No. 699,539. Patented May 6, 1902.

E. J. LEWIS.

CAN TESTING MACHINE.

(Application filed May 23, 1901.)

(No Model.) 2 Sheets—Sheet 1.

FIG. 1.

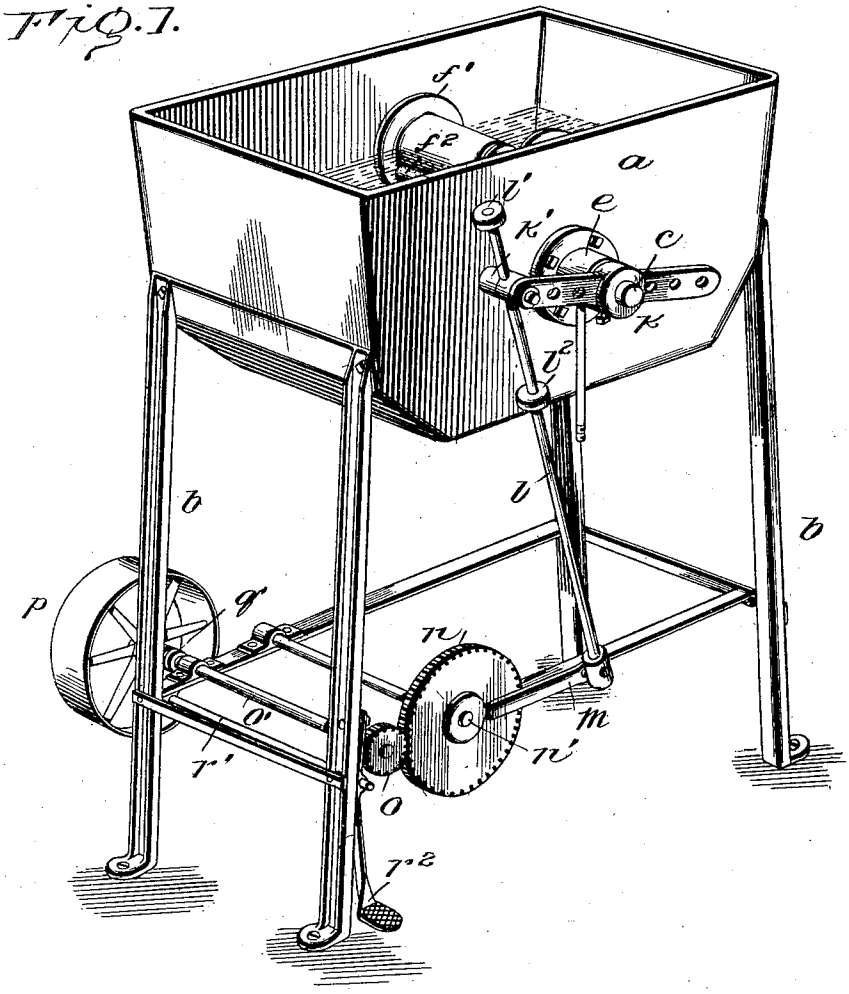
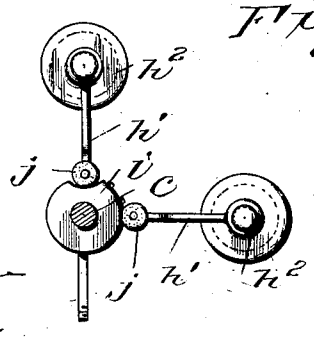


FIG. 4.



Witnesses

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Fig. 2.

