No. 622,586.

Patented Apr. 4, 1899.

A. R. ALLISON & C. E. BUEK.

TOBACCO LEAF STEMMING MACHINE.

(Application filed Mar. 25, 1898.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 4.

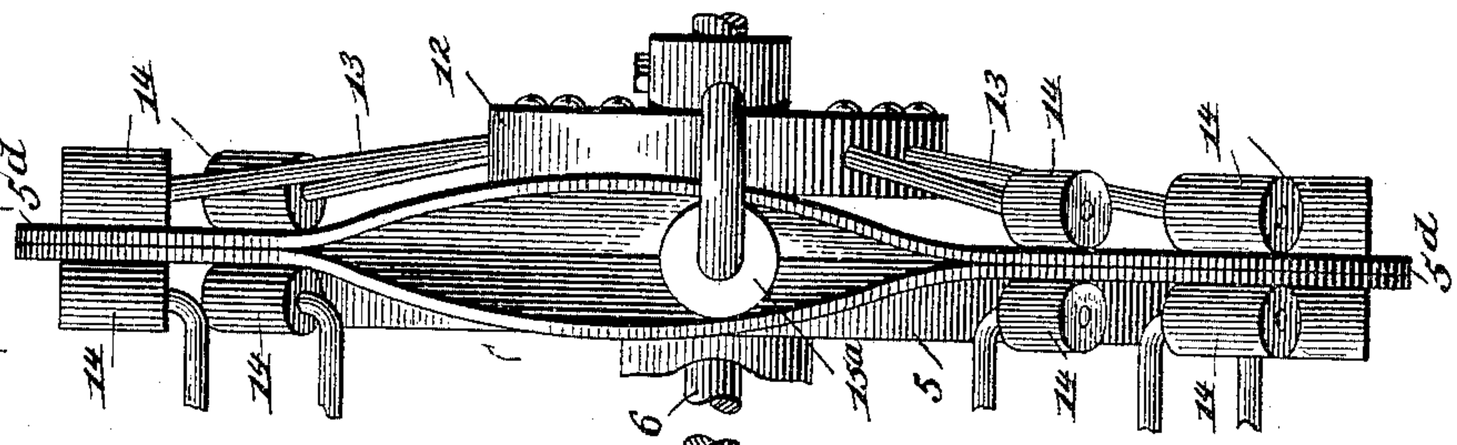


FIG. 3.

