Oct. 25, 1938. J. HAJICEK 2,134,555

ADJUSTABLE SWING SAW

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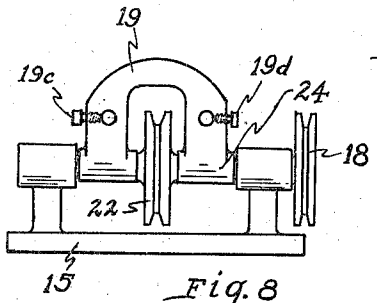


Fig. 8

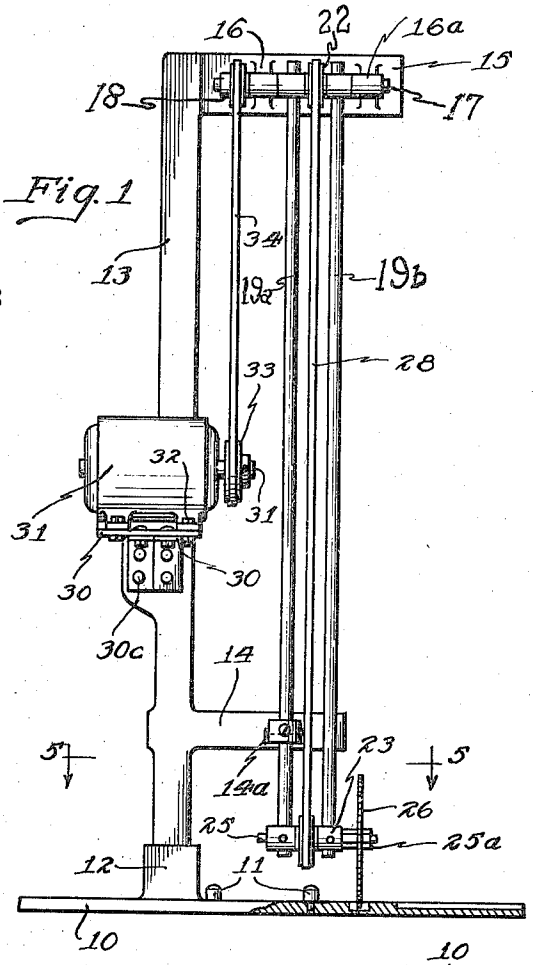


Fig. 1

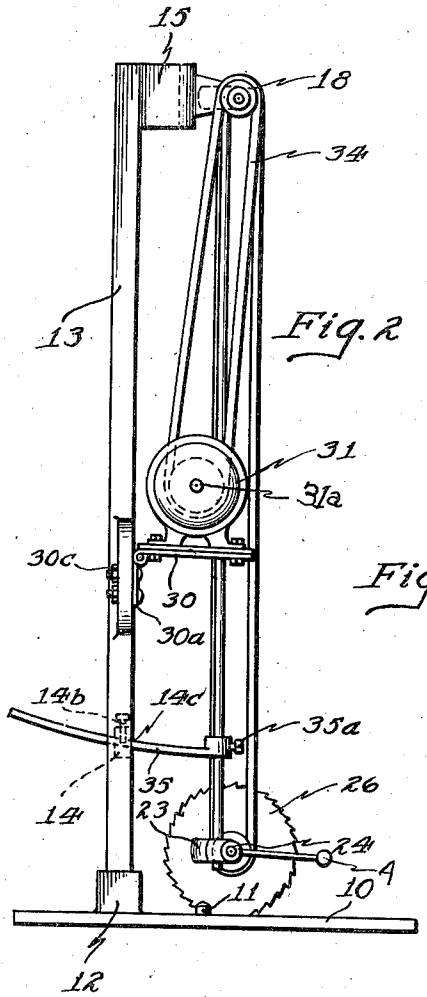
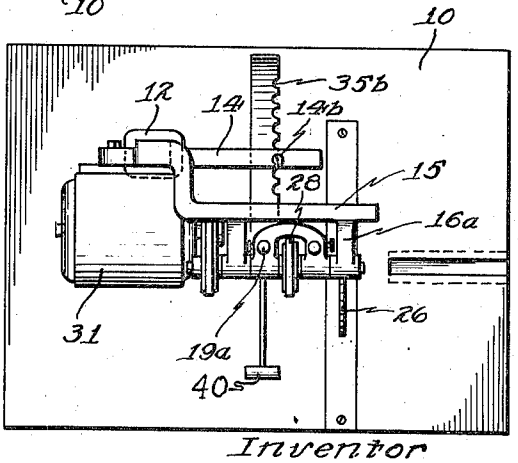


