(No Model.) 2 Sheets—Sheet 1

E. L. RANSOME.

CONCRETE MIXING MACHINE.

No. 410,292. Patented Sept. 3, 1889.

Fig. 1.

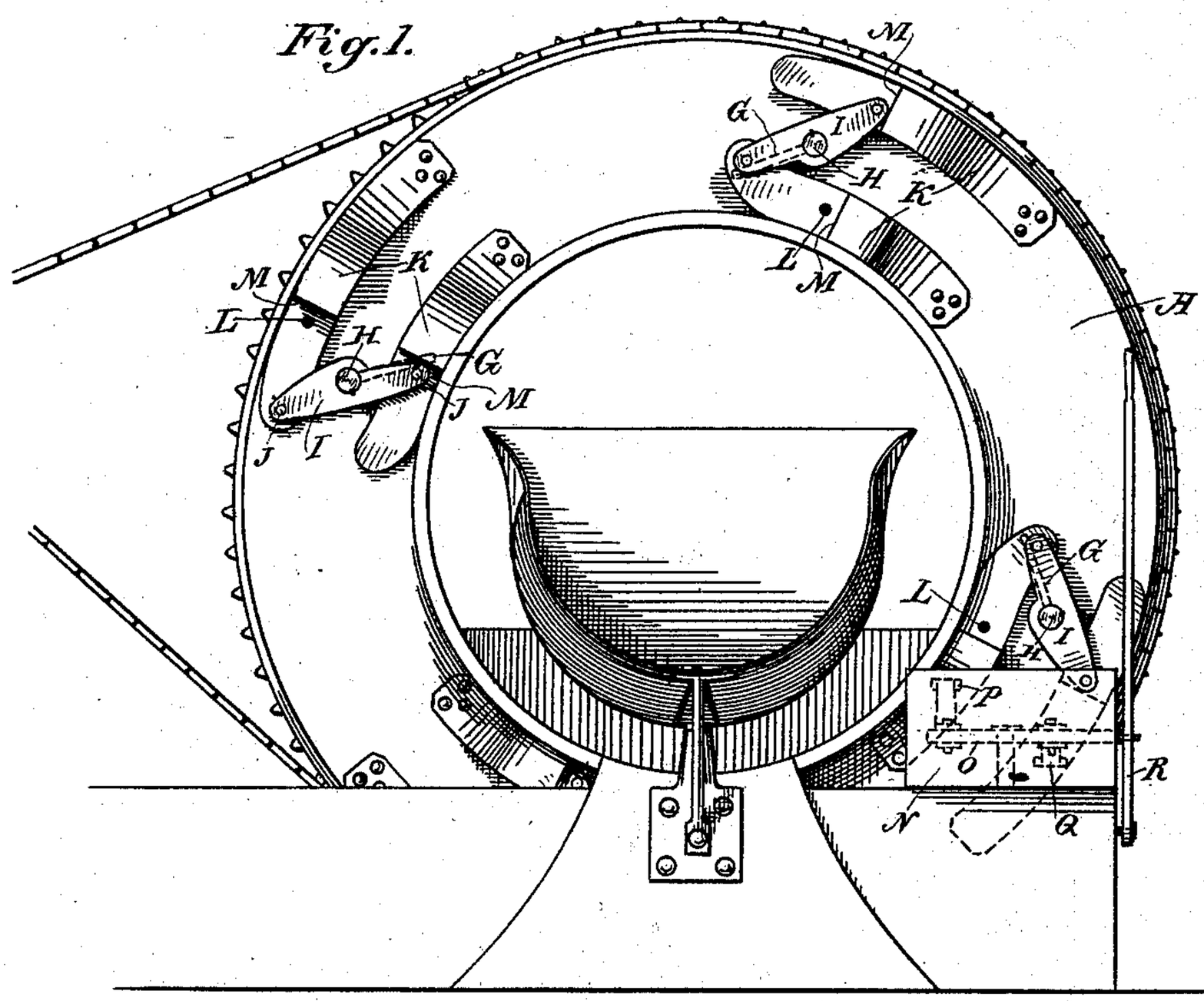


Fig. 2.