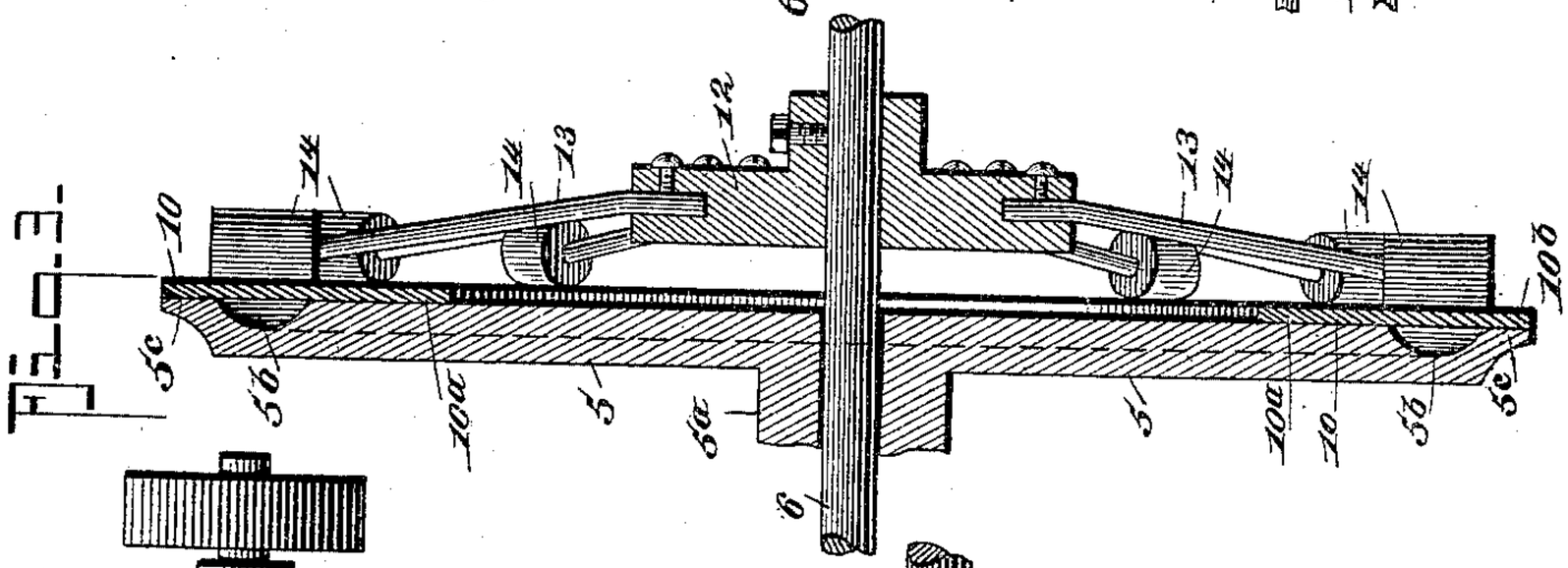
