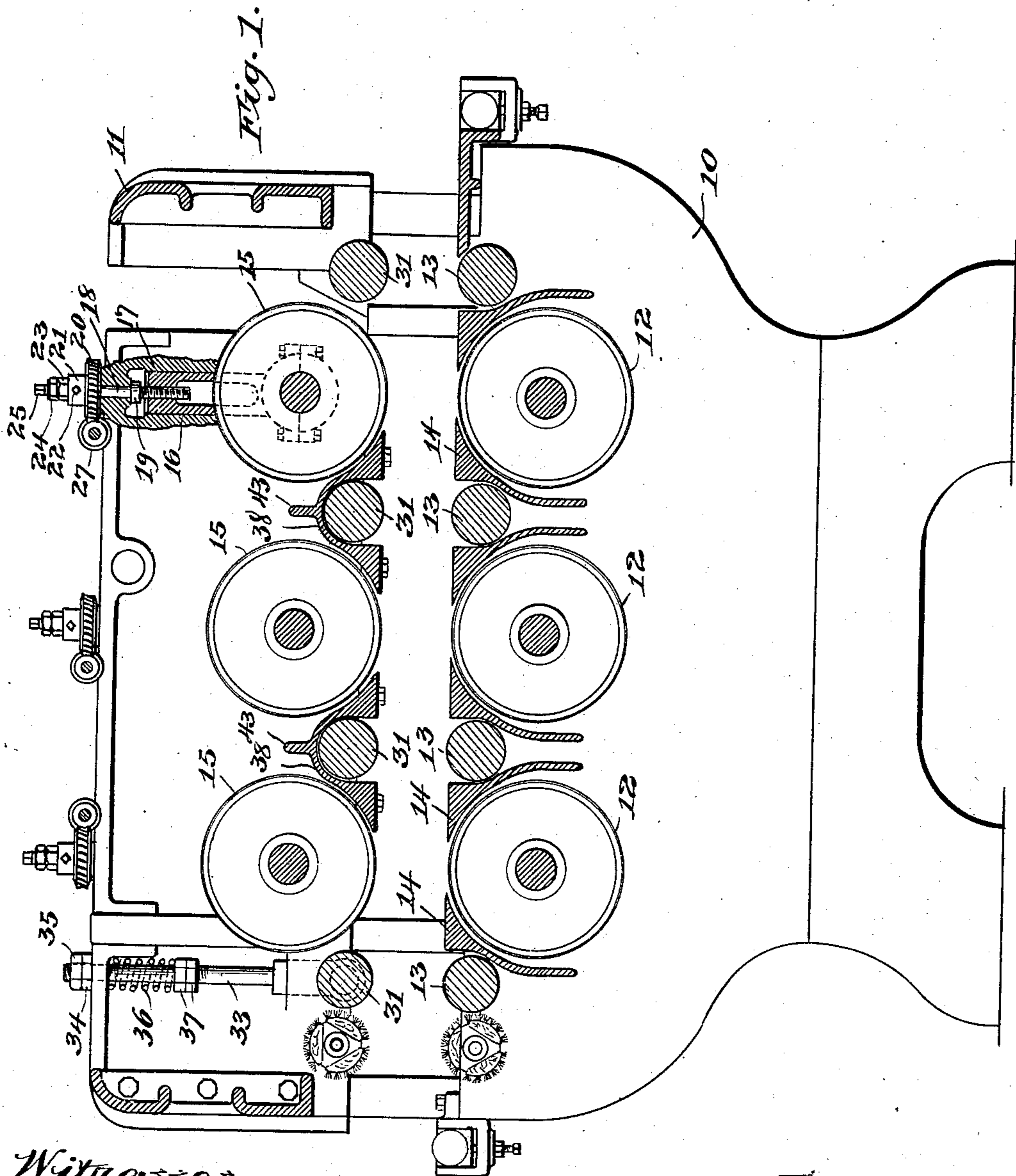


No. 889,468.

PATENTED JUNE 2, 1908.

