March 4, 1958 H. A. SCOTT ET AL 2,825,145

FIRE EXTINGUISHER FOR AN AIR CONVEYING STREAM

Filed March 12, 1956 3 Sheets-Sheet 1

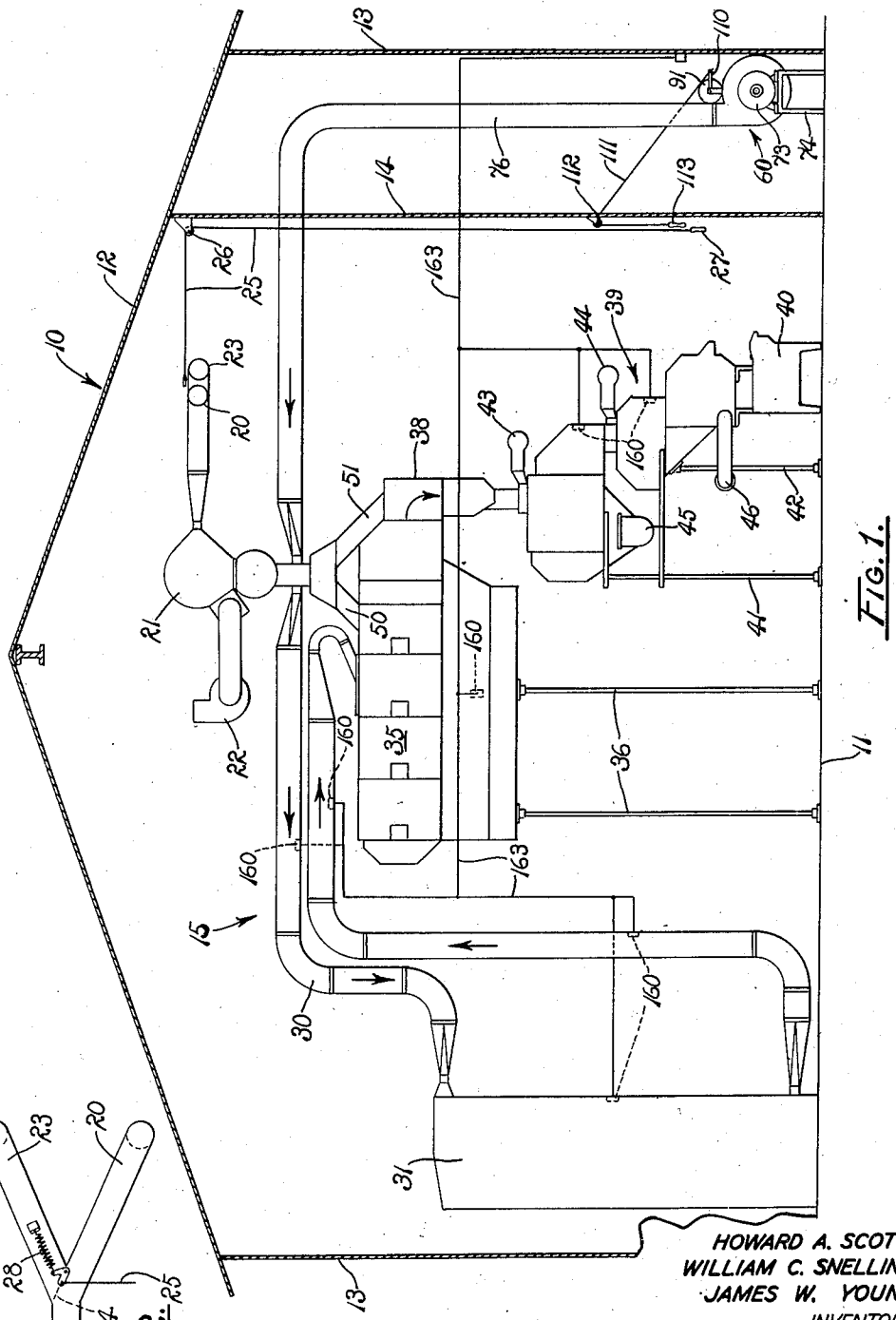

FIG. 1.

FIG. 2.

