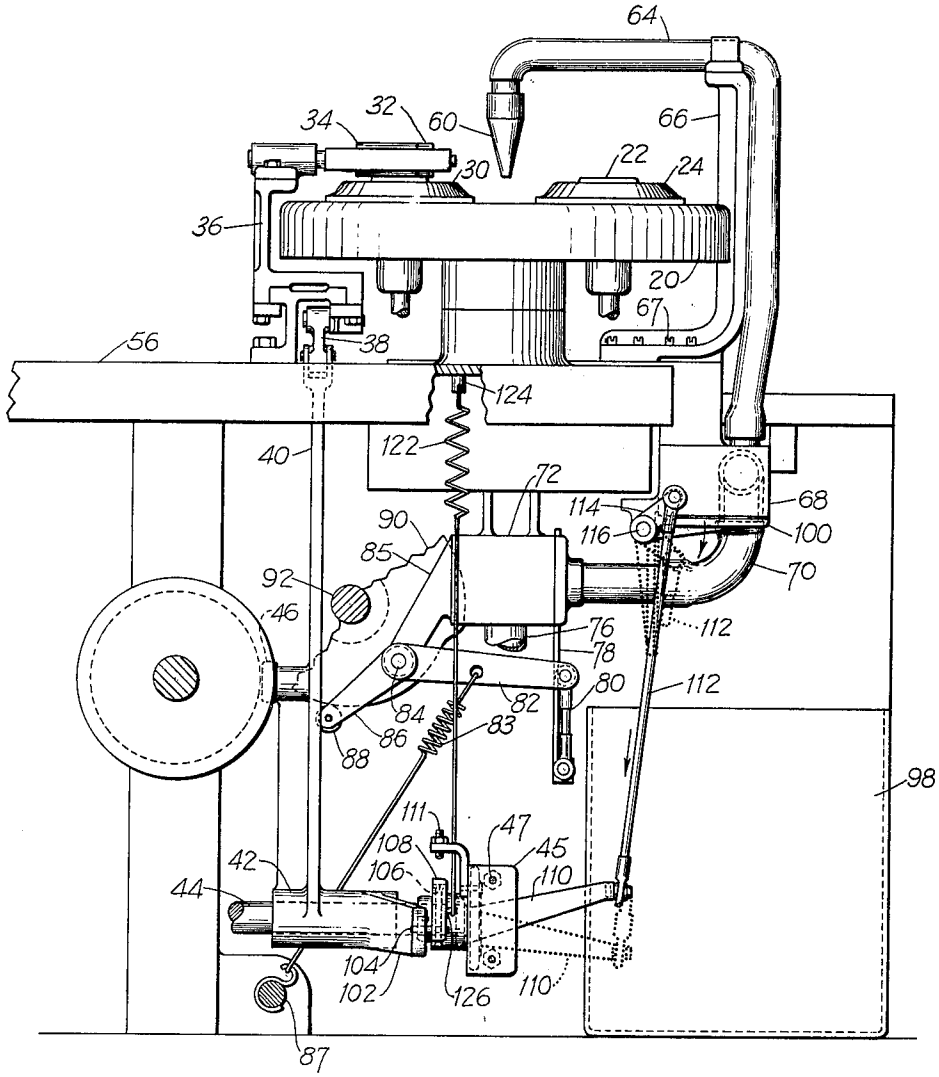
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TOBACCO DIE CLIPPING COLLECTOR FOR INDIVIDUAL MACHINE

