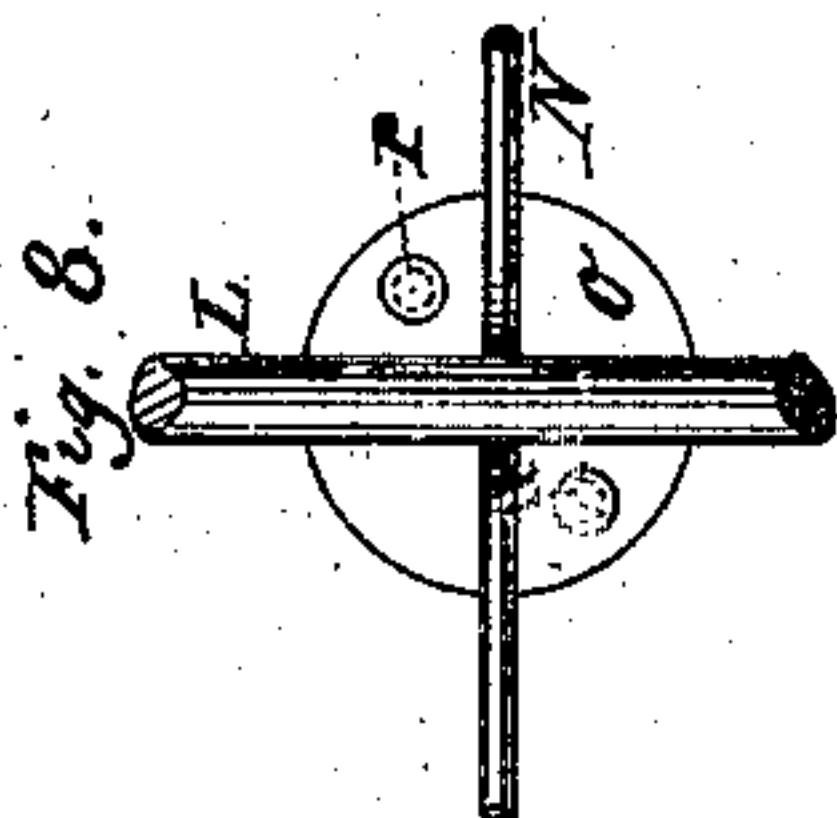
