

(No Model.)

2 Sheets—Sheet 1.

J. MOHS.
BOX STAYING MACHINE.

No. 582,998.

Patented May 18, 1897.

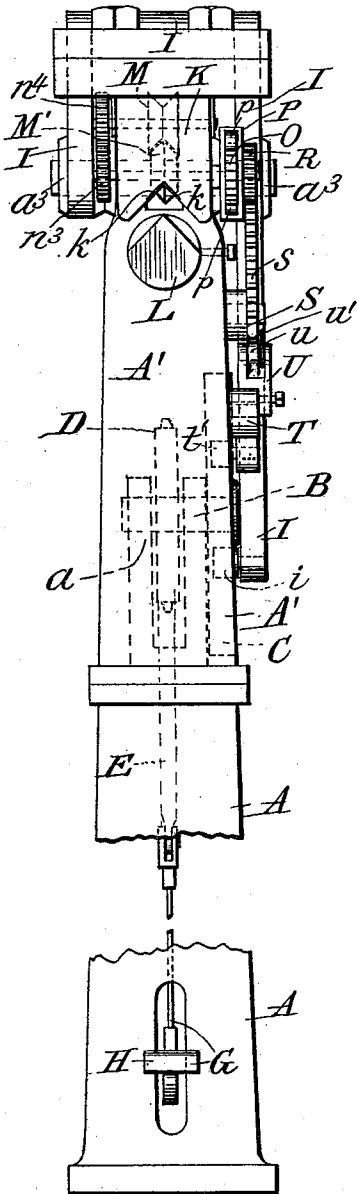


Fig. 2.

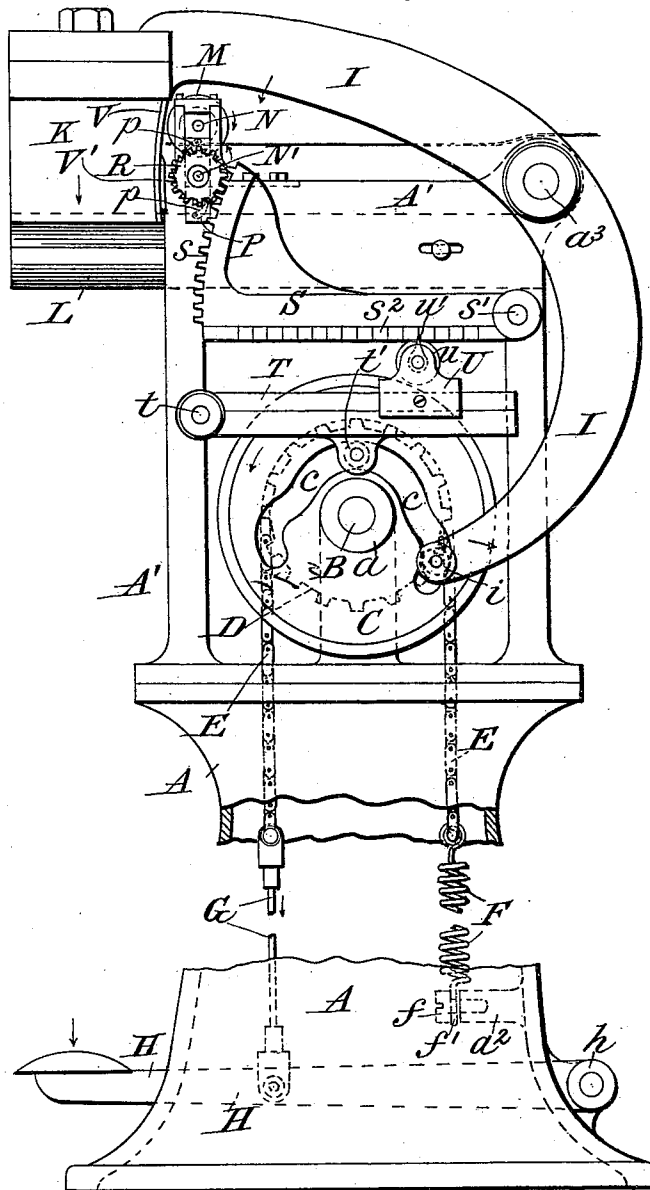


Fig. 1.

