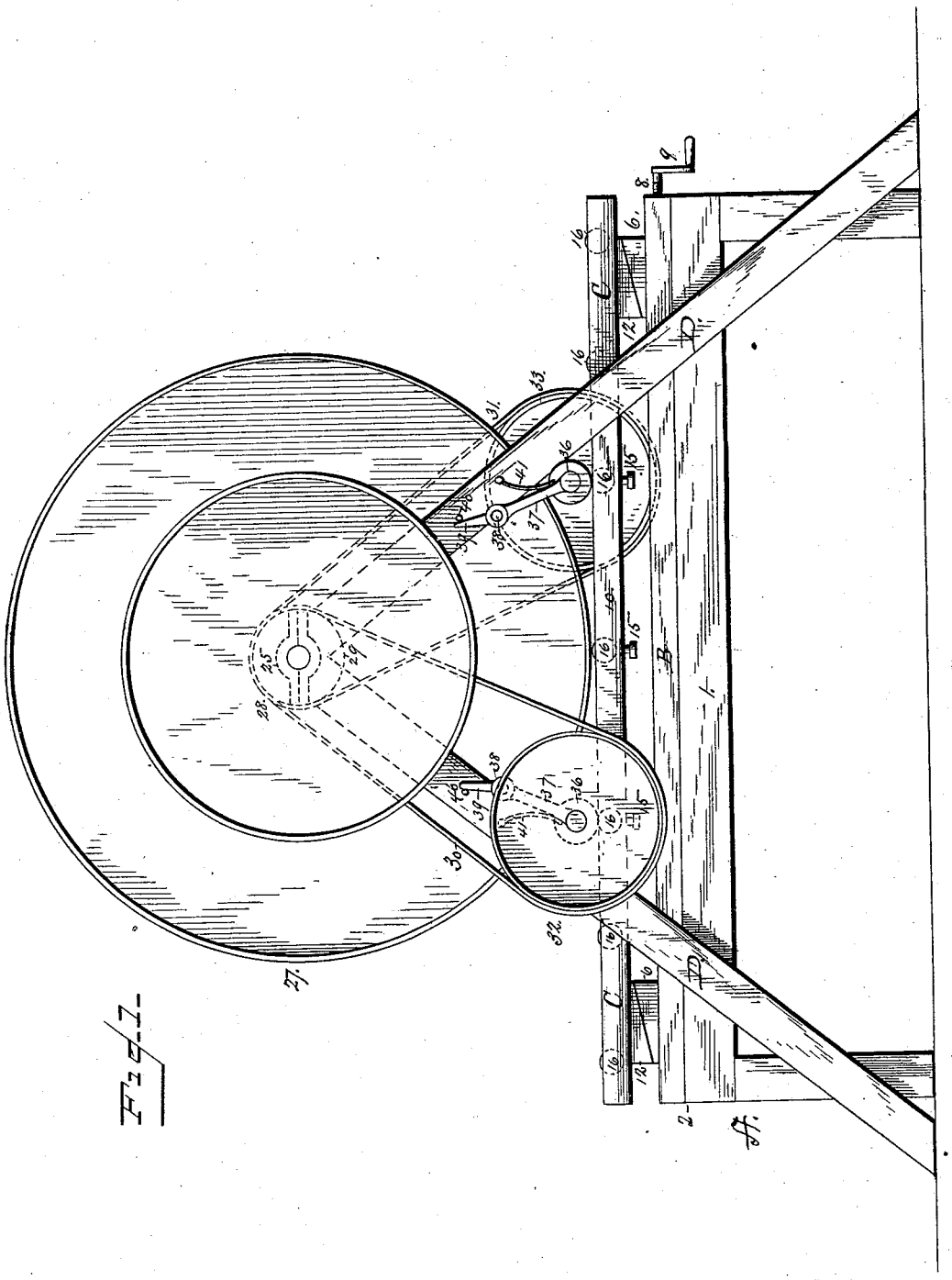
(No Model.)

3 Sheets—Sheet 1.

C. ROEHR.

SANDPAPERING MACHINE.

No. 342,932. Patented June 1, 1886.



