(No Model.)

D. McSWEAN.

COTTON GIN SAW SHARPENER.

No. 421,422. Patented Feb. 18, 1890.

Fig. 1.

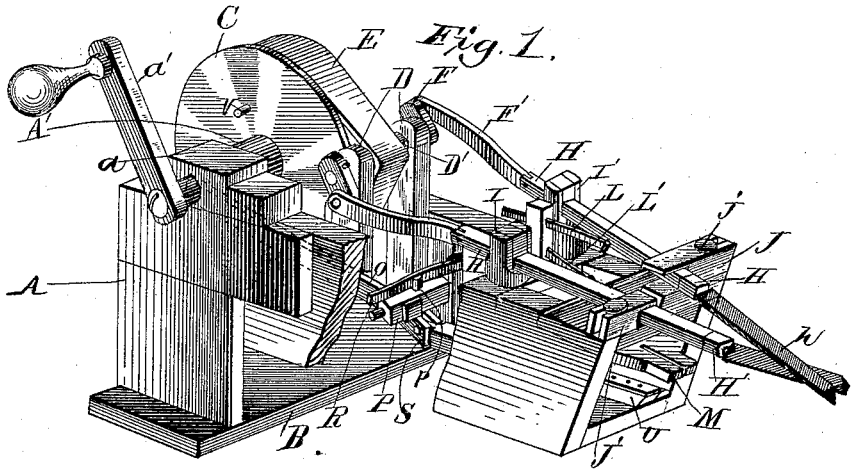


Fig. 2.

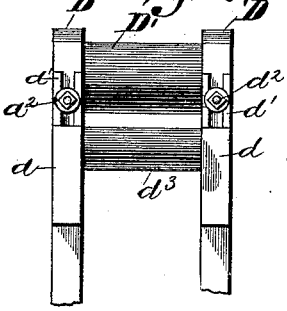


Fig. 3

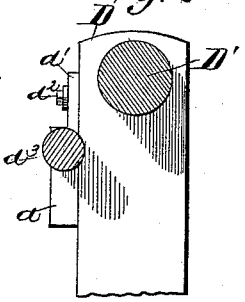
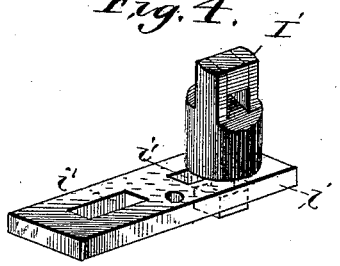


Fig. 4.



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UNITED STATES PATENT OFFICE.

DANIEL McSWEAN, OF OZARK, ALABAMA.

COTTON-GIN-SAW SHARPENER.

SPECIFICATION forming part of Letters Patent No. 421,422, dated February 18, 1890.

Application filed September 21, 1889. Serial No. 324,656. (No model.)

To all whom it may concern:

Be it known that I, DANIEL McSWEAN, a citizen of the United States, residing at Ozark, in the county of Dale and State of Alabama, have invented certain new and useful Improvements in Cotton-Gin-Saw Sharpeners, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to an improvement in sharpeners for cotton-gin saws; and it consists in the construction and arrangement of parts hereinafter described, and definitely pointed out in the claims.

The object of my invention is to provide a machine which will greatly accelerate the process of sharpening saws for cotton-gins, embodying structural simplicity and durability and simple in its operation. I attain these objects by the construction illustrated in the accompanying drawings, wherein like letters of reference indicate corresponding parts in the several views, and in which—

Figure 1 is a perspective view of my machine with one side broken away. Fig. 2 is a detail view of the belt-tightener. Fig. 3 is a vertical section of the same, and Fig. 4 is a detail perspective of the plunger-guide.

In the drawings, A represents the frame, and B the base. On the upper rear edges of the frame are formed boxes *a*, in which is journaled a shaft A′, supporting a large driving wheel or pulley C. The outer end of the shaft A′ has a driving-crank *a*′.

