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PATENTED DEC. 19, 1905.

DE LASKI T. CLEMONS.
HAND SANDING MACHINE.
APPLICATION FILED SEPT. 19, 1904.

3 SHEETS—SHEET 1.

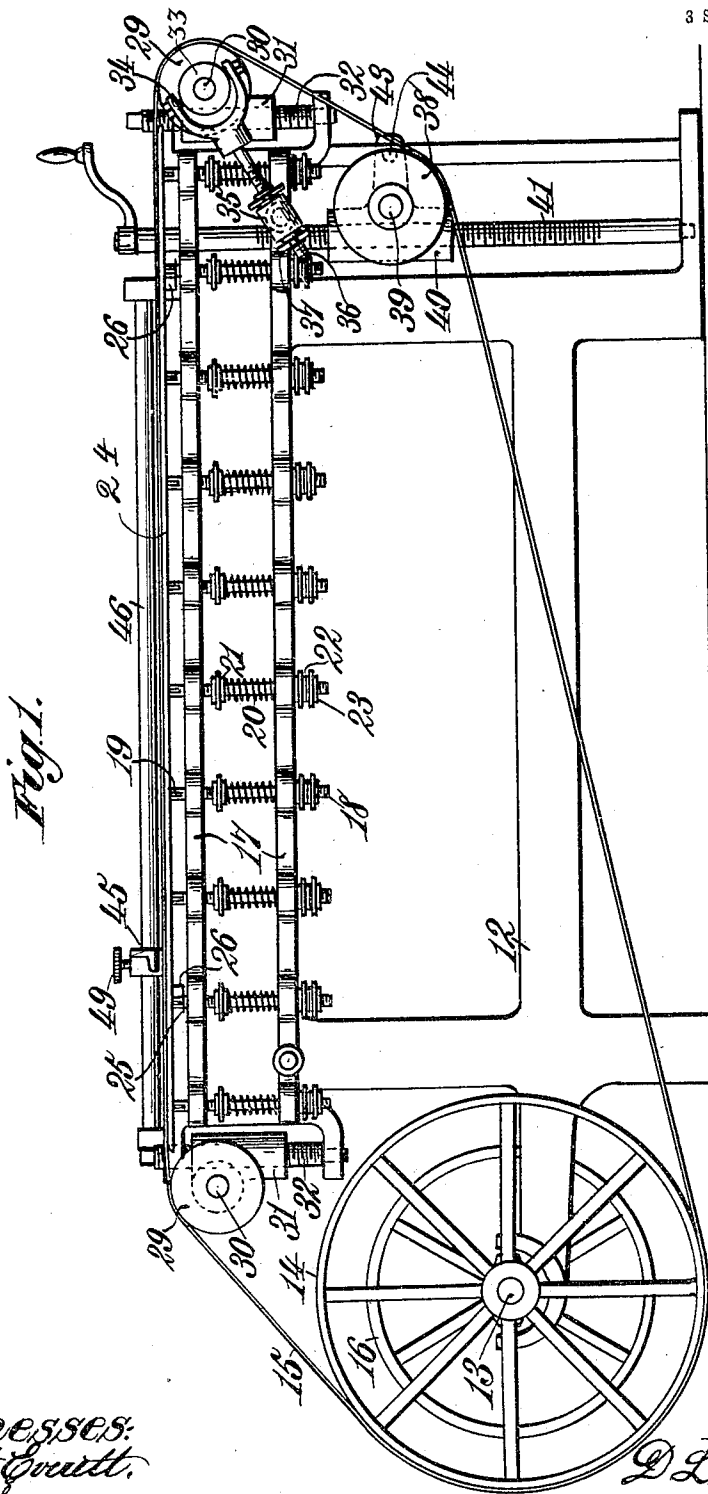


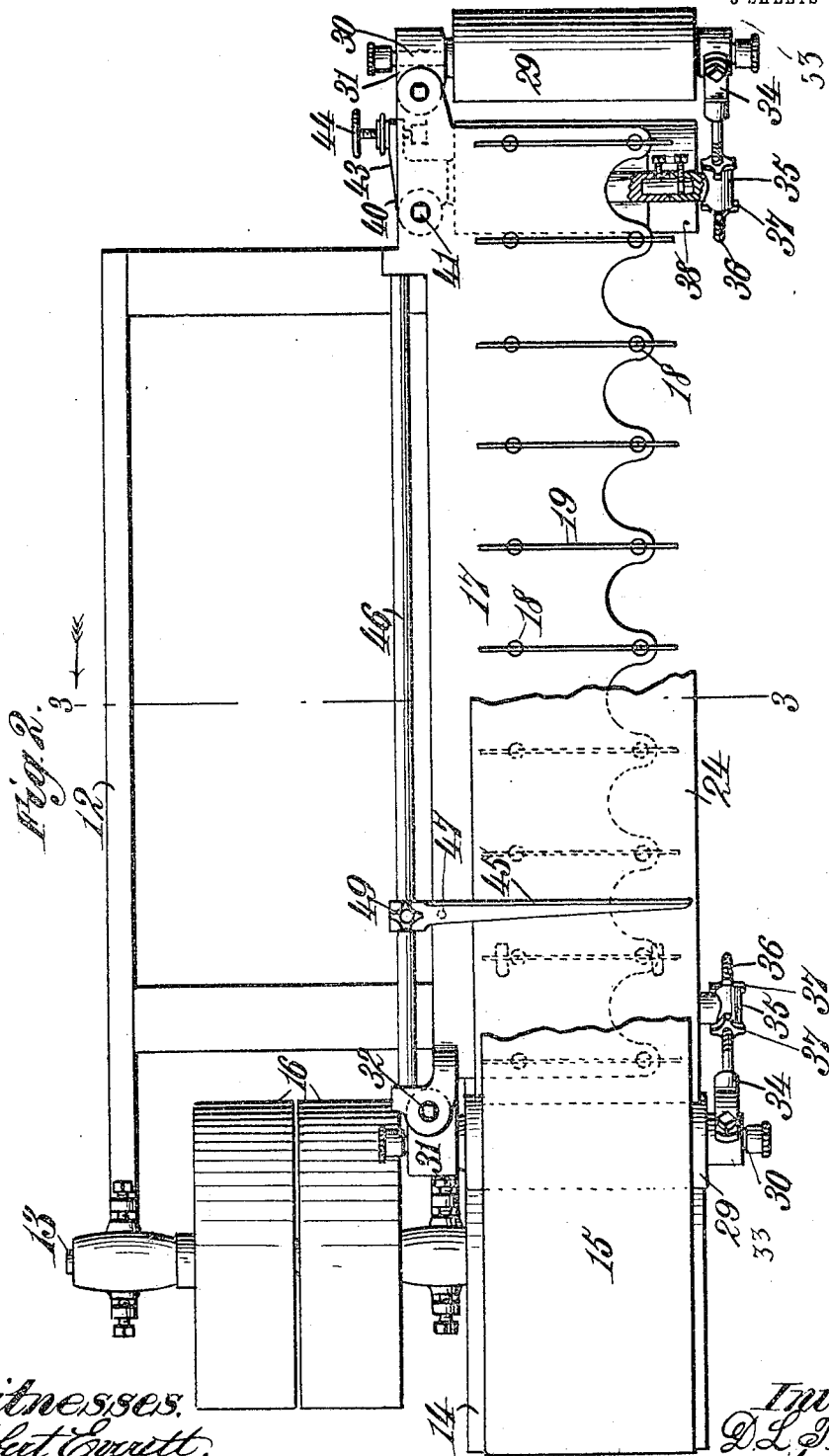
Fig. 1.

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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 3.

