No. 622,995. Patented Apr. 11, 1899.

R. A. COFFEE.

TOBACCO STEMMING MACHINE.

(Application filed Aug. 30, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

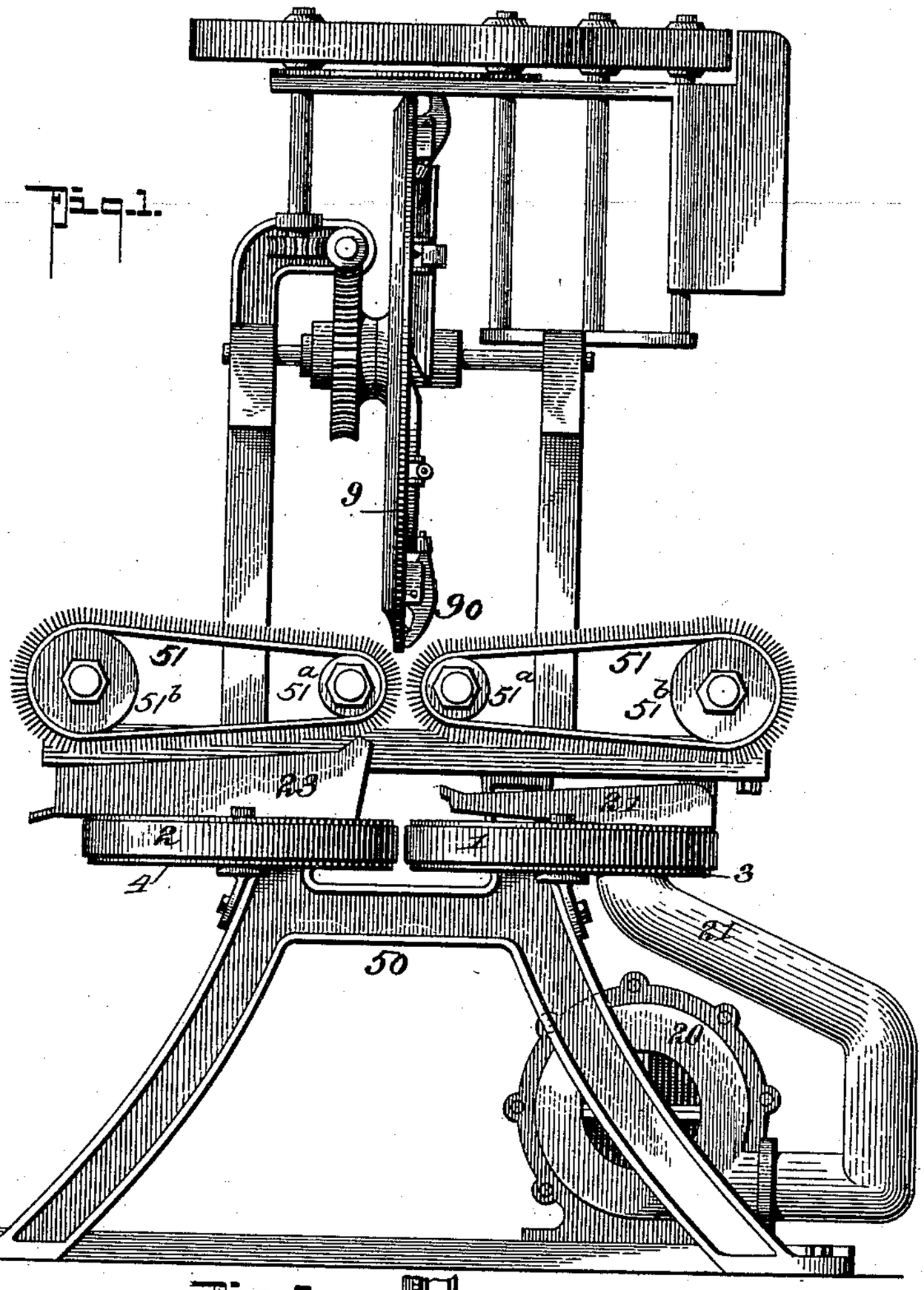
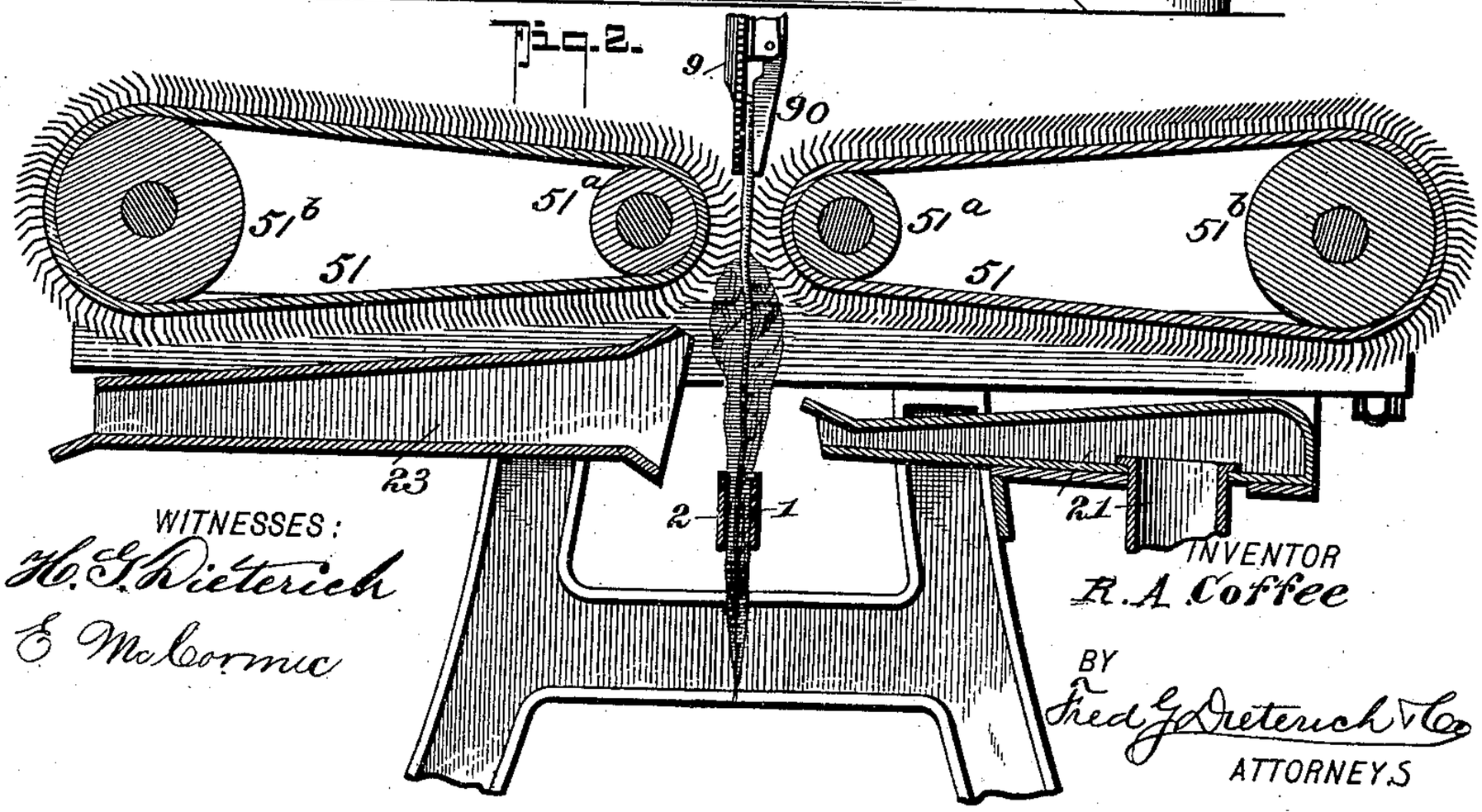


Fig. 2.



