Feb. 11, 1941. C. J. ROMYNS 2,231,196

SPACEBAND CLEANING MACHINE

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Fig. 1.

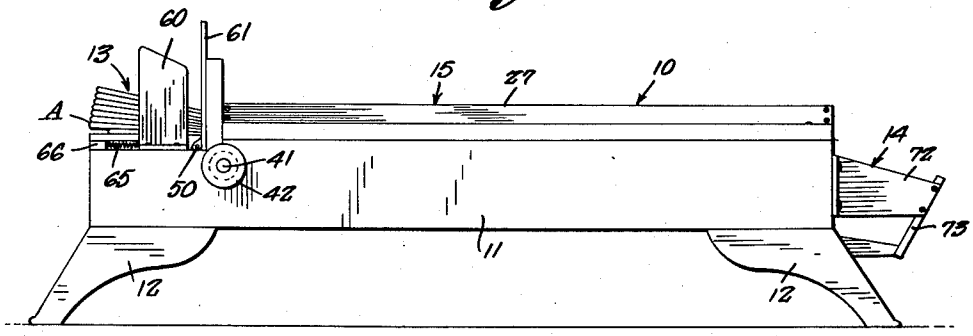


Fig. 2.

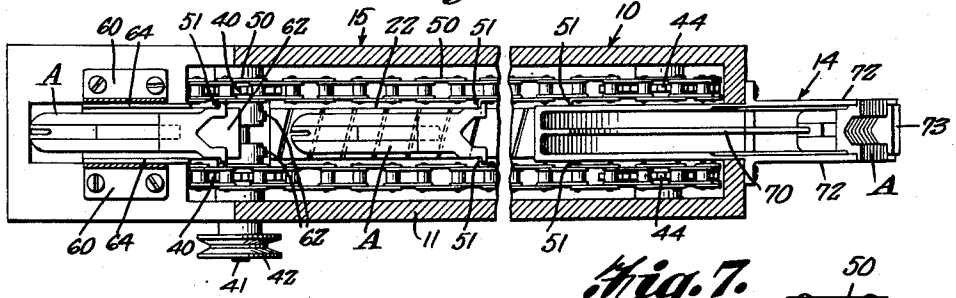


Fig. 5.

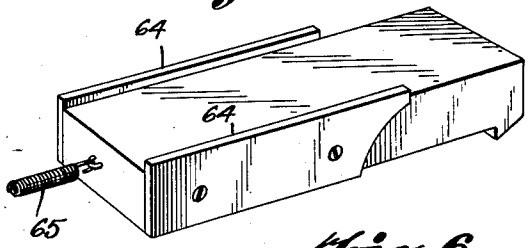


Fig. 7.

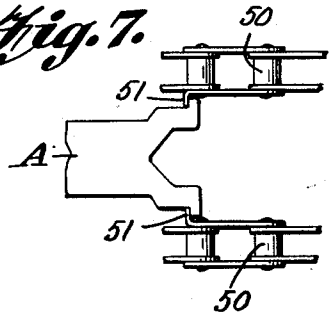
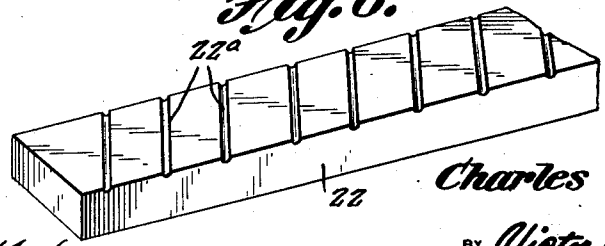


Fig. 6.



