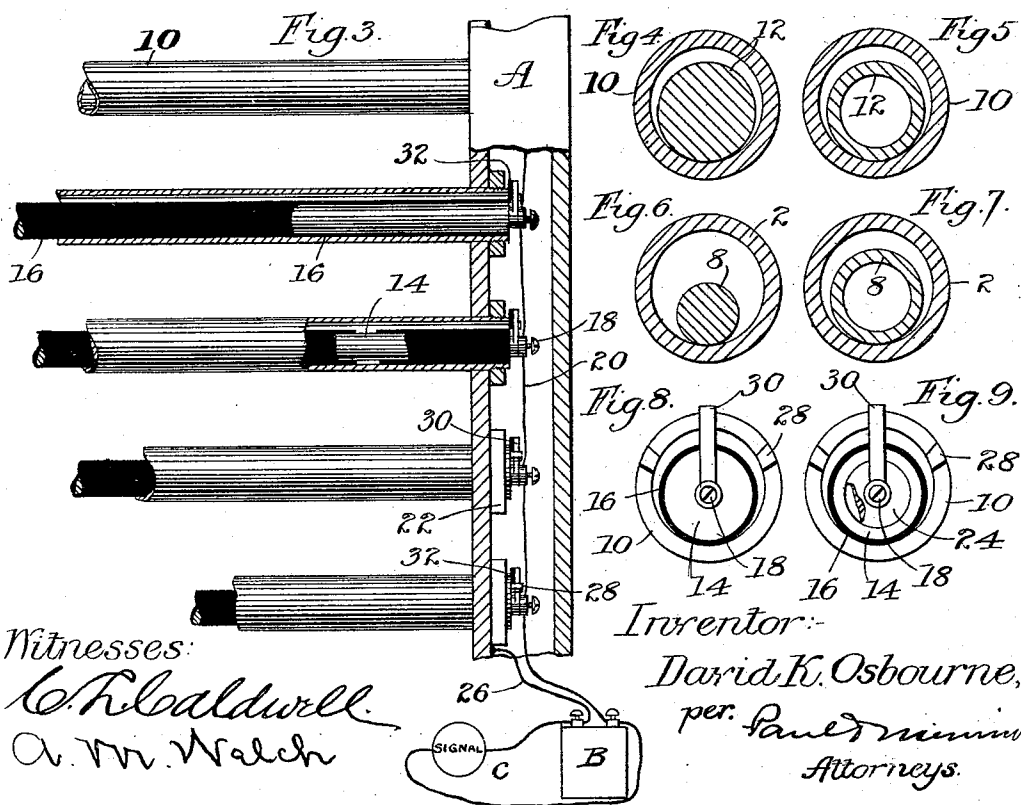


D. K. OSBOURNE.
CONSTRUCTION OF JAILS.

Patented Nov. 1, 1892.



UNITED STATES PATENT OFFICE.

DAVID K. OSBOURNE, OF ST. PAUL, MINNESOTA.

CONSTRUCTION OF JAILS.

SPECIFICATION forming part of Letters Patent No. 485,559, dated November 1, 1892.

Application filed January 4, 1892. Serial No. 416,937. (No model.)

To all whom it may concern:

Be it known that I, DAVID K. OSBOURNE, of St. Paul, Ramsey county, Minnesota, have invented certain Improvements in the Construction of Jails, of which the following is a specification.

My invention relates to that type of open-work metallic jail cells or cages which are constructed of tubes held in suitable frames, its object being to reinforce and strengthen the structure against attempts to cut or break the same and to provide electrical protection therefor.

To this end my invention consists in arranging in the steel tubes of which such structures are usually made loose cylindrical cores, preferably steel rods or tubes, which being free to turn in the inclosing tubes render the work of cutting through the same much more difficult than in the case of rigid bars. I insulate these cores with a suitable coating or cover and connect the several cores to one pole of an open-circuit battery, while the structure itself or the inclosing tubes are similarly connected to the other pole of the battery. By this means in case of attempted sawing or filing through the outer tube the instant the instrument cuts through the insulation and touches the core the circuit is closed and an alarm sounded by a signaling apparatus included in the circuit, thus enabling any such attempt to be frustrated. I also prefer to arrange these insulated cores in such manner that their slight rotary displacement in the tubes will also close the circuit and sound an alarm.