Fig. 2

Fig. 3



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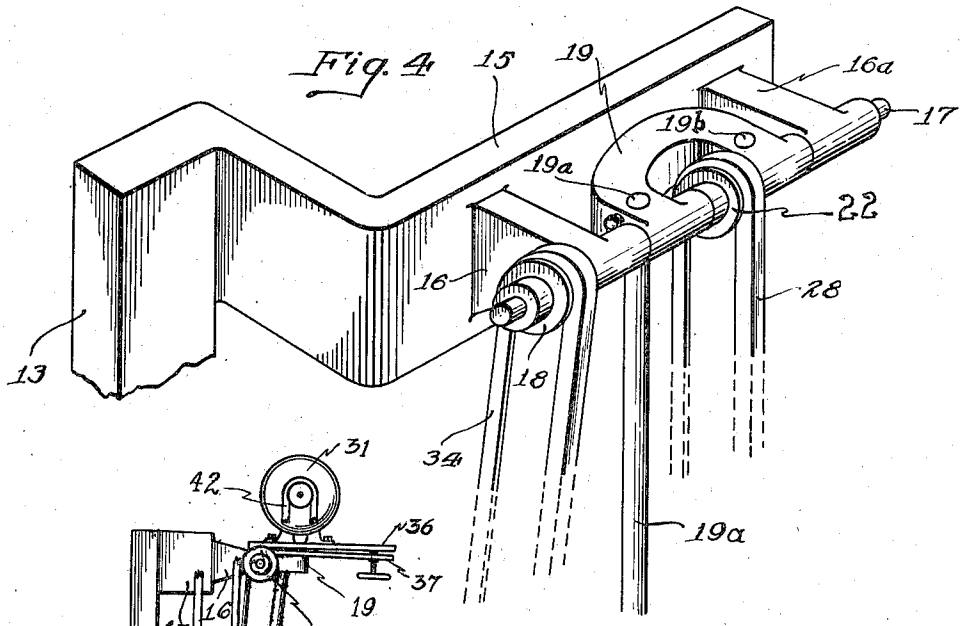
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Fig. 4