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SPACEBAND CLEANING MACHINE

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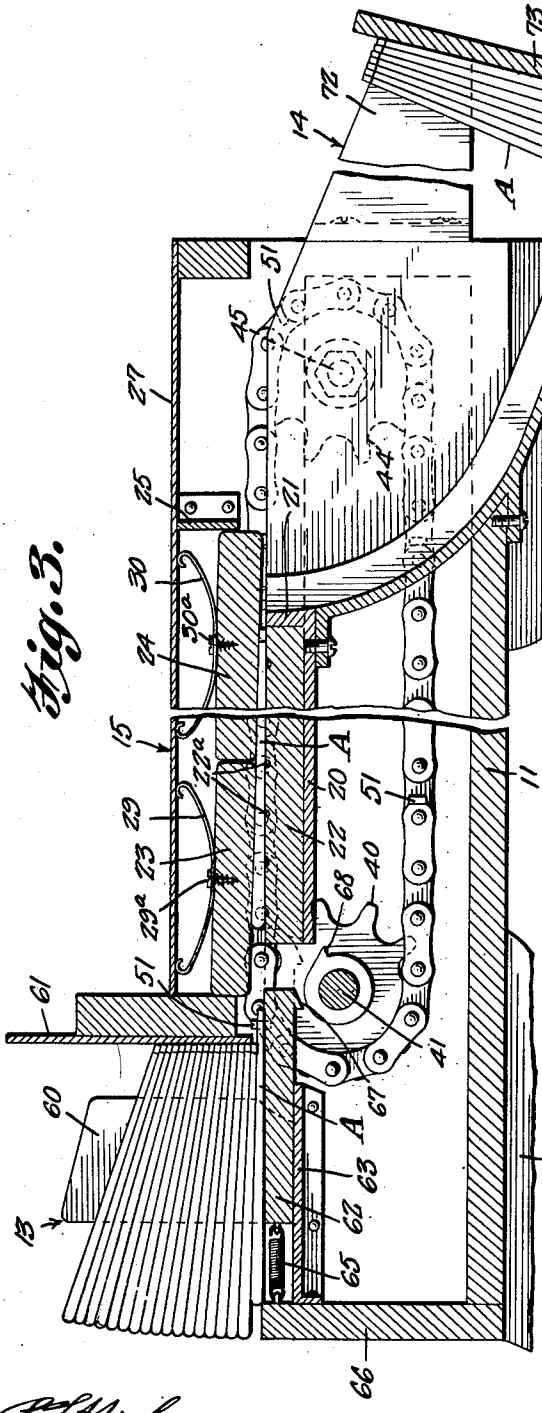


Fig. 3.

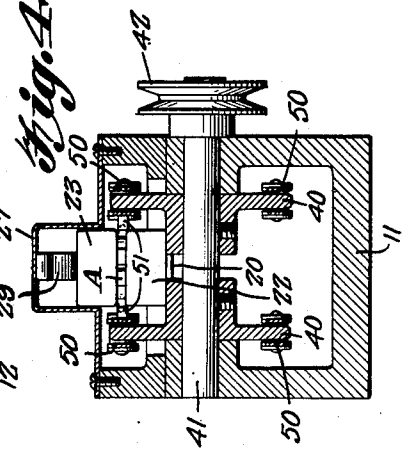


Fig. 4.

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SPACEBAND CLEANING MACHINE

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Application December 18, 1939, Serial No. 309,883

2 Claims. (Cl. 51—156)

This invention relates generally to improvements in cleaning machines, especially machines for cleaning and lubricating spacebands used in typesetting machines.

In the cleaning of spacebands by machines of types heretofore in use the useful life of the spacebands has been diminished because of the rounding of the edges of the spacebands due to use of rotating buffers and the like in cleaning and polishing. Especially has this been true when the spacebands have been individually cleaned and polished by hand upon rotating buffers.

It is an important object of the present invention to provide a novel spaceband cleaning machine which not only cleans and lubricates spacebands in a continuous operation, but which also does so in a manner precluding or at least minimizing the wearing down and rounding of the spaceband edges.

Another object of the present invention is to provide a machine including spacebands stacking, ejecting, receiving and storage means functioning in conjunction with transfer mechanism for drawing spacebands between rigidly held polishing blocks whereby the spacebands are in a single operation cleaned and polished.

Another object of this invention is to provide a machine of the type above mentioned comprising the minimum of moving parts whereby wear during use is minimized and a long useful life assured.

An advantage of the novel spaceband cleaning machine according to this invention over existing types of spaceband cleaning machines is that it functions continuously to clean spacebands stored in the ejector mechanism and after cleaning to transfer the spacebands to a receiving and storage means from which, as they are to be used, they may be removed.

Important features of the novel spaceband cleaning device according to this invention are its simplicity and ruggedness of construction, the former suiting the manufacture of the device to the requirements of mass production and the latter assuring minimum necessity of or expense for repair.

Other objects, advantages and features of the new and improved spaceband cleaning machine according to the present invention will be apparent to those skilled in this art during the course of the following description.

Regarded in certain of its broader aspects the novel spaceband cleaning machine according to the present invention comprises a series of cleaner elements urged toward each other defining therebetween a spaceband passage and continuous transfer means for moving spacebands through the passage.

