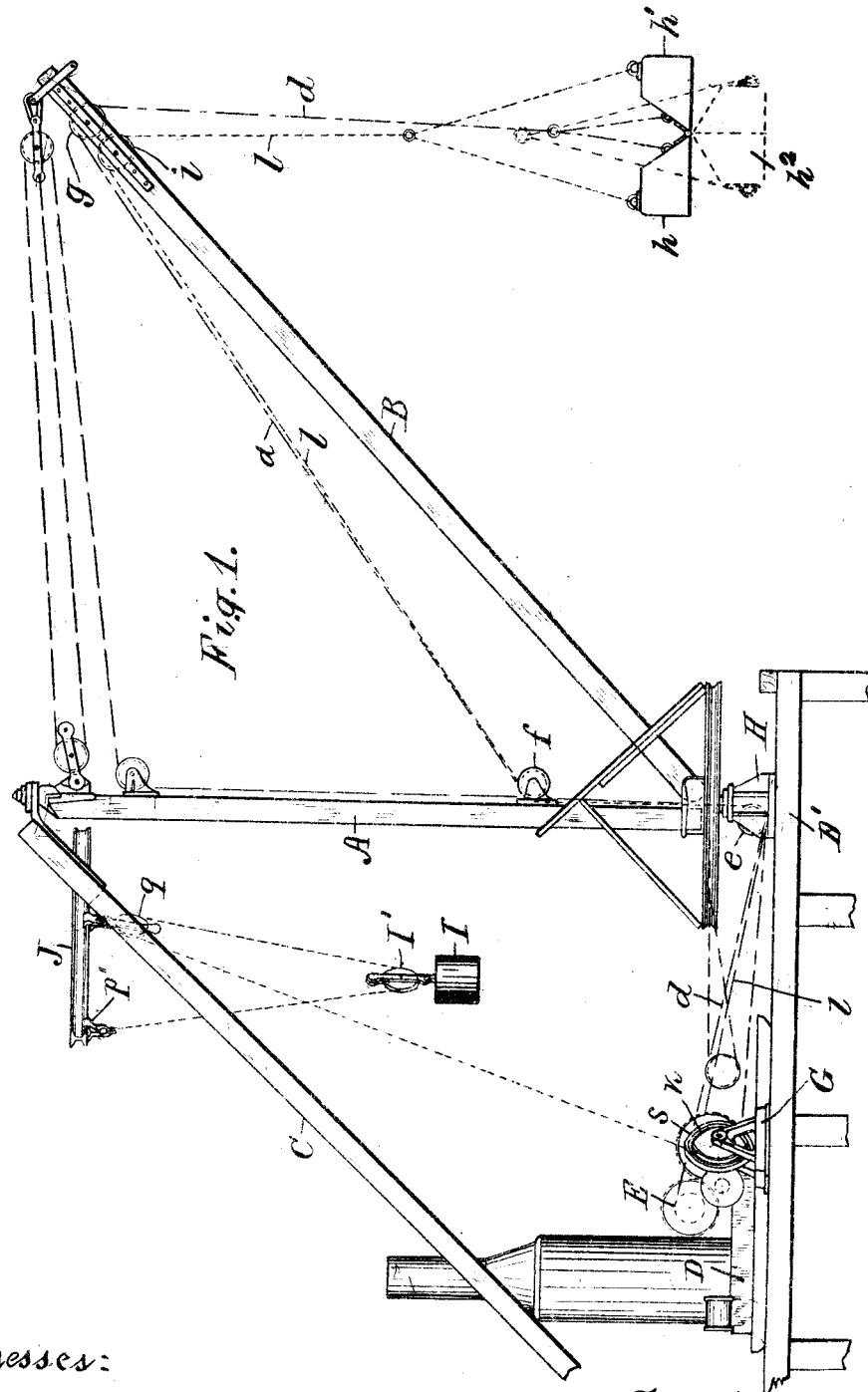


A. LAMBERT.
DUMPING APPLIANCE FOR HOISTER BUCKETS.
APPLICATION FILED SEPT. 11, 1911.

1,034,806.

Patented Aug. 6, 1912.

4 SHEETS-SHEET 1



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Thomas S. Crane, Atty.