My invention further consists in the construction and combination hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a detail elevation of a portion of an open-work cell-wall, showing the series of tubes adapted to be connected to a source of steam-supply for heating purposes, a portion of the pipes being broken away to show the inclosed cores. Fig. 2 is a similar detail showing series of pipes secured in their frames, provided with loose cores, but not connected together. Fig. 3 is a detail elevation and partial section of a

similar structure provided with insulated cores connected with a battery and signal apparatus. Figs. 4 and 5 are sectional details of one of the pipes as illustrated in Fig. 2, Fig. 4 showing a solid and Fig. 5 a tubular core. Figs. 6 and 7 are similar sectional details of one of the steam-pipes illustrated in Fig. 1, Fig. 6 showing a solid core and Fig. 7 a tubular core. Figs. 8 and 9 illustrate end elevations of the pipes in Fig. 3, Fig. 8 representing a solid core and Fig. 9 a tubular core closed by means of a plug, each provided with a contact-finger adapted to strike against projections upon the ends of the pipe in case of the rotary displacement of the core, thus closing the circuit.

In the drawings, A represents a suitable metallic frame supporting the pipes of the structure and inclosing and protecting the ends of the pipes.

2 represents the steam-pipes in the construction shown in Fig. 1, connected together in any suitable manner, as by means of return-bends 4, and provided with a feed-pipe 6, which leads to a source of steam-supply. Arranged loosely in each member of the series of pipes is a loose cylindrical core 8, which may be either a steel rod, as shown in Fig. 6, or tube, as shown in Fig. 7. 10 represents similar but independent pipes with the cores 12 and secured to the frame A in any suitable manner, as by means of cap-nuts 11, threaded upon their projecting ends. The cores 12 may be more nearly the size of the opening in the inclosing tube than in case of the cores 8, since the space in the tubes is not required for the carrying of steam, and likewise may be solid, as shown in Fig. 4, or tubular, as shown in Fig. 5.

As shown clearly in Fig. 3, the cores 14 are covered with a suitable insulating-coating 16 and having set-screws 18 secured to their ends, by means of which the wire 20, leading to one pole of the battery B, is connected thereto, the inclosing tubes being secured to the frame by means of collar-nuts 22. Where a tubular core is used, its end is closed by means of a suitable plug 24, to which the set-screw 18 is secured. The other pole of the battery B is connected by means of a wire 26 to the metallic frame A. In order to close the

circuit through the battery in case of the rotary displacement of the core 14, I arrange spurs or projections 28 upon the end of the tube 10 and secure to the end of the core a
 5 finger 30, insulated by the block 32 from the end of the tube 10, but adapted when turned by the core to make contact with one of the
 10 projections 28, thus closing the circuit between the core and its inclosing tube and through the battery and signal apparatus C, so as to sound an alarm.

The connected system of tubes, as shown in Fig. 1, may be utilized as a heating apparatus, the steam passing freely around the cores.
 15 In case a prisoner attempts to cut through one of the tubes of the structure, the core arranged therein will turn freely when struck by the teeth of a saw or file and roll under it, making the severing of it extremely difficult and
 20 the operation noisy. Besides, the teeth of the saw or file will necessarily break through the insulation upon the core and their contact with the core will instantly close a circuit between them and sound an alarm.

25 I claim—

1. The combination of the series of metallic tubes, the insulated cylindrical cores arranged loosely therein, and the source of electrical
 30 energy connected in open circuit, respectively, with said tubes and cores, substantially as described.

2. The combination, with the tubular metallic structure, of an open-circuit battery hav-

ing one pole connected to said structure, the series of insulated cores arranged loosely in
 35 the tubes of the structure and connected to the other pole of said battery, and signaling devices included in said circuit, substantially as described.

3. In a structure of the class described, the
 40 combination, with the tubes thereof, of insulated cylindrical cores arranged loosely therein, contact devices arranged upon said tubes and said cores for closing the circuit between
 45 the same in case said cores are rotated, an open-circuit battery having its poles connected, respectively, to said tubes and said cores, and a signaling apparatus included in said circuit, substantially as described.

4. In a structure of the class described, the
 50 combination, with the tubes thereof, of insulated cylindrical cores arranged loosely therein, projections upon the ends of said tubes, fingers arranged upon the ends of said cores
 55 and adapted to make contact with said projections, and wires connecting said tubes and said cores, respectively, with an open-circuit battery and signaling apparatus, substantially as described.

In testimony whereof I have hereunto set
 60 my hand this 29th day of December, 1891.

DAVID K. OSBOURNE.

In presence of—

T. D. MERWIN,
 A. M. WELCH.