May 16, 1939. H. H. WHEELER 2,158,315

SCRAP COLLECTOR FOR CIGAR MACHINES

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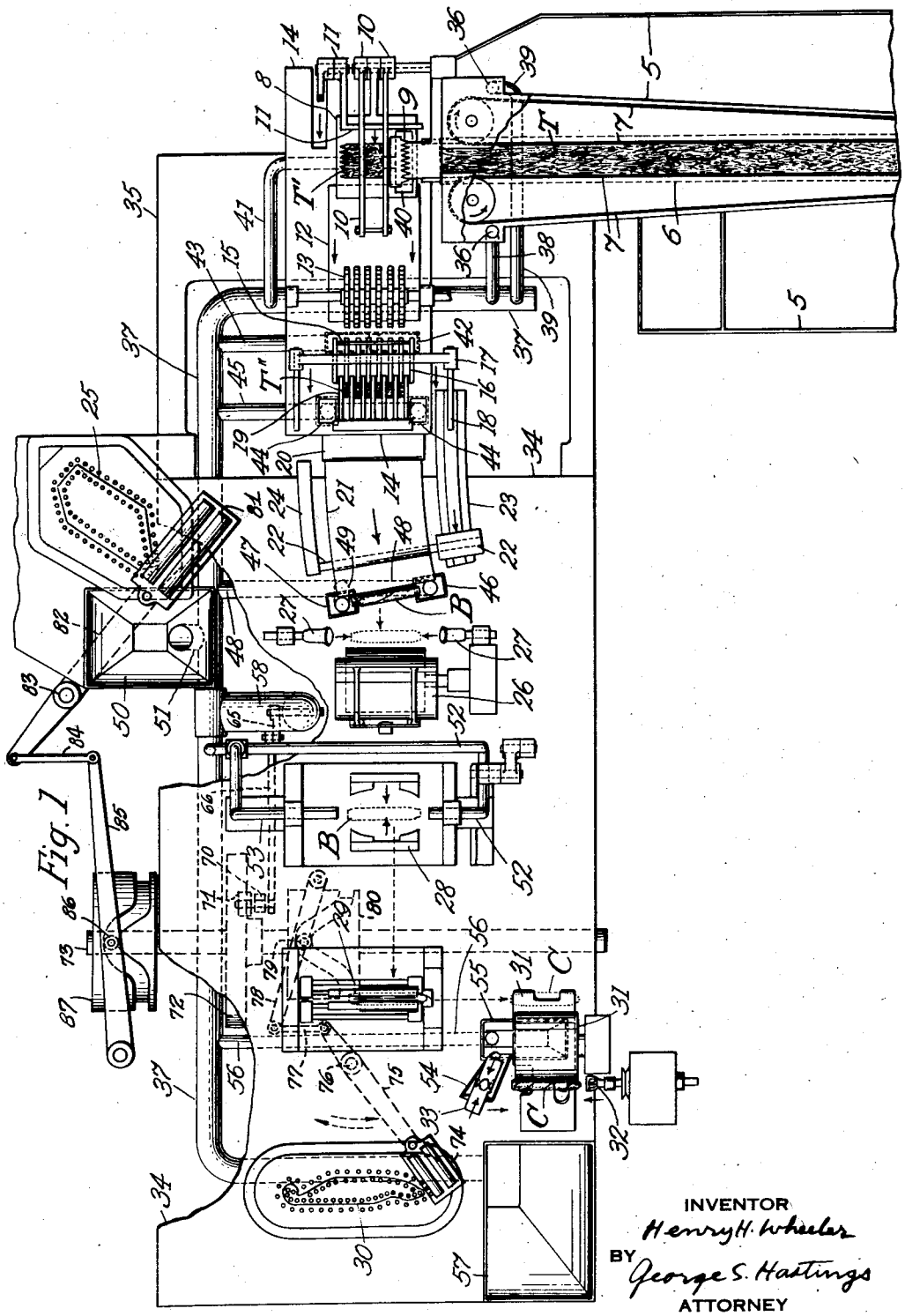