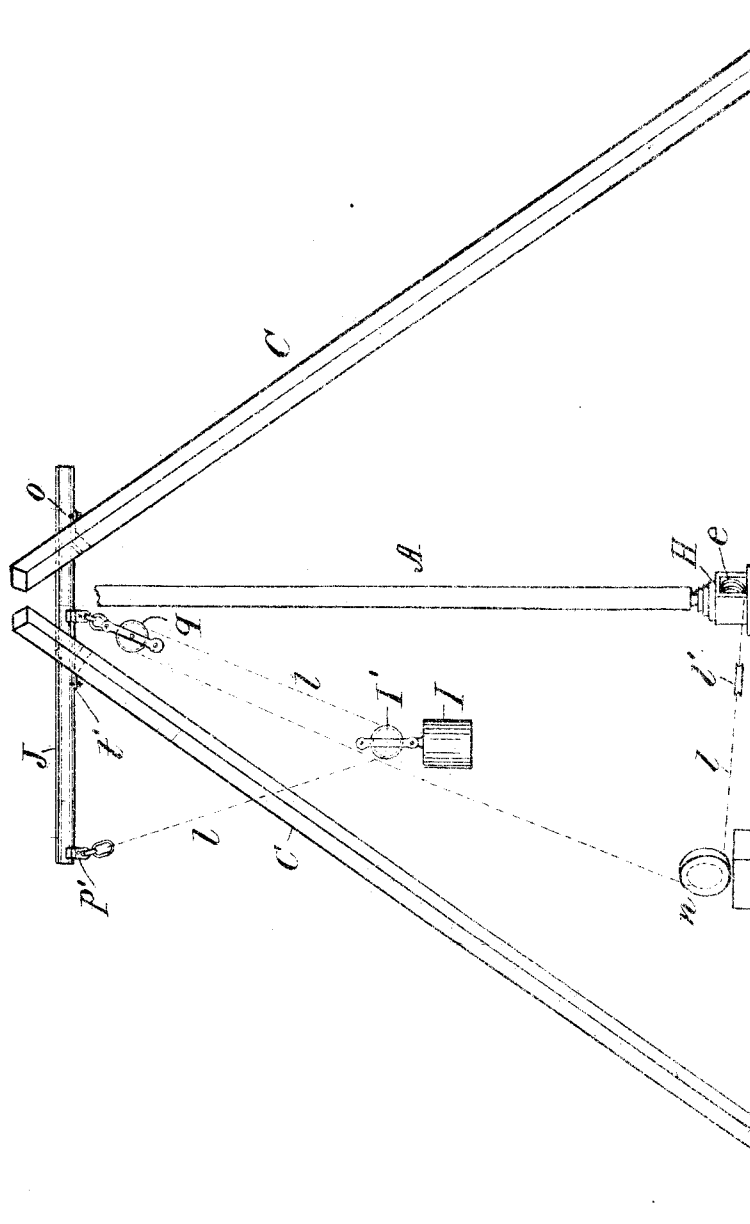
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4 SHEETS - SHEET 2.