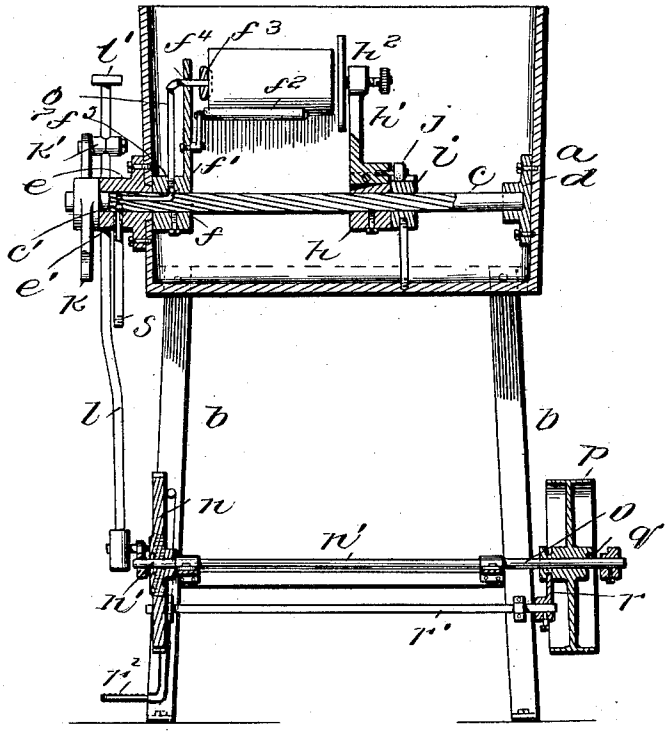
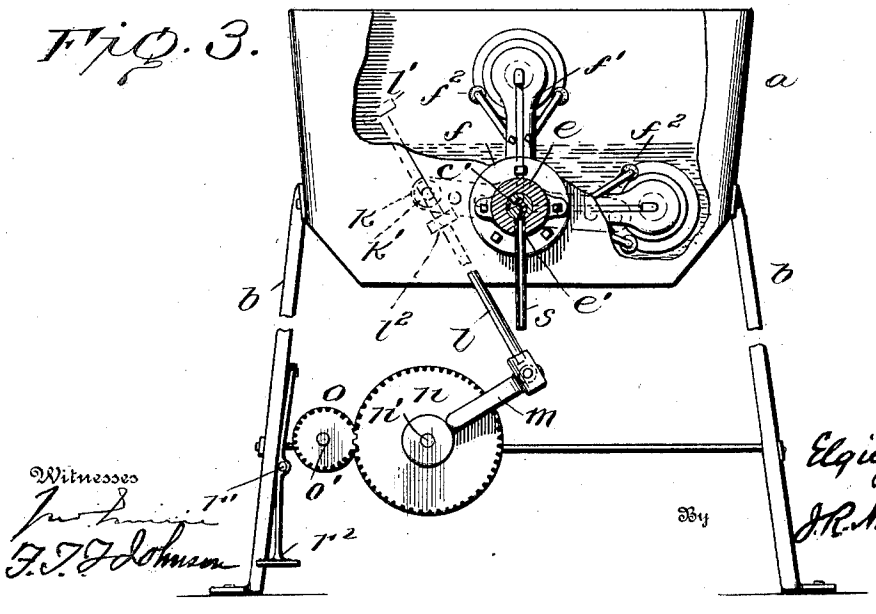


Fig. 3.



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UNITED STATES PATENT OFFICE.

ELGIE J. LEWIS, OF MIDDLEPORT, NEW YORK.

CAN-TESTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 699,539, dated May 6, 1902.

Application filed May 23, 1901. Serial No. 61,656. (No model.)

To all whom it may concern:

Be it known that I, ELGIE J. LEWIS, a citizen of the United States, residing at Middleport, in the county of Niagara and State of New York, have invented certain new and useful Improvements in Can-Testing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates generally to machines for testing sheet-metal cans, but more particularly to certain novel mechanism for imparting a rocking or oscillatory motion to the can-carrying devices; and it consists, essentially, of the arrangement and combination of the various parts, as will be hereinafter fully described, and briefly stated in the claims.

The principal object of the invention is to provide machines of the character mentioned with a simple and inexpensive power-driven mechanism so constructed and arranged that it will intermittently impart to the shaft, to which the can-carriers are attached, an oscillatory motion, by means of which one of the can-carriers will be moved through the body of water while the other is being moved out, said mechanism being so arranged that a sufficient interval of time will occur at the end of each oscillation as will permit the can which has moved out of the water to be replaced by another. This object is attained by means of the mechanism illustrated in the drawings, in which—

Figure 1 is a perspective view of a can-testing machine, showing my improved mechanism for operating the same; Fig. 2, a transverse vertical section through the center thereof; Fig. 3, an end elevation of the can-holding devices, showing the shaft in section; and Fig. 4, an end elevation of the can-clamping devices.

Referring to the several views, the letter *a* indicates a water-tight box or receptacle of proper size supported on legs *b*, suitably braced.

