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CARDING MACHINE FOR BREAKING UP FLAX, HEMP, TOW, JUTE, AND OTHER FIBERS

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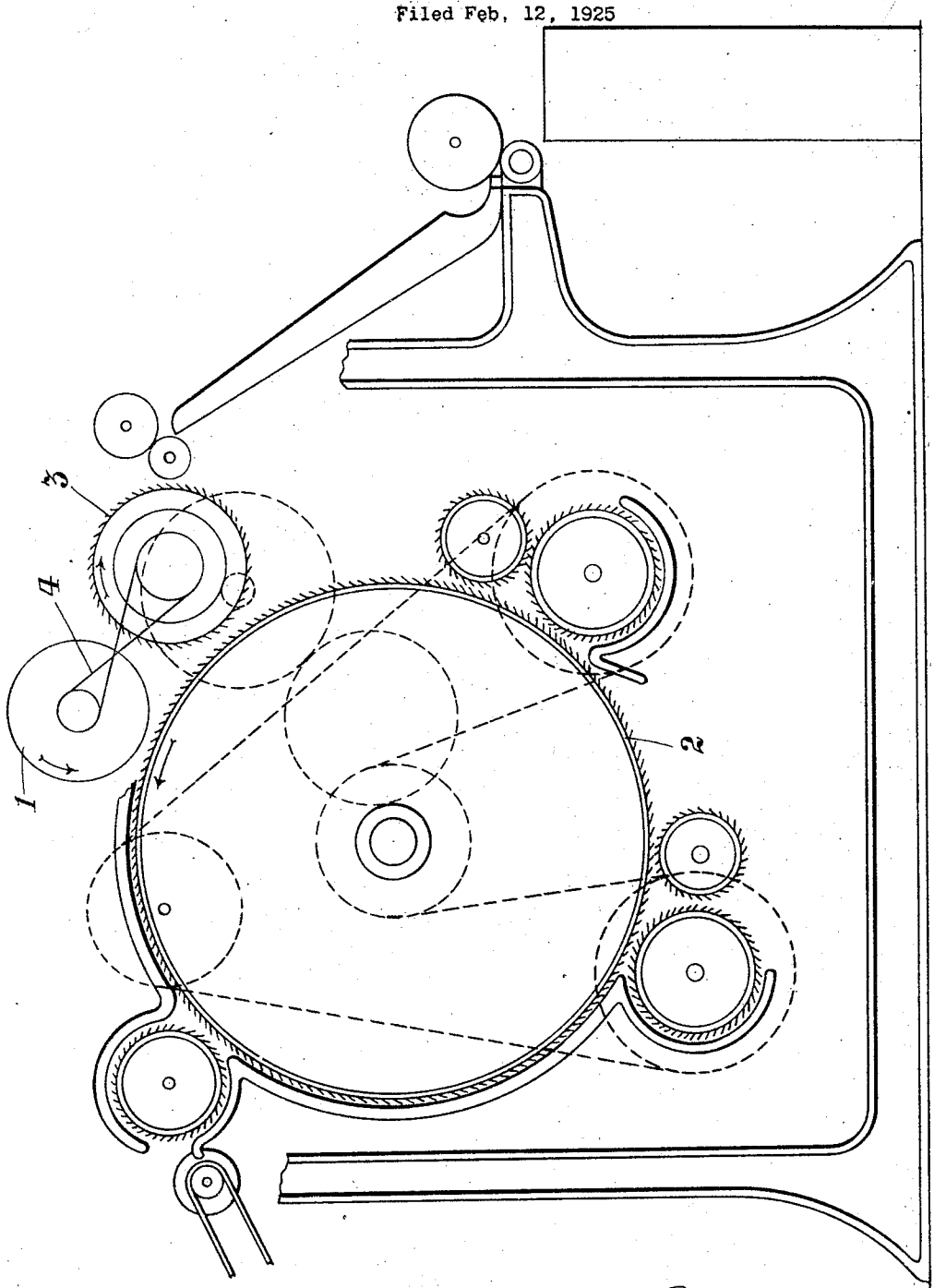

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UNITED STATES PATENT OFFICE.

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CARDING MACHINE FOR BREAKING UP FLAX, HEMP, TOW, JUTE, AND OTHER FIBERS.

Application filed February 12, 1925. Serial No. 8,811.

