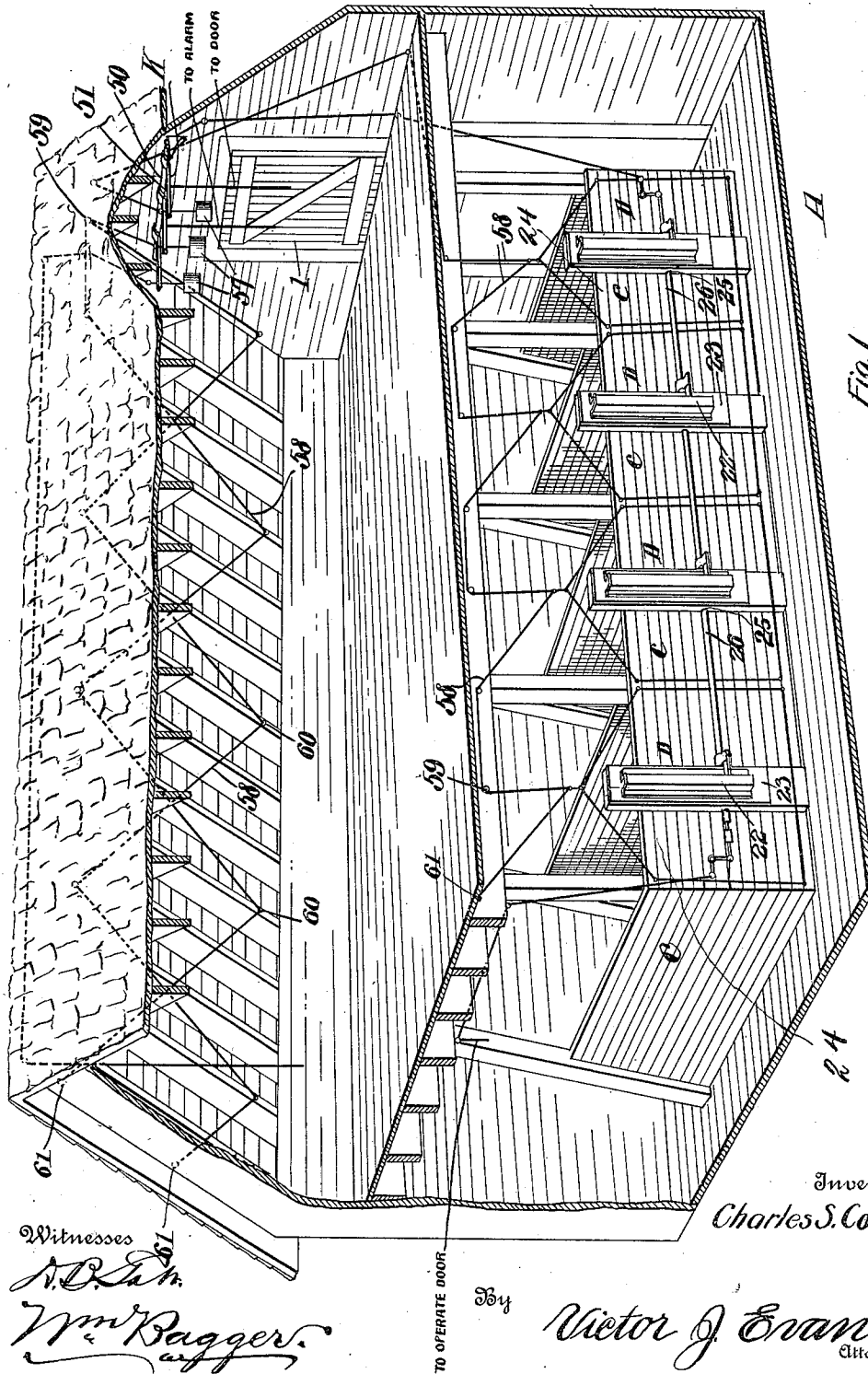


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 AUTOMATIC FIRE ALARM AND ANIMAL RELEASING DEVICE.
 APPLICATION FILED MAY 7, 1910.

1,006,914.

Patented Oct. 24, 1911.