Fig. 1

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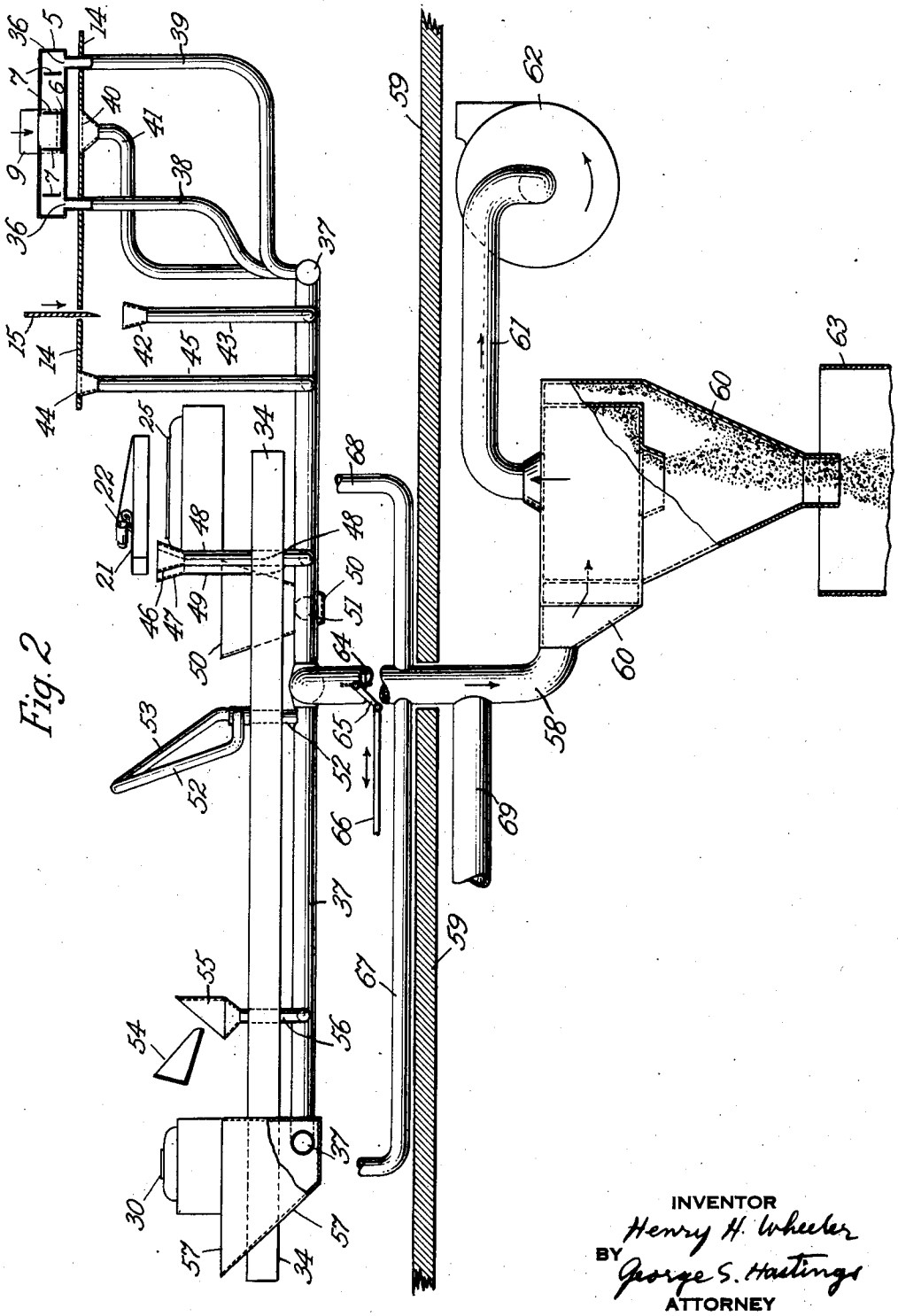


Fig. 2

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# UNITED STATES PATENT OFFICE

2,158,315

## SCRAP COLLECTOR FOR CIGAR MACHINES

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Application March 27, 1936, Serial No. 71,078

8 Claims. (Cl. 131—39)

This invention relates to cigar machines, more particularly to a scrap collector for cigar machines wherein means are provided for automatically collecting the tobacco scrap produced by the different component units in the operation of the machine.

