

May 12, 1959

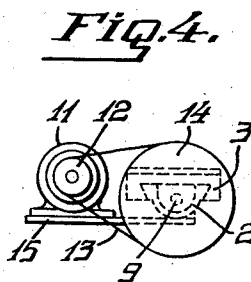
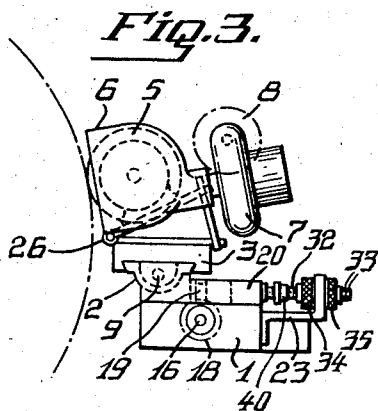
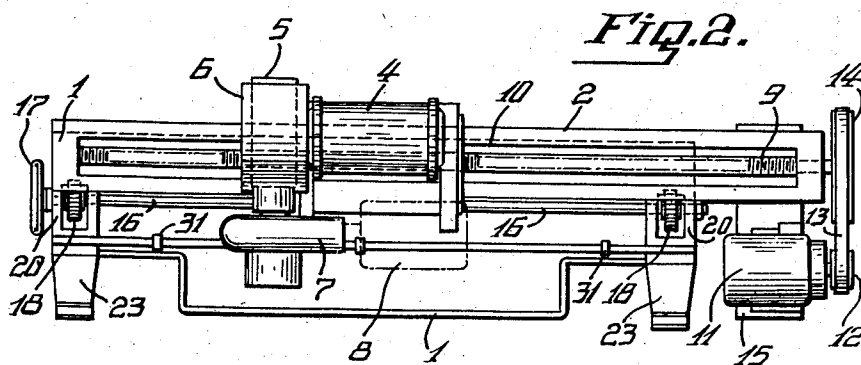
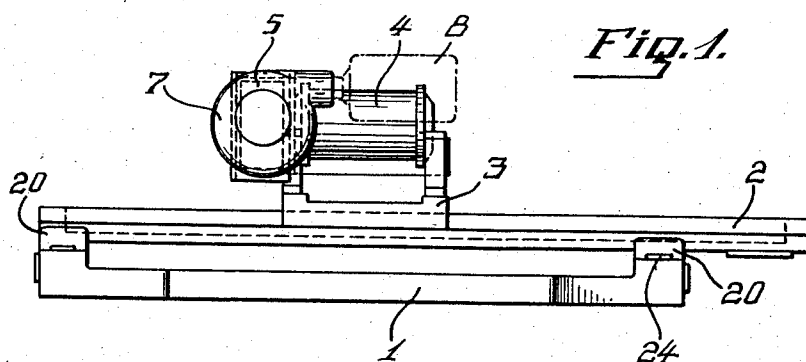
A. M. A. FREITAG

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UNIVERSAL TRUING MACHINES FOR CARDS

Filed March 18, 1957

3 Sheets-Sheet 1



INVENTOR:
AUGUSTE MATHIEU ALFRED FREITAG

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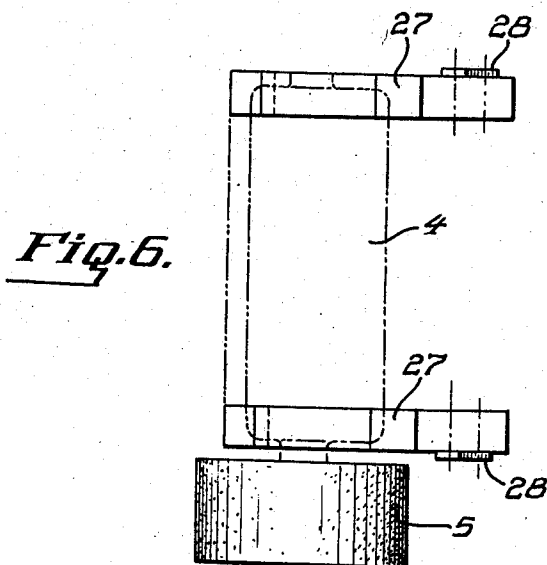
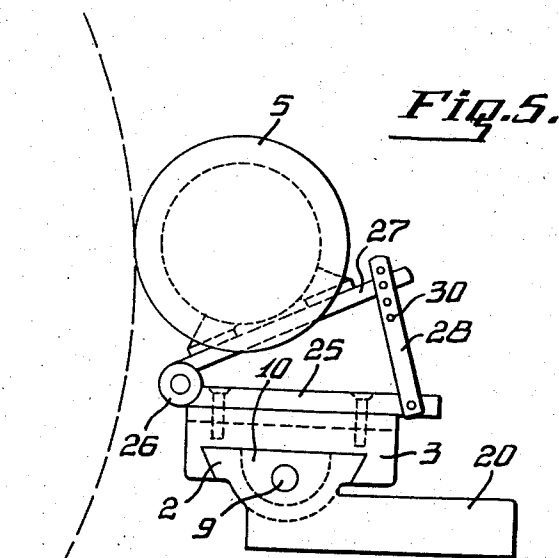
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Fig. 7.

