

J. E. WHITT.
COTTON TRAMPER.
APPLICATION FILED MAR. 6, 1920.

1,387,747.

Patented Aug. 16, 1921.

2 SHEETS—SHEET 1.

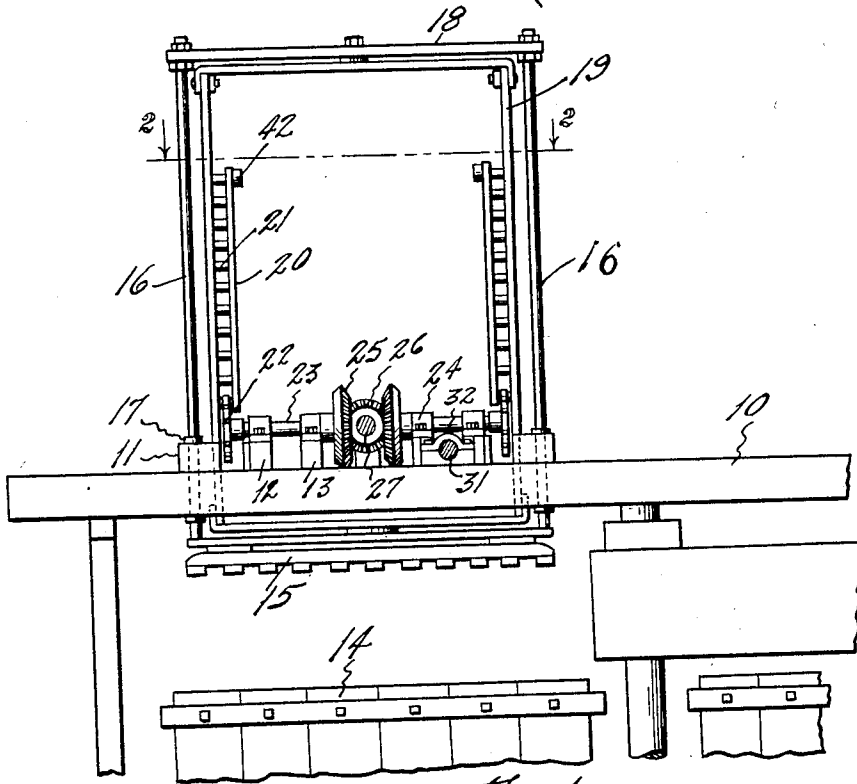


Fig. 1

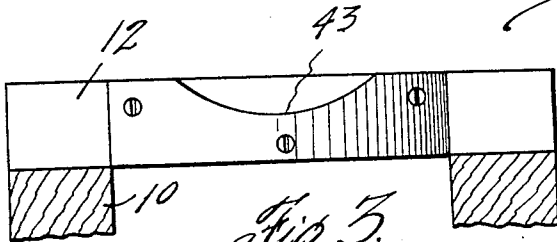


Fig. 3.

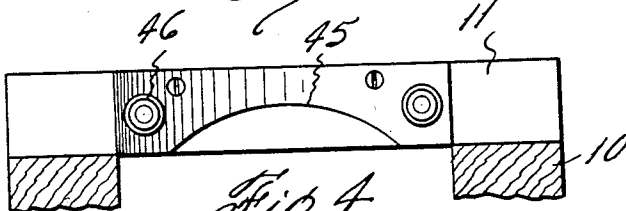


Fig. 4.

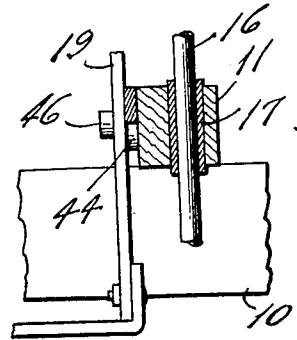


Fig. 5.

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2 SHEETS—SHEET 2.