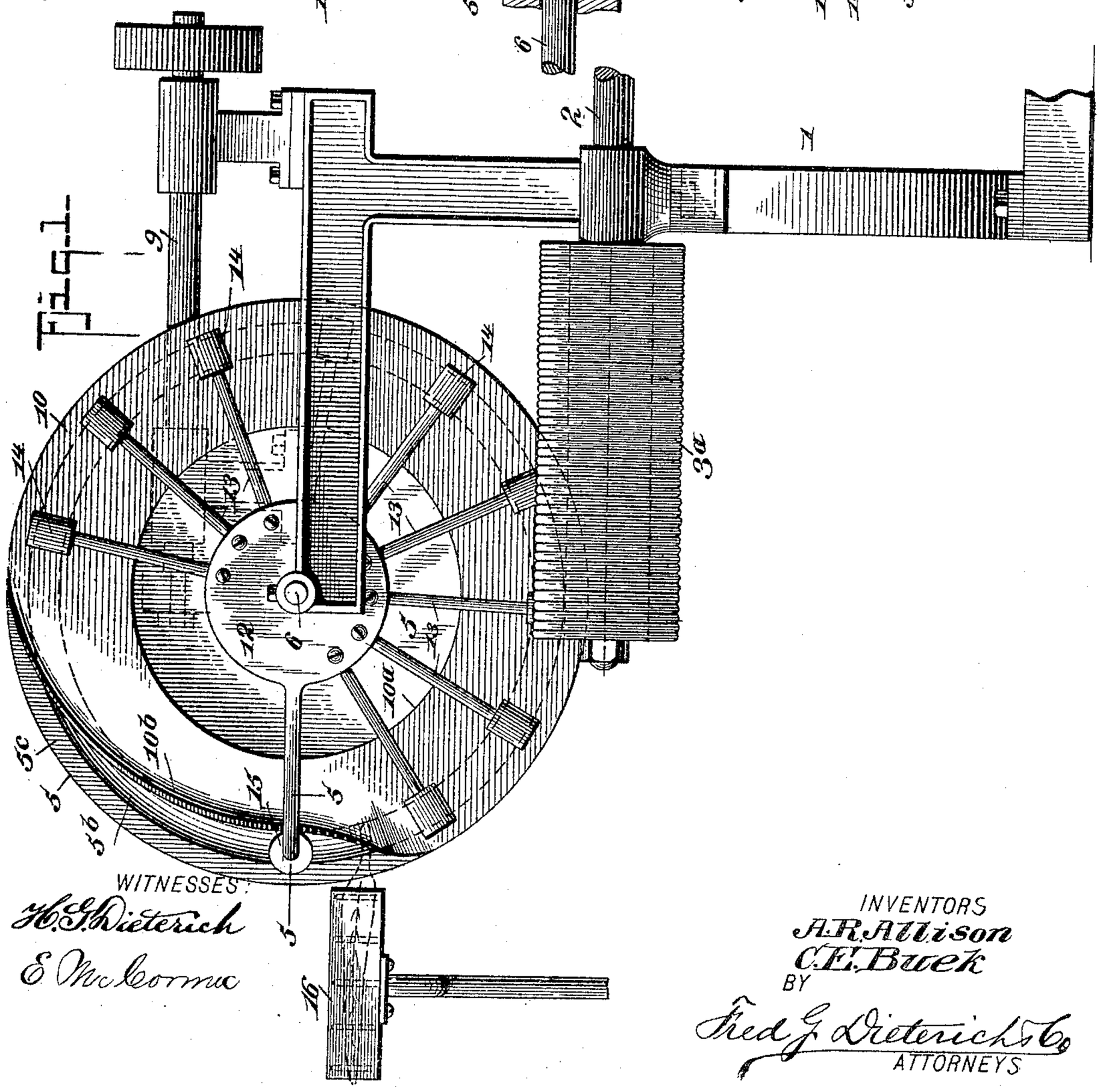


