No. 736,315. PATENTED AUG. 11, 1903.

S. G. TOUCHSTONE.

CONVEYER APRON.

APPLICATION FILED OCT. 27, 1902.

NO MODEL.

Fig. 1.

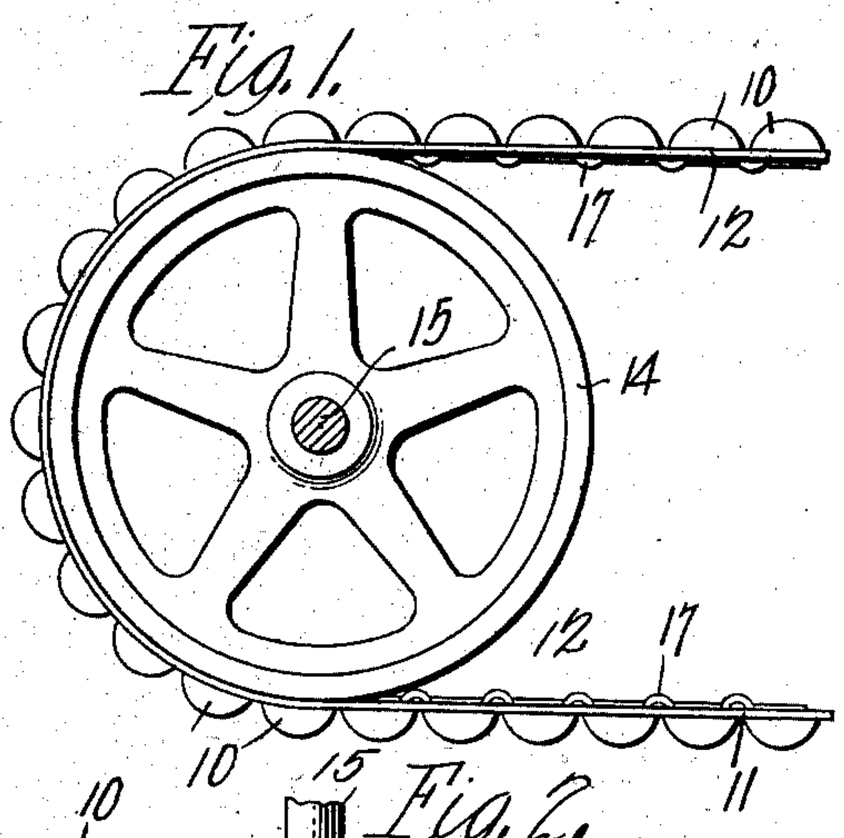



Fig. 3.

