W. N. SAWYER.

WOOD SCRAPING MACHINE AND THE LIKE.

APPLICATION FILED DEC. 3, 1917.

1,302,718. Patented May 6, 1919.

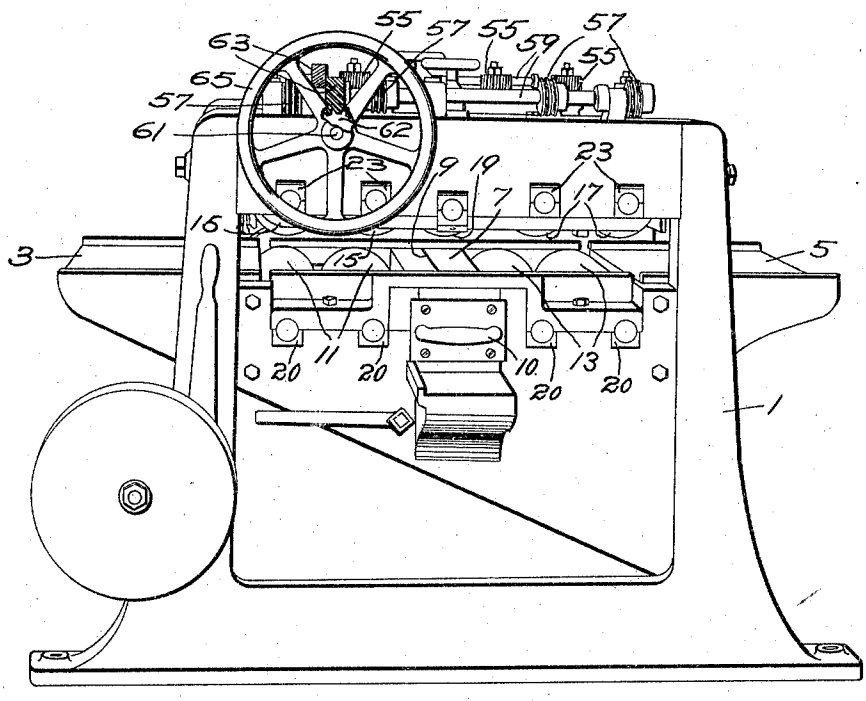


Fig 1

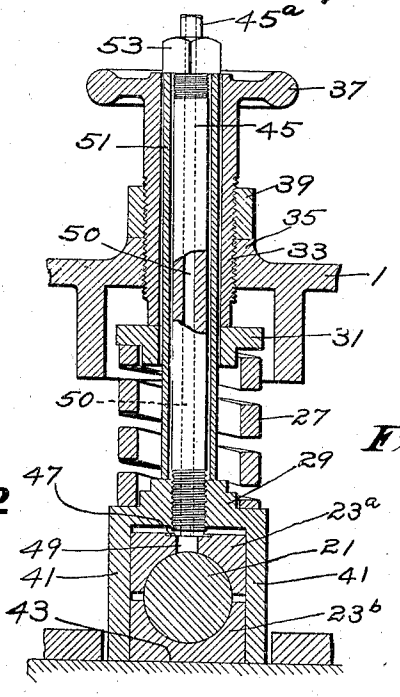


Fig 2

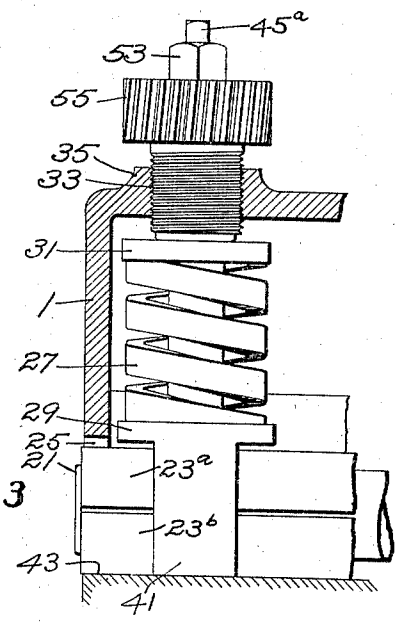


Fig 3

Inventor

Millard N. Sawyer

by Robt. S. Harris

atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLARD N. SAWYER, OF WINCHENDON, MASSACHUSETTS, ASSIGNOR TO WILLIAM M. WHITNEY, OF WINCHENDON, MASSACHUSETTS.

WOOD-SCRAPING MACHINE AND THE LIKE.

1,302,718. Specification of Letters Patent. Patented May 6, 1919.

Application filed December 3, 1917. Serial No. 205,040.

To all whom it may concern:

Be it known that I, WILLARD N. SAWYER, a citizen of the United States, residing at Winchendon, county of Worcester, and State of Massachusetts, have invented an Improvement in Wood-Scraping Machines and the like, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to wood scraping machines and the like.

