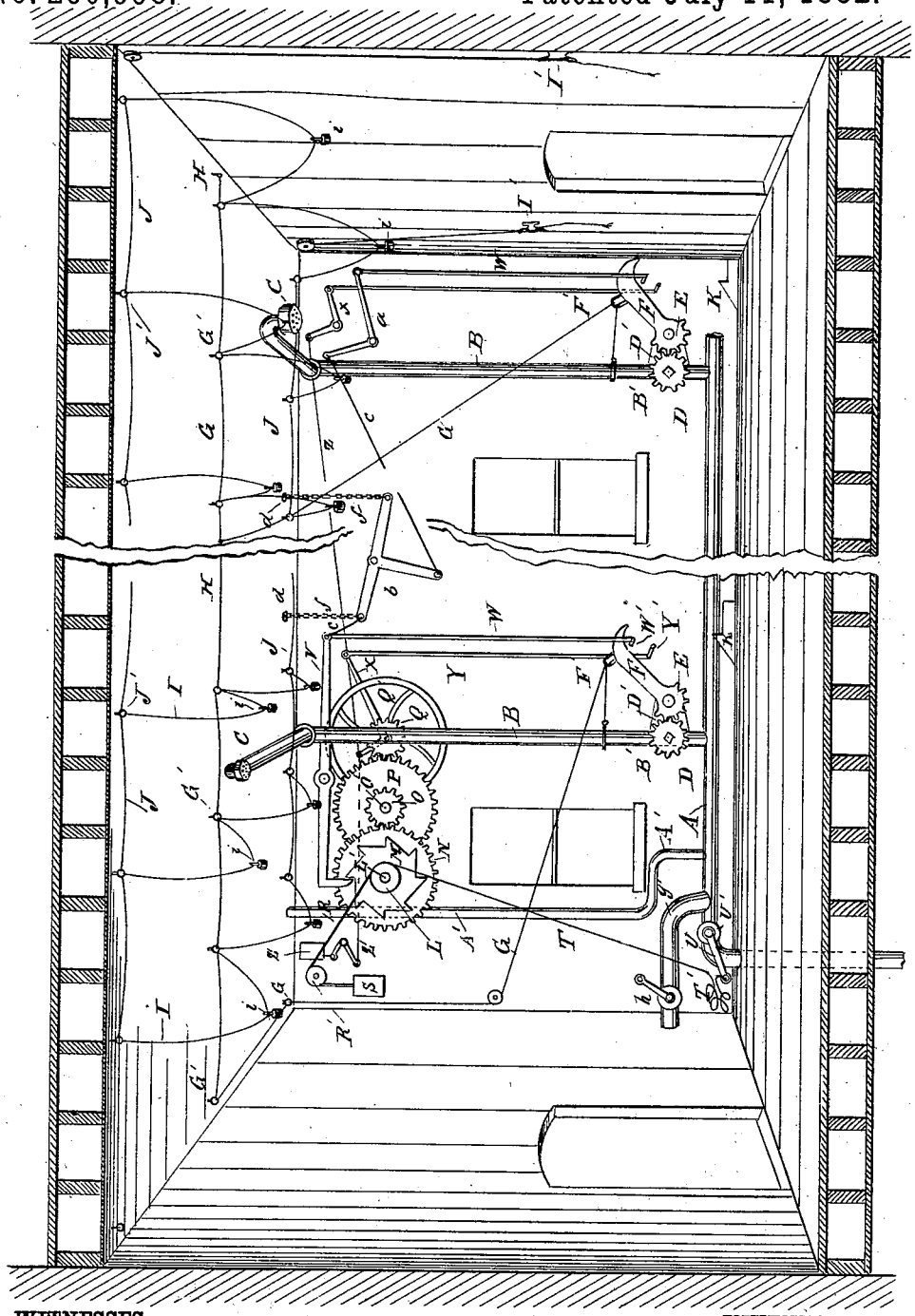
(No Model.)

C. KUPKA.

AUTOMATIC FIRE EXTINGUISHER AND ALARM.

No. 260,998. Patented July 11, 1882.



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AUTOMATIC FIRE EXTINGUISHER AND ALARM.

SPECIFICATION forming part of Letters Patent No. 260,998, dated July 11, 1882.

Application filed April 10, 1882. (No model.)