F. L. LANE.
SANDING MACHINE.
APPLICATION FILED MAY 31, 1907.

3 SHEETS—SHEET 1.



Witnesses,
J. S. Mann,
D. N. Pond

Inventor,
Franklin L. Lane
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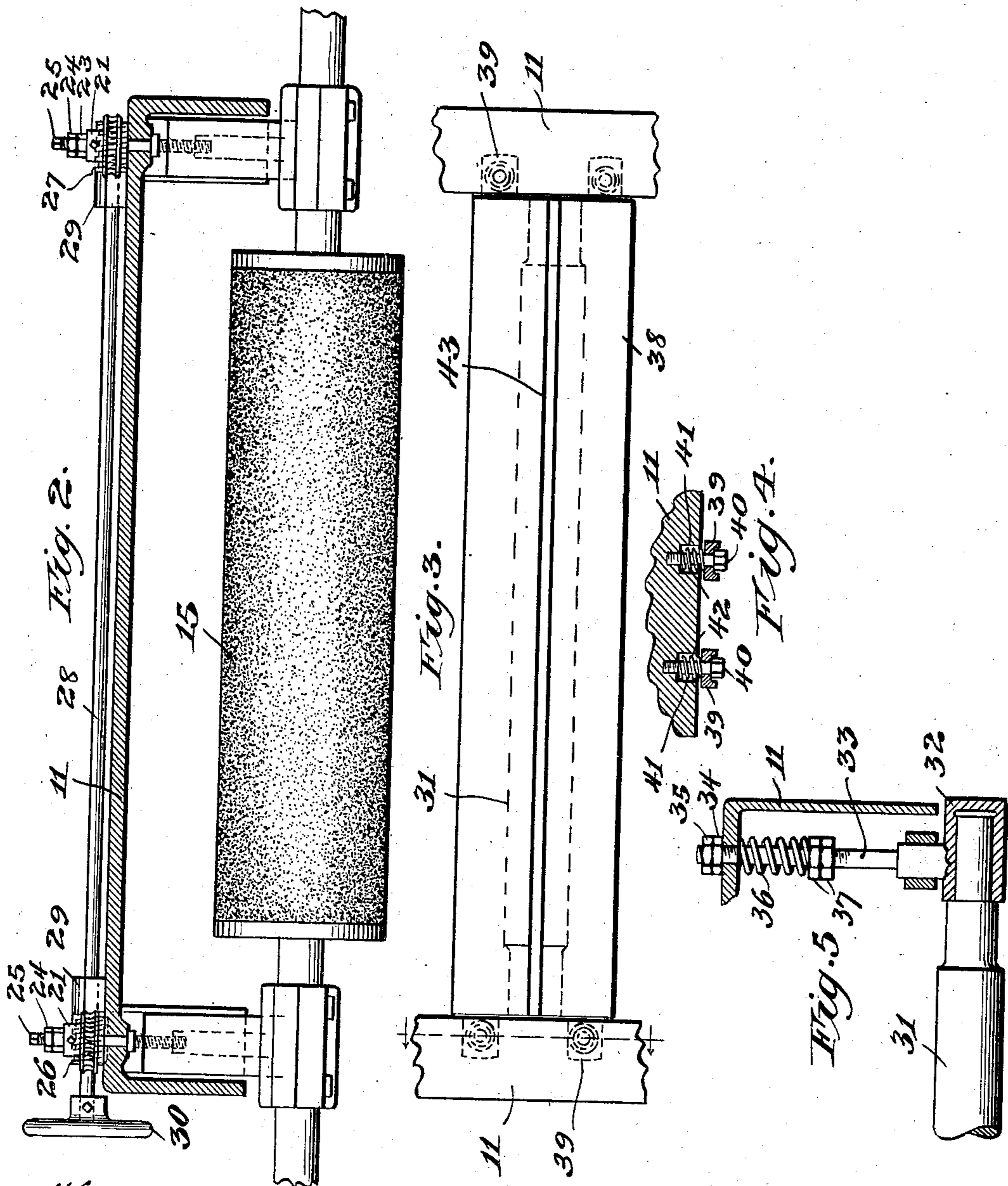
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3 SHEETS—SHEET 3.

