

(No Model.)

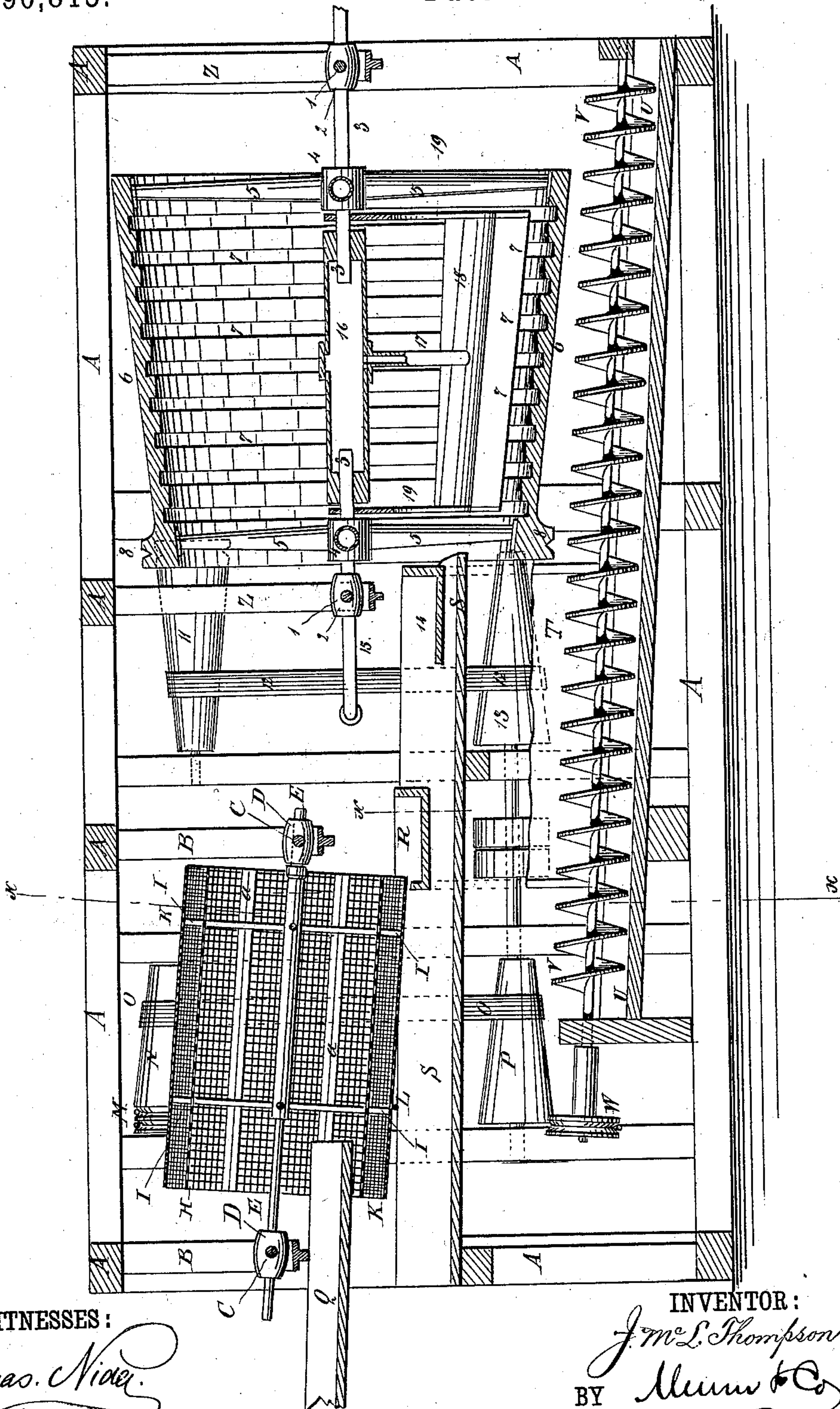
2 Sheets—Sheet 1.

J. McL. THOMPSON  
AMALGAMATOR

No. 290,815.

Patented Dec. 25, 1883.

*Fig: 1.*



WITNESSES:

*Chas. Nider*  
*C. Sedgwick*

INVENTOR:

*J. McL. Thompson*  
BY *Munn & Co*  
ATTORNEYS.

(No Model.)

