Aug. 18, 1953 J. R. LONGSTREET 2,648,874

FALLER BAR WITH CANTED PINS

Filed Jan. 11, 1950

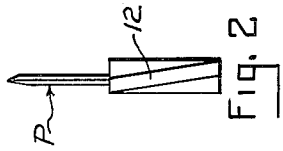


Fig. 2

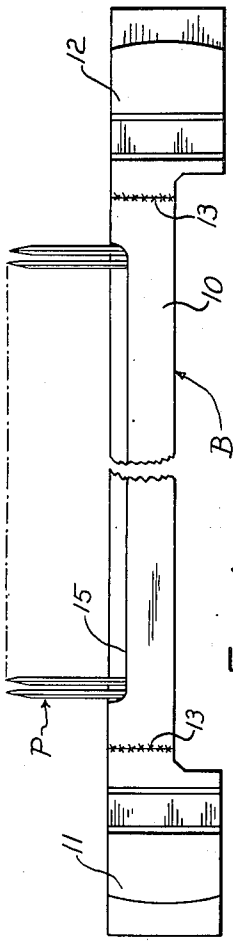


Fig. 1

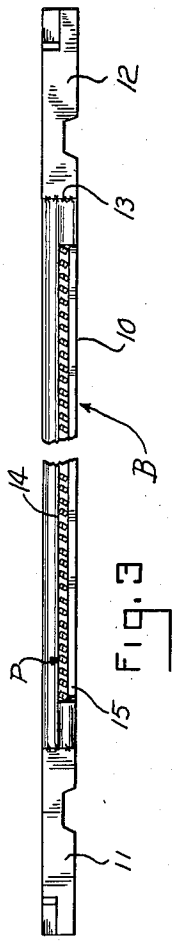


Fig. 3

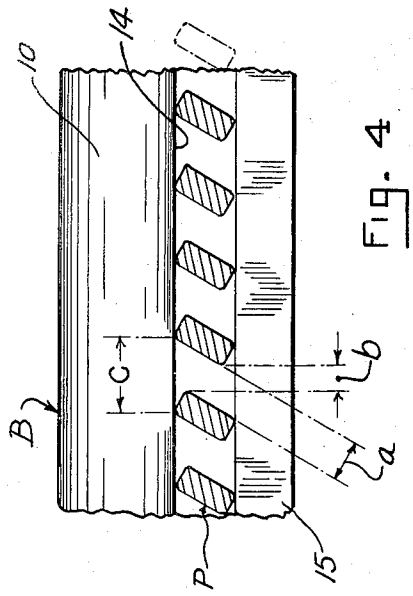


Fig. 4

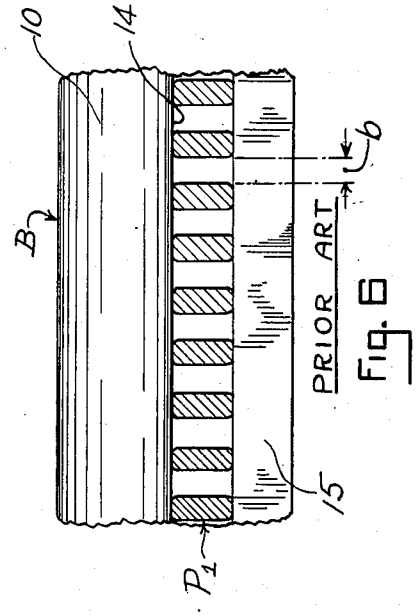


Fig. 6

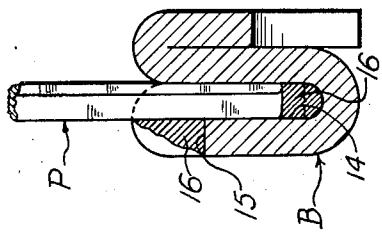


Fig. 5

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Patented Aug. 18, 1953

2,648,874

UNITED STATES PATENT OFFICE

2,648,874

FALLER BAR WITH CANTED PINS

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Application January 11, 1949, Serial No. 70,211

2 Claims. (Cl. 19—129)

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This invention relates to faller bars for gill boxes of the type wherein a sliver of fibers is drafted by drafting rolls while being held by pins. Such devices include a plurality of faller bars having a motion parallel to that of the sliver.

When drafting machines adapted to employ the faller bars of the type to which this invention relates are operated at high speeds, they impart shock loads to the faller bars, which tend to loosen and dislodge the pins fastened therein. Likewise the action of the sliver as it is drafted from the terminal group of bars tends to loosen the pins. Furthermore, in many cases, in order to obtain adequate holding or snubbing action of the bars during the drafting it is necessary to employ a relatively large number of closely spaced fine pins. This presents serious difficulties in fastening the large number of pins, which must be closely spaced, into the body of the faller bar. It is an object of the present invention to reduce the number of pins required without decreasing the snubbing or holding action of the faller bars on the sliver.