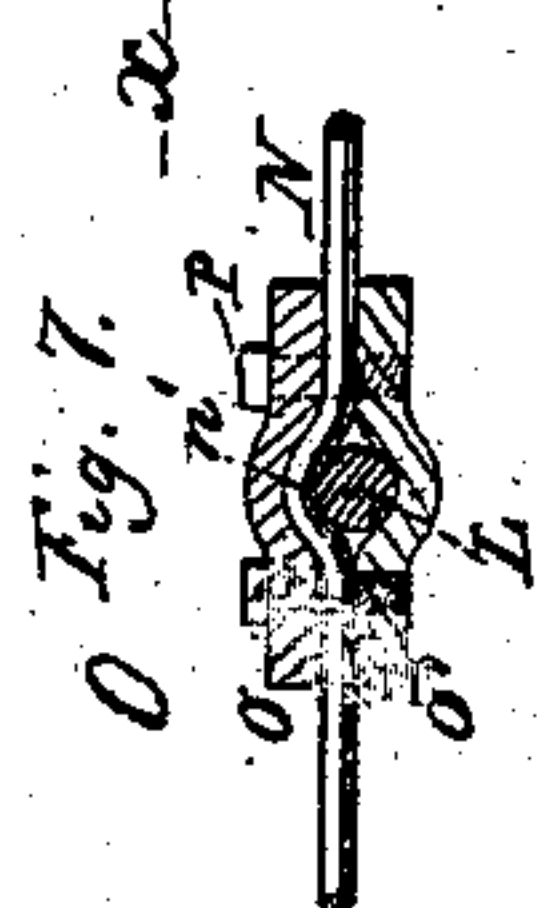
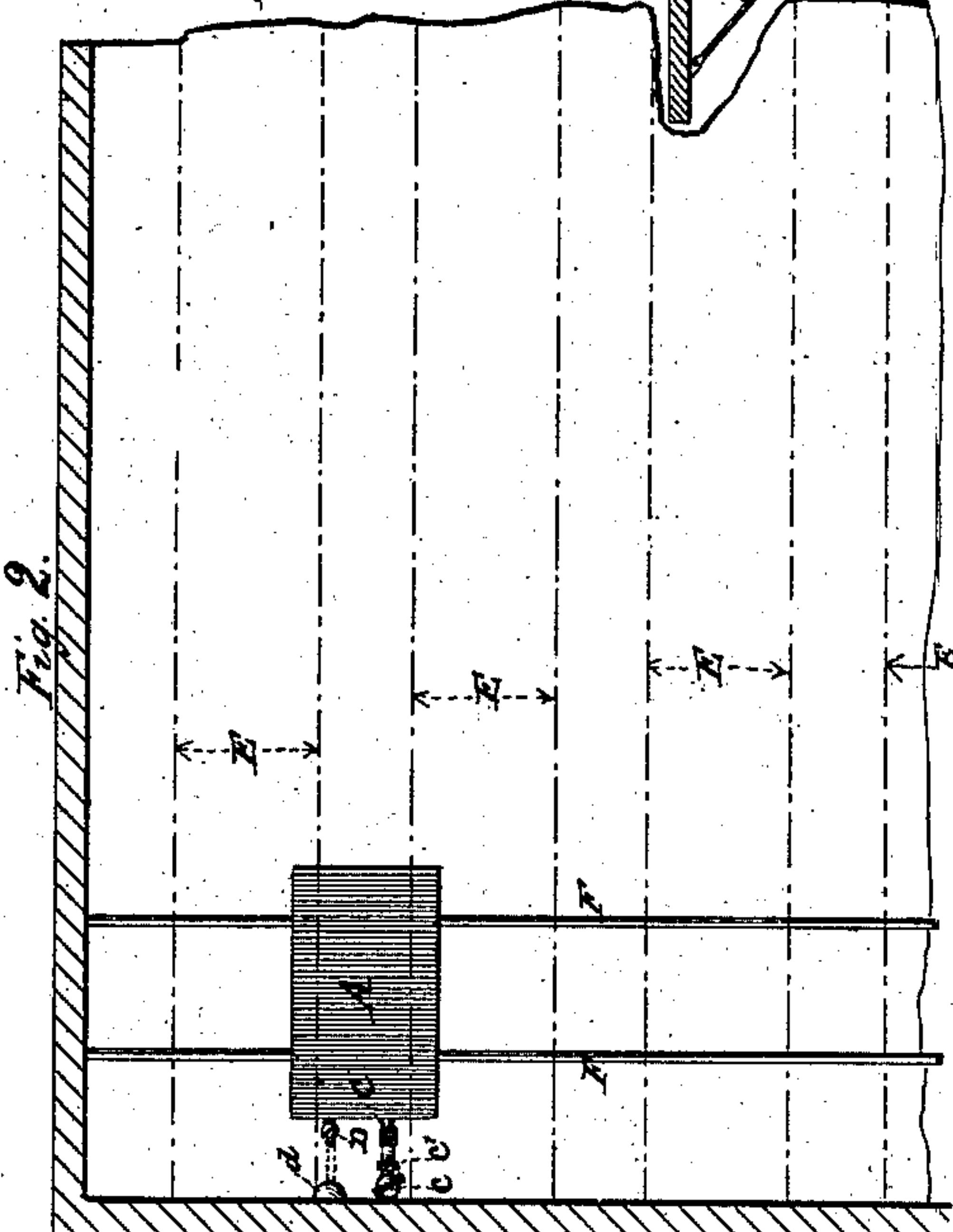