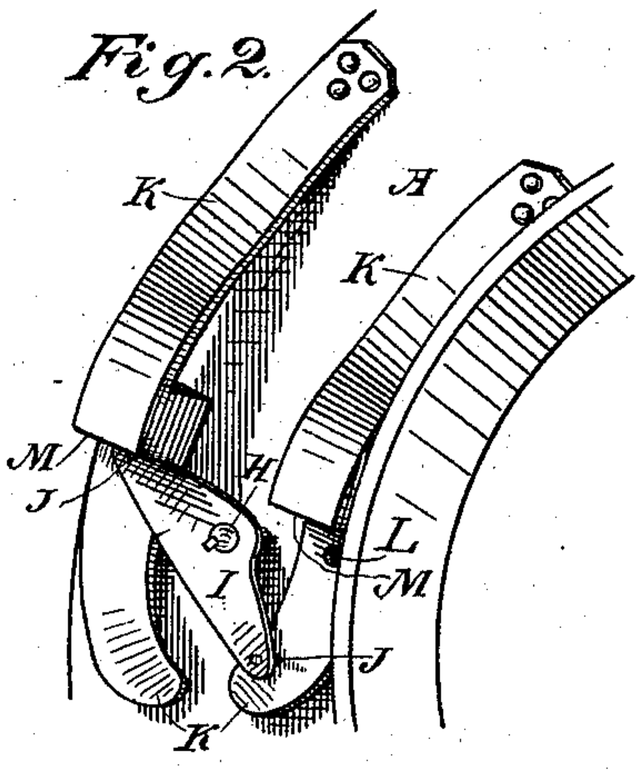


Fig. 3.

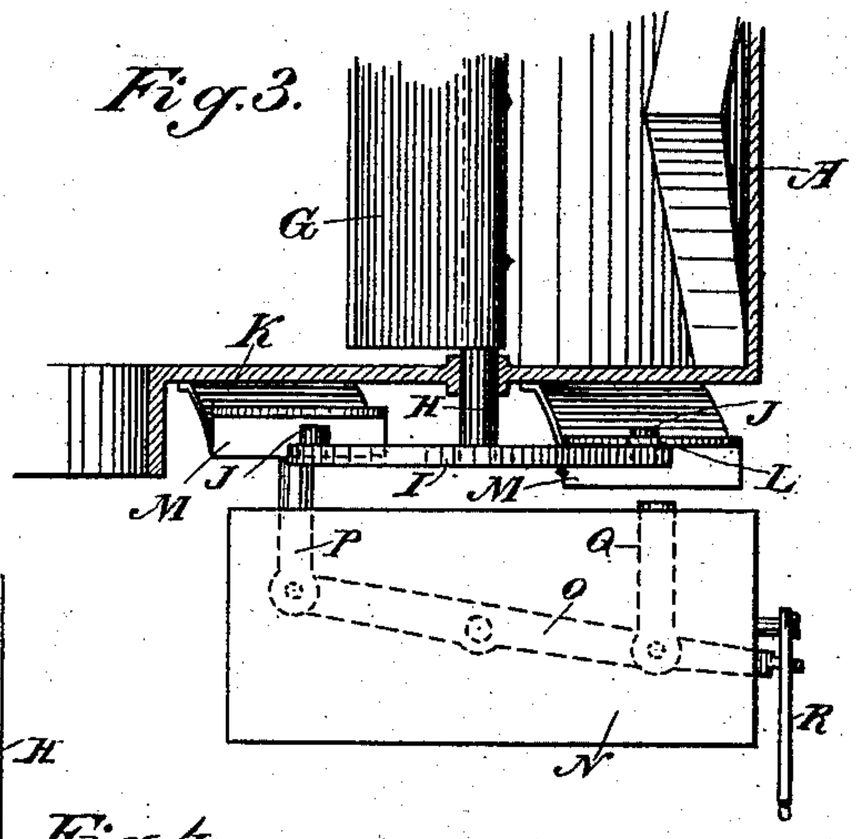
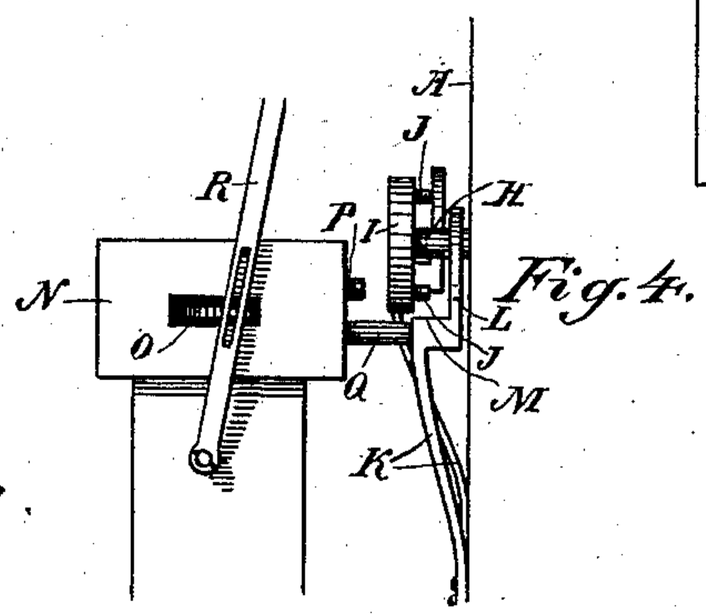