In order to facilitate a fuller and more complete understanding of the present invention a specific embodiment thereof herein illustrated will be hereinafter described, it being clearly understood, however, that the illustrated embodiment, although presently preferred, is provided solely by way of example of the practice of this invention and not by way of limitation thereof except insofar as the invention is recited in the subjoined claims.

Referring then to the drawings,

Figure 1 is substantially a side elevational view of the presently preferred embodiment of this invention,

Fig. 2 is a top plan view of the device illustrated in Fig. 1 shown partially in section with parts of the casing removed to expose interior structure,

Fig. 3 is essentially a vertical sectional view of the device illustrated in Fig. 1,

Fig. 4 is substantially a vertical section view of Fig. 3 taken along the line 4—4,

Fig. 5 is essentially a perspective view of a portion of the spaceband ejector mechanism,

Fig. 6 is substantially a perspective view of one of the cleaning blocks, and

Fig. 7 is a detail view showing features of the transfer mechanism.

Reference is now made in detail to the accompanying drawings, especially Figs. 1, 2, 3 and 4 wherein it will be noted that the cleaning machine generally designated by the numeral 10 comprises a channeled bed supported on legs 12. Supported on one end of the bed 11 is spaceband storage and ejector mechanism generally designated by the numeral 13 and at the opposite end of the bed is mounted spaceband receiving and storage means generally designated by the numeral 14. The spaceband cleaning mechanism is disposed intermediate the ejector and the receiving means and is generally designated by the numeral 15.

Referring now especially to Figs. 3 and 4, it will be seen that the spaceband cleaning mechanism generally designated by the numeral 15 comprises a horizontal supporting plate 20 mounted between the sides of the bed 11 and having an upwardly extending end portion 21 against which abuts the horizontally extending block 22 substantially as shown. The block, as is best illustrated in Fig. 6, preferably is formed

of relatively soft fibrous material such as white pine or the like and is provided on the top thereof with transversely extending diagonally disposed furrows 22a for receiving cleaning, polishing and lubricating materials as hereinafter will be described. Under certain circumstances the block may be made from moldable graphite composition. Superposed on the block 22 are blocks of similar substance 23 and 24 transversely diagonally furrowed on the bottom surfaces thereof. The blocks 23 and 24 abut against the cross member 25 mounted on the casing cover 27 and springs 29 and 30 mounted on the blocks 23 and 24 respectively by fastening means 29a and 30a serve to urge the blocks 23 and 24 toward the block 22. In this manner a passage is defined between the upper blocks and the lower block through which spacebands may be drawn by transfer means hereinafter to be described whereby frictional contact between the furrowed surfaces of the blocks and the spacebands passing therebetween will cause the spacebands to be cleaned and lubricated as hereinafter more clearly will be apparent.

The spaceband transfer mechanism next will be described, reference being made especially to Figs. 2, 3, 4 and 7 wherein it will be noted that peripherally toothed wheels 40 are essentially fixedly mounted upon a shaft 41 journalled in the sides of the bed 11, a pulley 42 or the like being provided on a projecting end portion of the shaft 41 to facilitate driving the same. It is to be noted that the shaft 41 extends transversely across the bed 11 in a locality near but below and behind one end of the block 22. Similar peripherally toothed wheels 44 carried on a shaft 45 mounted in side portions of the bed 11 near but below and in front of the opposite end of the block 22 serve in conjunction with the wheels 40 to carry spaced endless sprocket pins 50 which are disposed within the bed in a manner such that the axis of motion of a portion of the sprocket pins is coincident with the plane defined by the interface of the blocks above described. Diametrically positioned inwardly extending bails 51 are mounted on the sprocket pins 50 for receiving and engaging with ears of spacebands substantially as is shown in Fig. 7.