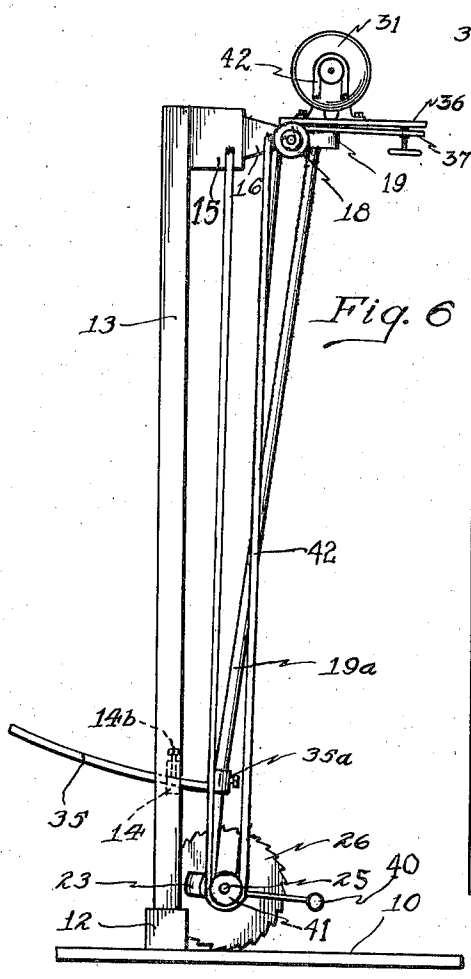


Fig. 6

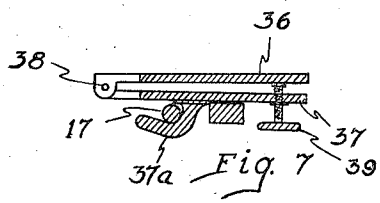
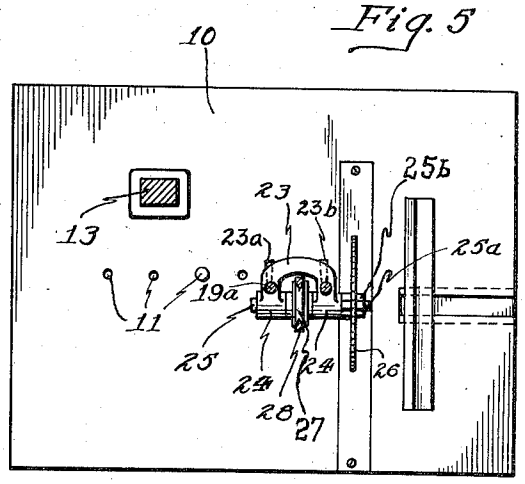


Fig. 7

Fig. 5



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ADJUSTABLE SWING SAW

Joseph Hajicek, Cicero, Ill.

Application February 19, 1937, Serial No. 126,563

2 Claims. (Cl. 143—46)

My invention relates to a portable machine particularly adapted for use as a cross-cut swing saw and which is adapted to be set on work benches or other suitable elevated support, and which can be easily moved from place to place wherever it is desired to cut pieces of lumber or other material. More particularly, the invention is directed to a sawing machine made of a relatively small number of parts and which is adapted to be packaged and sold as a "knock down" kit, and to be assembled easily by the average purchaser and user to be mounted for either home or factory use.

An important object of my invention is the provision of a swingable saw having an inexpensive integral vertical frame which provides for pivotal mounting of both the motor and a suitable suspension bracket upon which the pendulum type of saw is easily mounted.

A further object of my invention is the provision of an inexpensive integral U-shaped hanger or mounting bracket, suspendable and pivotal to a vertical standard for suspending a pair of spaced apart rods which in turn carry at their lower end suitable journalling means, rotatable shaft and power transmission pulley, each and all of which are relatively easy of manufacture, assembly or disasembly and which provides a very efficient and economically operable swingable cut-off saw adapted to cut wood pieces or the like moved upon and along the supporting base.

A further object of my invention is the provision of a swingable cut-off saw, having a base, an integral vertical standard with integral arms, pivotal suspension bracket attached to the upper of said arms and pivotal on a rotatable shaft whereby the depending bars or rods may be easily moved by the operator, in vertical planes, in combination with adjustable fastening means on one of said rods and engageable with respect to the lower of said standard arms to secure said rods and attached parts in any one of a number of desired positions in the arc of the movement thereof.

A further object of my invention is the provision of a relatively light, portable metal base having means thereon to quickly and easily mount a swing saw supporting standard therein and having a plurality of guide elements thereon for guiding the work in one or more directions, and having an upwardly opening groove below the path of a rotatable saw.

Other and further objects of my invention will be apparent from the following description and claims.

This invention (in the preferred form), is illustrated and described in the following specification and claims.

As shown on the drawings:

Fig. 1 is a side elevational view of the preferred form of my adjustable swing saw.

Fig. 2 is a side elevational view of the same.

Fig. 3 is a top plan view taken from above of my adjustable swing saw.

Fig. 4 is an enlarged fragmentary perspective view of the upper arm and upper end of the standard and with certain parts broken away.

Fig. 5 is a cross sectional view taken on line 5—5 of Fig. 1 and looking downwardly.