To all whom it may concern:

Be it known that I, CLEMENS KUPKA, of Phillipsburg, in the county of Warren and State of New Jersey, have invented a new and Improved Automatic Fire Extinguisher and Alarm, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved device for extinguishing a fire as soon as it originates and to give an alarm at the same time.

The invention consists in the combination, with water stand-pipes reaching to the ceiling of the room, of arms attached to the cocks of these pipes, which arms are held in a raised position by cords running along the ceiling, from which cords loops of inflammable material are suspended, whereby when a fire breaks out these loops catch fire and burn the cord holding the arms raised, thus permitting the arms to drop and open the cocks of the stand-pipes. At the same time these arms pull down rods connected with a fire-alarm and with a train of wheels connected with the valve of the supply-pipe, whereby the water will be shut off a short time after the cocks of the supply-pipes have been opened to prevent damage by water.

Reference is to be had to the accompanying drawing, forming part of this specification, in which similar letters of reference indicate corresponding parts, in which a longitudinal sectional perspective view of a room provided with my improved automatic fire extinguisher and alarm is shown.

The water-pipe A enters the room at one corner or at any other suitable place, and is passed along the floor at the bottom of one wall, and from this water-pipe one or more stand-pipes, B, extend up along the wall to the ceiling and to the middle of the same, and are provided at the ends with rotating perforated nozzles or distributers C of the well-known construction. Each stand-pipe B is provided at or near its bottom with a valve, B′, on the spindle of which is rigidly mounted a cog-wheel, D, engaging with a cog-wheel or curved rack, E, pivoted in arms D′, projecting from the stand-pipe. A heavy arm, F, is attached to the pivot of the cog-wheel or curved rack E, and can be held in a raised position by a rope or cord, G, attached to the stand-pipe, passing through a ring or loop, F′, at the end of the arm F, and through pulleys, rings, or loops G′ G′ to the ceiling and along the middle of the same, the end of this rope G being secured to a ring, H, or equivalent device. A series of cords or tapes, I, made of highly-inflammable material or coated with rosin, pitch, or some other similar inflammable material, are attached to the rope G and to cords J, passing through loops or rings J′ at the sides of the ceiling. The ends of the cords J can be fastened to cleats or hooks I′ at the ends of the room. A cushion, K, is provided on the floor below the weighted arm F, upon which cushion this arm can drop. A drum, L, a ratchet-wheel, M, and a cog-wheel, N, are rigidly mounted on a shaft, L′, journaled in and projecting from the wall or some suitable frame. The cog-wheel N engages with a pinion, O, rigidly mounted on a shaft, O′, with a cog-wheel, P, which engages with a pinion, Q, rigidly mounted on a shaft with a fly-wheel, Q′.

In place of the above-mentioned wheels, any other train of wheels may be used for affording resistance to the drum L when the same is rotated by a cord, R, passed around it and over a pulley, R′, and having a weight, S, attached to its free end. A chain or rope, T, is also coiled on the drum L in the reverse direction of the rope or cord R, and the lower end of this chain T is attached to an arm, U, of a valve, U′, in the water-pipe A, where the same enters the room. The chain T is of such length that it forms a loop or coil, T′, below the lever or arm U. A large pivoted pawl-lever, V, has one end bent and resting on the ratchet-wheel M, and from the other end a rod, W, is supported, provided at its lower end with a bend or hook, W′. A like rod, Y, provided at its lower end with a bend or hook, Y′, is suspended from one end of a pivoted bell-crank lever, X, adjoining to the rod W. The other end of this bell-crank lever X is connected by a cord, Z, with a fire-alarm apparatus, Z′, or any other alarm apparatus.

If several stand-pipes B are provided, the rods W of these pipes are connected with the end of the pawl-lever V by means of bell-crank levers *a* and *b* and wires or cords *c*, and the bell-crank lever *b* can be connected with the pawl-levers in the other stories by wires or chains *f*, as shown. A branch pipe, *g*, provided with a cock, *h*, extends from the pipe A

beyond the cock U′ to the outside of the building, and the outer end of this pipe *g* leads to an outside stand-pipe; or the hose can be coupled to the same. Any number of the above-described stand-pipes can be combined with one pawl-lever V and the train of wheels and chain in the manner shown. A pipe, A′, leads from the pipe A to the upper stories.

