guide for the needle, while the vertical portion thereof serves to permit the stringing thread to pass through when the pressing lid is folded back. The needle can be formed either as a toothed bar, in which case it is actuated by a special bearing, or it may be formed as a smooth strip which can be rolled upon a roller or unrolled from it. In order to give it the necessary strength there is a second band rolled upon a second roller simultaneously with the needle, which second band is fixed at one end to the needle roll and at the other end to an auxiliary roll. The pin plate may be covered with an elastic rubber plate in order to prevent any damage of the tobacco leaves laid upon it, and these leaves may be temporarily held until the pin plate is removed into the machine by means of a wood lath pivoted to the plate.

In the accompanying drawing a machine of the kind described is illustrated in Figures 1 to 8 as follows:

Fig. 1 shows a front elevation of the machine having the portion of the pressing lid at the left side open. Fig. 2 shows a

view from above, Fig. 3 a section, Fig. 4 a portion of the interchangeable pin plate in plan view and in sectional elevation. Fig. 5 shows the modification of the pin plate provided with rubber in plan view and two cross sections. Fig. 6 shows the front elevation of the machine with the needle formed as a spring band, the driving wheels being supposed removed. Fig. 7 is a plan view, and Fig. 8 an end view of the same mechanism.

The machine frame 2 provided with fixing screws 1 supports the mechanism for the piercing needle 3. This mechanism consists of the cone wheel 5 connected to the driving handle 4 and engaging with the other cone wheel 6, which latter is keyed upon a shaft 7 supported in the machine frame 2. Upon this shaft 7 are placed two further cone wheels 8, which are in engagement with the cone wheels 9 supported on the frame 2. Upon the vertical axles of these wheels 9 are placed a pair of gear wheels 10 which engage with the needle 3 formed as a toothed rack.

The tobacco-leaf support consists of the following parts: Upon the machine frame 2 the pin plate 11 is mounted removably and arranged to receive the tobacco leaves. The support 12 of the pin plate 11 can be adjusted to the right height by means of the set screws 13. The pins 14 fixed in the pin plate 11 prevent any sidewise motion of the leaves because these latter are spitted upon the pins 14. The pin plate 11 itself possesses cavities at predetermined distances apart, which cavities are designed to receive the free ends of the partitions 16, which latter are fastened in the pressing lid 17. This pressing lid 17 is pivotally connected in the machine frame 2 by means of arms 18, 19 fixed respectively to the machine frame and to the pressing lid 17. Between the partitions 16 are provided on the pressing lid 17 bearings or yielding clamps 20 which fit upon pins 21 fixed in the pressing lid, on which pins spiral springs 22 are provided. Moreover hooks 23 are fastened upon the machine frame 2 in which catches 24 engage when the pressure lid is turned down, said catches being fixed under spring pressure upon the arms 18 of the pressure lid 17. The partitions 16 in the pressure lid possess T-shaped slots 25, the horizontal limbs of which serve as needle guides, while the vertical limbs of

the slots are intended to allow the stringing thread to pass through when the lid is raised.

The stroke of the needle 3 formed as a toothed rack is determined by the adjustable controlling device 26, by which a further turning of the mechanism to either side is prevented.

When the needle is formed as a steel strip, as shown in Figs. 6, 7 and 8, the cone gearings are done away with, and in place thereof two rolls 27 and 28 placed vertically one above the other are coupled together by means of a gearing 29, 30. Upon the one 27 of these rolls, the needle formed as a steel strip 31 is attached at one end, and at the same time a second strip 32 which is attached at its other end to the roll 28. This strip 32 is arranged to pass over the rolls 27, 28 in such a manner that upon the rotation thereof it is unwound from the one and coiled upon the other. This strip consequently serves as a friction band for the needle strip 31 and causes its motion. Behind this gearing and in advance of the tobacco-leaf support there is placed a preliminary guide 33 for the needle band 31 upon the machine frame.

In order to prevent any damage to the tobacco leaves before they are threaded, the pin plate 11 is preferably provided with a hollow rubber plate 34 through which the pins 14 project. On the pin plate 11 is piv-

oted a wooden lath or strip 35, which can be folded down upon the rubber plate 34, so that the tobacco leaves after being arranged are held fast before the pin plate is placed in the machine. Thereby the strip 35 is prevented from becoming disarranged or displaced.

What we claim and desire to secure by Letters Patent is:

1. In a machine for stringing tobacco leaves, a pin-plate, and an elastic plate arranged over the same and forming a yielding support for the tobacco leaves, in combination, with a pivoted strip arranged to be folded down on the leaves, and to serve to hold said leaves against the yielding support.

2. In a machine for stringing tobacco leaves, a removable pin-plate, and an elastic plate arranged over the same and forming a yielding support for the tobacco leaves, in combination, with a pivoted strip arranged to be folded down on the leaves, and to serve to hold said leaves against the yielding support.

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

OTTO GRAF.
ALFRED GRAF.

Witnesses:

ADOLF LEBHERT,
ERNEST ENTENMANN.