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FIG.1



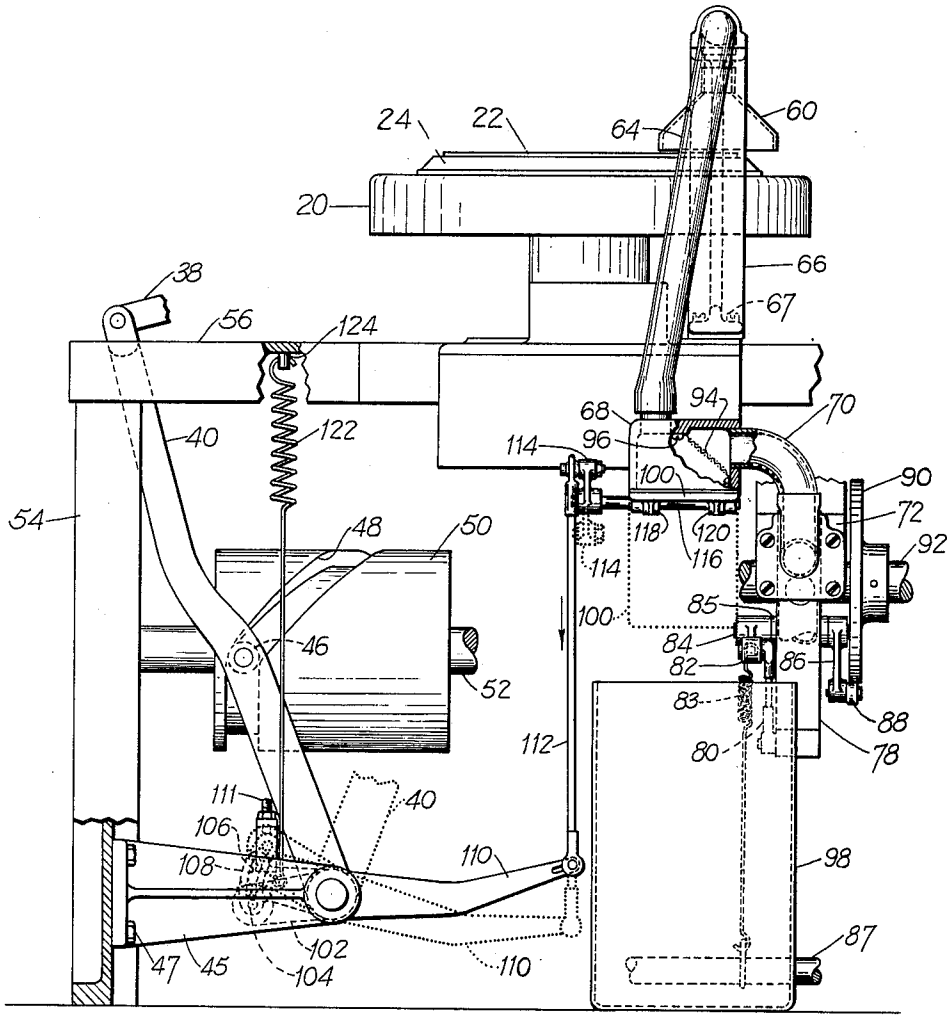
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FIG.2



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FIG. 3

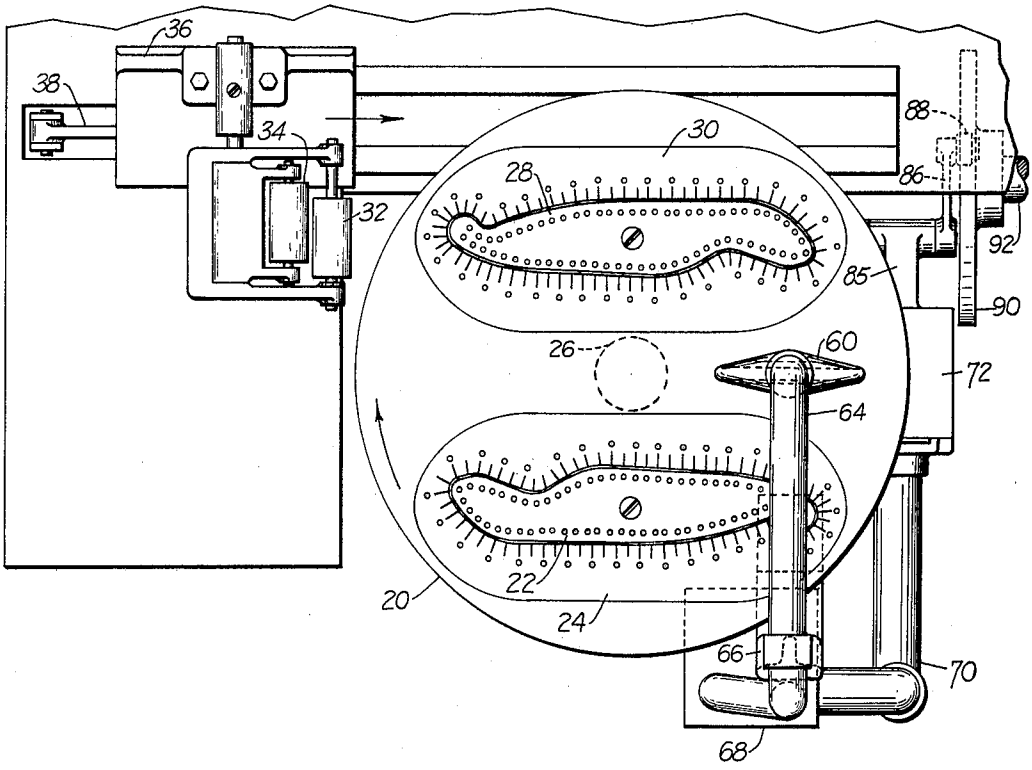
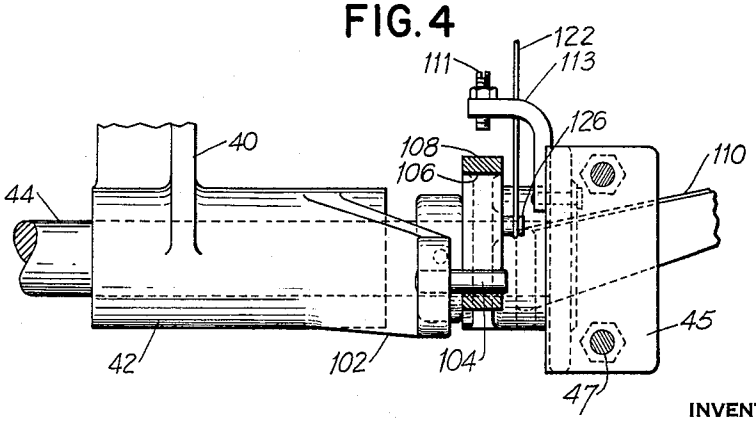