In a cigar machine, tobacco scrap and dust are present in the filler feed by which the filler tobacco, placed thereon by the operator is advanced into the machine, at the feed cutter by which the filler tobacco is cut into cigar lengths, in the charge-measuring unit in which the cigar-length cuts of filler tobacco are forwarded crosswise by feeding devices against a row of measuring members, at the charge cutter by which the crosswise moving tobacco layer is cut into bunch charges, at the delivery end of the rolling table on which the bunch charge is rolled into a binder, at the bunch shaper or crimper in which the bunch is pressed into cigar shape, at the cigar trimmer by which the finished cigar is trimmed to size after a wrapper has been applied to the shaped bunch, and at the binder and wrapper dies on which the binders and wrappers are cut from leaves placed thereon by operators. Heretofore, in the operation of these machines little has been done to provide for removal of tobacco dust and scrap. It has been customary to allow these materials to fall on the floor or collect on the machine from which they would be brushed upon the floor. At some later period these materials would be swept up and disposed of as "sweepings."

Therefore, to prevent scrap from all these sources from accumulating on the machine and the floors and possibly interfering with the proper operation of the machine, a suction pipe system is arranged in the sub-base of the machine with suction heads at the various scrap-producing units. This pipe system is connected through a separator to a central suction source which may include a fan preferably located below the floor of the operating room, the separator delivering all scrap into a receptacle provided for the purpose. While each machine might be provided with a collecting receptacle, it is proposed to use a single receptacle and conduct all scrap and dust material from one or several machines thereto. By means of this arrangement the necessity of making collections from several points is eliminated. Furthermore, the products gathered from the receptacle will be relatively pure, inasmuch as no opportunity is given for mixing with dirt or other extraneous matter, such as is always present when scrap and dust are swept up and collected from the factory floor.

It is an object of this invention to provide a device for automatically collecting tobacco scrap and dust produced by the tobacco handling units of a cigar machine in its operation.

It is a further object to provide a cigar machine with a series of suction conduits which collect and convey to a receiving receptacle the scrap and dust tobacco produced therein.

It is an additional object to provide a scrap and dust removing system for cigar machines in which a central source of suction is utilized for conducting these products from one or more machines to a single disposal receptacle.

It is a further object to furnish a scrap and dust removal system for cigar machines which discharges into a central disposal receptacle in which suction used in the operation of certain units of the cigar machines, such as the binder and wrapper cutting tables and associated transfer means, is diverted when a minimum of suction is needed at those units by means of a valve or other suitable device into the scrap and dust removal conduits for removal of these materials.

It is a further object to provide a tobacco scrap and dust removing system for cigar machines adapted to be used in conjunction with the single central suction source of a group of machines, and discharge all scrap and dust from the group into a single receptacle, or to provide each machine with an individual suction device and scrap receptacle for receiving these materials from each machine.

It is an additional object to provide a cleaning device for a cigar machine which will positively collect and remove tobacco scrap and dust produced by the tobacco handling elements thereof and prevent these materials from falling on moving parts of the machine where they may do damage, and from accumulating and giving the machine an untidy appearance. With this and other objects not specifically mentioned in view, the invention consists in certain constructions and combinations which will be hereinafter fully described and then specifically set forth in the claims hereunto appended.

In the accompanying drawings:

Fig. 1 is a plan view of a cigar making machine embodying the improved scrap collecting system; and

Fig. 2 is an elevation showing the scrap collecting pipe system.

Referring to Fig. 1, the tobacco is introduced into the cigar machine by a feed of the cross feed

type, such as that shown in Patent 1,740,571 issued December 24, 1929, to W. B. Bronander, although any other satisfactory feed could be used, including a feed table 5 on which the filler tobacco T is propelled by an endless bottom belt 6 and vertical side belts 7 onto a swinging platform 8 on which it is cut into cigar lengths by a corrugated feed cutter 9 while being held by a downwardly pressing arm 10. The filler feed which transfers the so-formed zigzag ended sections T' may be of the type shown by the patent to Hanson 1,791,558, issued February 10, 1931. These are then swept by a push bar 11 into the charge measuring chamber on an endless belt 12 which carries them under one or more rows of star wheels 13 which feed them on a measuring table 14 past a knife 15 against a row of yieldingly mounted fingers protruding through slots in the measuring table. These fingers, when they have permitted the proper quantity of tobacco to pass knife 15, recede and the knife 15 severs the bunch charge T'' so formed. Reapers 16, attached to a bar 17 sliding on horizontal supports 18 and moving between guides 19, load the charge T'' into a charge transfer 20 which deposits the same onto the bunch rolling apron 21 on which the rolling pin 22 moving in guides 23 and 24 rolls it into a binder cut on die 25 and deposited on the rolling apron by a suitable transfer.

