Sept. 23, 1924. 1,509,799

C. H. VESSOT ET AL

FLAX HARVESTING MACHINE

Filed Jan. 29, 1920 4 Sheets-Sheet 1

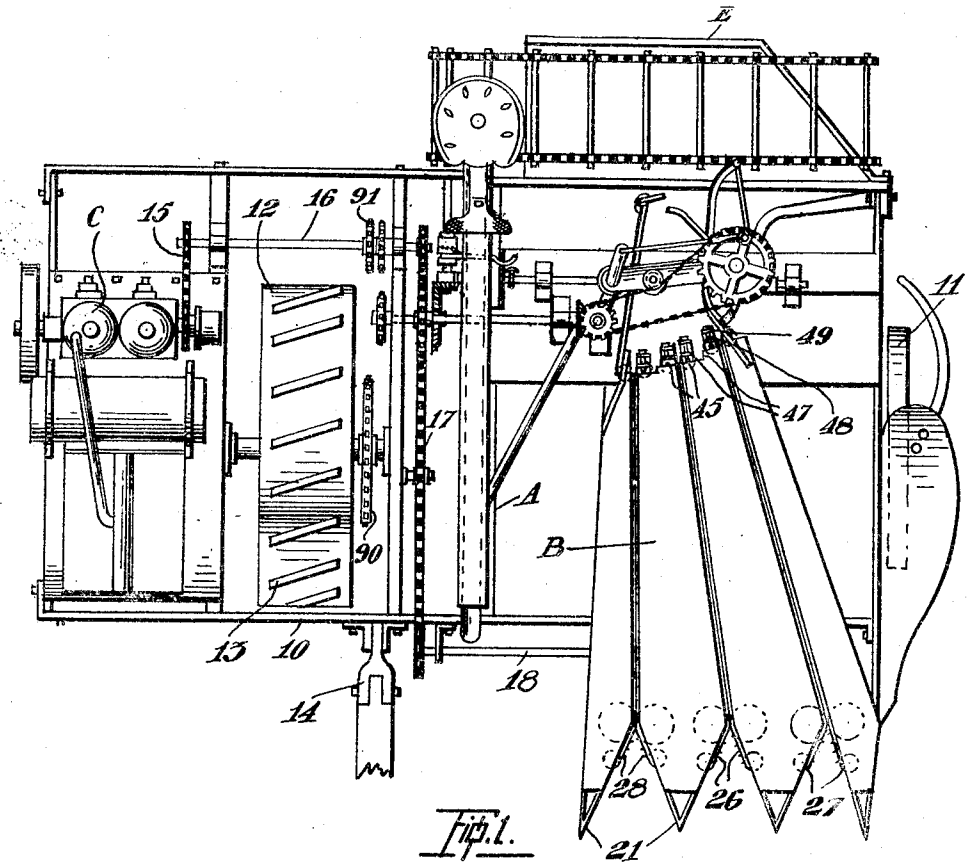


Fig. 1.

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BY Fothurston Lawyh. & Co
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FLAX HARVESTING MACHINE

Filed Jan. 29, 1920 4 Sheets-Sheet 2

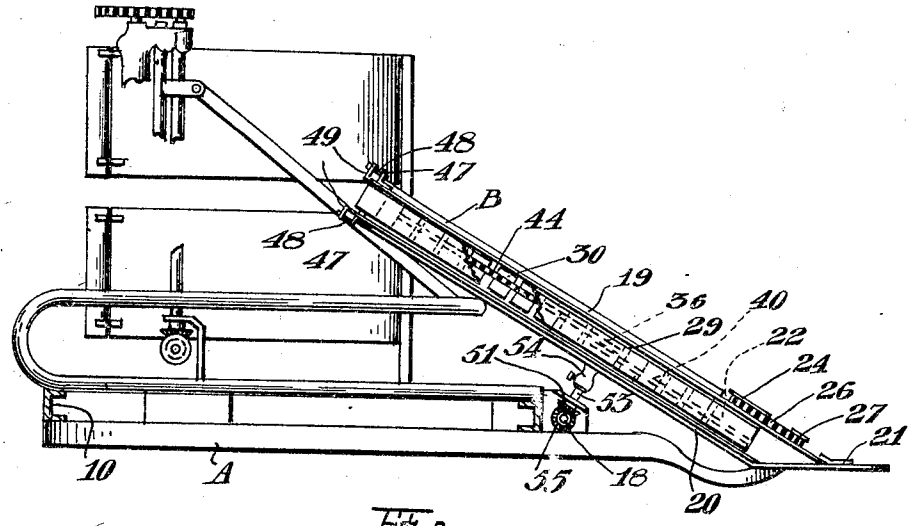


Fig. 2.