The operation is as follows: When the room is occupied the cords I are drawn up against the ceiling by the cords J, which are fastened on the cleats I′. When the room is not occupied the cords J are released and the weights *i* draw the cords I downward, forming loops suspended from the ceiling. The lever U of the cock U′ remains turned down and the cock U′ remains open. If a fire breaks out, the loops formed by the cords I immediately catch fire and burn the cords H G, which are thus parted, whereby the heavy arms F will be released, and will drop and strike the bends or hooks W′ Y′ at the lower ends of the rods W Y, thereby pulling these rods downward. If the rod Y is pulled downward, the alarm Z′ will be operated and an alarm will be given at the fire department, or by means of a whistle, or in any suitable manner. If the rod W is pulled downward, the hooked end of the pawl-lever V will be raised from the ratchet-wheel M, which is thus released. When the arm F drops it rotates the cog-wheel or curved rack E, which in turn rotates the cog-wheel D, thereby opening the cock B′, thus permitting the water to pass from the pipe A through the stand-pipes B to the sprinkler or distributer C, which throws it about in the room, thereby partly or wholly extinguishing the fire. As soon as the ratchet-wheel M is released the weight S descends slowly and unwinds the cord R from the drum L, which is rotated, whereby the chain T is slowly wound on the drum L. First the loop or coil T′ of the chain T is taken up, and then the chain T is drawn taut and raises the lever U, thereby closing the cock U′ and shutting off the water from the pipe A for the purpose of preventing injury to the building by the water. The water passes from the distributer or nozzles C a considerable time before the cock U′ is closed, for the drum L rotates very slowly, as the train of wheels presents considerable resistance and it takes some time for the drum to wind up the slackened part or coil T′ of the chain T. As the alarm is given immediately as soon as the cocks B′ are opened, the firemen can arrive by the time the cock U′ is closed. The firemen can easily open the cock U′, if necessary, or can conduct water into the pipe A from the outside of the building through the branch pipe *g*, which is independent of the cock U′. Firemen labor under a great disadvantage, as in most cases, especially at night or on Sundays or holidays, they do not get the alarm in time to arrive at the fire in time to check it in its origin.

The above-described device operates automatically, and checks or extinguishes the fire in its origin and immediately sounds the alarm.

Springs may be used in place of the weight S or the weight on the arms F.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an automatic fire extinguisher and alarm, the combination, with the stand-pipe B and cock B′, of the gear-wheel D, segment E, attached to lever F, the cords G, and loops I, of inflammable material, as shown and described.

2. In an automatic fire extinguisher and alarm, the combination, with the stand-pipes B, of the cocks B′, the arms F, the cords or ropes G, the cords J, the cords or loops I, and the cleats I′, substantially as herein shown and described, and for the purpose set forth.

3. In an automatic fire extinguisher and alarm, the combination, with the stand-pipes B, of the cocks B′, the cog-wheels D and E, the arms F, and the cords or ropes G, substantially as herein shown and described, and for the purpose set forth.

4. In an automatic fire extinguisher and alarm, the combination, with the stand-pipe B, of the cocks B′, the arms F, the rope or cord G, the rod W, connected with an apparatus for shutting off the supply of water, and the rod Y, connected with an alarm apparatus, substantially as herein shown and described, and for the purpose set forth.

5. In an automatic fire extinguisher and alarm, the combination, with the stand-pipes B, of the cocks B′, the arms F, the rope or cord G, the rod W, the pawl-lever V, and a train of wheels connected with a cock for shutting off the supply of water to the pipes B, substantially as herein shown and described, and for the purpose set forth.

6. In an automatic fire extinguisher and alarm, the combination, with the stand-pipe B, of the cocks B′, the arms F, the cord or rope G, the pawl-lever V, the chain T, a drum, L, and a lever, U, of the cock U′ of the supply-pipe A, substantially as herein shown and described, and for the purpose set forth.

7. In an automatic fire extinguisher and alarm, the combination, with the stand-pipes B, of the cocks B′, the arms F, the cords or ropes G, the rod W, the pawl-lever V, a train of wheels, the chain T, attached to the drum connected with the train of wheels, the lever U, and the cock U′ of the supply-pipe A, substantially as herein shown and described, and for the purpose set forth.

8. In an automatic fire extinguisher and alarm, the combination, with the stand-pipes B, of the cocks B′, the arms F, the cords or ropes G, the rod W, the lever V, a train of wheels, the chain T, the lever U of the cock U′, and the branch pipe *g*, substantially as described, and for the purpose set forth.

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Witnesses:
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