United States Patent

[11] 3,557,939

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[45] Patented **Jan. 26, 1971**

[54] **TOBACCO CONVEYOR**
5 Claims, 7 Drawing Figs.

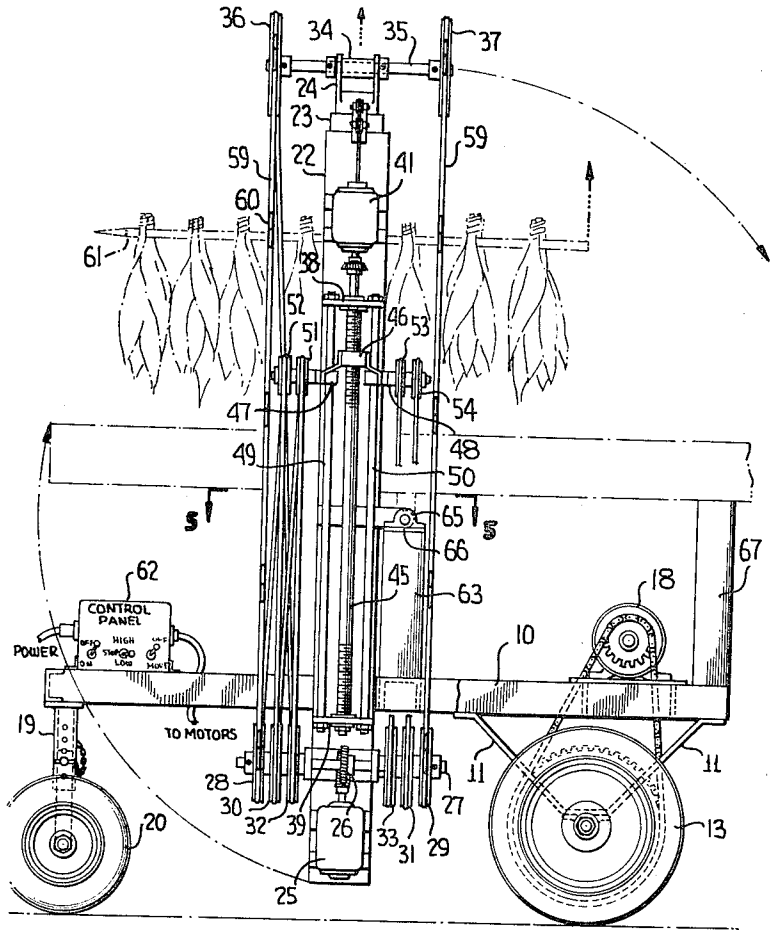
[52] **U.S. Cl.** **198/139,** 198/233
[51] **Int. Cl.** **B65g 15/22**
[50] **Field of Search** 198/139, 233, 154; 214/5.5

[56] **References Cited**
UNITED STATES PATENTS

2,774,461	12/1956	Young	198/139
3,283,856	10/1966	Stewart	214/5.5

Primary Examiner—Richard E. Aegerter
Attorney—Ben Cohen

ABSTRACT: The invention consists of a tobacco conveyor adapted to elevate tobacco in a barn for curing, said conveyor including a conveyor support consisting of telescopic channel sections that are vertically adjustable by a chain drive, a supporting carriage for horizontally moving the conveyor in a confined space, and electric motors for supplying the power for all moving components.