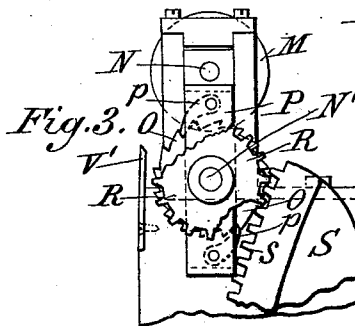


Fig. 3.

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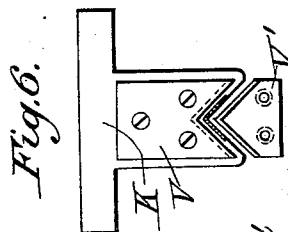
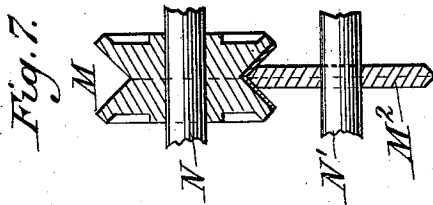
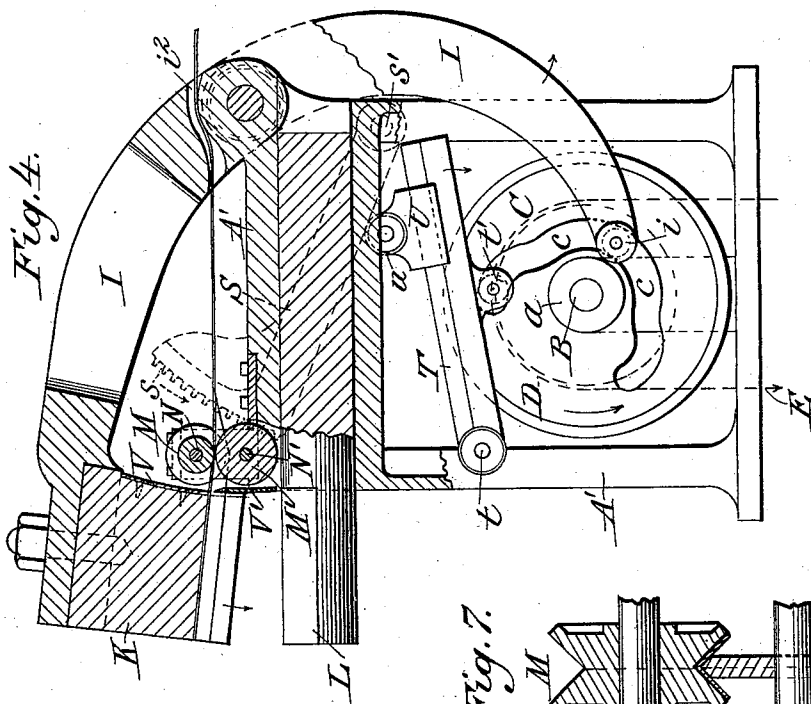
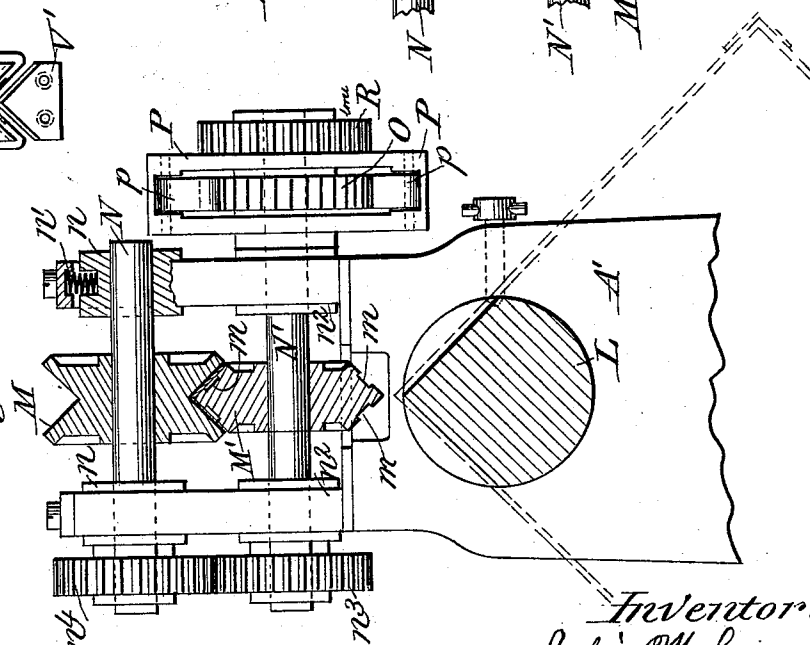


Fig. 5.



