(No Model.)

A. CONKLING.

MECHANICAL FEEDING DEVICE.

No. 479,630. Patented July 26, 1892.

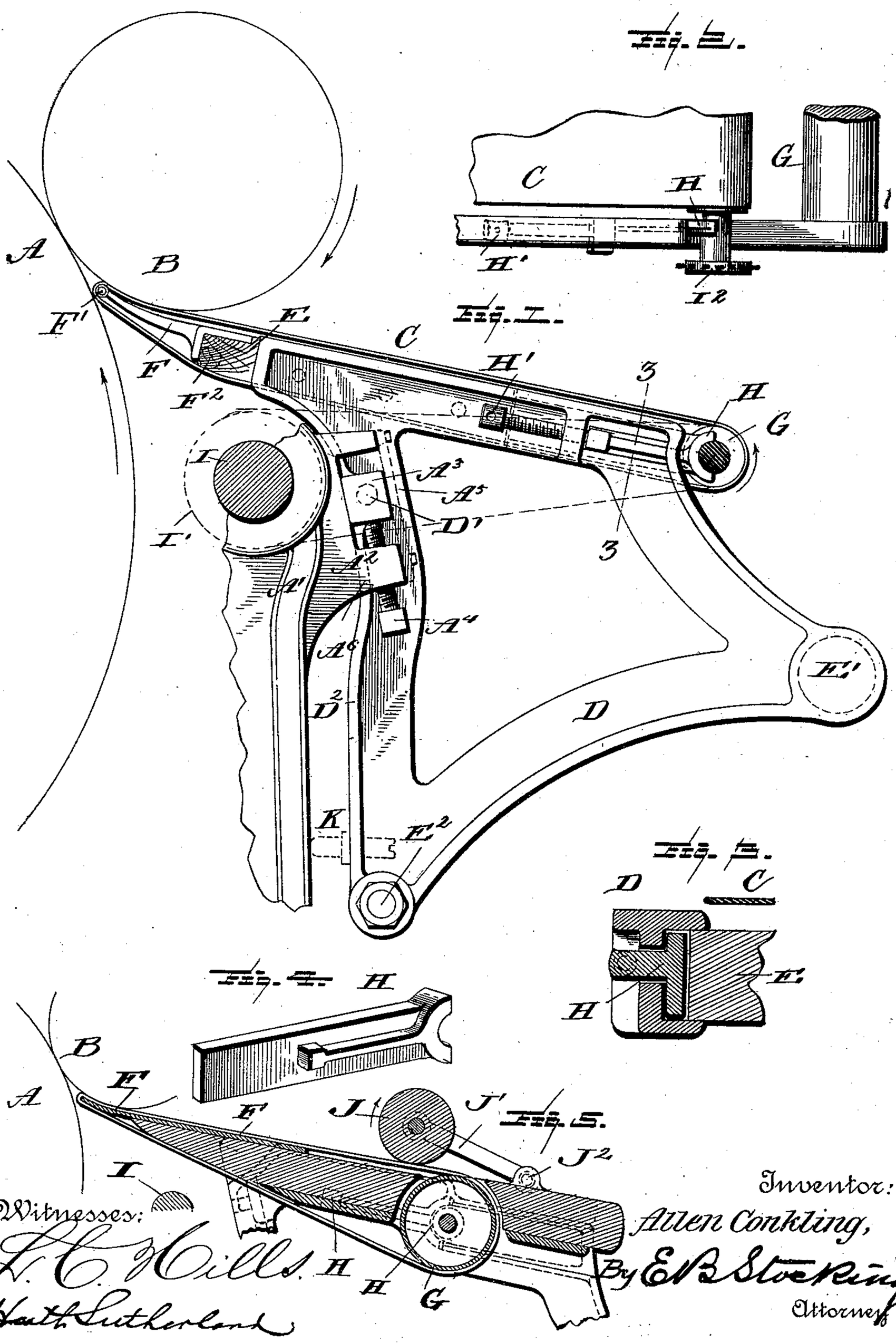

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

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ALLEN CONKLING, OF CHICAGO, ILLINOIS.

MECHANICAL FEEDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 479,630, dated July 26, 1892.

Application filed December 29, 1891. Serial No. 416,415. (No model.)

