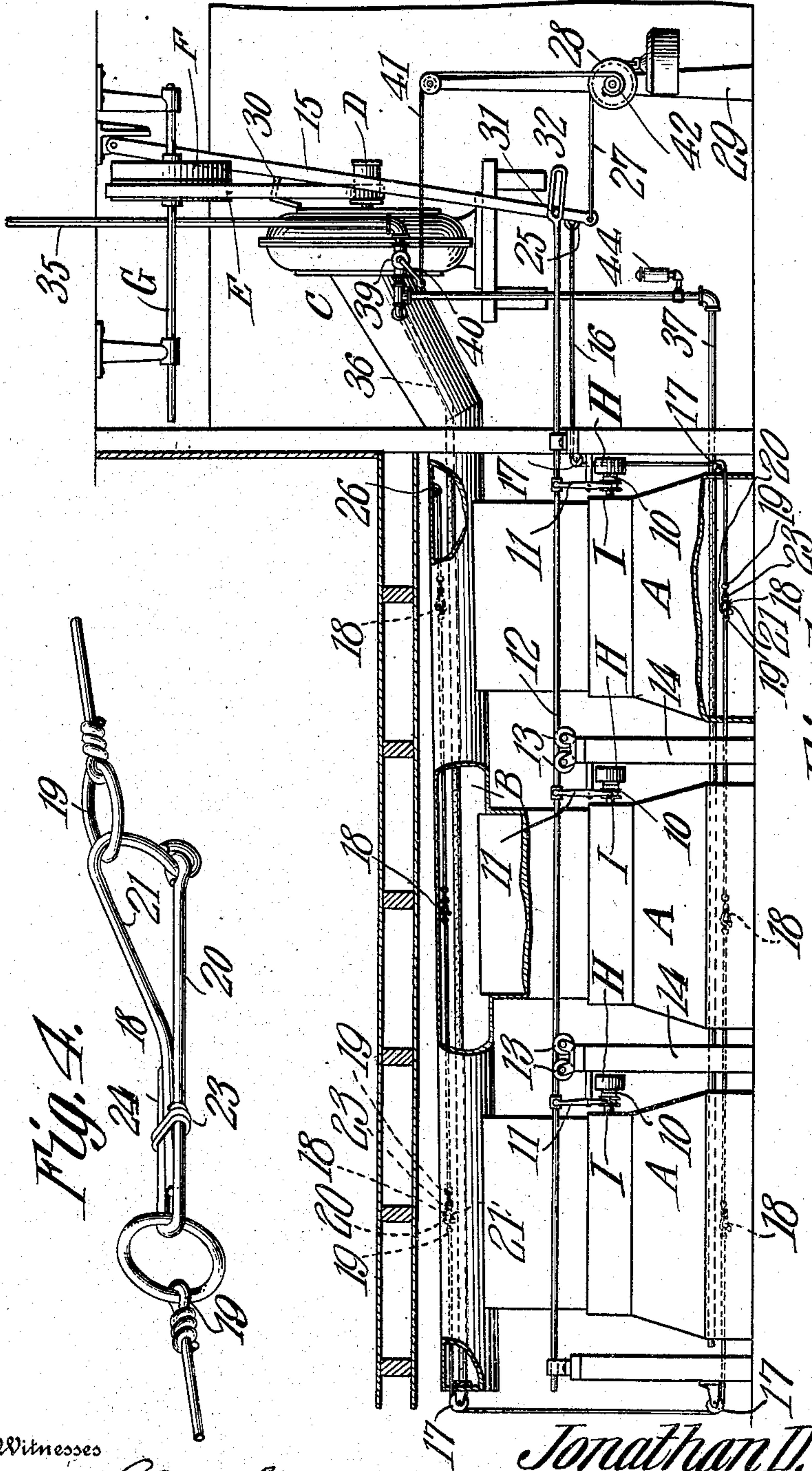


J. D. FARR.
 AUTOMATIC FIRE EXTINGUISHING APPARATUS.
 APPLICATION FILED OCT. 26, 1907. RENEWED SEPT. 4, 1908.

900,840.

Patented Oct. 13, 1908.

