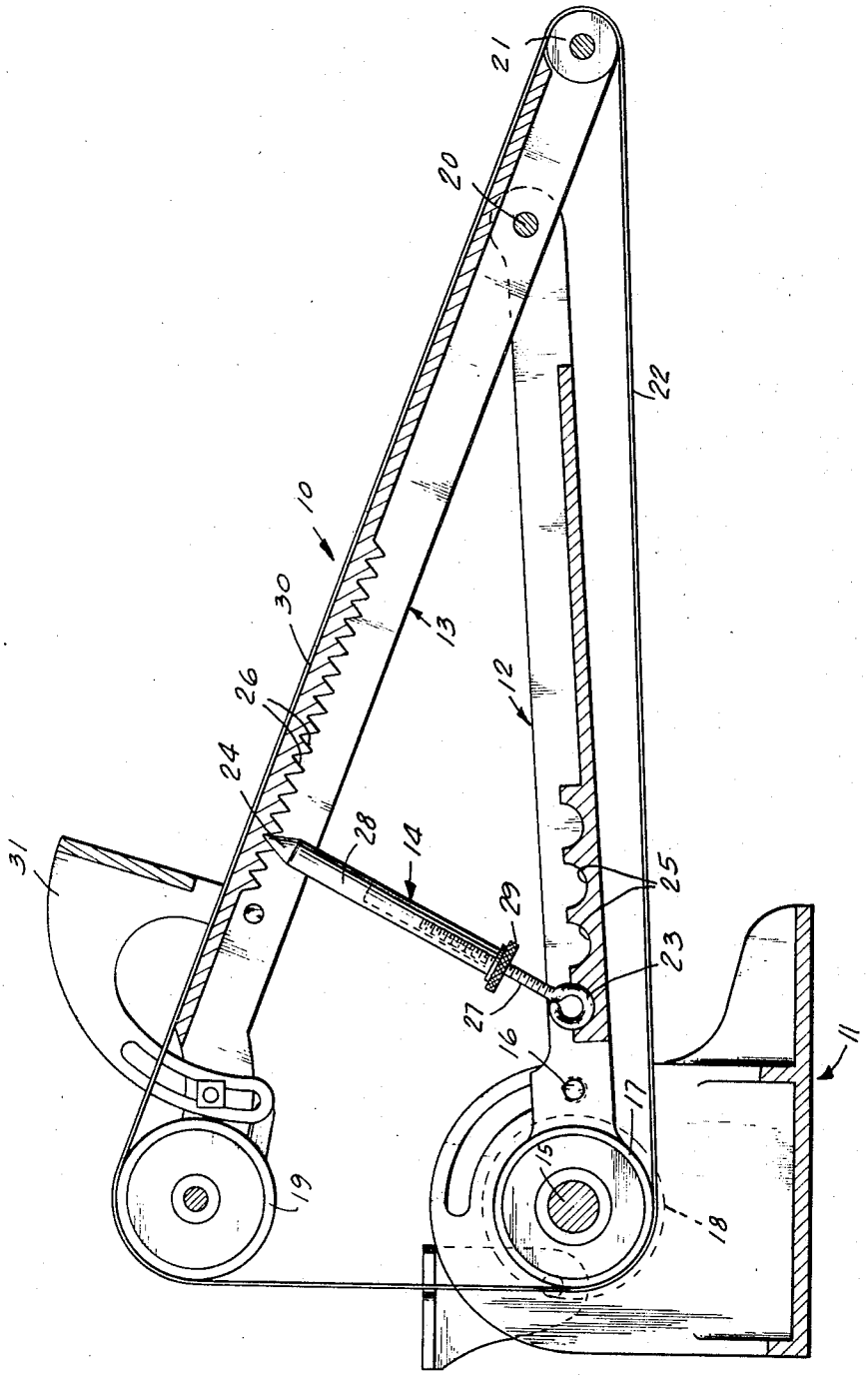
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SANDER

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SANDER
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ABSTRACT OF THE DISCLOSURE

A sander includes two pivotally connected arms supporting three pulleys about which an abrasive belt extends adjacent to one of said arms and receiving backing support, elongated adjustment means having pivotal connections at both ends with a series of recesses in each arm, the pivotal connection between the arms and the adjacent pulley being so arranged that the abrasive belt remains adjacent to the backing surface for all positions of the arms.

This invention relates to a belt sander.

Although the principles of the present invention may be included in various sanders, a particularly useful application is made in a sander which is constructed to be supported on a table, and which is particularly adapted to employ abrasive belts of various lengths.

The present invention includes an elongated belt-tensioning device of such construction as to enable the use of a wide range of belt lengths on the sander, each of such belts being supported on its back side for substantially the entire effective length along one leg thereof, the means which provides such support being effective for substantially any length of belt.

Accordingly, it is an object of the present invention to provide an improved belt-type sander.

A further object of the present invention is to provide a belt-type sander which can accommodate a wide range of belt lengths.

A still further object of the present invention is to provide backing means for a belt sander which is effective for substantially the entire length of a leg thereof.

Yet a further object of the present invntion is to provide a belt sander which may be adjusted for various lengths of belt without altering the backing support provided therefor.

Many other advantages, features and additional objects of the present invention will become manifest to those versed in the art upon making reference to the detailed description and the accompanying drawing in which a preferred structural embodiment incorporating the principles of the present invention is shown by way of illustrative example.

On the drawing

The drawing is a cross sectional view of a sander of the belt type constructed in accordance with the principles of the present invention.