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SHEET 1 OF 4

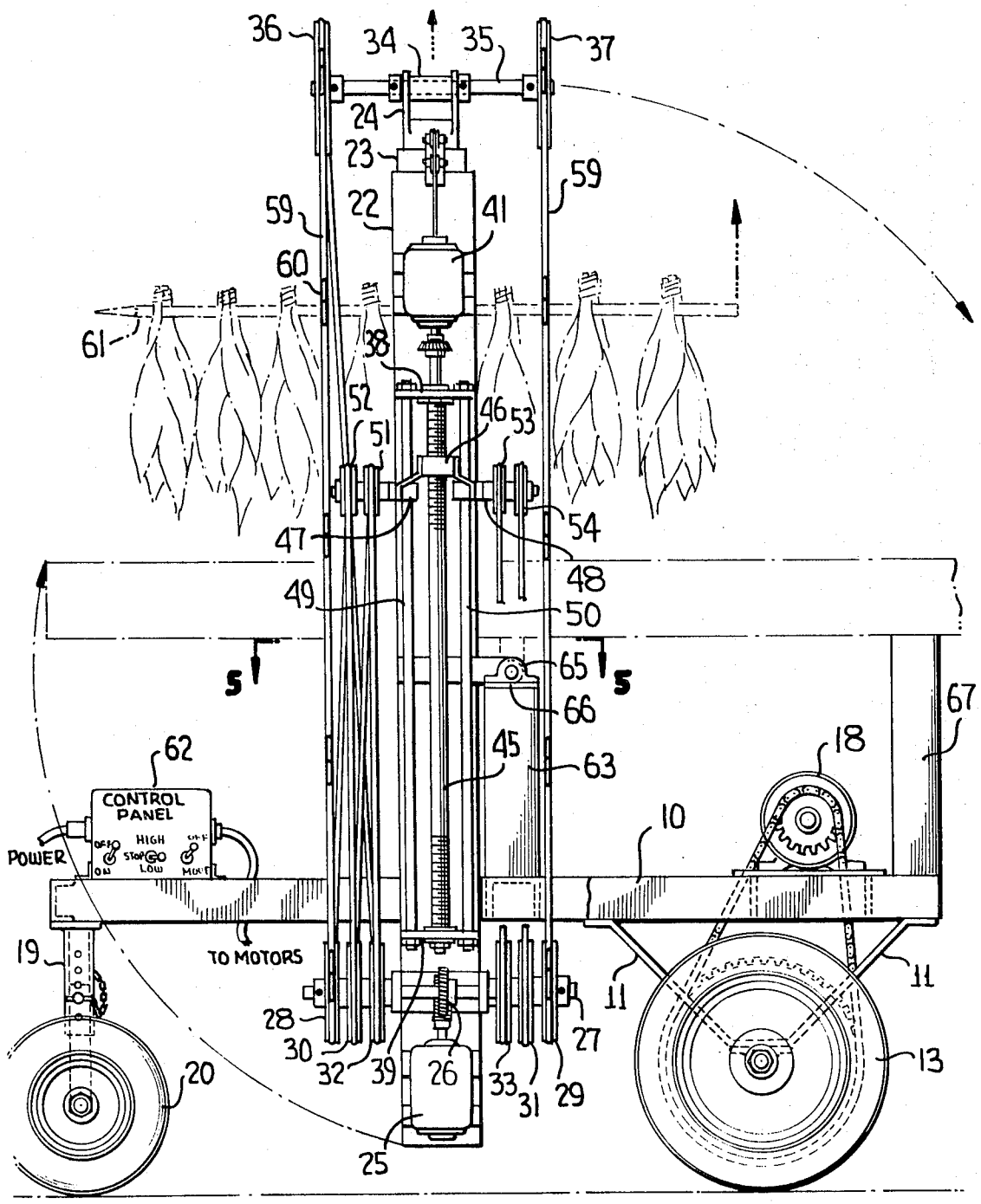


FIG. 1