To all whom it may concern:

Be it known that I, WILLIAM JOHN STEELE, of 53 Dublin Road, Belfast, Ireland, a subject of the King of Great Britain and Ireland, have invented certain new and useful Improvements Relating to Carding Machines for Breaking Up Flax, Hemp, Tow, Jute, and Other Fibers, of which the following is a specification.

This invention relates to carding machines and refers to that class of such which are used for breaking up flax, hemp, tow, jute and other fibers, its object being to provide improvements in machines of this class.

At present, in such machines, the fiber frequently leaves the doffer, so that, instead of being stripped from the cylinder pins by the doffer, and passing to the delivery rollers, the fiber sometimes remains embedded in the cylinder pins, to be carried round by the latter, past the doffer, back to the feed rollers and further carried round by the cylinder, until it accumulates and eventually chokes up the card.

The object of the present invention is to provide simple and effective means to overcome the above defect.

According to my invention I provide a machine of the class above stated, with means whereby the fiber is prevented from being carried round by the cylinder past the doffer, said means consisting of a plain roller rotatably supported and extending across the cylinder, in front of the doffer, and clear of the doffer and cylinder pins, said roller being rotated in the opposite directions to the rotation of the doffer so that the air draught created by the rotation of the cylinder (which passes between the cylinder and doffer) will impinge against the surface of the roller and be thrown back so as to press the fiber towards the doffer, the upward rotation of the roller, also assisting in pressing the fiber towards the doffer and keeping it in engagement with the doffer pins; thereby ensuring constant delivery.

The invention will now be described with reference to the accompanying diagrammatic elevation of a carding machine.

A carding machine for the breaking up of flax, hemp, tow, jute, and other fibers, as shown diagrammatically in the drawings, is, according to this invention provided with a plain roller 1, (i. e. one that is peripherally smooth—without projections or pins) suitably supported and extending across the top of the cylinder 2 following the doffer 3 i. e. being passed by any part of the cylinder 2 after that part has passed the doffer. This roller 1 is hollow and is preferably made of tin or light sheet iron; the ends of the rollers are closed with metal to form supports for the roller spindle. The roller 1 is positioned so that it is clear of the doffer and cylinder pins and it is adapted to be rotated by suitable belt gearing 4 driven by the doffer which in turn is driven off the usual gearing provided for the driving of the other rollers of the machine. The roller 1 is rotated in the opposite direction to the rotation of the doffer roller 3 as shown by the arrows in the drawings so that the air draught created by the rotation of the cylinder 2 and which passes between the cylinder 2 and the doffer 3, will impinge against the surface of the rotating roller 1. This causes the air draught to be thrown back so as to cause the fiber, being taken off the cylinder by the doffer, to be pressed towards the doffer 3, the upward rotation of the adjacent surface of the roller 1 also assisting in pressing the fiber towards the doffer 3 and keeping it in engagement with the doffer pins. In a particular example which has been found satisfactory the plain roller 1 is driven at 22 revs. per min. the doffer at 20 revs. per min. and the main large cylinder at 180 revs. per min. but these will of course vary with the size of the rollers and other considerations and are only to be taken as a rough indication.

The roller 1 has the effect of not only resisting the air suction of the cylinder 2 but, owing to its revolving in the opposite direction from the cylinder and doffer, it creates a resistance to the air current created by the rotation of the cylinder and doffer roller causing the air current to be reversed and forced back with the result already described. This action together with the upward rotary movement of the surface of the roller 1, adjacent to the cylinder and doffer, actually assists in holding up and carrying up any dropping fiber causing it to be embedded between the doffer pins and preventing any possibility of the dropping of the fiber or of the fiber being pulled off the doffer by the air suction of the cylinder.

By the use of my invention what is known as "nappy" tow is reduced to a minimum as

my arrangement prevents double and treble carding caused by nondelivery after the first carding action on the fiber.

Having now fully described my invention what I claim and desire to secure by Letters Patent is:—

A carding machine having a main cylinder having pins thereon, a doffer having pins; a plain roller rotatably mounted across the periphery of the main cylinder following the doffer, and clear of the pins on said cylinder and doffer and means for rotating said roller in an opposite direction to that of the doffer.

In testimony whereof I affix my signature.

WILLIAM JOHN STEELE.