3 SHEETS—SHEET 1.



Witnesses
A. D. Smith
Wm. Baggett

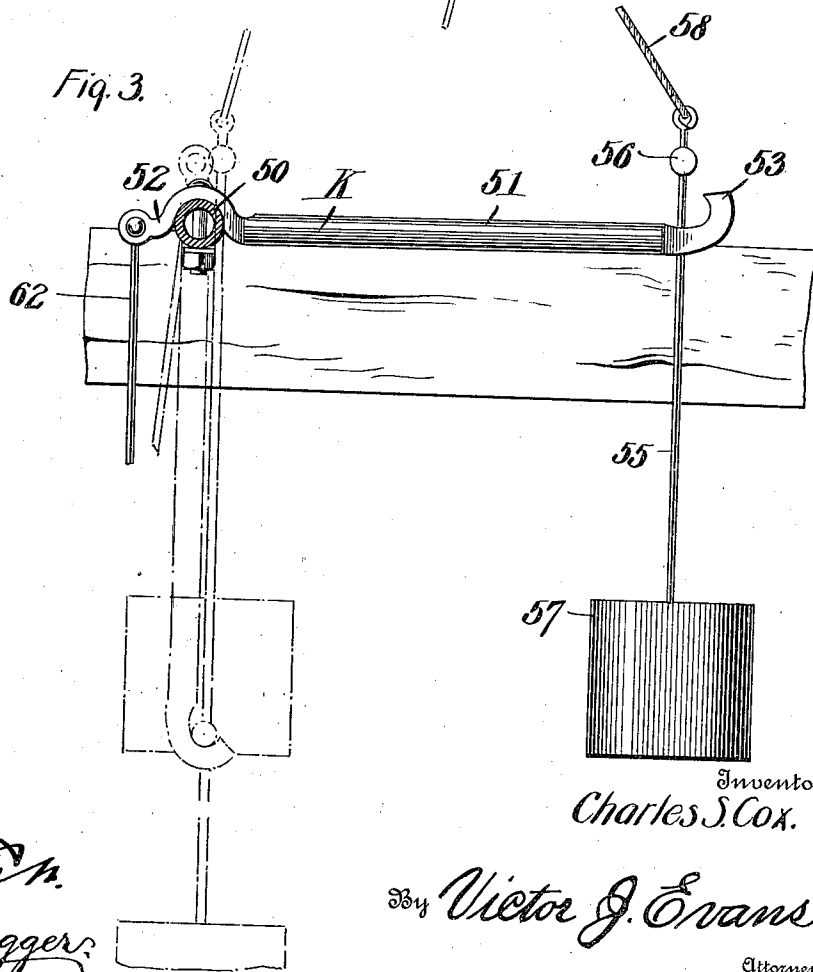
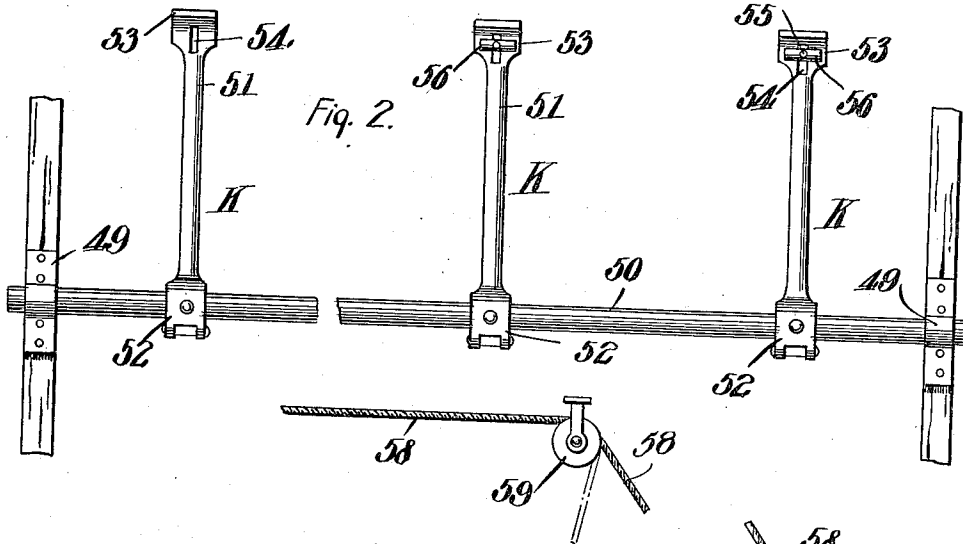
By *Victor J. Evans.*
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Witnesses
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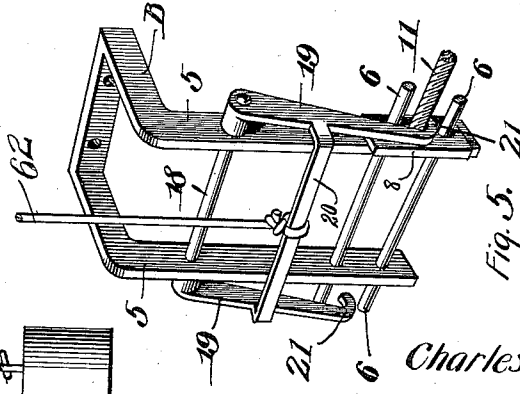
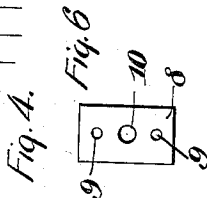
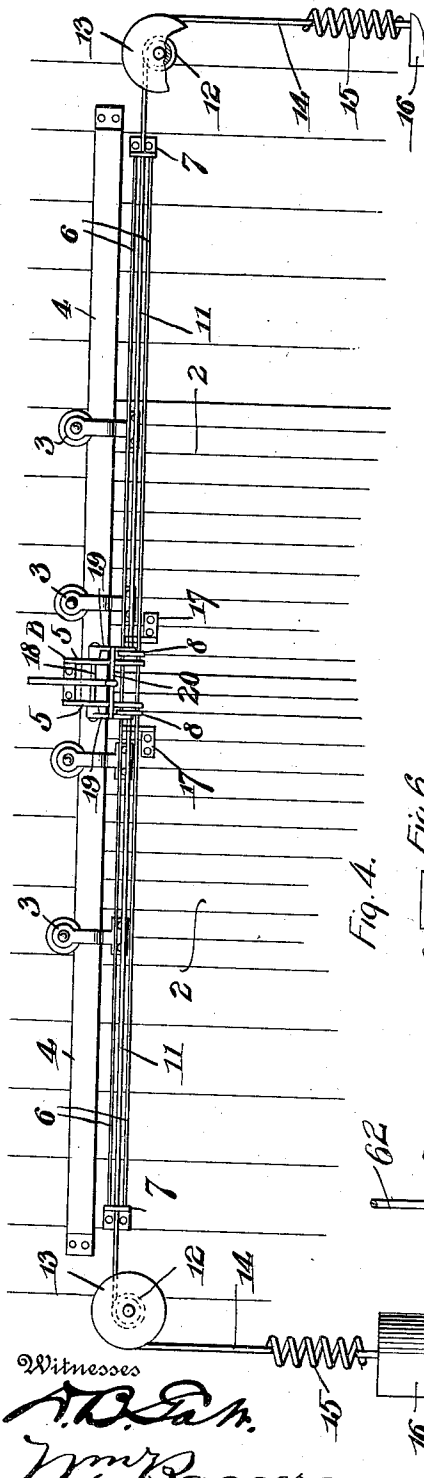
Inventor
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Witnesses
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Inventor
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UNITED STATES PATENT OFFICE.