FIG. 1.



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(No Model.) 2 Sheets—Sheet 2.

Fig. 2.

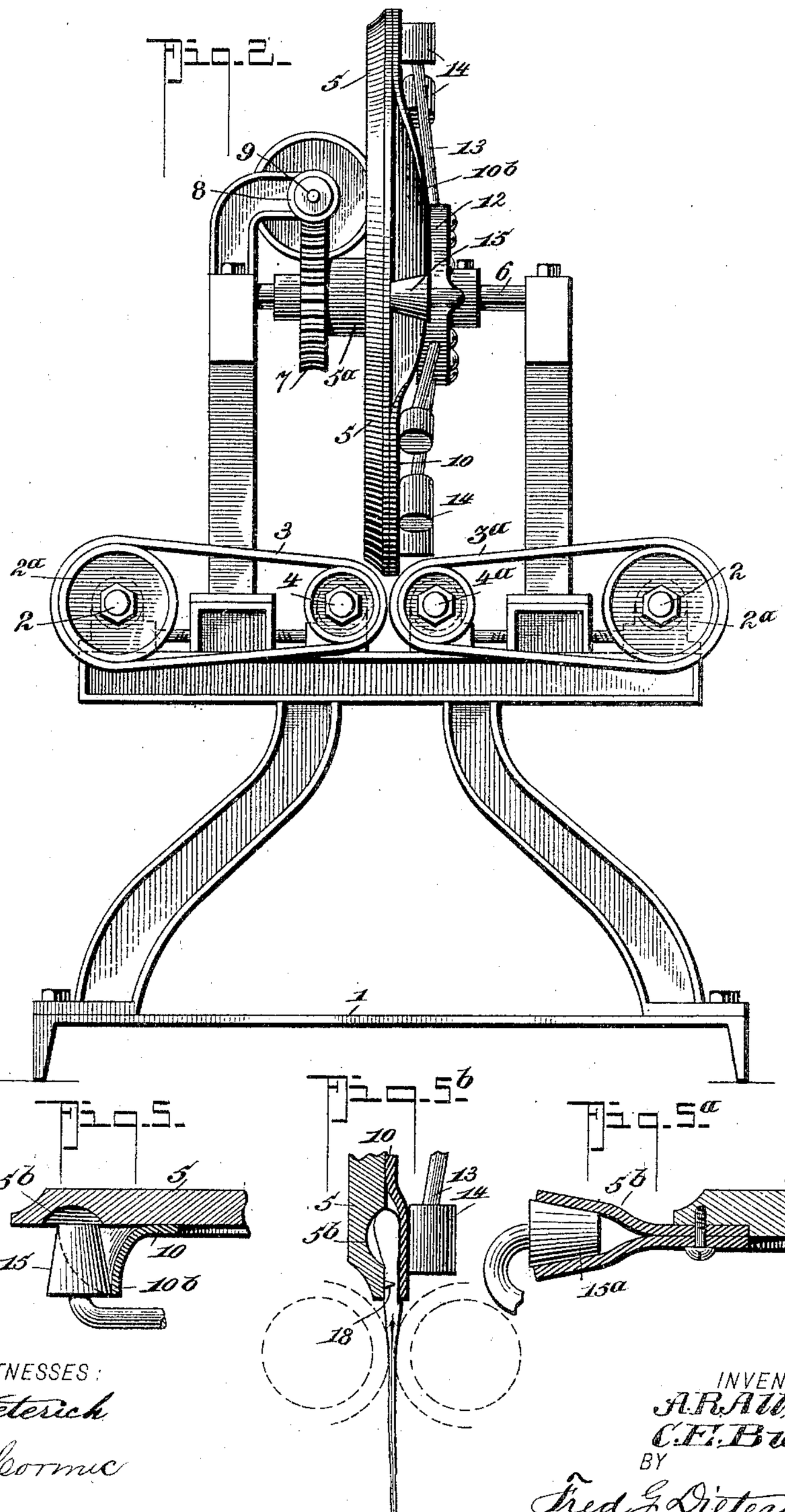

Fig. 5.

Fig. 5b.

Fig. 5a.

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UNITED STATES PATENT OFFICE.

ALPHONSO ROSS ALLISON AND CHARLES EDWARD BUEK, OF RICHMOND, VIRGINIA, ASSIGNORS TO THE UNIVERSAL STRIPPING MACHINE COMPANY, OF SAME PLACE.

TOBACCO-LEAF-STEMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 622,586, dated April 4, 1899.

Application filed March 25, 1898. Serial No. 675,114. (No model.)

To all whom it may concern:

Be it known that we, ALPHONSO ROSS ALLISON and CHARLES EDWARD BUEK, residing at Richmond, in the county of Henrico and State of Virginia, have invented a new and Improved Tobacco-Leaf-Stemming Machine, of which the following is a specification.

This invention, while relating generally to improvements in tobacco-stemming machines, in its specific nature refers to a combined feed and drawing means particularly adapted for use in connection with stripping mechanisms having coacting wiping-surfaces which may be of the nature of superimposed rolls, as shown in the patent to R. W. Coffee, No. 569,575, or in the copending application filed March 25, 1898, by A. R. Allison, Serial No. 675,119, in which a feed and drawing means embodying the same general principle of this invention so far as relates to its coaction stripping mechanism is shown.

The present invention has for its main purpose to provide certain improvements on the rotary combined leaf feeding and drawing means disclosed in the aforesaid application, whereby the mechanism for gripping the leaf is rendered more positive in its action and economical in its manufacture.

The invention therefore comprehends the employment of a rotary disk having its peripheral edge provided with continuous flexible gripping portions and means for automatically holding such portions in an open position as the carrier rotates past the leaf-entrance point and closed to clamp the stem of the leaf as such leaf and stem are being subjected to the wiping action, and also to carry the stripped stem to a point of discharge.

This invention also includes certain subordinate features in the details of construction, hereinafter fully described, and specifically pointed out in the appended claims, and in the accompanying drawings, in which like numerals indicate like parts in all the figures.

Figure 1 is a side elevation of a tobacco-stemming machine constructed in accordance with our invention. Fig. 2 is an end elevation thereof. Fig. 3 is a vertical section of the rotary leaf feed and drawing mechanism. Fig. 4 is an end view of a modified form of such mechanism. Fig. 5 is a detail transverse section on the line 5 5 of Fig. 1. Figs. 5[a] and 5[b] are detail views hereinafter referred to.

