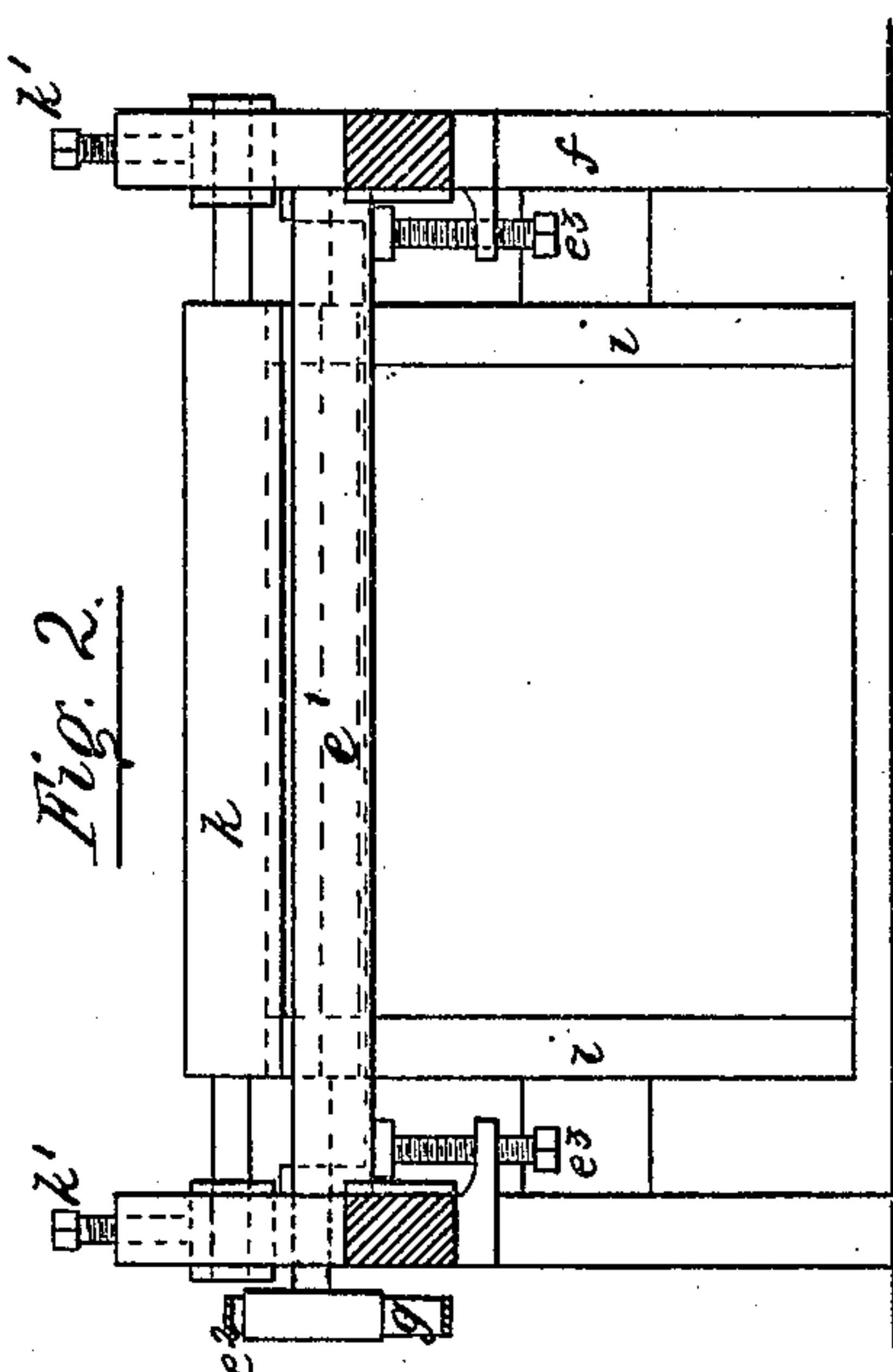
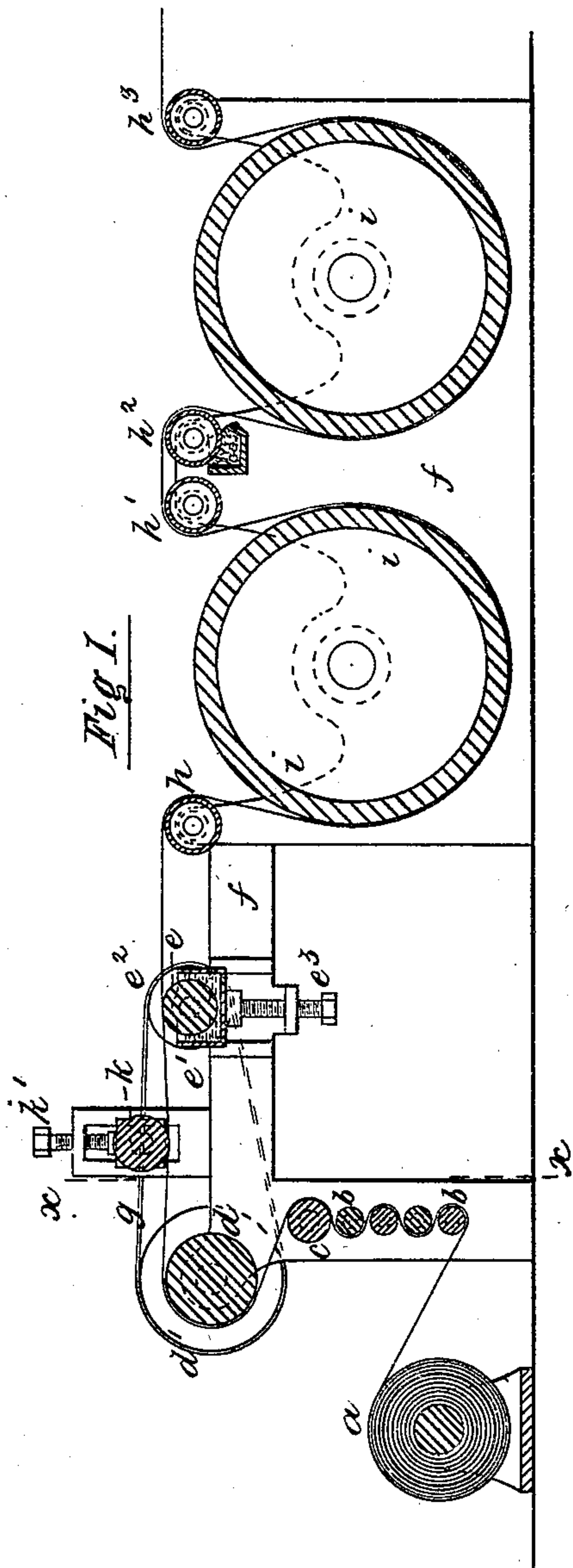