WITNESSES:
H. G. Dieterich
E. McCormic

INVENTOR
R. A. Coffee
BY
Fred G. Dieterich & Co
ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 622,995. Patented Apr. 11, 1899.

R. A. COFFEE.

TOBACCO STEMMING MACHINE.

(Application filed Aug. 30, 1898.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 3.

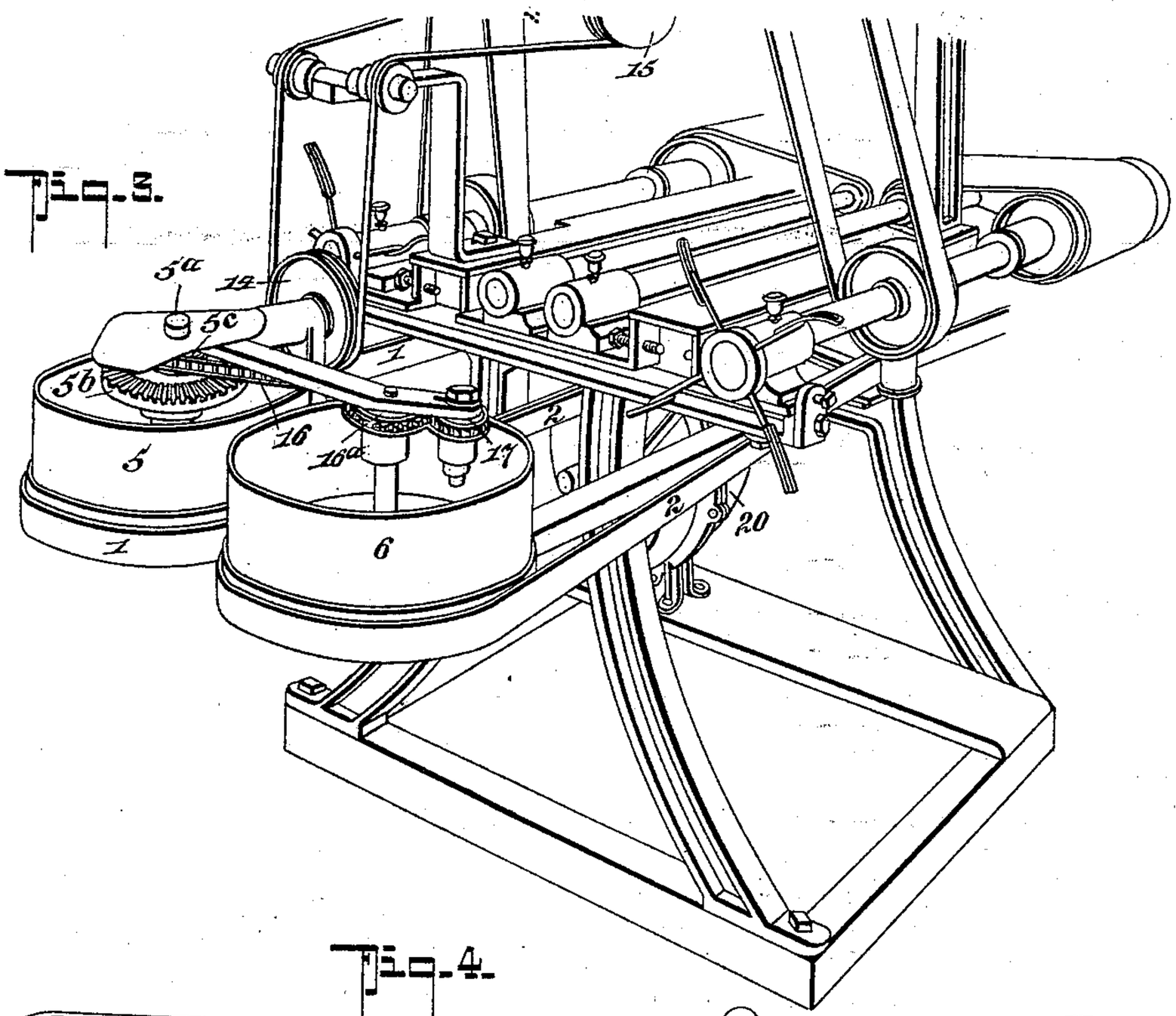


Fig. 4.