WITNESSES

F. L. Ourand

E. G. Pritchard

INVENTOR

Charles Roehr,

by A. G. Hyltmann,

Attorney.

(No Model.)

3 Sheets—Sheet 2.

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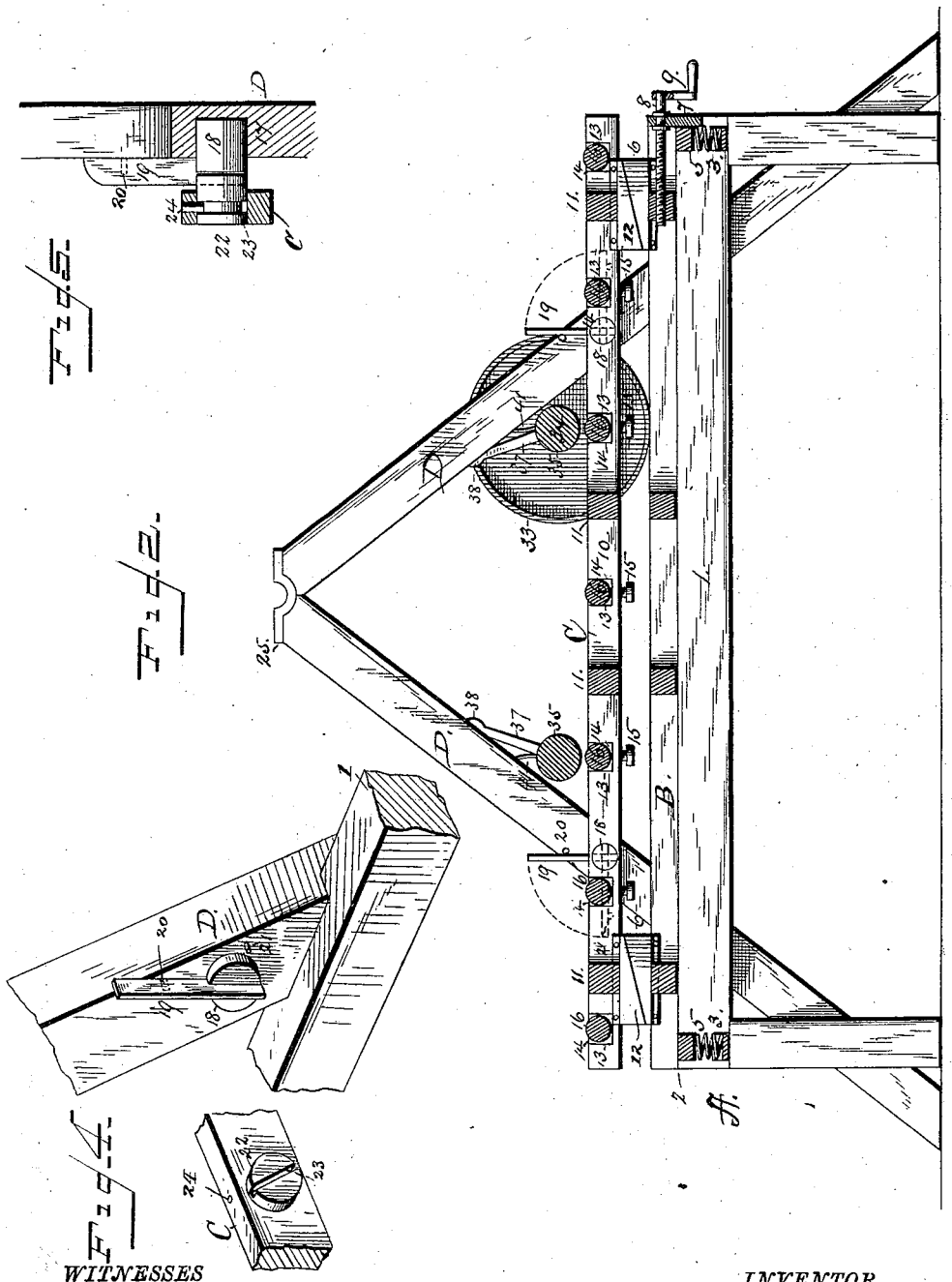

Fig. 2.

