3 Sheets-Sheet 1.

E. Weissenborn,

Polishing Wood.

No. 67,240. Patented July 30, 1867.

Fig. 1.

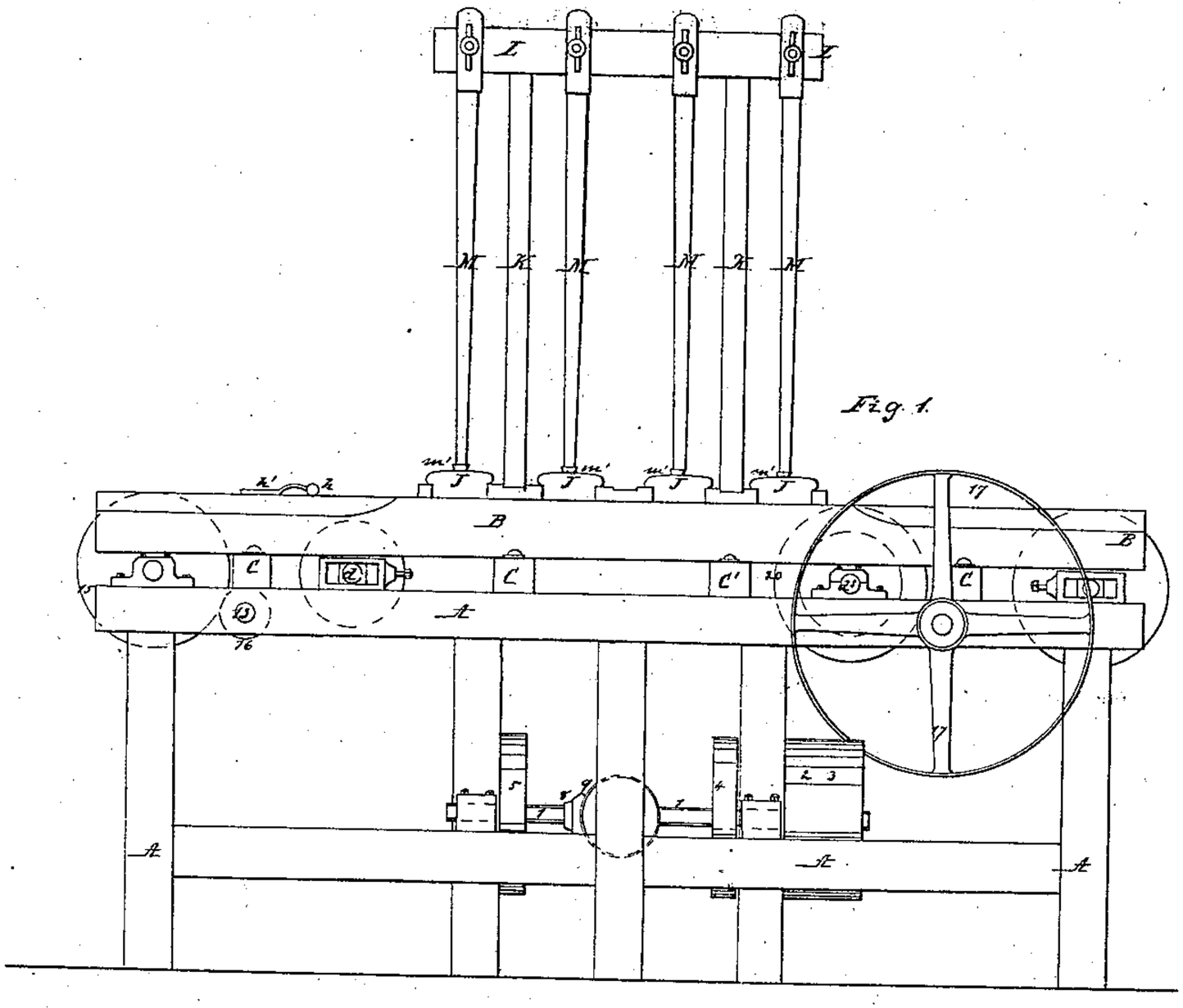
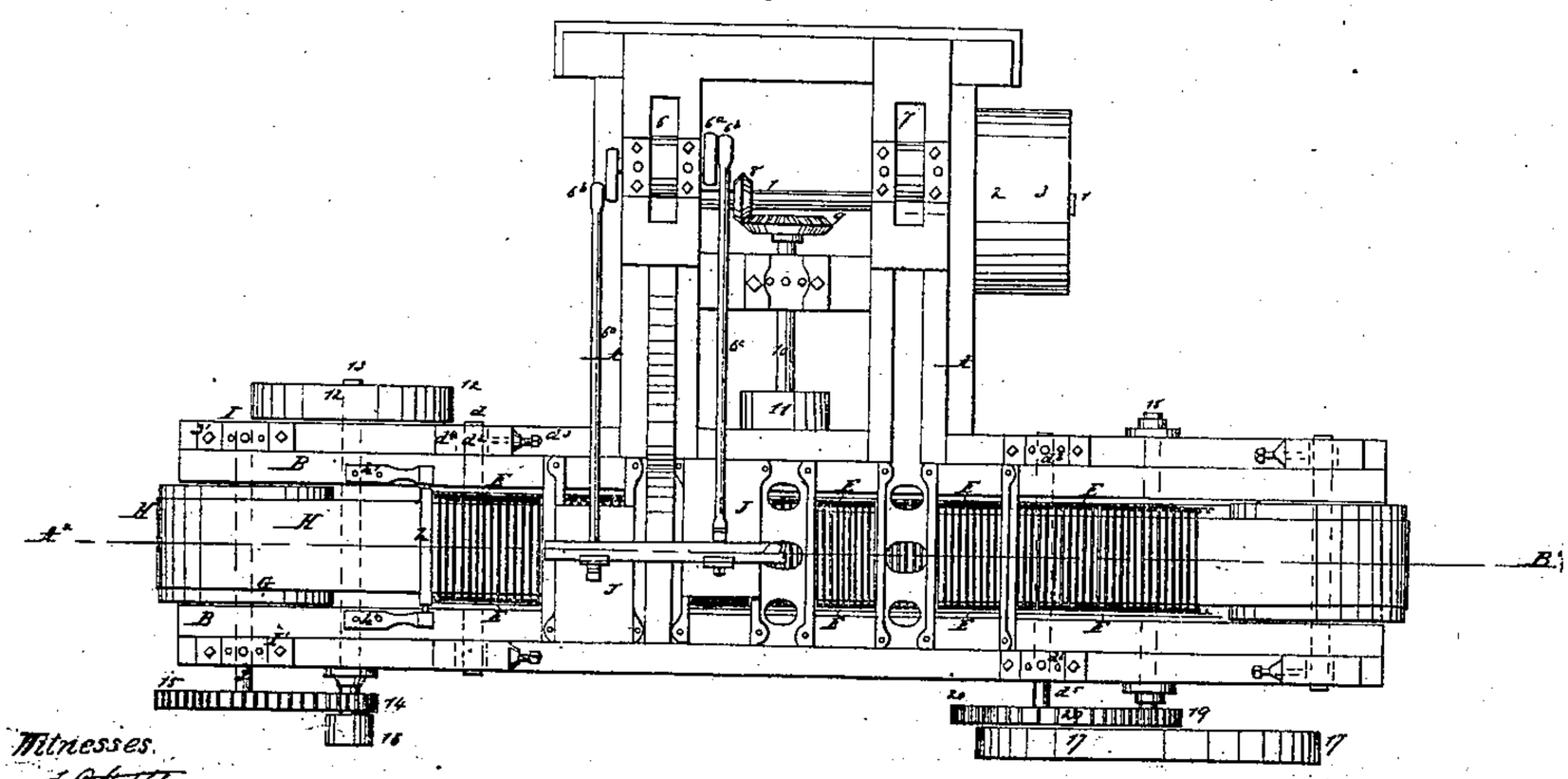