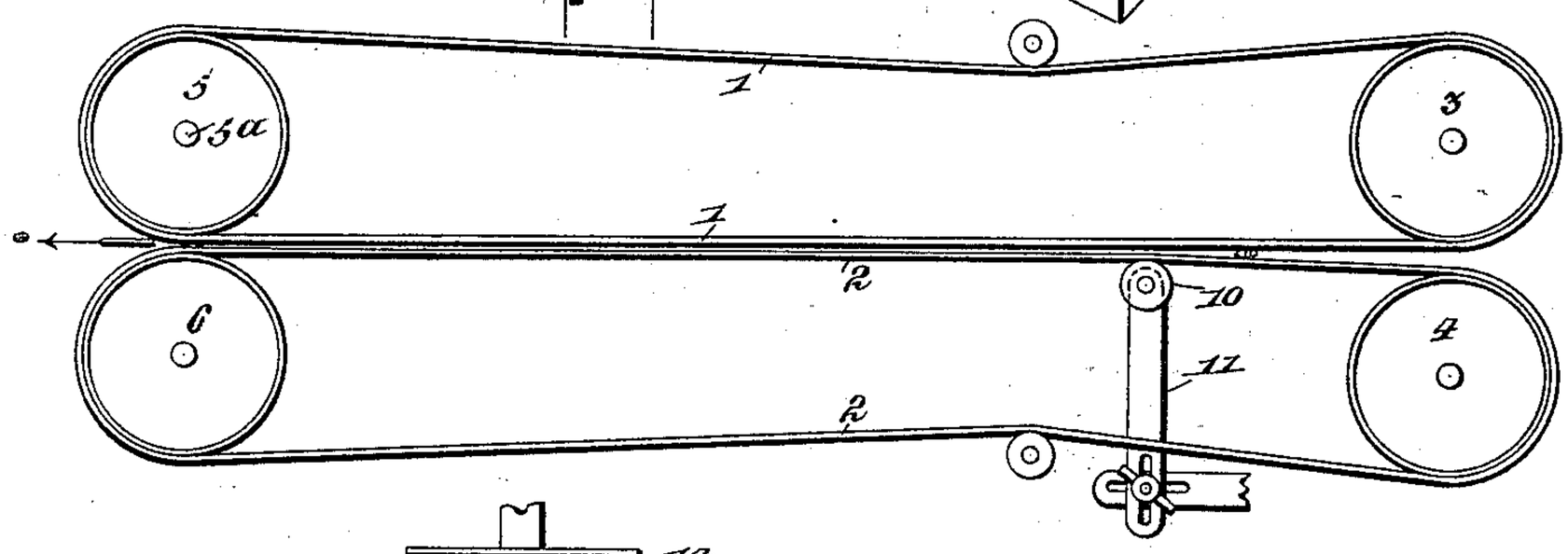
