

(No Model.)

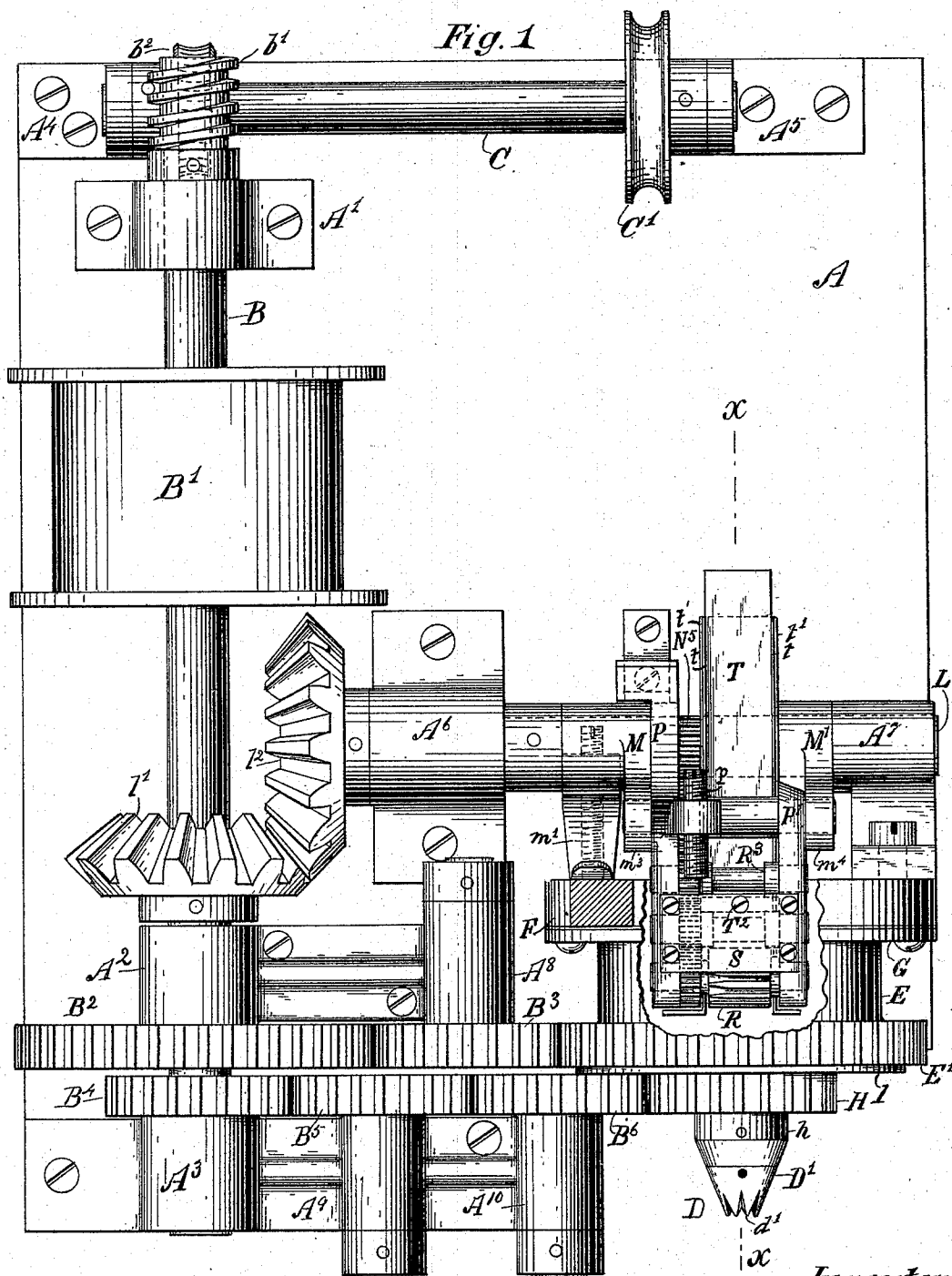
2 Sheets—Sheet 1.

S. REID.

TOBACCO STRIPPING OR STEMMING MACHINE.

No. 527,885.

Patented Oct. 23, 1894.



Witnesses
Geo. Wadman
Percy L. Wells.

