(No Model.) 7 Sheets—Sheet 1.

M. C. BAUGHAN.

TOBACCO STEMMING MACHINE.

No. 589,685. Patented Sept. 7, 1897.

Fig. 1.

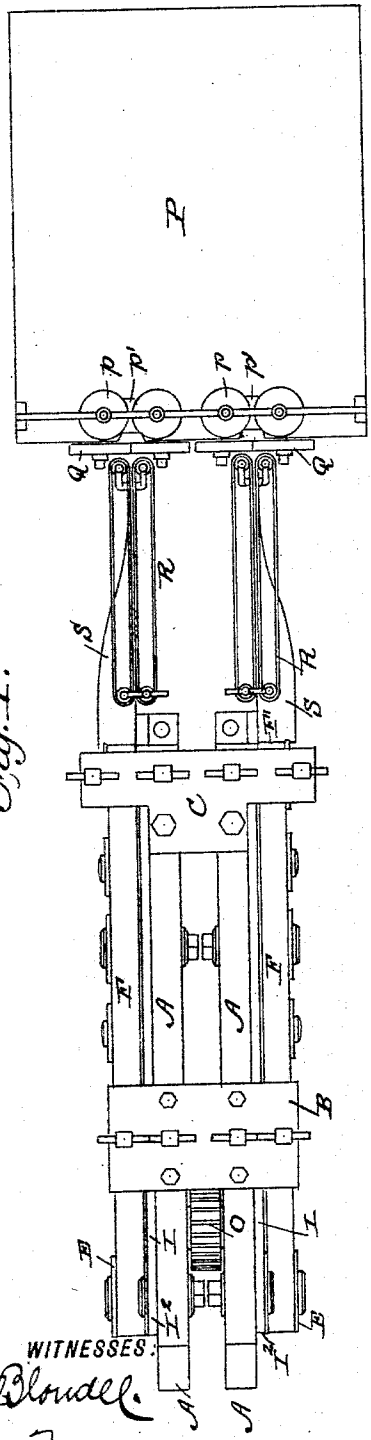
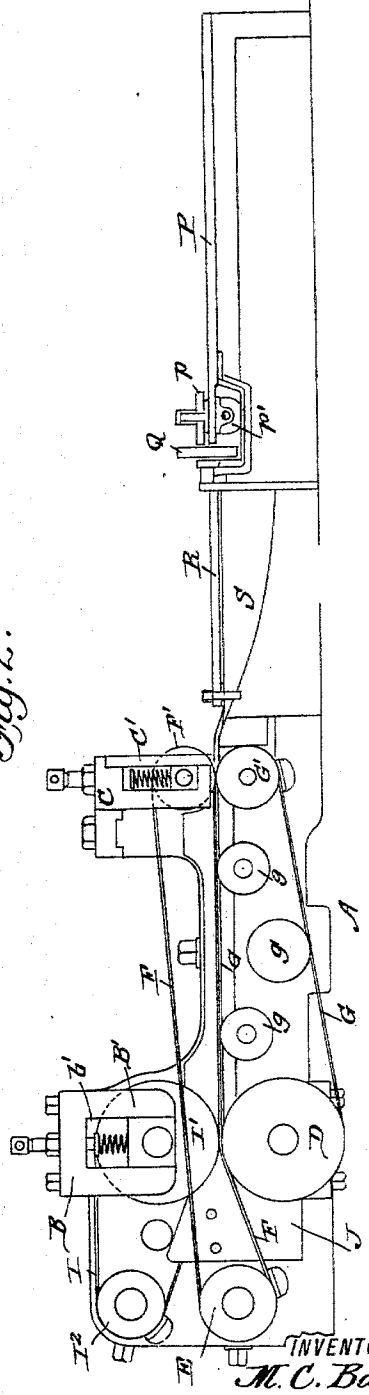


Fig. 2.



WITNESSES:
W. D. Blondell.
P. B. Turpin.

INVENTOR
M. C. Baughan,
BY Munn & Co.
ATTORNEYS.