Fig. 4.



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(No Model.) 2 Sheets—Sheet 2.

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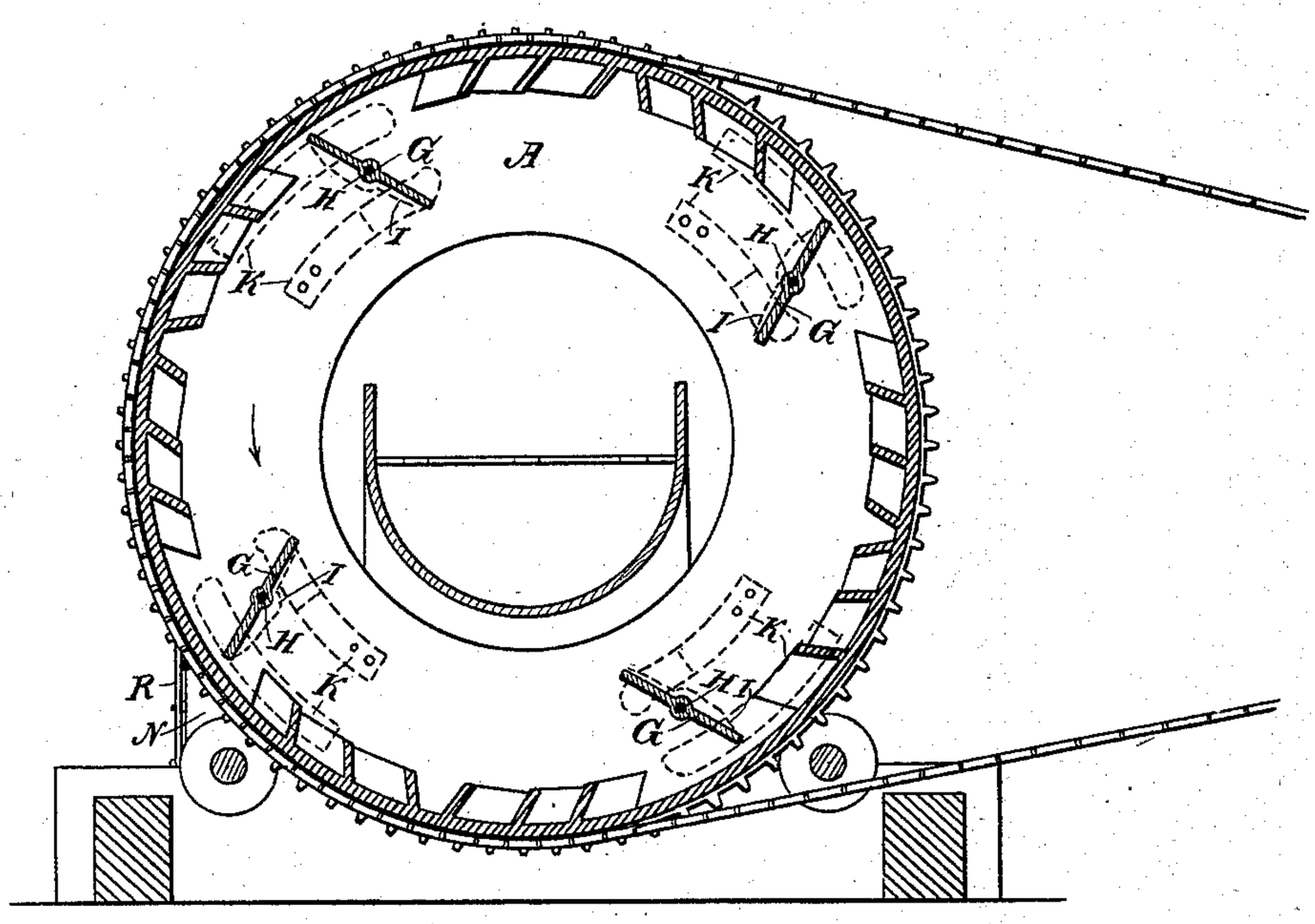
CONCRETE MIXING MACHINE.