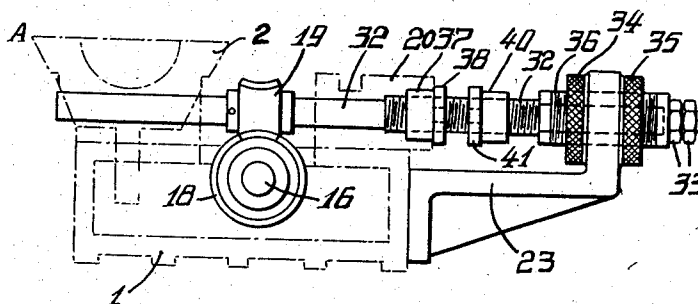
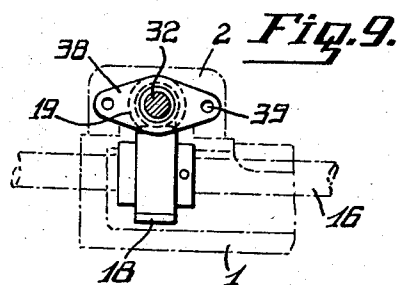
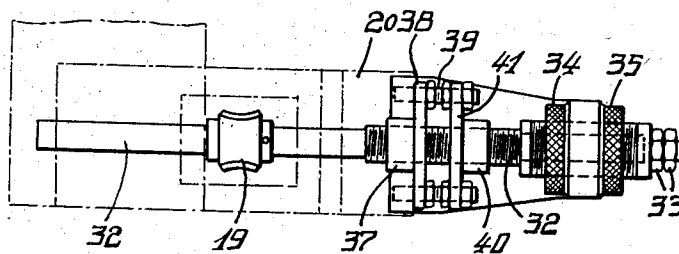


Fig. 8.



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UNIVERSAL TRUING MACHINES FOR CARDS

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6 Claims. (Cl. 51—242)

The present invention has for its object apparatus for truing or grinding carding cylinders and for sharpening their linings.

The truing machines used hitherto show various drawbacks inherent to their design and chiefly to the fact that they cause frequently vibrations to arise, that the speed of the grinding wheel cannot rise, beyond about 700 r.p.m., that no arrangement for exhausting the dust can be provided and that, when trued, the cylinders assume a concave shape in their middle.

The present invention has for its object to cut out these drawbacks together with others which will be referred to at the end of the present specification.

The invention has for its further object the use of a single machine suitable both for the truing of the cylinders and for the sharpening of the linings.

This improved machine is chiefly characterized by the fact that the grinding wheel and the motor controlling it form a group mounted on a carriage adapted to assume during the truing or sharpening operation a reciprocating movement over a bed which latter is shifted bodily in parallelism towards the axis of the cylinder to be sharpened as provided by a single control system with independent correcting means, preferably of a micrometric type.

Further important features of the invention will appear from the reading of the description of a preferred embodiment, reference being made to the accompanying drawings wherein:

Figs. 1, 2 and 3 are respectively elevational, plan and side views of the machine.

Fig. 4 is a view of a detail.

Figs. 5 and 6 are side and plan views of a group including the grinding wheel and the motor.

Figs. 7, 8 and 9 show the micrometric screw arrangement forming the correcting means.

The machine incorporating the invention includes a stationary bed 1 which is shaped so as to fit over the frame of any extant carding machine and a transversely shiftable bed 2 forming in its turn a slideway over which may move longitudinally a carriage 3 carrying a motor 4 the shaft of which drives the grinding wheel 5.

Round the grinding wheel 5 is provided a hood 6 into which opens a dust-sucking device 7 provided with a dust bag 8.

Generally, the carriage 3 is provided in its lower surface with a dove-tailed shaped groove through which it is slidingly fitted over the bed 2.

The translational movement of the carriage is controlled by a shaft 9 in which a worm is cut and which is housed inside a longitudinal slot 10 in the sliding bed 2; said shaft 9 is driven by an electric motor 11 the shaft of which carries a pulley 12 driving, through a belt 13, another pulley 14 keyed to the worm shaft 9. The motor 11 rests on a carrier plate 15 bearing on the end of the sliding bed 2.