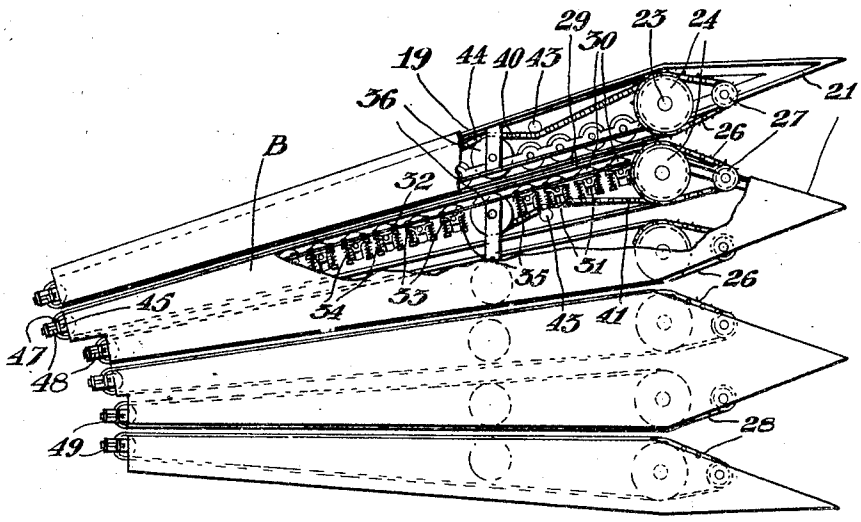


Fig. 4.

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Sept. 23, 1924. 1,509,799

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FLAX HARVESTING MACHINE

Filed Jan. 29. 1920 4 Sheets-Sheet 3

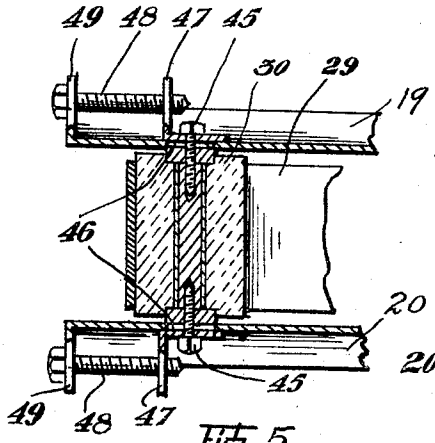


Fig. 5.

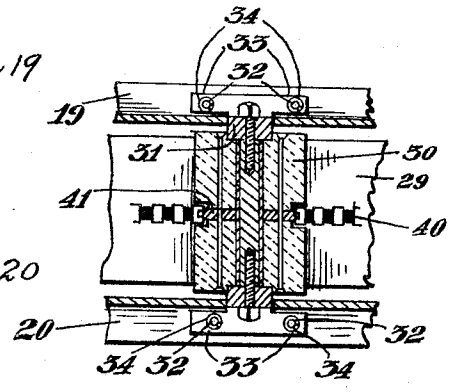


Fig. 6.