3 SHEETS—SHEET 1.



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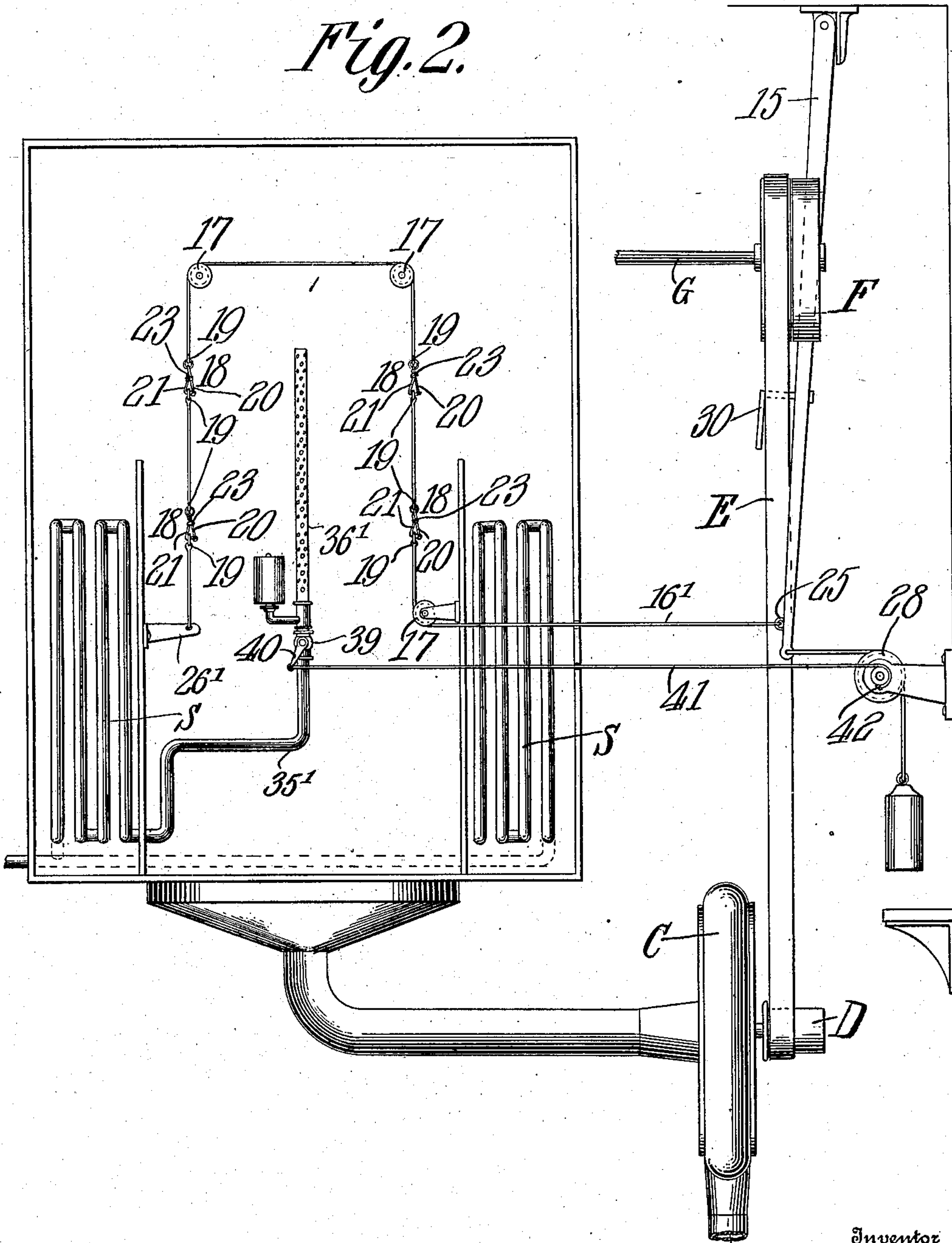
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3 SHEETS—SHEET 2.

Fig. 2.