To all whom it may concern:

Be it known that I, ALLEN CONKLING, a citizen of the United States, residing at Chi-

which the material to be operated upon passes between said rolls. In paper-working machinery these rolls can properly be denomi-

At the inner end of the bed there is an extension F, which in Fig. 5 is simply a plate of metal properly secured to the bed and curved to conform more or less to the upper one of any two rollers of a machine to which the invention is applied. In Fig. 1 the extension F comprises brackets secured in a proper manner to the inner end of the bed, said brackets being either curved or straight and carrying a roller F′, around which the apron C passes. Other rollers, as F^2, may be placed at desired positions to contact with the apron and guide or reduce the friction of the same against fixed parts of the attachment. A belt-driving roller G is arranged across the bed and takes its bearings in an adjustable or sliding box H, against which a screw or bolt H′ bears, so that by the use at each side of the framework D of such adjustable bearings the tension of the apron-feed may be maintained, so that by communicating a rotary motion to roll G, which may be either constant or intermittent, the apron will advance toward the primary rolls A B on one side of the bed and retreat from said rolls upon the other.

Let I represent the real or assumed power-shaft of the machine to which the attachment is applied, and I′, dotted lines, indicates a pulley on said shaft, or it may be a sprocket-wheel. A similar pulley or sprocket I^2 is fixed upon one end of the shaft of the roller G, and a band, belt, or sprocket-chain I^3, dotted lines, Fig. 1, will carry motion from the shaft I to the roller G. Any other convenient motive connection may be employed.

In some class of machines working upon certain material it may be advisable to employ a surface roller J, Fig. 5, in order to maintain the material in a flat smooth condition upon the apron as it moves, carrying said material to the machine. In such case the roll J may be journaled in links J′, pivoted to the bed or framework outside of the roll, as at J^2, or any other suitable connection of the roll may be employed, so long as such connection keeps the roll J parallel with the periphery of the roll G to insure a straight feeding and permits the roll J to bear movably upon the apron or the material thereon. This movability of the roll J is a motion in addition to its rotary motion and in a direction to and from the apron.

It has been found in the case of mangles very advantageous to employ such a roller, as it insures straight feeding of the material and keeps the material—for example, napkins—flat upon the apron.

In feeding wide material—such as textile fabrics—into the primary feed-rolls of a machine there is more or less danger that the hands of the operator may be injured by being drawn between the rolls, because it is necessary to straighten the leading edge just at the instant it enters the bite of the roll. Now by using the roller J the leading edge of the goods may be fed very closely, as even if the hands come in contact with said roller no danger results, and therefore the goods may be introduced in a satisfactory manner, and even if such edge is introduced certain portions of the goods may be retarded, while the action of the apron F and the roller J assists in straightening and smoothing the goods preparatory to their guidance into the preliminary feed-roll. The goods, if entered with the front edge concave or otherwise disposed in a straight line, are more than liable to issue from the machine with wrinkles. This imperfection is obliterated by the use of the attachment when provided with a roller, so that in some instances it is preferable to provide such a roller. In a use of this mechanical feeding device for feeding some materials the roller J may be omitted, and the apparatus will appear as shown in Fig. 1.

I have heretofore mentioned that the extension F, when of plate form, is slightly curved, as shown in Fig. 5; but that the brackets shown in Fig. 1 were either curved or strai . It will be noted that in both cases the upper portion of the apron is in contact with and conforms to the curvature of the roll B. This will occur whether the brackets F be straight or curved, because they may be located beyond the bearing portions of the roll B and the apron C.

At K, dotted lines, Fig. 1, I have illustrated an adjusting screw or bolt, of which there may be one in each side frame D, arranged to bear against the frame A′. The trunnions D′, when employed, project from the side frames D into the blocks A^3, so that the framework of the attachment is pivotally supported, and by means of the screws K the contact of the apron C with the roll B may be changed in its extent, and this may be further changed by elevating and depressing the attachment by means of the screws A^4. It will also be seen that not only can an upward adjustment be accomplished, but that an inward movement of the attachment may be caused by the adjusting devices described, the former by the screws A^4 and the latter by the screws K. These last screws may be omitted and the flange D^2 of the side frame on each side of the attachment may run in grooves A^6, dotted lines, Fig. 1, formed on the inner faces of the brackets A^2, the curvature of the framework or its flanges being such that an upward movement of the attachment by the screw A^4 will move its inner end inwardly as its rises. This curvature of the apron in its contact with the roller gives several important advantages. It insures absolute, practically speaking, equality and sameness of surface feed with that of the roller, smooth disposition of the goods against the roller, square presentation of the goods to and into the bite of the rollers, assists in driving the apron, and produces a uniform movement throughout its entire upper portion, which carries the goods, and it continues the positive control of the material being fed up to the transfer of that control to the primary rolls of the machine itself.