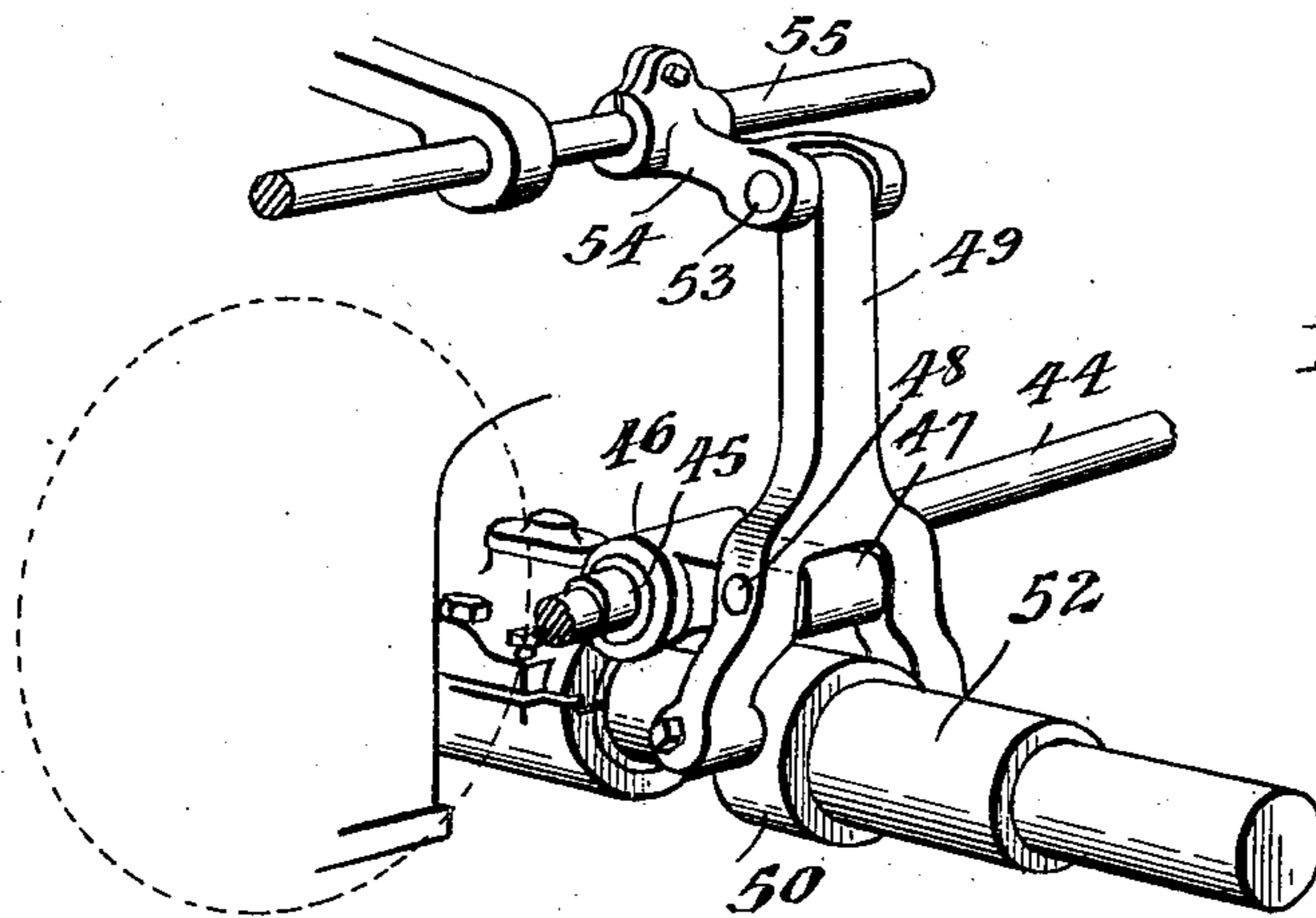


Fig. 6.