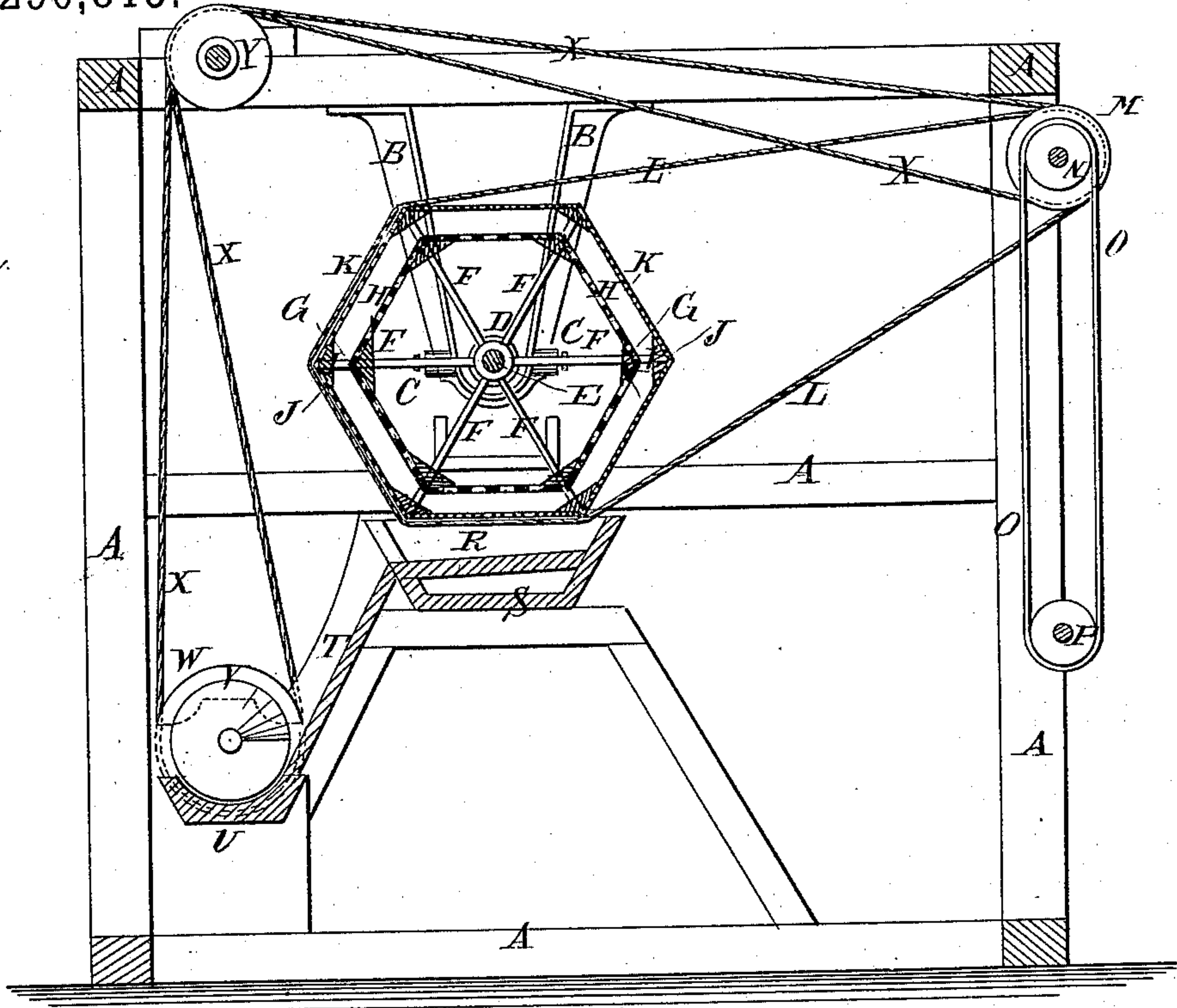
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J. McL. THOMPSON.  
AMALGAMATOR.