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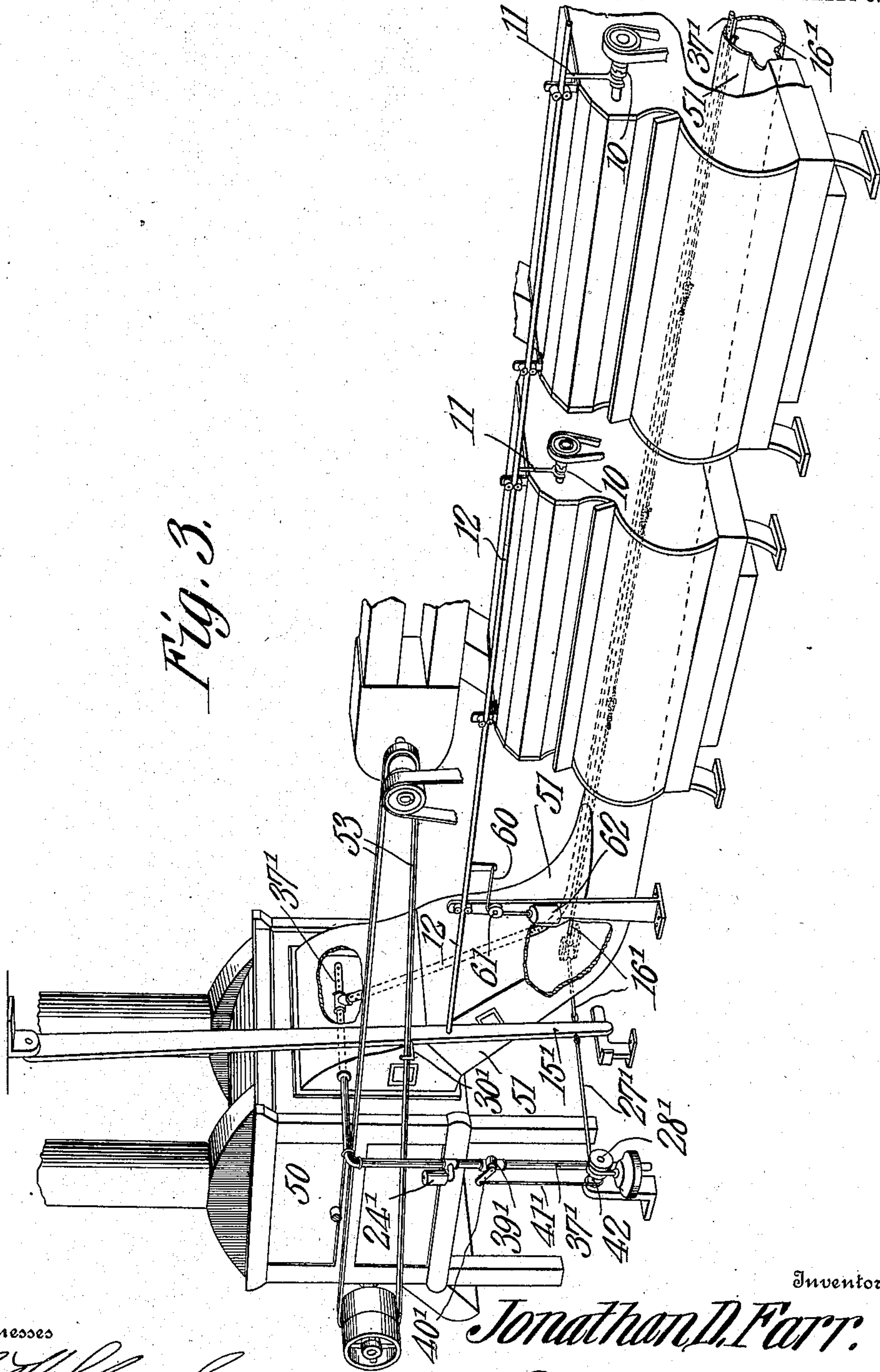
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3 SHEETS—SHEET 3.

Fig. 3.



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UNITED STATES PATENT OFFICE.

JONATHAN D. FARR, OF MONROE, GEORGIA.

AUTOMATIC FIRE-EXTINGUISHING APPARATUS.

No. 900,840.

Specification of Letters Patent.

