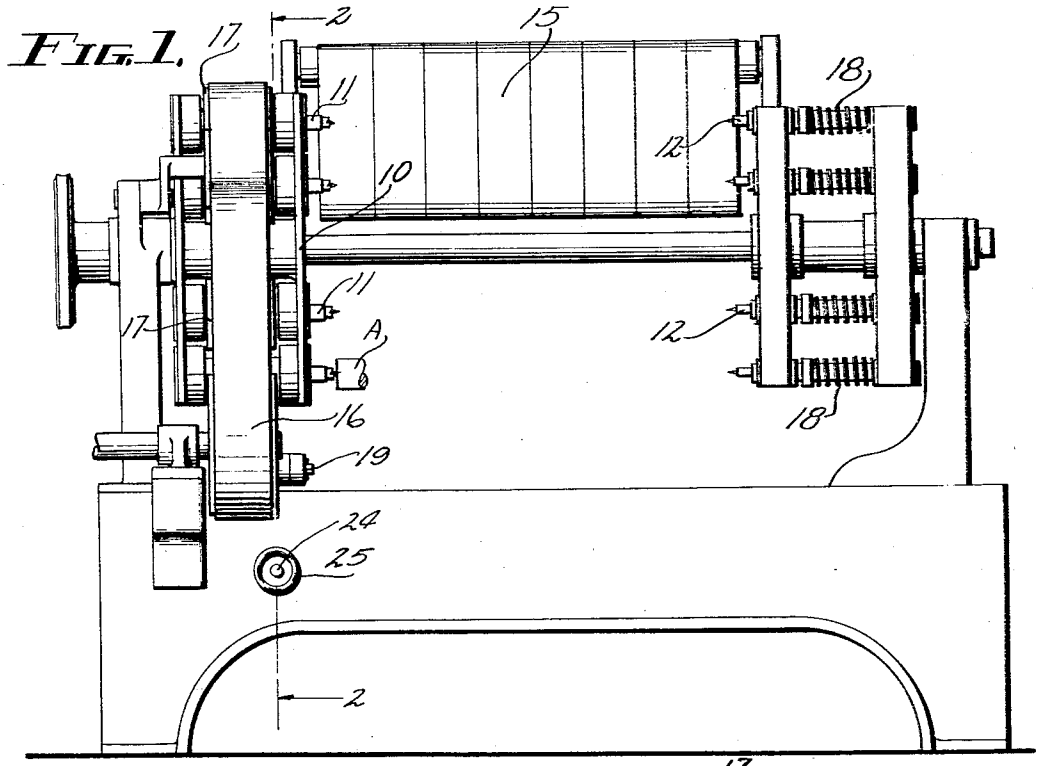
July 25, 1933. J. M. NASH 1,919,477

BRAKING ATTACHMENT FOR SANDING MACHINES

Filed Aug. 6, 1930

FIG. 1.



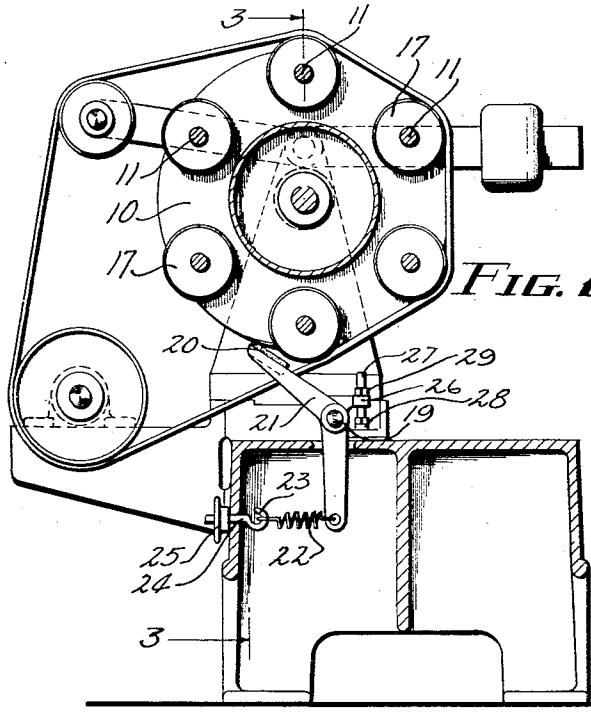


FIG. 2.