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4 SHEETS SHEET 3

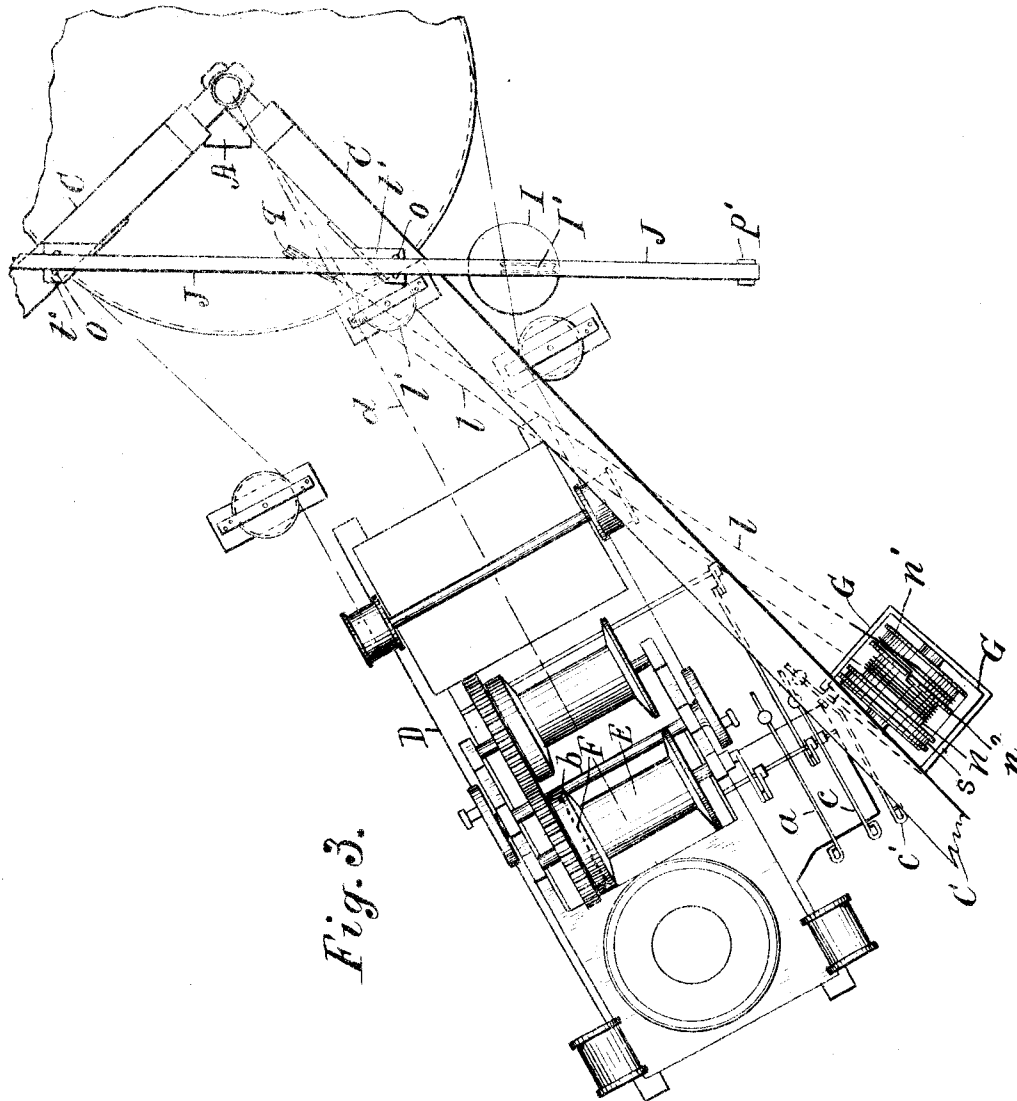


Fig. 3.

