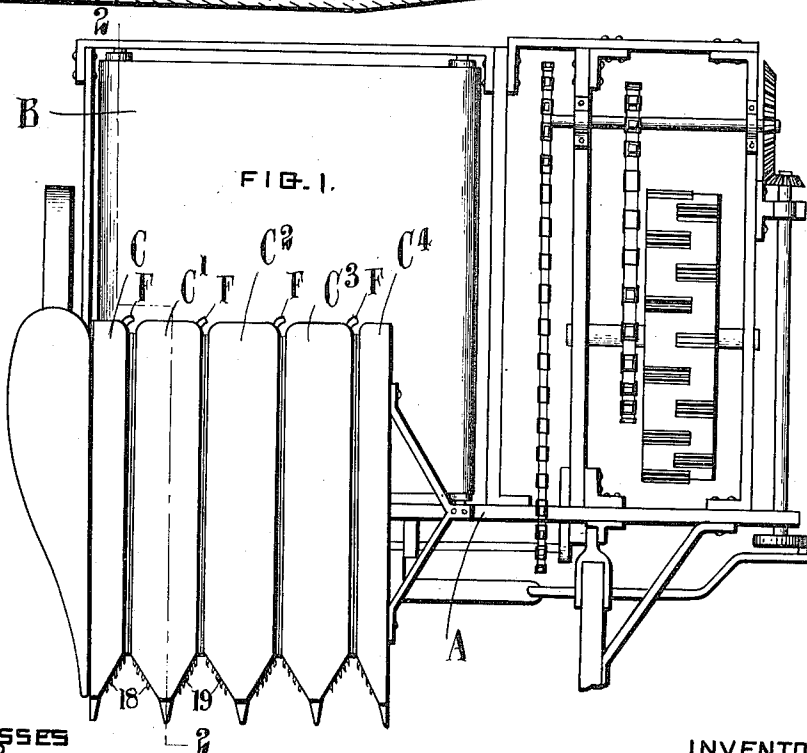
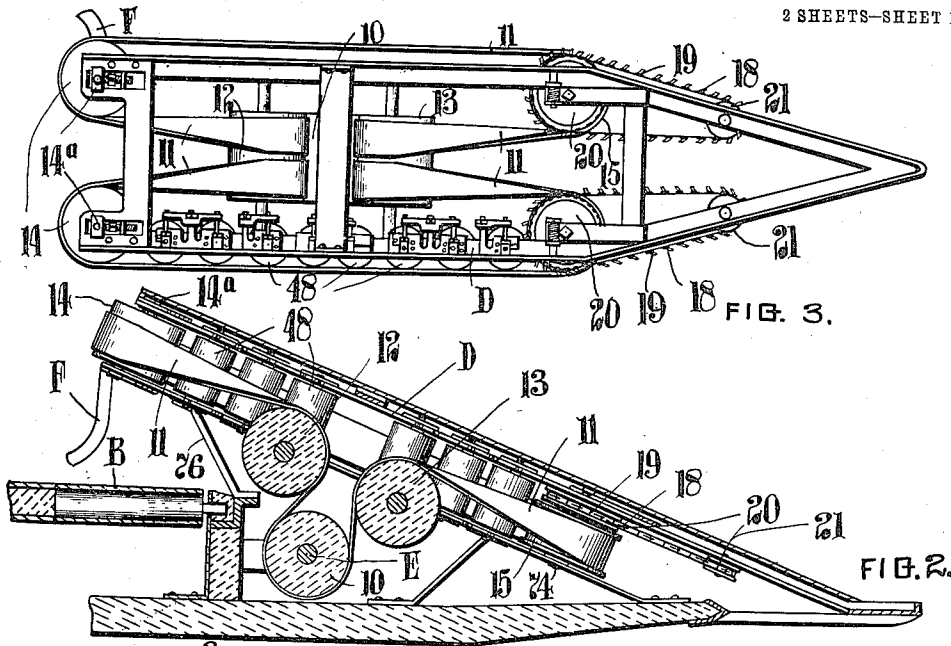


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 FLAX PULLING MACHINE.
 APPLICATION FILED APR. 13, 1910.

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2 SHEETS—SHEET 1.