The bunch B thus formed is transferred to a rolling device 26 into which it is inserted by a pair of locators 27 and by which it is evened up and softened. A transfer arm then takes the bunch to a crimper 28 which may be of the type shown in the patent to Wahlstrom, 1,442,200, issued January 16, 1923, in which its ends are pressed into the desired shape and trimmed, and from which it is in turn transferred to a wrapping device 29 in which a wrapper cut on a die 30 is applied to it, thereby forming it into a cigar C which receives its finishing touches in a re-roller 31 from which it is discharged after a knurler 32 has smoothed its head and a pair of knives 33, upon axially moving into position, has trimmed its tuck end. The knurler and trimming means are of conventional design and are not shown in detail.

The rolling table 21 and the remaining bunch-manipulating units are mounted on the base plate 34 of the machine which is supported by the frame 35.

Near the discharge end of feed table 5, the main portion of which forms a long rectangular box closed by the vertical feed belts 7 are formed openings 36, Figs. 1 and 2, which are connected to a main suction pipe 37 by branch pipes 38 and 39, thereby withdrawing dust and scraps adhering to the belts 7 and on the table. Below the filler cutter 9, an opening 40 in table 14 is provided into which scrap and dust tobacco formed during the operation of cutter 9 may fall into a pipe 41 connected to suction pipe 37. A suction head 42 located below charge cutter 15 is connected to the suction system by a pipe 43 for collecting dust and scrap tobacco in a similar manner, thus carrying off all cutting dust and scrap. Openings 44 near the delivery end of measuring chamber 14 communicate with the suction pipe 37 by pipes 45, disposing of scrap from the ends of charge T''. Suction heads 46 and 47 located below the delivery end of rolling table 21 remove scrap spilled from the ends of bunch B through pipes 48 and 49, while scrap box 50 at binder die 25 is connected to the suction system by a pipe 51. To carry off any scrap adhering to the jaws of crimper 28, pipes 52 and 53 leading from main pipe 37 are mounted on the crimper frame so as to terminate near the bunch ends in their delivery position. The scrap from the axially moving cigar trimmer 33 falls into a chute 54 attached to the same, and from this chute discharges into a stationary chute 55 connected to the suction system by a pipe 56. Waste from the wrapper die 30 is brushed by the operator into a box 57 into the outlet of which terminates the pipe 37.

The suction pipe 37 which is supported by the frame 35 of the machine is connected to a pipe which in turn connects with main conduit 58 passing through the floor 59 of the operating room with a separator 60 connected by a pipe 61 to a suction fan 62.

As mentioned above, while separate sources of suction may be used in the operation of this device, it is proposed to use the single suction source commonly found in cigar machine installations for operating the novel scrap collector herein described. Accordingly, conduits or flexible couplings connect those parts of the machine which normally require suction, such as the binder and wrapper cutting tables or dies and their respective transfers.

Conduits 67 and 68 (Fig. 2) lead to the binder and wrapper dies, respectively, where they are connected to supply suction used in the operation of the dies. Conduit 69 issuing from conduit 58 leads to a second machine (not shown). Obviously, other conduits may issue from conduit 58 for connection with other machines of the installation. At certain times in the operation of the machine, a minimum of suction is employed, for instance, during that period when a binder or wrapper is being transferred from the cutting die to rolling position, suction is turned on full in the collector system with the result that all scrap and dust accumulated is removed. This is accomplished by means of a valve 64 of known type placed in the conduit connected to the branch pipes of the said suction system. The valve is operated by a lever 65 and rod 66, by means of a suitable cam mounted on the camshaft of the machine. By the action of the separator which may be of the so-called "cyclone" type, the scrap and dust collected by pipe 37 are segregated from the air current produced by the fan and deposited into a receptacle 63 placed below the separator outlet.

The rod 66 which controls the movement of valve 64 is actuated by a cam lever 70 having a roller 71 in engagement with a cam 72 on the cam shaft 73 of the cigar machine. The cutter 74 of the wrapper die 30 is mounted on an arm 75 swinging on a fulcrum 76 and connected by a rod 77 to a cam lever 78 having a roller 79 in the track of a drum cam 80 on shaft 73. The cutter 81 of binder die 25 is similarly mounted on an arm 82 swinging on a fulcrum 83 and being connected by a rod 84 to a cam lever 85 carrying a roller 86 engaging with a drum cam 87 on shaft 73.