Fig. 3.

Fig. 4.

WITNESSES

F. L. Ourand

E. F. Pritchard

INVENTOR

Charles Roehr,

by A. G. Hopkins

Attorney

(No Model.) 3 Sheets—Sheet 3.

C. ROEHR.

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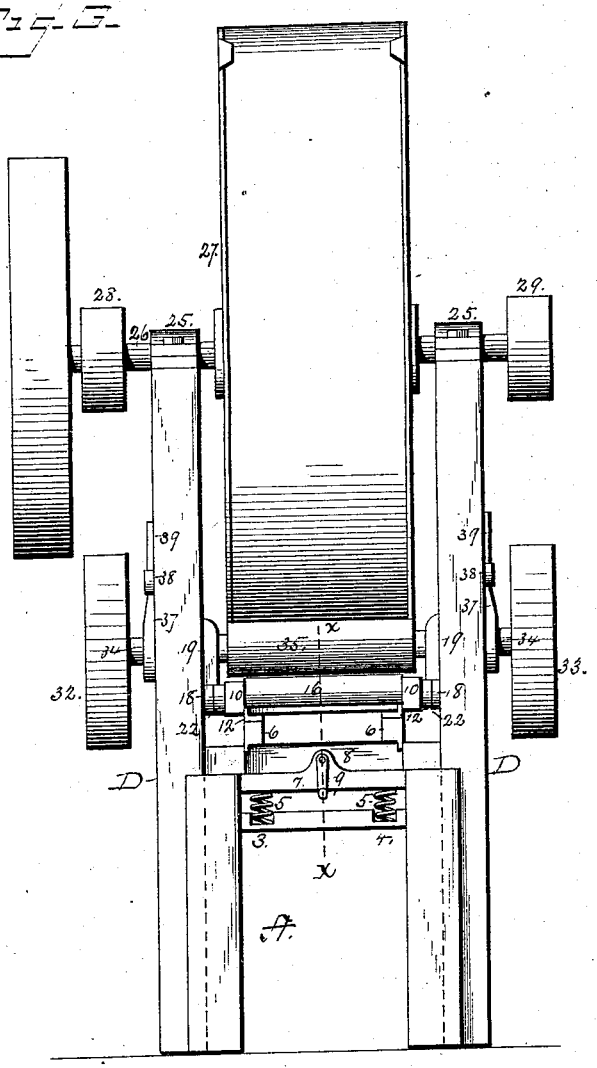
Fig. 3.



WITNESSES

F. L. Ourand

E. T. Pritchard

INVENTOR

Charles Roehr,

by A. S. Hyltmun.

Attorney

UNITED STATES PATENT OFFICE.

CHARLES ROEHR, OF BUCYRUS, OHIO.

SANDPAPERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 342,932, dated June 1, 1886.

Application filed February ', 1886. Serial No. 190,866. (No model.)

To all whom it may concern:

Be it known that I, CHARLES ROEHR, a citizen of the United States of America, residing at Bucyrus, in the county of Crawford, in the State of Ohio, have invented a new and useful Wood-Polishing Machine, of which the following is a specification.

My invention has relation to improvements in wood-polishing machines, known as "sand-papering-machines," wherein the body or substance submitted for finishing is carried on rollers mounted in a table, and subjected to abrasion by a rotating drum or wheel covered with sand-paper bearing on the upper surface of said body or substance.

The object of my invention is to provide a machine of the kind named and for the purpose stated, which will do the work intended in an improved manner—that is, without forming or producing perceptible waves, grooves, or other marks in the surface acted upon, and this I accomplish by seating the frames resting on the foundation-frame elastic and adjustable, and by arranging and adapting thereto a polishing-wheel of large diameter, and, consequently, extended circumferential surface.

The means employed, their specific construction, and appropriate functions, are fully and clearly described hereinafter, and in connection therewith I have fully illustrated the mechanism in the accompanying drawings, wherein—

Figure 1 is a side view of the machine. Fig. 2 is a longitudinal central sectional view taken on the line X X of Fig. 3, the sand-paper-wheel being removed. Fig. 3 is an end view of the machine. Fig. 4 is a detail view, enlarged, of the gudgeon of the removable frame, and the bearing for the same in the pulley-frame; and Fig. 5 is a view of the gudgeons shown in Fig. 4 united, the frame-pieces being shown in section to show the construction of the parts and their disposition in the frames.