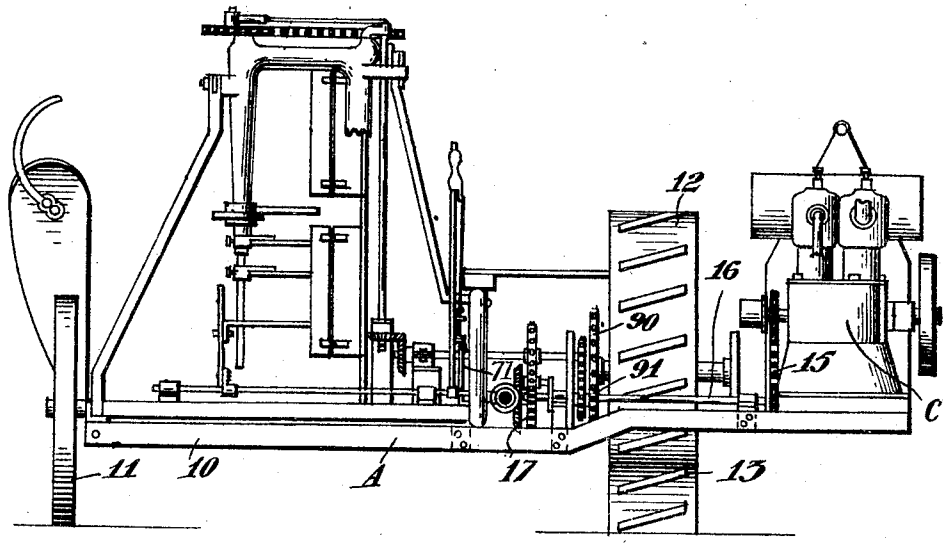


Fig. 3.

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FLAX HARVESTING MACHINE

Filed Jan. 29, 1920 4 Sheets-Sheet 4

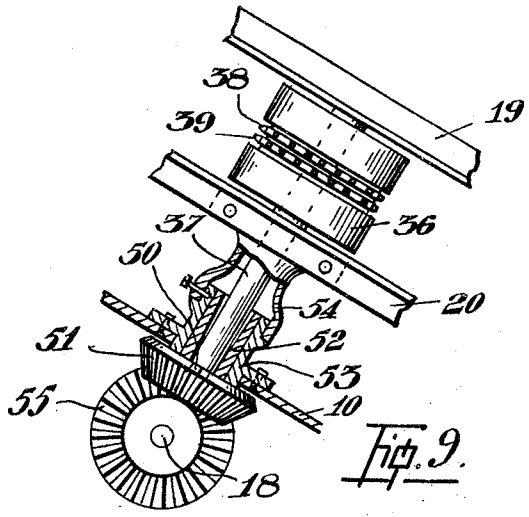


Fig. 9.

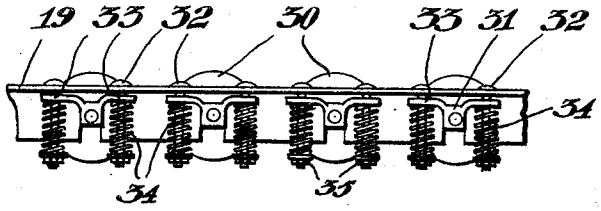


Fig. 8.

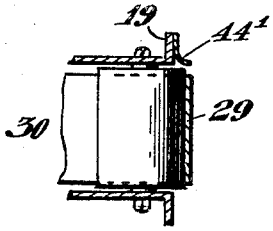


Fig. 7.

Fig. 10.

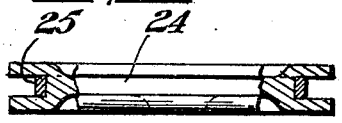


Fig. 11.

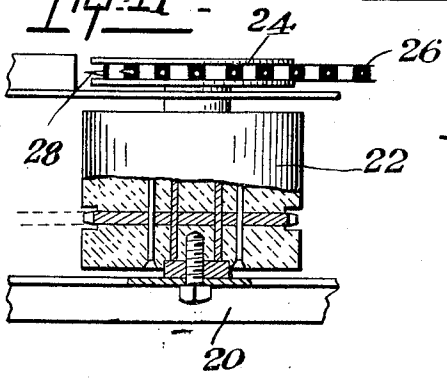
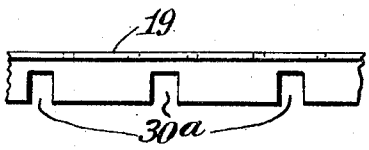


Fig. 12.



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Patented Sept. 23, 1924. 1,509,799

UNITED STATES PATENT OFFICE.

CHARLES HENRI VESSOT AND CHARLES ULYSSES VESSOT, OF OTTAWA, AND GEORGE A. PILKEY, OF CORONA, ONTARIO, CANADA.

FLAX-HARVESTING MACHINE.

Application filed January 29, 1920. Serial No. 355,005.

To all whom it may concern:

Be it known that we, CHARLES HENRI VESSOT, CHARLES ULYSSES VESSOT, and GEORGE ALVIN PILKEY, subjects of the King of Great Britain, the two former being residents of the city of Ottawa, in the Province of Ontario, Dominion of Canada, and the latter a resident of the town of Corona, in the Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Flax-Harvesting Machines, of which the following is a specification.