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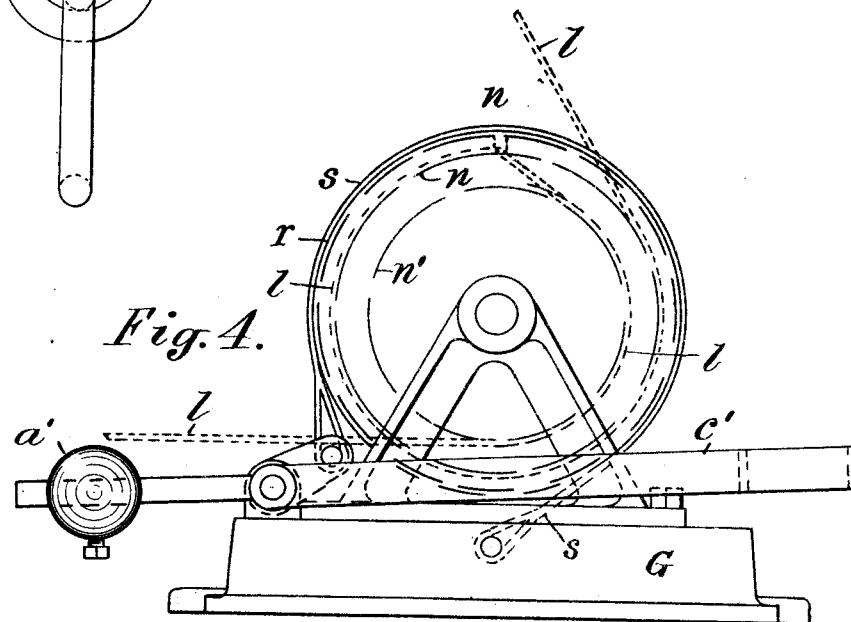
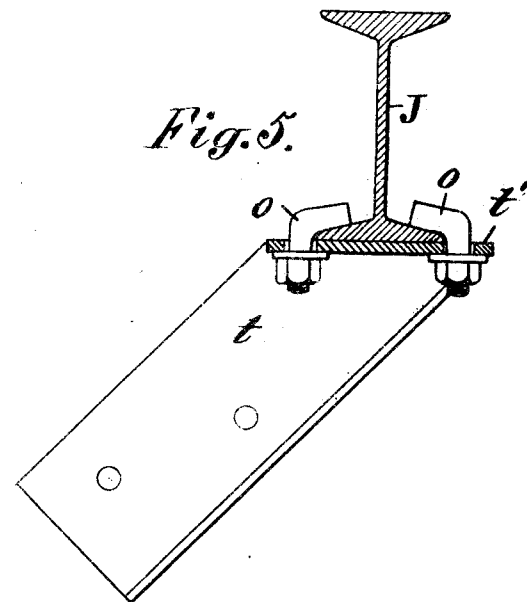
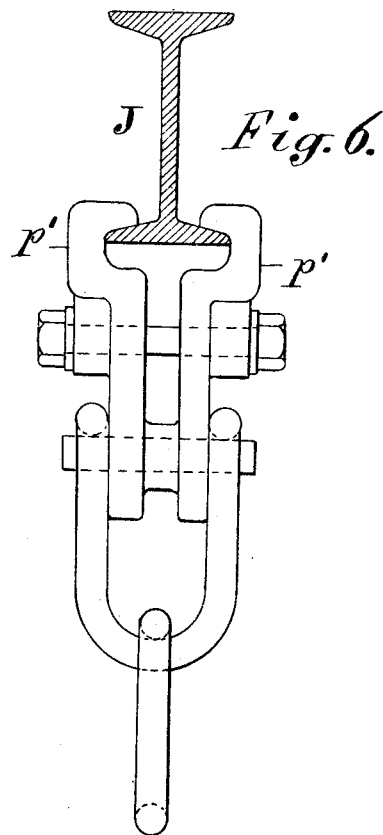
A. LAMBERT.

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4 SHEETS-SHEET 4.



Witnesses
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UNITED STATES PATENT OFFICE.

ASHER LAMBERT, OF NEWARK, NEW JERSEY.

DUMPING APPLIANCE FOR HOISTER-BUCKETS.

1,034,806.

Specification of Letters Patent.

Patented Aug. 6, 1912.

Application filed September 11, 1911. Serial No. 648,764.

To all whom it may concern:

Be it known that I, ASHER LAMBERT, a citizen of the United States, residing at 1 Johnson avenue, Newark, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Dumping Appliances for Hoister-Buckets, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to that class of derricks in which a mast is held in an upright position by two sloping back-legs or braces and has a boom which carries the hoisting-rope and bucket movably, and the invention relates particularly to such a derrick having a sectional dumping-bucket with a tripping-rope operating to separate the hinged sections of the bucket for opening the same.

Such tripping-rope is commonly provided with a balance-weight to take up its slack during the raising of the bucket, such weight rising and falling as the bucket falls and rises, without opening the bucket-sections.

By wrapping the tripping-rope around a brake-pulley before it is connected with the balance-weight it may be arrested at any point by operating the pulley-brake; the descent of the bucket causing the sections to then open and dump the contents.

The present improvements consist in means applied to the mast of the derrick, and in some cases to the back-legs, to guide the tripping-rope and support the balance-weight conveniently, and also in a particular arrangement of the tripping-brake and its lever-pulley in relation to the brake-lever of the hoisting-drum, so that the hoisting engineer can control with equal ease the lowering of the load and the arresting of the tripping-rope.

