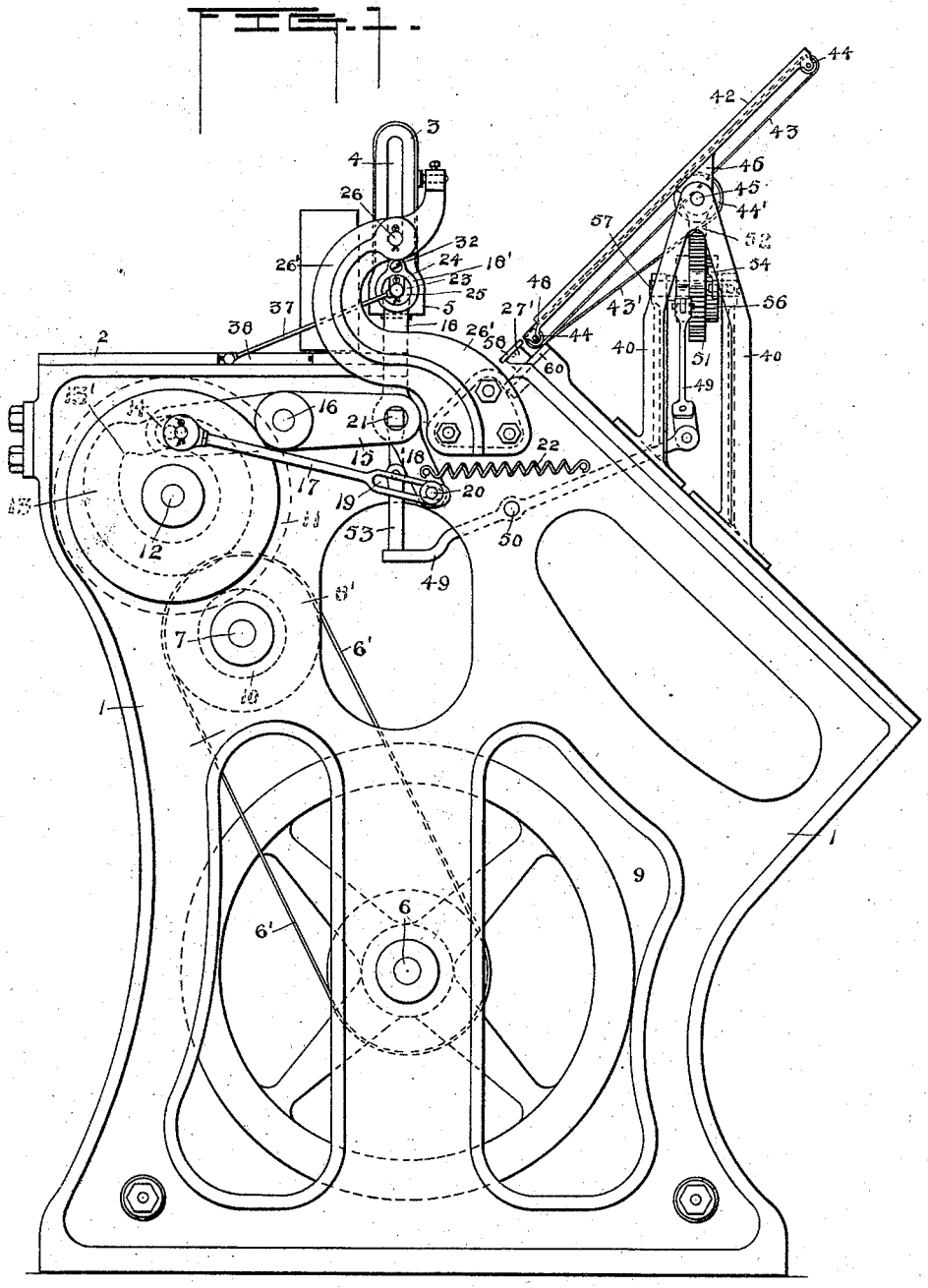
(No Model.) 4 Sheets—Sheet 1.

D. J. BURR.

MACHINE FOR MAKING AND AFFIXING TAGS TO TOBACCO.

No. 526,375. Patented Sept. 25, 1894.



Witnesses
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(No Model.) 4 Sheets—Sheet 2.

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FIG. 2.