Inventor
Samuel Reid
By Edwin H. Brown
His Attorney

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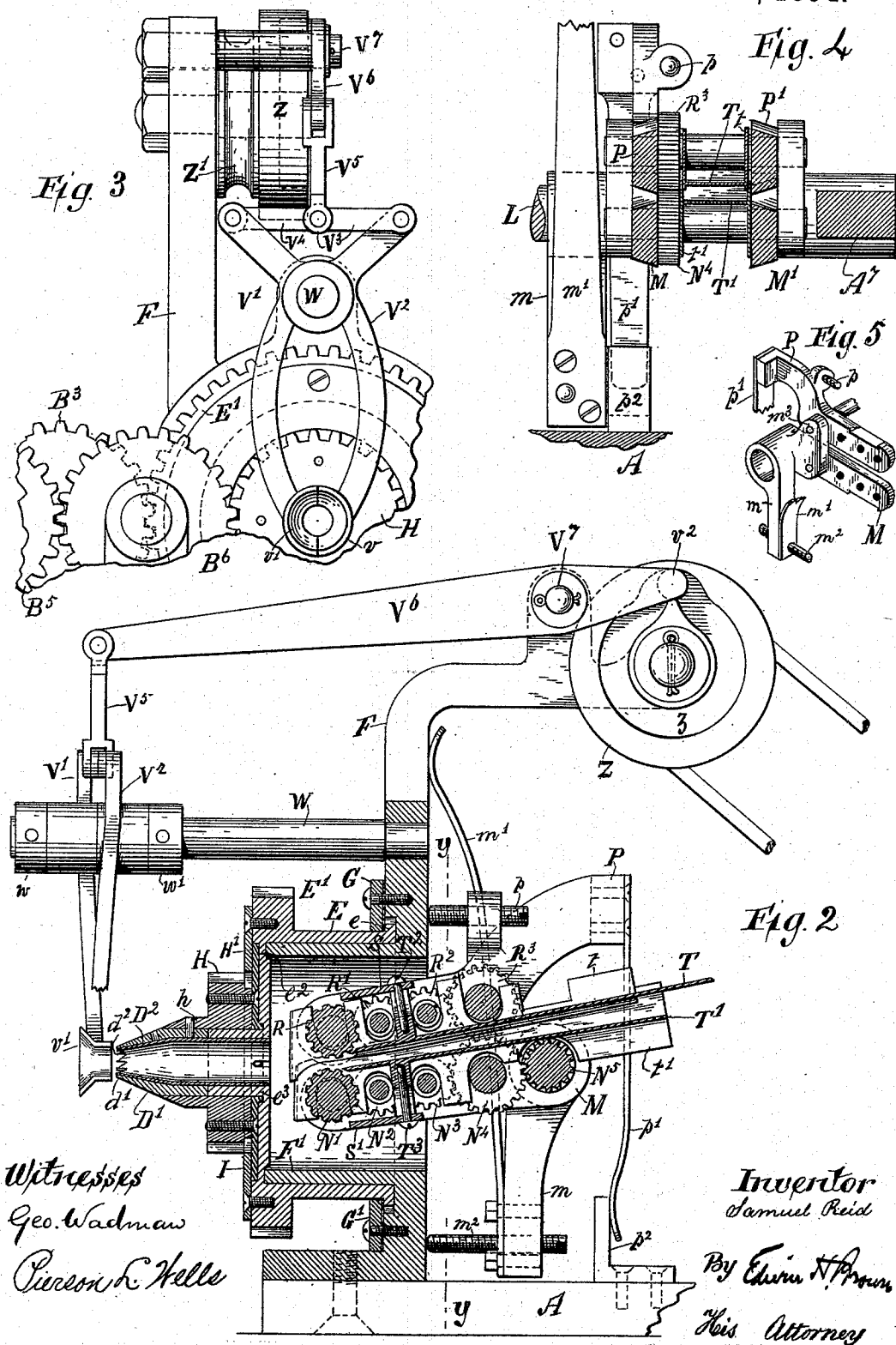
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UNITED STATES PATENT OFFICE.

SAMUEL REID, OF JERSEY CITY, NEW JERSEY, ASSIGNOR OF ONE-THIRD TO
EDWARD G. TREMAINE, OF BROOKLYN, NEW YORK.

TOBACCO STRIPPING OR STEMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 527,885, dated October 23, 1894.

Application filed July 3, 1894. Serial No. 516,425. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL REID, of Jersey City, Hudson county, and State of New Jersey, have invented a certain new and useful Improvement in Tobacco Stripping or Stemming Machines, of which the following is a specification.