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

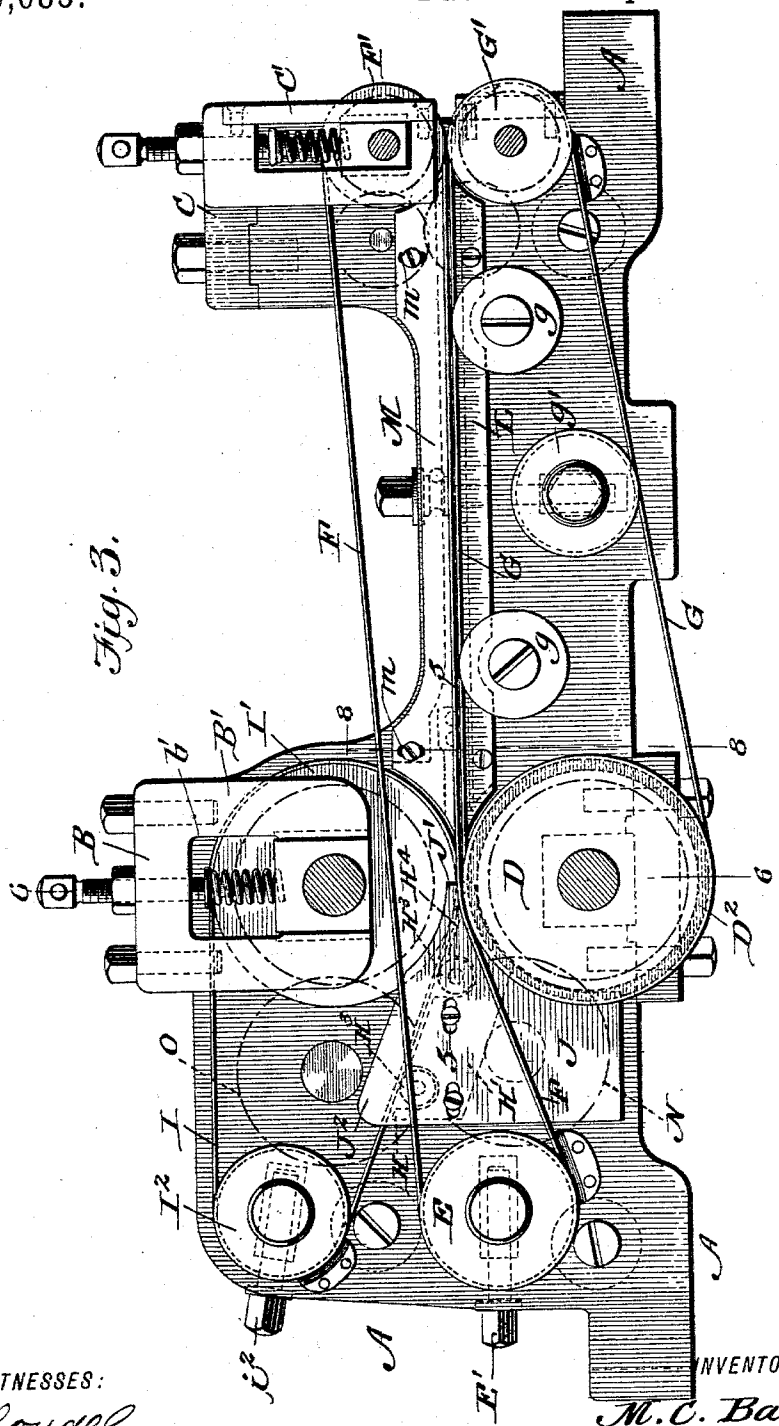
(No Model.) 7 Sheets—Sheet 2.

M. C. BAUGHAN.

TOBACCO STEMMING MACHINE.

No. 589,685. Patented Sept. 7, 1897

Fig. 3.



WITNESSES:

W. D. Bloundell

R. B. Turpin.

INVENTOR

M. C. Baughan

BY Munn & Co

ATTORNEYS.

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

(No Model.) 7 Sheets—Sheet 3.

M. C. BAUGHAN.

TOBACCO STEMMING MACHINE.

No. 589,685. Patented Sept. 7, 1897.

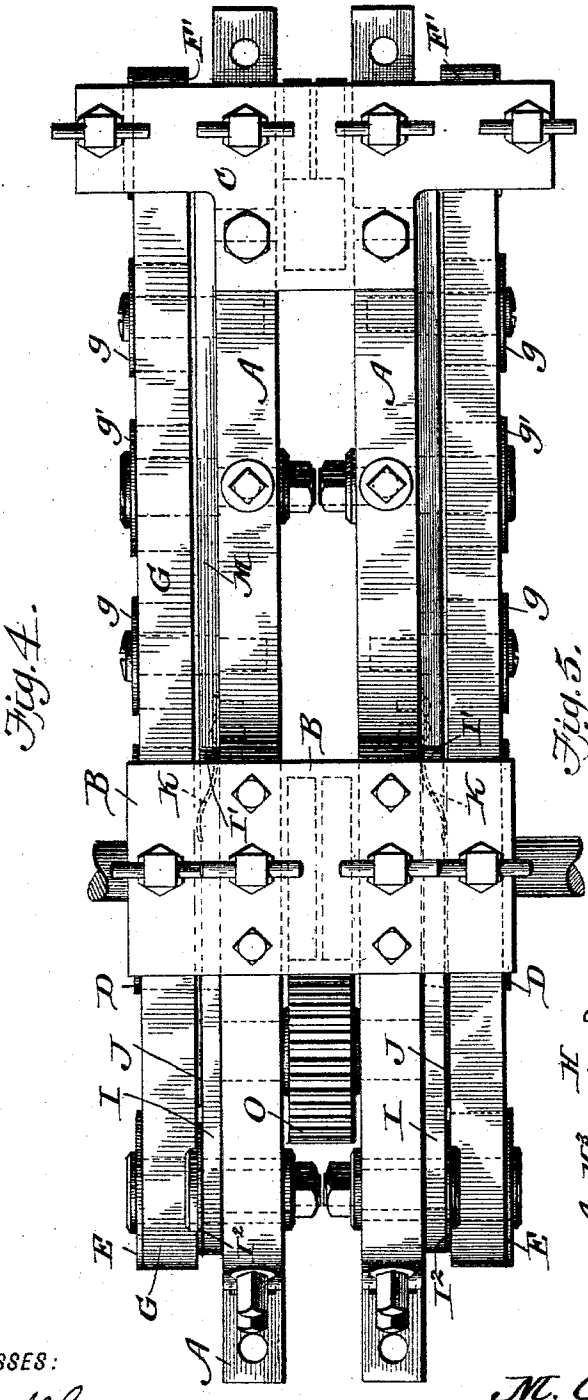


Fig. 4.

