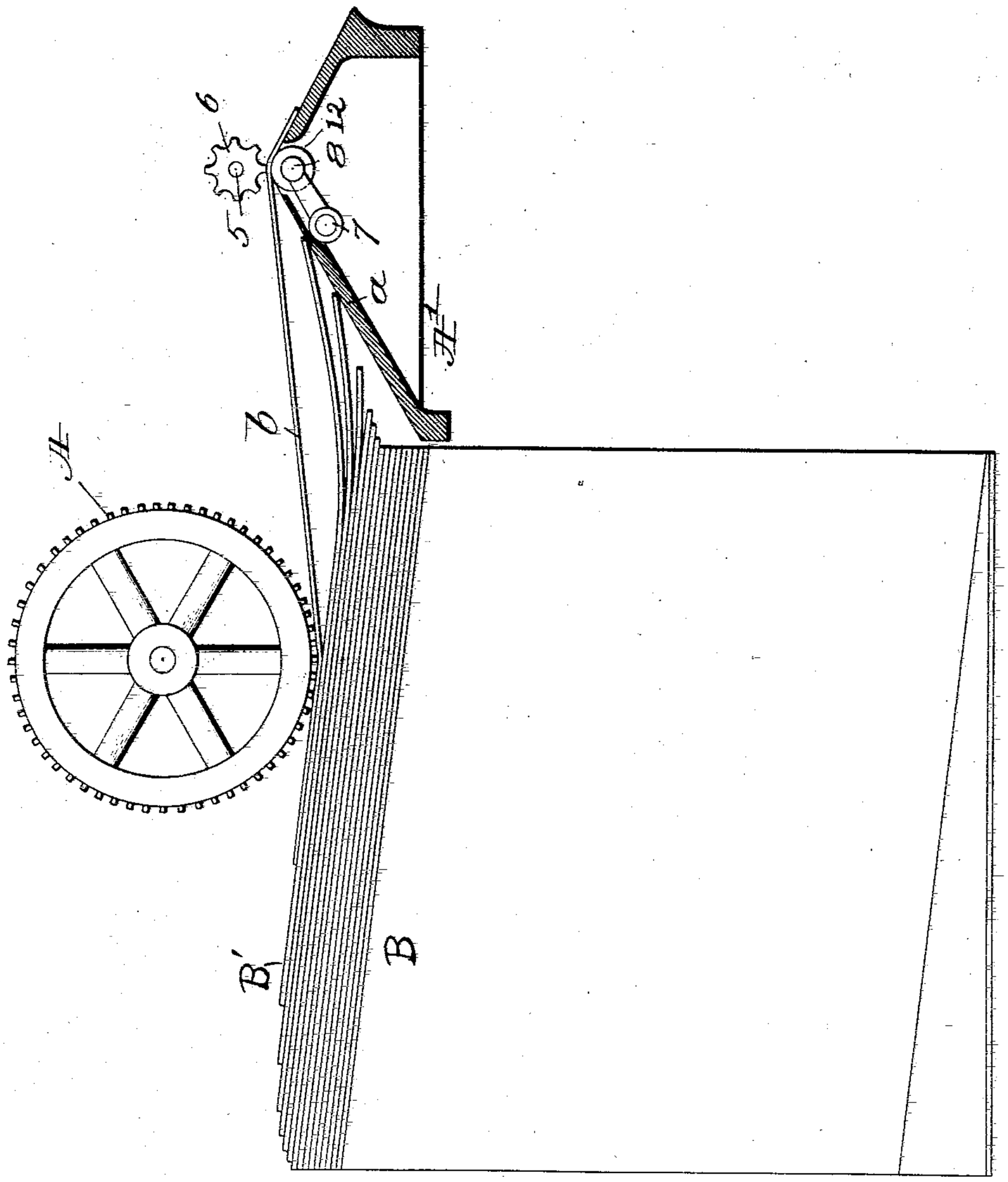
A. S. ALLEN.

SHEET FEEDING APPARATUS.

APPLICATION FILED JAN. 3, 1905.

939,182. Patented Nov. 2, 1909.



Witnesses
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UNITED STATES PATENT OFFICE.

ARTHUR S. ALLEN, OF BROOKLINE, MASSACHUSETTS.

SHEET-FEEDING APPARATUS.

939,182. Specification of Letters Patent. Patented Nov. 2, 1909.

Application filed January 3, 1905. Serial No. 239,384.

To all whom it may concern:

Be it known that I, ARTHUR S. ALLEN, a citizen of the United States, residing at Brookline, in the county of Norfolk and State of Massachusetts, have invented an Improvement in Sheet-Feeding Apparatus, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawings representing like parts.