The spaceband storage and ejector mechanism generally designated by the numeral 13 will next be described, reference being made especially to Figs. 1, 2, 3 and 5 wherein it will be noted that the ejector mechanism comprises upwardly extending spaced guide members 60 which, together with the transversely extending upright 61 mounted near the sliding ejector plate 62 supported on the horizontally positioned plate 63 which is in turn mounted on sides of the bed 11. It is to be noted that the base plate 62 is slidingly mounted between the uprights 60 and is provided with upwardly extending side portions 64 for embracing shoulders of the bottom-most spaceband when spacebands are stacked upon the plate between the uprights 60 and 61 essentially as shown in Fig. 1. The base plate 62 normally is held in retracted position by means of a spring 65 coupling the base plate and the end 66 of the bed 11 as will be perceived from Fig. 3. A downwardly extending shoe 67 formed on an end portion of the base plate 62 engages with a projecting shoe element 68 formed on the hump portion of one of the wheels 40 whereby during rotation of the wheels 40 the shoes periodically engage causing the ejector base plate to move against the tension of the spring 65, thereby carrying a spaceband into position for engagement of the spaceband ears with the bails 51 carried on the sprocket pins 50 hereinabove described. As will be evident to those skilled in this art, the relationship of the bails and the shoes is such that the bails are in position for engagement with the spaceband ears simultaneously with movement of the ejector base plate by engagement of the shoes as aforementioned.

The spaceband receiving and storage means generally designated by the numeral 14 now will be described, reference being made particularly to Figs. 1, 2 and 3 wherein it will be noted that a downwardly extending guide plate 70 mounted on parts of the bed 11 and of the horizontally positioned plate 20 is disposed near the far end of the block 20 whereby spacebands after passing between the blocks will be guided into parts of the storage means. Spaced downwardly inclined plates 72 held in fixed relationship by the cross members 73 and mounted upon the end of the bed 11 substantially as shown are adapted to engage upon their upper surfaces with the ears of the spacebands whereby gravity causes the spacebands to accumulate against the cross piece 73 as is illustrated in Fig. 3.

Having thus described the structural features of the presently preferred embodiment of this invention, its mode of operation now will be described. Spacebands stacked between the uprights 60 and 61 dispose themselves by action of gravity and also by reason of engagement with spaceband shoulders with the upright 60 whereby the bottom-most spaceband is received between and engages with the upwardly extending portion 64 of the base plate 62. As the shaft 41 rotates, the shoes 67 and 68 engage, thereby causing the ejector base plate 62 to move the bottom-most spaceband into position for engagement of the spaceband ears with the bails 51 carried on the sprocket pins 50. Upon engagement of the spaceband ears with the bails, the spaceband is carried between the block 22 and the blocks 23 and 24, whereby the transversely furrowed surfaces of the blocks tend to clean the side surfaces of the spacebands. As will be apparent to those skilled in this art the yielding urging of the upper-most blocks serves to assure proper cleaning of the spacebands which, it will be recalled, have angularly disposed not parallel sides. As the spacebands are carried between the blocks by engagement of the spaceband ears with the bails as aforesaid, succeeding spacebands push preceding spacebands outwardly from the blocks whereby end portions of outer-most spacebands ultimately rest upon the top surface of the plate 70 and, by action of gravity, are guided thereover, causing the spacebands to descend upon the inclined top surfaces of the members 72 to accumulate against the cross piece 73.

As will be apparent from the foregoing description, the operation of the cleaning mechanism according to this invention is essentially continuous and depends merely upon stacking of spacebands in the ejector mechanism and removal of spacebands from the storage mechanism for continuity of operation.

As will be evident to those skilled in this art, spacebands can be surface treated with various materials by applying these materials to the furrowed surfaces of the blocks 22, 23 and 24.

It is to be understood of course that this invention is capable of extended application and is not confined to the precise illustrated forms nor described construction and, therefore, such

changes and modifications may be made therein as do not affect the spirit of the invention nor exceed the scope of the appended claims.

Having thus described the present invention, what it is desired to secure by Letters Patent is:

1. A spaceband cleaner comprising a series of blocks pressed toward each other, adjacent surfaces of the blocks being transversely diagonally furrowed for receiving a cleaning lubricating agent such as graphite and the like; spaceband feeding means at one end and spaceband ejecting means at the opposite end of the series of blocks; and transfer means for moving spacebands between the blocks.

2. A spaceband cleaner comprising a series of blocks, spring pressed toward each other, the adjacent surfaces of the blocks being provided with spaced transversely diagonally extending furrows for receiving a cleaning lubricating agent such as graphite and the like; spaceband feeding means at one end of the series of blocks comprising a spaceband stacking chamber, a sliding bottom for the chamber and upwardly projecting formations on the bottom for engaging with and imparting movement to a bottom-most spaceband within the chamber; spaceband ejecting means at the opposite end of the series of blocks; and transfer means for moving spacebands from the feeding to the ejecting means comprising moving spaced continuous chains between the blocks and projecting bails on the chains for engaging with parts of the spacebands.

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