Dec. 20, 1949 E. H. GHANT 2,491,967

HOIST FOR LICKER OF COTTON CARDS

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Fig. 1.

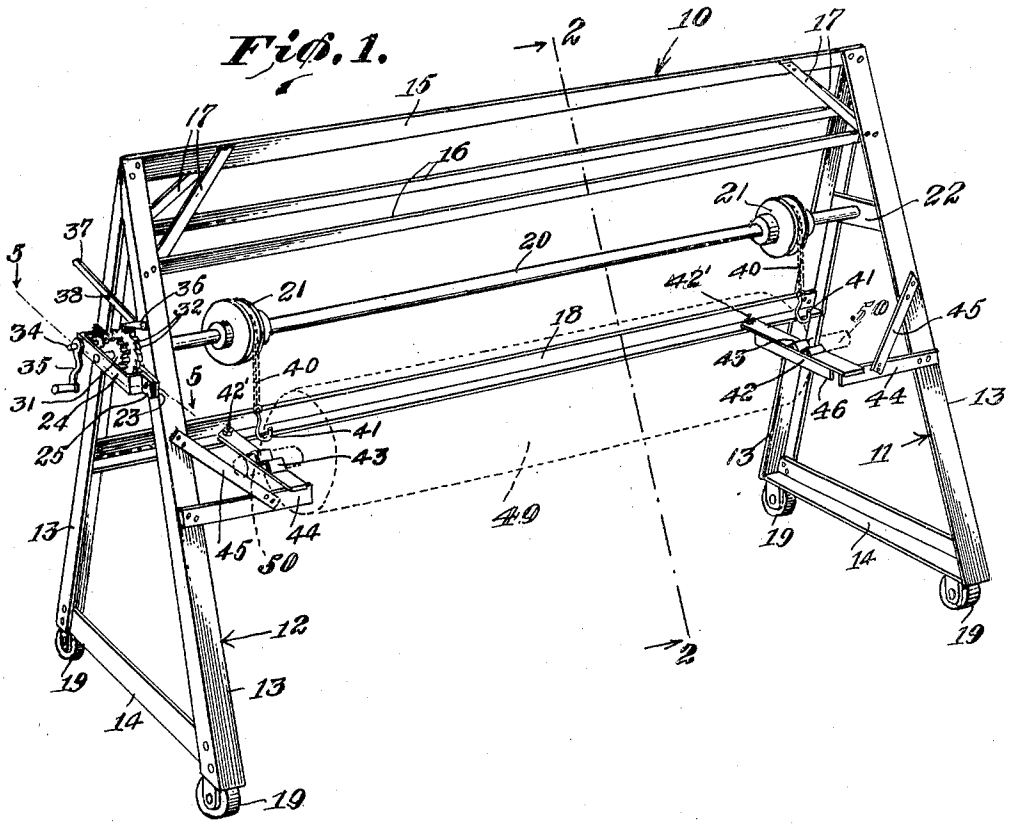
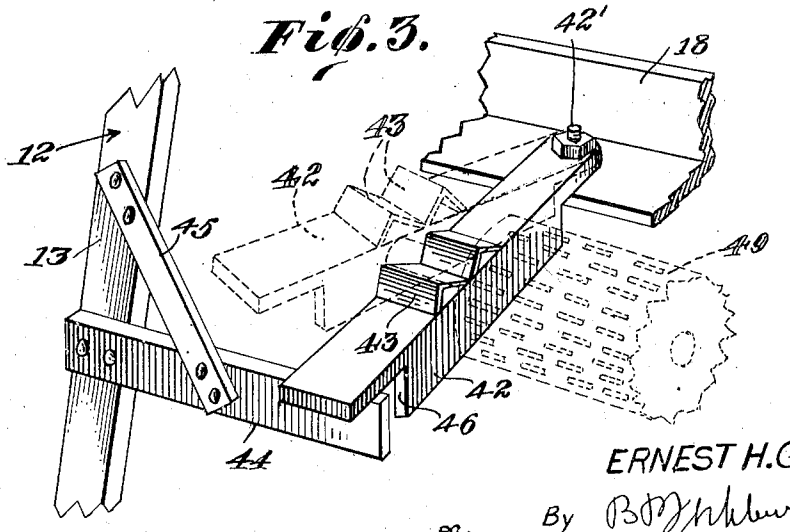


Fig. 3.



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Fig. 2.