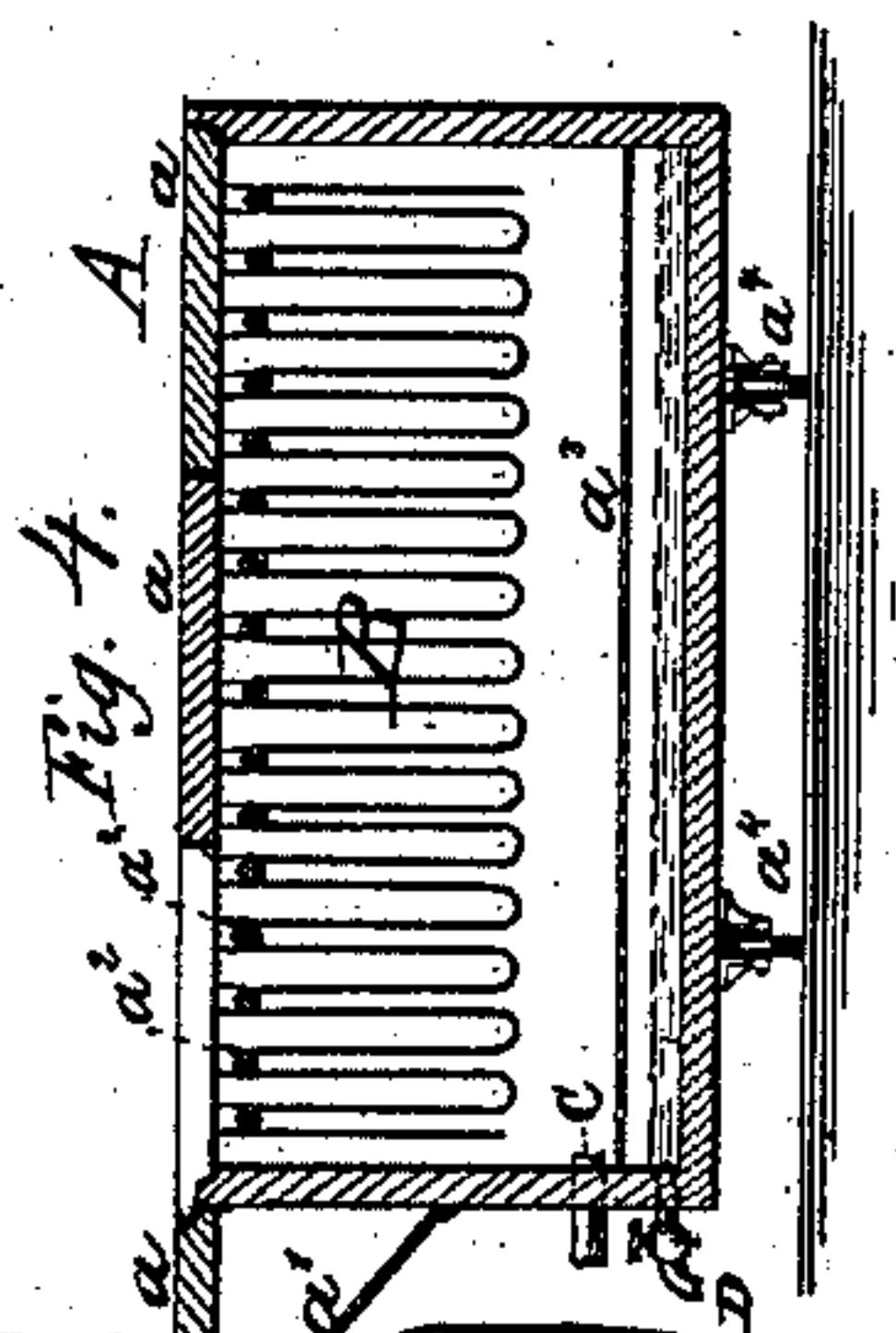