FIG. 4



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United States Patent Office

3,222,967

Patented Dec. 14, 1965

3,222,967

TOBACCO DIE CLIPPING COLLECTOR FOR INDIVIDUAL MACHINE

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Filed July 20, 1962, Ser. No. 211,358
2 Claims. (Cl. 83—100)

This invention is an improved cigar manufacturing machine, particularly an improved cigar binder or cigar wrapper machine in which cigar binders or cigar wrappers are cut either from natural cigar leaf or from reconstituted tobacco web material.

More particularly the invention is an improved scavenging arrangement for removing and collecting the trimmed tobacco material resulting from the cutting of a cigar binder or cigar wrapper.

Arrangements which perform the same general function as is performed by the apparatus of the present invention are well known in the art. One scavenging arrangement, which would serve in the stead of the present invention is a centralized suction scavenging system connected in common to a battery of cigar binder or wrapper die cutting machines. In a centralized system suction is applied from a common source to the trimming areas of each of a number of binder or wrapper cutting machines, which may comprise, for instance, from 3 or 4 to 20 or 30 such machines. Suction machinery adequate for such installations understandably becomes relatively expensive when applied to a single machine or to a small installation comprising 2 or 3 or 4 such machines. Recently a demand has developed for small installations which may have but one or a few machines. Under these circumstances, it is desirable to supplant the common centralized scavenging system with a relatively less expensive arrangement which ideally might be attached to a single machine. The present invention is devised to care for this demand.

An object of the present invention is the improvement of cigar manufacturing machines for cutting cigar binders or cigar wrappers.

Another object of the invention is an improved scavenging mechanism incorporated in a cigar binder or cigar wrapper cutting machine.

Another object of the invention is the provision of an individual tobacco trim scavenging mechanism for a cigar binder or cigar wrapper cutting machine.

The mechanism of the present invention comprises a source of suction which is applied individually to each cigar binder or cigar wrapper cutting machine to remove the trim resulting from the cutting operation from the cutting area. An individual container is interposed in the suction channel. The trimmings collected from the die by the application of suction to the trimming area are trapped in the individual container. The container is fitted with a displaceable bottom element, which is disposed over a larger second container. Once per cycle of operation of the binder or wrapper cutting machine, the displaceable element is actuated to permit the tobacco trim, collected by the suction applied to the die, to drop into the larger container. The displaceable element is cam controlled through a linkage which is operated at the proper time in each cycle to coordinate it with the other operations in the cycle. The scavenging mechanism comprises also a valve controlled by a cam on the common drive shaft of the machine which controls the application of suction and cut off at the proper time.

It is particularly pointed out that when a common centralized scavenging system is employed, quite a high vacuum is used in order to insure the gathering of all of the tobacco trimmings from all of the machines, some of which may be located at a considerable distance from the common suction source. Under such circumstances, the suction applied to the various machines differs and the rate at which the clippings are drawn into the scavenging system varies. It is desirable to be able to reuse the tobacco clippings as part of the core or filler material in other cigars, and it is desirable that the cuttings should not be unnecessarily mutilated or further divided in the scavenging process. In the common centralized scavenging system the trim obtained from certain of the machines where the suction is greatest, and the rate at which it is drawn into the suction system and its velocity therein is excessively high, becomes so divided that it is relatively unsuitable for its intended further use. In the present arrangement since the scavenging system is individual to each machine, these factors can be controlled and the product resulting from the trimming operation can be collected in a more suitable condition for further use.