As shown on the drawing

The sander, generally indicated by the numeral **10**, includes a base **11**, a first arm **12**, a second arm **13**, and an elongated belt-tensioning device **14**. The first arm **12** is secured at one end in a pivotal manner to the base **11** for adjustment about the axis of a shaft **15**, the position of which may be fixed by means of a screw **16**. Rotatably supported about the shaft **15**, there is a first pulley **17** to which there is secured a driving pulley **18**. The driving pulley **18** may be driven by a motor-driven belt (not shown). The pulley **17** may be directly driven by a motor.

The second arm **13** has a second pulley **19** rotatably

supported on a free end thereof. The first arm **12** and the second arm **13** are provided with a pivotal connection therebetween, the same being indicated by the numeral **20**. A third pulley **21** is disposed on one of the arms, namely on one end of the arm **13** adjacent to the pivotal connection **20**.

An endless abrasive belt **22** extends about the pulleys **17**, **19**, and **21**, so that when one of these pulleys is rotatably driven, the endless belt **22** is similarly rotatably driven about these three pulleys.

In order to maintain the arms **12**, **13** at such an angle as to provide the proper tension to the endless belt **22**, there is provided the elongated belt-tensioning device **14** which is of adjustable length. The device **14** has its opposite ends **23**, **24** respectively secured to the arms **12**, **13** at points disposed between the pivotal connection **20** and the first and second pulleys **17**, **19**.

More specifically, the arm **12** has a series of recesses or wells **25** cast integral therewith at the bottom of a channel, while the arm **13** has a series of V-groove recesses or ratchet teeth **26** similarly disposed and cast integral therewith on the inside of a channel, the recesses **25**, **26** extending along the length of said arms **12**, **13** in such channels, and each series of recesses **25**, **26** being directed toward the other arm **13**, **12**. The opposite ends **23**, **24** of the belt tensioning device **14** are pivotally supported in the recesses **25**, **26** respectively.

The recesses **25** of the well-type comprise narrow semi-circular sockets which receive the circular end **23** of an eye-bolt **27**, while the recesses or V-grooves **26** receive the end **24** of a sleeve **28**, the end **24** comprising a cone point. A nut **29** is carried by the eye-bolt **27** and engages the end of the sleeve **28**. The nut position enables compensation for various belt lengths.

As the ends **23**, **24** of the belt-tensioning device **14** are moved to various recesses **25**, **26**, the belt-tensioning device is enabled to accommodate a wide range of belt lengths. In a prior device, the size of belt lengths which could be accommodated varied by one and one-half inches. With the present structure, the range of belt length variations that can be accommodated is at great as ten inches.

The side of the arm **13** which is opposite to the recess-defining means **26** comprises an oppositely directed flat surface **30** which comprises a backer for the abrasive belt **22**. The arm **13** carries an adjustably positioned workpiece support **31** against which a workpiece may engage. The backing surface **30** extends substantially all the way to the pulley **21** leaving substantially no gap between the end of such surface and the pulley **21**. Thus the abrasive belt **22** is provided with backing means all the way from the work support **31** to the pulley **21**.

In that the pulley **21** is carried by the second arm **13**, and the pivotal connection **20** is disposed on the second arm between the pulleys **19** and **21**, no matter how great the adjustment of the belt-tensioning device **14** may be, the belt **22** remains backed-up by the backing surface **30**.

Thus according to the present invention, belts having a wide range of length may be employed, the belt-tensioning device being of such construction as to accommodate such wide range of belts, and the geometry of the structure being such that even though there is a wide range of adjustment about the pivotal connection **20**, the belt **22** remains backed up by the supporting surface **30**, such backing extending all the way up to the pulley **21**.

Although various minor modifications might be suggested by those versed in the art, it should be understood that I wish to embody within the scope of the patent warrented hereon all such embodiments as reasonably and properly come within the scope of my contribution to the art.

I claim as my invention:

1. A sander including in combination:
(a) a base;
(b) a first arm secured at one end to said base, said first arm having a first pulley at said one end;
(c) a second arm having a free end supporting a second pulley, said second arm having a belt backing surface for supporting a belt in any position of said second arm;
(d) a third pulley carried by said second arm;
(e) a pivotal connection between said arms at the other end of said first arm and spaced from the other end of said second arm between said second and said third pulleys;
(f) an endless abrasive belt extending about said pulleys;
(g) means for driving one of said pulleys; and
(h) an adjustable belt-tensioning device supported on said arms and acting at points disposed between said pivotal connection and said first and second pulleys.

2. A sander according to claim 1, in which said belt-backing surface extends along the length of said second arm and spans substantially the entire distance between said pivotal connection and said third pulley.

3. A sander including in combination:
(a) a base;
(b) a first arm secured at one end to said base, said first arm having a first pulley at said one end;
(c) a second arm having a free end supporting a second pulley;
(d) means along the length of each of said arms defining a series of recesses in each of said arms and directed toward the recesses of the other of said arms;
(e) a pivotal connection between said arms at their other ends, and a third pulley disposed on one of said arms adjacent to said connection;
(f) an endless abrasive belt extending about said pulleys;
(g) means for driving one of said pulleys; and
(h) an elongated belt-tensioning device of adjustable length having its opposite ends pivotally supported on said arms and each end respectively received in one of said recesses.

4. A sander according to claim 3, wherein one of the ends of said elongated belt-tensioning device comprises a circular portion, and wherein said recesses receiving said circular portion comprise semicircular sockets.

5. A sander according to claim 1, having means along the length of at least one of said arms defining a series of semicircular sockets directed toward the other of said arms, one end of said belt-tensioning device comprising a circular portion supported in one of said sockets.

6. A sander according to claim 3, wherein said third pulley is carried by said second arm, said pivotal connection being disposed at the end of said first arm remote from said first pulley, and between said second and said third pulleys on said second arm, and a belt-backing surface on said second arm for supporting a belt in any position of said second arm.

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