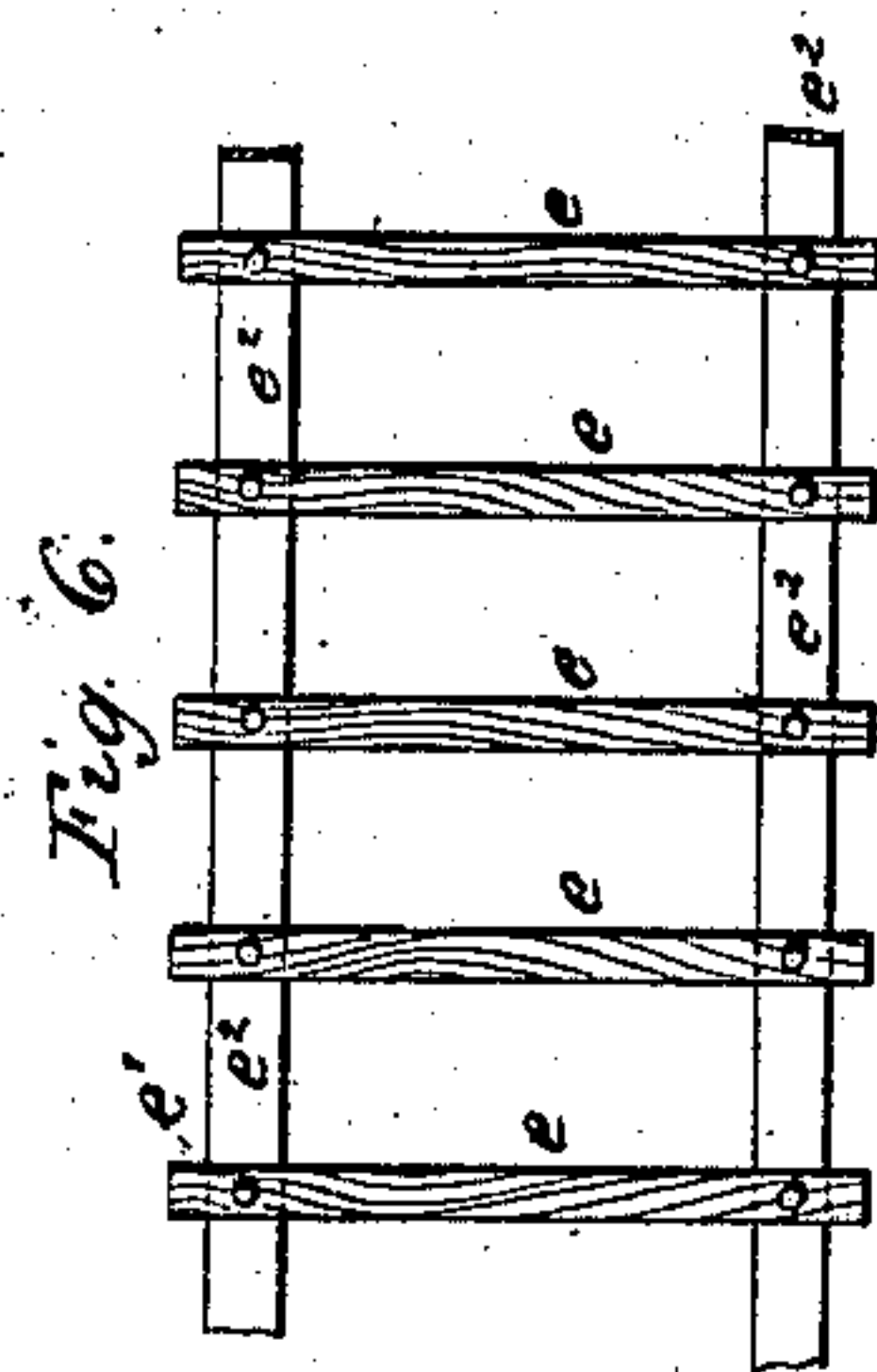