CHARLES S. COX, OF KANSAS CITY, MISSOURI.

AUTOMATIC FIRE-ALARM AND ANIMAL-RELEASING DEVICE.

1,006,914.

Specification of Letters Patent.

Patented Oct. 24, 1911.

Application filed May 7, 1910. Serial No. 559,908.

To all whom it may concern:

Be it known that I, CHARLES S. COX, a citizen of the United States of America, residing at Kansas City, in the county of Jackson and State of Missouri, have invented new and useful Improvements in Automatic Fire-Alarm and Animal-Releasing Devices, of which the following is a specification.

This invention relates to barns and other structures wherein horses and cattle are stabled, and it has for its object to provide a device of simple and improved construction whereby in the event of fire the doors of the structure shall be automatically opened, the construction being, furthermore, of such a nature that other safety devices, such as cattle releasing means may be simultaneously operated thereby.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the invention may be resorted to when desired.

In the drawings,—Figure 1 is a perspective view partly in section, showing a barn or structure equipped with the improved mechanism. Fig. 2 is a top plan view of the main operating shaft. Fig. 3 is a sectional elevation of said shaft and related parts. Fig. 4 is a view in elevation of the barn doors, showing the releasing and actuating mechanism. Fig. 5 is a perspective detail view of the door releasing device. Fig. 6 is a detail side view of one of the plates 8.

Corresponding parts in the several figures are denoted by like characters of reference.