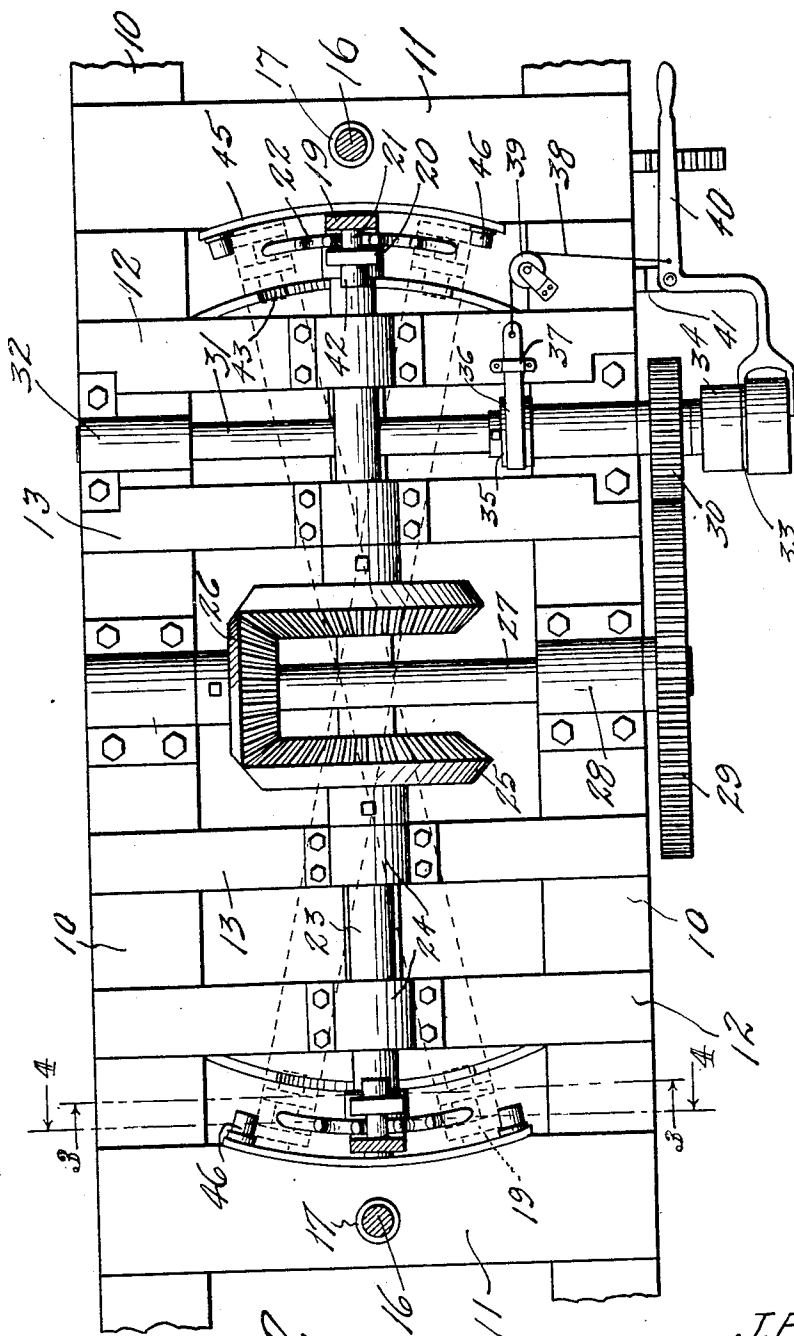


Fig. 2

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UNITED STATES PATENT OFFICE.

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COTTON-TRAMPER.

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To all whom it may concern:

Be it known that I, JOSEPH E. WHITT, a citizen of the United States, residing at Italy, in the county of Ellis and State of Texas, have invented certain new and useful Improvements in Cotton-Trampers, of which the following is a specification.

This invention relates to new and useful improvements in cotton trampers.

10 The aim of the invention is to provide a continuously reciprocating tramper head and to operate the same without the use of reversing mechanism. A further result which is sought is to eliminate side thrust and thus obtain a direct and positive downward stroke and deliver the power directly in line with the load, whereby the strain is distributed equally and an even packing operation is had. It is obvious that with
15 such results a more efficient and satisfactory operation will be had.

In carrying out the invention a vertically reciprocating tramper head is mounted on a suitable support. The head is provided with a reciprocating element which is in constant engagement with a rotating element mounted on the support. In connection with these elements means is provided for shifting the reciprocating element at each end of the stroke so that the operation will be continuous but the direction of travel of the tramper head will be reversed without the aid of a reversing mechanism. Motion is transmitted from
20 the rotating or revolving element tangentially and directly to the reciprocating element and thus on the downward stroke the power is applied directly in a downward direction, the advantage of which is obvious. Other features of the invention will be more particularly pointed out in the following specification.