The invention will be understood by reference to the annexed drawing, in which—

Figure 1 is an elevation of a derrick provided with the improvements; Fig. 2 is a front view of the derrick-mast and back-legs with the connections of the tripping-rope; Fig. 3 is a plan of the principal operating parts upon a larger scale than the preceding figures; Fig. 4 is a side elevation of the brake-pulley and its supporting frame;

Fig. 5 is a cross-section of the balance-beam and its fastenings; and Fig. 6 shows the connection of the balance-pulley to the balance-beam.

The derrick is shown with mast A, boom B and two back-legs C which are shown set at an angle of 45 degrees to the mast and 90 degrees to one another, as is common; but their angle to one another may vary under different conditions.

A hoisting engine-frame D is shown secured upon a platform D' with its center line radial to the mast, and having a hoisting-drum E with friction-wheel F at one end of the same with which the drum may be engaged by means of a friction-lever a. A brake-strap b is shown applied to a brake-wheel upon the drum and is controlled by a brake-lever c. These levers are merely indicated in the drawing but arranged, as in practice, adjacent one another at one side of the hoister-frame.

The frame G of the tripping-brake-pulley to control the tripping-rope l is shown secured upon the platform D' adjacent to the brake-lever c, such friction-pulley being provided with its own brake-lever c'.

The hoisting-rope d is shown extended from the drum E beneath a guide-pulley e in the step H of the derrick, and thence over a guide-pulley f upon the mast and over a guide-pulley g upon the boom to the bucket having sections h, h'. The hoisting-rope is attached near the pivot of the bucket-sections, and the tripping-rope is attached to eyes upon the outer sides of the sections; so that the arresting of the tripping-rope while the bucket is descending, causes the sections to separate, as shown in Fig. 1 in full lines.

The bucket is shown closed in dotted lines h².

The tripping-rope is shown carried over a pulley i upon the boom, the pulley f upon the mast, and over a pulley in the step of the derrick, and thence to a brake-pulley in the frame G, from which it is connected to a balance-weight I.

Figs. 3 and 4 show a brake-pulley formed with two speeds of different sizes, and the tripping-rope l wrapped around and fastened to the larger speed n, and the portion

extended to the balance-weight wrapped in the opposite direction around the smaller speed n' and secured thereto.

The brake-wheel r is shown encircled by a strap s which is controlled by the brake-lever c' , and the frame G for the brake-pulley is shown with its center line nearly radial to the derrick-mast so that the tripping-rope can be extended conveniently to the guide-pulley in the mast-step.

The balance-pulley q is shown in Fig. 2 supported upon a balance-beam J of I-section which is secured detachably upon angle-brackets t bolted to the rear sides of the back-legs C near their upper ends.

The brackets t shown in Fig. 5 have plates t' upon their upper sides, which plates set level, and remain level if the back-legs be moved to or from one another, as the back-legs always remain at an angle of 45 degrees to the mast. It will be understood by reference to Fig. 1, that the brackets t are attached to the back-legs at a common level near the top of such legs, and the balance-beam J when supported upon such bracket is therefore level. On these two level plates t' the balance-beam J is secured adjustably so that it can be slid across the plates and extended outside of the same to any desired degree, as shown in Fig. 3. The clamps for holding the beam adjustably upon the brackets are shown in Fig. 5 formed of hook-bolts o .

To diminish the vertical movement of the balance-weight I , it is provided with a pulley I' , and the tripping-rope is carried beneath such pulley up to a clevis p' clamped upon the I-beam. The clevis is formed of two parts, as shown in Fig. 6, which permits it to be clamped at any desired point upon the bottom flange of the I-beam. The balance-pulley is also connected with the I-beam by a similar clevis, which permits a similar adjustment, and the adjustability of these parts of the balance-beam permits them to be shifted to any position that may be required to operate under existing conditions.

The operation of the apparatus is as follows: When the bucket is raised with a load, the balance-weight I takes up the slack of the tripping-rope without opening the bucket-sections, rotating the pulleys n and n' idly, but when the bucket is swung by turning the boom to the required position for unloading, the brake-lever c' is depressed at the point where the bucket is to be dumped, thus arresting the movement of the tripping-rope l , which pulls the sections of the bucket apart.

