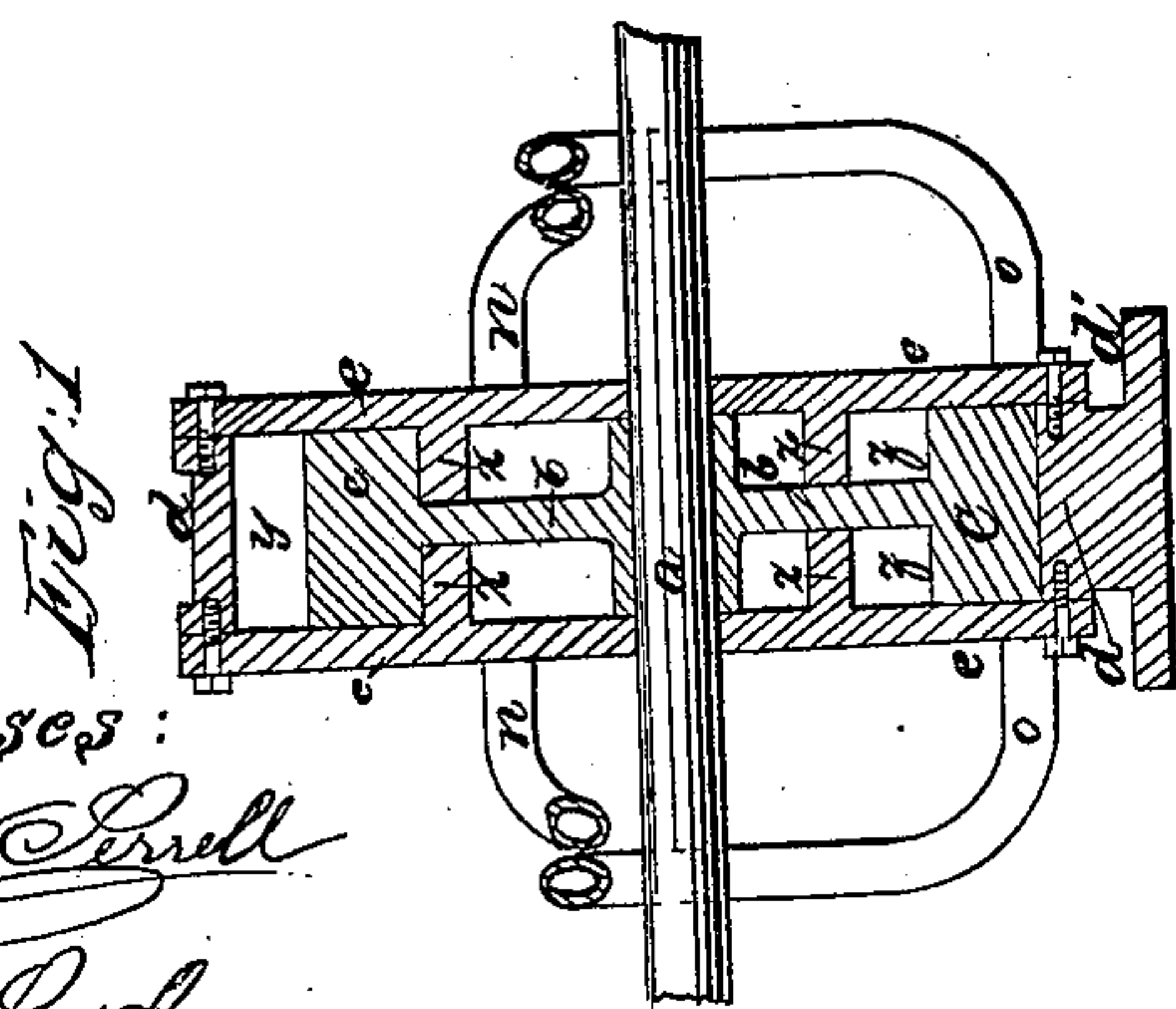