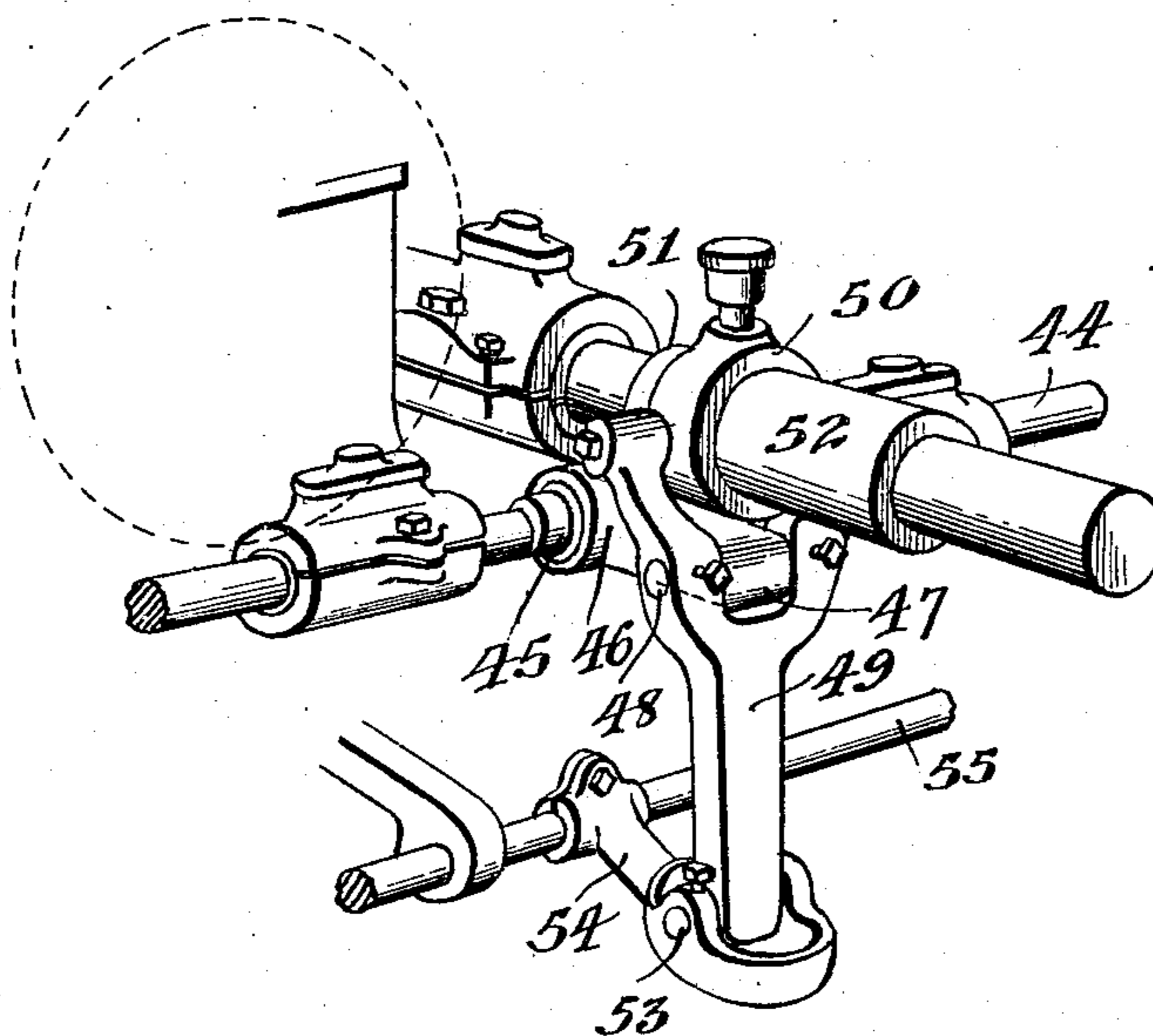


Fig. 7.

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UNITED STATES PATENT OFFICE.

FRANKLIN L. LANE, OF BELOIT, WISCONSIN, ASSIGNOR TO THE BERLIN MACHINE WORKS,
OF BELOIT, WISCONSIN, A CORPORATION OF WISCONSIN.

SANDING-MACHINE.

No. 889,468.

Specification of Letters Patent.

Patented June 2, 1908.

Application filed May 31, 1907. Serial No. 376,683.

To all whom it may concern:

Be it known that I, FRANKLIN L. LANE, a citizen of the United States, residing at Beloit, in the county of Rock and State of Wisconsin, have invented certain new and useful Improvements in Sanding-Machines, of which the following is a specification.

This invention relates to that class of wood-working machines commonly known as sanding machines or sanders, the function of which is to smooth and polish wooden surfaces; and the invention relates more particularly to improvements in that type of such machines employing one or more pairs of upper and lower sanding drums between which the board to be smoothed is passed and simultaneously dressed on both sides.

The principal object of my invention is to both increase the capacity and improve the character of the work done by these machines; likewise to render them more perfectly and accurately adjustable to variations in the thickness of the lumber treated.

In order to adapt such a machine to considerable variations in the thickness of the material treated, as well as to variations in thickness between opposite edges of the same material, I provide means whereby one series of sanding drums, preferably the upper, may be vertically adjusted bodily and simultaneously at both ends relatively to the co-operating drums, and I also provide means whereby either end of such drums may be independently adjusted, as required, both of these adjustments being permitted by and not interfering with the drum-driving devices.