In the practical application of our improved combined feed and draw mechanism the same is preferably used in connection with a form of stripping mechanism illustrated in the pending application above referred to, and it is so illustrated in the accompanying drawings, it being, however, understood that the same may be used in combination with other stripping mechanism having in operation a wiping action.

Referring now to the drawings, 1 indicates a suitable supporting-frame on which are mounted two horizontal drive-shafts 2, the front ends of which carry drive-rolls 2[a] 2[a] for imparting motion to the belts 3 3[a], which pass over the guide-rolls 4 4[a], so arranged relatively to each other that the belts, which may have either corrugated, grooved, or card-clothing stripping-surfaces, have their opposing faces arranged to coact to produce a wiping action.

The rotary combined leaf carrier and draw means may be in the nature of a solid disk member 5, as shown in Figs. 1 to 3, rotatably held on the shaft 6, disposed transversely to the wiping-surfaces of the stripper-belts at a point near the front or entrant end of such surfaces, as clearly shown in Fig. 1, said disk 5 having a hub 5[a], carrying a worm-gear 7, held in mesh with the worm-pinion 8 on the drive-shaft 9.

10 indicates an annular rim, formed of any suitable flexible material, held on the outer peripheral end of the disk 5, its inner portion 10[a] being secured to the said disk 5, while its outer portion is held free of such disk, whereby it can be separated therefrom, such free end 10[b] being held over an annular concaved groove 5[b] in the face of the disk 5, the purpose of which will hereinafter appear. The flexible rim 10 forms a continuous jaw for clamping the stem of the leaf in tight frictional contact with the disk 5 as it is drawn through the stripping mechanism and to provide for such operation and also to hold

the rim 10 away from the said disk during the operation of the rotative movement thereof. To admit of a quick but positive feed of the leaf-stem to the carrier at a point in advance of the stripping mechanism, automatic means are provided for holding the said rim to its proper clamping position during the rotation of the said disk 5. Such means may be in the nature of a disk 12, fixedly secured to the shaft 6 and having a series of radial spring rods or spokes 13, on the outer end of which are journaled rollers 14, which are held to press the rim 10 against the disk 5.

As will be seen by reference to Fig. 1, the presser devices are so arranged as to hold the flexible rim close up to the disk 5 from the gripping-point somewhat in advance of the feed end of the stripping mechanism to the point where it is desired to discharge the stripped stem, the said rim being left free from such pressure between the said discharge and gripping points and drawn away from the said disk to provide a receiving-mouth for the ends of the stem to extend in, such operation of separating the rim from the disk being effected by a guide-roller 15, projected at right angles from the disk 5 and disposed in such relation thereto that the rim 10 passes thereover.

From the foregoing it will be readily understood that as the rim 10 is automatically held away from the disk 5 at the leaf-feeding point and automatically closed against the butt-end of the leaf after it (the leaf) has been properly projected between the rim 10 and the disk 5 a simple and effective means is provided for quickly and positively gripping the leaf without the necessity of special manipulation of the leaf further than that of projecting the same between the aforesaid rim and disk, which operation can be readily effected by hand. To facilitate such hand operation, a guide 16 (see Fig. 1) is provided in which to rest the body of the leaf after the operator places the same in position to be caught by the rotary carrier and from which guide the leaf is pulled endwise as the butt-end is drawn down between the stripper mechanism.

In the practical application of our invention means are also provided for catching or deflecting the stripped stem, which means are disposed above the rotary carrier at the point where the rim 10 separates from the disk, and such means may be of the character disclosed in another application filed by us August 30, 1898, Serial No. 689,856, or as shown in our application, Serial No. 675,119, before referred to. As said means for deflecting the leaf forms no part of this invention, they have not been shown.

By providing the disk with an annular groove such as shown a more positive clamping action on the stem is obtained, as the thicker or butt end of the leaf will seat therein, and thereby allow the rim to press the somewhat thinner portion of the stem against the edge 5c. To further insure a tight grip on the stem, the disk 5 may have spurs or teeth 18 opposing the clamping portion of the rim 10.