This invention relates to improvements in flax harvesting machines, and the objects of the invention are generally to improve and simplify the construction of the machine to better adapt it to perform the functions required of it.

More particular objects of the invention are to provide means whereby the pulling belts are positively driven by the pulleys, and to provide means for adequately tensioning the belts without interfering with the means for driving the same.

Further objects still are to provide for the allowance of a certain slip in the mechanism, so that in the event of the machine encountering any abnormal obstruction, such as a stone or the like, in a field there is no possibility of the gears or other portions of the machine becoming broken, and a portion of the machine rendered temporarily useless and inoperative.

With the above and other objects in view the invention consists essentially of the improved construction hereinafter described and set forth in the following specification and accompanying drawings forming part of the same.

In the drawings:

Figure 1 is a plan view of the improved flax harvesting machine.

Figure 2 is a fragmentary end elevation of the machine, the wheels being removed, and showing the method of positively driving the rollers of the pulling elements.

Figure 3 is a rear view of the machine the sheaf carrier being removed for the sake of clarity.

Figure 4 is a plan view of the pulling elements with part of the covers broken away to show the location of the belt driving mechanism and pulling means.

Figure 5 is a longitudinal section of the rear end of one of the pulling elements showing the means for tensioning the pulling belt.

Figure 6 is an enlarged longitudinal section of one of the drive rollers showing the sprocket and coacting chain.

Figure 7 is an end elevation of an end roller showing the location of the guard strip above the belt.

Figure 8 is a fragmentary plan view of the frame of a pulling element showing the resiliently controlled rollers mounted thereon.

Figure 9 is a side elevation partly sectional of the gear drive whereby the pulling elements are operated.

Figure 10 is a sectional elevation of the pulley on which the flax pulling chains are mounted, provision being made for slip of the pulling members.

Figure 11 is a sectional detail of the roller 22.

Figure 12 is a plan view showing a detail of the frame.

Like characters of reference refer to like parts in the several figures.

Referring to the drawings, A represents the improved flax harvesting machine comprising a frame 10 which in the embodiment illustrated is substantially rectangular and of the binder type, the said frame being provided with ground and bull wheels 11 and 12, the latter of which carries peripheral cleats 13, so that the tractive power will be increased when the machine is being driven forwardly.

On the front of the frame 10 and intermediate of the breadth thereof a tongue attachment 14 is provided thus allowing horse traction being readily attached to the machine to give the driving power.

On the frame 10 the pulling elements B are mounted and are arranged to one side of the frame, and at the opposite side of the frame a prime mover C such as a gas engine is suitably secured.

This prime mover or gas engine is operatively connected by a chain drive 15 with a shaft 16 which is journalled transversely of the frame 10, the said shaft being connected by a chain drive 17 to a shaft 18, which is designed to transmit the required power to the pulling elements B.

Each of the pulling elements B consists of an angularly disposed frame comprising

upper and lower walls 19 and 20 formed of angle members and suitably spaced apart to maintain them in the desired relation to each other, and the lower ends of these frames are connected to a snare or divider 21.

At the lower end of each frame of the pulling elements B a large roller 22 is rotatably mounted on a shaft 23 which carries on its upper end a flanged pulley 24 having a peripheral wearing face 25 of leather or like material, and this pulley is connected by means of a flexible belt or like drive 26 to a flanged pulley 27 mounted on the upper wall 19 of the said frame.

This flexible drive is provided with a plurality of teeth 28 whereby the flax is gathered into and delivered to the pulling belts 29, which are endless and supported by a plurality of rollers 30, whereby the outer faces of adjacent belts are pressed tightly and resiliently together.

The rollers 30 are spring controlled being carried by adjustable bearings 31 slidably mounted in lateral slots 30[a] provided on one member of the upper and lower angle walls 19 and 20 of the frame of the pulling elements B.

The vertical flanges of the upper and lower walls 19 and 20 are engaged by bolts 32 which pass therethrough and slidably engage with lugs 33 on the adjustable bearing 31, and on the bolts 32 tension springs 34 are mounted which are held in place between the lugs 33 and the inner ends of the bolt by washers and nuts as shown at 35. The rollers 30 are thus capable of being displaced laterally, so that adjacent pulling belts 29 will coact with each other with the desired pressure.