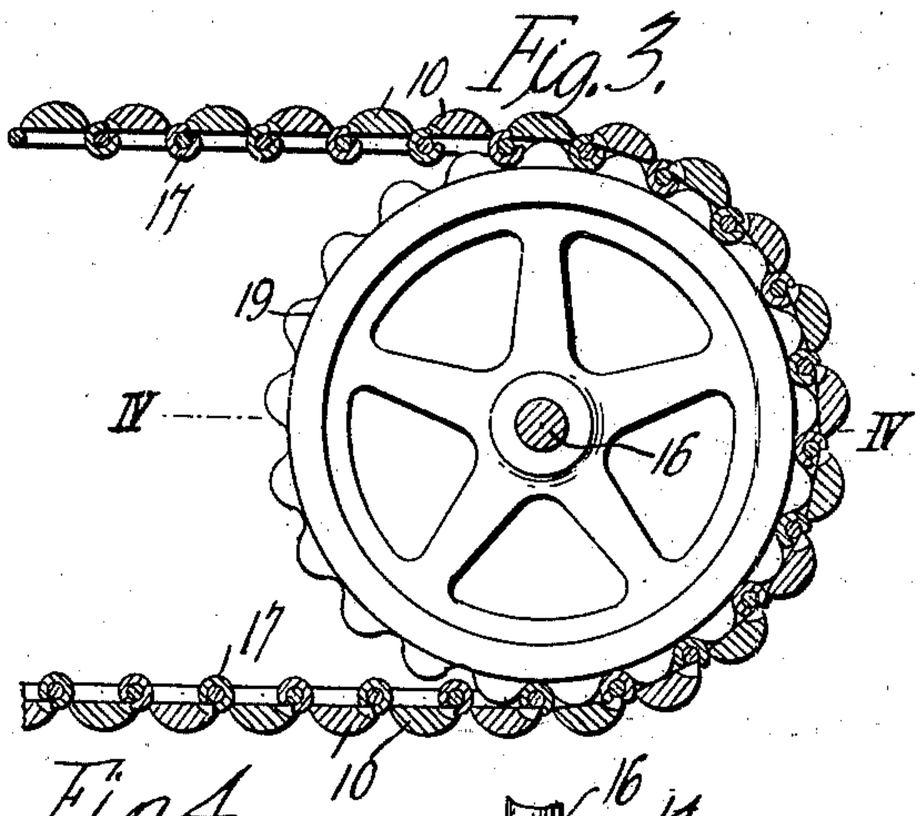



Fig. 2.