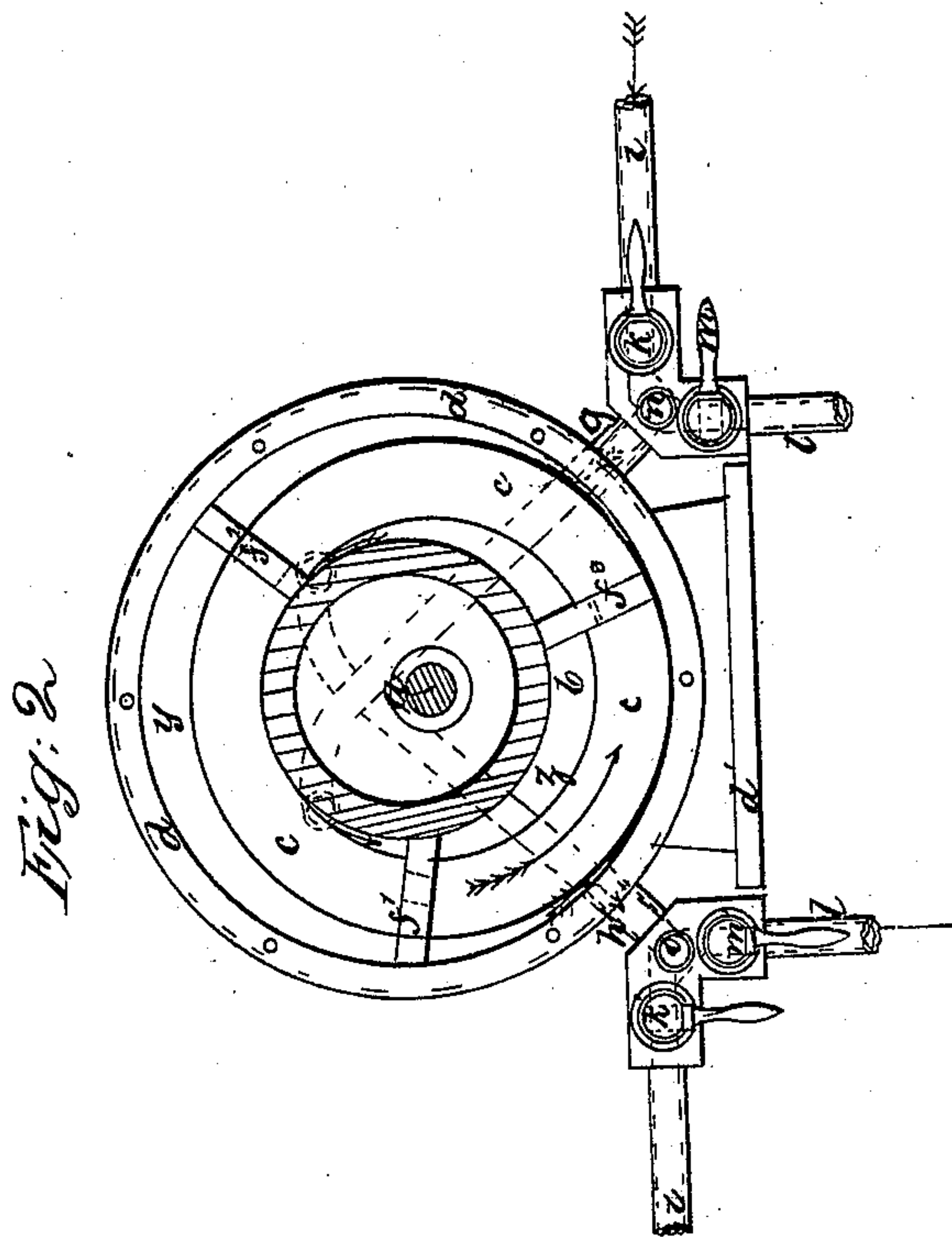