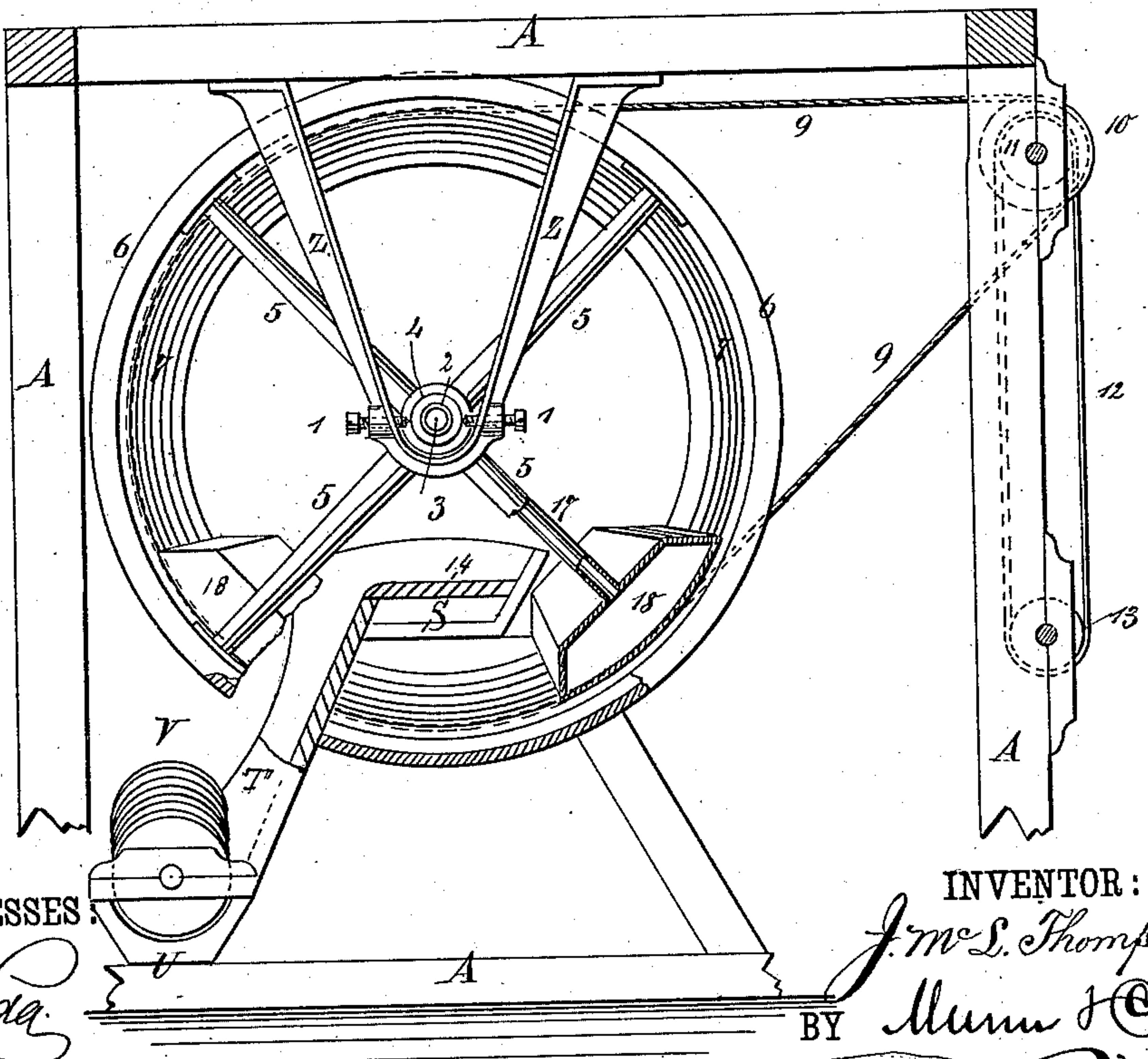
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*Fig. 2.*



*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

JOHN McL. THOMPSON, OF TRUMANSBURG, NEW YORK.

## AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 290,815, dated December 25, 1883.

Application filed February 10, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN McL. THOMPSON, of Trumansburg, in the county of Tompkins and State of New York, have invented a new and useful Improvement in Amalgamators, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1, Sheet 1, is a sectional side elevation of my improvement. Fig. 2, Sheet 2, is a sectional end elevation of the same, taken through the broken line *x x x*, Fig. 1. Fig. 3, Sheet 2, is a rear end elevation of the same, the frame being shown in section and parts being broken away.

My invention relates to improvements in amalgamators; and to this end it consists in the peculiar construction and arrangement of parts, as hereinafter fully described, and pointed out in the claims.

A represents the frame of the machine. To the top bars of the frame A are attached two V-shaped hangers, B, in the lower parts of which are secured, by pivot-screws C, the bearings D of the shaft E, so that the said bearings will have a slight self-adjusting movement upon the said pivot-screws C. The inner hanger, B, is made longer than the other to give the required inclination to the shaft E, as shown in Fig. 1.

To the shaft E, or to a sleeve placed upon the said shaft, are attached radial arms F, to the outer ends of which, and parallel with the said shaft, are attached bars G, to which is attached a coarse wire-netting, H.

To the bars G are attached short studs I, which may be the outward extension of the arms F, and to the outer ends of which are attached bars J. The bars J are parallel with the bars G, and to them is attached a wire-netting, K, of a finer mesh than the netting H. Around the outer screen, K, passes a band, L, which also passes around a pulley, M, pivoted to the upper part of the frame A.

With the pulley M is rigidly connected a cone-pulley, N, around which passes an endless belt, O. The belt O also passes around a cone-pulley, P, pivoted to the lower part of the frame A, and with the shaft of which is

connected a crank or pulleys, according as the machine is to be driven by hand or other power.