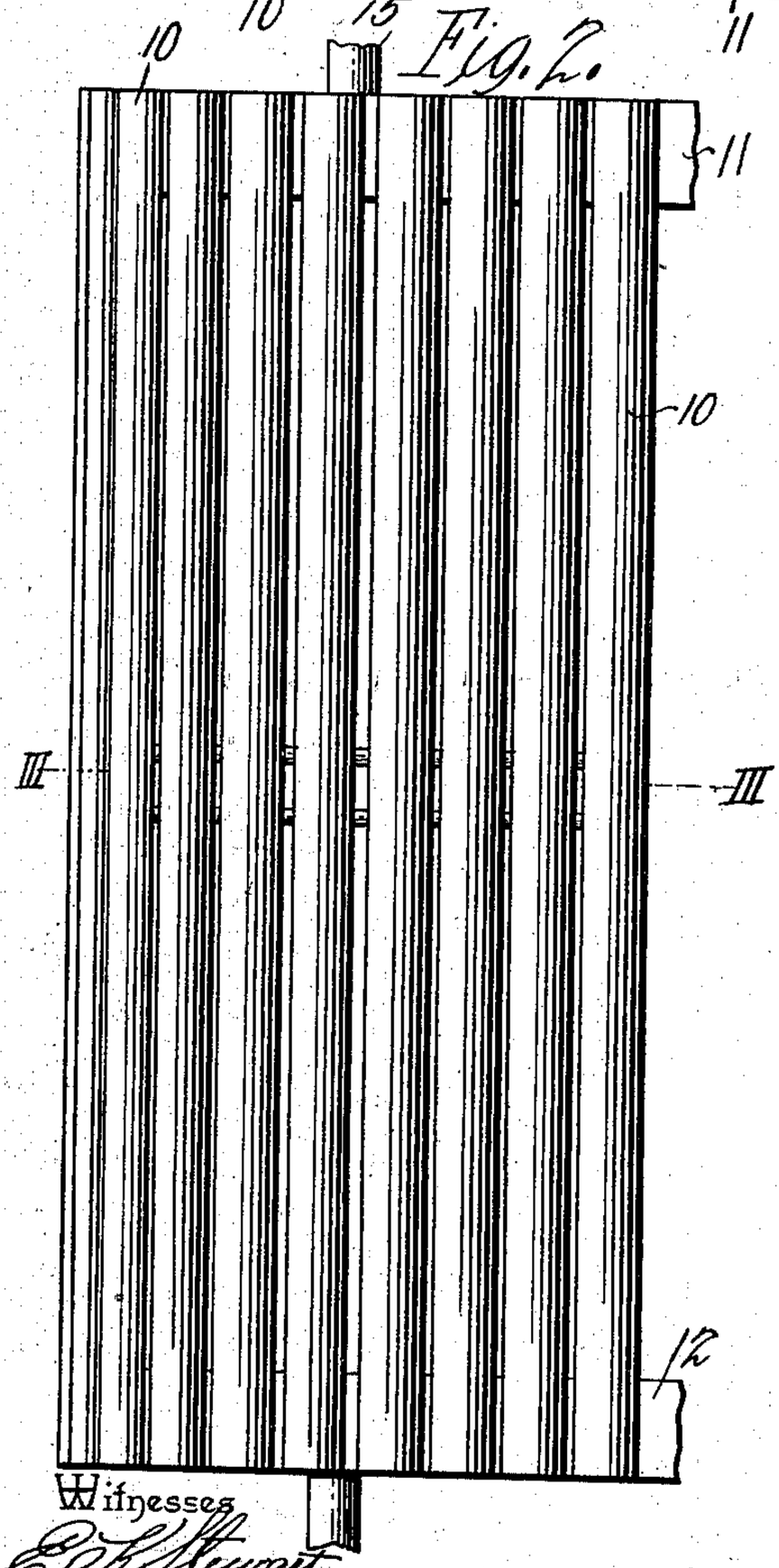
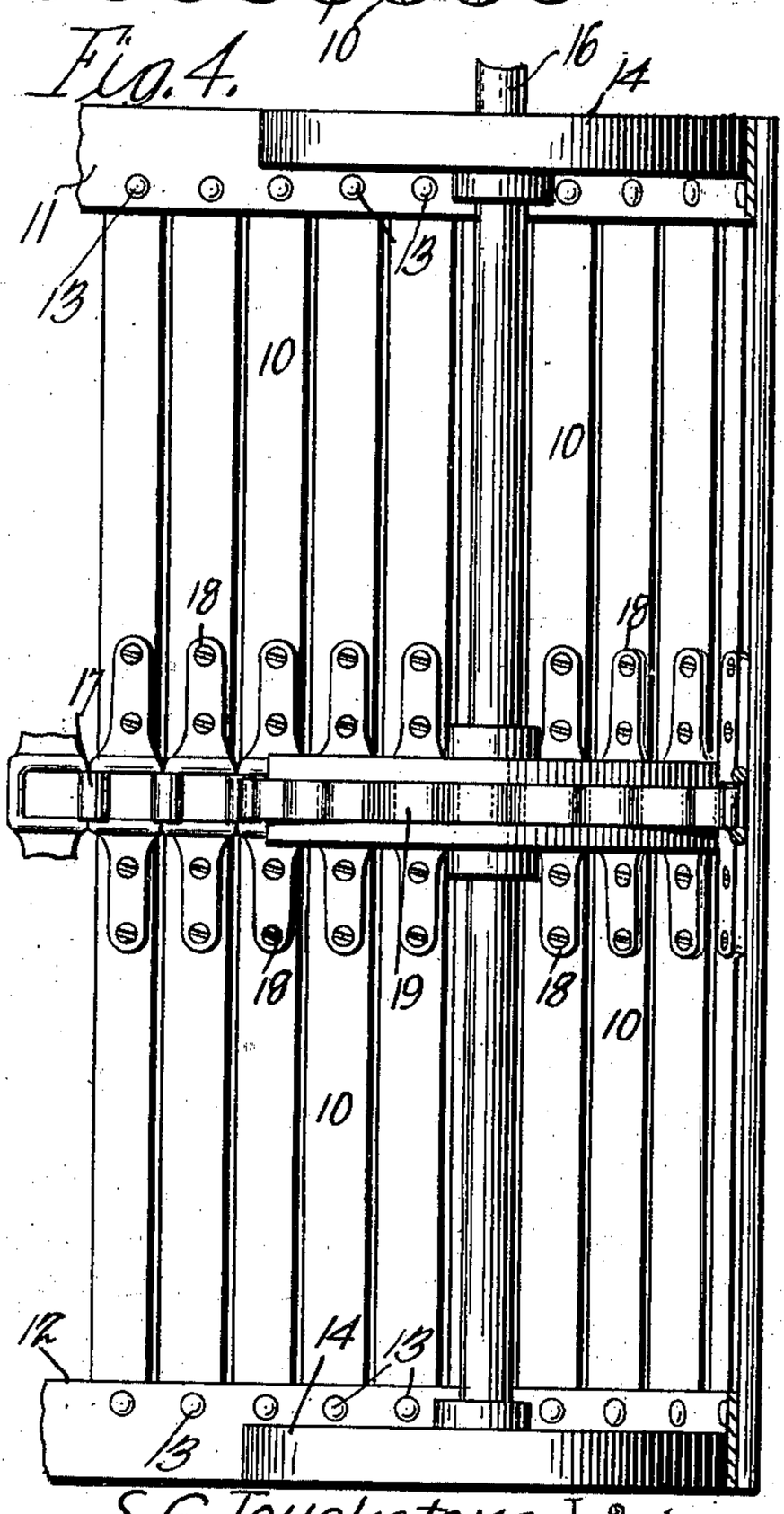