The rollers 30 are divided into two sets, a forward and rear set, and each set is designed to be rotated from a large roller 36 which is carried by an angularly disposed shaft 37, and is provided intermediate of its length with a pair of sprockets 38 and 39 the latter and lower of which is adapted to engage with the chain 40 coacting with the sprockets 41 mounted on each of the forward sets of rollers 30.

The roller 22 is also provided with a sprocket with which the chain 40 engages, and each chain 40 is provided with a tightener 43 whereby the desired tension is given to the chain to provide an easy and strong drive.

The rear set of rollers 30 are driven from the upper sprocket 38 of the roller 36 by the chain 44 which engages with the sprockets 41 carried by each of the rear rollers 30, but in this case it should be particularly noted by reference to Figure 2 that the chain does not engage with the rearmost or endmost roller 30 but passes around the second rearmost roller, thereby leaving the rearmost roller free to be adjusted to give to the pulling belts 29 the desired tension to suit the requirements thereof

The means which we provide for adjusting the rearmost roller 30 consist in mounting the said roller on a pair of pins 45 which are slidably mounted in slots 46 provided in the upper and lower walls 19 and 20 of the frames of the pulling elements B.

These pins carry angle brackets 47 with which the tension screws 48 make threaded engagement, and the ends of the tension screws are rotatably supported in the angle member 49 in which the upper and lower walls of the frame of the pulling member B terminate.

It will be evident that by turning the screws 48 the rearmost roller 30 may be pulled to or moved from the end of the frame of the pulling elements B, and this tensions or slackens the pulling belt 29 when such is found necessary or advisable.

It will also be found that by adjusting either the upper or lower tension screw 48, the belt 29 may be trued, so that the coacting faces of adjacent belts will engage over a large area, and thus provide a broad bearing surface to engage with the flax when pulling the same.

The upper walls 19 of the frame of the pulling elements B are substantially angle shaped and are suitably provided with a cover strip 44′ which adequately protects the belts 29 and rollers 30 from weeds etc., which would otherwise foul the rollers 30 and thus impair the well-working of the machine. These cover strips 44′ overhang the outer edge of the rollers 30 and may be attached to the angle members 19 by rivets or the like.

By reference to Figure 7 it will be seen that the cover strips may be formed curvilinear, so that they will deflect any weeds or other foreign matter coming in contact therewith, throwing the same outwardly from the machine and out of contact with the belts 29.

The shaft 37 by means of which motion is transferred to the pulling belts 29 is provided with a lower squared end 50 adapted to engage with the squared orifice in the boss of the bevelled gear 51, and this gear is provided with an integral sleeve 52 having a conical bore therein, which thus allows the two coacting rollers to open more or less according to the thickness of the flax or the weeds passing between the pulling belts and also to allow the shaft 37 to tilt slightly should the machine be passing over uneven ground.

This sleeve is rotatably mounted in a second sleeve or bearing 53 having an annular flange which is bolted or otherwise secured to the frame 10, and the upper end of the said bearing is reduced to engage with a casing 54 which is bolted or other-

wise secured to the lower angle member 20 of the frame of the pulling elements B. The casing 54 is secured to the bearings 53 by suitable set screws or the like.

The bevelled gear 51 meshes with a bevelled gear 55 carried by the shaft 18 and each of the frames B is provided with such a shaft 37, so that each belt 29 is independently driven from the shaft 18.

The frames of the pulling elements B are provided at the lower end with suitable dividers or shares 21 and the lateral walls of the frames converge upwardly and rearwardly, so that the flax when pulled will converge to a point where it comes within the reach of the packing arms of the knotter D.

The flax is then bound by the binding mechanism, the construction of which is more fully disclosed in my copending application, Ser. No. 546,489, filed March 24, 1922. The mechanism is of a character to bind the flax vertically, and operates in conjunction with a carrier E.

During the forward motion of the machine the prime mover C is started and motion is transmitted through the shaft 17 and shaft 18 to the angularly disposed shafts 37 which drive the large rollers 36, so rotating the upper and lower sets of smaller rollers 30 by means of the chains 44 and 40 and thus driving the pulling belts 29 and gathering members 26.