Fig. 2.



Witnesses.

S. Whipple

F. A. Lyon

Inventor:

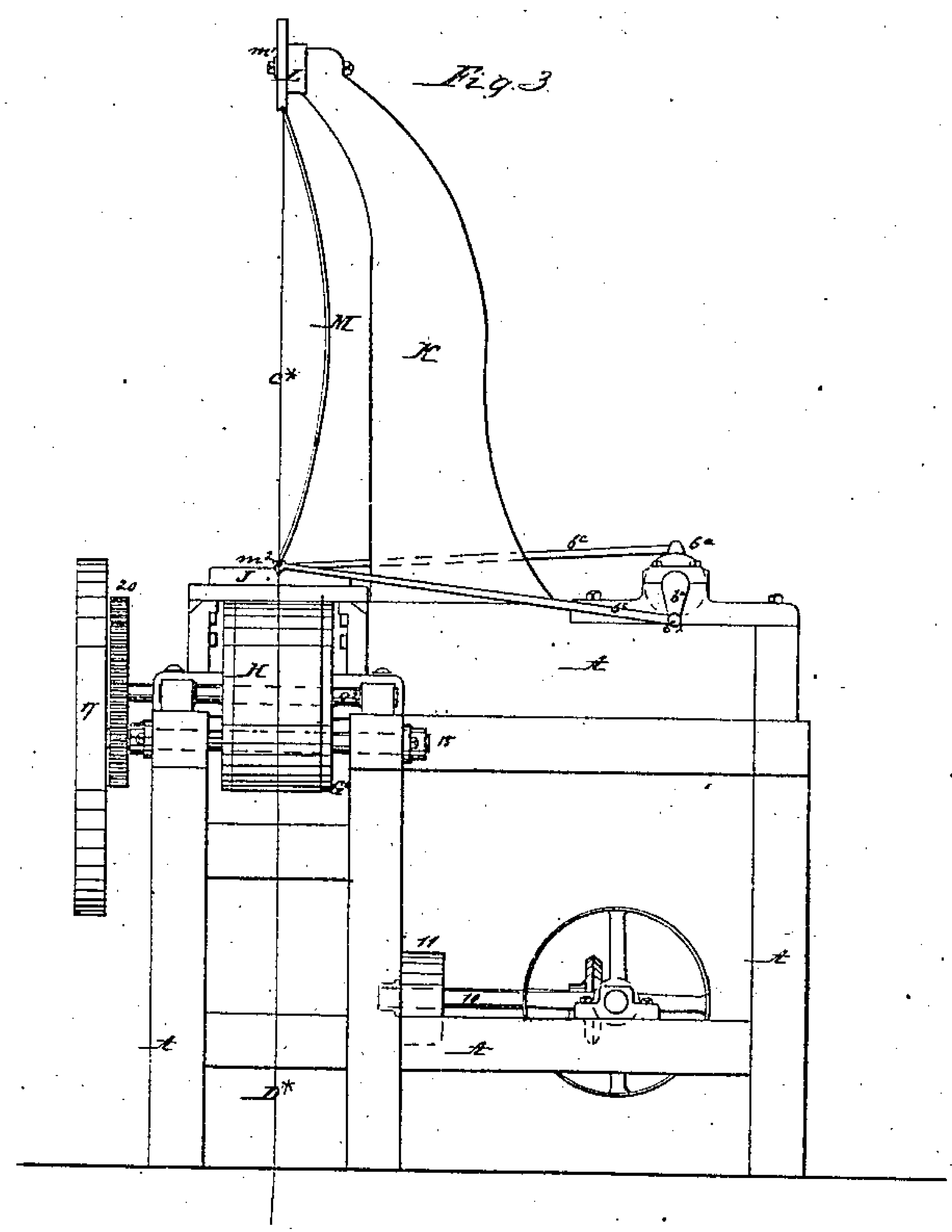
Edw. Weissenborn

E. Weissenborn.

Polishing Wood.

No. 67,240. Patented July 30, 1867.

Fig. 3



Witnesses:

J. B. Staples
W. H. Colyer

Inventor:

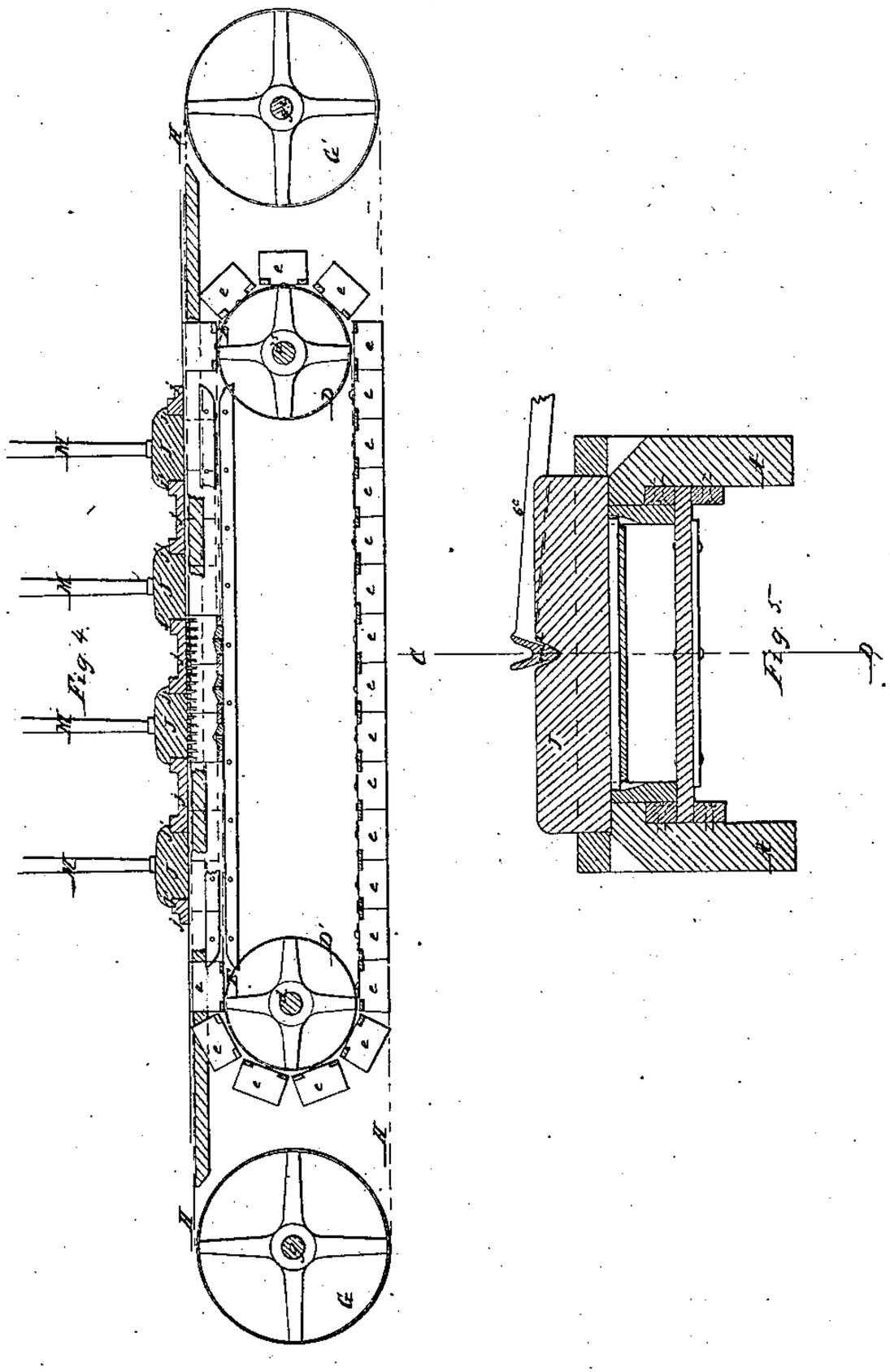
Edw. Weissenborn

3 Sheets-Sheet 3.

E. Weissenborn,

Polishing Wood.

No. 67,240. Patented July 30, 1867.



Witnesses:
J. B. Taylor
A. H. Stoltyn

Inventor:
Edw. Weissenborn

United States Patent Office.

EDWARD WEISSENBORN, OF HUDSON CITY, NEW JERSEY.

Letters Patent No. 67,240, *dated July* 30, 1867.

IMPROVEMENT IN MACHINES FOR POLISHING WOOD.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, EDWARD WEISSENBORN, of Hudson City and county, and State of New Jersey, constructing engineer, have invented certain new and useful Machinery for Smoothing and Polishing the Wood of Lead-Pencils, which machinery is applicable also to smoothing and polishing other similar cylindrical forms of wood to be used for any other purpose; and that the following is a full and exact description of my said invention and machinery, reference being had to the drawings accompanying and making part of this specification.

Figure I of the drawings represents a front elevation of my machinery.

Figure II represents a top view or plan of the same.

Figure III represents a side or end elevation of the same.

Figure IV represents a section of a part of the machinery at the line —— in Fig. II.

Figure V represents a section of a part of the machinery at line —— in Fig. III.

In all the figures the same letters and signs represent the same parts.