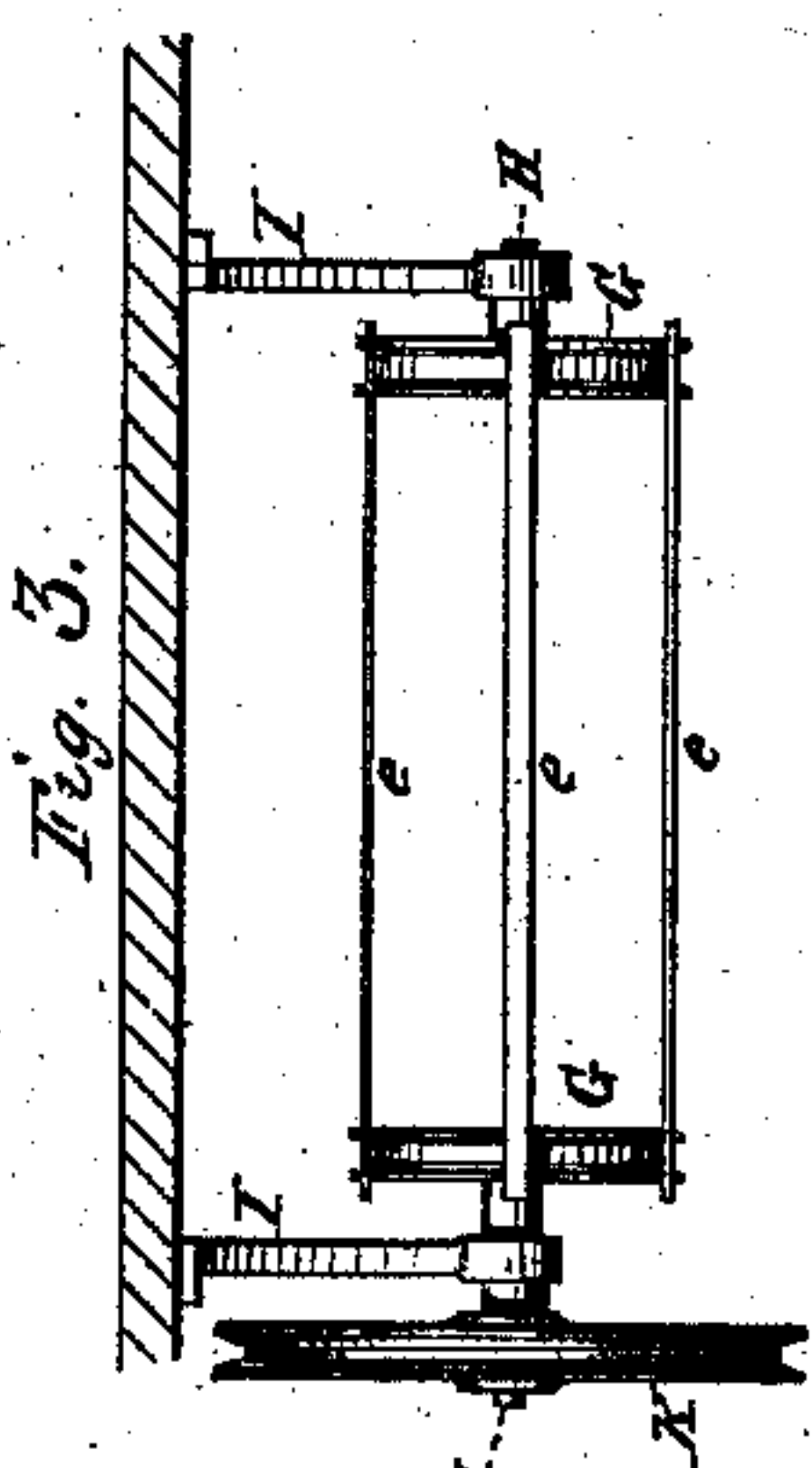
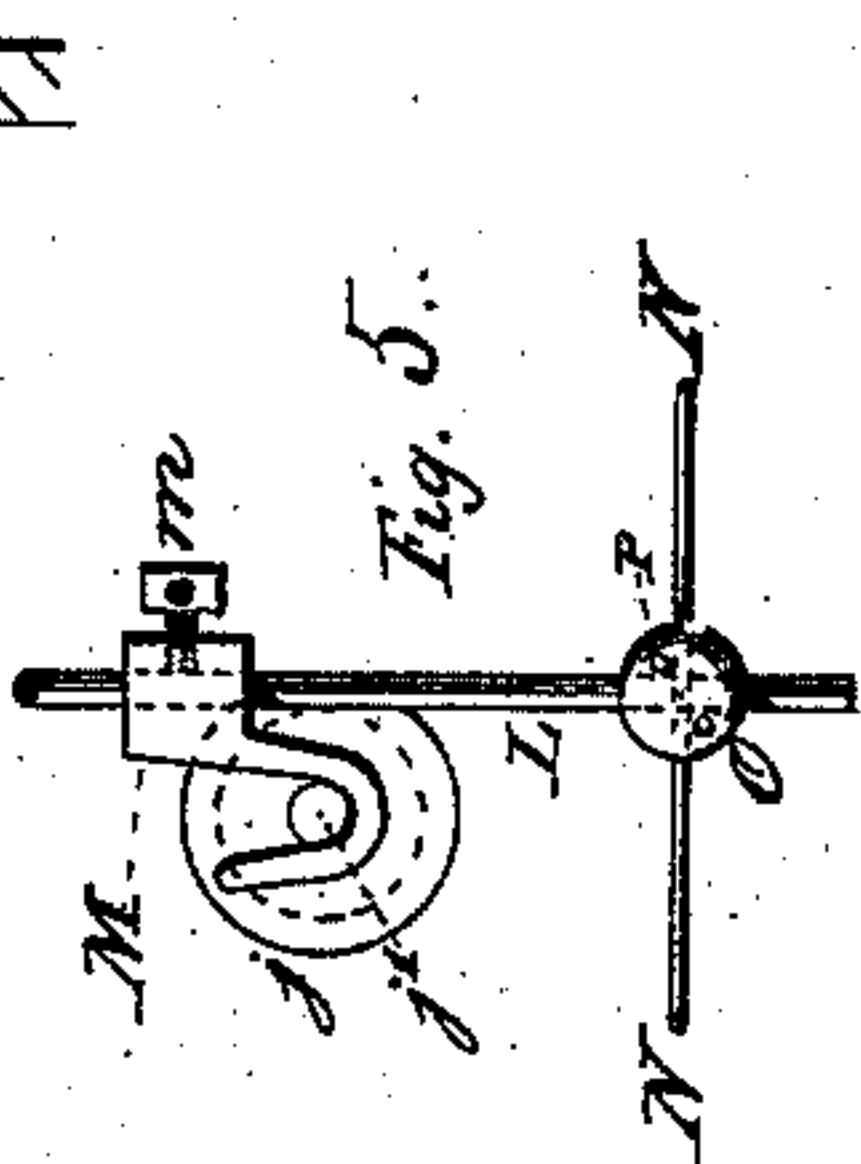