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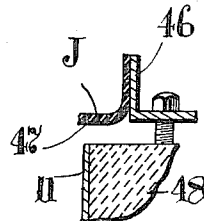
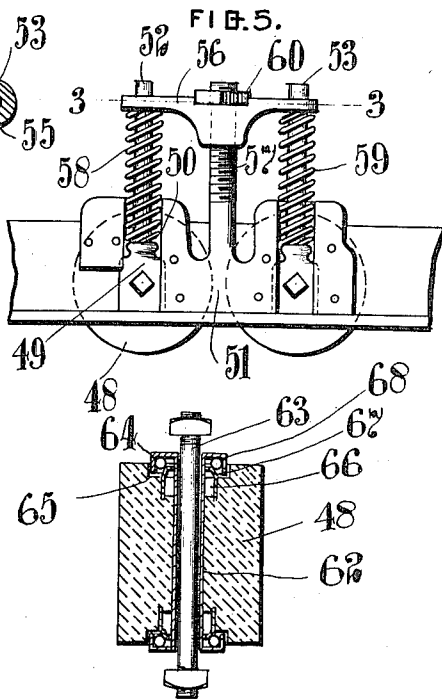
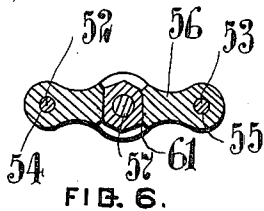
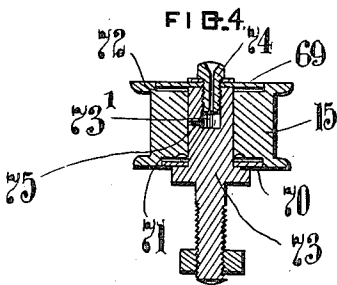


FIG. 8.

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FLAX-PULLING MACHINE.

1,013,975.

Specification of Letters Patent.

Patented Jan. 9, 1912.

Application filed April 13, 1910. Serial No. 555,299.

To all whom it may concern:

Be it known that we, CHARLES HENRI VESSOT and ALLAN GILMOUR MATHER, both of the city of Ottawa, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Flax-Pulling Machines, of which the following is a specification.

Our invention relates to improvements in flax pulling machines of the type in which the flax is pulled through the medium of contacting inclined pulling belts; and the objects of our invention are to provide simple and effective means for driving the pulling belts: and to provide means for tripping or upsetting the plants as they are discharged from the belts to cause them to drop flatly on to the conveying belt.

Further objects are to provide improved means for resiliently holding a plurality of rollers against the belt and to prevent portions of the flax plants winding about the rollers.

It consists essentially of the improved construction hereinafter described more fully in the accompanying specifications and drawings.

In the drawings: Figure 1 is a plan view of the machine. Fig. 2 is a sectional detail of the pulling elements, the section being taken on the line 2—2, Fig. 1. Fig. 3 is a plan view of one of the pulling elements with the cover removed. Fig. 4 is a vertical section through one of the front pulleys. Fig. 5 is an enlarged plan of the spring held rollers bearing on the side of the pulling belt. Fig. 6 is a section on the line 3—3. Fig. 7 is a sectional detail through the edge of the frame and one of the rollers. Fig. 8 is a vertical section through one of the rollers.

In the drawings, like characters of reference indicate corresponding parts in each figure.

Referring to the drawings, A represents the frame of the machine, and in practice it is found convenient to attach the machine to the frame of an ordinary binding machine, the position of attachment being the position of the knives on such machine; and in this case, B will represent the trans-

versely-extending belt of the machine rotated in a suitable manner to bring the flax in the binding device and bind it in sheaves.

In its construction, the invention includes a plurality of pulling elements C, C', C², C³, and C⁴, the three central elements being of similar construction, and the end elements C and C⁴ embodying half of the mechanism in one of the intermediate elements. Each of these elements consists of a casing D within which pulleys supporting the flax pulling belts are journaled, the belts in adjacent sections being adapted to contact with each other. In accordance with the present invention all the belts are driven from a central driving shaft E which extends transversely beneath all the pulling elements, each of the pulling belts extending around said shaft and having operative connection therewith. This is accomplished by providing pulleys 10 at intervals on the shaft over which each of the pulling belts 11 extend, said pulling belts being turned by means of a pair of rollers 12 and 13 mounted on the lower part of each frame D, said pulling belts 11 then extending around end pulleys 14 and 15 on the frame, said rollers 12 and 13 being mounted at substantially the center of the frame and being sufficiently wide to permit both belts carried by the frame to pass thereover as shown in Fig. 3. The belt may be tightened by any suitable means, in the embodiment illustrated a pulley 14 is provided with adjustable bearing blocks 14^a adapted to be adjusted by any suitable adjusting means.