(Model.)

C. METZLER.
Machine for Sizing Muslin.

No. 231,078.

Patented Aug. 10, 1880.



Witnesses.

H. D. Williams.

John D. Shedden

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Inventor.

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Att'y.

UNITED STATES PATENT OFFICE.

CHARLES METZLER, OF NEW YORK, N. Y.

MACHINE FOR SIZING MUSLIN.

SPECIFICATION forming part of Letters Patent No. 231,078, dated August 10, 1880.

Application filed April 9, 1880. (Model.)

To all whom it may concern:

Be it known that I, CHARLES METZLER, residing at New York, county and State of New York, have invented certain new and useful Improvements in Machines for Sizing Muslin, of which the following is a specification.

This invention has for its object to apply glue size to muslin in rolls, so as to prepare it to receive oil-paints, for the purpose of making opaque window-curtains and other purposes; and it consists of a series of tension and guide rollers, adjustable pressure-roller, adjustable size-applying roller, and a series of drying-drums, so constructed and arranged that as the muslin is drawn from the roll over the various devices it is properly stretched so as to remove therefrom all creases. The size is applied to one of its sides in the required quantity, and it is held in a straight and even condition as it passes over the drying-drums until it is sufficiently dry to be wound onto a roll by the winding device, all of which will be fully hereinafter described by reference had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal sectional elevation of my improved machine for sizing muslin, and Fig. 2 is a transverse section through the line $x x$, Fig. 1, showing the pressure and size-applying rollers.