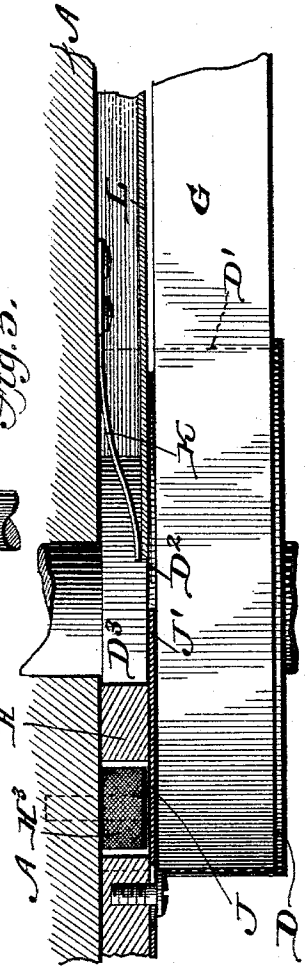


Fig. 5.

WITNESSES:

W. D. Blondel.

P. B. Turpin.

INVENTOR

M. C. Baughan.

BY Munn & Co.

ATTORNEYS.

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

(No Model.)

7 Sheets—Sheet 4.

M. C. BAUGHAN.

TOBACCO STEMMING MACHINE.

No. 589,685. Patented Sept. 7, 1897.

Fig. 6.

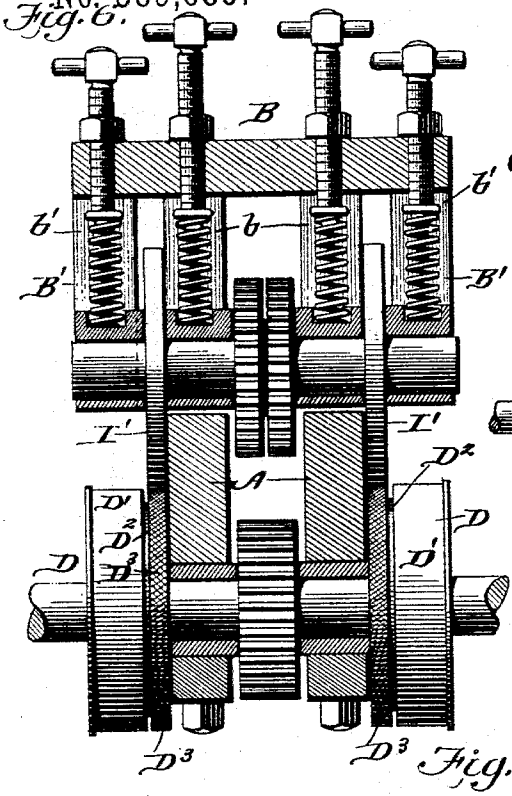


Fig. 7.

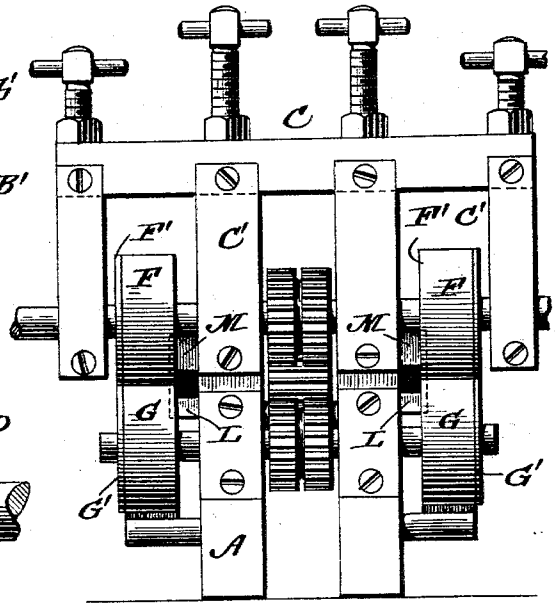
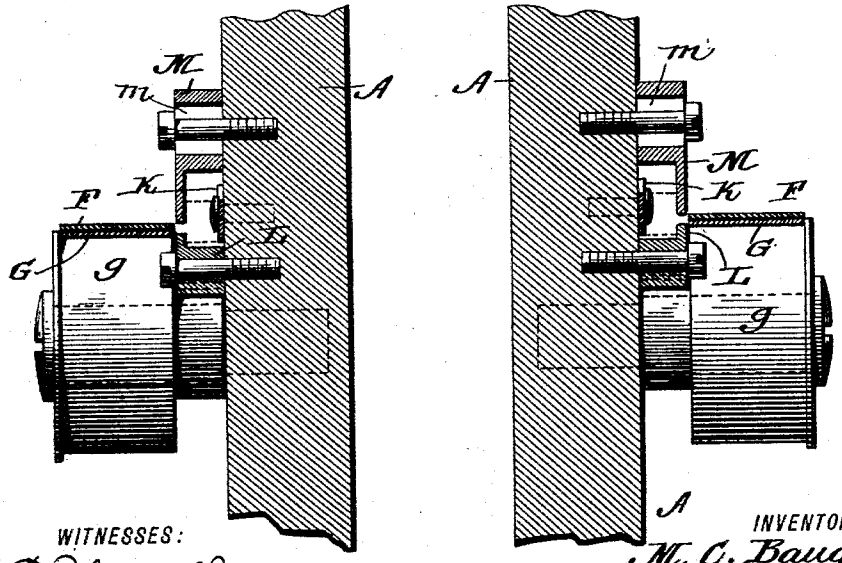


Fig. 8.



WITNESSES:

W. A. Blondell.

P. B. Perpin.

INVENTOR

M. C. Baughan.

BY Munn & Co.

ATTORNEYS.

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

(No Model.) 7 Sheets—Sheet 5.

M. C. BAUGHAN.

TOBACCO STEMMING MACHINE.

No. 589,685. Patented Sept. 7, 1897.