In machines of this class, it is customary to employ upper and lower rolls for feeding the work past the cutter or scraper through the machine.

Some of these rolls are yieldingly pressed by springs toward others, in order to permit the work to be introduced between them and to firmly grip and frictionally feed the work through the machine.

It is necessary to vary the tension of the springs, and also necessary to take up wear on the split journal boxes for the rolls.

Heretofore considerable difficulty and inconvenience have been experienced in making these adjustments, because the adjusting devices have been obstructed by parts of the machine and located where inaccessible and out of reach of the operator. The present invention, among other objects, provides simple and effective adjusting devices which are exposed at places where they are readily accessible and within easy reach of the operator at all times.

Another object is to reduce the wear on the journals and boxes by relieving the latter from the pressure of their springs except when the rolls are active in feeding work through the machine.

The character of the invention may be best understood by reference to the following description of one good form thereof shown in the accompanying drawing, wherein:

Figure 1 is a perspective view of a scraping machine having feed rolls journaled in boxes equipped with devices embodying the invention;

Fig. 2 on an enlarged scale is a vertical section through one of the boxes for one of the rolls; and

Fig. 3 is a vertical section taken at right angles to the section shown in Fig. 2, but showing a gear instead of a hand wheel for adjustment purposes.

Referring to the drawing, the machine shown therein as embodying the invention comprises a frame 1 having front and rear work supporting tables 3 and 5 thereon. Interposed between said tables is a stock 7 carrying the usual scraping knife 9 and having a handle 10 adapted to be grasped in pushing the stock into and pulling the same out of the machine.

The rolls for feeding the work through the machine in the machine shown comprise a pair of lower infeed rolls 11 located at one side of the scraper, a pair of lower outfeed rolls 13 located at the opposite side of the scraper, a pair of infeed rolls 15 located above and mating with the lower infeed rolls 11, a pair of outfeed rolls 17 located above and mating with the lower outfeed rolls 13, and roll 19 located directly above and opposed to the scraper.

The lower feed rolls are journaled in boxes 20 mounted in the frame in the usual manner.

Since the construction and arrangement of the boxes for all of the upper rolls is the same, a description of the box arrangement at one end of one roll will suffice for all.

Referring now more particularly to Fig. 2, the roll has a shaft 21 journaled in a box 23 comprising upper and lower sections 23^a and 23^b adapted to slide vertically in a guideway 25 in the machine frame.

To yieldingly press the roll downward toward its companion roll and against the work, a helical spring 27 is provided confined between a follower 29 and a collar 31. To limit the upward movement of said collar and vary the tension of the spring, a sleeve 33 is provided threaded in a boss 35 at the top of the frame and having a hand wheel 37 accessible above said frame. A lock nut 39 is threaded on said sleeve and bears against the top of said boss to secure said sleeve in its different positions of adjustment.

When work is introduced between the upper and lower rolls it will lift the former somewhat, thereby sliding the roll shaft and the upper section 23^a of the bearing box up

against the resistance of the spring. When the work has passed the rolls, the spring will thrust said box section downward.

To limit the downward movement of the spring and relieve the roll from the pressure thereof when rotating idly, suitable stop means may be provided. In the present instance of the invention, to accomplish this, the follower 29 is provided with legs 41 which straddle the box, and have lower ends adapted to engage the bottom 43 of the box guide.

The construction is such that when the upper roll is moved upward on introduction of work between the rolls, it will lift the upper section of the box and the follower with it, thereby lifting the legs of the follower up from the bottom of the box guide; but when the work has passed from between the rolls, the upper roll will move downward and rest upon the lower section of the box, and the legs of the follower will move down and into engagement with the bottom of the box guide. The legs are somewhat longer than the height of the box and therefore when they engage the bottom of the box guide, the spring follower will be somewhat above the box and the latter will be relieved from the pressure of the spring.

However, when the roll is lifted again, the shaft thereof will lift the upper box section and follower and bring the roll under the influence of the spring.

Thus it will be apparent that the roll shaft is relieved from the pressure of the spring at all times excepting when work is passing between the rolls. As a result the wear on said shaft and its box is greatly reduced.