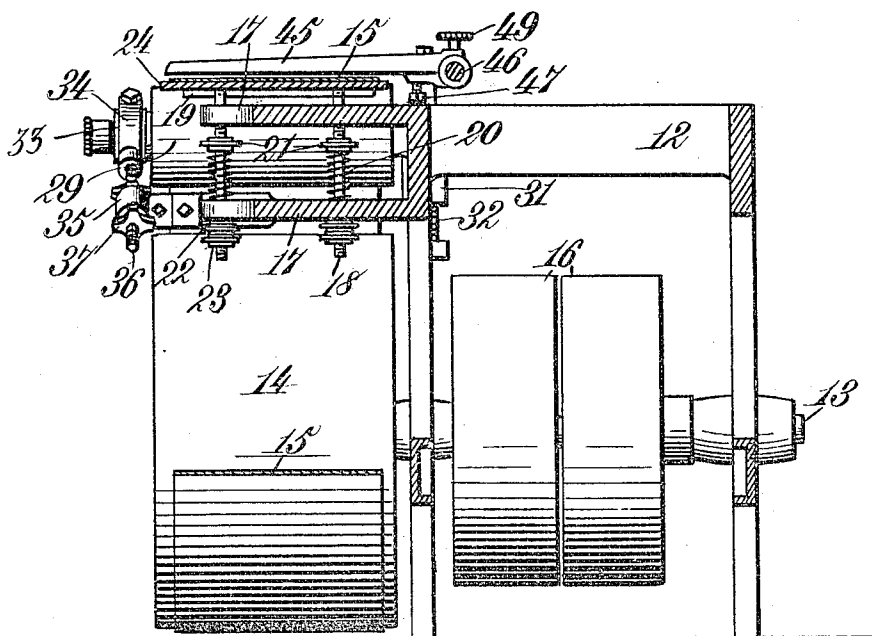
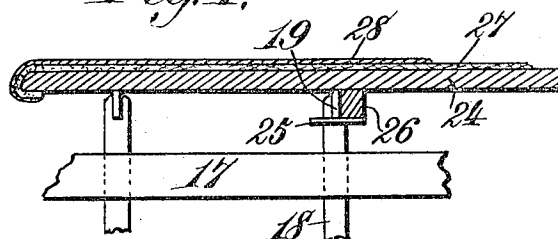


Fig. 4.



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UNITED STATES PATENT OFFICE.

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HAND SANDING-MACHINE.

No. 807,809.

Specification of Letters Patent.

Patented Dec. 19, 1905.

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To all whom it may concern:

Be it known that I, DE LASKI THOMAS CLEMONS, a citizen of the United States, residing at Hornellsville, in the county of Steuben and State of New York, have invented certain new and useful Improvements in Hand Sanding-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

The present invention relates to belt-sanding machines, and especially that type known as "hand-sanders," so called because of the fact that the work to be sanded is held against the sanding-belt and manipulated by hand, as distinguished from the type of machine in which the work is fed into the machine and mechanically manipulated during the sanding operation.

The present invention has for its object to provide a hand-sander in which a guide or support for the sanding-belt is provided, which will yield readily to pressure and will perfectly sand uneven surfaces held against it without cutting off or defacing any of the high places in the work being finished.

A further object of the invention is to provide efficient and easily-controlled means for adjusting the sanding-belt relative to its flexible guide, so as to maintain the belt always at a proper tension and position with respect to its supporting-bands.

Other features of novelty will appear hereinafter, and those which I consider as particularly of my invention will be pointed out in the claims appended hereunto.

In the drawings herewith I have illustrated one embodiment of my invention.

In said drawings, Figure 1 is a view in side elevation of the machine, portions thereof being in section for clearness of illustration. Fig. 2 is a plan view of the machine shown in Fig. 1, portions of the structure being broken away and the belt-supporting pad being removed to more clearly illustrate the construction. Fig. 3 is a transverse sectional view on line 3 3 of Fig. 2 looking in the direction of the arrow. Fig. 4 is a partial longitudinal section, on an enlarged scale, through the belt-guide.

Referring to the drawings by numerals, like numbers indicating like parts in the several views, 12 indicates the framework of the machine, which may be of any suitable construction, comprising end uprights and longitudinal and cross beams, as shown. Mounted upon a shaft 13, supported in suitable bear-