I will describe a tobacco stripping or stemming machine embodying my improvement, and then point out the novel features in the claims.

In the accompanying drawings, Figure 1 is a plan view of a tobacco stripping or stemming machine embodying my improvement, certain parts being broken away to show underlying parts, while certain other portions are wholly omitted. Fig. 2 is a vertical section on the line $x-x$ of Fig. 1, showing also an elevation of certain portions omitted in Fig. 1. Fig. 3 is a front elevation of a pair of guides and their appurtenances comprised in the machine. Fig. 4 is a section on the line $y-y$ of Fig. 2. Fig. 5 is a perspective view on a reduced scale of a part comprised in the machine and shown in elevation in Fig. 2.

Similar letters of reference designate corresponding parts in all the figures.

Referring by letter to the drawings, A designates a bed piece or support of suitable design, which carries the various parts of the machine. It is here shown as being made in the form of a flat plate.

B designates a driving shaft supported in suitable bearings A^1 , A^2 , A^3 , secured to the bed piece A. A pulley B^1 secured to the shaft offers a convenient means for the rotation of the same.

An auxiliary shaft C is driven by worm b^1 secured to the shaft B through the medium of the worm wheel b^2 . The shaft C is supported in suitable bearings A^4 , A^5 , secured to the bed piece A, and carries the pulley C^1 .

D designates a cutter or knife for cutting or stripping the tobacco stem from the remaining portion of the leaf. As here shown it comprises two parts D^1 , D^2 . In form, parts D^1 , D^2 resemble short hollow cylinders or tubes terminated at one end by frustums of cones. The part D^2 is fitted to revolve within the part D^1 , the inner surface of the

outer extremity of the latter corresponding to the inclination of the terminating conic frustum of the part D^2 . The inner part D^2 may be prevented from slipping outward by abutting against the inclined inner surface of the part D^1 . When in this abutting position the outer terminating edges d^1 , d^2 of the parts D^1 , D^2 correspond with each other and are preferably serrated. As shown, the co-acting edges of the serrations may be sharpened to facilitate cutting. If the parts are now revolved relatively to each other, a cutting action between the serrated portions will ensue.

For the requisite relative motion between the parts D^1 , D^2 , the latter may be lengthened and secured to a hollow drum E.

E^1 is a spur wheel for rotating drum E. It may be made integral with the drum, its teeth being formed upon an outwardly extending flange of the latter, or it may be made from an independent piece and secured to the drum in any suitable manner.

F designates a standard secured at its lower portion to the bed piece A, and provided with a laterally extending tubular hub like portion or hollow drum F^1 . The drum E, is journaled to this tubular hub like portion F^1 and is provided at its inner extremity with a flange e which fits into a corresponding recess in the standard F immediately surrounding the hub like portion F^1 . Annular segmental pieces G, G^1 attached to standard F extend inwardly toward the drum E and beyond the outer circumference of the flange e , thus preventing longitudinal movement of the said drum E.

The radial face of the drum E is recessed at e^2 , in which recess the part H^1 is fitted to revolve. The part H^1 is shown as consisting of an annular disk and as being secured to a spur wheel H by screws. It may, however, be made integral with such spur wheel, consisting then of a flange extending from the same.

The spur wheel H is revolvably mounted upon a hollow hub e^3 extending from the radial face of the drum E. I represents an annular disk secured to the drum E and extending inwardly toward the spur wheel H and beyond the outer circumference of the

annular disk H'. The part D' may be secured to a tubular hub *h* extending outwardly from the front face of the spur wheel H.

The drum E is driven from the shaft B by spur wheel B² secured to the latter and the intermediate spur wheel B³ journaled in a suitable support A⁸. The gear teeth of the drum E mesh with the teeth of spur wheel B³. Spur wheel H is driven by the spur wheel B⁴ secured to shaft B and intermediate spur wheels B⁵, B⁶ suitably journaled in bearings A⁹, A¹⁰. It is thus seen that the drum E and spur wheel H rotate in opposite directions, and consequently the two parts D', D², of the cutter D move likewise in opposite directions. I do not wish to limit myself to this particular form of cutter, or to the method of driving them or to actual rotation of both of the parts D', D² of the cutter in opposite directions, as one of such parts may not so rotate or indeed may not rotate at all, and yet the device may permit of the same relative movement between the parts as is obtained by the construction described.