In Figs. 4 and 5a is illustrated a modified form of our invention, in which the rotary disk 5 instead of being solid its entire surface has its outer portion opposing the rim 10 made flexible, as shown at 5a. In this construction the presser-rolls are arranged on each side of the disk to hold the flexible portions clamped together, and the separating roller or guide 15a is arranged at right angles to the axis of the disk, over which both flexible portions are fastened. In this form of our invention the rotary carrier may, if desired, consist of two flexible disks joined together to constitute one rotatable body, but having their edges held free from each other to admit of their separation as they pass the feed-guide. (See Fig. 5a.)

In the practical arrangement of our improvement a suitable trip means is also provided to remove the stripped stem from the grip portions as they are opened.

From the foregoing, taken in connection with the drawings, it is thought the complete operation and advantages of our invention will be readily understood. It will be observed that as the rotary carrier reaches the leaf-holding guide its grip portions will automatically close on the stem, feed the leaf to the stripper mechanism, and draw it through the same over the wiping-surfaces thereof in such a manner as to cause a complete separation of the blade of the leaf from the stem without the least danger of tearing, crushing, or otherwise mutilating the separated leaf portion.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a machine as described, the combination with wipers for removing the body of the leaf from the stem; of the rotary feed mechanism for advancing the stem with the leaf-body sidewise during the stemming operation, said mechanism having flexible gripping members adapted to engage the leaf-stem and means for opening and closing such gripping members at predetermined intervals.

2. In a tobacco-stemming machine; the combination with wipers for removing the body of the leaf from the stem; of a feed mechanism comprising a rotary carrier having its peripheral edge formed with portions to engage the stem of the leaf, and means for alternately opening and closing such portions.

3. Leaf-stemming means, comprising stripper mechanism, having coacting surfaces operating with constant pressure and adapted to effect a wiping action on the leaf; of means for drawing the leaf through the stripper mechanism at a varying speed, said means including a rotary carrier having flexible rim portions adapted to close against and grip the

leaf-stem butt, and devices for automatically opening and closing such flexible rim portions at predetermined intervals.

4. In a machine as described, the combination with wipers for removing the body of the leaf from the stem; of a feed mechanism for drawing the stem and leaf sidewise and lengthwise through the wipers, consisting of a rotary disk; a flexible annular rim carried by the said disk, its peripheral edge being free to move away from the said disk, and means for automatically separating such rim from the disk and clamping it thereagainst at predetermined intervals.

5. In a tobacco-stemming machine, the combination with wipers for removing the body of the leaf from the stem; of a feeder mechanism constructed to draw the leaf lengthwise and sidewise through the wipers, comprising a rotary disk having an annular groove in its periphery; a flexible rim secured to the disk but having its peripheral edge held free; means for pressing such rim against the disk over its annular groove during a portion of rotation of the said disk, and means for holding it freed from contact with such part of the disk the remainder of its movement as specified.

6. In a tobacco-leaf-stemming machine, the combination with wipers for removing the body of the leaf from the stem; of a feeder mechanism arranged to draw the leaf lengthwise and sidewise through the wipers, comprising a rotary disk; a flexible rim movable therewith; pressure-rollers for holding such rim pressed against the disk during a portion of the operation thereof; and a separating-roller for pulling such rim from the disk during the remainder of the disk movement, as set forth.

7. In a tobacco-leaf-stemming machine, the combination with wipers for removing the body of the leaf from the stem; of a feeder mechanism adapted to draw the leaf and stem sidewise and lengthwise through the wipers; consisting of supporting-shaft 6; a disk held to rotate thereon; means for rotating it; said disk having a flexible flap-rim at its perimeter; means for holding such rim closed against such disk during a portion of its rotation, consisting of a series of pressure-rollers having a disk-support, fixedly held on the shaft 6; and a roller arranged at right angles to the face of the disk, over which the outer edge of the flexible rim is adapted to pass, whereby to hold it free from the disk, during a part of its rotation, as specified.

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