In the drawings, where the same parts are illustrated in different figures, the same parts are designated by the same letters and numerals.

The letter A designates the supporting-frame, built with such substantialness as to to meet all the uses it may be subjected to, and constructed of such dimensions as the character of the work intended may require. I have shown it as consisting of two strong side timbers, 1, mounted on substantial benches at each end, the parts being secured together by any proper means.

In the inner upper edges of each of the side timbers of this frame are formed ways or seats, 2, within which is disposed the detachable frame B, comprised of substantial side pieces of the same length as the supporting-frame, and held together by two or more cross-pieces, substantially as shown in the drawings. The end cross-pieces of the supporting-frame A are formed with seats 3 4, in which are placed coil-springs 5, and the frame B rests on these springs, and is thereby given a vertical resiliency, which tends to bear the frame imposed thereon and the object carried by it against the sandpapering-wheel, as will be more fully stated hereinafter.

Secured at or near each end of the frame B and on each side thereof are blocks 6, having inclined upper faces, as shown in the drawings, the purpose being to give positive vertical adjustment to the frame which carries the object under the polishing-wheel. This adjustment is effected as follows: On the end of the supporting-frame is secured a cross-plate, 7, provided with a hole, through which is projected a threaded rod, 8, having one end properly secured to the cross-piece of the frame B, and provided at its outer end with a handle, 9, to work the screw-rod. By moving the screw-rod in either direction the frame will be given a corresponding movement.

The letter C designates the detachable carrying-frame, on which is laid the object to be sand-papered. The frame consists of side pieces, 10, of requisite length, secured together by two or more cross-pieces, 11, and on the under side of each side piece, near the ends, are secured blocks 12, having their under faces inclined reversely to the faces of the incline blocks on the frame B, and arranged to set on the latter substantially as seen in the drawings, the object being to give this frame C positive vertical adjustment, which is attained by means of the longitudinal movements of the frame B, as heretofore stated.

On the inner faces of the side pieces of the frame C are formed a number of box-seats, 13, in which are disposed bearing-boxes 14, which may be adjusted vertically by means of set-screws 15, projected through the bottoms of the box-seats. The bearing being adjustable, they may be set accurately in desired position of alignment. Mounted in these bearings are the carrying-rollers 16, which support the object to be sandpapered.

It is necessary to at times dispatch and remove the frame C from the machine, it being therefore requisite that the connections which secure it in position should be readily separated, and at the same time, when they are united, be strong and stable. It is also necessary that these connections be of an adjustable character. These essentials I attain by the following described means: In the frame D, hereinafter more specifically described, are formed circular seats 17, in which are fitted gudgeons or bearing-lugs 18. These consist of a short gudgeon formed or provided with a bearing-plate, 19, the outer edge of which extends beyond the face of the gudgeon, as best seen in Fig. 4 of the drawings. A pin, 20, set in the timber of the frame, restrains the blade or plate, when turned, to a vertical position, and another pin, 21, set in the side of the frame C, supports the blade in a horizontal position when turned in that direction. In the sides of the frame C are formed circular seats, in which are disposed other short gudgeons, 22, formed with a groove, 23, extended one-fourth around their circumferential faces, and a groove cut across their outer faces, the latter being to receive the plates or blades 19 of the gudgeons in the frame. When the gudgeons 22 are set in their seats, a pin, 24, is passed through the timber of the frame C into the groove, and the gudgeons thus limited in revolution to a one-quarter turn. When it is desired to remove the frame, the blade of the gudgeons in the frame is turned to a horizontal position, and the frame may then be pushed from the machine and lifted off, and it may be replaced by a reversal of the steps resulting in its removal. When in position, and the blades of the gudgeons are thrown into a vertical position, the frame is held secure, but may be adjusted vertically, since the grooves of the one set of gudgeons will slide up the blades of the others.