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FIRE EXTINGUISHER FOR AN AIR CONVEYING STREAM

Filed March 12, 1956 3 Sheets-Sheet 2

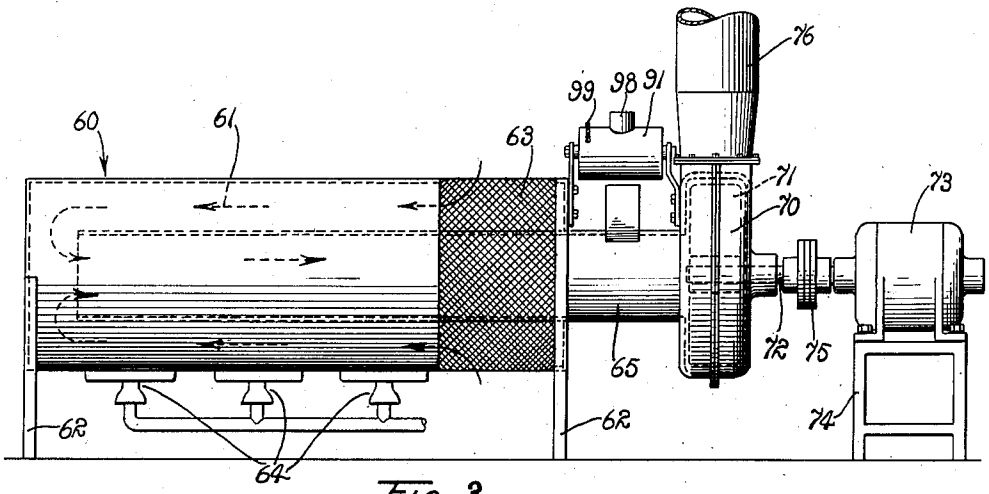

FIG. 3.

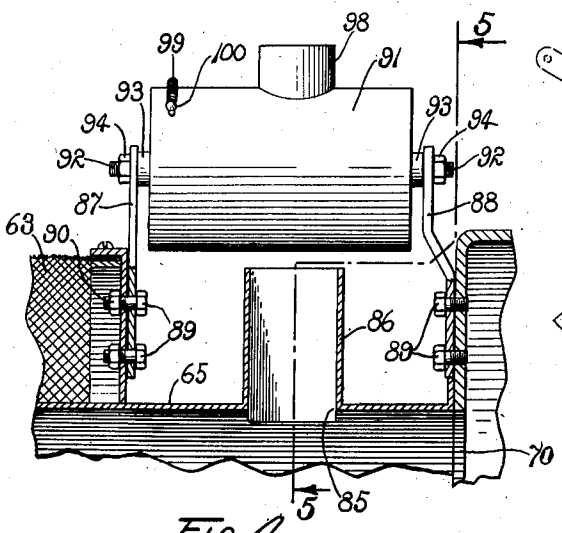

FIG. 4.

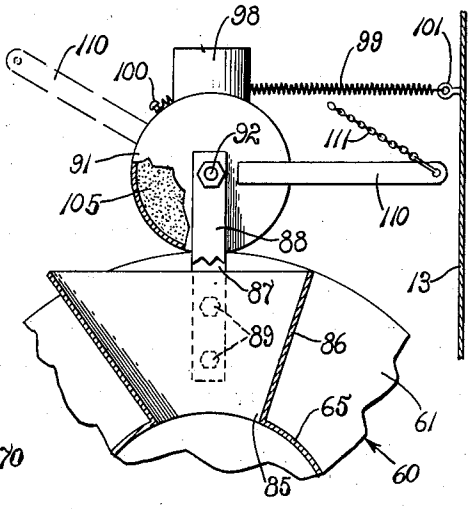

FIG. 5.

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FIRE EXTINGUISHER FOR AN AIR CONVEYING STREAM

Filed March 12, 1956 3 Sheets-Sheet 3

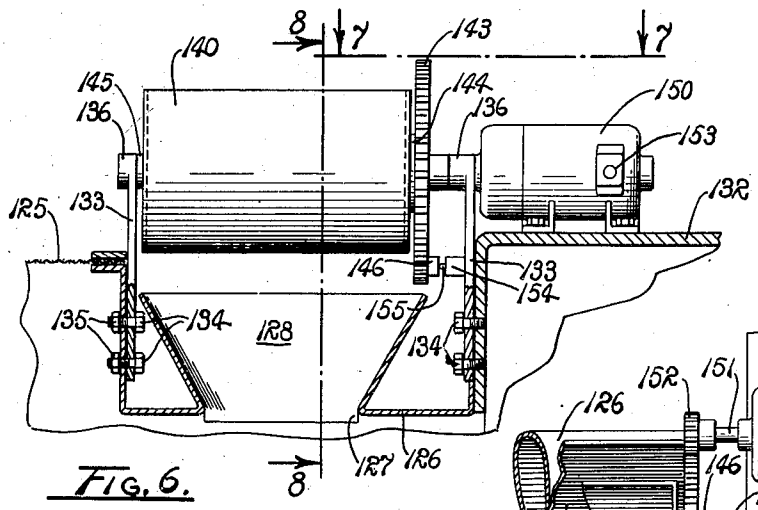

FIG. 6.