I do not wish to confine myself to the particular form of tubular shaped cutter described, but wish to include cutters of different constructions, of which the specific form described is a type in respect to its being a hollow cutter, or cutter acting upon a leaf introduced through a central aperture. For instance, such hollow cutters may be built up around a central aperture or opening by suitably disposing band saws, or disks with sharpened edges or analogous sharp edged pieces, to that end. Such cutters, whether of the form described or of built up construction, I shall designate by the name of hollow cutters.

A device for drawing the tobacco stems through the parts D', D² of the cutter is shown protruding into the tubular hub like portion F'.

L indicates a shaft deriving motion from the driving shaft B through bevel wheels L' L² and supported in suitable bearings A⁶, A⁷ attached to bed piece A. M, M' are arms fulcrumed to the shaft L. These arms constitute the supports for the journals of the lower drawing roll N' and intermediate driving train of spur wheels N², N³, N⁴. Motion is communicated to the train by the spur wheel N⁵, here shown as comprising spur teeth cut upon the shaft L.

To hold the arm M in position upon the shaft L upon which it is fulcrumed in a manner to permit it to be depressed at its outer extremity, it is shown as being provided with a depending arm *m* to which a spring tongue *m'* is secured. The free end of the spring tongue *m'* abuts against the upper portion of the standard F, while the depending arm *m* is provided with an adjustable stop *m*², here shown as consisting of a screw. This stop serves to limit the upward movement of the arms M and M' and to regulate the stress

upon the spring tongue *m'*. The pivoted arm M with its depending arm *m* and stop *m*² and spring tongue *m'*, is best shown in Fig. 5.

The arm M is provided with an offset projecting upward from the side of the arm in the form of a lug *m*³. This lug serves for the pivotal support of an arm P. Portions of the arm P are suitably designed to carry an adjustable stop *p* which may coact with the standard F, and also to carry a spring tongue *p'*. A bent piece *p*² serves as an abutting piece for the free end of the spring tongue *p'*. Similarly the arm M' is provided with an offset projecting upward from the side of the arm in the form of a lug *m*⁴, serving for the pivotal support of an arm P'.

The shaft of the upper drawing roll R is journaled in the arms P and P' near their outer extremities, and is driven through the intermediate train of spur wheels R', R² by spur wheel R³, which meshes with spur wheel N⁴, supported in the lower set of arms. The axis of spur wheel R³ coincides with the pivotal axis of the arms P, P'.

It will be seen from the manner of supporting the two sets of arms, and the arrangement of the two opposing sets of adjustable stops and spring tongues, that the two drawing rolls N', R at the extremities of the arms may be adjusted toward and away from each other, without interfering with the action of their driving gear, and yet when so adjusted, they are yieldingly held together.

By means of the adjustable stops, *m*² and *p*, the drawing rolls N' and R may be adjusted toward or away from each other to take up any wear that may reduce the diameter of the rolls, or to adjust the squeezing action on the tobacco stems to a degree necessary to draw them through the cutter. Any inequality which may occur in the thickness of the stems as they pass through the drawing rolls is readily allowed for by the spring tongues *m'* and *p'* which force the drawing rolls toward each other but allow the same to readily separate on the introduction of any abnormally large stem.

S is a cross piece or spreader uniting and securing the arms P and P' of the upper set, while S' is a similar piece for securing the arms M and M' of the lower set.

T is an upper guide plate and T' a lower guide plate forming a passage between them through which the tobacco stems are carried by the action of the drawing rolls.

Transverse side pieces *t* and *t'* are secured to the edges of the upper and lower guide plates to close the sides of the passage. These transverse side pieces preferably overlap each other at their adjacent edges for more effectually closing the sides of the passage, as shown in Fig. 2, while their opposite edges may be recessed for the passage of the shafts of the driving trains of spur wheels of the upper and lower rolls.

T², T³ are screws passing through the cross

pieces or spreaders, and engaging with lugs on the top and bottom guide plates to firmly secure the latter in place.

The transverse side pieces *t* and *t'* may protrude in front of the drawings rolls *N'*, *R* and be suitably bent to guide the stems to the rolls.

Referring now particularly to Figs. 2 and 3, there is shown a separable guide for more effectually directing the entering end or butts of the stems to the cutter. It comprises a pair of vibrating levers *V'*, *V''*, each extending above and below a shaft *W*, to which they are journaled intermediate of their extremities. Their lower extremities are provided with semi-circular grooved pieces *v*, *v'*, forming preferably when placed in conjunction a guiding tube *v*, *v'* having a bell shaped entrance. Collars, *w*, *w'* secured to shaft *W* prevent lengthwise movement of the arms along the shaft.