The letter D designates the frame which supports the sandpapering mechanism. This frame consists of substantial pieces of material arranged at an angle, with their upper and meeting ends secured together by any suitable means, and fixed in the frame A at their lower parts. On the apex or top of these angular frames are set bearing-boxes 25, in which is disposed the shaft which carries the sand-papering drum and the driving-pulleys, and also the pulley which is connected to the power.

On the shaft 26 is arranged the sand-papering drum 27. This drum consists of a wheel of such face-breadth as may adapt it to cover the distance intended in its uses, and is supplied on its circumferential face with a coating of sand-paper.

In machines heretofore used for sandpapering, so far as the art is within my knowledge, the drums used have been of comparatively small diameter, making it absolutely necessary that they be revolved with great speed, and their use is attended with two disadvantages: They make an uneven, wavy, or uncertain surface on the object, and the speed with which they have to be run endangers the integrity of the machine at all times and soon makes repairs necessary.

I make the drum in my improved machine of not less than four feet and six inches in diameter, and may make it as large as five feet. I thus present to the surface to be polish a large surface of the drum, and consequently producing an even face on the object, and at the same time I am able to greatly reduce the speed of the drum-axle without detracting from the fineness of the work or doing less of it.

On the shaft 26 are mounted two band-pulleys, 28 29, about which are adjusted belts, 30 31, arranged below about band-pulleys 32 33, mounted on the shafts 34, carrying the shoving-rolls 35. These rolls and pulleys are set in bearings 36 in hangers 37, swung on journals 38, fixed on the frames D, the upper ends of the hangers being extended, as seen at 39, and engage with or lodge against pins 40, set in the timbers of the frame, in order that the downward pressure of the rolls on the object being finished may be limited, and to the frame with their free ends arranged to press on the lower arms of the hangers are fastened springs 41, the purpose of which is to keep the rolls down on the object under them.

It will be seen from the foregoing description of the construction and arrangement of the shoving-rolls that they will automatically adjust themselves to the object being finished. It will be also observed that the carrying-frames can be adjusted to meet any desired degree of vertical arrangement which the work may demand.

The operation of the machine is readily perceived from an examination of the drawings in connection with the foregoing description; but it may be briefly collated as follows: The object to be finished is laid on the carrying-frame, and the end directed under the shoving-rolls and carried forward under the sandpapering-drum.

The adjustments of pressure may be made by means of the adjusting-screw in the frames, and also by means of the adjustable bearings in the carrying-frame.

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

1. In combination, the frame A, provided with elastic cushions, as 5, the frame B, seated in ways on the frame A and on the elastic cushions, and provided with adjusting-blocks, as 6, and screw-rod 8, the carrying-frame C,

having adjustable bearings, as 14, and rolls mounted therein, and adjusting-blocks, as 12, shoving-rolls arranged to bear on the object, and the sandpapering-drum 27, mounted on a shaft above the frame, and means to drive the drum and shoving-rolls, substantially as described.

2. The combination, with a stationary frame and an adjustable frame mounted thereon, of the carrying-frame adjustably and detachably mounted on the said adjustable frame, the sandpapering-drum 27, journaled on a frame above the carrying-frame, and the shoving-rolls journaled on bearings in swinging brackets, and means, substantially as described, for rotating the shoving-rolls and drum.

3. The combination, with the carrying-frame, and sandpapering-drum fixed on a shaft mounted over the carrying-frame, and having band-pulleys, of the shoving-rolls journaled in swinging brackets, and having band-pulleys connected to the band-pulleys on the drum-shaft, substantially as described.

4. The combination, with the frame D and carrying-frame C, of the gudgeons 18, having blades 19, and the gudgeons 22, formed with a groove, 23, to receive the blades of the gudgeons 18, substantially as described.

5. The combination, with the carrying-frame and shoving-rolls having band-pulleys, of the driving-shaft 26, carrying band-pulleys 28 29, and the sandpapering-drum, and bands connecting the pulleys of the shoving-rolls and the driving-shaft, substantially as described, and for the purpose set forth.

In witness whereof I have hereunto set my hand in the presence of two attesting witnesses.

CHARLES ROEHR.

Witnesses:
ED. C. ROEHR,
D. W. LOCKE.