The barn or structure which is equipped with the invention is shown at A, and said structure may be provided with one or more exits, although in the drawings only a single exit has been shown, the same consisting of the door opening 1 which is adapted to be obstructed by the sliding doors 2, 2 supported by hangers 3 upon a track rail 4 of ordinary construction.

Securely mounted upon the wall of the structure above the track member 4 and adjacent to the meeting edges of the doors when the latter are closed together is a bracket B having downwardly extending arms 5 which are suitably spaced apart, said arms being connected by pairs of rods or wires 6, 6 with bracket members 7 secured upon the wall of the structure at suitable distances from the edges of the doors. The pairs of rods or wires 6 afford supporting and guiding means for plates 8 which are provided with apertures 9 engaging the rods or wires and with additional apertures 10 for the attachment of flexible members, such as cords or cables 11, which are guided through apertures in the bracket members 7 and to suitably arranged drums 12 to which said flexible members are connected. Connected with the drums 12 for movement therewith are pulleys 13 of larger diameter, and ropes, cables or other flexible members 14 are suitably attached to and partly wound upon said pulleys, said members 14 being provided with terminal springs 15 to which weights 16 are attached. Each of the doors 2 is provided near its meeting edge with a bracket member 17 through which the cord or cable 11 is guided.

The arms 5 of the bracket member B afford bearings for a rock shaft 18 having arms 19 which are connected together by a cross bar or brace 20, said arms having terminal lugs 21 adapted to engage under the cables 11 and to lie in the path of the plates 8 when the doors are closed together.

It will be observed that when the doors are closed, as shown in Fig. 4 of the drawings, and the arms 19 lie in the path of the plates 8 which are connected with the cable 11, the weights 16 will be thereby maintained in an elevated position. This position may be retained without interfering with the opening or closing of the doors by ordinary means because the brackets or guide members 17 will travel freely along the rods or wires 6, 6 and the cable 11 which are guided through apertures in the said brackets. If, however, the shaft 18 having the arms 19 should be rocked so as to swing the said arms out of the path of the plates 8, the weights 16 will descend by gravity, the plates 8 will engage the guide members 17 that are secured upon the doors, and the doors will thus be automatically moved to an open position until

intercepted by the brackets 7 which may be regarded as constituting buffers that lie in the paths of the doors. This operation will under certain circumstances be performed automatically by means to be hereinafter described.

Within the barn structure there will be arranged any desired number of stalls C, and in each stall is an animal securing and releasing device D comprising a casing 22 secured upon a baseboard 23; it being understood that for each row of stalls there will be provided a partition 24 running the entire length of the row, the devices D being mounted in proper alinement upon said partition. The devices D are mounted upon the rear side of the partition with reference to the stalls, and the baseboards 23 are provided with grooves 25 supporting a longitudinally slidable rod 26 adapted to actuate cattle releasing means within the casings.

Supported for oscillation in suitable bearings 49 within the barn structures is a rock shaft 50 with which a plurality of levers K are connected in such a manner as to lie normally in an approximately horizontal position, said levers comprising relatively long arms 51 extending in one direction from the rock shaft and relatively short arms 52 that extend in the opposite direction. Three such levers have been shown in Fig. 2 of the drawings, but it is desired to be understood that the number may be increased and that any desired number of these levers may be employed. Each of the lever arms 51 has a terminal hook 53 and a slot 54 through which extends a rod or wire 55 having a stop member 56 which is normally disposed a slight distance above the hook 53. Each of the rods 55 carries at its lower end a weight 57 which may be made of natural or artificial stone or other suitable material. It should be understood that the weights 57 must be sufficiently heavy to oscillate the rock shaft and to actuate the devices connected therewith, as will be presently described. Normally the weights 57 are supported clear of the lever arms 51 by means of ropes or flexible elements 58, one of which is clearly seen in Fig. 3, said flexible elements being guided over guide members including pulleys, one of which appears at 59 in Fig. 3. It is obvious that when the flexible member 58, or any one of said flexible elements, is severed, the weight connected therewith will descend, and the stop member 56 will then engage the lever arm 51, swinging the latter to the position indicated in dotted lines in Fig. 3, leaving the weight suspended by the stop member 56 engaging the hook 53. The remaining weights, the flexible supporting members of which are still intact, would not interfere with the operation because the rods 55 supporting the weights are in slidable engage-

ment with the slots 54, and such weights would at most be slightly swung or tilted in the direction of the rock shaft 50.