The can carrying or supporting mechanism is preferably constructed as follows: *c* is a shaft having one end journaled in a suitable bearing *d* and the other end journaled in a bearing *e*, having ground joints and provided with an air-port *e'*. Secured on the shaft is a hub *f*, provided with two arms *f'*, arranged at right angles to each other. Each arm is provided with outwardly-extending can holders or supports f^2 and with a suitable rubber disk f^3 for closing the opening in the head of the can. The rubber disk and head of each arm is provided with a central air-inlet f^4, and an air-tube *g* connects the air-inlet with one of the parts f^5 in the hub *f*, the shaft being provided with suitable ports *c'*, which alternately communicate with the port *e'* in the bearing *e*. Mounted on the shaft *c* is a box *h*, provided with longitudinal slots in two of its faces, in each of which is pivoted a standard *h'*. The upper end of each standard is provided with a clamping-plate h^2, carried by an adjusting-screw provided with a binding-nut, said screw being set in said upper end of the standard *h'*, between which clamping-plate and the head of the arm *f'* a can is clamped. Loosely mounted on the shaft adjacent to the outer end of the box *h* and held against rotation by rod h^3 is a cam *i*, and pivoted to the box above the cam is a roller *j*. The action of the clamp is automatic. As a can emerges from the water the roller drops into the recessed portion of the cam and allows the clamp to fall back, releasing the can.

The mechanism for oscillating the shaft *c* is constructed as follows: Mounted rigidly on one end of the shaft is an arm *k*, carrying at one end a pivoted stud *k'*. The outer end of this stud is provided with a hole through which operates one end of a rod *l*, the other end of the rod being pivotally connected to a crank-arm *m*, secured on a gear-wheel *n*. The rod *l* is provided with adjustable collars *l'* l^2 to regulate the movement of the arm *k*, and thereby the oscillatory motion of the shaft *c*. The gear-wheel *n* is mounted on a shaft *n'*, journaled in suitable bearings secured to the leg-braces, and meshes with a smaller gear-wheel *o*, secured on one end of a shaft *o'*, also journaled in suitable bearings attached to the leg-braces. Mounted loosely on the other end of the shaft *o'* is a band-wheel *p*, which receives its power from any suitable source. A clutch *q* is secured on the outer end of the shaft, and the band-wheel is shifted into and out of engagement with the same by means of any suitable shifting mech-

anism, preferably consisting of the yoke r, connecting-rod r', and pivoted treadle r^2.

In operating the machine the cans are seated upon the supports or holders f^2 and the clamps h^2 properly adjusted. Power being applied to the band-wheel, the shaft c is rocked back and forth. First one can and then the other will be carried into the body of water and out again, and during this operation the rollers j ride on the periphery of the cams, keeping the cans firmly clamped between the rubber-faced head and the clamp h^2; but when a can emerges from the water and its carrying-arm assumes an upright position the roller j drops into the recessed portion of the cam and the can is released. The interval of time which occurs at the end of each oscillation is sufficient for the removal of the can and its replacement by another.

Air may be applied to the cans from any suitable source to the pipe s, which communicates with the port e'. As one can enters the water air will be supplied thereto; but as the other can emerges from the water the air-supply to such can will be cut off. It will be understood that any imperfection in the soldering of the can will be indicated by air-bubbles in the water as the can is moved in and out. The collars on the connecting-rod limit the distance of movement of the cans into the water.

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

1. In a machine for testing cans, the combination with the main shaft provided with can-carrying devices of the character described, of an operating-arm secured on said shaft, and mechanism for intermittently operating the arm to rock the shaft.

2. In a machine for testing cans, the combination with the main shaft provided with can-carrying devices, of an operating-arm secured on said shaft, a perforated stud adjustably secured on the arm, a connecting-rod slidably mounted in the stud and provided with adjustable stops, and means for operating the rod to rock the operating-arm and thereby the shaft.

3. In a can-testing machine, the combination with the main shaft provided with can-carrying devices, of an operating-arm secured on said shaft, a perforated stud adjustably secured on the arm, a connecting-rod having one end operating in the perforated stud and the other end pivotally connected to a crank-arm secured on a gear-wheel, the gear-wheel, and mechanism for driving said gear-wheel.

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

ELGIE J. LEWIS.

Witnesses:
GEORGE R. SHELDON,
JOHN J. MACK.