A. Millochau,
Rotary Steam Engine.
N^o 40,571. Patented Nov. 10, 1863.



Witnesses:
Samuel W. Drrell
Chas. H. Smith

Inventor:
A. Millochau

UNITED STATES PATENT OFFICE.

ADOLPH MILLOCHAU, OF NEW YORK, N. Y.

IMPROVEMENT IN ROTARY ENGINES.

Specification forming part of Letters Patent No. 40,571, dated November 10, 1863.

To all whom it may concern:

Be it known that I, ADOLPH MILLOCHAU, of the city and State of New York, have invented and made a certain new and useful Improvement in Rotary Engines; and I do hereby declare the following to be a full, clear, and exact description of the said invention, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 is a cross-section of my engine at a vertical plane lengthwise of the shaft, and Fig. 2 is a side elevation with one of the heads removed and the projecting ring of the head in section.

Similar marks of reference denote the same parts.

The nature of my said invention consists in induction and eduction pipes and cocks or valves, in combination with a wheel attached to a shaft having mortises or notches in its periphery, receiving pistons that remain in contact at their outer edges with the interior of a circular case eccentric to the shaft, and at their inner edges with rings eccentric to the shaft but concentric with the case, whereby an outer and inner crescent-shaped space are produced, in which the steam is admitted to act upon the inner and the outer portions of the pistons, and produce rotation by the direct action in either direction, according to the position of the valves or cocks in said eduction and induction pipes.

In the drawings, *a* is a shaft, receiving a wheel, *b*, with a rim, *c*, of a quadrangular section, the periphery of which is in contact at one point with the case *d*, that is circular but eccentric to the shaft *a*. Hence a crescent-shaped space, *y*, will be left between *c* and *d*, and *e e* are the heads of my engine, setting tightly against the sides of the rim *c*, and *x x* are circular flanges on the inner faces of *e*, concentric with the case *d*, and setting up tightly to the wheel *b* and in contact with the inner periphery of the rim *c*, at a point opposite to that at which the outer periphery of said rim *c* touches the case *d*. Slots or mortises are provided through the rim *c*, receiving the pistons *f'*, *f''*, and *f'''*, that are themselves

slotted, as seen in Fig. 3, to pass on each side of *b*.

g and *h* are the ports or steamways to the space *y* of the engine. *i i* are the steam-pipes, with cocks or valves. *k k'* and *m m'* are the exhaust-valves to the pipes *l l*. *n* and *o* are pipes that proceed from near the pipes *g* and *h*, and, crossing each other, enter through *e* and supply steam or receive the exhaust from the inner crescent-shaped chamber, *z*.

If the valves or cocks *k* and *m'* are open, as seen in Fig. 2, and the cocks or valves *k'* and *m* closed, the steam will travel in the direction indicated by the arrows and enter through *g* and exhaust through *h*, and act in the space *y* against the pistons, and rotate them and the rim, wheel, and shaft *a*, as indicated by the arrow on *c*. At the same time the steam, entering the spaces *z z*, on the respective sides of *b*, through the pipes *n*, acts on the inner portions of the pistons in the spaces *z*, rendering the power exerted on *b* and *a* as uniform as possible on the opposite sides of *a* and preventing the strain, friction, and wear being all on one side of the said shaft *a*. The distance between the case *d* and flanges *x* being the same all around, the pistons are retained by them while the rim *c* travels eccentrically.

Stuffing-boxes may be applied at the heads *e* around *a*, and any suitable packings may be applied to the pistons.

It will be evident that by opening the valves or cocks *m* and *k'* and closing *k* and *m'* the engine will rotate in the opposite direction.

My engine, if rotated by power, may be applied for pumping water or other fluids.

What I claim, and desire to secure by Letters Patent, is—

The pipes *i*, *l*, *n*, and *o*, and valves or cocks *k*, *k'*, *m*, and *m'*, in combination with the ring *c* and pistons acting in the steam-spaces *y* and *z*, substantially as specified.

In witness whereof I have hereunto set my signature this 8th day of August, 1863.

A. MILLOCHAU.

Witnesses:

LEMUEL W. SERRELL,
CHAS. H. SMITH.