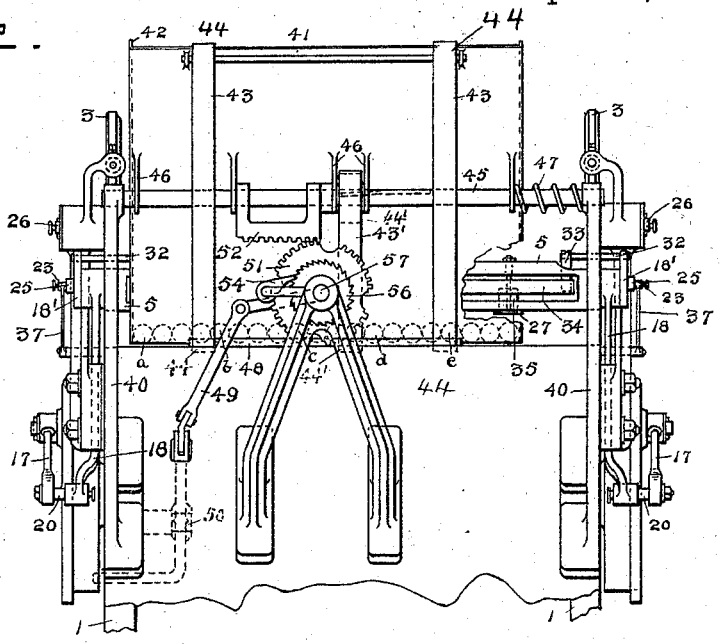

FIG. 3.

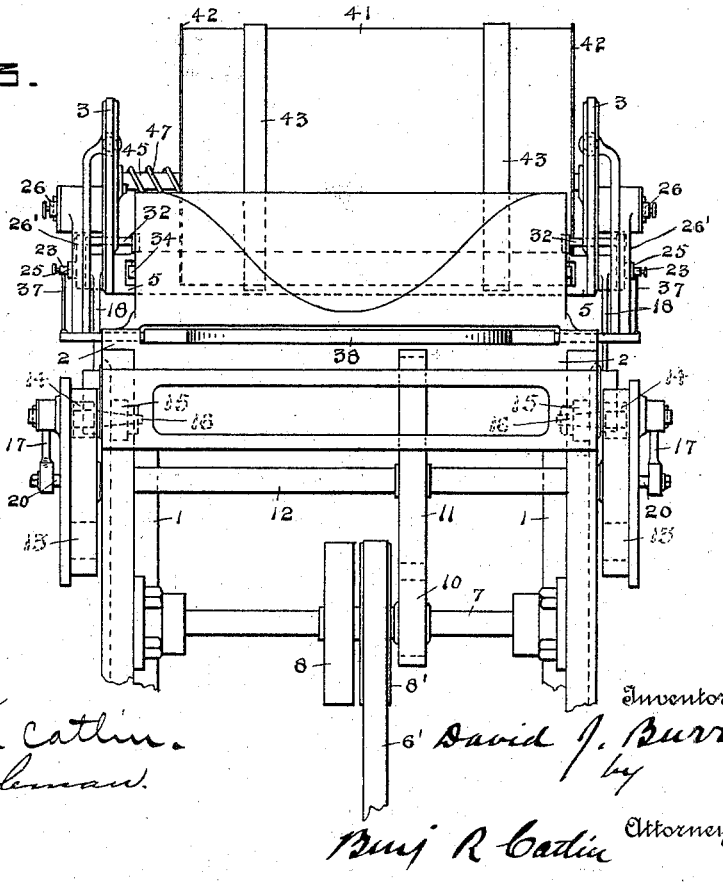

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FIG. 4.