Patented Oct. 13, 1908.

Application filed October 26, 1907, Serial No. 399,380. Renewed September 4, 1908. Serial No. 451,739.

To all whom it may concern:

Be it known that I, JONATHAN D. FARR, a citizen of the United States, residing at Monroe, in the county of Walton and State of Georgia, have invented a new and useful Automatic Fire-Extinguishing Apparatus, of which the following is a specification.

The principal object of the present invention is to provide a means for automatically extinguishing fire and preventing the spread of a fire once started in cotton machinery of any type, the invention being applicable to gins, linters, pickers, openers, lappers, and other types of machines, and being especially valuable where batteries of machines are used.

A further object of the invention is to provide a means that is rendered operative by an abnormal increase in temperature, for the purpose of automatically stopping all of the machinery adjacent the fire, and at the same time turning on a stream of water, steam or other fire extinguishing fluid, and for also sounding an alarm.

A still further object of the invention is to provide a novel form of fusible link or connection arranged to be exposed to the fire.

With these and other objects in view, the invention comprises the various novel features of construction and combination and arrangement of parts, which will be more fully hereinafter described, and pointed out particularly in the appended claims.

In the accompanying drawing, Figure 1 is an elevation, partly in section, illustrating the application of the invention to a battery of openers. Fig. 2 is a view in the nature of a diagram showing the application of the invention to a drier. Fig. 3 is a view illustrating the application of the invention to a battery of gins. Fig. 4 is a detail perspective view of one of the fusible links.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

In cotton mills, much difficulty is experienced in confining a fire to the locality in which it originated, owing principally to the fact that the several rooms and machines are connected by trunks or conveyer pipes in a practically continuous series, so that a blazing mass of cotton may be carried through the trunks from room to room and spread the fire over a large area.

In picker rooms, fire is usually caused by

foreign bodies carried along by the cotton and usually starts at the opener where hard substances first come into contact with the beater. In gins and linters, foreign bodies may be caught between the saws and ribs, and in all classes of machinery there is more or less danger of fire through the packing of cotton between stationary and movable parts of the machinery, the temperature being raised to a dangerous point through excessive friction.

The present invention aims to localize the fire and to automatically extinguish the same.

In the arrangement shown in Fig. 1, a battery of gins A is connected by a common trunk B to a fan C. The fan is provided with a small pulley D that is connected by a belt E to fast and loose pulleys F on a countershaft G. The openers are provided with constantly driven pulleys H which are mounted loosely on the shafts I and which may be coupled to the shafts by means of clutches 10.

Each clutch 10 is under the control of a clutch operating lever 11, and the entire series of levers is connected with a rod 12 that is mounted on suitable anti-friction rollers 13 carried by standards 14.

Pivoted to the ceiling or other suitable point of support is a lever 15 that is normally held in the position shown in Fig. 1 by a wire or chain 16 that is guided over a number of pulleys 17 and which, in the present instance, is shown as extending through several gins and also through the trunk B. This wire or chain is formed of a plurality of sections that are connected together in a continuous series by links 18. For convenience, the ends of the sections of wire are provided with eyes 19, and these are connected by the links. The link is formed of two sections 20 and 21 which are pivotally connected together. The section 20 is rebent at one end to form an arm 24 and between the two arms of this member is arranged the end of the section 21. The three parts thus disposed in parallel relation are held from separating by a fusible member 23 which may be formed of a section of fusible wire that is coiled around the members and normally prevents their movement to open position. In the event of the raising of the temperature to an abnormal degree from the presence of fire, or from conditions which would soon result

in fire, the member 23 will fuse and the sections of the wire or chain will thus be separated, allowing the lever 15 to swing to the right. It will be noted that the chain or wire is connected to the lower portion of the lever by an eye 25, and extends to a fixed eye 26 which, in Fig. 1, is shown as disposed within the trunk, although it may be placed at any other convenient point.

Connected to the lower end of the lever 15 is a weighted cord or chain 27 that is guided over a sheave 28 journaled in a suitable standard 29. The weight is normally held in elevated position by the wire or chain 16, but when any one of the links opens, the weight is free to descend and the lever will be pulled over to the right of Fig. 1.

