J. P. CROWLEY.

MEASURING MACHINE FOR TOBACCO, &c.

APPLICATION FILED JULY 15, 1912.

1,052,654.

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Fig. 1.

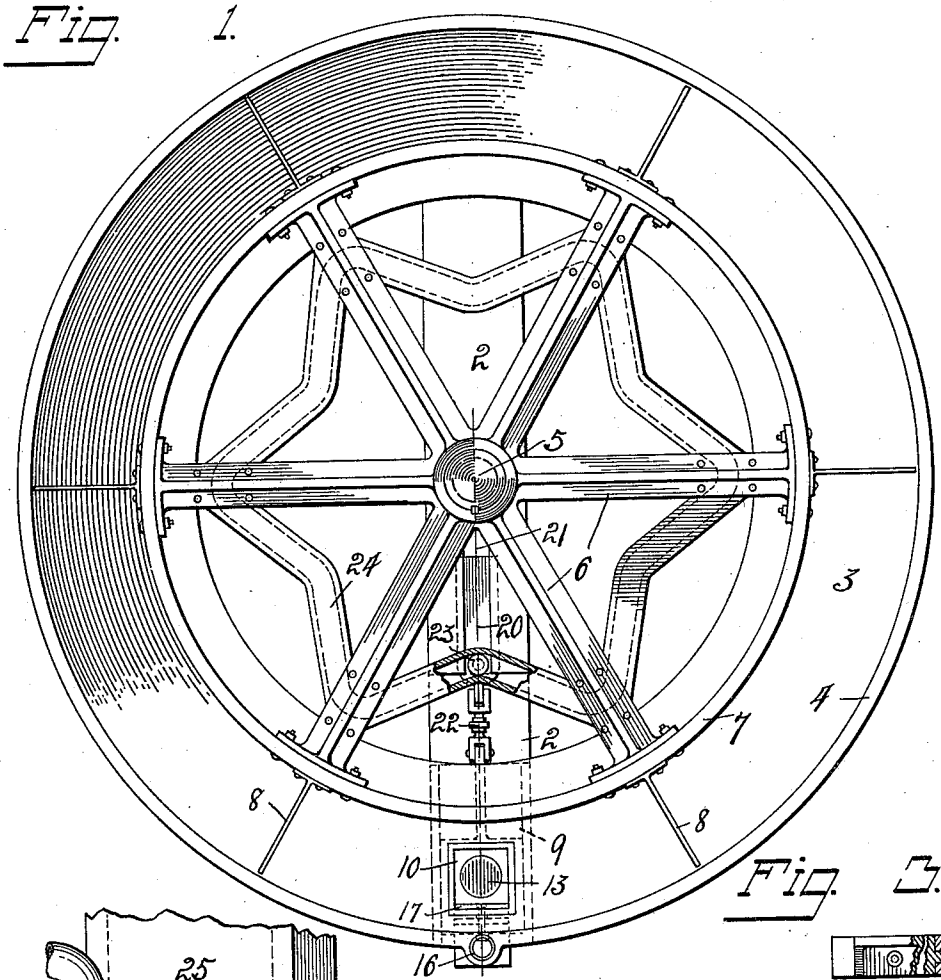
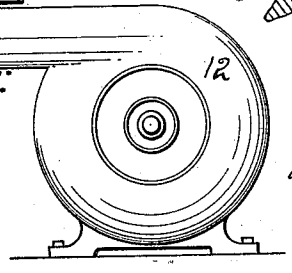


Fig. 3.

Fig. 2.



WITNESSES:

C. H. Bills.

E. E. Thomas.

INVENTOR.

Joseph P. Crowley,

By Owen & Owen,

His attys.

UNITED STATES PATENT OFFICE.

JOSEPH P. CROWLEY, OF TOLEDO, OHIO.

MEASURING-MACHINE FOR TOBACCO, &c.

1,052,654. Specification of Letters Patent. Patented Feb. 11, 1913.

Application filed July 15, 1912. Serial No. 709,440.

To all whom it may concern:

Be it known that I, JOSEPH P. CROWLEY, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented a certain new and useful Measuring-Machine for Tobacco, &c.; 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

My invention relates to a machine intended particularly for use in connection with the packaging of tobacco and similar substances, but is not restricted to such use as it may be used in any connection for which it is adapted or appropriate.

The primary object of my invention is the provision of means which utilizes vacuum action to draw or gather into a receiving head a predetermined quantity of tobacco or other similar matter preparatory to packaging the same.

A further object of my invention is the provision of an automatic machine for carrying out the features covered broadly by my copending application Serial No. 681,239, filed March 2, 1912.

The invention is fully described in the following specification, and while, in its broader aspect, it is capable of embodiment in numerous forms, a preferred embodiment thereof is illustrated in the accompanying drawings, in which,—

Figure 1 is a top plan view of a machine embodying the invention, with a portion broken away. Fig. 2 is an enlarged section thereof taken on the line *x*, *x* in Fig. 1, and Fig. 3 is an enlarged outer end view of the slide head, with a part broken away.