The movement of the grinding wheel towards the work is obtained through a single control including a shaft 16

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controlled through a hand-wheel 17 and carrying gear-wheels 18 meshing with further gear-wheels 19 adapted to produce the progression of the sliding bed 2 over the stationary bed 1. The gear wheels 18 are mounted one at each end of the bed 2 and, in register with each of said ends, the bed 2 is rigid with a lug 20 provided with grooves through which said lugs engage transverse guiding members 24 on the stationary bed 1. Each gear-wheel 19 is keyed to a transverse worm 32 carried by a support 23 secured to the stationary bed 1.

Round the end of said worm 32 is fitted a tube section 36 provided outwardly with a micrometric thread engaging two control knobs 34 and 35 located on either side of the support 23 carrying said worm 32 with the tube section 36.

Nuts 33 are adapted to hold the worm 32 in position over the support 23; the connection with the sliding bed 2 is obtained through the agency of a nut 37 provided with wings 38 through which pass the fastening screws 39 (Fig. 8).

To cut out any back lash for the worm 32 and with a view to obtaining a uniform movement in parallelism with the axis of the drum, a further nut 40 is provided which also carries wings 41 through which also pass the above mentioned screws 39.

The carriage 3 is provided with a fixed supporting plate 25 (Fig. 5) carrying a hinge 26 round which may rock the bars 27 which form the actual support of the system constituted by the grinding wheel and by the motor driving same.

This latter system may be angularly set in an adjustable position and be held in position through stays 28 adapted to pivot with reference to the stationary support 25, the system being held fast by means of pins fitted on the bars 27 and engaging selectively one of the openings 30 formed in the stays 28.

Before beginning a truing operation, the grinding wheel is set in position against the cylinder to be trued by causing the bars 27 to rock round the hinge 26 and by setting them in the desired adjusted position thus defined through the stays 28.

The movement of the grinding wheel towards the work is performed as explained hereinabove through the agency of the handwheel 17 and through the single control system including the nuts 34 and 35 and the cooperating micrometric screws. During operation, the group constituted by the grinding wheel and its motor moves with the carriage 3 over the bed 2 and the change in the direction of movement at the end of each stroke is obtained through an electric contact controlled by a corresponding stop 31 (Fig. 2).

If desired, the dust may be sucked in by the motor driving the grinding wheel which latter drives the dust away towards a dust bag or a filter.

During a truing operation, the truing machine is positioned over the frame of the carding machine.

The edge A of the bed 2 is laid at equal distances from each end of the drum, said positioning being defined by measuring or by means of jigs.

When fastening the bed of the truing machine over the frame of the carding machine, perfect parallelism is obtained through operation of the nuts 34 and 35. This complementary adjustment is performed as follows: if it is desired to shift the edge A of the bed 2 away from the left hand side of the drum, the nut 34 is slackened and the nut 35 is very slightly screwed down.

Through this movement and since the wormshaft 32 controls the bed 2, the edge A of the bed 2 is shifted although the lower bed 1 remains stationary. Obviously the movements to be considered are exceedingly small.

The machine described shows the considerable advantage of providing for the truing or grinding of all the

parts of the carding machine and of allowing the sharpening of the linings where as precedingly it was necessary to resort to two types of machines, to wit: a first machine for truing the carding cylinders such as the drums, combing or doffing cylinders or the like and a second machine for sharpening the actual linings.

A further important advantage resides in the fact that the grinding wheel may reach speeds which are much higher and, what is of vital interest, the speeds thus reached are those which are generally approved for machining steel and cast iron.

Lastly, further advantages correspond to the cutting out of the drawbacks of the extant machines such as:

(1) In the prior machines, the grinding wheel moves over a cylinder provided with a port, which leads to a lack of equilibrium producing a shock at each change in direction together with undesired vibrations which are entirely cut out by the present invention.

(2) By reason of these vibrations, it was practically impossible to true cast iron cylinders without the latter showing after the grinding operation a concavity in their medial sections. The cylinders may in contradistinction be trued along perfectly rectilinear lines through the above described improved machine.

(3) Emery dust was scattered previously in the absence of any suction means over the spindle of the grinding wheel and throughout the machine. After a few months, the grinding wheel is subjected to a back lash which cannot be compensated.

A further prior drawback is related to the sharpening of the linings and chiefly of the linings carrying teeth subjected to a second hardening and in fact, after a few months, the beats of the grinding wheel lead to an early breaking of such lining teeth.

In all prior known machines, the grinding wheel is shifted towards the work by moving the cylinder carrying said grinding wheel alternately towards the right hand side and towards the left hand side so that it is never possible to obtain a sufficient accuracy of movement ensuring perfect sharpening conditions.