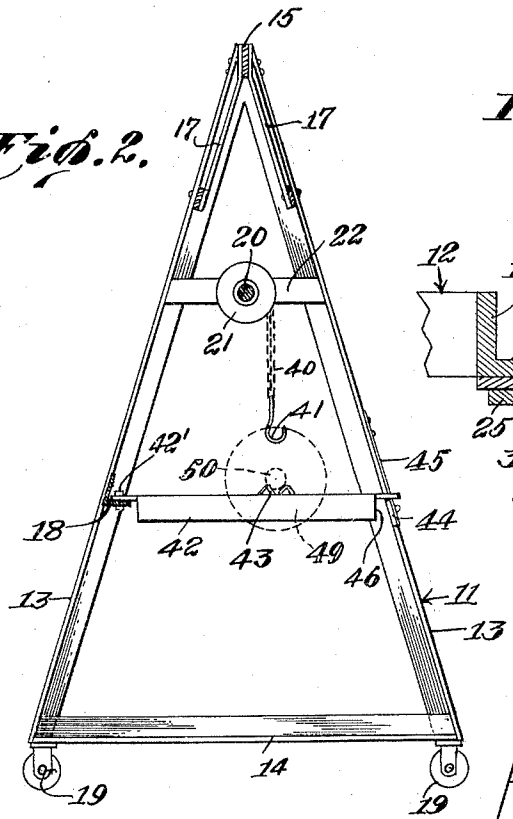


Fig. 5.

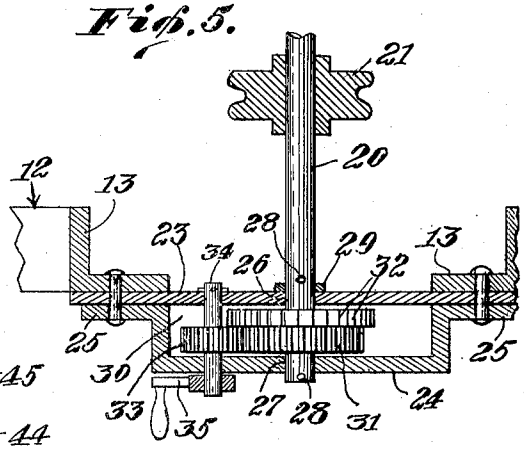


Fig. 6.

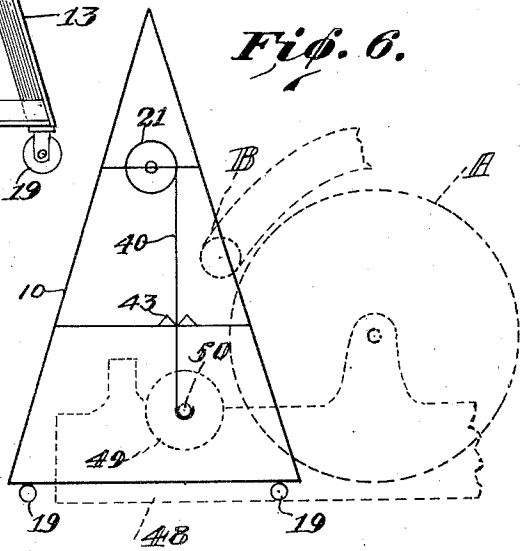
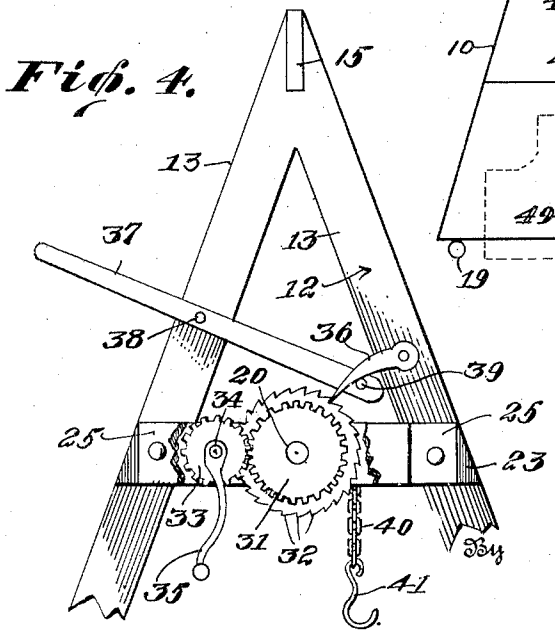


Fig. 4.



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HOIST FOR LICKERS OF COTTON CARDS

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2 Claims. (Cl. 214—65)

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My invention relates to hoists, and more particularly to a hoist for lifting the licker of a cotton card or other roll shaped member.

When it becomes necessary to lift or remove the licker of a cotton card, two or more men are required to manipulate the licker manually. It is therefore an important object of this invention to provide a hoist for the lickers of cotton cards which requires only one operator.

A further object of the invention is to provide a licker hoist which straddles the frame of a card, adjacent to the licker, and has lifting means disposed directly over the licker.