Should it be desired to dispense with the use of this prime mover the driving force may be taken from the bull wheels 12 by providing a sprocket 90 on the axle of the said wheel and providing a sprocket 91 on the shaft 16 and these sprockets will then be connected by means of a chain drive, so that during the forward motion of the machine motion will be transmitted from the bull wheel 12 through the said chain to the shaft 16, and thus through the chain drive 17 to the pulling elements B in the manner above described.

By providing the chains 44 and 40 a positive drive is given to the rollers 30, and by locating the sprockets intermediate of the height of the rollers the chains are covered by the belts 29 and protected thereby.

At the same time projecting external sprockets are dispensed with on the frames B, which are enclosed by suitable covers.

While the construction of the sleeve 52 of the gear 51 allows for yield when the machine is traversing uneven ground, etc., it also allows each pulling element B being removed from the machine as a unit.

This is accomplished by loosening the set screw in the casing 54 and disconnecting the frame of the pulling elements B from the main frame 10 of the machine, whereupon the pulling element can then be lifted wholly out of place, the squared end of the shaft 37 readily disengaging the squared orifice in the lower end of the sleeve 52 and gear 51.

The bevelled orifice in the sleeve 52 allows for the ready reassembling of the elements B to the machine.

As many changes could be made in the above construction, and many apparently widely different embodiments of our invention, within the scope of the claims, constructed without departing from the spirit or scope thereof, it is intended that all matter contained in the accompanying specification and drawings shall be interpreted as illustrative and not in a limiting sense.

What we claim as our invention is:

1. A flax pulling machine having a plurality of pulling belts, sprocket chains extending beneath and supporting the belts, and means for tensioning the belts independently of the chains.

2. A flax pulling machine having a plurality of pulling belts, sprocket chains extending beneath and supporting the belts, and means for tensioning the belts independently of the chains, the said means comprising an adjustable pulley, a spindle supporting the adjustable pulley, frames having slots, extensions on the spindle extending through and slidably supported in the slots, adjusting screws mounted on the frames and operatively connected with the extensions.

3. In a flax puller, the combination with a pulling belt, of an adjustable pulley, a central spindle therein, pins extending into the spindle, frames having slots slidably supporting the pins, angle brackets connected to the pins, brackets on the frames, and adjusting screws extending through the brackets on the frames and engaging the angle brackets.

4. In a flax puller, a pulling belt, a chain underlying the pulling belt, a supporting pulley engaging the belt and having a central peripheral recess, a sprocket having teeth extending in the central peripheral recess and adapted to engage the chain, a central spindle, a frame, and supporting members on the frame releasably connected to the spindle.

5. In a flax puller, a pulling belt, an adjustable supporting roller for the belt, a driving shaft, a driving connection between the driving shaft and the supporting roller, including a shaft and supporting means therefor permitting a slight rocking movement of the shaft.

6. In a flax puller, a pulling belt, a supporting roller for the same, a driving shaft, a gear driven from the driving shaft, a tapered socket connected to the gear having an enlarged upper portion adapted to permit slight rocking movement of any shaft located in the socket, and a shaft connected to

the supporting roller and to the gear extending in the aforesaid socket.

7. In a flax puller, a pulling belt, a supporting roller for the same, a driving shaft, a gear driven from the driving shaft, a tapered socket connected to the gear having an enlarged upper portion adapted to permit slight rocking movement of any shaft located in the socket, a shaft connected to the supporting roller and to the gear extending in the aforesaid socket, and a sleeve rotatably supporting the aforesaid socket.

8. In a flax puller, a flax pulling belt, a supporting roller for the belt, a shaft connected to the supporting roller having a squared end, a driving pinion having a recess engaged by the squared end and formed with a sleeve surrounding the shaft being conical on the inner side to permit slight rocking movement of the shaft, a gear operatively connected to the pinion, and a second sleeve rotatably supporting the first sleeve.

9. A flax harvesting machine comprising a plurality of supported co-operating flax pulling belts inclined at a substantial angle to the horizontal and converging together from their points of first engagement with the flax to the rearward side thereof.

In witness whereof we have hereunto set our hands in the presence of two witnesses.

CHARLES HENRI VESSOT.
CHARLES ULYSSES VESSOT.
GEORGE A. PILKEY.

Witnesses:
ROBT. I. TOWERS,
ANN WISMER.