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FIG.2

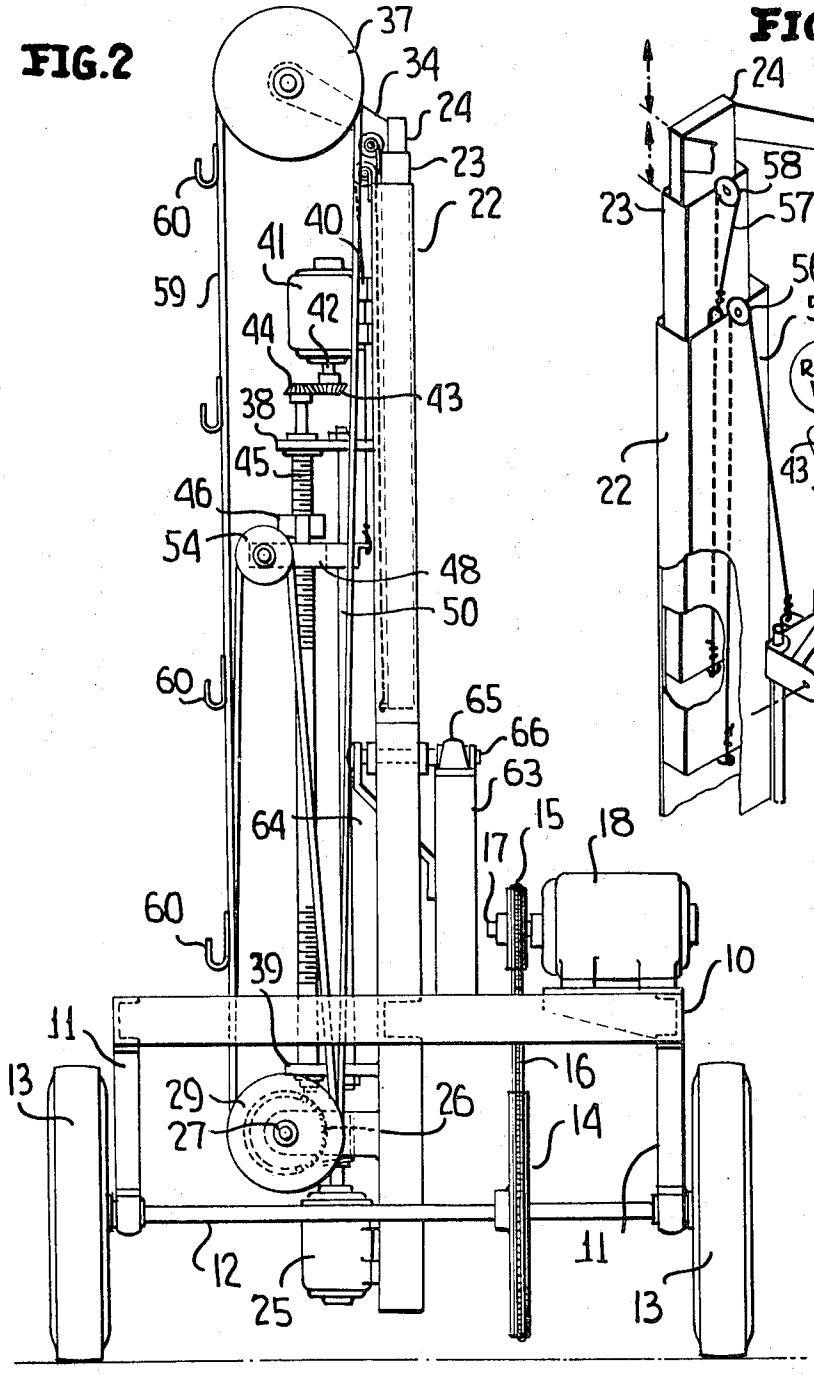
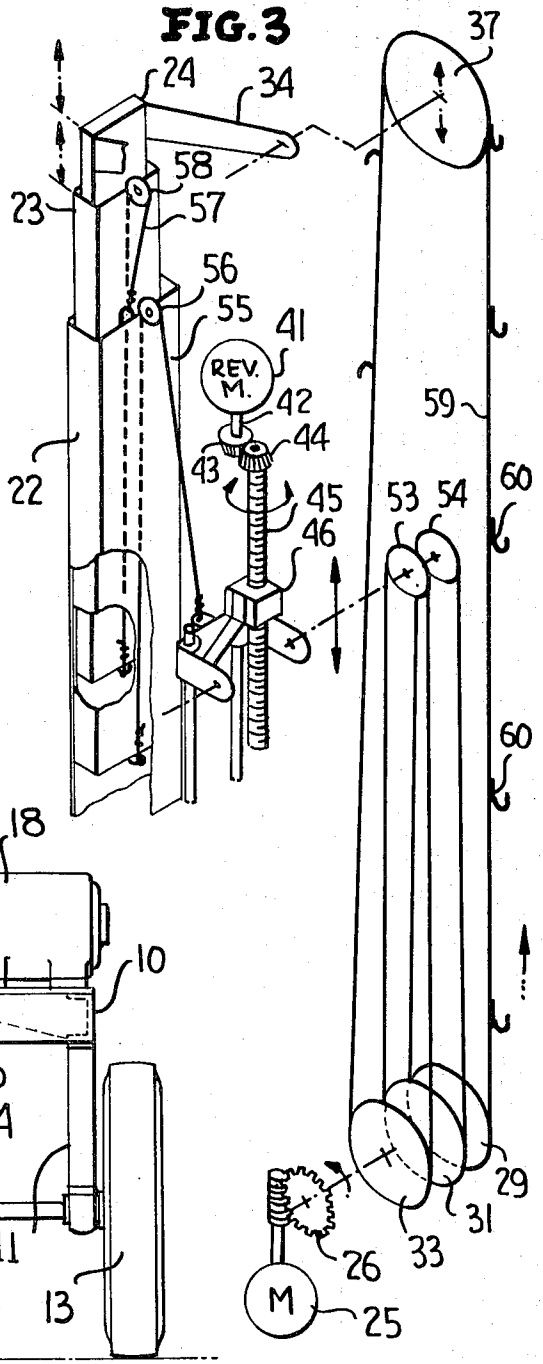