My invention will be readily understood when considered in connection with the accompanying drawings showing a preferred embodiment thereof, wherein,—

Figure 1 is a longitudinal section through a sanding machine embodying my improvements, omitting, for the sake of greater clearness, several features and parts that are old and well known; Fig. 2 is a transverse sectional view through the upper half of the machine in the plane of one of the upper sanding drums, more particularly illustrating the means and manner of mounting the same and the means for simultaneously adjusting both ends of the drum. Fig. 3 is a top plan view of one of the presser bars, more particularly illustrating the manner of yieldingly mounting the same. Fig. 4 is a

detail sectional view on the line 4—4 of Fig. 3. Fig. 5 is a detail sectional view through one end of one of the feed rolls illustrating the manner and means of yieldingly mounting the same; and Figs. 6 and 7 are detail perspective views illustrating the means for imparting a slight endwise reciprocating movement to the upper and lower sanding drums, respectively.

Referring to the drawings, 10 may designate one of the main side-frame supports of the machine, and 11 may designate as an entirety the top housing of the machine. Rotatably journaled in and between the side-frames 10 are a series of lower sanding drums 12; and similarly mounted between and on the outer sides of the end sanding drums are a series of lower feed-rolls 13. Between the drums and feed-rolls are interposed stationary guides 14 having flat horizontal upper surfaces that lie coincident with the lower side of the channel or passage through which the board to be dressed passes. Directly above the several lower sanding drums 12 are a corresponding series of upper sanding drums 15. The end spindles of these upper sanding drums are adjustably journaled by the means shown in Figs. 1 and 2, wherein it will be seen that said spindles are journaled in split bearings carried on the lower end of a pair of posts 16 slidably mounted in supporting guides 17 constituting part of the upper frame member or housing 11; the upper ends of said posts being internally threaded to receive a threaded rod 18 that is confined against endwise movement by a fixed collar 19 engaging the top of the interior of the hollow guide 17 and by a worm-wheel 20 that rests on the upper end of the guide 17. This worm-wheel 20 has an integral hub 21 whereby it may be secured to the rod 18 by a set-screw 22, and the upper end of the rod is threaded to receive a nut 23 and lock-nut 24. The extreme upper end of the rod is squared, as shown at 25 to afford a wrench-hold.

The two worm-wheels 20 at the respective ends of the sanding drum are engaged by worms 26 and 27 on a common shaft 28 that extends across the top of the upper housing 11, as best shown in Fig. 2, being journaled in bearings 29 and provided with a hand-wheel 30 for manual operation. By reason of this construction it will be apparent that by turning the hand-wheel 30 in one direction the

drum 15 is bodily raised an equal amount at both ends, and by turning the hand-wheel in the opposite direction it is similarly lowered relatively to its cooperating lower drum 12.

5 It will also be observed that by loosening the set-screw 22 and applying a wrench to the wrench-hold 25, either end of the drum may be adjusted independently of the other.

Between and on the outer sides of the upper row of sanding drums 15 are mounted a series of upper feed-rolls 31 that cooperate with the several lower feed-rolls 13. These upper feed-rolls are maintained so as to be capable of a limited yielding movement to accommodate slight variations in thickness of the material passed between them; and the manner and means of mounting these feed-rolls is particularly shown in Figs. 1 and 5, wherein it will be seen that the spindle on each end of the roll is journaled in a suspended bearing 32 carried on the lower end of a threaded rod 33, the upper end of which extends through an aperture in the top housing 11 and is hung by means of a nut 34 and lock-nut 35. A coiled compression spring 36 surrounds the rod 33 and is confined endwise between a pair of nuts 37 at the lower end of the spring and the top member of the housing 11 at its upper end. It will be seen that the action of this spring is such as to normally maintain the feed roller in the lowest position permitted by the suspending nuts 34 and 35, while permitting either or both ends of the feed roller to yield in an upward direction, compressing the spring, in case the thickness of the material operated upon requires it.