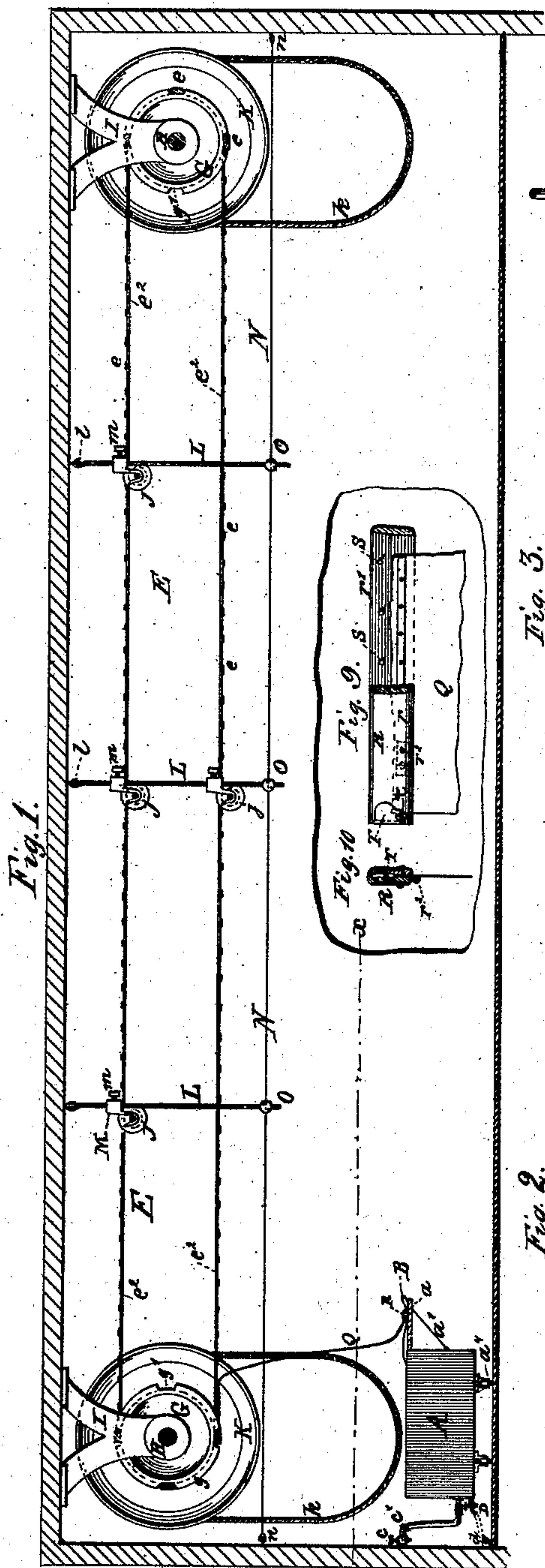