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UNITED STATES PATENT OFFICE.

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BOX-STAYING MACHINE.

SPECIFICATION forming part of Letters Patent No. 582,998, dated May 18, 1897.

Application filed January 18, 1896. Serial No. 576,028. (No model.)

To all whom it may concern:

Be it known that I, JULIUS MOHS, a citizen of Germany, residing at Brandenburg-on-the-Havel, Germany, have invented certain new and useful Improvements in Box-Staying Machines; and I 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.

My invention relates to improvements in box-staying machines.

The object of my invention is to produce a machine by which the staying material, already provided with adhesive material on a separate machine, may be applied to the corners of the box to be stayed.

The invention consists in the features of construction and combinations of parts, which will be first described in connection with the accompanying drawings and then particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation of a machine embodying my invention. Fig. 2 is a front elevation of the same. Fig. 3 is a detail view of the strip-feeding mechanism. Fig. 4 is a sectional view, partly in elevation, of the upper portion of the machine, the various parts being in their normal positions. Fig. 5 is an enlarged view, partly in section, of the strip-feeding mechanism. Fig. 6 is a detail rear view. Fig. 7 is a detail sectional view of one modification of my invention.

Referring to the drawings, A is a hollow pedestal upon which is mounted a stand A', carrying bearings a , in which is journaled a driving-shaft B, to which are fixed a cam-disk C and a driving-wheel D, the latter being either a pulley or, as shown, a sprocket-wheel. The sprocket-wheel is driven by a sprocket-chain E, passing over the upper surface of the sprocket-wheel and connected at one end to one end of a spring F, whose other end is fixed to the pedestal A by means of a suitable fastening device—as, for instance, a screw f —passing through an eye f' , formed in the lower end of the spring F, said screw being threaded into a boss or stud a^2 , secured to or formed integral with the pedestal. The other end of the sprocket-chain E is attached to a treadle-

rod G, which is pivotally connected to a treadle H, pivoted at h to the pedestal A.

The cam-disk C has a cam-slot c , into which enters a roller i , mounted on the end of a curved lever I, fulcrumed at a^3 on the stand A' and carrying at its upper and forward end a hammer K, provided with a V-shaped recess in its bottom face, which is arranged to contact with a correspondingly-shaped anvil L, secured to the stand A'. The hammer K has also a pair of grooves k , which serve to receive the edges of the strip of staying material, thereby holding the same until it is applied to the box-corner.

For the purpose of feeding the web of staying material forward I employ two feed-rollers M M', the former, M, being provided with a grooved or reëntrant periphery whose cross-section is conformable to the shape of the corner of the box to be stayed. For example, when the corner of the box is a right angle the said groove will be a right angle also in cross-section.

The lower feed-roller M' is provided with a correspondingly-shaped projecting periphery, and has also one or more peripheral grooves m , so arranged as to come opposite the strip or strips of the pasted portion or portions of the web of staying material, which is pasted in strips by a separate machine and led to the feed-rollers M M'. As the pasting-machine forms no part of the present invention, it is not illustrated and needs no further description here.

The upper feed-roller M is fixed on a shaft N, mounted in vertically-movable boxes n , which are pressed toward the lower feed-roller M' by springs n' , as shown, whereby a yielding pressure is maintained between the two feed-rollers.

The lower feed-roller M' is fixed on a shaft N', mounted in journals at n^2 , and is provided with a gear-wheel n^3 , meshing into a similar gear-wheel n^4 , fixed on the upper shaft N, whereby the two rollers M M' are constrained to move in unison.

For the purpose of actuating the feed-rollers the lower shaft N' is extended beyond its bearings, and carries a ratchet-wheel O, fixed to the said shaft and engaged by a pair

of pawls *p*, pivotally attached to a yoke *P*, straddling the wheel *O* and revolvably mounted on the shaft *N'*, a gear-pinion *R* being also mounted loosely on the said shaft *N'* and being fixed to the yoke *P*. The pinion *R* is engaged by a toothed segment *s*, carried by a segment-lever *S*, pivoted to the frame at *s'* and provided with a scale *s*² along its lower edge.