Fig. 6 is a side elevational view of my invention showing the motor adjustably mounted with respect to the upper end of the standard and having direct driving means.

Fig. 7 is a partially cross sectional view of the removably adjustable motor supporting shelf shown mounted at the top of Fig. 6.

Fig. 8 is a top plan view of the upper hanger bracket taken from above and showing the U-shaped suspension and journalling bracket extended outwardly.

Referring to Figs. 1 to 4 inclusive, reference numeral **10** designates a base, which may be of any suitable material, preferably metal, and which has a plurality of removable aligned lugs **11** which serve as guides for shifting and moving the work in perpendicular direction to the saw or other work element. Numeral **12** designates a metal sleeve or bushing formed integral with base **10**, and which bushing has securely mounted therein the lower end of a standard or frame **13**, preferably made of metal. The frame-like standard **13** has lower horizontally extending integral arm **14**, as clearly shown in Fig. 1, and upper longer horizontally extending integral arm **15**. Said integral arm **15** is bent at a right angle first forwardly and thence again at right angles transversely into the off-set shape clearly shown in the perspective view of Fig. 4. Said off-set arm **15** has a plurality of frontal integral transversely apertured spaced apart lugs **16** and **16a** which project forwardly from the face of off-set arm **15**, and the apertures of which are in alignment to provide for the convenient insertion and journalling of rotatable axle shaft **17**, the opposite ends of which preferably project from said apertured lugs **16** and **16a** respectively. A suitable pulley **18**, preferably of the grooved type, is secured on the left hand end of

axle shaft 17, as clearly shown in the drawings.

I will now describe the suspended swingable frame which is adapted to be either swung by the operator backward and forward, or which may be secured in stationary position by means hereinafter described when it is desired to use the machine as a grinder, sander or the like.

A clevis-like U-shaped angular hanger bracket is designated by reference numeral 19 and has aligned apertures in its ends through which axle shaft 17 is inserted and whereby said hanger bracket 19 is pivotally mounted on said shaft 17, and to extend horizontally either forwardly or rearwardly. Said hanger bracket has a pair of spaced apart apertures which form parallel passageways therethrough and in which the upper ends of depending metal suspension rods 19b and 19a are securely mounted, thereby permitting said rods to move as a pendulum and in parallel vertical planes. As shown in Fig. 8, suitable set screws 19d and 19c are threaded through correspondingly threaded apertures in hanger bracket 19 to securely hold the upper ends of said suspension rods 19b and 19a in hanger bracket 19, as clearly shown in Figs. 1 and 4. A pulley 22, preferably of the grooved type, is securely mounted on the axle shaft 17 and fixed for rotation therewith and in a position between the opposed ends of U-shaped hanger bracket 19. Pulley 18 is secured on one end of said shaft as clearly shown in Figs. 1 and 2.

A U-shaped connecting and journalling bracket 23, which is of a shape and construction substantially identical to hanger bracket 19, and which has a pair of vertical apertures therethrough, is mounted on the lower end of said suspension bars 19b and 19a, said bars 19b and 19a snugly fitting into and extending through said transverse passageways to thereby hold said journalling bracket 23 in substantially horizontal position and extended either rearwardly as shown in Figs. 1, 2 and 3 or forwardly as shown in Fig. 7. Suitable set screws 23a and 23b are respectively threaded through the U-shaped journalling bracket 23 to engage the suspension rods 19b and 19a and to securely hold said journalling bracket 23 in fixed position with respect to said rods, as clearly shown in Fig. 8.