A further object is to provide a hoist of the above mentioned type having means to support the licker in a horizontal raised position after it has been lifted from the card.

A still further object of the invention is to provide a device of the above mentioned class which is extremely simple and sturdy, portable, and well adapted for inexpensive manufacture.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this application, and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a perspective view of the licker hoist embodying the invention, a licker being shown in dotted lines in the raised supported position,

Figure 2 is a vertical section on line 2—2 of Figure 1,

Figure 3 is an enlarged fragmentary perspective view of a pivoted support arm and associated elements,

Figure 4 is an enlarged fragmentary end elevation of the hoist,

Figure 5 is a horizontal section taken on line 5—5 of Figure 1, and,

Figure 6 is an end elevation of the hoist, partly diagrammatic, and showing the same in position to remove a licker from a cotton card, the card being shown in dotted lines.

In the drawings, where for the purpose of illustration is shown a preferred embodiment of the invention, the numeral 10 designates a portable frame including vertical triangular frame sections or ends 11 and 12. These triangular ends include upwardly converging sides 13, preferably formed of angle iron, and rigidly connected at their top ends, and bottom transverse horizontal bars 14, rigidly connected to the bottom ends of the sides 13. The top ends of the

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triangular frame sections 11 and 12 are rigidly connected by a top horizontal longitudinal beam 15. Parallel longitudinal braces 16 are disposed a short distance beneath the beam 15, and parallel thereto, and rigidly connected at their opposite ends to the sides 13 of ends 11 and 12. Short diagonal corner braces 17 are provided, and are rigidly secured to the beam 15 and sides 13. The beam 15 and longitudinal braces 16 form a top horizontal frame section, rigidly connecting the ends 11 and 12. Disposed near the vertical center of the frame 10 and rigidly connected at its ends to corresponding sides 13 of the frame sections or ends 11 and 12 is a longitudinal horizontal angle member or lower beam 18. The ends 11 and 12 are provided at their lower corners with wheels or casters 19.

Arranged below the longitudinal braces 16 and above the lower beam 18, and parallel to the same, is a longitudinal horizontal rotatable shaft 20, upon which grooved pulleys 21 are rigidly mounted for rotation therewith. The pulleys 21 are disposed near the opposite ends of the shaft 20 and inwardly of and near the ends 11 and 12. The shaft 20 is arranged directly beneath the top beam 15, and is at the transverse center of the frame 10. One end of the shaft 20 is journaled in an opening at the center of a horizontal support bar or brace 22, rigidly connected to the sides 13 of end 11. A similar horizontal support bar or brace 23 is rigidly secured to the outer sides of the sides 13 of end 12. The braces 22 and 23 are arranged in alignment. Rigidly mounted upon the outer side of the brace 23 is an outwardly offset support bracket 24, including inner portions or feet 25, rigidly connected to the brace 23. The brace has an opening 26 rotatably receiving the end of shaft 20 therein, and the opening 26 is in axial alignment with an opening 27 in the bracket 24. The end of the shaft 20 extends through the opening 27, as shown. Cotter pins 28, or the like, and a washer 29 are provided to prevent axial or endwise movement of the rotatable shaft 20. A vertical passage 30 is formed between the offset bracket 24 and brace 23. Rigidly mounted upon the shaft 20 for rotation therewith, and disposed in the passage 30, is a gear 31, having an inner annular flange provided with ratchet teeth 32, and formed integral with the gear. The gear 31 is in meshed engagement with a small drive gear 33, rigidly mounted upon a short rotatable shaft 34 journaled in openings in the brace 23 and offset bracket 24. The shaft 34 is provided with a crank or handle 35, rigidly connected therewith, and arranged outwardly of

the offset bracket 24. A pawl 36 is pivotally mounted upon the end 12 above the gear 31. This pawl is adapted to engage the ratchet teeth 32 for preventing rotation of the shaft 20 in one direction. A hand lever 37 is pivotally mounted upon the end 12 at its side opposite to the pawl 36, by means of a pivot pin 38, or the like. The inner end of the lever 37 extends near the pawl 36 and is disposed at the inner side of the same, and is provided with a laterally projecting pin 39, to engage beneath the pawl and lift the same out of engagement with the teeth 32. The pulleys 21 have chains permanently connected to them, and these chains 40 engage in the pulley grooves and are adapted to be wound upon the pulleys. The chains 40 are preferably of the proper length to be wound about the pulleys once, but they may be longer. The chains 40 are provided with circularly curved lifting hooks 41 at their free ends.