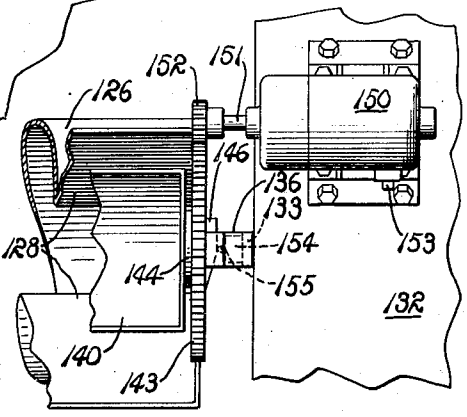

FIG. 7.

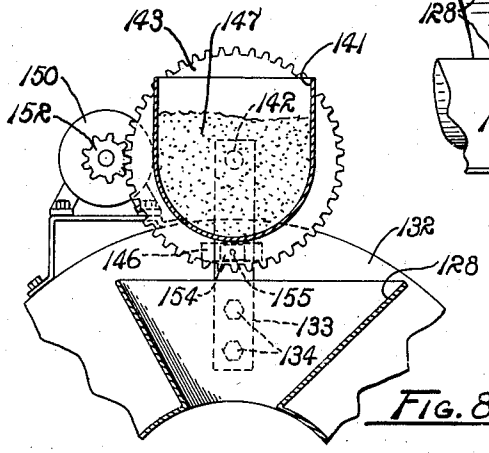

FIG. 8.

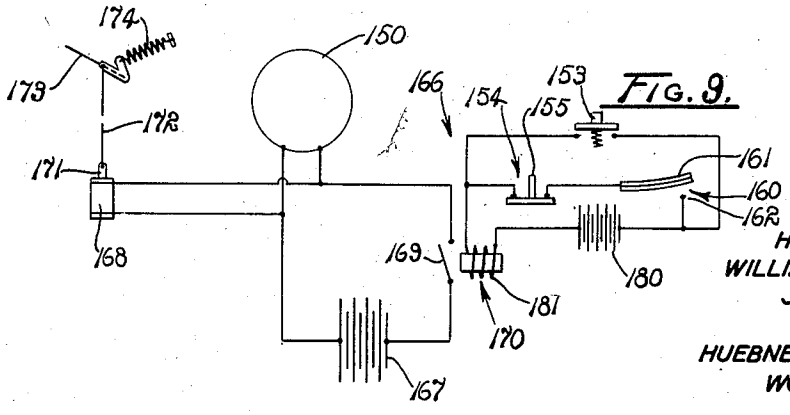

FIG. 9.

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United States Patent Office 2,825,145 Patented Mar. 4, 1958

2,825,145

FIRE EXTINGUISHER FOR AN AIR CONVEYING STREAM

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Application March 12, 1956, Serial No. 571,054

5 Claims. (Cl. 34—43)

The present invention relates to a system for extinguishing fires in an apparatus for conveying combustible material in an air stream between predetermined work stations.

The subject invention is conveniently described in association with a cotton ginning apparatus although it is, of course, not limited to such an environment. It is conventional in the ginning of cotton to draw the cotton from a wagon or truckload thereof by pneumatic suction into a duct to be blown through the duct in a heated air stream. The cotton is carried through a system of dryers, cleaners, extractors and boll-breakers to gin stands and is then motivated through final processing stages.

Cotton is highly combustible and as a result one of the hazards in the operation of a cotton gin is the likelihood of fires. Frequently pieces of metal and like trash are picked up in the loads of cotton and drawn into the ginning system with the cotton. Contact of such metallic pieces with the duct walls, or with other pieces of scrap may cause sparks which ignite the cotton. Fires can also be caused by static electricity which is generated by rubbing of the cotton, especially that which is dry and fluffy, against the duct walls as it is passed therethrough in the air stream. In addition, the high temperatures ordinarily maintained in ginning systems for drying purposes provide an environment conducive to the initiation of fires. Many times such fires are difficult to detect because the cotton is concealed as it is carried through the system. Thus, it is possible for fires to reach such a stage, for example a stage at which smoldering cotton is confined in bales, that they cannot be easily extinguished. Resultant losses are often disastrous.

It is an object of the present invention to minimize and/or extinguish fires in a system for conveying combustible materials in an air stream.

Another object is to provide an arrangement for circulating a fire extinguishing agent quickly and thoroughly throughout an air conveying system together with combustible materials carried therein.