It is desirable that the upper section of the box shall move up merely a very slight distance before becoming effective to lift the spring pressed follower. To regulate this distance and take up any wear on the box or shaft, a rod 45 may be provided having its lower end rounded and adapted to engage a depression 47 on the top of the upper section of the box. A port 49 may be provided in said section communicating with a port 50 in the rod to facilitate oiling of the shaft. The lower end portion of said rod may be threaded to said follower and the rod is sufficiently long to project up through the collar adjusting sleeve and somewhat beyond the latter where it is provided with a squared, reduced end 45[a] for receiving a wrench. To hold the rod in its different positions of adjustment a lock sleeve 51 may be provided encircling the rod and confined between the follower and a nut 53 on the upper end of said rod. By the construction described, it will be noted the upper section of the box does not directly engage the follower, but the connection is made through the rod. The latter can be adjusted so that the box section will not need to move any substantial distance before engaging said rod, but said section can drop from said rod sufficiently to relieve said section from the pressure of the spring when the follower legs drop into engagement with the bottom of the box guide.

The roll 19 which is directly above the scraper may be provided with a hand wheel controlled spring pressed box construction such as described since in the use of the machine it may be desired to produce a different degree of pressure upon the roll which is directly above the scraper from the pressure on the in and out feed rolls at the opposite sides of the scraper.

To simultaneously and equally vary the pressure of the springs for the in and out feed rolls, a box controlling means may be provided similar to that described with the exception that a worm gear 55 (Fig. 3) may be substituted for the hand wheel and its lock nuts shown in Fig. 2. The worm gears for the boxes at one side of the machine may be rotated by worms 57 (Fig. 1) fast on shafts 59, rotated in turn by a cross shaft 61 having skew gears 62 thereon meshing with skew gears 63 on the shafts 59. The cross shaft may be rotated by a large hand wheel 65 fast thereon at one end of the machine.

By this construction the upper in and out feed rolls may be quickly and easily simultaneously and equally adjusted. The worm wheels will desirably serve to hold the spring adjusting sleeves in their positions of adjustment.

The means for varying the tension of the springs which press on the boxes for the rolls and the rods for transmitting movement from the spring pressed followers to the boxes are conveniently accessible from the top of the machine for adjustment purposes. Thus the boxes at one end of the machine may be covered by the usual driving gears for the rolls without interfering with convenient adjustment of said rolls.

The means for relieving the rolls from the pressure of the springs operates automatically and since the rolls are pressed by the springs only when active in feeding work through the machine, the wear on the parts is greatly reduced and the life of the machine is desirably prolonged.

It will be understood that the invention is not limited to the specific embodiment shown herein, but that extensive deviations may be made therefrom without departing from the spirit and scope of the appended claims.

What is claimed is:

1. In a machine of the character described, a frame having a guideway therein, a bearing box movable in said guideway, a

feed roll having a shaft journaled in said box, a follower having legs straddling said box and adapted to engage an end of said guideway, and spring means acting on said follower.

2. In a machine of the character described, a guide, a bearing box comprising sections mounted in said guide, a roll having a shaft journaled in said box, a follower, a rod threaded to said follower for transmitting movement therefrom to said box, and spring means acting on said follower.

3. In a machine of the character described, a bearing box, a roll having a shaft journaled in said box, a spring, a follower pressed by said spring toward said box, and adjustable means for transmitting movement from said follower to said box.

4. In a machine of the character described, a bearing box, a roll having a shaft journaled in said box, a spring, a follower pressed by said spring toward said box, and means to transmit movement from said follower to said box and having provision for compensating for wear on said shaft and box.

5. In a machine of the character described, a bearing box, a roll having a shaft journaled in said box, a spring, a follower pressed by said spring toward said box, a member threaded to said follower for transmitting movement from the latter to said box, a nut threaded on said member, and a lock sleeve confined between said nut and follower.

6. In a machine of the character described, a frame having a guideway therein, a bearing box mounted in said guideway, a spring, a follower pressed by said spring toward said box, and an adjustable member for transmitting movement from said follower to said box and accessible for adjustment from the top of said frame.

7. In a machine of the character described, a frame having a guideway therein, a bearing box mounted in said guideway, a spring, a follower pressed by said spring toward said box, a sleeve for varying the tension of said spring, and a rod in said sleeve threaded to said follower and having an end for engagement with said box, said rod and sleeve being accessible for adjustment from the top of the machine.

8. In a machine of the character described, a feed roll, a shaft therefor, split bearing boxes for said shaft, guides for said boxes, springs for pressing said boxes toward ends of said guides, means accessible from the top of the machine to take up wear on said boxes, and means accessible from the top of the machine to vary the tension of said springs.

9. In a machine of the character described, the combination of a frame having a guideway therein, a split bearing box having upper and lower parts mounted in said guideway, a roll having a journal between said parts adapted to press up against said upper part when active and down against said lower part when inactive, a spring for said journal, and a follower between said spring and said box having means to prevent pressure of said spring on the upper part of the box when the journal is resting on the lower part thereof.

In testimony whereof, I have signed my name to this specification.

WILLARD N. SAWYER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."