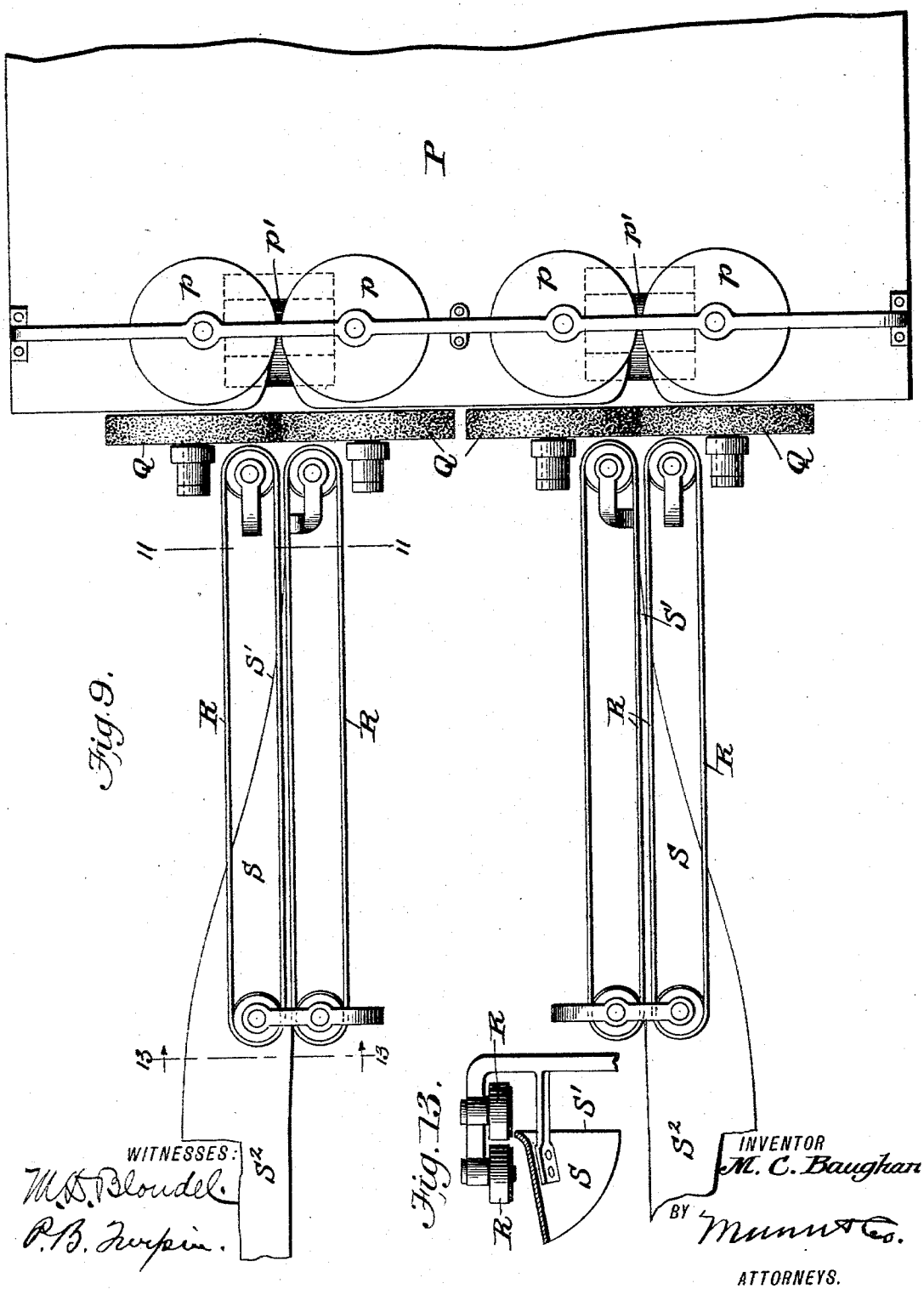


Fig. 9.

Fig. 13.

WITNESSES:
W. D. Bloudel.
P. B. Turpin.

INVENTOR
M. C. Baughan
BY Munn & Co.
ATTORNEYS.

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

(No Model.) 7 Sheets—Sheet 6.

M. C. BAUGHAN.

TOBACCO STEMMING MACHINE.

No. 589,685. Patented Sept. 7, 1897.

Fig. 10.

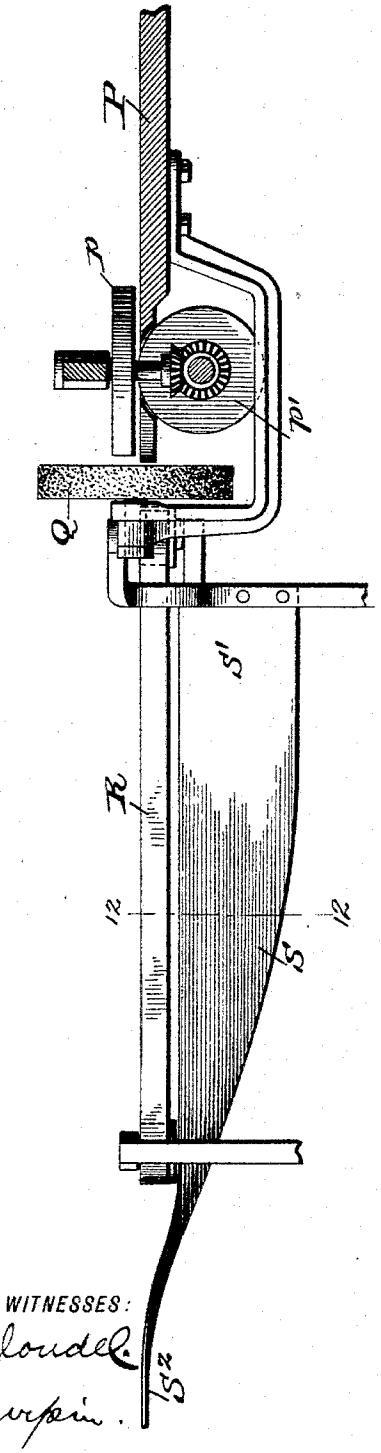


Fig. 11.