The invention will be more readily understood from a reading of the following
25 specification and by reference to the accompanying drawings, in which an example of the invention is shown, and wherein:

Figure 1 is an elevation of the upper portion of a tramper constructed in accordance with this invention.

Fig. 2 is a cross sectional view on the line 2—2 of Fig. 1.

Fig. 3 is a detail of one of the tracks for supporting the head at the lower end of the
30 stroke,

Fig. 4 is a similar detail showing one of

the tracks for supporting the head at the upper end of its stroke, and

Fig. 5 is a detail showing the track supporting elements at the lower end of the 60 stroke.

In the drawings the numeral 10 designates a pair of cross beams such as are usually employed in a cotton press or the like. Cross bars 11 have their ends fastened on 65 top of the beams and intermediate cross bars 12 and 13 respectively are also arranged on the beams between the bars 11 as is shown in Figs. 1 and 2. The usual press box 14 is disposed below the beams. 70 A tramper head 15 of suitable construction has upright guide rods 16 passing through sleeves 17 in the end bars 11. The upper ends of the guide rods are connected by a transverse plate 18. The parts 15, 75 16 and 18 comprise the tramper head.

A reciprocating element is disposed within the head and is made in the form of a shifting frame 19 which is centrally pivoted at its upper end just below the underside of the plate 18 and at its lower end is centrally pivoted to the upper side of the tramper head 15. On the inner side of each vertical member, the frame 19 is provided with a vertical rack 20 and these 85 racks may be of any suitable construction. In the drawings I have shown a rack including horizontal round bars 21 spaced so as to readily receive the teeth of a sprocket wheel 22, there being two of said 90 wheels 22. Each wheel 22 is fastened on the outer end of a drive shaft 23 mounted in bearing boxes 24 supported on top of bars 12 and 13. Each drive shaft 23 carries on its inner end a beveled gear 25. Between the beveled gears a pinion 26 is arranged so as to mesh therewith and drive 95 said gears. The pinion 26 is mounted on a power shaft 27 supported in bearing boxes 28 mounted on the beams 10. The shaft 100 27 is substantially at right angles to the shafts 23 and projects forward from the front beam 10.

A spur gear 29 is fastened on the forward end of the shaft 27 and is driven by 105 a pinion 30 mounted on a counter-shaft 31 which is supported in bearing boxes 32 also mounted on the beams 10. The counter-shaft projects forward from the pinion 30 and carries a fast pulley 33 and a loose 110 pulley 34. A brake drum 35 is fastened on the counter-shaft and a brake band 36 is

arranged so as to engage the drum and hold the shaft 31 against rotation. The end of the brake band passes through a keeper 37 on the cross bar 12 as is shown in Fig. 2. A flexible connection 38 extends from the end of the brake band over a pulley 39 and is connected with a bell-crank lever 40 which is pivoted on a bracket 41' on the front beam 10. The lever 40 carries a belt fork 41 which engages the belt for the purpose of shifting the same. It will be seen that when the lever is swung to shift the belt from the fast pulley 33 to the loose pulley 34 the flexible connection 38 will be pulled so that the band 36 will be tightened around the brake-drum thus preventing rotation of the countershaft. This is necessary for the reason that if the tramper head should be stopped in an upper position unless some braking means was provided, the head would fall downward when the belt was shifted.

The sprocket wheels 22 are given a slight curvature to conform to the swing of the frame 19. Each rack bar 20 carries at its upper end on its inner side a roller 42. When the tramper head reaches the lower end of its stroke and the sprocket wheels 22 ride over the top of the rack bar so as to start a reverse movement, the rollers 42 ride into concaved tracks 43 arranged between the bars 11 and 12 and thus limit the downward movement of the tramper head and prevent the disengagement of the rack from the sprocket wheels as will be obvious. The frame 19 also carries rollers 44 on its outer sides near its lower end and when the tramper head reaches the end of its upper stroke these rollers 44 engage arched tracks 45 so as to limit the upward movement of the tramper head and prevent the racks riding off of the sprocket wheels as the frame is shifted for reversing each stroke of the head.

Guide rollers 46 are provided adjacent each end of the track 45 and the frame is constantly in engagement with diametrically opposite rollers 46 except when it is shifting at the end of its stroke. Consequently it cannot be displaced outwardly from the sprocket wheel and thus its racks 20 are constantly held in engagement with said sprocket. It will be seen that the sprockets will transmit motion tangentially to the racks and the frame and tramper head will thus be given a positive and direct vertical reciprocation. The tracks 43 and 45 assist in supporting and limiting the strokes of the head and at the same time provide for the shifting of the frame and the reversing of the movement.