To the upper portion of the lever 15 is secured a shipper fork or arm 30 that is arranged to be engaged with belts E, and when the lever is moved to the right, the belt will be shifted from the fast to the loose pulley, thus stopping the operation of the fan and stopping the travel of the cotton from the several gins or other machines through the trunk D. Near the lower portion of the lever is arranged a pin 31 which enters an elongated slot 32 formed at the end of the clutch operating rod 12, and as the lever moves to the right, this pin will engage against the end wall of the slot, and the rod 12 will be pulled to the right and will simultaneously actuate the several levers 11, thereby disconnecting the driving pulleys H of the several gins or other machines and instantly stopping the operation of the entire battery of machines.

In carrying out the invention, provision is made for the introduction of water, steam, or other fire extinguishing fluid into the machines, and the connecting trunk.

Leading from any suitable source of supply is a fluid pipe 35 which, in the present instance, is shown as provided with two branches 36 and 37, the branch 36 leading through the trunk B and the branch 37 leading through the several gins or other machines. These branches are perforated for the purpose of spraying the fluid. In the pipe 35 is a valve 39, and to the stem of said valve is secured an arm 40 that is connected by a cord 41 to the hub 42 of the sheave 28. When the sheave turns under the influence of the descending weight, the cord 41 will be wound upon the hub, thus turning the valve to open position and permitting the flow of the extinguishing fluid through the branch pipes 36 and 37. If the fluid used is in the form of steam or gas, it is preferable to introduce an alarm which may take the form of a whistle 44 connected to one of the branch pipes and arranged to be actuated by the currents of fluid.

In Fig. 2 is illustrated, in diagrammatic

form, the application of the invention to a drier or other machine having steam heating coils S. Leading from any available part of the coil S is a steam pipe 35' having a perforated portion 36'. The flow of steam is under the control of valve 39 which is opened in the manner previously described. In this case, the wire or chain 16' is secured at one end to a bracket 26' arranged within the machine.

It will be observed that the spraying pipe or the fire extinguishing fluid may pass to the individual machine as in Fig. 2, or may extend through a battery of machines, as shown in Fig. 1, and in either case provision may be made for sprinkling within the trunk, as well as sprinkling within the machine.

In the construction illustrated in Fig. 3, the invention is shown as applied to a battery of gins. In this case a steam pipe 37' leads up to the condenser 50 and thence down through the flue 51 to the rear of the gins, that portion of the pipe between the condenser box and the flue being provided with numerous perforations in order to permit the passage of steam. On the steam pipe is a valve 39' having an arm 40' that is connected by a cord 41' to the hub 42' of a sheave 28', so that when the sheave is turned, the cord will be wound up and the valve opened.

Pivoted to an elevated bracket is a lever 15' having a shipper fork 30' that engages with the condenser driving belt 53, and the lower end of the lever is connected to a cord 27' carrying a suitable weight which if allowed to descend will move the lever for the purpose of shifting the belt and thus stopping the condenser, and at the same time opening the valve to permit the passage of steam into the condenser box and flue. This movement is prevented by the wire or chain 16' that extends through the flue and is led out through the bottom of the condenser throat and around a guiding sheave, one end of the wire or chain being connected to a stationary point inside the flue, and the opposite end thereof being connected to the lever. This wire or chain is formed in sections that are connected by the links previously described, so that in case of fire at any point, the lever will be released for the purpose of allowing shifting of the belt and turning on of the steam. The steam pipe carries a whistle 24' for the purpose of sounding an alarm in case the steam valve is opened.

The feed shafts of the gins are under the control of clutches 10 which are operated by levers 11, all of the levers being connected to a rod 12 that is mounted in suitable guides and extends the full length of the battery of gins. To one end of this rod is secured the end of a cord or chain 60 passing over a

guiding sheave 61 and provided with a weight 62, which if allowed to descend, will pull the rod to the left and shift all of the clutches to release position, thus stopping the feeding of cotton to the gins. The end of the rod 12 abuts against the main lever 15', the latter forming a stop for the rod and preventing its movement under the influence of the weight. If, however, the lever is freed and allowed to move for the purpose of shifting the belt and opening the steam valve, the rod will then be free to be moved under the influence of its own weight 62, and all of the feeding devices of the gins will be stopped.