In order to cause the flax plants to drop flatly and evenly onto the belt B, tripping arms F are provided secured to each frame D and extending below the end of the juncture between the contacting pulling belts, the tripping arms being curved across the opening between the pulling elements in such a way that as the flax plants are dropping when released by the pulling belts, their butts will be engaged and held slightly while their upper ends are falling from substantially vertical to horizontal position.

At the forward ends of the pulling belts 11, engaging belts 18 are provided in adjacent sections, diverging from each other and be-

ing provided with projecting hook members 19 to engage the flax plants. These belts are mounted on pulleys 20 and 21, the pulley 20 rotating with the pulley 15 and the pulley 21 being supported on the forward part of the frame D.

In order to guide the sides of the belts between the pulleys so that no flax or leaves will get between, a guard member J is supported from the frame and formed of flexible material. In the embodiment illustrated, an upturned flange 46 is formed along the edge of the frame and to this a flexible strap 47 is secured having the free end thereof turned at substantially right angles to the belt.

To support the belts between the larger pulleys, and also to hold them in firm resilient contact with each other, intermediate rollers 48 are provided, which are spring held against the belts, and means are also provided to adjust the spring tension of these rollers. The means illustrated to accomplish this are shown in detail in Figs. 5 and 6. The rollers are provided with slidable bearing blocks 49 held in guide-ways 50 in a supporting member 51, the said supporting member preferably holding two of the bearing blocks. The said bearing blocks are further provided with shafts 52 and 53 which extend through apertures 54 and 55 in a bar 56 which is slidably mounted on a screw-threaded member 57 being normally pressed to outermost position by means of compression springs 58 and 59, the outward movement being limited by means of a nut 60 on the screw-threaded member 57. To hold the bar 56 in any adjusted position and thus to regulate the spring tension on the belt, a slot 61 is formed in the bar 56 into which the nut 60 is adapted to fit, whereby, when in said slot, its rotation will be prevented. Thus, when it is desired to increase the pressure the bar 56 is moved inwardly and disengaged from the nut, which is then screwed farther on to the member 57. The bar 56 is then moved out until the slot 61 engages the nut and the springs 58 and 59 will then hold the device in adjusted position. It is only necessary to provide these rollers against one of the contacting belts so, consequently they will only appear on one side of the frame D as shown in Fig. 3.

In order to prevent the flax winding about the rollers 48 and also to provide a roller bearing for said rollers, a sleeve member 62 is provided about a spindle 63 of each roller having U-shaped annular flanges 64 at opposite ends adapted to take into annular grooves 65 formed in the end of the roller around the spindle, said roller carrying at opposite ends cylindrical members 66 having conoidal surfaces 67 thereon, between which and the flanges 64 a set of ball bearings 68

are provided. The flanges 64 may thus be said to be counter-sunk in the ends of the roller and so prevent the winding of the flax plants around the spindle. The winding of the flax around the pulley 15 at the forward end is also prevented by means of plates 69 and 70 counter-sunk into recesses 71 and 72 in the ends of the pulley, said plates being supported from the spindle 73 of the pulley. The lubrication of this pulley 15 may be conveniently effected by an oil chamber 73' in the spindle, closed by a bolt 74 and having a radial passage-way 75 for the passage of the oil.

It will be understood that each of the flax pulling elements is supported from the frame A, as by braces 76.

In the operation of the machine, the flax plants are engaged by the diverging pairs of engaging belts and are carried to the contacting pulling belts which carry them upwardly and rearwardly and finally drop them when they fall on the carrier B, being gripped by the arms F so that they will fall conveniently, and the conveyer B carries them to the binding mechanism.

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 could be made without departing from the spirit or scope thereof, it is intended that all matter contained in the accompanying specifications and drawings shall be interpreted as illustrative and not in a limiting sense.

What we claim as our invention is:

1. In a flax puller and in combination a plurality of pairs of contacting pulling belts adapted to engage and pull the flax plants, a main driving shaft extending across all the belts, each of said belts extending around the shaft and being operatively connected thereto in such a way as to be driven thereby, and means for supporting the belts and shaft.

2. In a flax puller and in combination, a plurality of pairs of contacting pulling belts adapted to engage and pull the flax plants, a main driving shaft having pulleys at intervals thereon with which each of the belts are engaged, each of said belts extending around the shaft and being operatively connected thereto in such a way as to be driven thereby, and means for supporting the belts and shaft.

3. In a flax puller and in combination, a main driving shaft having pulleys at intervals thereon, a plurality of flax pulling elements each formed with a pair of belts adapted to contact on the outer side with the belts on the adjacent element, the flax plants being adapted to be engaged between the belts, said belts at their center extending over pulleys which impart a turn to the

belts, said belts then extending over and contacting with the pulleys on the driving shaft, means for supporting the driving shaft and belts, and means for feeding the belts against the flax plants.