The flexible weight supporting members 58 are preferably made of some readily inflammable material of sufficient tensile strength, such as grass rope, which, is desired, may be mechanically treated in some manner that will make it readily combustible without interfering with its tensile strength. The supporting ropes 58 are guided through the barn structure which is provided with suitably located guide members, such as eyes or staples 60, it being understood, however, that pulleys or the like may be used wherever it shall be found desirable or necessary to do so, the terminal end of each rope 58 being finally attached to some fixed point, as indicated at 61. The purpose is to form within the barn a complete network of these cords or ropes which shall be so arranged that if any one of said ropes shall be severed at any point, the weight connected therewith will descend and actuate the rock shaft, as hereinbefore stated.

The rearward extending short arm 52 of one of the levers K is connected by non-inflammable connecting means, such as rods or wires 62 with the cross bar 20 connecting the arms 19 that lie in the path of the plates 8 traveling upon the guides 6 and connected by the flexible elements 11 with the door-actuating weights 16. Connection is likewise established between one of the lever arms 52 and the rod 26 of the animal releasing device to move said rod in a proper direction to release the animals when the rock shaft is oscillated. Additional levers K may be used to actuate additional doors and other releasing and safety apparatus.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood. Should fire occur at any part of the barn structure, the severing of any one of the ropes 58 at any point will cause at least one of the weights 57 to drop, thereby oscillating the rock shaft and actuating the door opening device and other safety devices associated therewith, thus enabling the animals to escape without delay.

Having thus described the invention, what is claimed as new, is:—

1. In a device of the character described, an operating device including a rock shaft, a lever upon said rock shaft having oppositely extending arms, one of said arms being provided with a terminal hook and with a longitudinal slot, a weight carrying rod extending through the slot and having a stop member, a suitably guided flexible and combustible element connected with the weight carrying rod and supporting the same with the stop above and adjacent to

the hook of the lever arm, and door releasing means operatively connected with and adapted to be actuated by the other arm of the lever.

5 2. In a device of the character described, an operating device including a rock shaft, levers mounted upon said rock shaft and having arms extending in opposite directions therefrom, the several arms extending in
10 one direction being provided with longitudinal slots and with terminal hooks, suitably arranged releasing devices operatively connected with and adapted to be actuated by the lever arms extending in the opposite direction from the terminally hooked arms,
15 weight carrying rods extending through the slots of said hooked arms and having hook-engaging stops, and suitably guided flexible and combustible elements connected with
20 and supporting the weight carrying rods with the stops upon said rods above and adjacent to the hooked ends of the lever arms.

3. In a device of the character described, a track rail, sliding doors having hangers
25 engaging the rail, apertured brackets adjacent to the meeting edges of the doors, suitably supported buffers lying in the path of the brackets, a bracket member supported above and adjacent to the meeting edges of
30 the doors and having depending arms, pairs of guide members connecting said arms with the buffers and lying in parallel relation to the track rails, plates supported slidably upon the pairs of guide members, flexible
35 elements connected with said plates and guided through the apertured brackets upon the doors and through the buffers, drums with which the flexible elements are connected, flexible weight carrying elements
40 connected with the drums and wound reversely to the flexible elements connected with the slidable plates, a rock shaft supported by the arms of the bracket member adjacent to the meeting edges of the doors,

arms extending from said rock shaft and
45 lying in the path of the slidably supported plates, and means for actuating the rock shaft to release the plates.

4. In a barn or similar structure, a track rail, sliding doors having hangers engaging
50 the rail, brackets adjacent to the meeting edges of the doors, suitably supported buffers lying in the path of the brackets, a bracket supported above and adjacent to the meeting edges of the doors and having depending
55 arms, a guide member connecting said arms with the buffers and lying in parallel relation to the track rails, plates supported slidably upon the guide member, flexible elements connected with said plates and guided
60 through the brackets upon the door and through the buffers, means for placing the flexible elements under tension, movably supported means normally disposed in the path of the plates connected with the flexible
65 elements to hold said plates in spaced relation to the brackets adjacent to the meeting edges of the doors, and means for actuating said movably supported means to release
70 the plates.

5. In a device of the character described, a closure comprising a pair of independently movable slidably supported doors, means including suitably guided flexible elements
75 and springs supported weights for automatically moving said doors to open position, suitably guided plates connected with the flexible elements, and plate engaging means normally lying in the path of said
80 plates to support the weights in elevated position.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES S. COX.

Witnesses:

FRANK BOLTON,
U. S. HOUGLAND, Jr.