FIG.3



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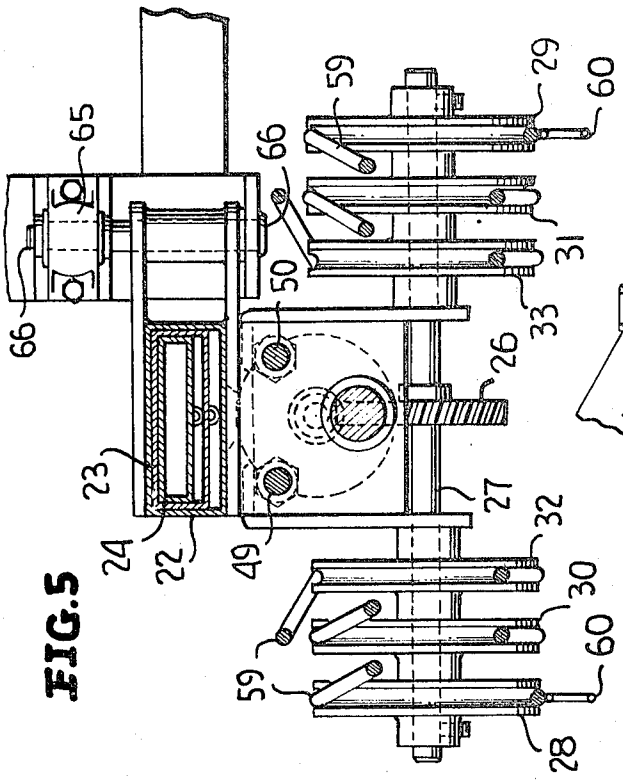