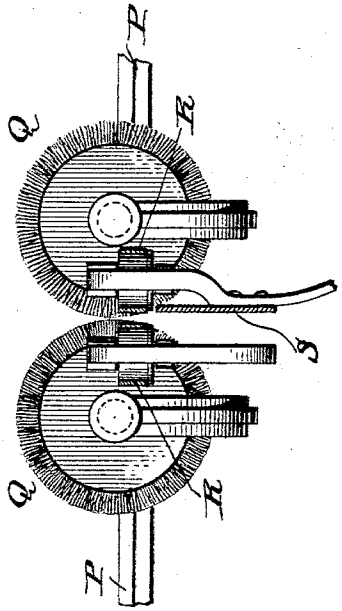
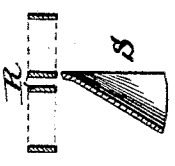


Fig. 12.



WITNESSES:

W. D. Blondel.

P. B. Turpin.

INVENTOR

M. C. Baughan.

BY Munn & Co

ATTORNEYS.

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

(No Model.) 7 Sheets—Sheet 7.

M. C. BAUGHAN.

TOBACCO STEMMING MACHINE.

No. 589,685. Patented Sept. 7, 1897.

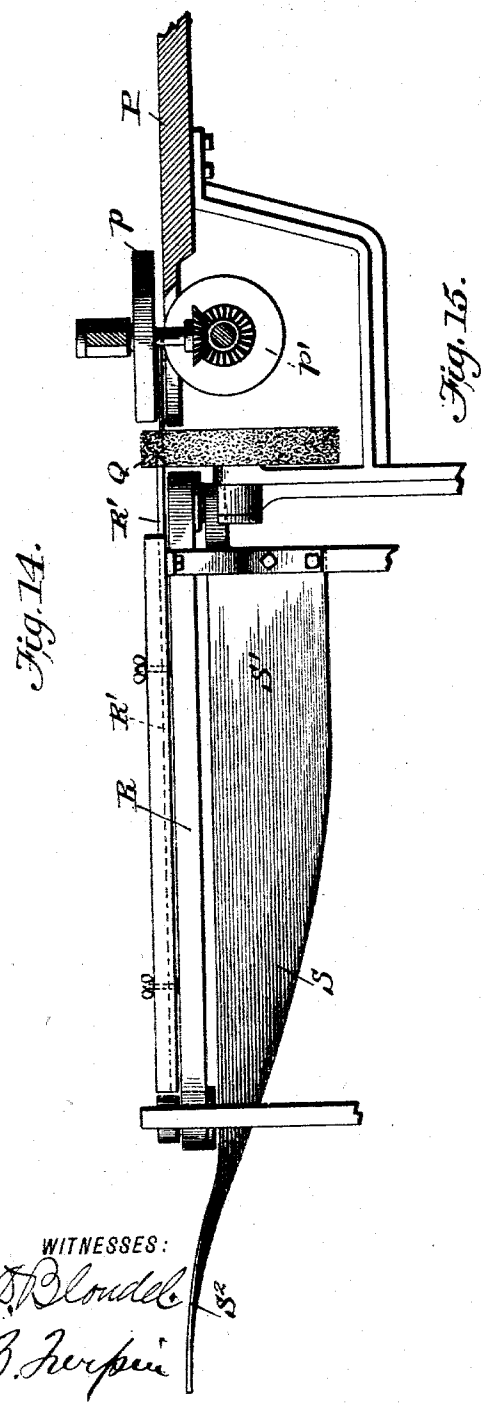


Fig. 14.

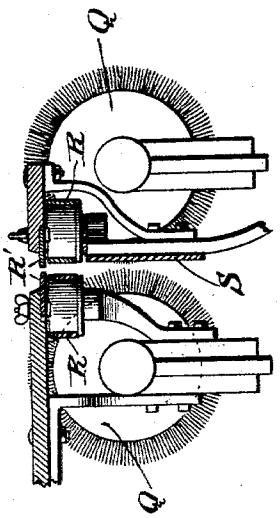


Fig. 15.

WITNESSES:

W. A. Blondel

P. B. Serpin

INVENTOR

M. C. Baughan.

BY Munn & Co.

ATTORNEYS.

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

UNITED STATES PATENT OFFICE.

MILTON C. BAUGHAN, OF RICHMOND, VIRGINIA, ASSIGNOR TO THE BAUGHAN TOBACCO STEMMING MACHINE COMPANY, OF SAME PLACE.

TOBACCO-STEMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 589,685, dated September 7, 1897.

Application filed November 7, 1896. Serial No. 611,312. (No model.)

To all whom it may concern:

Be it known that I, MILTON C. BAUGHAN, of Richmond, in the county of Henrico and State of Virginia, have invented a new and useful Improvement in Tobacco-Stemming Machines, of which the following is a specification.

My invention is a machine for removing stems from tobacco-leaves; and it consists in certain novel constructions and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In carrying out my invention I have had in view the provision of mechanism especially designed to handle tobacco from the point or tip end of the leaf, thus following the plan adopted in stemming tobacco by hand. I thereby follow nature's law rather than oppose it, as is the case where the stems are stemmed from the butt-end of the leaf toward the point.