Another object is to provide an air conveying system for combustible materials in which the air stream is also utilized as a carrier for a fire extinguishing material.

Another object is to provide an arrangement for automatically dispersing fire extinguishing material in an air stream of an air conveying system in response to a predetermined temperature rise in such a system.

Another object is to extinguish fires in a cotton ginning system effectively and in a minimum of time.

Another object is to provide an arrangement for extinguishing fires in a system of the nature described which is simple, economical, dependable, adaptable to many types of conveying systems and which is highly effective for accomplishing its intended functions.

These and other objects will become more fully apparent upon reference to the following description.

In the drawings:

Fig. 1 is a vertical section of a building housing a cotton ginning system shown diagrammatically therein. This system illustrates a suitable environment for the present invention and is provided to show how both forms of the present invention are employed.

Fig. 2 is a somewhat enlarged fragmentary top plan view of a portion of the ginning system of Fig. 1.

Fig. 3 is a somewhat enlarged fragmentary side elevation of a portion of the ginning system of Fig. 1 and showing a first form of the present invention associated therewith.

Fig. 4 is a fragmentary somewhat enlarged view of a portion of Fig. 3 showing parts thereof in cross section.

Fig. 5 is a section taken on a vertical plane having the position represented by line 5—5 of Fig. 4 and showing a lever in full lines in a normal position and in dashed lines in an operating position.

Fig. 6 is a fragmentary side elevation of a portion of a ginning system as shown in Fig. 1 with parts thereof in cross section and including a second form of the present invention.

Fig. 7 is a fragmentary top plan view taken on a longitudinal plane at the position represented by line 7—7 of Fig. 6.

Fig. 8 is a fragmentary transverse section taken on line 8—8 of Fig. 6.

Fig. 9 is a schematic diagram of an electrical system employed with the second form of the present invention.

With more particular reference to the drawings, a building 10 is shown in Fig. 1 as having a floor 11, a roof 12, side walls 13, and an interior partition 14. A cotton ginning system, generally indicated by the numeral 15, is provided within the building and is briefly alluded to herein for illustrative convenience.

The cotton ginning system 15 provides a telescopic unloading pipe 20 having a lower end, not shown, adapted to extend into a wagon containing a load of cotton, likewise not shown, and having an upper end connected to an air separator 21. Cotton is pneumatically removed from the wagon load through the pipe by means of a blower 22 having its inlet connected to the air separator. A telescopic overflow pipe 23 is also connected to the separator, and a valve 24 is provided which is movable between positions alternately opening and closing passage from the pipes 20 and 23 to the separator. A pull cord 25 is connected to the valve and extends around pulleys 26 on the partition 14 downwardly in the building 10 to a handle 27 for convenient access in controlling the valve in a manner to be described. A spring 28 normally urges the valve to a position closing the overflow pipe.

Cotton drops downwardly into a cotton carrying duct 30 from the air separator 21. By means soon to be described, the cotton is blown through a tower dryer 31 connected in the cotton duct and subsequently into a cleaner and master extractor 35 which is supported elevationally in the building on legs 36. The cotton then enters a distributor 38 from which it is distributed to a series of extractor feeders 39 associated with gin stands 40. The feeders are mounted in the buildings on legs 41 and 42 and provide hot air inlets 43 and 44, a hull conveyor 45, and a moist air outlet 46.

If preferred, the cotton may be delivered directly to the master extractor 35 through a by-pass duct 50 or directly to the distributor 38 through by-pass duct 51.

Referring in particular to Fig. 3, a source of hot air 60 includes a substantially cylindrical housing 61 mounted in the building 10 on legs 62 and having an endwardly disposed screen 63. A series of burners 64 are mounted in the housing to heat air therewithin, and an elongated cylindrical conduit 65 is concentrically positioned within the housing and endwardly extended exteriorly thereof.

A fan housing **70** is mounted on the extended end of the conduit **65** and encloses a rotary fan **71** having a shaft **72** axially extended therefrom. An electric motor **73** supported on a stand **74** is connected to the shaft by means of a coupling **75**. Hot air from the source **60** is blown by means of the fan into the cotton carrying duct **30** through a hot air duct **76** interconnecting a fan outlet and the cotton carrying duct. It is thus evident that cotton entering the duct **30** is blown therethrough in a hot air stream generated by the fan. The structure described is well known in the cotton ginning art.

FIRST FORM

The first form of the present invention is shown in detail in Figs. 3, 4 and 5 and is adapted to be incorporated in the ginning system of Fig. 1. Thus it will be noted that the conduit **65** provides an upwardly disposed inlet opening **85**, and that a hopper **86** is upwardly extended from the conduit in circumscribing relation to the inlet opening.