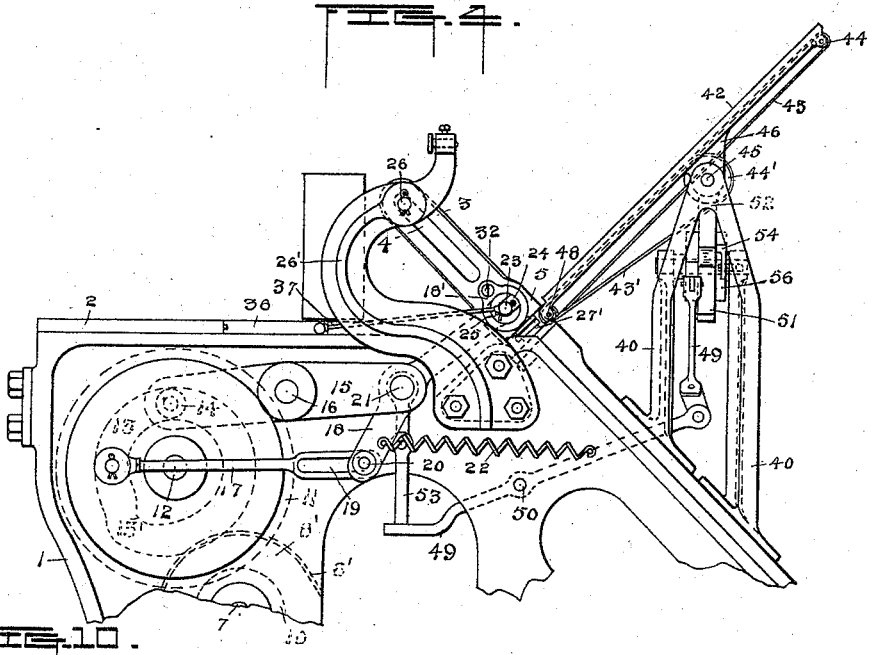

FIG. 10.

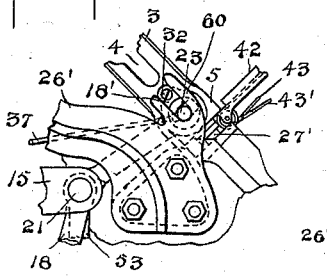

FIG. 5.

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FIG. 6.

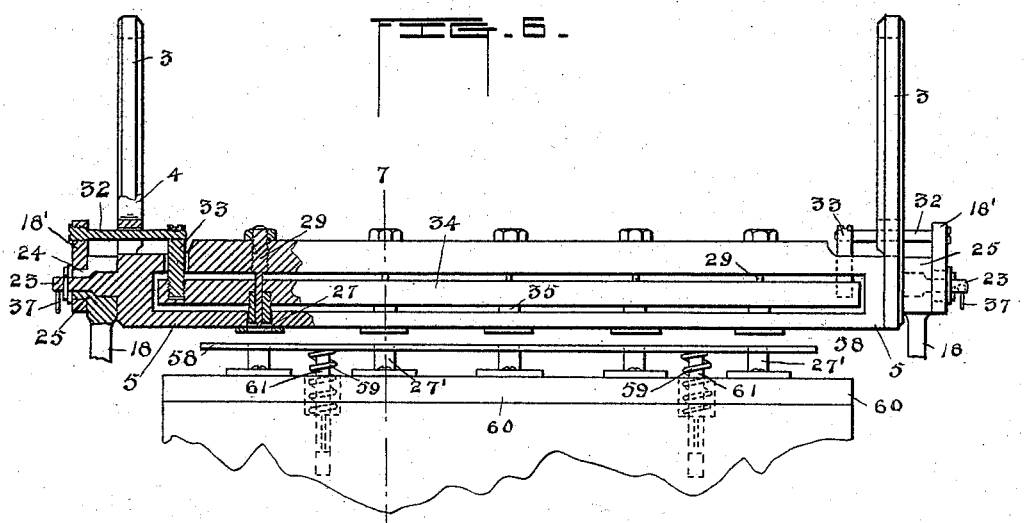


FIG. 7.

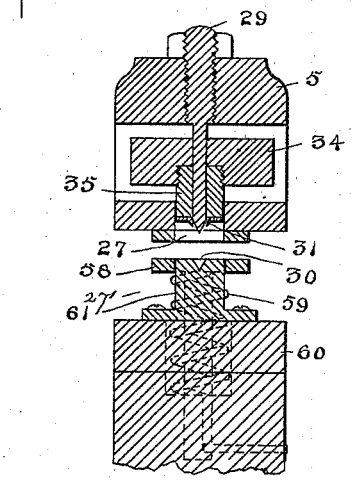


FIG. 8.

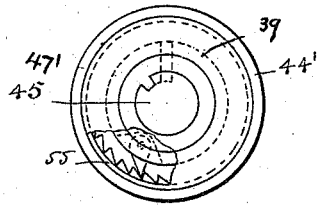
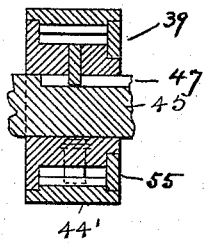


FIG. 9.