The powdered ore or sand, mixed with water, is introduced through a spout, Q, into the upper end of the rotating double screen H K, and the coarser pieces of ore and stones pass down the screen H and fall into the spout R. The finer pieces of ore and pebble pass down the screen K and fall into the spout R. The fine ore, the sand, the gold, and the water fall through the screens H K into the trough S and pass down the said trough to the amalgamator. The coarse ore, stones, and pebbles that fall into the trough R pass down the said trough and the apron T to the trough U, through which they are carried by the screw V and discharged at the lower end of the said trough into a sluiceway, through which they are conducted out of the machine or are disposed of in any other convenient manner. The carrier-screw V is swiveled to the ends of the trough U, and to its projecting upper end is attached a pulley, W, around which passes an endless band, X, which passes over guide-pulleys Y, pivoted to the upper part of the frame A, passes across the machine above the double screen H K, and passes around the pulley M, so that the carrier-screw will be driven from the mechanism that drives the said double screen.

To the rear part of the top of the frame A are attached two V-shaped hangers, Z, which are made of equal length, and in the lower part of the interiors of which are secured, by pointed screws 1, the bearings 2 for the journals 3.

Upon the journals 3 are placed hubs 4, to which are attached the inner ends of radial arms or spokes 5. The outer ends of the spokes 5 are attached to the inner surface of the end parts of the amalgamator 6, which is made in the form of a truncated cone, with such an inclination of sides that the water, sand, and powdered ore will flow freely down the inner surface of the lower side of the said amalgamator.

Around the inner surface of the amalgamator 6 is formed a series of annular grooves, 7, to receive the mercury, so that the mercury in the lower part of each groove 7 will be in the shape of a section of a circle.

The parts of the inner surface of the amal-



gamator between the grooves 7 are made parallel with the journals 3, so that the said inner surface will be in the form of a series of steps or offsets, and the water, sand, and gold will fall from each step into the groove 7 at the base of the said step, where the gold will plunge into the mercury and be amalgamated, while the sand and water will pass on down the amalgamator and escape from its lower end to the trough U and be carried away from the machine. By this construction the black sand that usually covers the surface of the mercury in amalgamators will be swept away by the sand and water passing through the amalgamator, and the surface of the mercury will be left in proper condition to receive and act upon the gold.

Around the amalgamator 6, or around a pulley, 8, formed upon or attached to the said amalgamator, passes a band, 9, which passes around a pulley, 10, pivoted to the upper part of the frame A. The pulley 10 is formed upon or rigidly connected with a cone-pulley, 11, around which passes a band, 12. The band 12 also passes around a cone-pulley, 13, pivoted to the lower part of the frame A, and the shaft of which is connected with the crank or pulley that drives the cone-pulley P, so that the double screen H K and the amalgamator 6 will be rotated at the same time and by the same power. The powdered ore, sand, and water from the lower end of the trough S are discharged into the upper end of the amalgamator 6. The lower part of the trough S is provided with an apron, 14, at such a distance from the bottom of the said trough S that the sand or powdered ore and a suitable quantity of water can pass beneath the said apron. The surplus water will flow upon the apron 14, will flow down the apron T to the trough U, and pass away with the refuse from the screens H K.

The journal 3 of the amalgamator 6 is made hollow, and with it is designed to be connected a steam-pipe, 15, leading to the boiler of an engine or other steam-generator. The steam from the pipe 15 is discharged into the drum 16, secured to the inner ends of the journals 3

of the amalgamator 6, and from which pipes 17 lead to the pads 18. The pads 18 are suspended from the journals of the amalgamator 6 by arms 19, and hang one upon each side of the current of ore and water passing through the said amalgamator.

This device is designed to be used in cold weather to keep the mercury in proper condition to operate upon the gold.

The steam-pads 18 may be provided with stop-cocks or other suitable means for withstanding the water of condensation.

The mercury is taken from the amalgamator at suitable times, and the gold is separated from the mercury in the usual manner.

The separator herein shown and described forms no part of the present application; but I reserve to myself the right to make a separate application therefor hereafter.

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

1. In an amalgamator, the amalgamating-cone 6, provided with the annular grooves on its inner surface, and having the spaces between the grooves of greater width than the said grooves and parallel with the journals of the cone, to give to the inner surface of the cone a step-like form, substantially as and for the purpose set forth.

2. In an amalgamator, the combination, with an amalgamating-cone provided with annular grooves on its inner surface, of steam-pads for keeping the mercury in the grooves warm, substantially as herein shown and described.

3. In an amalgamator, the combination, with the amalgamator 6 and its hollow journal 3, of the steam-drum 16, the pipes 17, and the steam-pads 18, substantially as herein shown and described, whereby the mercury in the amalgamator-grooves 7 can be kept warm, as set forth.

JOHN McL. THOMPSON.

Witnesses:

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RICHARD C. TOMPKINS.