By my improved machine I provide devices for effectually removing the stem, whether such stem be intact and unbroken from end to end or broken or cracked in one or more places.

In the drawings, Figure 1 is a top plan view, and Fig. 2 is a side view, of my machine. Fig. 3 is a side view of the stemming device. Fig. 4 is a plan view of the same. Fig. 5 is a detail section on about line 5 5 of Fig. 3. Fig. 6 is a section on about line 6 6 of Fig. 3. Fig. 7 is a view of the feed end of the stemming device. Fig. 8 is a section on about line 8 8, Fig. 3. Fig. 9 is a detail plan view of the folding mechanism. Fig. 10 is a side view, part in section, of the folding mechanism. Fig. 11 is a section on about line 11 11 of Fig. 9. Fig. 12 is a section on about line 12 12 of Fig. 10. Fig. 13 is a section on about line 13 13 of Fig. 9, and Figs. 14 and 15 are detail views showing means for preventing the stem from being carried down between the belts.

In the construction shown the invention is carried out by arranging the stemming devices in pairs, providing two main or upright frames A A; but manifestly the invention may be carried out in single sets of devices, or they may be duplicated to a further extent if it be desired to increase the capacity. The two frame or pair arrangement is, however, preferred, because thereby I arrange the stemming, infeeding, and leaf-discharging devices so they are unobstructed at their outer sides, as will more fully appear hereinafter, and I connect the frames A A by a cross-yoke B, fixed to said frames and having at its ends depending lugs or portions B′, having box-guides *b′*, corresponding with the box-guides *b* in the frames A. This yoke B is arranged over the lower stem-feeding pulley D, while a yoke C, having guide-lugs C′, connects the frames A, near the front ends of the said frames.

As the folding, stemming, feeding, and discharging devices are alike on both sides of the machine the description of one set will answer for both or all.

The machine includes a lower stem-feeding pulley D, a rear guide-pulley E, infeeding-belts F and G, a stem-discharger consisting of a stem-guide H and a belt I, a cutter J, and a spring K for keeping the stem in position against guide-plates L and M, together with the folding devices presently described.

The upper and lower belts F and G pass at their rear ends around respectively the lower stem-feeding pulley D and the pulley E and at their front ends around the pulleys F′ and G′. Between the pulleys F′ and G′ the belts F and G move in close relation to each other and practically in contact until they reach a point in rear of the crown of the lower stem-feeding pulley D, when the belt F passes off to the pulley E. This pulley E is mounted in bearings which may be adjusted by a screw E′, and is arranged with its lower surface below the crown of the lower stem-feeding pulley D. The upper pulley F′ is mounted in adjustable and spring-pressed boxes, so it can yield when necessary, and supporting-pulleys *g* and a tightening-pulley *g′* may be arranged within the belt G, as shown.

The lower stem-feeding pulley D is journaled to the frame A and projects laterally therefrom, as shown. This pulley has a band-face D′ at its outer end, a circumferential groove D^2 at the inner edge of said band-face, and a feeding face or portion D^3 between the said groove and the frame A. This feeding-face is preferably milled, as shown, or otherwise suitably roughened to give it a hold upon the stem of the leaf and aid in pulling and in

feeding such stem to the stem-guide in the operation of the device.

Above the main lower stem-feeding pulley D and in line with the feeding-face D^3 thereof I provide an upper stem-feeding wheel I', journaled in yielding bearings and receiving the stem-discharging belt I, which leads at its lower run upwardly and rearwardly from the wheel I' and passes around a guide-pulley I^2, which may be adjusted by means of a screw i^2.

In rear of the stemming-pulley I provide the stem-guide H and the cutter J, both of which may be held to the frame A by the same fastening-bolts, as shown. The cutter J is in the form of a blade having its point J' running in the groove of the lower stem-feeding pulley and extending to about the crown of said pulley, as shown. At its upper rear edge the cutter J extends at J^2 between the infeed-belt F and the stem-discharging belt and guards against such belts coming in contact with each other.

It should be understood that the infeeding-belts F and G do not press upon the stem of the leaf, but work to one side of it on the folded leaf, also that the lower stem-feeding pulley D and the wheel I', having the stem-feeding belt I, constitute the stem-feeding device.

The stem-guide H consists of a casting or frame H', having its upper plane surface at H^3 arranged parallel to and in close proximity to the surface of the stem-discharging belt, and the pulleys H^3, of which I may use one, two, or more, as desired, suitably journaled and arranged to protrude slightly above the plane surface of the frame H'. At its point H^4 the frame H' extends close to the stem-feeding pulley in position to receive the stem when cut from the leaf. In advance of the stem-feeding devices I arrange the spring K, located between the infeeding-belts and the frame A, secured at one end to the frame A and arranged at its free end to press the stem over against guide-plates L and M in position to be cut by the knife operating in the groove of the stem-feeding pulley D, where it can be acted on by the knife or cutter.

It will be noticed that the belts F and G do not run against the frame, but a space is left between such belts and the frame A for the stem of the leaf, and to hold such stem and prevent its being drawn wholly or partially between the infeeding-belts F and G, I provide the gage-plates L and M, arranged alongside the inner edges of the infeeding-belts, and preferably one above and the other below the same, as shown. I also prefer to make one of the gage-plates, preferably the upper one, as shown, adjustable up and down, which may be accomplished by passing its fastening-screws through slots *m*.

The lower stem-feeding pulley D and the pulley I' may be geared together by means of the intermediate gears N and O, meshed with each other and with gears on their respective pulleys, and a similar form of gearing may be employed to connect the pulleys supporting the infeed ends of the belts F and G.