The nature of my invention consists, firstly, in the manner of receiving, holding, and carrying the pencils to be polished under polishing surfaces by means of endless aprons and a supporting-table and guide-blocks attached to one of the aprons, so constructed and arranged and operating as to continuously carry the pencils under the polishing surfaces, polish them, conduct them forward, and discharge them; secondly, in combining and arranging the polishing-blocks with the aprons, so that they will act continuously and with uniform pressure upon the surfaces of the pencils, and the operation of smoothing and polishing uninterruptedly carried on without stopping the machinery for the supply or discharge of the pencils; thirdly, in the novel form and use of particular features or parts of the machinery hereinafter particularly described and claimed. My machinery may be applied to polishing other articles of similar cylindrical figures, as well as to pencils.

My machinery is constructed as follows: Upon a suitably-constructed main bed-frame or table A A, I place the two parallel and equal pieces B B, which, resting on their edges, extend along the whole front of the main frame A A, and are supported on and fastened to the cross-pieces C C which rest upon the main frame. The two pieces B B are provided with several connecting cross-pieces (not seen in the drawing) which hold them firmly together, and at the same time support a flat bearing-board or table extending nearly the whole length between B B, the width of which is about equal to but less than the length of the pencils which are to be operated upon. Upon the two revolving drums D D′ is stretched the interior endless apron or belt E, shown in section in Fig. IV. The shaft d (Fig. II) of D′ has its bearings in adjustable slides d^2, adjustable by thumb-screws d^3 in bearing-boxes d^4, and which bearing-boxes are fast to the upper side of the frame-piece. The purpose of the slides and thumb-screws is to stretch or relax the apron, when desired. The shaft d^5 of drum D has its bearings d^6 fixed upon the opposite end of the frame-piece. The upper portion of the apron or belt E moves directly under the flat bearing-board or table above described, but not under its whole length. Upon the outer surface of the apron E, at its side edges, are fixed the thin upright blocks or guides *e e e* along its entire length. These blocks *e e e* are placed on opposite sides of the apron in parallel pairs; the inner faces of the blocks are grooved in parallel grooves of about a width to admit the ends of the pencils lying in them, across the exterior apron next to be described. They are seen in cross-section at *e e* in Fig. II. The blocks *e e e* are fastened upon the apron only at one point, at the middle of their lower edges, so as to permit them to have the required position when turning upon the drums. The use of this apron and the guide-blocks and grooves therein is to hold and roll the pencils forward under the smoothing and polishing surfaces, as hereinafter described. Upon the revolving drums G G′ (Figs. III, IV) is stretched the endless apron H. The shaft g of drums G has its bearings in fixed journal-boxes, g^1. The shaft g^2 of the opposite drum, G′, has its bearings in a slide moving in a box fast to the frame, and provided with a thumb-screw, the same as before described with regard to bearings of shaft d of drum . . The object of the slide and thumb-screw is to strain or relax the apron, as described. The upper portion of apron H passes over and has a bearing or support upon the board or table between B B above described, and the lower portion of this apron passes under the apron or belt E, so as to be clear of it all round. H (Figs. I and II) is a pressure-roller, having its bearings in the two bent arms h', fast to the frame-piece. Above the apron H, upon and between the first guide and supporting pieces j, I place the smoothing and polishing-blocks J, shown in front and end elevation in Fig. II, in side elevation in