A feature of the invention is an individual container interposed in the scavenging suction system of a cigar binder or cigar wrapper cutting machine and controls therefor to trap the tobacco trim resulting from each cycle of operation of the cutting machine.

Another feature of the invention is a tobacco trim container interposed in a scavenging suction system, individual to a cigar binder or cigar wrapper cutting machine, in which the container comprises a displaceable dumping element which is actuable from the common power drive system of the machine at a predetermined period in each cutting cycle.

These and other features will become apparent from a consideration of the following description when read with reference to the associated drawings which disclose a preferred embodiment in which the invention is presently incorporated. It is to be understood that the invention is not limited to the specific arrangements shown herein but may be practiced through the use of other means which will be readily suggested by the present disclosure to those skilled in the art.

In the drawings:

FIG. 1 is a left side elevation, partly in section, of the machine of the present invention;

FIG. 2 is a front elevation thereof, partly in section;

FIG. 3 is a plan view thereof; and

FIG. 4 is an enlarged elevation, partly in section, of a portion of FIG. 1.

Refer now to FIGS. 1, 2 and 3.

A number of units comprising the machine such as the double die turret **20** and its associated controls, the cutter slide **36** and cutter rollers **34** and **32** attached thereto are well known in the art and will be described herein only insofar as it is necessary to understand the manner in which they cooperate with the new mechanism of the invention.

The machine applies a piece of tobacco leaf or reconstituted tobacco over the front die and suction head **22** and its adjacent die shell **24**. Suction is applied to the suction head and its associated shell to hold the tobacco

in position. The turret **20** is then rotated about shaft **26** through 180 degrees, so that die and suction head **22** and die shell **24** assume the position originally occupied by back die and suction head **28** and die shell **30**. The cutter slide **36** carrying the cutting rollers **32** and **34** is then reciprocated over the die **22** in its rear position by means of a linkage comprising arm **38** and lever **40**. Lever **40** is cam operated through a limited arc, about hub **42** mounted on shaft **44**. Shaft **44** is journalled in two bearings in two brackets secured to opposite sides of the machine, only one of which brackets, bracket **45**, which is secured by means of screws, such as **47**, to the vertical frame element **54**, is shown. Secured to the lever **40** is a follower **46** which engages in a cam track **48** of barrel cam **50** which is fixedly mounted on shaft **52**. Shaft **52** is secured in bearings, not shown, in the main frame of the cigar machine and is driven from the main drive thereof, not shown. As shaft **52** and cam **50** rotate, cam track **48** reciprocates follower **46** in a limited arc, rotating lever **40** about shaft **44**. This, in turn, actuates arm **38**, reciprocating cutter slide **36** and driving cutting rollers **34** and **32** back and forth across the top of the die **22**, presently assumed to be in the rear position in the turret, to sever a wrapper or a binder from the tobacco piece affxed to the suction head. Thereafter, the cooperating wrapper carrier mechanism, not shown, is actuated into position overlying the cut wrapper. Suction is removed from the suction head underlying the cut wrapper and applied to the wrapper carrier which thereupon picks up the cut wrapper and carries it to a cigar wrapping device. All of these mechanisms are well known in the art.

A scavenger head **60** is connected through an air hose **64** which is supported in a vertical bracket **66**, secured by means of screws **67** to the horizontal bed plate **56** of the machine. Air hose **64** connects to the top of a suction box **68**, which serves as a trap for the tobacco trim. Box **68** is connected by air hose **70** to another suction box **72**. Both boxes **68** and **72** are supported by brackets secured to base plate **56**. Suction box **72** is connected by means of suction pipe **76** to a main source of suction, not shown. Suction box **72** is provided with suction valve **78**. The suction valve **78** is connected by means of a rod **80** to a link **82** which is fixedly secured to the stud **84**. Stud **84** is freely rotatable in a limited arc in a bracket **85**. Bracket **85** is integral with suction box **72**. Secured to the right-hand end of shaft **84**, as seen in FIG. 2, is arm **86** carrying follower **88** which engages with the periphery of cam **90** secured to shaft **92**. Shaft **92** is driven by the main shaft of the machine, not shown. As shaft **92** rotates, cam **90** actuates follower **88**, rocking arm **86**, shaft **84** and arm **82**. This reciprocates rod **80** and suction valve **78** vertically. Arm **82** is biased clockwise, as seen in FIG. 1, by spring **83** which is tensioned between the arm and stud **87** secured to the frame of the machine.