In the operation of so much of my invention as has been described the folded leaf when delivered to the belts F and G will be carried thereby to the stem-feeding devices, being held during such passage with its leaf portion between the belts F and G and its stem portion held by the gage-plates between such plates and the adjacent frame A. It should be stated that in so supplying the leaf it is fed tip end foremost. As the leaf approaches the stem-feeding devices its stem is engaged by the free end of the spring K, which serves to keep such stem in position against gage-plates L and M, to be acted on by the knife operating in the groove of the lower stem-feeding pulley D, where it will be severed from the leaf by the cutter J when it reaches such cutter. The cut stem will then be carried by the milled surface of the lower stem-feeding pulley and the stem-discharging belt to the stem-guide, and will then be carried upward between such guide and the stem-discharging belt until it is discharged at the top of the stem-guide. As the stem is thus carried upward the leaf from which it has been stemmed will be carried downward by the belts F and G and discharged between the lower stem-feeding pulley and the rear guide-pulley for the belt F. Thus, as in the hand operation, the stem is drawn in one direction and the leaf in the other and the stemming of the leaf is effected in a thorough manner without injury to the leaf, which is held at all times during the stemming operation, and until the stem is entirely removed, between the belts F and G.

It will be understood from the foregoing that the knife need only clip the stem, the removal of such stem being effected by the movement of the stem and leaf, one up and the other down.

It will be noticed that the infeeding devices, the stemming devices, and the stem-discharging devices are supported at one end by the framing A and are unobstructed at their opposite or outer ends, and this is an important feature, because, in addition to rendering the machine simple in construction and easy of access to all of its parts, it avoids any contact of the moving parts with the free edges of the folded leaf during the stemming operation, and thus prevents any injury to the leaf and permits the feeding to the machine of leaves of any size, whether large or small.

In supplying the folded leaf to the infeed-belts it is preferred to employ mechanism by which to fold the leaf longitudinally and to direct it properly to such belts, and in the construction shown I have illustrated the preferred folding and delivering devices, which include a table or support P, to which are journaled rollers *p* and *p'*, which feed a spread leaf forward to a pair of reversely-rotating brushes Q, which brush the sides of the leaf downward on opposite sides of the stem or

center, folding the leaf upon itself, and it is fed as so folded between two belts R, the stem lying above such belts and the leaf-sections depending between the belts in position to move alongside a deflector-plate S, which is twisted from a plane approximately vertical at S' to a horizontal plane at S^2, so it will turn the leaf to a horizontal position when it leaves the belts R. I extend the plate S slightly beyond the delivery ends of the belts R and preferably arrange it to deliver the leaf horizontally to the infeeding-bands F and G of the stemming-machine.

To prevent the stem from being carried down between the belts R, I provide means which may, as shown in Figs. 14 and 15, consist of the gage-plates R', located over the belts R, and extended at their front ends forward to a point immediately below the meeting points of the opposite wheels *p p*. In supplying the leaf it is placed with its stem above and its lateral leaf portion below the gage-plates and is fed in such manner to the brushes, which carry the leaf portions on opposite sides of the stem downward and deliver it between the belts R. It will also be seen that in such operation the tip end of the leaf will also be carried down between the belts, and the leaf will be so carried between such belts R and the belts F and G, as it is desired to present the stem to the severing-cutter not at the point but at a short distance back from the point.

By the described construction I provide mechanism whereby the spread leaf is folded, carried when so folded forward, turned at right angles to bring it into alinement with the belts of the infeeding devices, and is then stemmed in a manner closely resembling the operation now practiced by hand.

The folding devices may be geared in any suitable manner with any moving part of the stemming devices before described.

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

1. A tobacco-stemming machine comprising the infeed-pulleys, the infeed-bands moving upon such pulleys in close relation to each other whereby to feed the folded leaves to the stem-feeding devices, the gages alongside said bands whereby to prevent the stem from entering between the bands, means for severing the stem from the leaf, and the stem-feeding devices substantially as shown and described.

2. A tobacco-stemming machine comprising the infeed devices means for severing the stem from the folded leaf and the stem-feeding devices comprising a pulley having a surface to receive the stem and a moving part coöperating with said surface of the pulley, and adapted to feed the stem positively substantially as shown and described.

3. A tobacco-stemming machine, comprising the lower stem-feeding pulley, the stem-feeding wheel, a guide-pulley arranged in rear of the said pulley and having its lower face arranged below the crown thereof, the upper and lower guide-pulleys in advance of the said pulley, means for severing the stem from the leaf and the upper and lower infeed-belts, the upper belt being passed at its rear end around the said rear guide-pulley, substantially as described.

4. In a tobacco-stemming machine, the combination with the infeed-belts by which the leaves are fed folded, and the pulleys around which they pass, of the gage-plates arranged alongside said belts extended longitudinally in the direction of length of said belts and adjacent to the contacting surfaces thereof, substantially as shown and described.

5. In a tobacco-stemming machine, the combination of the infeed-belts by which the leaves are fed folded, and the gage-plates arranged alongside the same extended longitudinally in the direction of length of said belts and adjacent to the contacting surfaces thereof, one of such gage-plates being adjustable, substantially as shown and described.

6. In a tobacco-stemming machine, the combination of the stem-feeding pulley, the stem-feeding wheel, the front guide-pulleys, the rear guide-pulley arranged with its lower side below the crown of the stem-feeding pulley, the stem-discharging belt, the infeed-belts, the upper one being passed at its rear end around the rear guide-pulley, means for severing the stem and the gage-plates extended longitudinally alongside the infeed-belts, one of the gage-plates being adjustable, substantially as shown and described.