The upper ends of the vibrating levers are connected by links *V³*, *V⁴* and suspension rod *V⁵*, to one end of a double armed lever *V⁶*, fulcrumed to a convenient stud *V⁷* projecting from the standard *F*.

Z is a cam wheel whose radial face is provided with a suitable cam groove *z* for acting upon a stud *v²* projecting from the side face of the lever *V⁶*. The action of the cam is such that the vibrating arms *V'*, *V''* having approached and guided the leaf to the hollow cutter through the separate guiding tube *v*, *v'*, are then caused to swing outward before the leaves are drawn through the cutter by rolls *R*, *N'*.

Z' is a pulley rigid with the cam wheel *Z* and driven by a belt from the pulley *C'*.

The operation of the machine may be described as follows: The main shaft *B* having been set in motion, the two parts *D'*, *D²* of the cutter *D* are rotated by the gears *B²* and *B⁴* through the intermediate gearing in the manner already described. The tobacco leaf is now introduced into the cutter. To facilitate this introduction the separable guide and its appurtenances are so constructed and timed that the former is in a closed position. The bell shaped mouth of the guide effectually guides the leaf to and into the cutter and beyond to the drawing rolls, *N'* and *R*. These rolls now grasp the leaf and pull it through the cutter. When the rolls have grasped the leaf to draw the latter within the cutter, and just before the feather portion of the leaf is presented to the cutter, the guide separates sufficiently far to be entirely out of the way of the feather portion, thereby preventing any injury to the leaf by the guide. When the guide closes together again another leaf may be introduced. The drawing rolls now pass the leaf through the cutter by which the feather portion is separated from the rib portion of the leaf. The feather portions drop down in front of the cutter and may be received in a suitable receptacle while

the rib portions are carried out to the rear of the machine.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a tobacco stripping or stemming machine, the combination of a hollow knife or cutter for cutting or stripping the leaves from the stem and a device for passing the leaves through the cutter, substantially as specified. 75

2. In a tobacco stripping or stemming machine, the combination of a hollow knife or cutter for cutting or stripping the leaves from the stem, rolls for drawing the stems through the cutter, and an inclosed passage for leading the stems from said rolls, substantially as specified. 80

3. In a tobacco stripping or stemming machine, the combination of a hollow knife or cutter for cutting or stripping the leaves from the stem, adjustable rolls for drawing the stems through the cutter, and an inclosed passage for leading the stems from said rolls, substantially as specified. 85

4. In a tobacco stripping or stemming machine, the combination of a knife or cutter for cutting or stripping the leaves from the stem, adjustable rolls for drawing the stems through the cutter, said rolls being so supported that they are held yieldingly toward each other so that the distance between the rolls will accommodate itself to stems of varying thickness, substantially as specified. 95

5. In a cutter for a tobacco stripping or stemming machine, the combination of two tubes, one mounted within the other, one of said tubes having its extremity serrated, while the other tube is formed to coact with such serrations, and means for rotating such tubes relatively to each other, substantially as specified. 105

6. In a tobacco stripping or stemming machine, the combination with a standard, of a hollow stationary drum secured to said standard, a movable drum rotatably mounted upon said stationary drum and having gear teeth upon its periphery, a cutter secured to said movable drum, a spur wheel rotatably mounted upon said movable drum, a cutter secured to said spur wheel and coacting with said cutter secured to movable drum, and means for rotating said drum and said spur wheel relatively to each other, substantially as specified. 110 115

7. In a tobacco stripping or stemming machine, the combination with a standard, of a hollow stationary drum secured to said standard, a movable drum provided with spur teeth rotatably mounted upon said stationary drum, cutters carried by said movable drum, and drawing mechanism for drawing the stems through the cutter, substantially as specified. 120 125

8. In a tobacco stripping or stemming machine, the combination with a hollow knife or cutter, of a guide for directing the leaves to said knife or cutter, substantially as specified. 130

9. In a tobacco stripping or stemming machine, the combination with a hollow knife or cutter, of a guide for directing the leaves to said knife or cutter and means for adjusting
5 the guide into and out of position, substantially as specified.

In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

SAMUEL REID.

Witnesses:

E. D. CHRISTIAN,
JOHN N. HOETON.