A pair of upright brackets **87** and **88** have lower ends secured to the hot air housing **61** and the fan housing **70**, respectively, by means of bolts **89** having nuts **90** screw-threadably mounted, as needed thereon. An elongated cylindrical receptacle **91** provides oppositely disposed trunnions **92** rotatably extended through the brackets and having threaded ends. Washers **93** are positioned between the opposite ends of the receptacle and the brackets, and nuts **94** are screw-threadably received on the trunnions.

The receptacle **91** has a spout **98** transversely extended therefrom which provides a discharge opening for the receptacle. A tension spring **99** has an end connected to a stud **100** mounted on the receptacle and an oposite end connected to an eyelet **101** fixed on a wall **13** of the building **10**. The spring is adapted yieldably to urge the receptacle into a normal position with the spout upwardly extended, as shown in Figs. 3, 4 and 5.

A quantity of dispersible fire extinguishing material **105** is placed in the receptacle **91**. For this purpose, a dry powdered chemical such as disclosed in Patent No. 1,793,420, consisting of 97 percent by weight of sodium bicarbonate, 1½ percent by weight of magnesium stearate, 1 percent by weight of magnesium carbonate, and ½ percent by weight of tricalcium phosphate is excellently suited for the purpose. It will be evident as the description proceeds, however, that other extinguishing materials can be utilized of flowable powder or liquid form.

A lever **110** is rigidly secured to the receptacle **91** and is extended radially therefrom. A pull chain **111** is connected to the lever and extends around a pulley **112** on the partition **14** and has a handle **113** on its opposite end disposed for convenient manual access.

Operation of first form

The operation of the first form of the present invention is believed to be readily apparent and is brifly summarized at this point. Initially, the blower **22**, fan **71**, burners **64**, cleaner and master extractor **35**, distributor **38**, extractor feeders **39**, and the other portions of the ginning system **15** are set into operation in a well-known manner. Cotton, not shown, is fed into the duct **30** and blown through the system by hot air from the fan. It is assumed, of course, that the valve **24** remains in its normal position blocking passage from the unloader pipe **20** to the overflow pipe **23** and permitting passage from the unloader pipe to the air separator **21**.

Assuming that a fire starts somewhere in the system **15** such as by contact of pieces of metallic scrap with the duct walls, by static electricity, or by lighted matches or cigarettes inadvertently deposited in the cotton, an operator pulls the cord **25** to shut off the supply of cotton from the unloader pipe **20** and to connect the overflow pipe **23** to the air separator. As is conventional, the overflow pipe is telescopic and will not pick up cotton from the overflow bin unless manually pulled downwardly therein.

At the same time, the operator pulls the chain **111** which rotates the receptacle **91** around an axis defined by the trunnions **92** from its normal position to a dumping position with the discharge spout **98** downwardly disposed above the hopper **86**. This dumps a charge of fire extinguishing material **105** from the receptacle into the conduit **65**. The powdered extinguishing material is dispersed in the air stream and thence blown by the fan **71** through duct **76** into the cotton duct **30**. The extinguisher intermixes with the cotton and travels therewith through the system. It will be evident that any fires which have started in the system will be quickly and effectively extinguished by this rapid method of dissemination of the fire extinguishing material.

After the receptacle **91** is empty or a sufficient charge of powder has been dumped into the conduit **65**, the chain **111** is released. The spring **99** thereupon pulls the receptacle back into its normal position with the spout **98** upwardly disposed. The receptacle may then be refilled with fire extinguishing material **105** so that it is prepared for a subsequent dumping cycle. After the fire has been extinguished, downward pressure on the pull cord **25** is released to permit the valve **24** to move back into a position enabling normal flow of cotton from the unloader pipe **20** to the air separator **21**.

SECOND FORM

A second form of the present invention is shown in Figs. 6, 7, 8 and 9 and is likewise adapted for use in a cotton ginning system such as that indicated at **15** in Fig. 1. For simplicity, only those elements pertaining to the second form of the invention are shown in detail in Figs. 6, 7 and 8. Inasmuch as the second form is incorporated in the ginning system at the same location as the first form, continual reference is made hereinafter to those portions of the ginning system with which both forms may be associated. Referring to Fig. 6 in particular, a housing **125** for a hot air source, similar to the source **60** of Fig. 3, is shown. A conduit **126** interconnects the hot air source and the inlet of a fan, not shown, but similar to fan **71** described above. The conduit has an inlet opening **127** and an upwardly extended hopper **128** around the opening, as before.