The lever *S* is operated by an arm *T*, pivoted to the frame at *t* and provided with a roller *t'*, which projects into the cam slot or groove *c*, motion being transmitted to the segment-lever *S* from the arm *T* by a block *U*, sliding along the arm *T* and provided with a roller *u*, which bears against the under side of the segment-lever *S*. The said sliding block *U* also carries an index *u'*, which is arranged to move over the scale *s*², thereby indicating the length in inches of staying material which will be fed into the hammer, this length being adjustably determined by moving the block *U* along the arm *T*.

The curved lever *I* is provided with a slot or opening *i*², through which the strip of staying material is passed on its way from the paste-applying machine to the feed-rollers.

The hammer *K* carries a V-shaped shear-blade *V*, which acts in connection with a stationary corresponding shear-blade *V* to cut the strip of staying material into suitable lengths as the hammer descends.

The operation of my machine is as follows: The end of the strip of staying material is passed through the opening *i*² in the curved lever *I* and is inserted between the feed-rollers *M* and *M'* far enough to give the latter a secure hold on the strip. Before a stay can be applied to a box-corner the necessary length of strip must be fed into the grooves *k* in the head. To do this, the foot of the operator is applied to the treadle, thereby depressing the same and rotating the cam-disk *C*, which swings the curved lever *I* so as to bring the hammer *K* down toward the anvil. The foot of the operator being then removed from the treadle the latter is returned to its raised position by the spring *F*, which also rotates the cam-disk *C* backward and raises the hammer *K*, at the same time lifting the lever *T* and the segment-lever *S*, which rotates the yoke *P* and operates the feed-rollers *M* *M'*, thus feeding a length of the stay-strip forward into the grooves *k* in the hammer. The box to be stayed is then placed upon the anvil *L* and the treadle pressed down, which causes the hammer to descend and brings the upper knife *V* past the lower knife *V'*, whereby the length of strip necessary to form the box-stay is severed from the web, said stay being carried on down and applied to the box-corner with sufficient pressure to cause the stay to firmly adhere to said box-corner. During this downward movement of the hammer the segment-lever *S* also moves down-

ward and rotates the yoke *P* backward, the pawls *p* slipping over the ratchet-wheel *O* and allowing the feed-rollers *M* *M'* to remain stationary. On removing the foot from the treadle the hammer is raised and a new length of strip fed forward into the grooves in the hammer, thus preparing it for staying the next box-corner.

Instead of the lower feed-roller hereinbefore described I may employ a disk *M*², Fig. 4, having an angular or rounded edge which bears against the bottom of the groove in the upper feed-roller and presses against the central line of the strip, the pasted portions of said strip passing one on each side of the edges of the said disk *M*², thereby preventing the feeding mechanism from being smeared with paste.

While I have shown the upper roller as provided with a spring-actuated axis, it is obvious that its axis may be made immovable so far as vertical movement is concerned, and the lower feed roller or disk may be forced toward the upper one by suitably-arranged springs.

In my construction the feeding mechanism is caused to bend the strip of staying material transversely, so that it will conform to the shape of the corner of the box to be stayed, whereby the disadvantages due to the elasticity of the strip causing it to pull loose from the box-corner while the paste is still wet are avoided. Furthermore, the strip is stiffer when bent and can be fed into the hammer with less danger of bending or crumpling than when fed flat.

What I claim, and desire to secure by Letters Patent, is—

1. In a box-staying machine, a cam-disk having a cam-slot, a lever provided with means engaging the cam-slot, a hammer carried by the lever, a feeding mechanism, and means intermediate the feeding mechanism and cam-disk, whereby the feeding mechanism is actuated, substantially as set forth.

2. In a box-staying machine, the combination, with an arm, and a sliding block adjustable on said arm, of a segment-lever actuated by said block, a feed mechanism operated by the segment-lever, and means for moving the arm, substantially as set forth.

3. In a box-staying machine, the combination, with an arm, and a sliding block adjustable on said arm, of a roller mounted in said block, a segment-lever against which the roller bears, a feed mechanism operated by the segment-lever, and means for moving the arm, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JULIUS MOHS.

Witnesses:

W. HAAUPT,
H. HASPER.