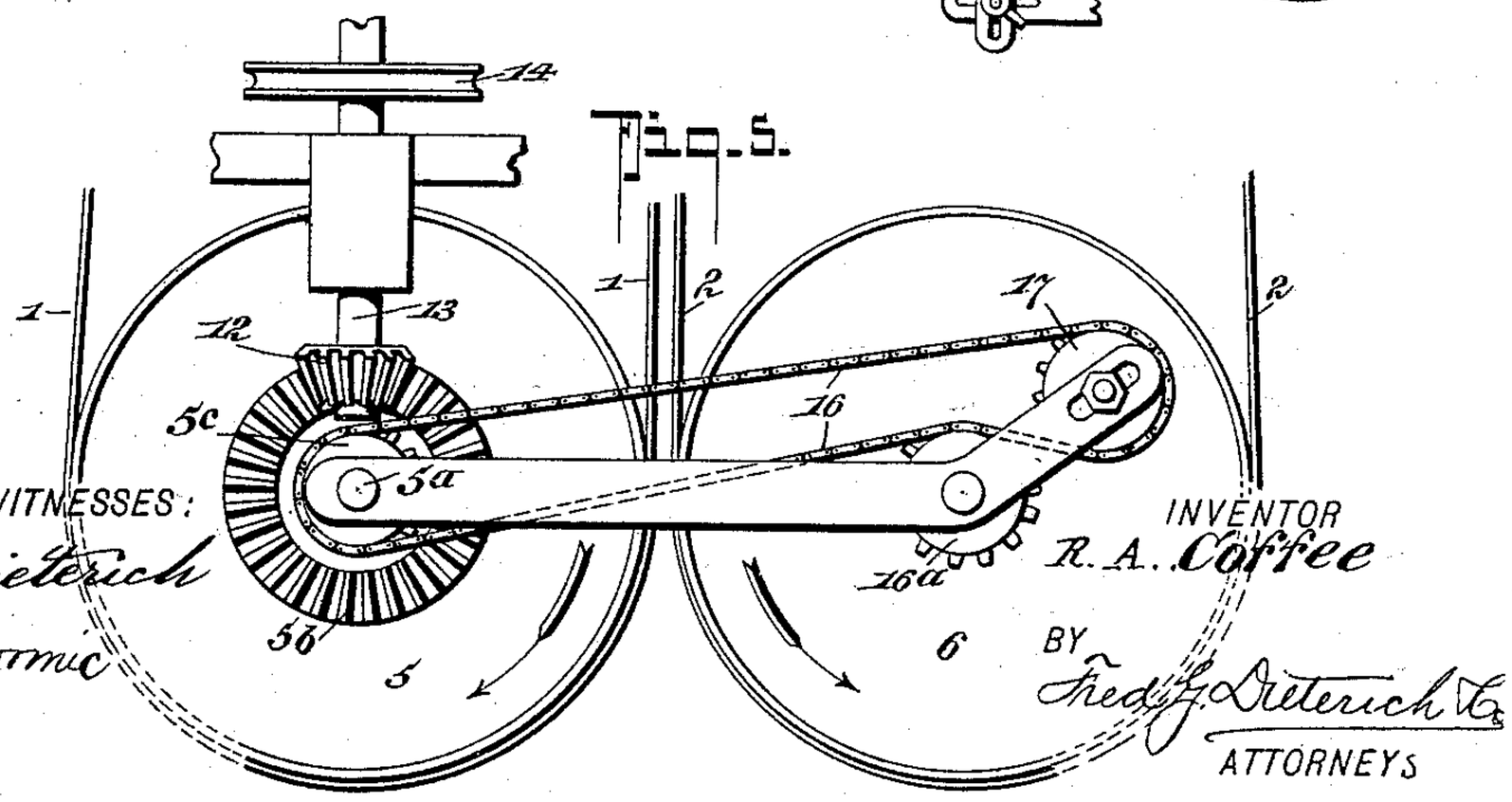