A mounting member **132** is provided and may be secured to the fan housing, not shown in Figs. 6 to 8 but like housing **70** in Fig. 3. A pair of upright brackets **133** have lower ends secured to the hot air housing **125** and to the mounting member by means of bolts **134** and nuts **135** screw-threadably turned on the bolts, as needed. The brackets have upwardly extended axially aligned bearings **136**. An elongated receptacle **140** having a rounded bottom and an open top defining a discharge opening **141** provides oppositely extended trunnions **142** rotatably received in the bearings **136**. A spur gear **143** is fixed to the trunnion adjacent to the mounting member and washers **144** and **145** are positioned between the receptacle and the spur gear and between the receptacle and the bracket **133** secured to the hot air housing. It is to be noted at this point that the spur gear provides a switch operating cam **146** adjacent to the periphery thereof.

An electrical motor **150** is mounted on the plate **132** and provides a drive shaft **151** coupled to a pinion **152** in mesh with the spur gear **143**. A reconditioning switch **153**, to be described in greater detail hereinafter, is mounted on the side of the motor. A de-energizing switch **154** is mounted on the bracket **133** adjacent to the spur gear and provides a control button **155** in the path of movement of the switch operating cam **146**. When the cam engages the button, the switch is opened and when the cam is not in engagement with the button, the switch is closed.

When the second form of the invention is employed in a cotton ginning system, as 15 in Fig. 1, a plurality of thermostats 160 are located throughout the system. Thermostats are conveniently shown in the cotton duct 30 in the master extractor 35 and in the extractor feeder 39 but it is to be understood that they can be placed at any location throughout the system where there is a likelihood that fires will start. Each thermostat provides a movable bi-metallic contact 161 and a stationary contact 162. Such thermostats are well known in the art and are adapted to close their contacts upon rise of their environmental temperature to a predetermined level. The type of thermostat shown is one which is well suited for the purpose but it will be evident that many other types could be employed. The contacts 161 and 162 of the thermostats are electrically connected in the parallel by leads indicated at 163.

An electrical system 166 employed with the second form of the present invention is shown in Fig. 9. This system includes a main source of electrical energy 167, such as a battery, electrically connected in series with a valve control solenoid 168, the electrical motor 150 and the contacts 169 of an electrically actuated relay 170. The solenoid has an armature 171 mechanically connected, as indicated at 172, to a valve 173, similar to the valve 24 in Fig. 1 and for the identical purpose. Upon energization of the solenoid, the armature thereof is adapted to shift the valve 173 from a position normally permitting passage of cotton from the unloader pipe 20 to the air separator 21 to a position blocking this passage and permitting passage from the overflow pipe 23 to the air separator. Upon de-energization, a spring 174 pulls the valve back to normal position.

The electrical system 166 also includes an auxiliary source of electrical energy 180, such as a battery, electrically connected in series with a coil 181 of the relay 170, the de-energizing switch 154 and with the parallel group of thermostatic contacts 161 and 162. In addition, the reconditioning switch 153 is connected in parallel across the de-energizing switch and the thermostatic contacts. When the system is quiescent, the de-energizing switch is closed, the thermostatic contacts are open, the reconditioning switch is open, and the contacts 169 of the relay are open.

Operation of the second form

The operation of the second form of this invention is believed to be readily apparent and is briefly summarized at this point. Assuming the cotton ginning system 15 of Fig. 1 to be in operation so that cotton is blown through the duct 30 by hot air from the fan 71, the second form of this invention is brought into operation automatically when a fire starts and raises the temperature to a predetermined level.

Specifically, when the temperature at any of the various locations of the thermostats 160 throughout the ginning system 15 rises to a predetermined level to which the thermostats have previously been set, the bi-metallic contact 161 involved moves to a position engaging its respective stationary contact 162. This closes an electrical circuit from one side of the auxiliary battery 180 through the relay coil 181, the normally closed de-energizing switch 154, through the now closed thermostatic contacts back to the other side of the auxiliary battery.

Energization of the relay 170 closes the relay contacts 169 to complete the electrical circuit from the main battery 167 through the relay contacts, the electrical motor 150 and the solenoid 168. Actuation of the solenoid moves the valve 173 by means of its armature 171 and the connection 172 to a position shutting off passage of cotton into the system from the unloader pipe 20. Thus, the source of combustible material is cut off.