ings at one end end of the frame, is a driving-pulley 14 for the sand-belt 15, which has an open upper run or surface against which the workman may hold the work, said pulley being driven from any suitable source of power by means of the ordinary fast and loose pulley-drive 16 of usual construction mounted on the shaft 13. At the top of the said frame 12 and below the open upper arm of the belt 15 are webs or plates 17, in which are mounted at intervals adjustable rods 18, said rods being arranged in pairs, as shown, and projecting above the upper web or plate 17, where they are connected by means of thin plates or bars 19, pivoted in slots in the upper ends of said rods. Said rods 18 are movable vertically in their supporting-apertures in the plate 17 and are encircled by strong spiral springs 20, which rest upon the lower web or plate 17 and are held between it and adjustable hand-nuts 21, by means of which the tension of the said springs 20 may be regulated. The said springs tend to thrust the rods 18 and their connecting cross-bars 19 upwardly, as will be apparent. The upward thrust of the said spring-rods is regulated by means of hand-nuts 22 on the lower screw-threaded ends of said rods 18, which project through apertures in the lower web or plate 17, lock-nuts 23 being provided to lock the said rods 18 in their adjusted position. From this it will be seen that each pair of rods 18 is free to move downwardly under pressure, so as to provide a series of longitudinally-yielding supports, and each rod of the several pairs may move downwardly to some extent independently of its companion by reason of the pivotally-connected cross-bars 19, which connect the upper end of the said rods 18, so as to provide a series of transversely-yielding supports, and there is provided a series of supports lengthwise the machine, which yield both lengthwise and transversely under pressure. Mounted upon said bars 19 is a sand-belt guide 24, which may be made of a thin piece of sheet-steel or thin basswood ground or planed true and to the requisite thinness to serve the purposes of a flexible guide. The said guide 24 is so disposed as to exert an upward pressure against the under side of the open upper run of the belt 15 and the work held against said belt. It is secured in place to one or more of the supporting-bars 19 by means of clip plates or hooks 25, attached to strips 26 on the under side of the said guide, said hooks engaging preferably the ends of the bar 19 and being of such

construction as not to interfere with the flexing or bending of the guide 24, while at the same time they secure it firmly in place.

The belt-guide 24 is covered with a soft felt 5 27, so as to cushion it, and its upper surface is provided with a thin friction-reducing medium, such as a heavy paper sheet 28, so that there will not be undue friction between the surface of the guide and the sand-belt which 10 travels over and in contact with it.

At each end of the machine and in close proximity to the ends of the belt-guide just described are sand-belt-supporting rollers 29, said rollers being mounted on short shafts 30, 15 which shafts at their inner ends are supported in vertically-adjustable bearing-blocks 31, mounted, as shown, upon threaded adjusting-spindles 32, so that the rollers 29 may be raised and lowered at will to adjust the positions of 20 the sand-belt 15 with respect to the guide. The outer ends of said shafts 30 are supported in bearing-blocks 33, pivotally mounted in yokes 34, which yokes are in turn adjustably mounted in angularly-adjustable blocks or 25 heads 35, secured to the machine-frame, the said yokes 34 having screw-threaded shanks 36 mounted in the supporting-blocks 35 and provided with hand-nuts 37, so that the yokes 34 may be quickly and easily adjusted to align 30 the shaft 30 and effect an even adjustment of the roller 29.

At the end of the machine opposite the driving-pulley 13 is mounted a belt-tightening roller 38, which is carried by a shaft 39, projecting from a bearing-block 40, mounted on 35 a screw-threaded adjusting-shaft 41, so that by rotating the shaft 41 the said block 40, shaft 39, and roller 38 will be raised or lowered and the belt 15 tightened or slackened, 40 as desired. In order to provide means for alining the belt-tightening shaft and roller, so as to insure an even tension on the sand-belt, the bearing-block 40 is provided with an arm 43, in which is mounted a hand-operated 45 screw 44, which bears at its inner end against the machine-frame and enables an angular adjustment to be given to the said bearing-blocks 40, shaft 39, and roller 38 to true the latter relative to the belt and other elements 50 of the machine.

As a convenient means for holding and guiding the work relative to the belt 15 during sanding I provide an arm 45, mounted on a rod or suitable support 46, secured to the machine-frame, said arm 45 sliding freely lengthwise the rod 46 and extending transversely of the surface of the sand-belt 15, in close proximity thereto, an adjusting-screw 47 being provided to regulate the position of the 60 arm 43 above the sand-belt and a hand-operated clamping-screw 49 being provided to fix the arm in any desired position of adjustment on the rod 46 lengthwise of the machine.

It will be seen that in the machine which I 65 have invented there is provided a sand-belt

guide or support which is practically flexible in all directions, yielding longitudinally and transversely to pressure, so that the rapidly-moving sand-belt adjusts itself automatically to inequalities or ornamentations in the surface of the work and does not cut or deface 70 the same, as would be the case if universal flexibility of the belt-guide was not provided for. Furthermore, it will be apparent that the flexibility of the belt-guide may be varied 75 by adjusting the tension of the supporting-springs, and by the arrangement of adjustable belt-supporting rollers and belt-tightening devices above described the sand-belt may be tensioned and regulated to a nicety, 80 while the adjustable work-guide described gives a convenient means for positioning and holding the work with respect to the sanding-belt without interfering with the operation of the belt or the manipulation of the 85 work.