Witnesses
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UNITED STATES PATENT OFFICE.

DAVID J. BURR, OF RICHMOND, VIRGINIA, ASSIGNOR OF ONE-HALF TO LEWIS H. LIGHTFOOT, OF SAME PLACE.

MACHINE FOR MAKING AND AFFIXING TAGS TO TOBACCO.

SPECIFICATION forming part of Letters Patent No. 526,375, dated September 25, 1894.

Application filed January 26, 1894. Serial No. 498,099. (No model.)

To all whom it may concern:

Be it known that I, DAVID J. BURR, a resident of Richmond, in the county of Henrico and State of Virginia, have invented certain new and useful Improvements in Machines for Making Tags and Affixing Them to Tobacco; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

The invention relates to machines for forming and affixing tags and has for its object to increase the certainty of action and efficiency of mechanism which shall be adapted to automatically stamp or cut out tags from sheet metal and convey them to and fix them upon tobacco plugs; and it consists in the construction hereinafter described and particularly pointed out.

In the accompanying drawings Figure 1 is an elevation of the right hand side of the machine with reference to the position of the operator. Fig. 2 is a rear elevation partly broken. Fig. 3 is a partial front elevation. Figs. 4 and 5 are partial side elevations showing different operative positions of parts. Fig. 6 is a side elevation partly in section of the dies and connected parts on an enlarged scale. Fig. 7 is an enlarged section on line 7—7 of Fig. 6. Fig. 8 is an end view of a pulley for moving a sheet of tag making material; and Fig. 9 is a central section of the same. Fig. 10 is a partial side elevation of a detail.

The machine comprises a tobacco supporting table, plug feeding devices, tag affixing devices, mechanism for cutting out tags from a sheet or from strips of metal or other material and means for conveying them from the point of production to the tobacco plugs to which they are affixed.

Numeral 1 denotes the main frame and 2 a table adapted to hold tobacco plugs under a tag and die carrier, comprising two posts 3 having slots 4 the feet of said posts being joined by a cross bar 5. (See Figs. 2, 3, and 6.)

The driving shaft is denoted by 6, a driving belt or the like by 6′, a parallel shaft by 7 and fast and loose pulleys on the latter by 8 and 8′ respectively.

9 indicates a fly wheel.

10 is a pinion on shaft 7 which drives wheel 11 fast on shaft 12 which like the other shafts named has its bearings in the frame. On each end of said shaft 12 and outside the frame is a cam wheel having a groove 13 on its inner face adapted to receive a roller 14 pivotally fixed upon a lever 15 having a fulcrum 16 fixed to the frame the cam being adapted to move the lever as will be described.

To the outer face of the cam wheel is pivoted eccentrically the rod or bar 17 which is loosely connected to a lever 18 by means of a slot 19 which receives a stud 20 fast on said lever, which lever at 21 is pivotally connected to lever 15 and supported by it.

22 is a spring to return lever 18 to the position indicated in Fig. 1 after the end of said lever has been thrown to the rear by the pull of the rod 17 exerted on its opposite end. It will be understood that there is a cam wheel, lever 15 bar 17, lever 18 and spring 22 on each side of the machine.

The tag carrying frame is pivotally supported by the studs 23 resting in the slots 24 formed in the heads or hubs 25 at the upper ends of the levers 18.

26 denotes a stud fixed in the frame-supported post 26′ and extending into the slot 4 in post 3 one on each side of the machine.

The posts of the tag carrier with the parts fixed to them are permitted to move freely up and down under the influence of levers 15 the studs 26 sliding in slots 4 which studs however act as movable pivots or fulcrum guides when the tag carrier and its posts and connected parts are tilted by means of the levers 18 which are turned about their fulcrums by the eccentric rods or bars 17 as indicated in Fig. 4.

By the revolution of the cams in the direction of the arrow and by the medium of the bars 17 and other devices just described, the tag-die carrier with a female die 27 is moved over a male die 27′ and forced down upon the same to cut tags from sheets of tin suitably placed for the purpose. See Figs. 4 and

10. By the same means the tag-die carrier is moved back to the position represented in Fig. 1 and thereupon by the continued revolution of the cam the part 13′ of the cam groove is made to raise the proximate end of lever 15 with the effect to depress an independently movable clearing bar 34 supported in the tag-die carrier and affix the tags carried thereby to tobacco suitably supplied in any convenient manner.

