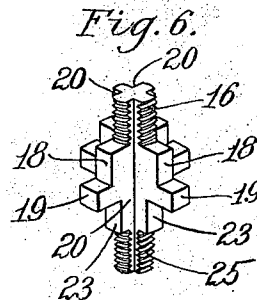
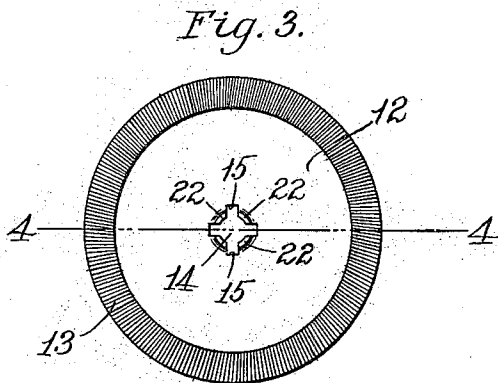
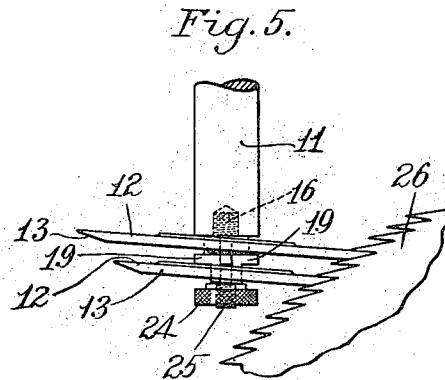
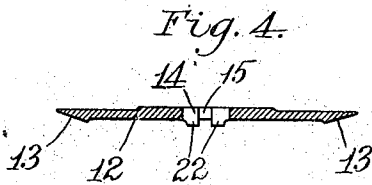
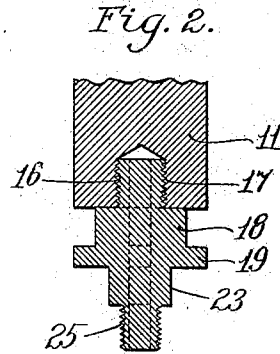
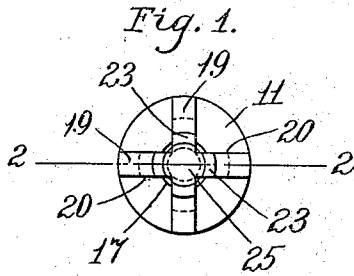


C. A. CHANDLER.
SAW GUMMER.

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948,953.

Patented Feb. 8, 1910.



Witnesses
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UNITED STATES PATENT OFFICE.

CLARENCE A. CHANDLER, OF EAST BRIDGEWATER, MASSACHUSETTS.

SAW-GUMMER.

948,953.

Specification of Letters Patent.

Patented Feb. 8, 1910.

Application filed March 17, 1909. Serial No. 483,930.

To all whom it may concern:

Be it known that I, CLARENCE A. CHANDLER, of East Bridgewater, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Saw-Gummers, of which the following is a specification.

This invention relates to the type of saw gummer set forth in Letters Patent of the United States, No. 540,145, granted to me May 28, 1895, said machine comprising a movable holder, a spindle journaled in the holder and movable longitudinally, and a disk file mounted on the spindle and rotatable therewith, the file being free to play longitudinally, and to tilt on the spindle to a limited extent, the organization of the machine, as a whole, being such that the rotary file which is continuously rotated at a high speed, is successively advanced into the throats between the teeth of a circular saw, such as that employed in a cotton gin, the file rising as it advances so as to compensate for a slow rotary motion imparted to the saw, and then dropping back over the tooth forming one side of the throat last formed or gummed, to position for entrance into the next throat.

The present invention relates entirely to the loose rotative engagement between the disk file and the spindle whereby the file is adapted to play longitudinally on the spindle and tilt thereon to a limited extent for the purposes stated in the above mentioned patent.

The invention has for its object to enable the disk file, while loosely engaged with the spindle and free to move sidewise and to tilt thereon, to be so engaged therewith that it is delicately poised on the spindle, and is adapted to be rotated by the spindle at a uniform rate, and without a spasmodic or jerky motion.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification,—Figure 1 represents an end view of a file-driving spindle constructed in accordance with my invention. Fig. 2 represents a section on line 2—2 of Fig. 1. Fig. 3 represents a side view of a disk file adapted for use with the spindle shown in Figs. 1 and 2. Fig. 4 represents a section on line 4—4 of Fig. 3. Fig. 5 represents a side view showing the spindle and a

plurality of disk files engaged therewith. Fig. 6 represents a perspective view of a removable terminal member of the spindle.

The same reference characters indicate the same parts in all the figures.

I have represented in the drawings only a portion of the file-driving spindle and the disk file carried and driven thereby, the said spindle and file being adapted for use as parts of an organized machine of the type shown in the above mentioned Letters Patent.