No. 410,292. Patented Sept. 3, 1889.

Fig. 5.



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UNITED STATES PATENT OFFICE.

ERNEST L. RANSOME, OF SAN FRANCISCO, CALIFORNIA.

CONCRETE-MIXING MACHINE.

SPECIFICATION forming part of Letters Patent No. 410,292, dated September 3, 1889.

Application filed November 16, 1888. Serial No. 291,061. (No model.)

To all whom it may concern:

Be it known that I, ERNEST L. RANSOME, of the city and county of San Francisco, State of California, have invented an Improvement in Concrete-Mixing Machines; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in that class of machines in which a rotating case is employed to receive and mix the material to form concrete, and it is especially applicable to a machine patented to me July 14, 1885, in which a series of lifting shelves or flanges are fitted within the rotary casing of the mixer.

My invention consists of an automatically-operating device by which the shelves or flanges may be turned upon their pivot or fulcrum pins, so as to either lie flat or stand so as to discharge the material when properly mixed.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a side elevation of the mixing-drum, showing the chute, the lever-arms, and the springs. Fig. 2 is a detail showing, in perspective, a portion of the drum, one of the lever-arms, and the springs K K. Fig. 3 is a plan view of Fig. 2 and showing part of the drum in section. Fig. 4 is a front elevation of Fig. 3. Fig. 5 is a sectional view taken transversely through the drum.

A is a hollow drum having openings at each end through which the material is introduced to and discharged from the annular space around the circumference within which the mixing is carried on. Angularly-placed flanges are fitted within the drum for the purpose of mixing the material, and a discharge-chute is supported so as to extend through the drum in such a manner as to receive and discharge the material when properly mixed. The material is lifted to a point where it can be dropped into this chute by means of the shelves or flanges G, which consist of oblong plates mounted upon shafts H, about which they may be turned, so as to lie in a position in which they will not lift the material until it has been properly mixed within the drum. They may then be turned to stand at such an angle that they will lift the material and carry it up to a point above the discharge-chute into which they will drop it.

Upon the end of each of the shafts H is fixed a double-lever arm I, so that by turning this arm the shaft and the lifting-plate are moved as above described. Upon each end of this lever-arm I are pins J, which project inwardly or toward the side or flange of the drum A. Upon this side of the drum are fixed the two springs K, having the holes L made in them, as shown. These springs have one end each bolted or fixed to the side of the drum, and they are made so as to incline outwardly from the point where they are fixed, and shoulders M are formed in the springs, where they are again bent abruptly inward toward the side of the casing. These shoulders insure that the springs will be depressed, so as to clear the pins before the levers are moved. From this point the ends of the springs extend a short distance beneath the lever-arm I, and their elasticity causes them to be pressed against the inner faces of the levers. It will be seen that when the lever I of either of the lifting shelves or flanges is turned so that one of its pins J will drop into the hole L in the corresponding spring, which is beneath that end of the lever, the lifting-flange and lever will be rigidly held in that position until it be released from the spring.

In order to release either end of the lever I from the corresponding holding-spring, a support N is fixed at one side of the drum A, and within this support is fulcrumed a lever O. From this lever pins P and Q project, about equidistant from its fulcrum-pin, extending toward the rim of the drum A, as shown, so that if one of the pins is advanced by moving the lever O in one direction it will engage one of the springs K and force it inwardly toward the side of the drum so far as to release the pin J on the lever I, which may be engaged with the hole L in the particular spring. If the lever O is moved in the opposite direction, this point will be withdrawn and the other pin will be advanced, and will act in precisely the same manner upon the opposite spring K. The lever R is fulcrumed so as to operate the lever O whenever desired.