In association with such of the upper feed-rolls 31 as lie between the upper sanding drums 15, I employ presser bars 38, which are of a general hood shape in cross-section and directly overlie the rolls; the depending sides of the presser bars having somewhat extended flat horizontal surfaces adapted to engage the upper surface of the material passing through the machine and cooperating with the feed-rolls 31 in maintaining the material in proper position to be operated upon by the sanding drums and preventing distortion of the material by reason of the friction of the sanding drums. Each of these presser bars, as more particularly shown in the detail views Figs. 3 and 4, is supported by means of a pair of apertured tongues 39 on each end underlying the lower edges of the sides of the upper housing, through which tongues 39 are passed screw-bolts 40 that are tapped into the sides 11 of the housing, which latter are countersunk as shown at 41 to form housings for compression springs 42, whereby the ends of the presser bar are permitted a slight elastic upward movement, enabling them to yield with the feed-rolls sufficiently to accommodate variations in the thickness of the material operated upon.

Each presser bar is preferably reinforced and strengthened by a longitudinal rib 43 extending the full length thereof at its apex or crown.

Figs. 6 and 7 illustrate a mechanism for imparting a limited reciprocatory movement to the upper and lower sanding drums, respectively. This mechanism, as applied to one of said drums being simply inverted in its application to the other drum, a description of one will suffice for both. 44 designates a shaft journaled on and parallel with the side walls of the upper and lower sections of the frame, respectively, said shaft carrying at a point opposite each drum shaft an eccentric 45 that is connected by an eccentric strap 46 and arm 47 to a pivot-pin 48 mounted in the fork of an upright lever 49. The forked end of this lever swivelingly engages a collar 50 on the drum shaft that is secured against endwise displacement by stop collars 51 and 52 on either side thereof. The other end of said lever is pivotally connected at 53 to the end of an arm 54, the other end of which arm is mounted to rock on a shaft 55 suitably mounted on the side frame and extending parallel with the shaft 44. It will thus be seen that the continuous rotation of the shaft 44, through the eccentric 45, imparts a slight endwise to and fro movement to the drum shaft, the supporting arm 54 rising and falling to compensate for the vertical movement of the lever 49 which necessarily occurs, and also permitting the vertical adjustments of the drums.

Both series of sanding drums and interposed feed-rolls are given rotary movement by the usual belts and trains of intermeshing spur gears on their respective shafts; and inasmuch as such driving mechanism is old and well known in machines of this class, and constitutes no part of the present invention, I have not considered it necessary to illustrate the same herein.

An advantage inhering in the type of machine above described resides in the fact that the dressing of the material on both sides is effected by a single pass of the material through the machine, and the upper roll, being a sanding drum and not a mere guide or presser roll, prevents the transmission of inequalities from the upper to the lower side of the board.

In addition to the foregoing, each of the upper sanding drums, in the machine of my invention, may also be adjusted bodily up or down relatively to its cooperating drum; and either end may also be independently adjusted to insure perfect parallelism of the operating surfaces of the cooperating drums. The upper feed rolls are also automatically yieldable at either or both ends, thus insuring a gripping action on the surface of the stock at all times, regardless of inequalities therein; and the same is true of the presser bars, which also engage the upper surface of the stock.

Of course, these drums might be located vertically instead of horizontally, if desired, without any departure from the principle of my invention in this respect. In this construction I preferably employ sanding drums of the spirally wound type, such as are shown, for instance, in Letters Patent to Lane & Mitchell, No. 577,582, February 23, 1897, thus avoiding any longitudinal break in the sanding surface, which might produce blemishes in the surface of the material treated.

It will be evident to those acquainted with this art that variations and modifications in respect to details of structure and relative arrangement of the parts described might be made within the spirit and purview of the invention and without sacrificing any of the benefits and advantages attained thereby.

I claim:

1. In a sanding machine, the combination with a lower sanding drum, of an upper sanding drum, suspended bearings in which the ends of said upper drum are journaled, means for imparting an endwise reciprocating movement to said drums, means for simultane-

ously raising or lowering said bearings, and means for independently raising and lowering said bearings, substantially as described.

2. In a sanding machine, the combination with upper and lower sanding drums, of upper and lower feed rolls on either side of said sanding drums, and resiliently yieldable upper presser-bars coöperating with said sanding drums and feed-rolls, substantially as described.

3. In a sanding machine, the combination with upper and lower sanding drums, of upper and lower feed rolls on either side of said sanding drums, and resiliently yieldable upper presser-bars partially embracing said upper feed rolls and adapted to engage the material to be dressed on either side of the latter, substantially as described.

In testimony that I claim the foregoing as my invention, I have hereunto subscribed my name in the presence of two witnesses.

FRANKLIN L. LANE.

Witnesses:

O. B. OSBORN,

F. A. HORSTMANN.