The operation is as follows: Motion being transmitted to the pulley 33 the countershaft 31 is thus revolved and it is pointed out that it may be revolved in either direc-

tion as it is not necessary to revolve the shaft in any particular direction. The pinion 30 on the shaft 31 drives the gear 29 and here the speed undergoes a reduction and the power is consequently increased. The shaft 27 being revolved revolves the pinion 26 which in turn revolves the gears 25. The gears 25 revolve the drive shafts 23 which revolve the sprocket wheels 22. With the parts in the position shown in Fig. 1 the tramper head is near or at the upper end of its upward stroke. The sprocket wheels 22 will move the racks 20 downward. It is pointed out that one sprocket wheel engages a rack on one side and the other sprocket wheel engages the other rack on the other side. As the tramper head is moved downward the upper ends of the rack 20 are carried downward until the rollers 42 ride into the track 43 at which time the sprocket wheels ride over the top bars 21 of the racks and in so doing shift the frame on its pivot so that the stroke is reversed and the sprocket wheels engage the other side of the rack bars as will be obvious. The continued rotation of the sprocket wheels in engagement with the rack elevates the tramper head until the same reaches the upper end of its stroke at which time the rollers 44 engage the track 45 and the sprocket wheels pass under the bottom bars 21 of the racks thus shifting the same and again reversing the stroke. It will be seen that the operation is continuous but that the tramper is given a reciprocating motion. When it is desired to stop the machine it is simply necessary to pull the lever 40 which shifts the belt onto the loose pulley 34 and tightens the brake band 36 so that the head cannot fall. When the tramper head is being forced down and is sustaining its load the sprocket wheels 22 will be applying their power direct to the rack bars 20 in line with the resistance offered by the load.

It will be seen that the device is practical, and simple and compact.

What I claim is:

1. In a tramper, a reciprocating tramper head, a frame connected with the tramper head and longitudinally movable, means to guide the frame in its longitudinal movement, a shifting frame arranged within the first named frame and pivotally connected with the ends of the first named frame to turn upon an axis extending longitudinally of the first named frame, racks extending longitudinally of the shifting frame and connected therewith, toothed wheels arranged near the racks to engage therewith, said toothed wheels being adapted to effect a longitudinal travel of the racks and to engage with the opposite ends of the racks and when engaging with such opposite ends to shift the racks and their shifting frame

upon the pivots of the shifting frame, stationary supporting means for the toothed wheels, means to drive the toothed wheels, and means to limit the longitudinal movements of the tramper head.

2. In a tramper, a reciprocating tramper head, a longitudinally movable guide frame connected with the tramper head, guide means for the guide frame, a shifting frame arranged within the guide frame and pivotally connected at its ends with the guide frame to turn upon an axis extending longitudinally of the guide frame, longitudinally extending racks connected with said shifting frame, toothed wheels to operate the racks and adapted to engage the opposite ends of the racks and when engaging such ends to shift the racks laterally, fixed means for supporting the toothed wheels, means to drive the toothed wheels, and means carried by the shifting frame to limit its longitudinal movement in either direction.

3. In a tramper, a reciprocating tramper head, a longitudinally movable guide frame carried thereby, guide means for the guide frame, a shifting frame extending longitudinally of the guide frame and pivotally connected therewith to turn upon an axis ex-

tending longitudinally of the guide frame, longitudinally extending racks connected with said shifting frame, toothed wheels adapted to engage opposite sides of the racks and also adapted to engage the opposite ends of the racks and when engaging such ends to shift the racks laterally, fixed means for supporting the toothed wheels, means to drive the toothed wheels, rollers connected with the shifting frame near its opposite ends, and stationary tracks having curved faces to engage said rollers.

4. In a tramper, a reciprocating tramper head, a longitudinally movable guide frame connected with the head, means to guide the frame, a shifting frame pivoted with the guide frame to turn upon an axis extending longitudinally of the guide frame, a longitudinal rack connected with said shifting frame, a toothed wheel arranged to engage the rack and its opposite ends and to shift the rack laterally when engaging such opposite ends, means to support and drive the toothed wheel, and means for supporting the tramper head when in the lowermost position.

In testimony whereof I affix my signature.

JOSEPH E. WHITT.