Fig. 4.




Witnesses
E. P. Stewart,
C. H. Woodward

S. G. Touchstone, Inventor.
by C. A. Snow & Co
Attorneys

No. 736,315. Patented August 11, 1903.

# UNITED STATES PATENT OFFICE.

SOLOMON GILBERT TOUCHSTONE, OF GREENWOOD, SOUTH CAROLINA.

## CONVEYER-APRON.

SPECIFICATION forming part of Letters Patent No. 736,315, dated August 11, 1903.

Application filed October 27, 1902. Serial No. 129,011. (No model.)

*To all whom it may concern:*

Be it known that I, SOLOMON GILBERT TOUCHSTONE, a citizen of the United States, residing at Greenwood, in the county of Greenwood and State of South Carolina, have invented a new and useful Conveyer-Apron, of which the following is a specification.

This invention relates to improvements in endless carriers or conveyer-belts employed in cotton-pickers, threshing-machines, hullers, and machines of similar character. In the construction and operation of the carrier-belts employed in machines of this character it is desirable that the belts shall run without jar and also without slipping, "creeping," or unequal movement between the opposite edges and also without irregular movement caused by changes in the "load."

The conveyer-aprons of cotton-pickers and similar machines are usually constructed of endless belts of leather or rubber, running over smooth pulleys and connected by spaced transverse slats; but aprons thus constructed are liable to run unequally by reason of the unequal stretching of the belts or variations in the weight of the "lap" or other material forming the load and cause a corresponding inequality in the "feed" of the apron. Again, in aprons constructed of leather or rubber belts and transverse slats the unequal stretching of the belts frequently causes one side to sag more than the other and requires frequent adjustment of the belts. Another objection to the flexible belts as ordinarily arranged is found in the fact that the holding rivets or bolts by which the transverse members of the conveyer-belt are attached to the flexible belts come in contact with the supporting-pulleys and produce an unequal motion or variation, while at the same time unequally wearing the straps.

One of the objects of the present invention is to produce an endless conveyer-belt embodying all the advantages of the smooth-running conveyer-belts mounted upon flexible endless straps of leather, rubber, or other similar suitable material, together with the positive movement secured by the use of the chain driving-belt, and this improved action is secured by the construction of a conveyer-belt formed of a plurality of spaced transverse slats connected at their ends to endless flexible belts or straps running over smooth pulleys and provided intermediately of their ends with a drive-chain composed of movably-connected links attached to the conveyer-belt and with chain-pulleys engaging the chain, whereby the requisite positive motion is imparted to the conveyer-belt without producing the objectionable agitation or jarring motion thereto. The flexible belts therefore produce the requisite smooth running, while the chain belt imparts the requisite positive movement to the belt and effectually prevents slipping or creeping, and likewise effectually prevents the objectionable unequal or irregular movement.