Referring to Figs. 2 and 6, 5 denotes the cross bar connecting posts 3 which bar is made to support punches 29 and the female dies 27 detachably fastened to its under side. 27′ denotes the male dies five of each kind being indicated in the present case, though any desired number can be used. 30 is a recess in the male die to receive the point of a punch which is fixed to the upper head of the tag carrier, passing therethrough and ending flush with the face of the female die at its center. As the upper die is forced down upon and over the lower one, the tin interposed between them is cut and the punch forced through the tag thus produced forming a fastening burr 31 as indicated in Fig. 7. The operation of forming the tag forces it into the upper die so that it is carried therewith and lowered near the tobacco on the table by the operation above described. At such times the tag is pushed out of the die and its burr forced into the tobacco by the above described operation of levers 15 caused by the cam elevation 13′ which has the effect to force down the levers 18 to which are attached the rings 18′ which levers can descend independently toward the studs or journals 23. To said rings are fixed by screws 32, and 32′ which constitute bent arms and carry between their opposite ends a movable clearing bar 34 having fixed to its bottom the tag clearers or pushers 35 working through the female dies.

It will be understood that the tag carrier rests loosely by means of pins 23 in the open slots 24 of the heads 25 of levers 18 and by its gravity follows said levers when pulled down by levers 15 until the female dies fixed in said carrier rest upon the tobacco, whereupon the continued descent of said levers 18 pulls down the rings 18′ and the bent levers composed of screws 32 and 33 which pull down the clearing bar, the slots 24 in the heads 25 permitting this movement of said bar to be made independently of the female die carrier. The above described pulling down of the clearing bar and its tag clearers 35 pushes the tags out of the dies and fixes them to the tobacco.

37 denote rods pivotally connected to the studs 23 and to a pushing plate 38 whereby a tobacco plug is automatically pushed from the bottom of a pile held in a suitable receptacle and moved under the tag carrier thereby pushing back the previously tagged plug onto an inclined plane or other device for receiving or bearing it away. Any suitable means may be employed for this latter purpose and also for separately disposing of waste tin.

Sheets of tin are suitably held and moved over the lower dies by the following described mechanism. Supported upon the frame and posts 40 and sidewise movable on a shaft 45 is a tin holding inclined plate 41 having side flanges 42 to guide the tin sheets.

43 are sheet-supporting belts surrounding the plate 41 as represented and movable over pulleys 44 said pulleys being supported by the plate, which plate has a loose connection on its under side, by means of the brackets 46, with the shaft 45 supported in and between the upper ends of posts 40. The plate is moved endwise on the shaft 45 by the spring 47 after it has been compressed between a post 40 and a plate bracket 46.

47′ (see Figs. 2 and 8) denotes a spiral groove in the shaft which receives a pin 39 fixed on the inner section of a two part pulley 44′. These devices have the effect to partially rotate the shaft when the plate is moved endwise by the spring. This partial rotation moves a belt 43′ by means of the pulley 44′ on said shaft and the belt 43′ correspondingly moves a pulley 44″ fast on a shaft 48 which latter shaft has fixed thereon pulleys 44 which move the tin carrying belts 43. The groove 47 is so formed and proportioned that it will cause pulley 44 to revolve just sufficiently to move the belts and the sheet of tin the distance of the diameter of a tag.

55 denotes a holding pawl engaging a rack, the pawl being pivoted to the inner part of the pulley and the rack situated on the outer surrounding part whereby it is effected that the whole pulley is moved by the return of the plate and that the movement of the plate to the right does not move the exterior part of the pulley nor operate belt 43′.

The dotted circles at *a*, *b*, *c*, *d* and *e* in Fig. 2 indicate groups of tags to be formed which will of course appear as holes after the tags are cut. One tag in each group, beginning at the left hand in said figure, will be first cut in one operation whereupon the tin supporting plate and the sheet suitably held thereon will be moved to the right a distance equal to the diameter of a tag whereupon a new series of tags consisting of the second in each group will be cut by a repetition of the cutting operation before described.

The tin supporting plate is moved to the right by the medium of a jointed lever 49 having a fixed fulcrum at 50 and an end fixed to the hub of the mutilated gear wheel 51 which wheel is supported to turn in brackets as shown.