Fig. 5.



WITNESSES:
H. G. Dieterich
E. McCormic

INVENTOR
R. A. Coffee
BY
Fred'k J. Dieterich & Co.
ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

RUSSELL A. COFFEE, OF RICHMOND, VIRGINIA, ASSIGNOR TO THE UNIVERSAL STRIPPING MACHINE COMPANY, OF SAME PLACE.

TOBACCO-STEMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 622,995, dated April 11, 1899.

Application filed August 30, 1898. Serial No. 689,864. (No model.)

To all whom it may concern:

Be it known that I, RUSSELL A. COFFEE, residing at Richmond, in the county of Henrico and State of Virginia, have invented certain new and useful Improvements in Tobacco-Stemming Machines, of which the following is a specification.

This invention relates to improvements in tobacco-leaf-stemming machines, and more particularly to means for gathering and separating the leaf and stem portions that are broken from the main part or body of the leaf during the operation of stemming and for conveying them to such point and in such condition as to permit their being readily handled and rendered fit for use.

In the practical application of various forms of automatically-operating tobacco-stemming machines great difficulty has been experienced in properly separating the perfectly-stripped leaf particles from the broken stems and their adhering leaf particles.

In the practical use of leaf-stemming machines heretofore provided the broken stems and leaf particles adhering thereto are generally discharged in the same direction with the perfectly-separated leaf portions, and sometimes they are mixed with such perfect leaf portions. This mixing of the imperfectly-separated leaf portions with the good leaf separations is very objectionable, as it requires a careful assorting of the product by hand, thereby entailing considerable expense and waste of time and also decreasing the value of the good leaf separations by reason of the small stem particles likely to remain mixed therewith even after a careful sorting.

The main purpose of my invention is to provide means for positively gathering, holding, and separating the broken leaf or stem particles or the entire leaf, (should the same break at the butt as it engages the strippers or wiper mechanism,) such means being disposed at such point that all danger of the said broken-leaf particles or unstemmed leaf mixing with the good leaf separations is absolutely avoided.

Another and important feature of my invention is to provide a broken stem and leaf conveyer which will assist the leaf-carrier in properly feeding the leaf to the stripper or wiping mechanism.

In its essential features my invention comprises a traveling member disposed and movable in such relation to the stripper-leaf-feed and stem-drawing mechanism as to engage with the leaf and have frictional contact therewith during the whole time that the leaf is drawn through the stripping mechanism and having sufficient grip to make the said leaf move therewith, but insufficient to retard its being pulled therethrough by the stem-drawing mechanism.

In its more specific nature this invention comprises two endless belts having coacting faces so arranged as to permit the leaf being drawn therethrough and having the opposing members so adjusted as to frictionally grip the leaf sufficiently to carry it along in the direction of the movement of the belts if the leaf should break.

In the accompanying drawings I have illustrated my invention arranged and especially adapted for use in connection with a particular form of stripper or wiping mechanism and leaf-carrier and stem-drawing devices which form the subject-matter of another application, Serial No. 675,119, filed March 25, 1898, by A. R. Allison, and a copending application, Serial No. 689,856, filed on August 30, 1898, by A. R. Allison and C. E. Buek. I desire it understood, however, that while the detailed arrangement of my invention as illustrated particularly adapts it for the aforesaid type of stemming-machines, the same, with slight variations or modifications, is susceptible of use with other mechanism for the performance of feeding and stripping the leaf and drawing the stem.

The subordinate features of my invention comprise certain combinations of the gathering and separating means with the stripper-leaf-carrying and stem-drawing mechanism shown, as will be first described in detail and then be specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a front end view of a tobacco-leaf-stemming machine equipped with my improvements. Fig. 2 is a detail longitudinal

section of the wiping mechanism and illustrating its correlation with my improved separator devices. Fig. 3 is a detail perspective view of one end of a tobacco-leaf-stemming machine with my separator devices applied. Fig. 4 is a diagrammatic view illustrating the general arrangement of my improved separator mechanism, and Fig. 5 is a plan view of the drive-gearing for operating the said belts.