Furthermore, the lack of rigidity of prior machines as a whole produced frequent errors in the sharpening to which errors it was impossible to bring a remedy.

The improved machine described may be used for any carding machine, whether in the case of wool or of cotton, both for sharpening yielding or rigid linings and for truing cast iron or the like cylinders.

What I claim is:

1. In an apparatus for truing or grinding carding cylinders and for re-needle-pointing the dents of the lining, an elongated stationary bed adapted to be mounted upon the framework of a carding engine, a second bed over the said stationary bed, means whereby said second bed is adapted to be shifted transversely over the stationary bed towards the axis of the carding engine, said shiftable bed forming a slideway, a carriage, means for moving said carriage longitudinally over said slideway, a group on said carriage comprising firstly, a motor independent from the means for shifting transversely the said movable bed over the stationary bed, the shaft of said motor being parallel with the direction of reciprocation of the movable carriage, secondly, a wheel driven by said motor, independent correcting means at substantially either end of the movable bed for adjustment of the parallelism between said movable bed and the axis of said cylinder, and a pivoting support for said group on said carriage whereby said group is adapted to be tilted round a line parallel with the axis of the grinding wheel into any desired angular position.

2. In an apparatus for truing or grinding carding cylinders and for re-needle-pointing the dents of the lining, an elongated stationary bed adapted to be mounted upon the framework of a carding engine, a second bed over the said stationary bed, means whereby said second bed is adapted to be shifted transversely over the stationary bed towards

the axis of the carding engine, said shiftable bed forming a slideway, a carriage, means whereby said carriage is adapted to move longitudinally over said slideway, a group on said carriage comprising firstly, a motor independent from the means for shifting transversely the said movable bed over the stationary bed, the shaft of said motor being parallel with the direction of reciprocation of the movable carriage, secondly, a wheel driven by said motor, and independent correcting means at substantially either end of the movable bed for adjustment of the parallelism between said movable bed and said cylinder axis, said carriage being provided with a fixed supporting plate carrying a hinge, bars adapted to be rocked round said hinge and on which the motor and the grinding wheel are resting, and means whereby said bars are adapted to be angularly and selectively set.

3. In an apparatus for truing or grinding carding cylinders and for re-needle-pointing the dents of the lining, an elongated stationary bed adapted to be mounted upon the framework of a carding engine, a second bed mounted upon said stationary bed and shiftable towards the axis of the carding engine, said shiftable bed forming a slideway, a carriage adapted to be moved longitudinally on said slideway, a group on said carriage comprising a motor the shaft of which is parallel with the direction of reciprocation of the movable carriage, and a grinding wheel controlled by said motor, means for controlling the transverse shifting of the movable bed towards the card, said controlling means comprising a single shaft provided with hand operating means and micrometric independent controlling means for correcting minute non-parallelism between the longitudinal axis of the movable bed and of the card, and a pivoting support for said group on said carriage whereby said group may be tilted round a line parallel with the axis of the grinding wheel into any desired angular position and whereby the grinding wheel is urged towards the cylinder.

4. In an apparatus according to claim 3, the further provision of guiding members rigid with the stationary bed, grooved lugs at each end of the movable bed which slidably engage the guiding members, and worms for urging the grinding wheel toward the cylinder, said worms threadedly engaging each end of the movable bed at locations where said lugs are provided.

5. In an apparatus according to claim 4, the provision of supports rigid with the stationary bed, each worm having a smooth end, a tubular member revolvably carried by the smooth end of each worm and movably held by one of said supports, each tubular member being held against longitudinal movement with respect to its associated worm, each tubular member having external micrometric threads formed thereon, and manually adjustable nuts disposed at opposite sides of each support and engaging said micrometric threads, whereby micrometric adjustments of the position of each worm may be made by loosening the nut at one side of said support and tightening the nut at the other side of the same support.

6. In an apparatus for truing or grinding carding cylinders and for re-needle-pointing the dents of the lining, an elongated stationary bed adapted to be mounted upon the framework of a carding engine, a second bed over the said stationary bed, means whereby said second bed is adapted to be shifted transversely over the stationary bed towards the axis of the carding engine, said shiftable bed forming a slideway, a carriage, means for moving said carriage longitudinally over said slideway, a group on said carriage comprising firstly, a motor independent from the means for shifting transversely the said movable bed over the stationary bed, the shaft of said motor being parallel with the direction of reciprocation of the movable carriage, secondly, a wheel driven by said motor, independent correcting means at substantially either end of the movable bed for adjustment of the parallelism between said movable bed and the axis of said cylinder,

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and a support for said group on said carriage whereby said group is adapted to be tilted round a line parallel with the axis of the grinding wheel into any desired angular position.

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