The muslin from the roll a passes first between the series of tension bars or rollers $b b$, the upper one, c , of which is provided with oblique grooves or a right and left handed screw-thread, starting from its center to the two ends. Said grooves or screw-thread act on the muslin to stretch it laterally and so remove any creases, allowing it to pass over the guide-roller d in a perfectly smooth condition, in which condition it passes over the sizing-roller e . This roller is arranged to revolve in the trough e' , in which the glue size is placed, and it has a pulley, e^2 , on the end of its shaft, projecting beyond the side frame, f , of the machine. This pulley is connected to a pulley, d' , secured to the projecting shaft of the guide-roller d , by means of the belt g , the two pulleys d' and e^2 being so proportioned in size that the sizing-roller e is caused to revolve at the same speed or a little faster than the speed at which the muslin passes through the machine, the

upper surface of the roller moving in the same direction as the muslin, so that it properly applies the size to the under side thereof, as the lower part of the roller revolves in the glue size placed in the trough e' all the time.

The muslin in this condition—that is, with the wet size on it—would, if left to itself, get out of shape; but it is kept under tension until dry by being drawn from the sizing-roller e over the roller h and around the drum i , the large smooth surface of which prevents the muslin creasing or getting out of shape. From the drum it passes over the rollers $h' h^2$, under the second drying-drum, i , over the roller h^3 , and from it to the winding-up device. These drying-drums $i i$ are supplied with steam for drying the size which is on the outside surface of the muslin, and the rollers $h h' h^2$ are made hollow, and they have a stream of cold water flowing through them, as shown at h and h' , or have cold water applied to their surfaces, as shown at h^2 , to prevent the size adhering to their surfaces. The water in the size, by the action of the heated steam-drums $i i'$ in drying the sized muslin, is evaporated and condenses on the surfaces of the rollers $h h'$, which remain cold by the cold water flowing through them, thereby keeping them moist and preventing the size adhering to their surfaces; and it is also found, in practice, that the mere fact of keeping the metallic surfaces of rollers cold will prevent the size adhering to them, which may be done by means of cold water or cold air being caused to flow through them. All of these drying-drums and the water-rollers are fitted with journals to revolve in bearings provided therefor in the side frames, $f f$, and there should be a sufficient number of the drying-drums to thoroughly dry the muslin before it leaves the machine, the number depending on their size and amount of surface to which the muslin is exposed. Only two are shown in the drawings, the others being of the same construction as those shown, and each one having two guide water-rollers.

The method I employ to apply the requisite quantity of glue size to the muslin; and which is one of the principal features of this invention, is by making the size-roller e and trough e' vertically adjustable, or the roller only, by means of the set-screws $e^3 e^3$ passing through

projections on the side frames and bearing against the under side of the ends of the trough e' , or the roller-bearings, whereby the roller e is caused to press with more or less force against the under side of the muslin. The muslin is further controlled by the adjustable pressure-roller k , which rotates in sliding boxes in the side frames, ff , between the guide-roller d and the sizing-roller e , said sliding boxes being vertically adjusted by means of the set-screws $k' k'$, so the roller k presses the muslin more or less downward between the roller d and sizing-roller e ; or the roller k may press on the muslin by its weight only, thus assisting to cause the muslin to maintain its straight and smooth condition, and at the same time making it bear with a uniform pressure on the sizing-roller e , so that after the machine is properly adjusted a smooth uniform coating of glue sizing is applied to the muslin by the sizing-roller e .

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

1. In a machine for sizing muslin in rolls, the

adjustable sizing-roller e , in combination with the guide-roller d and drying drum or drums i , and water-rollers, constructed and operating substantially in the manner hereinbefore set forth.

2. In combination, the guide-roller d , the size-roller e , rotating in the trough e' , and the adjustable pressure-roller k , located between the guide-roller d and size-roller e , so as to press the muslin more or less downward between them, substantially as and for the purpose set forth.

3. In a machine for sizing muslin in rolls, in combination, the guide-roller d , adjustable pressure-roller k , adjustable sizing-roller e , and drying drum or drums i , and water-rollers, constructed and operating substantially in the manner hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 5th day of April, 1879.

CHARLES METZLER.

Witnesses:

JOHN D. SHEDLOCK,
ALFRED SHEDLOCK.