Referring to the accompanying drawings, 50 indicates a suitably-arranged supporting-frame upon which are mounted the stripper mechanism and means for automatically feeding the leaves thereto and drawing the same therebetween. As shown in the accompanying drawings, the stripper mechanism comprises a pair of endless belts 51 51, horizontally journaled upon an inner set of rolls 51^a and an outer set of rolls 51^b, said rolls in practice being driven in such manner as to cause the belts to rotate toward each other. The belts have their outer surfaces formed of card-clothing, the two surfaces forming, as it were, coacting opposing wiping-surfaces whereby to remove the leaf from the stem by a wiping action as said stem is drawn up through the same.

In the machine shown the leaf is fed to the stripping mechanism by a rotary carrier 9, having a series of peripherally-arranged clamping members 90, adapted to grip the stem-butt. This carrier rotates in such relation to the line of wiping-surface of the stripper-belts as to pull the stem 7 away as the leaf and stem are moved between the said wiping-surfaces from the entrant to the exit end.

As the stripping mechanism and the rotary carrier *per se* form no part of this invention, further detailed description thereof is deemed unnecessary.

In its practical construction my invention comprises a carrier arranged in such relation to the stripping mechanism that the leaf as it is drawn from the butt-end through the stripper mechanism will be engaged by it, such carrier having means for frictionally holding the leaf.

In the accompanying drawings the carrier consists of two endless belts 1 2. When used in connection with the stripping mechanism shown, the said belts are arranged to travel in the direction of the feed of the leaf.

In the construction shown in Figs. 1 and 2 the leaf-carrier is in the nature of a rotary disk 9, which acts to first deliver the leaf to the wipers at the entrant end thereof and then draw it through the same and at the same time lengthwise of the wiping-faces.

The belts 1 2 are mounted on the horizontal front pulleys 3 4, journaled in advance of the entrant end of the stripping-belts 51 and like pulleys 5 6, journaled at the rear end of the machine.

The forward pulleys 3 4 are somewhat separated to provide a throat for the convenient entrance of the hanging leaf as it is carried from the feed devices to the stripping-belts; but the belts 1 and 2 are brought sufficiently close together at or near the front end of the strippers 51 to frictionally engage the leaf sufficiently to carry it off to the rear of the machine, but not enough to retard the drawing action of the disk-carrier 9, and to provide for closing up the belts 1 and 2 at a point near the entrant end of the stripping-belts adjusting means are provided—as, for example, an idler guide-pulley 10, journaled on the bracket 11, having transverse and longitudinal adjustment. (See Fig. 4.)

When used in connection with the stripping and carrier mechanism shown, the belts 1 and 2 are driven at a speed equal that of the sidewise movement of the leaf between the strippers, and for this purpose one of the rear pulleys 5 has its shaft 5^a provided with a beveled gear 5^b, held in mesh with the beveled pinion 12 on the short shaft 13, having a drive-pulley 14 belted to an operating-shaft, in turn driven by the gearing operating the rotary leaf-carrier. (Not shown.) The shaft 5^a has a chain-gear 5^c, over which passes a chain 16, which engages a chain-gear 16^a on the shaft on the opposite belt-driving pulley and an idler 17.

By providing the movable belts 1 and 2, having a speed equal that of the sidewise movement of the leaf as it is being stripped, it is obvious that such belt will also act as a carrier for moving the outer or tip end of the leaf uniformly along with the butt-end. It should be stated, however, that while such speed of the belts is desirable with a main carrier and stripper mechanism of the character stated such speed of belts is not absolutely necessary, as they do not sufficiently grip the leaf to retard its being pulled therefrom and without danger of breaking.

In its complete form my separating mechanism also comprises blast mechanism adapted to blow off the perfectly-separated leaf particles as they drop from the wipers, and such devices comprise a blast-fan 20, having a discharge-tube 21, the mouth of which ejects the blast transversely of the machine at a point under the stripper-belts and above the endless belts 1 and 2, as best shown in Fig. 2, by reference to which it will also be seen that opposite the mouth-tube 21 is located a throatway 23, into which the good leaf separations are blown and from which they are discharged to one side of the machine.