4. In a flax puller and in combination, an improved pulling element, comprising a pair of forwardly and downwardly inclined belts, pulleys supporting said belts in such a way that the belts on one side contact with each other, and on the other side are formed with a twist extending below the contacting surface and at substantially right angles thereto, driving pulleys engaged with the portion of each belt extending below the contacting portion, means for operating said driving pulleys, means for supporting all of said pulleys, and means for advancing the belts against the flax plants.

5. In a flax pulling machine and in combination, a plurality of pulling elements, each comprising a frame, pairs of pulleys at opposite sides thereof, a pulling belt mounted on said pair of pulleys, a pair of pulleys at the lower part of the frame, both of said belts extending over each of said last mentioned pulleys, and being adapted to contact with the belts in adjacent elements, a shaft having pulleys thereon over which the belts are adapted to extend, means for supporting all the pulling elements, and means for advancing the pulling elements against the flax plants.

6. In a flax puller, and in combination, a pair of adjacent pulling belts contacting flatly along their side surfaces, inclined to the horizontal and adapted to grip the flax plants between them, said belts opening at the upper end to release the flax plants, a supporting casing for the pulling belts, means for driving the belts, a carrier belt extending transversely below the upper end of the pulling belts, a tripping element extending below the end of the juncture of the contacting pulling belts, said tripping element extending across the opening between the belts in such a way that as the flax plants are dropped, their butts will be engaged and held temporarily while their upper parts fall from a vertical to a horizontal position.

7. In a flax puller and in combination a pair of forwardly and downwardly inclined pulling belts, rollers supporting the belts, a fixed disk countersunk in the end of one of said rollers adapted to prevent winding of material around the spindle of the roller, and means for driving the belts.

8. In a flax puller and in combination, a pair of forwardly and downwardly inclined pulling belts, rollers supporting said belts, certain of said rollers having annular grooves in the top thereof, annular members

fitting in said grooves adapted to prevent winding of material around the spindle of the roller, and means for driving the belts.

9. In a flax puller and in combination, a plurality of pairs of forwardly and downwardly inclined pulling belts, pulleys supporting said belts, a frame supporting said pulleys, said pulling belts extending adjacent to the edge of the frame, and a flexible guard member supported from the frame and extending adjacent to the edge of the belts.

10. In a machine of the character described the combination with a pair of forwardly and downwardly inclined contacting pulling belts, of means for supporting and driving the same, spring rollers engaging one of said belts, bearing blocks for the rollers, guide-ways for the bearing blocks, arms secured to the bearing blocks, and a slidable member through which the arms extend, springs extending between the bearing blocks and the slidable member, a screw threaded member extending through the slidable member, and a nut thereon.

11. In a machine of the character described, the combination with a pair of forwardly and downwardly inclined contacting pulling belts, of means for supporting and driving the same, spring rollers engaging one of said belts, bearing blocks therefor, guideways for the bearing blocks, arms secured to the bearing blocks, a slidable member through which the arms extend, springs extending between the bearing blocks and the slidable member, a screw threaded member extending through the slidable member and a nut thereon, said slidable member being formed with a slot into which the nut is adapted to fit.

12. In a machine of the character described, and in combination, a plurality of contacting pulling belts, pulleys supporting said belts, means for driving said belts, a frame supporting the pulleys including top and bottom members, rollers engaging the belts, spindles supporting the rollers, bolts entering the spindles at each end and being connected to the top and bottom members, and plates at each end of the spindle countersunk into the rollers.

13. In a flax puller, the combination with a pair of forwardly and downwardly inclined pulling belts and means for supporting and driving the same, of a roller bearing against one of said belts, said roller having grooves at opposite ends, a spindle on said roller, and a sleeve member mounted on the spindle having flanges adapted to enter the grooves.

14. In a flax puller, the combination with a pair of forwardly and downwardly inclined pulling belts and means for supporting and driving the same, of rollers bearing

against one of said belts, said rollers having
grooves at opposite ends, a spindle on each
of said rollers, a sleeve member mounted on
the spindle having flanges adapted to enter
5 the grooves, a cylindrical member mounted
on each roller, and a set of ball-bearings
mounted on the sleeve member.

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

CHARLES HENRI VESSOT.
ALLAN GILMOUR MATHER.

Witnesses:

RUSSEL S. SMART,
WM. A. WYMAN.