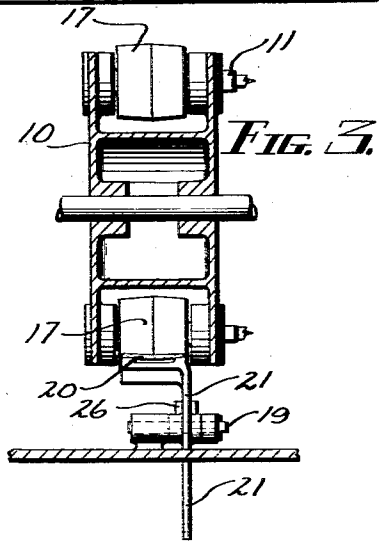


FIG. 3.

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UNITED STATES PATENT OFFICE

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BRAKING ATTACHMENT FOR SANDING MACHINES

Application filed August 6, 1930. Serial No. 473,475.

This invention relates to improvements in braking attachments for sanding machines, with especial reference to machines of the type disclosed in the patent to A. H. Matteson No. 1,159,696 dated November 9th, 1915, in which a series of similar articles composing the work may be revolved in an annular path about a common center, each article supported and rotated by suitable centering spindles or chucks, and each piece of work carried along said annular path into contact with a sanding belt or other suitable abrading surface. In one portion of the circle of revolution the work is out of contact with the abrading surface and the spindles or chucks are also out of engagement with the means for rotating them, thus permitting the removal of finished work and the substitution of unfinished pieces.

In machines of the above described type it is desirable that the spindles or work rotating chucks should be brought to rest so far as concerns rotation upon their own axes preparatory to the removal of the finished piece and the substitution of another piece.

The object of this invention is to provide simple and convenient means for stopping the rotation of the work holders upon their own axes as soon as they are released from their driving connections, or at least before they reach the point where a substitution of the work piece is to take place.

In the drawing:

Figure 1 is a front elevation of portions of the sanding machine shown in the aforesaid former patent with my invention applied thereto, the illustrated portions of the patented machine being those portions with which my improved braking attachment is cooperatively associated.

Figure 2 is a sectional view, drawn generally to line 2—2 of Figure 1.

Figure 3 is a detail sectional view, drawn to line 3—3 of Figure 2.

Like parts are identified by the same reference characters throughout the several views.

In the drawing the work carrier 10 is provided with an annular series of sets of centering spindles 11 and 12. The spindles of each set engage the ends of the piece of work A whereby it may be conveyed by the carrier along the path taken by the spindles when the carrier is revolved. The work is thus carried into contact with abrading means, such, for example, as the sanding belt or abrasive strip 15. And while in contact with such abrasive means the spindles 11 are rapidly rotated by a driving belt 16 which extends over suitable pulleys 17 mounted on the outer end portions of said spindles 11. The spindles 12 are mounted in suitable bearings for idle rotation, or held against rotation in point bearing relation to the work.

These spindles are axially cushioned against the compression springs 18 which urge them in the direction of the work and hold the work in contact with the driving spindles 11 except when the springs 18 are compressed to permit a release of the work.

In some machines a plurality of sanding strips or belts are employed. In others different means are employed for supporting the work but it is a general characteristic of machines of this type that the work holding and rotating devices are mounted on a revoluble carrier whereby the work is carried from the loading point into contact with one or more abrading devices and then returned to an unloading point adjacent to the loading point, the spindles 11 then having their pulleys disconnected from the source of power. In the construction shown, this is accomplished as disclosed in said former patent, viz. by running the driving belt 16 about a driving pulley 17, so disposed that the carrier will convey each pulley out of contact with the belt as the associated spindle approaches the unloading station. Each pulley remains out of contact with the driving belt until after the carrier has conveyed it beyond the loading point or station. All of these parts, their arrangement and mode of operation are fully disclosed in said former patent and, as the various modifications are also well known in the art, further description thereof is deemed unnecessary.

In order to prevent rotation of the work and its supporting spindles 11 and 12 while approaching the unloading point or station,

I provide a brake shoe 20 to be brought in contact with the pulleys 17 as they successively reach the point where they move out of contact with the belt 16 whereby their rotation is immediately checked and completely stopped before the carrier conveys the pulleys out of contact with such brake shoe.

The brake shoe is preferably supported by a lever or bell crank 21, intermediately pivoted to the frame at 19, with an upwardly and forwardly projecting arm supporting the brake shoe 20, and with a downwardly extending arm connected by a tension spring 22 with the frame at a point where the spring will draw the lower arm of the lever forwardly and urge the brake shoe 20 in a direction opposite that in which the carrier travels.