FIG.5

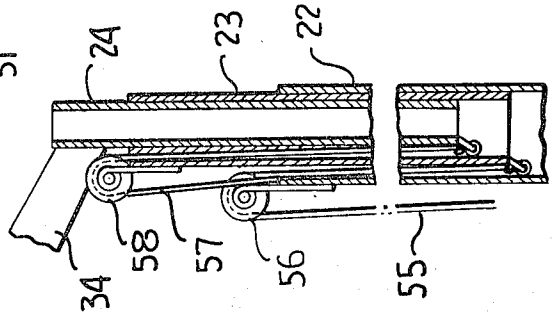


FIG.6

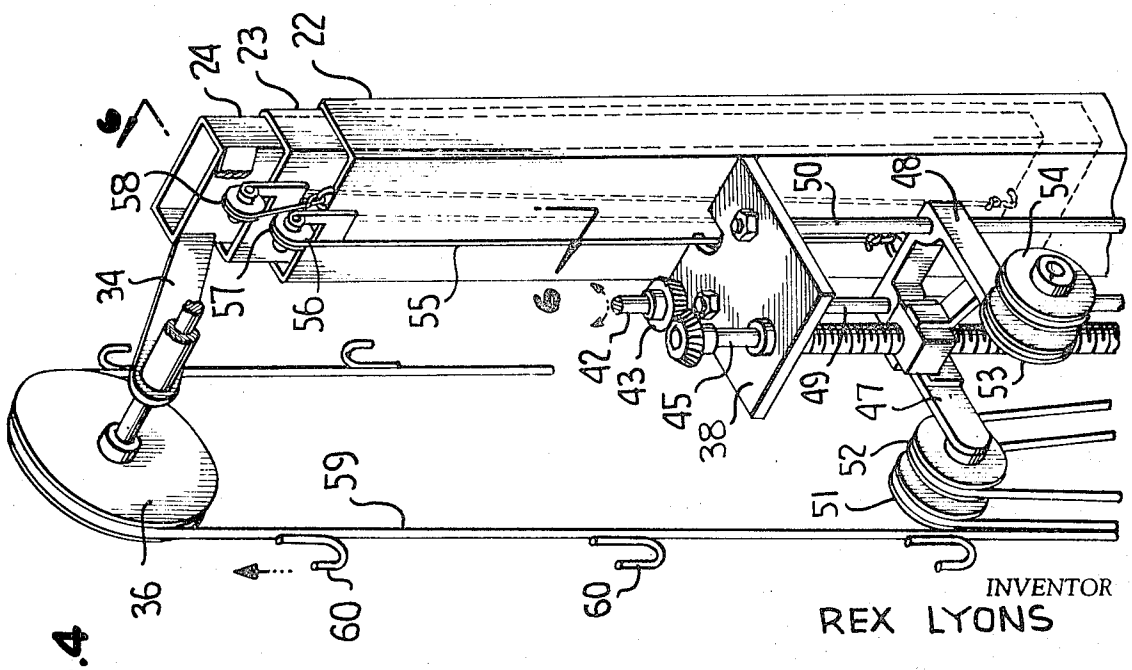


FIG.4

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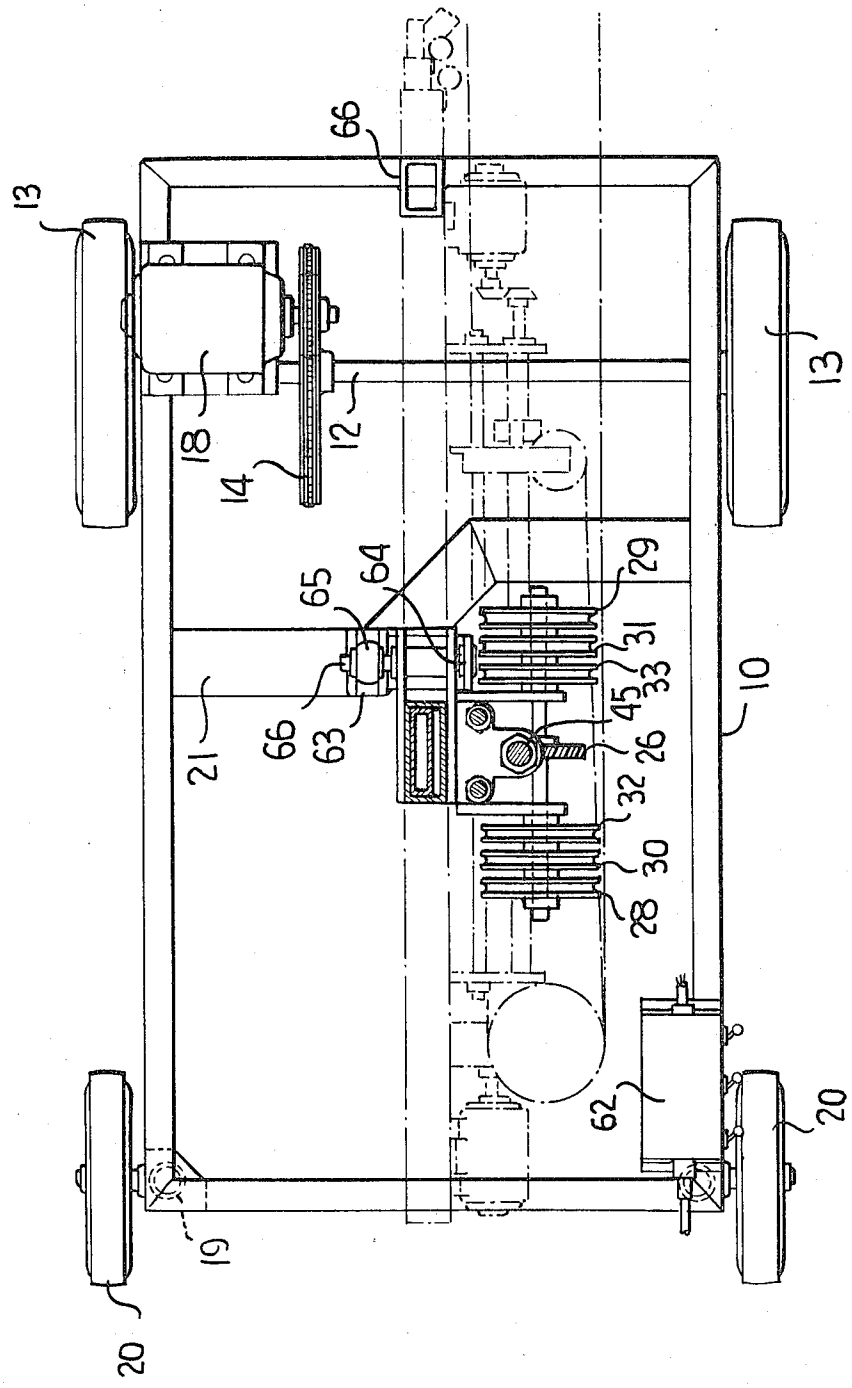


FIG. 7

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TOBACCO CONVEYOR

BACKGROUND OF THE INVENTION

It is well known in the tobacco growing art that when the tobacco plants have ripened in the field, they are cut and spared on elongated sticks for convenient storing and curing in the drying barn. It is usual to store a great number of the sticks in the extreme upper portion of the barn and since each stick is quite heavy, several laborers are required to manually elevate the tobacco sticks from the ground up to the top of the storing barn. It is conventional to provide a power actuated elevating mechanism which will perform the laborious task of elevating the tobacco sticks and such a mechanism is disclosed in U.S. Pat. to Young, No. 2,774,461, issued Dec. 18, 1956.