J. C. McLOUGHLIN & A. W. ALMQVIST.
Cloth-Shrinking Apparatus.

No. 228,093.

Patented May 25, 1880.



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UNITED STATES PATENT OFFICE.

JOHN C. McLOUGHLIN, OF NEW YORK, AND AUGUST W. ALMQVIST, OF
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CLOTH-SHRINKING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 228,093, dated May 25, 1880.

Application filed November 14, 1879.

To all whom it may concern:

Be it known that we, JOHN C. McLOUGHLIN, of New York, in the county of New York, and AUGUST W. ALMQVIST, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Cloth-Shrinking Apparatus, of which the following is a specification.

Our invention relates to improved apparatus for shrinking large pieces of dry-goods of full length—say, thirty to forty yards—such as they are received from the manufacturers, preparatory to making them up into suits of wearing-apparel, in order that the latter shall not shrink afterward, and thus become too small for the wearer.

It is well known that the greatest and most uniform shrinkage in cloths is effected when they, after being properly dampened, are left to dry slowly in the air; but the old method of wetting the goods by sponging and covering and rolling them together with pieces of cotton web of corresponding length and width, and then hanging them upon the series of horizontal bars of a large drying-rack, is too slow and expensive; besides, it requires a very large space for drying, particularly in establishments in which a great number of pieces (each over one hundred feet in length) have to be dampened and displayed to dry in one single day.

In order to economize time and space, an improvement in shrinking cloth has lately been attempted, consisting in wetting it by steam, and then drying by running it on and around revolving heated cylinders. In this latter method, although the application of steam affords an excellent means of rapidly and uniformly dampening the cloth, the too rapid drying prevents sufficient shrinkage, and a suit of clothes made from such pieces of goods will, after being worn in rainy weather, shrink again, and thus become about one size smaller than the measure for which it was intended and cut.

The object of the present invention is to obviate the above-named objections and difficulties and provide an apparatus simple in construction, light, strong, conveniently put up and adjusted, and in which the advantage of

the old drying, by exposing the cloth displayed and at rest to the air, is combined with that of wetting by steam, while no space desirable for the ordinary business needs to be occupied for drying the cloths, and a great saving of time and expense will result.

In the accompanying drawings, Figure 1 represents a side elevation of our improved cloth-shrinking apparatus in position for use. Fig. 2 is a plan view of the wetting apparatus of the same, seen downward from the horizontal section indicated by the line *x x* of Fig. 1. Fig. 3 is an end view of the drying apparatus bracketed to the ceiling. Fig. 4 is a vertical section of the wetting apparatus. Figs. 5 to 10, inclusive, are views explanatory of the construction of various details.

Like letters of reference indicate like parts in the several figures.

A is the wetting apparatus, consisting simply of a large zinc-lined wooden tank having movable sectional covers *a*, one of which is hinged and may be thrown back, as shown in Figs. 1 and 4, and kept horizontal by a brace, *a'*, for use as a table, to facilitate the manipulations of inserting and removing the cloth B, which latter, in undergoing the operation of wetting, is suspended in deep folds upon light movable cross-rods *a²*, resting with their ends in notches in the sides of the tank at suitable distances apart to prevent contact between the folds. Steam to wet the cloth is admitted into the tank through pipe C, and the water resulting from condensation is drawn off by the faucet D into a basin or other receptacle attached to the waste-pipe *d*. A wire screen or perforated plate, *a³*, placed just above the water-space in the tank, serves to prevent the cloth (if accidentally folded too deep) from dipping into the water.

E is one of the driers, on which the cloth is received from the steam-tank, and is of suitable length and width to support one piece of cloth extended, without stretching, to dry. Of the driers there are several, arranged parallel with each other, as indicated in dotted lines in Fig. 2, and the steam-tank is mounted upon wheels *a⁴*, running upon rails F, which are fastened on the floor at right angles to the lines of driers, so that when one

piece has just been spread on one of the driers another may immediately be placed in the tank, steamed, and spread on the next drier, the tank for the purpose being moved on the rails F until directly underneath the latter drier.

The pipe C may be a rubber hose, permanently connecting the tank to the rigid steam-pipe in the wall, and of sufficient length to allow of free and full travel of the tank on the rails; or it may have a coupling at c' , by which it may be instantly connected for steaming, and disconnected (after closing the steam-cock c) when the tank wants to be moved.

The drier E is an endless frame formed (as in Fig. 6) of wooden slats e , fastened equidistant apart, by copper rivets e' , to two small rubber belts, e^2 , running over four pulleys, G, which are secured in pairs upon shafts H, journaled in brackets I, bolted in pairs to the ceiling overhead more or less than one hundred feet apart. The sagging of a belt of such length, if supported only on the end pulleys, G, would be so great as to take up too much of needful space and impede the work and traffic on the floor. We have therefore supported it at intervals along the ceiling by wooden rollers J. But the weight of the belt being thus supported the friction between it and an ordinary pulley would not suffice to allow of its being moved with the pulley when revolving the latter, particularly in this case, where the drying apparatus ought not to occupy more space than about three feet from the ceiling, and the pulleys G consequently must be of very small diameter. Besides this, the small size and tension and great length of the belts would make them liable, at the least lateral strain, to run off the pulleys. To provide against these difficulties the pulleys G are grooved on their faces to receive the belts e^2 , thus forming vertical flanges g at each edge of the belts to prevent their lateral movement, and the said flanges g are notched or cut away at intervals corresponding to the distance between two adjacent slats, e , which latter project sufficiently outside of the outer edges of the belts to lodge successively in the notches g' of the flanges g , thereby preventing the belts from slipping. The pulleys are revolved by hand by means of the endless ropes k , working in sharp V-grooves in the face of a light hoisting-pulley, K, keyed on each of the end shafts, H.