As the feed of cotton to the machines is stopped and the machines are allowed to continue running, the machine or machines will purge themselves of all burning cotton, throwing it into the flue to be extinguished and by stopping the condenser the discharge of cotton to the press is stopped, so that spread of the fire beyond the condenser is avoided.

I claim:—

1. The combination with a machine for operating on fibrous material, of a machine controlling device, a sprinkler, means for actuating the controlling device and setting the sprinkler into operation, and means including a destructible member for holding said actuating means inoperative.

2. The combination with a machine for operating on fibrous material, of a controlling device, a sprinkler, a controlling valve therefor, an actuating device tending to shift the controlling device and stop the operation of the machine and to open the sprinkler valve, and means including a destructible member for holding said actuating means inoperative.

3. The combination with a machine for operating on fibrous material, of a controlling device for stopping the operation of the machine, a lever connected to said controlling device, an actuating means for the lever, and a restraining device for holding said lever from movement, said restraining device extending within the casing of the machine and including a destructible member.

4. The combination with a machine for operating on fibrous material, of a trunk connected to said machine, a fan connected to the trunk, an operating member tending normally to stop the machine and the operation of the fan, and a restraining device connected to the operating member and extending through the casing of the machine and the trunk, said restraining device including a destructible member.

5. The combination with a machine for operating on fibrous material, of a trunk connected thereto, a fan connected to the trunk, a driving belt for the fan, a belt ship-

per, a clutch controlling the operation of the machine, a lever connected to the shipper and clutch, a lever operating means, and a restraining device normally holding said lever from movement, the restraining device extending through the casing of the machine and the trunk and having a destructible member.

6. The combination with a machine for operating on fibrous material, of a trunk connected thereto, a fan connected to the trunk, a fan driving belt, a controlling clutch for the machine, a lever connected to the clutch, a belt shipper carried by the lever, sprinkling pipes arranged within the machine and the trunk, a valve controlling the flow of fluid through said sprinkling pipes, a weighted cord connected to the lever, a sheave for guiding said cord, a flexible member extending from the valve to the sheave, and a lever restraining device extending through the casing of the machine and the trunk and including a destructible member.

7. The combination with a battery of machines for operating on fibrous material, of an independent clutch for each machine, levers connected to the clutches, a rod connected to all of the levers, an operating lever to which said rod is connected, a weighted cord having one end secured to the operating lever, a trunk connected to all the machines, a fan connected to the trunk, a fan driving belt, a belt shipper carried by the operating lever, sprinkling pipes extending through the several machines and the trunk, a valve for controlling the flow of fluid to the sprinklers, means operable by the weighted cord for opening the valve, and a lever restraining member extending through the battery of machines and the trunk and being provided with a plurality of destructible members.

8. In apparatus of the class described, a link formed of a pair of pivotally connected sections, the end of one section being bent to partly embrace the end of the other section, and a fusible member extending around the adjacent portions of the two sections and holding the link from opening movement.

9. The combination with a battery of gins, of a condenser, a flue leading from the gins to the condenser, separate feed shafts for the gins, clutching mechanism for the feed shafts, an operating bar common to all of the clutching mechanisms, a weight connected to the bar and tending to shift all of the clutching mechanisms to release position, a perforated pipe entering the flue and through which a fire extinguishing fluid may be admitted to the flue, a valve in said pipe, a condenser driving belt, a lever, a shifter fork carried by the lever and engaging the belt, said lever forming a stop for limiting

movement of the clutch operating rod, a
weighted cord connected to the lever, a
guiding sheave over which the cord passes, a
flexible connection between said guiding
5 sheave and the valve, and a destructible
member serving to hold the lever in place,
said destructible member passing through
the flue.

In testimony that I claim the foregoing as
my own, I have hereto affixed my signature 10
in the presence of two witnesses.

JONATHAN D. FARR.

Witnesses:

BEN. J. EDWARDS,
T. G. MAUGHON.