11 represents the body of the spindle which may be supported and driven by means such as those shown in the said patent, and 12 represents a disk file adapted to be loosely engaged with the spindle in such manner as to have a limited freedom of sidewise movement in a direction lengthwise of the spindle, and a limited freedom to tilt or rock sidewise on its own center. The acting portion of the file is a beveled face 13 having suitable file teeth cut thereon.

In carrying out my invention, I provide as the part of the spindle which engages the file a removable terminal member which is preferably of the form and construction represented in Fig. 6, said member being originally a metal spindle section which is circular at all parts in cross section, and includes a reduced inner end portion 16 which is externally screw threaded to engage an internally threaded socket 17 in the body portion 11, a portion 18 of larger diameter adjoining the reduced portion 16, and a still larger portion 19 adjoining the portion 18. As originally formed, the portions 16, 18, and 19 of the terminal member have continuous cylindrical peripheries.

The terminal member is afterward provided with longitudinal grooves 20 which convert each of the portions 16, 18, and 19 into a plurality of wings, as indicated clearly in Fig. 6. The terminal member thus formed is screwed into the socket 17 in the end of the spindle body 11. The wings of the portion 18 constitute gear teeth radiating from the center of the terminal member, the inner ends of said teeth forming shoulders abutting against the outer end of the spindle body 11, which is of greater diameter than the gear toothed portion 18. The portion 19 of the terminal member is of larger diameter than the portion 18 so that the wings formed by the grooves 20 project outwardly from the gear

teeth, and constitute shoulders opposed to the shoulders formed by the outer end of the body portion 11.

The disk file 12 is provided with a central orifice 14, the wall of which has recesses 15 so formed that the said wall constitutes in effect an internal gear adapted to engage the gear teeth provided by the portion 18 of the terminal member. The said internal gear is so formed that it is adapted to loosely engage the gear teeth on the terminal member, so that the file is free to tilt to a limited extent on the terminal member, the thickness of the central portion of the file being such that it has a limited play between the shoulders formed by the end of the body of the spindle and the enlarged portion 19 of the terminal member.

I have found in practice that by providing the spindle with a plurality of radiating gear teeth substantially as here shown, and the disk file with a plurality of internal gear teeth, I am enabled to reduce the size of the central aperture in the disk file and the cross section of the toothed portion of the spindle which occupies said orifice, to the minimum, so that the following advantageous results are secured: First, the fulcrum on which the file tilts or tips is brought close to the axis of rotation of the file, so that the file is delicately balanced, and is free to tilt in either direction without a preponderance of weight at either side of its center of oscillation. This makes the margin of the file sensitive, and enables it to easily conform to the points of the teeth which it encounters without liability of injury to such points. Secondly, the size of the central orifice in the file is reduced to the minimum, so that the file has the maximum strength and rigidity at its central portion.

I prefer to provide the file with a series of projections 22 surrounding the central orifice 14, and projecting from the under side of the file, said projections occupying the angles between the recesses 15 and constituting fulcrums located in close proximity to the center of the file, and adapted to bear on the confining shoulders formed by the portion 19 of the terminal member. The fulcrum projections 22 are located in the closest possible proximity to the center of the file 12, so that they contribute to the delicate balancing of the file which I have above mentioned.

In Fig. 5, I have shown a plurality of disk files 12 arranged on the same spindle,

two being shown in this case. The outer file is confined on a gear toothed portion 23 of the terminal member by a thumb nut 24 which constitutes a shoulder at the outer end of the teeth of the portion 23, and is engaged with a reduced threaded outer end portion 25 of the terminal member. The outer file is of smaller diameter than the inner file, and the arrangement of the files is such that the two are adapted to simultaneously enter two interdental spaces of a saw 26, the relative arrangement of the spindle, files, and saw being as shown in Fig. 5.

I claim:

1. In a saw-gummer, a file-driving spindle having a removable terminal member located in axial alinement with the spindle and provided with a gear toothed portion, shoulders being provided at the opposite ends of the toothed portion, and a disk file having a central orifice the wall of which is formed as an internal gear adapted to loosely engage the said toothed portion, the file being loosely confined between said shoulders and adapted to tilt on the terminal member.

2. In a saw-gummer, a file-driving spindle having a removable terminal member located in axial alinement with the spindle and provided with a plurality of gear toothed portions, shoulders being provided at the opposite ends of each toothed portion, and a plurality of disk files each loosely confined between two of said shoulders and having a central orifice the wall of which is formed as an internal gear adapted to loosely engage one of the toothed portions of the terminal member, the outer file being of smaller diameter than the inner, whereby the files are adapted to simultaneously engage a saw.

3. In a saw-gummer, a file-driving spindle having file-confining shoulders and gear teeth between the same, and a disk file having a central orifice the wall of which is formed as an internal gear adapted to loosely engage said gear teeth, one side of the disk having a series of projections surrounding the orifice and bearing on one of said shoulders.

In testimony whereof I have affixed my signature, in presence of two witnesses.

CLARENCE A. CHANDLER.

Witnesses:

C. F. BROWN,
P. W. PEZZETTI.