The ends of journalling bracket 23 are enlarged to form journalling bosses 24 which have aligned apertures therethrough in which is rotatably journalled a shaft 25 which preferably has on its right hand end a suitably threaded spindle 25a to provide for convenient mounting thereon of a circular saw 26, or other rotatable working element, either frictional or otherwise, and which is adapted to come in contact with the work or the object on which the work is to be produced. Said threaded end of said spindle 25a preferably carries suitable shim or lock washer as shown and a threaded locking nut 25b whereby the work element can be quickly mounted or dismounted and changed at will. A pulley 27, of conventional construction and preferably of the grooved type, is secured on rotatable shaft 25 and between the journalling bosses 24, and is in substantially the same vertical plane with the upper pulley 22 on shaft 17. A flexible belt 28 of conventional construction connects and encircles said pulleys 22 and 27 to transmit rotative movement therebetween. For convenience of the operator, a projecting grippable handle 40 threadingly secured with respect to the swingable rods 19a and 19b and suspended parts, preferably, to the rod 20, and permits swinging of the suspended frame and attached parts backward and forward.

The motive and driving power for the swing saw of the aforesaid construction my be transmitted to pulley 18 and shaft 17 and to parts driven therefrom from various directions, as for example from an overhead line shaft or from an individual motor placed in any one of a number of convenient positions which may be at any angle and in any relative position with respect to the aforesaid swing saw of my invention as long as it will fulfill the requirement of, and transmit its motive force to, pulley 18 and shaft 17.

I desire that it be understood that the swing saw substantially as described hereinabove comprises my principal invention, independently of the source of or position of the power driving means, but in the preferred embodiment illustrated in the drawings, to which I do not desire to be limited, I illustrate a typical convenient inexpensive and practical manner of mounting an individual electric motor with respect to the standard 13. That illustrated embodiment comprises a hinge bracket 30 which comprises an apertured portion 30a connected pivotally by suitable hinge knuckles and pintle to horizontally extending shelf-like portion of bracket 30, as clearly shown in Figs. 1 and 2. The bracket portion 30a is secured by a pair of suitable bolts 30c to an enlarged apertured intermediate part of the vertical standard 13 whereby the shelf-like portion of bracket 30 will pivot in an upward and downward direction. A conventional electric motor 31 has its legs securely bolted by bolts 32 to said portion of bracket 30, the motor being so positioned that a pulley (shown in dotted lines) may be secured on the projecting ends of armature shaft 31a substantially below and in alignment with pulley 18. A suitable endless belt 34 rotatably connects said motor pulley and upper pulley 18 to rotate the parts as before described. A desirable and novel feature of the aforesaid motor mounting in association with my swing saw is that the weight of the electric motor will maintain the belt 34 taut and prevent slipping thereof.

An important feature of my invention, in addition to the economy in manufacture and quick and easy assembly and the relatively few number of parts, is the fact that my machine substantially as described provides a pendulum-type pivotal suspended swing saw which the operator can swing forward and backward in a true vertical plane to make an accurate straight-across cut on the board or other object which may be moved horizontally on the work table or base 10 either in a direction perpendicular to the circular saw or otherwise, and either for ripping, diagonal cutting or at whatever angle the operator desires to position the object to be cut, which object may be easily held in desired position with the aid of guide lugs 11 in base 10.

A second alternate adjustable mounting for the electric motor is illustrated in Fig. 6 in which the base or platform for supporting the motor is composed of a pair of opposed flat mounting plates 36 and 37, which are hinged together at one edge as indicated by reference numeral 38. As shown, the lower plate 37 has an integral anchoring hook 37a which is hooked under shaft 17, as shown in Fig. 7 the pulley 22 being dispensed with in this form. When said hook 37a is anchored as indicated, the plate 37 rests on the flat surface of U-shaped bracket 19. The motor is secured by suitable bolts to upper hinged plate 36. The motor pulley is operatively connected by a suit-

able belt **42** as shown to the machine of my invention heretofore described, namely to the lower pulley **41** on shaft **25**. A hand screw **39** is threaded in a correspondingly threaded aperture in lower mounting plate **37** and so that the end thereof will engage the plate **36**, and which, when rotated, will either raise or lower the platform **36** to effect the desired tension in the power transmission belt.