Figs. III and V, and in cross-section in Fig. IV. In the present machine these blocks are four in number, but the number may be varied. The blocks J have projecting shoulders on each side, and which lap over upon the guide-pieces *j*, and upon which they have their bearings when they are not flush upon the pencils, between their lower faces and the upper surface of apron H. Upon the under faces of the blocks, which are made smooth and even, are glued sand-papers of increasing fineness, from block to block, beginning with the block which first acts upon the pencils. Upon the frame of the machine are placed the upright bent brackets K, seen in side elevation in Fig. III and in front elevation in Fig. II, the head of each bracket being bent forward so as to be directly over the line of the polishing-blocks, and the heads of the brackets are secured to the horizontal cross-beam L. M are pressure-springs, the upper ends, *m*, of which are slotted to receive a pin fast in the cross-beam; and a nut or button, m^1, secures the upper end of M upon the pin in its place, and the slot allows the required degree of adjustment. The opposite or lower extremity of the pressure-springs M is inserted into a V-notch, m^2, fast to the upper side of the polishing-block, and which notch is open, so as readily to slip the spring out laterally when occasion arises. The pressure springs are held in their places at the lower ends by their elastic pressure in the notches. The elastic pressure of these springs causes a uniform pressure of the polishing-blocks and sand-papers upon the pencils while being smoothed and polished. Upon the cross-beams of the after part of the main frame is the horizontal driving-shaft 1, turning in journal-boxes in bearings fast to the cross-beams of the frame. On the exterior end of this shaft is the driving-pulley 2 and the loose pulley 3. Upon the shaft 1 are also fixed two pulleys, 4 and 5, which are geared by bolts to the smaller pulleys 6 and 7, which are on the upper part of the frame above, as hereafter particularly described. Upon the shaft 1 is also fixed the small bevel-wheel 8, geared into larger bevel-wheel 9, fast to end of shaft 10, turning in journal-boxes having their bearings in the beams of the frame. Upon the opposite end of shaft 10 is the pulley 11, which is connected by belt with the larger pulley 12 fast to end of shaft 13 journalled in bearings fast to the beams of front frame. Near the opposite end of shaft 13 is the pinion 14, geared into spur-wheel 15, fast to end of shaft *g*, before described. Upon the extreme end of shaft 13, outside of pinion 14, is the lesser pulley 16, geared by belt to larger pulley 17, fast to shaft 18, journalled in bearings fast on the frame-beams. Upon shaft 18, next inside of pulley 17, is pinion 19, geared to spur-wheel 20 on shaft d^5, before described. The pulleys 6 and 7, hereinbefore described, are fast to shafts which have their bearings upon the top beams of the after part of the main frame, as seen in Fig. II. On each end of the shafts are cranks 6^a, with a pin or wrist, 6^b, the cranks being set upon the shaft in reverse direction to each other. 6^c 6^c are connecting-rods which are at one end journalled upon the cranks, and at the other end to the part of the polishing-blocks which is directly under the springs M at m^2. (The pair of connecting-rods and polishing-blocks operated by pulley 7 are left out of Fig. II of drawing, in order to permit the parts underneath to appear in the drawing.)

Having described the different parts of my machinery, I now proceed to describe the manner of operating the same.

Motion being given to driving-pulley 2 from any prime mover, the pulleys 3 4 upon shaft 1 give motion by the belts to pulleys 6 7, by which, and the shaft and cranks 6^a and the connecting-rods 6^c, a swift reciprocating movement is given to the polishing and smoothing-blocks J. At the same time the gearing-wheels 8 9 on shafts 1 and 10 give rotation to pulley 11, and by belt to pulley 12, and this gives rotation to pinion 14, toothed to spur-wheel 15, which puts shaft *g* in rotation, by which drum G is rotated, carrying over it the apron H, and thence the corresponding drum G′ in the direction indicated by the arrows, Fig. II. The pulley 16, connected by belt with pulley 17, gives rotation to it, and by pinion 19 and spur-wheel 20 to shaft d^5, upon which is drum D, over which passes the interior apron E, to the corresponding drum D′, and carrying on it the guide grooved blocks *e*. The operative stands at the angle of the frame (near to pulley 12) and feeds the machine with the pencils, dropping a pencil into each groove of the guide-blocks as they pass before him towards the polishing and smoothing-blocks J. A little practice enables the operative to drop the pencils into the grooves with great rapidity and ease while the machinery is running at its full speed. The pencils pass along upon and with the apron H, and are carried, rolling, under the polishing and smoothing-blocks, in succession, and the sand-papers upon the under surfaces of the blocks act upon every part of the surfaces of the pencils, giving them, with the greatest rapidity, a most beautiful and complete smoothness and polish. When the polishing is complete the pencils pass off over the apron H and fall into a receptacle at the end of the machine.

Having thus described my machinery and the manner of operating the same, what I claim therein as my invention, and desire to secure by Letters Patent, is—

1. The combination of two endless aprons H E and the grooved guide-blocks *e* with the supporting table between the aprons for receiving, holding, and carrying the pencils under the polishing-blocks and discharging them therefrom, arranged, constructed, and operating in the manner and for the purposes described.

2. The combination of the aprons, table, and guide-blocks aforesaid with the polishing-blocks J J, constructed and arranged and operating in the manner and for the purposes described.

3. The combination of the bent vertical pressure-springs M with the polishing-blocks J, the springs being provided with slots and buttons for adjustment, as described, constructed, arranged, and operating in the manner and for the purposes described.

4. The combination of the polishing-blocks J with the side pieces or supports *j*, to guide the polishing-blocks and support them at the desired point, so that the pencils may pass under them with facility as they are carried along by the aprons, and at the same time receive the required pressure for polishing.

EDW. WEISSENBORN.