In order to easily suspend and adjust the rollers J in proper position to regulate the sagging of the drier-frame, they are mounted in small hook-shaped bearings M, bored through to fit upon fine metallic rods L, which latter are hooked at their upper ends to eye-screws l , fastened in the ceiling, and are secured in any desired position upon the rods L by set-screws m , the whole being constructed as clearly shown in the drawings.

The ends of the rollers J are provided with disks j , of larger diameter, to keep the edges of the cloth from accidental contact with the

bearings M, and their journals may be provided with annular shoulders or heads to prevent them from sliding out of the bearings endwise.

The pendants and rollers L M are braced against both longitudinal and lateral oscillations by a wire, N, fastened at its ends to eye-screws n in the opposite walls of the room, the pendent rods L being secured to the wire N by clamps O, made in two parts, $o o'$, fastened together by screws P. For this purpose the part o' has a groove formed across its inner surface to receive the rod L, and the part o has a similar smaller groove, at right angles to the other, for receiving the wire N, which latter is bent, as shown at n' , (see Figs. 7 and 8,) by a pair of pliers to fit a portion of the circumference of the rod L, so that when the two parts $o o'$ are fastened together, as in Fig. 7, by the screws P, it is impossible to slide the rod L along the wire N.

Q is an apron, fastened at one end to two or more of the slats e of the drier-frame E, and is of suitable length to reach down to the steam-tank A with the other end, which is fastened to r' , one of the two halves of the cloth-clamp R, the two halves $r r'$ being held together by hinges r^2 , and secured, when closed, by a clasp, T, at either end of the clamp R.

S are little sharp points fastened in the part r' to project inward and toward the hinge. The clasp T is like an ordinary U-shaped pocket-book clasp, pivoted at t to one of the parts, r , only of the clamp R.

When the cloth is steamed one end thereof is placed upon the points S of the part r' of clamp R (laid on the table a , as in Fig. 1) and depressed upon the said points by closing the other part, r , of the clamp over it. The clamp R is then locked by the end clasps, T, and the cloth hoisted up by turning the belt-wheels, and, being thus extended over the upper surface of the drier E, is then left to dry. When the cloth is dry, and thus shrunk, the carrier E is run in the opposite direction, the cloth folded together gradually as it comes down, and, when the clamp R is reached, detached from the latter.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The combination, with a drier having a cloth-clamping device, R, and a mechanism for supporting said drier and by which it may be moved, of a cloth-steaming tank, A, substantially as described, and for the purpose set forth.

2. The combination of one or more drier-frames, E, having cloth-clamps R and suitable supporting-pulleys on which they are adapted to be moved, with a cloth-steaming tank, A, and a track, F F, situated transversely to the drier, on which said tank is adapted to be moved, substantially as described, and for the purpose set forth.

3. The drier E, consisting of the belts e^2 and cross-slats e , in combination with the shafts H,

pulleys G, having notched flanges *g*, rollers J, rods L, and bearings M, adapted to be vertically adjusted on said rods, substantially as described, and for the purpose set forth.

5 4. The drier E, consisting of the belts *e*² and cross-slats *e*, in combination with the shafts H, pulleys G, having notched flanges *g*, rollers J, rods L, and bearings M, secured to said rods L and adapted to be vertically adjusted there-
10 on, apron Q, and clamps R, substantially as described, and for the purpose set forth.

5 5. The horizontal wire brace N, in combination with the pendent rods L, the roller-brackets M, carried thereby, and the fastening-clamps
15 O, substantially as and for the purpose set forth.

6. The combination, with the clamp O, made

in two parts, *o o'*, the former having a transverse groove in its face and the latter a vertical groove, of the wire N, having the bend 20
n, rod L, and set-screws P, substantially as described, and for the purpose set forth.

7. The combination, with the apron Q, of the cloth-clamp R, made in two parts, *r r'*, hinged together, the lower part, *r'*, being pro- 25
vided with the inclined points S, and the upper part, *r*, having pivoted to it the end locking-clasps, T, substantially as described, and for the purpose set forth.

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