The brackets and all the attachments of the balance-beam can be manufactured as a new article of manufacture for application to the back-legs of any derrick.

The construction of the brake-pulley upon an independent frame G having the brake-lever pivoted thereon, makes this part of the apparatus self-contained so that it may be located in any relation to the hoisting apparatus, and also permits such brake-pulley and its frame to be constructed as a new article of manufacture and sold to the users of derricks for controlling the operation of the tripping-rope.

It will be observed in Fig. 3, that the hoisting-engine is set radially to the mast, so that the hoisting-rope d can be readily led thereto from the hoisting-drum E , and the frame G for the brake-pulley is also set with its center line nearly radial to the mast so that the tripping-rope can be extended conveniently from the guide-pulley in the mast-step to the brake-pulley, but a leader-pulley l' may be used to lead the tripping-rope past any obstruction between the mast and the brake-pulley.

The brake-lever c' upon the frame G is so arranged that the frame may be set close to the friction-lever a and brake-lever c upon the hoisting-engine.

The levers a , c and c' are shown in Fig. 3 as if arranged to operate by foot which is usual, each being provided with a balance-weight a' to restore it to its normal position; but it is immaterial whether the levers be arranged to operate by hand or by foot.

The friction-pulley is shown herein formed with two speeds of different sizes, but the operation of the rope is the same as if it were wrapped around a single pulley without any fastening to either. To make this clear, the fastening for the ropes to their respective speeds is effected, as shown in Figs. 2 and 3 by a notch in the flange n^2 between the two speeds, and the rope extended continuously around one speed and then through the notch to the other speed; Fig. 2 showing the tripping-rope nearly unwound from the speed n' and correspondingly wound upon the speed n , the balance-weight being thereby lowered.

The beam J supported adjustably upon the rear sides of the back-legs near their upper ends affords an opportunity of supporting the clevis p' and the balance-pulley q in various relations to the back-legs when the derrick and back-legs are erected in any working position, as the mere loosening of the bolts or clamps o permits the beam to be projected outside of either of the back-legs; while the connection of the clevis and the balance-pulley adjustably to the beam permits those parts also to be adjusted upon the beam to make the balance-weight in the bight of the tripping-rope, rise and fall in the most convenient location. This adjustment to the back-legs fully avoids the bolting or nailing of the parts temporarily to

the back-legs to support the clevis or the pulley in a convenient working position, and permits the manufacturer of the derrick to deliver it in readiness for thus adjusting the parts.

Having thus set forth the nature of the invention what is claimed herein is:

1. In a derrick having a so-called dumping-bucket provided with a hoisting-rope and with a tripping-rope to open or dump the bucket, the combination, with the boom, the mast, and its back-legs, of a balance-beam extended transversely across both the back-legs near their upper ends and projected outside its point of attachment to the said back-legs and secured adjustably to the legs and movable longitudinal thereupon, a tripping rope-pulley mounted upon such beam and the tripping-rope extended from the bucket over the said pulley, the adjustability of the beam permitting its projection outside either of the backlegs to support the clevis *p'* and balance-pulley *q* in various relations to the back-legs.
2. In a derrick having a so-called dumping-bucket provided with a hoisting-rope and with a tripping-rope to open or dump the bucket, the combination, with the boom, the mast, and its back-legs, of brackets projected from the rear sides of the back-legs at a common level near the top of such legs,

a balance-beam extended transversely across both the brackets, and secured adjustably upon the level surfaces of the brackets, a tripping rope-pulley mounted adjustably upon the balance-beam, and the tripping-rope extended from the bucket over the said pulley.

3. In a derrick having a so-called dumping-bucket provided with a hoisting-rope and with a tripping-rope to open or dump the bucket, the combination, with the boom, the mast and its back-legs, of brackets projected from the rear sides of the back-legs at a common level near the top of such legs, a balance-beam extended transversely across both the brackets and projected outside its point of support, a clevis *p'* clamped upon such beam outside such point of support, a balance-pulley *q* mounted adjustably upon the said beam, and a tripping-rope carried over the said balance-pulley and attached to the clevis and having the weight *i* suspended in its bight, substantially as herein set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ASHER LAMBERT.

Witnesses:

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THOMAS S. CRANE.