It will be apparent that the vertical supporting standard **13** may be dispensed with in those cases where equivalent or convenient stationary supporting means are available and the upper arm **15** thereof retained by itself though cut off, as indicated in Fig. 8, and which arm section may be mounted in stationary position, as for example a vertical wall or beam to which a hanger bracket arm substantially of the construction shown in Fig. 8, to which it may be secured by suitable screws or bolts. I have illustrated in Fig. 8 the end section of arm **15** which actually forms a hanger bracket with its same projecting journalling lugs **16** and **16***a* in which the upper shaft is journalled. It will be obvious that the machine of my invention may be equivalently and satisfactorily swingably mounted over a work bench or the like by means of this flat end section of arm **15** and with like result.

Another important and novel feature of my invention is the provision of means for fixing and holding at any one of several desired positions the suspended work element and depending rods **19***a* and **19***b*, in order that the same could be used as a stationary fixedly mounted rotatable saw, and in order that the circular saw could be temporarily fixed in any one of several positions and height with respect to the base **10**, which is of particular advantage where grooving work or the like is desired to be done and wherein the work would be manually moved toward and under the rotating saw. This novel means comprises an arcuate arm **35** of arcuate shape, shown in Figs. 2 and 3, and which has one apertured end removably mounted about the rod **19***a* and secured thereon by set screw **35***a*. A top plan view of a substantial portion of arcuate arm **35** is shown in Fig. 3, and as indicated, one lateral edge thereof has a plurality of spaced apart serrations **35***b*. As indicated in Fig. 1, the lower integral frame arm **14** has a rectangular aperture **14***a* and said frame arm **14** has a threaded vertical aperture therethrough above said aperture **14***a* in which is threaded a thumb screw **14***b*, as shown in Figs. 2 and 3. The thumb screw **14***b* is so positioned that it will engage any one of the spaced apart serrations **35***b* to thereby secure the rods **19***a* and **19***b* and parts suspended thereon at the desired position in their arc of movement, and to thereby permit the positioning of the circular saw with respect to the work table and base according to the desire of the operator.

Various changes may be made in the embodiment of the invention herein specifically described without departing from or sacrificing any of the advantages of the invention or any features thereof, and nothing herein shall be construed as limitations upon the invention, its concept or structural embodiment as to the whole or any part thereof except as defined in the appended claims.

I claim:

1. In a machine of the class described, a base; a perpendicular supporting standard; a frame comprising a pair of spaced apart rods and angular connecting brackets, said brackets connecting the opposite ends of said rods; a horizontal shaft rotatably journalled on the upper end of said standard, the upper of said angular brackets of said frame being pivotally suspended on said shaft; a pair of spaced apart pulleys on said shaft; a rotatable shaft journalled in said lower angular bracket and having a projecting spindle thereon, a pulley on said lower shaft, said spindle being adapted to removably hold a rotatable work element thereon, said suspended frame and attached parts being swingable in a vertical plane; a driving motor; a hinged supporting bracket pivotally mounted on said first mentioned upper horizontal shaft and adjacent the upper end of said standard for said motor, manually operable screw for adjusting and varying the position of said bracket; a power transmission belt operatively connecting said motor and one of said upper pulleys, and a belt operatively connecting the other of said upper pulleys and said lower pulley to thereby drive said work element.

2. In a machine of the class described, a supporting bracket adapted to be mounted in stationary position; a frame comprising a pair of spaced apart rods and a lower angular connecting bracket; a horizontal shaft rotatably journalled in said upper first mentioned bracket; a pair of spaced apart pulleys on said shaft; a rotatable shaft journalled in said lower angular bracket and having a projecting spindle thereon, and a pulley on said lower shaft; said spindle being adapted to removably hold a rotatable work element thereon, said suspended frame and attached parts being swingable in a vertical plane; a driving motor; an adjustable hinged supporting bracket mounted on said first mentioned upper horizontal shaft and said upper bracket for said motor; screw means for adjusting said bracket to vary the distance thereof from said upper rotatable shaft; a power transmission belt operatively connecting said motor and one of said upper pulleys, and a belt operatively connecting the other of said upper pulleys and said lower pulley.

JOSEPH HAJICEK.