Rigidly secured to the inner faces of the frame, adjacent to the forward edge of the drive-wheel C, are two vertical standards D, having journaled in their upper ends a pulley D′ in alignment with the driving-wheel. On the rear faces of these standards are suitably secured journal-boxes *d*, having bifurcated upper ends *d*′, in which a capped bolt d^2 is placed to permit of the vertical adjustment of the boxes. In these boxes is journaled a pulley d^3. An endless belt E passes around the wheel C and pulley D′ and over the pulley d^3, the vertical adjustment of which tightens the belt.

On the outer ends of the shaft of the pulley D′ are secured crank-arms F, they being arranged in opposite directions to each other. To the outer ends of these arms F are pivoted pitmen F′, which extend forward and have their ends pivotally secured to the rear ends of reciprocating plungers H and H′. These plungers are constructed of rectangular bars, which are secured in place and are guided by laterally-adjustable standards I and I′, the latter being longer than the former to carry the plunger H′ above the other. These standards I and I′ are made adjustable by being secured by a bolt and nut to a base *i*, having elongated slots *i*′ therein, through which the bolts pass. The plungers are arranged to operate obliquely to each other and are inclined downwardly, so that their ends may cross each other and yet not come in contact. The lateral adjustment of the ends of the plungers is accomplished by inclosing them in bifurcated guides J and J′, which are held in place by bolts *j*, passing through the bifurcations. The plungers rest loosely in grooves cut in the inner faces of the guides, which are large enough to permit the plungers to move laterally when pressure is placed on the ends of the plungers.

To normally retain the plungers in their proper position, and to have the frictional contact of the files *h* in the ends of the plungers at all times the same on the teeth of the saw, I employ adjustable springs L and L′, which have their outer or free ends brought in contact with the sides of the plungers respectively.

Below the outer ends of the plungers is a guide-board M, having a central slit or kerf in which the saw is placed.

To automatically move the saw one tooth at each revolution of the drive-wheel, I place a pin *v* in the side of the wheel, which comes in contact with a long arm O, extending out from a rectangular shaft P, journaled near the center of the lower portion of the frame. On the upper face of this shaft is placed a pin *p*, against which a curved spring R impinges and normally holds the arm O up within the path of the pin *v*. On the bottom of shaft P is secured an arm S, which extends forward and has a feed-lever U pivoted thereto, whose outer end is provided with a metallic shoe adapted to fit the teeth of the saw, and as the arm O is depressed it moves the lever U forward the distance of the tooth, and thus moves the saw. As the saw is turned, the

files sharpen the teeth on each side. The rapidity of the movement of the files (being governed by the size of the pulley D′ relative to that of the drive-wheel) is such as to sharpen a tooth before it is forced forward out of reach of the files.

By the use of the belt and the springs on the plunger it will be apparent that no strain is placed on the saw or files.

I am aware that many minor changes in the construction and arrangement of the parts of my machine can be made and substituted for those shown and described without in the least departing from the nature and principle of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination of the frame with the driving-wheel and pulley D′, a belt over the same, a belt-tightener d^3, the crank-arms on the ends of the pulley-shaft, and the reciprocating plungers, substantially as described.

2. The combination, with the drive-wheel and plungers, of the lever U, operated by the movement of the wheel through the medium of a hinged arm contacting with said wheel, a rock-shaft to which the lever is secured, and a spring for forcing the latter back, substantially as described.

3. The combination of the plungers, the drive-wheel of the movable lever below the plungers, the arm O for moving the lever, and the pin on the wheel for operating the arm, substantially as described.

4. The combination, with the frame and drive-wheel, of two reciprocating plungers arranged in adjustable guides, the pulley D′, the crank-arms on the ends of the pulley-shaft and arranged in opposite directions, the pitmen connecting the arms and plungers, the endless belt, the arm O, the shaft to which the arm is secured, and the lever U for moving the saw, substantially as described.

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

DANIEL McSWEAN.

Witnesses:

H. H. BLACKMAN,

A. B. BYRD.