7. In a tobacco-stemming machine, a stemming-pulley having its periphery divided into a belt-receiving portion, and a milled feed portion arranged side by side, substantially as shown and described.

8. The combination with the stem-feeding pulley, the stem-feeding wheel, the cutter and the infeed devices by which the leaf is fed folded, of the stem-guide arranged in rear of the stemming devices, and the stem-discharging belt running upward in close proximity to the upper side of said stem-guide substantially as shown and described.

9. A tobacco-stemming machine, comprising the frame, the infeed-belts arranged alongside said frame and unobstructed at their outer edges, and adapted to receive between them a leaf which has been folded along the stem, a space being provided between the inner edges of said belts and the frame for the passage of the stem, and the stemming devices, substantially as shown and described.

10. The combination in a tobacco-stemming machine, of the stem-feeding wheel, the stem-feeding pulley having a groove and a belt-surface, the infeed-belt running upon said pulley at one side of the groove, the cutter projecting into the said groove, and the spring whereby the stem is directed to said cutter substantially as shown and described.

11. In a tobacco-stemming machine, the

combination of the frame, the infeed-belts by which the leaf is fed folded, means for supporting the belts, the stem-feeding wheel and the stem-feeding pulley arranged alongside said frame and unobstructed at their outer edges, the upper and lower gage-plates extending alongside the inner edges of the infeed-belts, the spring arranged at the inner ends of said gage-plates and adjacent to the stemming-pulley and the stem-guide and stem-discharging belt arranged in rear of the stemming-pulley substantially as shown and described.

12. In a tobacco-stemming machine, the combination of the stem-feeding wheel, the stem-feeding pulley, the infeed-belts by which the leaf is fed folded, the upper one of which is carried in rear of the stemming-pulley, the stem-guide and stem-discharging belt arranged in rear of the stemming-pulley and the stem-cutter having its blade extended up between the upper infeed-belt and the stem-discharging belt substantially as shown and described.

13. In a tobacco-stemming machine, the combination of the frame, the stem-feeding pulley projecting laterally from said frame and unobstructed at its outer end the infeed-belts by which the leaf is fed folded, guide-pulleys for the front ends of said belts, the rear guide-pulley for the upper belt arranged in rear of and at its lower edge below the upper surface of the stem-feeding pulley, the cutter, the upper and lower gage-plates spaced apart and arranged alongside the inner edges of the infeed-belts, the stem-guide and the stem-discharging belt all substantially as shown and described.

14. The combination of the stem-feeding pulley having a belt-surface and alongside the same, a milled or roughened surface, the infeed-belts one of which runs on the said belt-surface such belts operating to feed the leaf folded, supports for the other infeed-belt, the stem-guide in rear of the stem-feeding pulley, the part coöperating with the said pulley in feeding the stem, the pulley G′, the stem-discharging belt and the pulleys for the said belt one of said pulleys being arranged adjacent to the milled or roughened surface of the stem-feeding pulley and means for severing the stem substantially as shown and described.

15. The combination of the frame, the stem-feeding pulley, the part coöperating therewith in feeding the stem and the pulleys for the front ends of the infeed-belts arranged alongside and supported from said frame and unobstructed at their outer ends, the infeed-belts by which to feed the leaf folded, the guide-pulley for the inner end of the upper belt said guide-pulley being arranged with its lower surface below the crown of the stemming-pulley, the upper and lower gage-plates arranged alongside the infeed-belts and between the same and the frame one of such plates being adjustable, the stem-guide arranged in rear of the stemming-pulley, the stem-discharging belt, the stem-cutter and the spring by which the stem is pressed to said cutter substantially as shown and described.

16. In a machine substantially as described, the combination of the stemming devices, the longitudinal infeed-belts for feeding the folded leaf to said stemming devices, the devices for folding the leaf, the upright belts leading from said folding devices to the infeed-belts and a deflecting-plate extending adjacent to said upright belts and arranged to turn the leaf to a horizontal position and deliver it to the horizontal infeed-belts substantially as shown and described.

17. In a tobacco-stemming machine, the combination with the stemming devices and the horizontal infeed-belts for directing the folded leaf thereto of the devices for folding the leaf the vertical belts extending from said folding devices nearly to the receiving ends of the horizontal infeeding-belts and the deflecting-plate having one end arranged adjacent to the said vertical belts and twisting gradually therefrom toward its opposite end and having the latter end arranged approximately horizontal and extending beyond the discharge end of the vertical belts and adjacent to the receiving ends of the horizontal infeeding-belts substantially as shown and described.

18. In a machine substantially as described, the combination with a table or support of the opposite brushes for folding the leaf and the belts arranged to receive the folded leaf when folded by said brushes and means beyond the brushes by which to support the middle or stem of the leaf between the folded portions substantially as shown and described.

19. In a machine substantially as described, the combination of a table or support, the folding brushes the rollers for feeding the leaf to said brushes, and the belts arranged to receive the folded leaf as it passes from the brushes and means beyond the brushes by which to support the middle or stem of the leaf between the folded portions substantially as shown and described.

20. The combination substantially as described of the table or support the leaf-folding brushes, the devices for feeding the leaf to said brushes, the belts arranged to receive the folded leaf as it passes from the brushes and the deflecting-plate twisting from a plane parallel with that of the said belts to one approximately at right angles thereto and means beyond the brushes by which to support the middle or stem of the leaf between the folded portions substantially as shown and described.

MILTON C. BAUGHAN.

Witnesses:
P. B. TURPIN,
SOLON C. KEMON.