Referring to the drawings, 1 designates a pedestal or standard, which has a plurality of arms 2 fixedly radiating therefrom and supporting at their outer ends an annular table 3, the outer edge of which is provided with an upstanding annular flange 4.

A shaft 5, which is driven in any suitable manner, projects upward through the pedestal 1 in concentric relation to the table 3 and has a wheel, of which 6 are the spokes and 7 is the rim, keyed to its upper end. The wheel-rim 7 operates over the table 3 in inwardly spaced concentric relation to the table flange 4 to coöperate with said flange and table to form an annular trough, and has a plurality of fins or arms 8 projecting in equidistantly spaced relation from its periphery to adjacent to said flange to serve, when the wheel is revolved, to prevent a clogging in the trough of tobacco or other similar matter deposited therein.

One only of the arms 2, in the present instance, is provided beneath the table 3 with a radial slide-way 9 of rectangular form in cross-section, which has communication through an opening 10 in its top wall with the interior of the table trough and through a pipe 11 with any suitable suction means, such, for instance, as a pump 12, said pipe opening into said slideway through the bottom thereof in opposition to the opening 10. A grate 13 is mounted in the slide-way bottom over the associated end of the pipe 11 to prevent matter from being drawn by suction action into said pipe.

A matter receiving head 14 is mounted for reciprocatory movements in the slide-way 9, and has a vertical opening 15 therethrough which registers with the opening 10 and with the inlet end of the pipe 11 when the block is in one position of its movement, as shown in Fig. 2, thus enabling tobacco or other matter to be drawn into the slide block opening from the trough by suction action through the pipe 11. Upon an outward movement of the slide-head 14 from the filling position shown in Fig. 3, the opening 15 moves entirely without the outer end of the associated arm 2 into register at its upper end with the outlet end of a conduit 16, which has communication with any suitable source of air supply under pressure, whereby such air pressure will be caused to act upon the top of the matter within the slide-head opening 15 to discharge it downward therefrom into a bag or other suitable receptacle provided therefor.

The outer side wall of the opening 10 is provided with a knife edge, as shown at 17, to coöperate with the upper marginal edge of the opening 15 to trim off the tobacco or other matter in the opening 15 flush with its top when the slide-head is moved outward to discharging position.

The head 14 has its inner end portion of suitable shape to close both the opening 10

and the communication between the slide-way and pipe 11 when the slide-head is moved from matter receiving position, and also has its outer end provided with a part 14′, which moves under and closes the outlet end of the air-pressure conduit 16 when the opening 15 of the head is out of register with such conduit. It is thus apparent that the slide-head 14, in addition to forming a matter measuring head, also acts as a valve for closing the opening 10 and inlet end of the suction pipe 11 when the opening 15 is out of register therewith, and a valve for closing the discharge end of the conduit 16 when the opening 15 is out of register therewith. The opening 15 is shown as having a portion 18 of its outer side wall movable relative to the slide-head to vary the size of the opening 15, as may be desired, said portion being adjusted relative to the head by the turning of an adjusting-screw 19 which is threaded through the outer end portion of the head and has its inner end secured for rotary movements in the portion 18.

A slide-block 20 is mounted for longitudinal reciprocatory movements in a guide-way 21 in the top side of the inner end portion of the arm 2 in which the slide-head 14 is mounted, and has an adjustable connection 22 with the inner end of said head whereby the two have reciprocatory movements in unison. The block 20 carries an antifriction roller 23 on its top side and this roller works in an irregular endless cam-track 24, which is carried by the under sides of the wheel spokes 6 and coöperates with said roller upon a rotation of the wheel 6—7 to impart properly timed reciprocatory movements to the slide-head 14 to move the opening 15 therein successively into matter receiving and discharging positions.

25 designates a chute through which tobacco may be discharged into the trough formed by the table 3 and wheel rim 7. This chute is located, in the present instance, over the discharge opening 10 in the trough bottom and terminates at the upper edge of the trough to permit the wheel rim 7 to turn freely between it and the table 3.

In the use of my apparatus, the wheel 6—7 is set in motion to cause the cam-track 24 to coact with the roller 23 to impart properly timed reciprocatory movements to the slide-head 14, and also for the purpose of causing the arms 8 of the wheel to maintain a continual movement of the tobacco or other matter around the trough in which they operate to prevent a clogging of the same therein. Upon a movement of the head opening 15 into register with the opening 10 in the trough bottom, the suction action through the pipe 11 causes a predetermined quantity of matter to be drawn from the trough into the head opening, and upon an outward movement of the head such matter is trimmed off flush with the top of the head opening by a shearing action of the knife 17. The outward movement of the head 14 also moves the valve part 14 of the slide-head from under the discharge end of the conduit 16 and moves the head opening 15 into register with such conduit to permit a discharge of the matter from the head opening by air pressure, while the rear end of the head moves outward to close the opening 10 and the inlet end of the pipe 11.