This also energizes the motor 150 to turn the pinion gear 152 and the spur gear 143 rotating the receptacle 140 from its normal position, as shown in Fig. 4, in a clockwise direction to a position with the discharge opening 141 downwardly disposed over the hopper 128. The charge 147 in the receptacle is thus dumped into the conduit 126. It is to be noted that the hopper is formed to catch extinguishing material as the receptacle rotates toward the lowermost position of the opening 141. As before, the fire extinguishing material is blown throughout the system in the air stream with the cotton. In this manner fires which have been started in the system are rapidly extinguished.

After being emptied, the receptacle 140 continues its rotation back toward its normal position. When it is again in normal position with the discharge opening upwardly disposed, the cam 146 engages the control button 155 to open the de-energizing switch 154. This breaks the electrical circuit to the relay 170 and de-energizes the motor 150 and the solenoid 168. The valve 173 is thus returned to its initial position so that cotton may once again be drawn into the ginning system 15. Additionally, the motor stops turning the receptacle so that the latter remains in its normal position.

The receptacle 140 is then filled with a new charge 147 of fire extinguishing material, and the switch 153 closed to recondition the apparatus for a subsequent cycle of operation. This is accomplished since the switch 153 shorts out the thermostatic contacts 161 and 162 which may still be closed and completes an electrical circuit to the relay 170. The motor 150 is momentarily energized to move the cam 146 out of engagement with the control button 155 so that the switch 154 will close and ready the circuit for future operation.

It is to be understood in either form of the invention that one or more fire extinguishing dumpers including the receptacles 91 and 140, hoppers 86 and 128, and associated structure, can be used in a ginning system. Most such systems have several individual air conveying streams and it is contemplated that there should be a dumper for each air stream.

From the foregoing it will be apparent that both forms of the invention are highly advantageous in extinguishing fires in an air conveying system for combustible materials. The cotton ginning system may be considered as typifying any number of air conveying systems for combustible materials which include an air conductor having a predetermined material receiving station and a predetermined material discharge station, and means which blow air through the conductor in a direction from the receiving station to the discharge station. The present invention involves the dispersal of a fire extinguishing material into the air stream in advance of the discharge station for intermixture with the combustible material thereby to be carried with the combustible material to the discharge station.

It is significant that the invention employs the same air stream to disperse and carry the fire extinguishing material as is used to convey the combustible materials. It has been found that the fire extinguishing material can be carried throughout a conventional commercial cotton ginning system, such as that shown and described, in approximately twelve seconds.

Although the invention has been herein shown and described in what is conceived to be the most practical and preferred embodiments, it is recognized that departures may be made therefrom within the scope of the invention, which is not to be limited to the details disclosed herein but is to be accorded the full scope of the claims so as to embrace any and all equivalent devices and apparatus.

Having described our invention, what we claim as new and desire to secure by Letters Patent is:

1. In a conveying system for combustible materials adapted to be motivated in an air stream, which system provides an air conductor having a combustible material inlet, a fire extinguishing material inlet, and an outlet spaced from both of said inlets, means connected to the

conductor for blowing air from both of said inlets to the outlet of the conductor; a receptacle mounted adjacent to the fire extinguishing material inlet of the conductor and having a discharge opening, a dispersible fire extinguishing material in the receptacle, electrically actuated means connected to the receptacle adapted upon actuation to bring the discharge opening into registration with the fire extinguishing material inlet thereby to discharge the fire extinguishing material through the discharge opening of the receptacle into the fire extinguishing material inlet of the conductor whereby said extinguishing material is mixed with the combustible material and blown therewith to the outlet of the conductor, thermostatic electrical triggering means in the conductor, and an electrical circuit including a source of electrical energy interconnecting the thermostatic means and the electrically actuated means for operating said electrically actuated means to discharge fire extinguishing material into the conductor when the temperature in the conductor reaches a predetermined level.

2. In a cotton ginning system for conveying cotton in an air stream, said system including an air conductor having a predetermined cotton receiving station and a predetermined cotton discharge station, means for supplying cotton to the conductor in advance of said discharge station, means for blowing hot air into the conductor in a direction from the receiving station to the discharge station; the combination of a fire extinguisher receptacle having a discharge opening, a powdered fire extinguishing material in the receptacle, the conductor having an upwardly disposed open hopper leading into the conductor and positioned in advance of the discharge station, means mounting the receptacle over the conductor for rotation around a substantially horizontal axis between a normal position with the discharge opening upwardly disposed and a dumping position with the discharge opening downwardly disposed over the hopper to dump said extinguishing material from the receptacle into the conductor, an electric motor mounted adjacent to the receptacle having driving connection to the receptacle to rotate it around said axis, a plurality of thermostats located at selected positions in the conductor having pairs of normally open electrical contacts connected in parallel and movable to closed positions incident to development of a predetermined temperature at their respective locations in the conductor, and an electrical system including voltage means and switch means connected in electrical circuit with the motor and the contacts of the thermostats to energize the motor in response to closing of any of the thermostatic contacts to rotate the receptacle from said normal position to said dumping position, and return, said switch means being operable to de-energize the motor each time it is returned to normal position from said dumping position.