Disposed directly beneath the pulleys 21 and pivotally connected at one end to the lower longitudinal beam 18 are horizontal support arms 42. These support arms are adapted to swing horizontally, and are connected to the beam 18 by bolts 42'. The support arms 42 are preferably formed of angle iron. Each of the pivoted support arms 42 has disposed upon its top side a V-shaped member or bearing 43, rigidly secured in place by means of welding, or the like. The bearings 43 are in vertical alignment with the chains 40, as the same are unwound from the forward sides of the pulleys 21, see Figure 2. Rigidly mounted upon the forward sides 13 of ends 11 and 12 and projecting longitudinally inwardly from such ends are short horizontal stationary support arms 44. Diagonal braces 45 are rigidly secured at opposite ends to the support arms 44 and adjacent sides 13, and these diagonal braces serve to strengthen the support arms 44. When the pivoted support arms 42 are swung outwardly and at right angles to the beam 18, the outer ends of the arms 42 engage upon the outer ends of the arms 44, and are supported thereby, Figures 1 and 3. The inner vertical webs of the angle sections forming the arms 42 are notched at their forward ends, as shown at 46, to provide clearance when the arms 42 are swung outwardly toward the ends 11 and 12, Figure 3.

The operation of the licker hoist is as follows:

The hoist is wheeled into position with relation to the frame 48 of a cotton card, and the hoist is adapted to straddle the end of the frame 48 adjacent to the licker 49 supported thereby. The forward side of the hoist, remote from the lower beam 18, is open, and this facilitates moving the hoist inwardly with respect to the card frame 48 until the rotatable shaft 20 is directly over the licker 49, Figure 6. Since this side is open, the comb drum A and the comb belt B of the card, and associated elements, may enter the frame, passing beneath the brace 16, and between the short arms 44. With the hoist in this position, the hand lever 37 is depressed for lifting the pawl 36, and the chains 40 are cranked downwardly so that the hooks 41 may engage beneath the shaft 50 of the licker. The tops of the bearings which hold the shaft 50 are of course removed to free the shaft. The pivoted support arms 42 are swung outwardly toward the adjacent ends 11 and 12, and assume positions shown in dotted lines in Figure 3. The crank 35 is then turned in the direction for winding the chains upon the pulleys 21 and the licker 49 is raised from the card frame 48. Since the arms 42 are swung outwardly, the licker may pass upwardly and between the same until the shaft 50 is slightly above the bearings 43. When this occurs, the arms 42 are swung inwardly to their positions of Figure 1, and the licker is again lowered until the shaft 50 is seated in the bearings 43. The hooks 41 may then be disengaged, and the hoist supporting the licker may be pushed to the desired location. The pawl 36 engaging the teeth 32 prevents unwinding of the chains 40 while they are supporting a load. Obviously, the hoise may be used when it is desired to place the licker back upon the frame 48 of the cotton card.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to, without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. A hoist for the licker of a cotton card, comprising a frame including upstanding frame ends and a top longitudinal frame section connecting the ends, a lower longitudinal beam connecting the frame ends and disposed at one side thereof, the frame being open at its forward side remote from the longitudinal beam, a longitudinal rotatable shaft supported by the frame ends and disposed above the longitudinal beam and near the transverse center of the frame, winding elements mounted upon the rotatable shaft and disposed near the frame ends, flexible elements connected with the winding elements and adapted to be wound threon, horizontally swingable support arms pivotally connected to the longitudinal beam and adapted to project laterally forwardly toward the open side of the frame, bearing sockets mounted upon the swingable support arms and open at their tops to receive the shaft of the licker, stationary support arms connected to the frame ends and projecting inwardly longitudinally therefrom and terminating near the free ends of the swingable support arms, the swingable support arms being adapted to engage the stationary support arms to be supported thereby, wheels mounted upon the frame ends so that the frame may be shifted over the licker, and means to rotate the shaft in one direction and hold it against counter-rotation.

2. A hoist for lifting the shaft of a licker of a cotton card, comprising a frame including upstanding ends, a substantially horizontal beam connecting the ends and disposed at one side only of the frame, the opposite side of the frame being open, a substantially horizontal rotatable shaft extending longitudinally of the frame at an elevation above the beam and mounted upon the ends, horizontally swingable support arms disposed inwardly of the ends and pivotally mounted upon the beam and adapted to have their free ends arranged near the open side of the frame, substantially horizontal short stationary support arms mounted upon the ends adjacent to the open side of the frame and having their inner ends terminating in substantial transverse alignment with the pivots of the swinging arms, bearing sockets mounted upon the swinging arms and open at their tops to receive the locker shaft, flexible elements connected with the rotatable shaft and adapted for connection with the licker shaft, and means to rotate the rotatable shaft in one direction and hold it against counter-rotation.

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