The spring 22 is preferably connected with the frame by the hook 23, the shank 24 of which is threaded and extends through an aperture in the frame to be adjusted by a thumb nut 25 to vary the tension of the spring.

The lever is also provided with a short arm 26 having a vertically disposed adjustable stop screw 27, the lower end of which is adapted to engage a fixed stop 28 located on the frame to limit the swinging movement of the brake shoe 20 in the direction in which it is urged by the spring 22. When the stop screw has been adjusted to hold the brake shoe in the proper normal position the screw will preferably be secured by a lock nut 29.

It will be observed that the brake shoe is obliquely positioned in the path of the pulleys 17 for contact with such pulleys outside of the circle in which the spindles 11 travel. Therefore, when any given pulley 17 moves out of contact with the driving belt 16 and into contact with the brake shoe its rotary movement upon the spindle axis will immediately be checked. Thereupon the brake shoe will yield under the continued pressure of the pulley upon it as the carrier revolves. This will actuate the lever and extend the spring 22 whereby the tension of the spring will progressively increase and the pulley will be completely brought to rest before passing beyond the brake. When it moves beyond the brake the latter will be returned to its normal position by the spring 22 and will be held from moving beyond said position by the stop screw 29 engaging the fixed stop.

Immediately thereafter the work may be released from the now stationary set of spindles and another piece of work inserted, whereupon the continued rotation of the carrier will again carry the associated pulley into contact with the driving belt.

I claim:

1. In a machine of the described class, the combination with a series of rotary work holders, mechanical means for moving the work holders in spaced relation to each other along a line of travel, means for rotating each work holder about its own axis during a portion of its movement along said line of travel, said work holders being adapted to automatically disengage from the rotating means when entering another portion of the line of travel, and a brake in the path of the disengaged work holding and driving connections for successively checking the rotation of the work holders when released from said rotating means.

2. In a machine of the described class, the combination of a revoluble carrier provided with an annular series of work holders and associated driving connections each mounted to rotate upon their individual axes, of common means for axially rotating the work holders and associated driving connections during a portion of their revolution with the carrier, and a relatively stationary brake yieldingly mounted in the line of travel of the work holders, and driving connections to be successively engaged thereby at the beginning of another portion of their revolution, said brake being adapted to prevent rotation of each work holding and driving connection set at the beginning of another portion of such revolution.

3. In a machine of the described class, the combination with a revoluble carrier having an annular series of rotatable spindle driving members, of a relatively stationary brake yieldingly supported in the path of said members, and common driving connections movable into and out of engagement with the spindle driving members successively prior to their engagement with the brake.

4. In a machine of the described class, the combination with a revoluble carrier having an annular series of rotatable spindle driving members, of a relatively stationary brake yieldingly supported in the path of said members, said brake having a supporting spring actuated lever adapted to hold it normally in the path of portions of said members more radially distant from the carrier axis than the axial centers of the members.

5. In a machine of the described class, the combination with a revoluble carried provided with an annular series of axially rotatable members including work holders, and means for rotating said members upon their own axes during a portion of their revolution with the carrier, of a lever pivoted to a relatively fixed support, a brake supported by the lever in the path of said rotatable members, a spring for actuating the lever in a direction to resist the pressure of the work holders upon the brake, and a stop for limiting the movement of the lever and brake in the other direction.

6. In a machine of the described class, the combination with a revoluble carrier pro-

vided with an annular series of axially rotatable members including work holders, and means for rotating said members upon their own axes during a portion of their travel with the carrier, of a lever pivoted to a relatively fixed support, a brake supported by the lever in the path of said rotatable members, a spring for actuating the lever in a direction to resist the pressure of said rotatable members upon the brake, and a stop for limiting the movement of the lever and brake in the other direction, together with means for varying the tension of the spring and means for adjusting the stop.

7. In a machine of the described class, the combination with multiple sets of traveling rotary members, each set including an axially rotatable work holders and holder rotating connections, traveling actuating means adapted to move into and out of the path followed by said sets of members to successively start them in rotation and maintain a predetermined number in simultaneous rotation, and a yielding brake located in the path of said sets of members for successive engagement therewith as they pass out of engagement by said actuating means.

JOHN M. NASH.