By discharging the air-current just above the belts 1 and 2 it is obvious that any broken leaf and stem portions held between the belts will not be sufficiently affected thereby to pull them therefrom.

In operation as the leaf is drawn between the stripper-belts 51 the separated particles will be blown out from the throatway 23 at one side, as heretofore stated, while the stems will be drawn up by the rotary carrier and discharged at the upper end of the machine in any suitable manner.

During the operation of stemming should

any portion of the leaf or stem become broken at a point below the strippers the same, by reason of the belts gripping the lower end thereof, will be carried back to the rear end of the machine and discharged therefrom, it being well understood that as the leaf is drawn up the danger of breaking of the stem diminishes as the tip end thereof is drawn in between the strippers. It will therefore be understood that the belts 1 and 2 will engage with the lower end of the leaf until the major part of the butt-end has passed between the strippers, such end being the most liable to break in the wiping action. Should, however, for any reason the stem break immediately at the butt-end, the entire leaf, by reason of its frictional contact with the belts, will be carried back and discharged.

It will thus be seen that by providing separator devices of the character stated the lower end of the leaf will not alone be properly guided as it is drawn forward between the strippers, but will also be held with sufficient force to prevent its being blown sidewise from the machine to be discharged at the rear end.

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

1. In a tobacco-leaf-stemming machine of the character described; the combination with the stripping mechanism and means for feeding and drawing the leaf therethrough; of a separator movable in close relation to the stripping mechanism and normally adapted to engage and grip the outer portion of the leaf and thereby convey it away from the stripping mechanism in case the stem is broken, substantially as shown and described.

2. In a tobacco-stemming machine; the combination of a stripping mechanism and a stem feeder and drawer; of a leaf-engaging member movable in close relation to the stripping mechanism in a direction different from the direction of pull on the stem and adapted normally to engage the leaf and thereby convey it away from the stripping mechanism in case the stem is broken during the drawing action, as set forth.

3. A tobacco-stemming machine, having in combination with the stripping and leaf-feeding and stem-drawing mechanism, means for frictionally engaging the outer portion of the leaf as it is being stripped, and adapted to convey it away from the strippers and from the perfectly-separated leaf particles, substantially as shown and for the purposes described.

4. In a tobacco-leaf-stemming machine of the character described; in combination with the stripping and leaf-carrier and stem-drawing mechanism, of means for removing the perfect leaf separations in one direction and the broken or imperfect particles simultaneously in another direction, substantially as shown and described.

5. In a tobacco-stemming machine of the character described; the combination with the stripping, leaf-feed and stem-drawing mechanism and the drive-gearing therefor; of a separator comprising a pair of endless bands held to travel in line with the lateral movement of the stem through the stripping mechanism; the gearing for operating the said belts including a short shaft and having a drive-pulley; and gear connections joining such pulley with the carrier drive-gearing, all being arranged substantially as shown and described.

6. In a tobacco-stemming machine; in combination with the stripper and leaf-carrier and stem-drawing mechanism, arranged substantially as shown; of endless separated belts movable longitudinally of the machine, having coacting faces in line with the line of lateral movement of the stem and leaf; the wipers; and means for adjusting the extent of the frictional contact of the belts and their points of contact relatively to the entrant end thereof, substantially as shown and for the purposes described.

7. In combination with the stripping or wiping mechanism, and the leaf-feed and stem-drawing devices, arranged substantially as shown; of a separator mechanism comprising a pair of belts adapted to grip the lower portion of the leaf by frictional contact but with force insufficient to retard its being drawn therethrough by the stem-drawing means; and an air-blast having its throat-discharge at a point between the wiper and the said separator-belts, whereby to blow off the perfectly-separated leaf particles as they are removed from the stem by the strippers, substantially as shown and for the purposes described.

RUSSELL A. COFFEE.

Witnesses:
C. E. BUEK,
A. R. ALLISON.