SUMMARY OF THE INVENTION

The present invention involves a tobacco conveyor comprising a conveyor support, consisting of three or more steel channel sections so sized that they telescope one into the other, chains cooperating with the channel sections, means for taking up or letting out slack in said chains as the conveyor support is raised or lowered, a drive mechanism consisting of driving sprockets, conveyor chain and idler sprockets, a supporting carriage with a self-propelling feature, and electric motors for supplying power for all the moving components.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view illustrating the hoisting mechanism of the invention and showing the same in a substantially fully retracted position;

FIG. 2 is a rear elevational view of the mechanism shown in FIG. 1;

FIG. 3 is a fragmentary perspective view of the chain mechanism by which the telescoping sections of the upright standard are operated showing the chain mechanism removed from the surrounding structure with the parts retracted;

FIG. 4 is an enlarged perspective view of the upper portion of the hoisting mechanism with some of the parts removed;

FIG. 5 is a cross-sectional view taken on the line 5–5 of FIG. 1;

FIG. 6 is a sectional view taken on the line 6–6 of FIG. 4; and

FIG. 7 is a plan view of the supporting carriage including a portion of the conveyor with some of the operating parts omitted.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings in detail wherein like numerals denote like parts throughout the several views, the present conveyor comprises a carriage consisting of a supporting platform **10** upon which the conveyor is mounted. The platform includes an undercarriage **11** for supporting the axle **12** on which are mounted the wheels **13**. Also mounted on the axle **12** is a sprocket **14** connected to sprocket **15** by a sprocket chain **16**. The sprocket **15** is carried by a rotating shaft **17** operated by a motor **18** rigidly supported on platform **10**. The aforesaid described mechanism provides the motive power for moving the carriage into and within the barn. At the front end of the carriage a vertical post **19** supports two wheels **20** to complete the wheel arrangement of the carriage.

As seen in FIG. **7**, the supporting platform **10** consists of an open rectangular frame of suitable rigid bar members and a transverse connecting bar **21** for a purpose to be described as the description proceeds.

The conveyor support consists of three steel channel sections **22**, **23**, **24**, so sized that channel section **23** telescopes within channel section **22** and channel section **24** telescopes within channel section **23**. The channel members are adapted to be extended or retracted to raise or lower the conveyor support to various heights.

As seen in FIGS. **1** and **2**, the outer hollow channel **22** extends the full length of the conveyor, and the channel sections

are shown in fully retracted position. Rigidly supported adjacent the lower end of channel section **22** is a drive motor **25** turning worm and gear **26** which turns a drive shaft **27** on which outer drive sprockets **28** and **29** are rigidly mounted. Also mounted on said shaft are freely rotating sprockets **3**, **31**, **32** and **33**. At the upper end of channel section **24**, an outwardly extending supporting member **34** is rigidly secured. Supporting member **34** carries a rotating shaft **35**, to the outer ends of which a pair of sprocket gears **36** and **37** are attached. Also rigidly attached to channel section **24** are bearing plates **38** and **39**. A suitable bracket **40**, rigidly secured to channel section **24**, located above upper bearing plate **38** carries a motor **41** having a rotating shaft **42** to the lower end of which a pinion gear **43** is attached. Cooperating with pinion gear **43** is a spur gear **44** mounted at the upper end of a screw shaft **45**. The lower end of screw shaft **45** is rigidly attached to the lower bearing plate **39** as seen in FIGS. **1** and **2**. Mounted for movement along the screw shaft **45** is a threaded block **46** which in turn carries with it guide blocks **47**, **48** mounted for sliding vertical movement on guide rods **49**, **50** anchored to bearing plates **38** and **39**. Mounted also on guide block **47** are sprockets **51**, **52** and on guide block **48**, sprockets **53**, **54**.

As seen in FIGS. **2** and **4**, a cable **55** has one end secured to the threaded block **46**, passes over a pulley **56** mounted at the upper end of channel section **22**, with the opposite end of the cable secured to the lower end of channel section **23**. A second cable **57** has one end secured to the upper end of channel section **22**, passes over a pulley **58** mounted at the upper end of channel section **23** and with the opposite end of the cable secured to the lower end of channel section **24**.