The invention may be applied to any of the various machines in which devices of this character are employed, and for the purpose of illustration the device is shown applied to a conventional form of conveyer-belt embodying the improvements, in which—

Figure 1 is a side view, and Fig. 2 is a plan view, of a portion of a conveyer-belt embodying the improvements. Fig. 3 is a longitudinal section on the line III III of Fig. 2. Fig. 4 is a longitudinal section on the line IV IV of Fig. 3.

In one of its approved forms the device consists of an endless conveyer-belt, formed of spaced slats, (indicated at 10,) connected at the ends to flexible belts 11 12, the slats extending entirely across the belts and connected thereto only at their inner edges, as by rivets 13, leaving the outer portions of the belts unobstructed, as shown in Fig. 4, to provide an unobstructed surface for the bearing-pulleys 14, carried by the shafts 15 16, the shafts being spaced apart and suitably supported at the ends of the belt in the usual manner.

The supporting means for the shafts are not shown, as they form no part of the present invention.

The size of the belt may be varied to any desired extent to adapt it to the different machines upon which it will be employed and may be constructed of any length or width and the slats 10 and belts 11 12 of any required proportions to adapt it to the material to be conveyed, and I do not, therefore, wish to be limited in any manner to any specific size or proportions and reserve the right to modify and change the parts according to the

circumstances and the purposes for which it is employed.

Attached to the inner faces of the slats intermediately of the belts 11 12 is an endless chain, preferably formed of articulated links 17, each link having means, as lugs 18, for its connection independently to one of the slats 10, each slat being thereby provided with one of the links, as indicated in Fig. 4.

The shafts 15 16 will be provided with sprocket-wheels 19, adapted to engage the chain, and thus forcibly rotate the belt when one or both of the shafts are operated. By this simple means the endless conveyer-belt is driven from one point only, while at the same time the individual slats are firmly supported not only at their central points by connection to the chain, but also at the ends by connection with the belts 11 12, so that the slats are held firmly in position and all variation effectually prevented, as the slats are held firmly from unequal movement relative to the opposite ends and at the same time prevented from any slipping or creeping by the firm and positive connection between the chain belt and the sprocket-wheels. This produces a very strongly-constructed and smoothly-operating belt, as the flexible members 11 12, running smoothly over the pulleys 14, insures a steady uniform movement, unaffected by the intermittent jarring action between the sprocket-wheels and the chain-links.

The belts running by their unobstructed portions over the pulleys 14 prevent any jarring motion being imparted to the slats, thereby insuring a smooth-running uniform noiseless action without rattling or agitation, which is a very important consideration in connection with many kinds of machinery upon which conveyer-belts are employed.

The chain 17 will preferably be of the ordinary detachable-link form, as illustrated in Fig. 4; but other forms of chain may be employed if required. The sprocket-wheels 19 thus serve not only as the drive-wheels for the belt, but also assist in supporting the slats intermediately of their ends and prevent sagging.

Having thus described the invention, what is claimed is—

1. A conveyer-apron comprising two parallel flexible spaced belts, each provided with an attaching portion and an extended pulley-engaging portion, transverse slats bearing on and secured to the attaching portions of said belts, and a sprocket-chain disposed intermediately of said belts and secured to said slats.

2. The combination of spaced shafts, belt-pulleys spaced apart upon said shafts, chain-pulleys upon said shafts between said belt-pulleys, flexible endless belts engaging said belt-pulleys and extending beyond the rims thereof, spaced slats bearing on said flexible belts and connected to the extended portions thereof, and an endless chain engaging said chain-pulleys and attached to said slats, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

SOLOMON GILBERT TOUCHSTONE.

Witnesses:
F. BUNON GRIER,
T. C. TURNER.