The operation of the suction valve **78** is so timed that suction is applied through air hose **70**, suction trap **68** and air hose **64** to scavenger head **60** each time turret **20** is rotated after a cutting operation has been performed. Simultaneously, suction is removed from the suction head **22** and die shell **30** associated with the die from which the wrapper has just been severed. As the turret **20** rotates, the scavenger head **60** picks up the severed trim. The severed trim passes through air hose **64** and into box **68**. It is prevented from passage to air hose **70** by the interposition of a screen **94**, which is secured by screws, such as **96**, in position to prevent egress through hose **70**. Each time a portion of trim is trapped in box **68**, a door **100** covering the bottom of box **68** is opened to permit the trim to drop into a larger container **98** which is positioned directly below box **68**. How this is performed will now be described.

As shown in FIGS. 1, 2 and 4, hub **42** mounted on shaft **44** carries a projecting lug **102**. Secured in lug **102** is a stud **104**. Stud **104** is displaceable in an elongated slot **106** in one arm **108** of a bell crank limitedly rotatable on shaft **44**. The other arm **110** of the bell crank, is connected at its free end to the lower end of rod **112**, the upper end of which is connected to the free end of arm **114**. The lower end of rod **114** is fixedly secured to an axle **116**, which in turn, is affixed to hinge arms **118** and **120** secured to the bottom of door **100**. As heretofore mentioned, as follower **46** is actuated in cam track **48** and lever **40** is limitedly rotated, hub **42** rotates limitedly about shaft **44**. Projecting lug **102**, which is integral with hub **42**, actuates stud **104** to displace it in elongated slot **106**. Arm **108** is biased upwardly by spring rod **122** which is tensioned between boss **124** on base plate **56** and projection **126** on arm **108**. This tends to rotate arm **108** upwardly against stop **111**. Stop **111** is secured in lug **113** which is integral with bracket **45**. This tends to rotate arm **110** and rod **112** downwardly and to rotate arm **114**, axle **116**, hinge arms **118** and **120** and door **100** clockwise, as seen in FIG. 1, to maintain the door normally open. The door **100** will, therefore, be in its open position at all times except when stud **104** is in a position near the lower extremity of slot **106** and forces arm **108** downwardly against the tension of spring rod **122**.

As hub **42** rotates in a direction to raise stud **104**, spring **122** maintains the lower extremity of slot **106** in engagement with stud **104**. A relatively short upward movement of stud **104** and of arm **108** will permit door **100** to open. Thereafter, while stud **104** continues to rise and while it is returning downwardly and until it again engages the lower extremity of slot **106** and forces arm **108** downwardly to close door **100**, the door will remain open. It should be apparent from this that the scavenger suction system will be in the non-suction condition and door **100** will be open to serve as a chute for the trapped tobacco into the scrap accumulator container **98** during the larger part of a cycle of operation of the machine.

Attention is particularly called to suction box **68**. This forms an individual trap for the scrap trimmed during each cutting cycle. The box **68** serves as an individual collection box for each individual cutting. The screen **94** prevents the trim collected in the isolation box from being drawn into the central suction system through air hose **70**. The trim is isolated in the box **68** once for each cutting operation. The dumping door **100** is actuated once for each cutting cycle to direct the trim in the suction trap **68** into the scrap accumulator container **98** which serves as a trim collector.

What is claimed is:

1. A cigar machine having cutting means therein for severing tobacco trim for a cigar binder or wrapper, a scavenger system in said machine for collecting said trim, said system comprising a suction trap individual to said machine, mounted in proximity to said machine, individual dumping means for said trap in said machine, and a scrap accumulator individual to said trap and proximate thereto, means in said system for delivering the total scrap produced in each individual cutting operation to said trap in a corresponding individual scavenging operation, means in said machine, operative once per cutting cycle of said machine subsequent to each said delivery, for actuating said dumping means, and means responsive to said dumping means for directing scrap from said trap into said accumulator in response to each said dumping.

2. A machine for cutting cigar binders or cigar wrappers, said machine having a binder or wrapper cutter, a suction system individual to said machine, coacting with cutting means during each cycle of operation of said machine in manipulating said binders or wrappers incident to their cutting, a branch of said suction system, individual to said machine, for scavenging tobacco scrap material trimmed from said binder or wrapper during

each cutting cycle of said machine, a trap in said scavenging branch, individual to said machine, for trapping said scrap material, trap discharge control means operative during each cycle of operation of said machine, and after each cutting operation of said machine, for conditioning said trap to discharge trapped scrap material and a linkage in said machine, responsive to cam controls therefor in said machine for actuating said trap discharge control means after each said trapping, to minimize damage to the trimmed tobacco material.

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