It is apparent that I have provided a simple and efficient mechanism for the measuring, or what may be more properly termed the weighing, of tobacco or other matter and then discharging the same for packing purposes by pneumatic action. A machine of this character is found to be admirably adapted for the packaging of tobacco, as the size of the receiving opening 15 and the suction action through the pipe 11 may be regulated to quite accurately regulate the weight of the matter drawn into the opening 15.

I wish it understood that my invention is not limited to any specific construction or arrangement of the parts except in so far as such limitations are specified in the claims.

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

1. In combination, a source of matter supply, a matter receiving head movable into and out of communication with said source of supply, and suction means for drawing matter from said source of supply into said head.

2. In combination, a movable matter receiving head, suction means for drawing matter into said head when in one position of its movement, and means for forcing matter from the head when in another position of its movement.

3. In combination, a movable matter receiving head, suction means for drawing matter into said head when in one position of its movement, and fluid pressure means for forcing matter from the head when in another position of its movement.

4. In combination, a movable matter receiving head, means operable to fill said head with matter when the head is in one position of its movement, and fluid pressure means for forcing matter from the head when in another position of its movement.

5. In combination, a movable matter receiving head, and suction means for drawing matter into said head when in one position of its movement, said head being adapted to close said suction means when the head is moved from matter receiving position.

6. In combination, a movable matter re-

ceiving head, means for filling said head with matter when in one position of its movement, and fluid pressure means for discharging matter from the head when the head is in another position of its movement, said head when out of matter discharging position being adapted to close said fluid pressure means.

7. In combination, a movable matter receiving head, suction means for drawing matter into said head from a source of supply when the head is in one position of its movement, and fluid pressure means for discharging matter from the head when it is in another position of its movement, said head being adapted to close said suction and fluid pressure means when its matter receiving part is out of respective register therewith.

8. In combination, a movable head having a matter receiving opening therein, suction means for drawing matter into said head opening from a source of supply when the head is in register therewith, and means for moving the head opening into and out of register with said suction means.

9. In combination, a movable head having a matter receiving opening, suction means for drawing matter into the head opening when the head is in one position of its movement, means for forcing matter from said opening when the head is in another position of its movement, and means for moving the head to successively place its ing positions.

10. In combination, a movable head having a matter receiving opening, suction means for drawing matter into said opening from a source of supply when the head is in one position of its movement, fluid pressure means for discharging matter from said opening when the head is in another position of its movement, said head being adapted to respectively close said suction and pressure means when the opening is out of register therewith, and means for moving the head to successively place said opening into matter receiving and discharging positions.

11. In combination, a matter receiving head, suction means for drawing matter into said head from a source of supply when the head is in one position of its movement, and means for trimming off the matter carried by the head when the head is moved from its matter receiving position.

12. In combination, a slide-way having an opening in communication with a source of matter supply, a matter-receiving head slidable in said slide-way, and suction means for drawing matter through said opening into the head when the head is in one position of its movement.

13. In combination, a slide-way having an opening in communication with a source of matter supply, a matter-receiving head movable in said slide-way, suction means for drawing matter into the head through said opening when the head is in one position of its movement, and means for forcing matter from the head when in another position of its movement.

14. In combination, a slide-way having communication with a source of matter supply, a matter receiving head movable in said slide-way transversely of said opening, suction means for drawing matter into the head through said opening when the head is in one position of its movement, and fluid pressure means for forcing matter from the head when in another position of its movement, said head being adapted to open said suction and fluid pressure means when its matter holding portion moves into register therewith.

15. In combination, a table having an opening therein, a head having a matter receiving opening movable into and out of register with said table opening, suction means for drawing matter into the head opening through the table opening when the two openings are in register, and means for agitating matter on said table.

16. In combination, an annular table having an opening therein, a slide-head movable below a part of said table and having a matter receiving opening for register with the table opening, means for drawing matter into said head opening when in register with the table opening, means for forcing matter from the head opening when out of register with the table opening, and means operable to impart sliding movements to the head and for agitating matter on the table.

17. In combination, a movable matter-receiving head, pneumatic means for drawing matter into said head, and rotatable means for successively moving the head into and out of register with said pneumatic means.

18. In combination, a movable matter-receiving head, separate pneumatic means to draw matter into the head and force it therefrom, and rotatable means operable to successively move the head into register with first one and then the other of said pneumatic means.

19. In combination, a reciprocatory member having a matter-receiving opening therein, pneumatic means for drawing matter into said member from a source of supply when the member is in one position of its movement, pneumatic means for forcing matter from said member when in another position of its movement, means operable to trim matter in said member when the latter is moved, and means operable to impart reciprocatory movements to said member.

20. In combination, a circular matter-supporting table having an opening in its bottom, a member mounted for movement below the table and having an opening which is

movable into and out of register with the table opening, means for drawing matter into the member opening from above the table, and revoluble means for acting on said member to impart reciprocatory movements thereto and for effecting an agitation of matter on said table.

In testimony whereof, I have hereunto signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH P. CROWLEY.

Witnesses:

JNO. H. CROWLEY,

C. W. OWEN.