The operation will then be as follows: The

lifting flanges or shelves lying flat or in a position not to lift the material which is being mixed within the drum, the pin J at one end of the lever I will be engaged by the hole L in the corresponding spring K, and will thus be locked in that position, where it will remain as long as may be desired. Whenever it is desired to turn the flange into a position where it will lift the material so as to drop it into the discharge-spout, the pin Q will be advanced by moving the lever O, and as the drum A continues to revolve this pin will engage the inclined portion of the spring K and gradually force the spring inward until the pin J is released from the hole L. The end of the pin Q, then passing over the shoulder or offset M, strikes the end of the arm I and turns this arm, and with it the shaft H and the lifting flange or shelf within the drum, to a position which will cause it to act to lift the material within the drum. The pin J, upon the opposite end of the lever I, will then engage with the hole L upon the opposite spring K, and will hold the flange in that position as long as may be desired. When it is desired to release the lifting-flange and allow it to be turned into the position in which it will not lift, the lever O is moved so as to advance the pin P, and this, following the inclination of the other spring K, will force that spring inward until it is clear of the pin J of the lever I at that end. The continued movement of the drum A brings the pin into contact with that end of the lever I, thus turning it in the opposite direction until it is again locked with the other spring, as previously described. At the instant when this locking takes place the lever I is turned so far out of line as to allow the pin P or Q to pass by its end without further action upon it. The shoulders or offsets M upon the springs K are deeper than the length of the pins J, so that as they pass beneath the pin P or Q they will be depressed so far that the pins J will be entirely released from the locking-holes L before the end of the lever I is engaged and moved by the pin P or Q.

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

1. In a concrete-mixing machine, a hollow rotating drum with the hinged or swinging transverse lifting flanges or shelves on the inner surface of its periphery, in combination with lever-arms fixed to the outer ends of their fulcrum-shafts, and the pins and perforated locking-springs, whereby they are held in their position, substantially as herein described.

2. In a concrete-mixing machine, a hollow rotating drum, in combination with hinged or swinging flanges or shelves upon the inner surface of its periphery, the transverse arms or levers fixed to their fulcrum-shafts, and the springs adapted to engage and hold the opposite ends of the transverse arms, and having the shoulders or stops M, substantially as and for the purpose herein described.

3. In a concrete-mixing machine, the hollow rotating drum, with the hinged or swinging transverse flanges or shelves upon the inner surface of its periphery, and the transverse arms fixed to the outer ends of their fulcrum-shafts, in combination with springs having one end fixed to the side of the drum and the other ends lying beneath the ends of the transverse arms, said springs being inclined away from the side of the drum from their point of attachment to the abrupt shoulders M, substantially as herein described.

4. In a concrete-mixing machine, the hollow rotating drum, the hinged or swinging transverse flanges or shelves upon the inner surface of the periphery, the transverse lever-arms, with locking-pins J, and fixed to the fulcrum-shafts of said flanges exterior to the drum, and the springs K, with the outward inclination from their point of attachment, in combination with the pins P and Q and the mechanism for advancing said pins alternately, whereby they move over the inclined surfaces of the springs and gradually force them out of engagement with the locking-pins J, substantially as herein described.

5. In a concrete-mixing machine, the hollow rotating drum, with the adjustable lifting shelves or flanges mounted upon fulcrum-shafts within the periphery of the drum, and the transverse levers fixed to the fulcrum-shafts exterior to the side of the drum, having locking-pins at opposite ends to engage with corresponding holes in the inclined springs K, which are fixed to the side of the drum and which have the abrupt shoulders M, as shown, in combination with a lever having pins upon opposite sides of its fulcrum, which may be advanced alternately, so as to engage the inclined surfaces of the springs and force them backward so as to release the locking-pins and allow the shelves to be turned, substantially as herein described.

In witness whereof I have hereunto set my hand.

ERNEST L. RANSOME.

Witnesses:
S. H. NOURSE,
H. C. LEE.