By the means of adjustment provided the tension of the apron can be controlled independently of the amount of its surface contact with the roll, and so, too, the said surface contact can be limited or extended with relation to the periphery of the primary roll independently of the tension of the apron. In this manner the mechanical feed may be thoroughly tempered to any peculiarities existing in the material to be operated upon.

Operators of machinery intended for treating textile fabrics, paper, cloth, leather, sheet metal, or plastics and familiar with the peculiar characteristics of each of these materials can readily adjust this mechanical feed to the necessities of the case.

What I claim is—

1. The combination, with a primary feed-roll and its supporting mechanism, of an endless apron having its supporting mechanism mounted independently of that of said feed-roll and adapted to support the apron with relation to the feed-roll with variable surface contact, the apron-guiding devices remaining relatively unchanged, substantially as specified.

2. The combination, with a primary feed-roll, of an endless apron having oppositely-located apron supporting and guiding mechanisms, and a framework for supporting said apron and its said mechanisms mounted adjustable to and from and independently of the said feed-roller, substantially as specified.

3. The combination, with a primary feed-roll, of an endless apron, oppositely-located apron guiding and directing mechanisms, a framework for supporting said mechanisms, and means for adjusting said framework toward and along the active surface of said feed-roll, substantially as specified.

4. The combination, with a roll and an endless apron and with its moving and guiding mechanisms, of a framework for the support and operation of said mechanisms, said framework being mounted for bodily and pivotal movement, substantially as specified.

5. The combination, with a feed-roll or its equivalent and with an endless apron and of means for supporting said apron with one end higher than the other, of a pivoted framework, adjustable bearings for the pivots, and means for changing the position of the framework with relation to its points of support, substantially as specified.

6. The combination, with a pair of feed-rolls, of a bed adapted to be projected between said rolls, an endless apron mounted on the bed, with one end higher than the other, and means for simultaneously supporting and moving the bed inwardly and upwardly, substantially as specified.

7. The combination of a feed-roll and an endless apron mounted on a movable apron-supporting bed having a curved extension, which said apron surrounds, and means for moving the bed inwardly and upwardly with relation to the feed-roll, as set forth.

8. The combination, with a feed-roll and an endless apron, of the bed having a curved extension at one end and a roller for supporting the apron and means for adjusting the bearings of said roller at the other end, a framework for supporting said bed, and means for moving the framework simultaneously upward and inward, substantially as specified.

9. The combination, with a feed-roll and an endless apron, of a bed terminating with an extension and provided with an apron tightening and carrying roller, and a framework adapted by adjusting devices for upward and inward movement toward said roll, substantially as specified.

10. The combination, with a feed-roll and an endless apron, of a bed having suitable apron supporting and moving devices and a framework mounted for upward and inward movement toward said roll and having a tie-bar and rod, substantially as specified.

11. The combination, with the primary feed-rolls of the machine and an endless apron, of a bed having apron supporting and moving devices mounted independently of a feed-roll and means for changing the vertical and longitudinal position of the bed with relation to the said primary rolls of a machine, substantially as specified.

12. The combination of a feed-roll and an endless apron, a bed having a curved extension, a roller, and a frame having a sliding box in each side thereof, an adjusting screw for each box, a supporting sliding block on each side the frame, and of brackets adapted to support the framework and provided with adjusting-screws, substantially as specified.

13. The combination, with a feed-roller or its equivalent and an endless apron, as C, of the bed, as E, terminating at one end in a bent plate and provided at or near its other end with a roller, as G, and with a roller, as J, movably connected with the bed outside of the point of contact of the roller J with the apron, substantially as specified.

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

ALLEN CONKLING.

Witnesses:

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