A conveyor chain **59**, having mounted thereon a plurality of hooks **60** for holding the load to be elevated, constitutes a continuous chain drive and is moved by drive sprocket **28** as viewed in FIG. **1**, carried up over sprocket **36** at the top of the conveyor support, back down around free rotating sprockets **32**, **33**, up to free rotating sprockets **51** and **53**, back down around sprockets **30** and **31**, and back up around free rotating sprockets **52** and **54** and back down around sprockets **29** and **37**, thereby constituting the continuous chain drive. Thus, the lowering of threaded block **46** is synchronized with the raising of channel sections **23** and **24** by the location of the attachment of cables **55** and **57** to channel sections **23** and **24**. As the distance between sprockets **51**, **52**, **53** and **54** and the drive shaft **27** becomes closer, the distance between sprockets **36**, **37** and the drive shaft **27** becomes greater, taking up the excess slack in the conveyor chain **59** caused by the decreased distance between sprockets **51**, **52**, **53** and **54** and the drive shaft sprockets **28**, **29**, **30**, **31**, **32** and **33**.

Thus, it will be seen that the operation of the motor **41** will serve to extend the channel sections to increase the height of the conveyor and thereby elevate the sticks upon which the tobacco is threaded. The sticks, one of which is shown in dotted lines in FIG. **1**, is indicated by numeral **61**. Also shown in FIG. **1** is a control panel, indicated by numeral **62** for operating the various electric motors heretofore described. To retract the channel sections to thereby contract the present conveyor to its retracted position, the preceding sequence of extending the conveyor is reversed by activating a reverse switch (not shown) on the control panel **62**.

As shown in dotted lines in FIGS. **1** and **7**, in the retracted position of the hoist, when not in use for elevating purposes and for transporting the hoist from place to place, the hoist can be tilted to a horizontal position. This is accomplished by providing a pair of rigid support members **63**, **64** on transverse bar **21**. At the upper ends of the support member are pillow block bearings **65** for receiving a shaft **66** secured to casing **22** whereby the hoist can be pivoted to horizontal position by applying manual force to the upper part of the casing. A support member **67** is carried at the rear of the platform **10**, to support the hoist in its horizontal position while the hoist is transported when not in hoisting position.

While a preferred embodiment of the invention has been shown and described, it will be apparent that minor changes

may be made in the details of construction without departing from the spirit of the invention except as may be required by the scope of the appended claims.

I claim:

1. A tobacco conveyor comprising a supporting platform mounted on wheels , means for moving said platform, a conveyor support mounted on said platform and extending upwardly therefrom, said conveyor support comprising a bottom channel member, upper and lower channel members telescoping within each other and within the bottom channel member, means for raising and lowering said upper and lower channel members with respect to each other and with respect to the bottom channel member, a horizontal drive shaft mounted adjacent the lower end of the bottom channel member, drive sprockets mounted on said drive shaft, a horizontal shaft mounted at the upper end of the upper channel member, sprocket members mounted on said upper horizontal shaft, vertical guide rods adjacent the conveyor support, a vertical screw shaft, a threaded block vertically movable on said screw shaft and guided by said guide rods, intermediate sprockets

supported by said threaded block, an endless conveyor chain moving over said lower sprockets, said upper sprockets and said intermediate sprockets, and cooperating hooks mounted on said conveyor chain for receiving tobacco sticks and raising same by movement of the chain.

2. A tobacco conveyor as defined in claim 1, upright standards mounted on said supporting platform, means pivotally securing said bottom channel member to said upright standards whereby the conveyor support can be tilted to horizontal position.

3. A tobacco conveyor as defined in claim 1, and an electric motor for operating said conveyor chain.

4. A tobacco conveyor as defined in claim 1, and an electric motor for raising and lowering said upper and lower channel members.

5. A tobacco conveyor as defined in claim 1, an electric motor for operating said conveyor chain and an electric motor for raising and lowering said upper and lower channel members.