52 is a rack movably held on shaft 45 between brackets 46 fixed to the plate 41 and adapted to be moved by the mutilated gear the plate being also thereby moved and the returning spring 47 compressed. The said spring acts to return the plate as soon as rack

52 is relieved from the mutilated gear wheel whereupon by the continued revolution of said gear the rack is engaged with another section of the wheel in readiness for repeating the operation.

The gear wheel and its driving lever are automatically operated by the tag-affixing mechanism through the medium of the upper arm of lever 18 and a jointed bar 53 loosely connected to lever 15 at or near its junction with said lever 18. The foot of said bar bears upon the free end of the jointed lever 49 in manner to suitably move the arms to turn the gear wheel 51.

54 is a holding pawl which engages a ratchet wheel 56 fixed on the shaft 57 of the gear wheel.

Referring to Fig. 6 numeral 58 indicates a strip or bar provided with holes for the free passage of the male dies which latter are solidly supported on a plate 60 made fast to the machine frame. It is normally supported in or near the plane of the face of said dies by springs 59 surrounding the guide pins 61 entering suitable holes in the die carrier. When the upper dies are forced down over the lower ones the plate 58, see Fig. 7, is depressed and the spring 59 is compressed. Upon the retreat of the upper dies the springs raise the plate and clear waste tin liable to adhere to the lower dies. The tin supporting plate is slightly tilted on its shaft 45 by the stamping operation, and is returned on the retreat of the die carrier by gravity its upper end being made heavy for the purpose or springs may be applied. The springs 59 in the operation described will raise the tin sheet and thus tend to return the plate on which it is held.

It is obvious, although for convenience the terms upper and lower dies are used herein, that the tag holding or tag transporting function of the female die is independent of the particular arrangement illustrated. It is also obvious that tags of various forms may be cut without departing from the invention and that details of the machine may be varied provided the mechanical and operative principles of the invention are substantially preserved.

Referring to Fig. 10 of the drawings 60 denotes a guide for a stud 23, one on each side of the machine if desired. The guide may, however, in some cases be dispensed with and is not when used necessarily forked as represented.

In an application filed October 13, 1893, and serially numbered 488,132, I have described combinations comprising a tag magazine, a carrier with magnets and punches, and mechanism for moving the carrier between the magazine and a tag supporting table, and devices for punching the tags and affixing them to tobacco, the carrier and punches and mechanism for operating them being similar to those described but not specifically claimed herein.

Having thus described my invention, what I claim is—

1. In a machine for tagging tobacco, a tag carrier having a hollow die to cut and hold the tag by friction on its interior surface, and means for moving the carrier to a position to affix the tags, combined with a male die, a punch to punch the tag in the die, devices to operate the punch within said die, and devices to operate the dies, substantially as set forth.

2. In a machine for tagging tobacco, a tag carrier having a hollow die to cut and hold the tag by friction on its interior surface, and means for moving the carrier from the tag receiving to the tag affixing positions, combined with a male die, a punch to punch the tag in the hollow die, mechanism for operating the dies and punch, and separate devices to push the tag out of said hollow die and simultaneously affix it to tobacco, substantially as set forth.

3. In a machine for tagging tobacco the combination of a female die to cut and hold a tag, a male die, mechanism to push a tag out of the female die and simultaneously affix it to tobacco, devices for moving sheet metal between the dies and mechanism for operating said dies, substantially as set forth.

4. In a machine for tagging tobacco the combination of the dies, the metal-sheet supporting plate, the sheet-moving belts, the shaft supporting the plate and having a spiral groove, the returning spring, the driving belt, and its pulley provided with a pin engaged in said groove whereby the plate is returned and the metal sheet transversely moved, substantially as set forth.

5. In a machine for tagging tobacco the combination of mechanism for cutting tags, mechanism for affixing them to tobacco and means for suitably moving metal sheets automatically operated by the tag affixing mechanism, substantially as set forth.

6. In a tobacco tagging machine the combination with the mechanism for affixing tags to tobacco and the mechanism for cutting tags, of the intermediate devices comprising a jointed lever, a bar operated by the tag affixing mechanism, the rack and gear operated by said lever, and a support for a metal sheet moved by said rack, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

DAVID J. BURR.

Witnesses:
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PERCY MONTAGUE.