What is claimed is:

1. In a cigar machine, the combination with mechanisms for cutting cigar binders and wrappers from tobacco leaves, of scrap tobacco and dust collecting means, comprising a plurality of suction conduits, each provided with openings positioned adjacent said mechanisms, a conduit to which said conduits are connected, a device for creating suction within said mechanisms, and means cooperating therewith for directing a part

of said suction into said conduits for withdrawing said scrap and dust produced thereby from said mechanisms.

2. In a cigar machine, having a plurality of devices for operating upon tobacco comprising a filler feed, a charge measuring chamber, a charge cutter, a suction leaf cutter die from which cut leaves are transferred by suction transfer mechanism to a rolling station, means for positively removing scrap and dust tobacco from said devices comprising a plurality of suction pipes having their openings positioned adjacent and beneath said devices, a suction conduit to which said pipes are connected, a control device positioned in said conduit and means for operating said control device in timed relation to said leaf cutter for putting said pipes into communication with said conduit when a minimum of suction is required by said die, whereby said means becomes operative to remove said scrap and dust.

3. In a cigar machine having a plurality of bunch forming devices including a filled feed, a charge measuring chamber, a charge cutter, a leaf cutter, a bunch rolling table, and a bunch crimping member, a tobacco scrap and dust removing system comprising a series of suction pipes arranged adjacent each device, a conduit into which said pipes discharge said scrap and dust, a valve in said main conduit and means for periodically operating said valve to cut off the suction in said system, and direct it to other parts of said machine.

4. In a cigar machine, the combination with a suction binder cutting die and a suction wrapper cutting die adapted to cut binders and wrappers to be transported to bunch rolling and wrapping positions, of a scrap and dust tobacco removing mechanism for removing scrap and dust produced at said dies, said mechanism including suction pipes having openings positioned adjacent said dies whereby scrap may be swept into said pipe openings, a suction conduit to which said pipes are connected, a valve in said conduit, means for operating said valve to direct part of the suction used in the operation of said dies to said pipes by putting said pipes into communication with said suction conduit, and means for maintaining a suction in said conduit at all times during operation of the machine.

5. In a cigar machine, the combination with tobacco handling devices comprising a filler feed, a charge measuring chamber, a binder cutting die, a bunch rolling table, a bunch end crimper, a wrapper cutting die and tuck end trimming means, of mechanism for removing scrap and dust tobacco produced on said machine during its operation from each of said devices, said mechanism comprising a plurality of suction pipes having inlets located adjacent each of said devices, a suction conduit into which said pipes discharge, and means for directing suction from said binder and wrapper cutting dies to said removal mechanism when the suction in said dies is at a minimum.

6. In a cigar machine, the combination with tobacco handling devices, including a filler feed, a charge measuring chamber, a bunch rolling table, a bunch shaping member, a wrapper cutting die, and tuck end trimming means, of mechanism for removing scrap and dust tobacco produced on said machine during its operation from each of said devices, said mechanism comprising a plurality of suction pipes having openings located adjacent each of said devices, a member connecting a source of suction to each of said pipes, and means for directing suction from said wrapper die into the pipes of said removal mechanism when the suction in said die is at a minimum.

7. In a cigar machine, the combination with a suction leaf cutting die for forming cigar leaf sections from leaves placed thereon, and associated cigar forming devices cooperating therewith for performing successive operations in forming a cigar, of scrap and dust material collecting mechanism for removing said material from said machine comprising, a suction conduit for said die, a plurality of pipes having waste material receiving openings located adjacent a plurality of said devices, means for creating suction in said conduit, and means cooperating therewith for directing a part of said suction into said pipes for removing said scrap and dust material from said devices.

8. In a cigar machine, the combination with suction binder and wrapper cutting dies for forming binders and wrappers from leaves placed thereon, and a plurality of tobacco handling devices, including a charge measuring chamber, a bunch length cutter, a rolling table, a bunch softening member, a crimper and trimmers, of scrap tobacco and dust waste material removing mechanism comprising, suction pipes provided with receiving openings located adjacent a plurality of said devices, a conduit to which said pipes are connected, means for creating suction in said dies, and means for directing a part of said suction into said pipes for effecting the removal of scrap tobacco and waste materials produced on said machine.

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