Having thus described my invention, I claim—

1. In a hand sanding-machine, the combination with a suitable supporting-frame, of an 90 endless belt having an open upper run or surface for the work, belt supporting and driving instrumentalities, a flexible pressure-plate beneath the upper run of said belt, and longitudinally and transversely yielding supports 95 beneath said pressure-plate which exert an upward pressure thereon.

2. In a hand sanding-machine, the combination with a suitable supporting-frame, of belt-supporting rollers at each end of said frame, 100 an endless sand-belt having an open upper run or surface for the work mounted on said rollers, means for driving said belt, a flexible pressure-plate supporting the upper run of said belt between said rollers, and longitudinally and transversely yieldable supports 105 for said pressure-plate which exert an upward pressure thereon.

3. In a hand sanding-machine, the combination with a suitable supporting-frame, of 110 guide-rollers at each end of said frame, an endless sand-belt having an open upper run or surface for the work supported by said rollers, means for driving said belt, a pressure-plate beneath the upper run of said belt, and 115 spring-pressed supporting-rods mounted on the machine-frame to uphold said pressure-plate and exert an upward pressure thereon.

4. In a hand sanding-machine, the combination with a suitable supporting-frame, of belt-supporting rollers on said frame, an endless sand-belt carried by said rollers, driving 120 means for said belt, a pressure-plate beneath said belt, pairs of spring-pressed rods mounted on the machine-frame, and transverse supporting-bars pivoted to said rods to support said 125 pressure-plate.

5. In a hand sanding-machine, the combination with a suitable supporting-frame, of angularly-adjustable belt-supporting rollers at 120

each end of the frame, an endless sand-belt carried by said rollers, means for driving said belt, a flexible pressure-plate beneath said belt, adjustable spring-pressed supporting-
 5 rods mounted beneath said pressure-plate on the machine-frame, transverse bars pivotally connected to the ends of said rods, and means for securing said pressure-plate to said transverse bars.

10 6. In a hand sanding-machine, the combination with a suitable supporting-frame, of belt-supporting rollers at each end of the frame mounted at their inner ends on vertically-adjustable blocks, angularly-adjustable supporting
 15 yokes for the outer ends of said rollers, an endless belt carried by said rollers, means for driving said belt, and a longitudinally and transversely yielding pressure-plate beneath said belt.

20 7. In a hand sanding-machine, the combination with a suitable supporting-frame, belt-supporting rollers at each end of the frame, vertically-adjustable bearing-blocks in which said rollers are mounted at their inner ends,
 25 angularly and longitudinally adjustable yokes in which said rollers are mounted at their outer ends, an endless driving-belt carried by said rollers, a drive-pulley at one end of the machine within said endless belt, a belt-tightening roller at the other end of the machine
 30 within said belt, means for adjusting said belt-tightening roller vertically, means for angu-

larly adjusting said tightening-roller to aline the same, and a longitudinally and transversely yieldable pressure-plate beneath the
 35 upper rod of said sand-belt.

8. In a sanding-machine, the combination with a traveling sand-belt, of a work-guide extending transversely of said sand-belt, a supporting-rod running longitudinally of the
 40 machine-frame on which said work-guide is adjustably mounted, and a regulating-screw carried by said work-guide and by means of which the said guide may be adjusted vertically relative to the surface of the belt. 45

9. In a hand sanding-machine, the combination with a suitable supporting-frame, of a pair of horizontal plates or webs on said frame, a series of vertically-movable rods mounted in said webs, springs for upholding said rods,
 50 means for adjusting said springs, horizontal bars pivotally connected with each pair of rods, a flexible pressure-plate carried by said bars, belt-supporting rollers at each end of said pressure-plate, and an endless sanding-
 55 belt supported by said rollers and pressure-plate, and belt-driving instrumentalities.

In testimony whereof I affix my signature in presence of two witnesses.

DE LASKI THOMAS CLEMONS.

Witnesses:

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