3. In a cotton ginning system for conveying cotton in an air stream, said system including an air conductor having a predetermined cotton receiving station and a predetermined cotton discharge station, means for supplying cotton to the conductor in advance of said discharge station, a valve associated with the supply means having a closed position shutting off supply of cotton to the conductor and a normally open position, means for blowing hot air into the conductor in a direction from the receiving station to the discharge station; the combination of a fire extinguisher receptacle having a discharge opening, a powdered fire extinguishing material in the receptacle, the conductor having an upwardly disposed open hopper leading into the conductor and positioned in advance of the discharge station, means mounting the receptacle over the conductor for rotation around a substantially horizontal axis between a normal position with the discharge opening upwardly disposed and a dumping position with the discharge opening downwardly disposed over the hopper to dump said extinguishing material from the receptacle into the conductor, an electric motor mounted adjacent to the receptacle having driving connection to the receptacle to rotate it around said axis, a plurality of thermostats located at selected positions in the conductor having pairs of normally open electrical contacts connected in parallel and movable to closed positions incident to development of a predetermined temperature at their respective locations in the conductor, and an electrical system including voltage means and switch means connected in electrical circuit with the motor and the contacts of the thermostats to energize the motor in response to closing of any of the thermostatic contacts to rotate the receptacle from said normal position to said dumping position, and return, said switch means being operable to de-energize the motor each time it is returned to normal position from said dumping position, the electrical system further including a solenoid having an armature connected to the valve and being operable incident to closing of any of the thermostatic controls to move the valve into closed position.

4. In a system for conveying combustible materials in an air stream, said system including an air conductor having a predetermined combustible material receiving station and a predetermined combustible material discharging station, means for supplying combustible material to the conductor in advance of said discharging station, means for blowing hot air into the conductor in a direction from the receiving station to the discharging station; the combination of a fire extinguisher receptacle having a discharge opening, fire extinguishing material in the receptacle, the conductor having an upwardly disposed inlet in advance of the discharging station, means mounting the receptacle over the conductor for movement between a filling position with the discharge opening upwardly disposed and a dumping position with the discharge opening downwardly disposed over the inlet in the conductor to dump said extinguishing material from the receptacle into the conductor, an electric motor mounted adjacent to the receptacle having driving connection to the receptacle to move it between said filling and dumping positions, thermostatic electrical triggering means in the conductor, and a source of electric energy and a switch connected in electrical circuit with the motor and the triggering means to energize the motor in response to rise of temperature to a predetermined level in the conductor thereby to move the receptacle from said filling position to said dumping position and return, said switch being operable to de-energize the motor each time it is returned to filling position from said dumping position.

5. In a system for conveying combustible materials in an air stream, said system including an air conductor having a predetermined combustible material receiving station and a predetermined combustible material discharge station, means for supplying combustible material to the conductor in advance of said discharge station, means for blowing hot air into the conductor in a direction from the receiving station to the discharge station; the combination of a fire extinguisher receptacle having a discharge opening, fire extinguishing material in the receptacle, the conductor having an upwardly disposed inlet hopper leading into the conductor and positioned in advance of the discharge station, means mounting the receptacle over the conductor for movement between a filling position with the discharge opening upwardly disposed and a dumping position with the discharge opening downwardly disposed over the inlet in the conductor to dump said extinguishing material from the receptacle into the conductor, an electric motor mounted adjacent to the receptacle having driving connection to the receptacle to move it between said filling and dumping positions, a thermostat located at a selected position in the conductor having a pair of normally open electrical contacts and movable to closed position incident to development of a predetermined temperature in the conductor, and an electrical system including voltage means and

switch means connected in electrical circuit with the motor and the contacts of the thermostat to energize the motor in response to closing of the thermostatic contacts to move the receptacle from said filling position to said dumping position and return, said switch means being operable to de-energize the motor each time it is returned to filling position from said dumping position.

References Cited in the file of this patent

UNITED STATES PATENTS

1,062,353	Middleton	May 20, 1913
1,648,811	Hillyard	Nov. 8, 1927
2,307,294	Persons	Jan. 5, 1943
2,559,634	Keefe, Jr. et al.	July 10, 1950