This invention relates to improvements in the class of sheet feeding apparatus described in United States Patent No. 748,279, dated December 29, 1903, the object of the present invention being to render easier and more certain the operation of the combing-wheel or other device in feeding the sheets continuously one after the other from the top of a pile of sheets, it being understood that when a sheet fails to be presented to the usual guides of the press to which the sheets are supposed to be fed, the press will be stopped.

In the patent referred to the sheets of the pile of sheets against which the combing-wheel acts are maintained in a horizontal position and considerable pressure is required to be exerted through the wheel to start the top-sheet of the pile, and with thin sheets the pressure required for starting the top sheet from the pile of horizontally laid sheets is sufficient at times to injure and wrinkle the paper.

I have discovered by experiment that the sheets may be unerringly fed from the pile by less pressure of the combing-wheel on the top-sheet of the pile, and without liability of injuring the sheet, if the support sustaining the pile of sheets is located in such position that the sheets incline forwardly and downwardly toward the inclined side of the ridge, as in so doing the tendency of each sheet to slide down and off the pile is made available to lessen the friction to be overcome in starting each sheet from the top of the pile, and as the friction of the uppermost sheet on the sheet below it is reduced, less electrical influence is set up during the removal of the successive sheets.

The drawing shows a sufficient portion of a sheet feeding apparatus, with my improvements added, to enable my invention to be described.

The ridge A′ having the inclined face *a* and the rotating combing wheel A are and may be all as fully described in United States Patent No. 748,279, dated December 29, 1903. In that patent the ridge has a slot and immediately below the apex of the ridge is journaled a rock shaft 7 to which is fixed an arm 8 carrying a plate that is yieldingly sustained in the slot of the ridge. As the combing wheel acts on the top sheet of the pile it projects said sheet forwardly until the front edge strikes the inclined surface of the ridge, said sheet at this time being bent downwardly slightly by its own weight. The continued movement of the combing wheel pushes the front edge of the sheet up the inclined surface of the ridge until it is acted upon by the feeding wheel 6 which operating in conjunction with the plate carried by the arms 8 operates to feed the front portion of the sheet faster than the portion acted on by the combing wheel whereby the sheet is straightened and lifted from the remaining sheets.

In the present application I employ as stated above the ridge having the inclined face *a*, and I also employ the feeding wheel 6 located above the peak of the ridge. In my present invention, however, the arm 8 pivoted to the shaft 7 carries a roller 12 instead of the plate above referred to, said roller receiving the feeding edge of the sheet on its way to be grasped by the feeding roller 6 whereby the sheet is acted upon and fed forward by the two rollers. Moreover in my invention the top of the support B sustaining the pile of sheets B′ is not arranged horizontally as provided for in said patent, but is instead inclined downwardly in the direction of the ridge plate, and the result is that the top sheet of the pile occupies a plane which inclines downwardly toward the inclined face *a* of the ridge, the plane of the top sheet having such an inclination that it meets the face *a* at a point adjacent the lower edge thereof. The result of this construction is that since the sheets all occupy an inclined plane, the tendency of those sheets at the top of the pile which are above the lower edge of the inclined surface *a* is to slide toward the ridge as the top sheet is acted upon by the combing wheel so that a less amount of friction is required between the combing wheel and the top sheet to effect the feeding of the sheets. Further, as the sheets are projected forwardly, as shown in the drawings, the front edges thereof strike the inclined surface *a* of the ridge at a point nearer the base than is possible with the device shown

in the patent referred to above, and consequently as the front edges of the sheets slide up the inclined face *a* of the ridge and are then grasped by the feeding wheel 6 more room is provided for the various sheets to separate to permit air to enter between them. This results in eliminating to a great extent the tendency of the sheets to stick together and provides an apparatus by means of which the sheets can be more readily and accurately fed from the pile than can be done with the device shown in the patent above referred to.

Having described my invention what I claim as new and desire to secure by Letters Patent is:—

1. In an apparatus of the class described, a ridge having an inclined surface, a support for a pile of sheets of paper having its top surface inclined downwardly toward the ridge, and a combing wheel to act on the uppermost sheet of the pile and start it toward the ridge, the inclination of the support for the pile of sheets being such that the top sheet of the pile occupies a plane which meets the inclined surface of the ridge near the base thereof.

2. In apparatus of the class described, a support for a pile of sheets of paper, said support having its top occupying a plane inclined forwardly and downwardly from a horizontal plane, and a combing wheel acting upon the uppermost sheet of the pile, combined with an inclined ridge and two rollers to which the end of the topmost sheet leaving the pile and passing up the incline is delivered, the rotation of the wheels at the apex of the incline aiding in taking the topmost sheet from the top of the pile.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

ARTHUR S. ALLEN.

Witnesses:

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