As described in the co-pending application of George L. Kluter, Serial No. 59,541, filed November 12, 1948, a preferred form of fastening faller bar pins in the faller bar body is by means of forming a pin-receiving groove in the body, clamping the pins in a jig in the proper spaced relation, inserting the row of pins in the groove, and applying solder or other low melting welding or brazing material so as to cause it to flow into the groove and about the pins. It has been found in many applications that flattened pins are necessary in order to give adequate strength in the direction of motion of the sliver without sacrificing the combined throat areas of the pins. When flattened pins are soldered in the faller bars, if they are close enough to produce effective drafting action, there is but little space between the bases of the pins and along the side walls of the groove for the solder. Under these conditions difficulty may be encountered in retaining the pins in place. It is an object of the present invention to increase the strength of the soldered joint between the faller bar and the pins, and according to the invention this is accomplished by canting a row of flat pins in the groove. With the pins canted they can be spaced apart a greater distance than otherwise without increasing the effective throat area presented to the sliver. Since pin spacing is increased there is more space between the pins and along the side walls of the groove for bonding by the solder. The canting of the pins has an additional advantage in that fewer pins may be employed to produce the same

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snubbing action. This reduces the cost and has the additional advantage that the faller bars are more readily forced into the sliver and withdrawn therefrom. The manner in which the aforesaid objects and advantages are obtained will be apparent from the following detailed description of a preferred embodiment of the invention.

In the drawings,

Fig. 1 is a side elevation of a faller bar embodying the invention;

Fig. 2 is an end view of the same;

Fig. 3 is a plan elevation thereof;

Fig. 4 is a fragmentary plan view of the bar with the pins sectioned and before the solder is applied;

Fig. 5 is a fragmentary transverse section through the bar after the solder has been applied;

Fig. 6 is a view similar to Fig. 4 showing the increase in the number of pins and the decrease in soldering area if the pins are not canted.

Referring to the drawings, the faller bar B is made up of a central or comb back section 10 which is formed with a groove to receive the pins P, this portion being welded to a pair of right and left end pieces 11 and 12. The latter are arranged in the conventional manner for engagement with the lead screws that move the bars, and with guide members at each end of their path. Although it will be understood that the exact nature of the pin receiving section 10 is not critical to the invention so long as it provides a groove for reception of the base of the pins, the form shown is one wherein the section 10 is bent up of sheet metal as shown in Fig. 5 and welded to the end pieces as at 13. The details of the method of forming the bars in this manner will be found in the aforesaid application of Kluter, but such details as are relevant to the invention are completely disclosed in this application. In order to augment the bond between the pins, solder, and faller bars, in the preferred form a relieved or cut away portion 15 is provided at one wall of the groove, which facilitates application and flowing of the solder about the bonds. To mount the pins in the faller bar body, they are clamped in any suitable jig which maintains them at the desired spacing and angularity, and the pin bases are inserted as a unit into the groove 14. Then solder or other bonding metal of relatively low melting point is caused to flow and fill the interstices between the pins and the walls of the groove. As seen in Fig. 4, there are three spacings or distances between the bars that may be considered; first, the canted bars, which in the preferred embodiment are at an angle of

approximately 60° with the groove, are spaced from one another perpendicular to the plane of their major cross-sectional axes by a distance "*a*." However, due to the canting of the bars the effective throat between the bars presented to the sliver (which is drafted in a direction normal to the axis of the faller bar body) is of the width "*b*." Thus, although the canted pins are relatively far apart, due to their canting a snubbing action is produced which is the equivalent of that obtained by spacing the pins more closely together and in parallel relationship.

It will also be noted in Fig. 4 that there is a greatly increased spacing "c" between the pins along the walls of the groove, which gives more area for adherence by the solder to both the pins and the walls of the groove. This may be compared with the equivalent spacing "*b*" shown in Fig. 6 that would be provided if the pins were not canted and were arranged to present the same snubbing action as that had in applicant's improved device. Examination of Fig. 4 will further reveal that although the relatively narrow throat area "*b*" is presented, the pins are arranged in a relatively open manner so that they are readily forced into and retracted from the sliver. With the arrangement shown in Fig. 4 the number of pins required is much less than in the equivalent conventional construction of Fig. 6. This reduces the cost of the assembly, facilitates manipulation of the pins before and during mounting, and strengthens the joint between the solder or brazing material employed and the surrounding parts. Although I show the pins canted at an angle of substantially 60° to the axis of the groove, this angle may be adjusted to produce the desired snubbing action with any desired number and spacing of the pins, without departing from the essence of the invention. The exact cross-sectional configuration of the pins is not critical, but one cross-sectional axis is preferably longer than the other, this being what is meant by the term "flat." Thus, pins with rounded edges or elliptical pins are within the scope of the claims. It will also be understood that details of the faller bars themselves may be varied without departing from the invention, so long as the bars are formed and adapted to be used in the parallel motion pin drafting machines well known in this art.

Although in its preferred embodiment my invention is particularly adapted to gill boxes and other pin-type fiber processing apparatus in which pins are supported on elongated faller bars, my invention may also be employed in connection with other drafting apparatus wherein the pins are supported substantially in a straight line, as in apparatus where the pins are carried on flexible belts or chains or on the periphery of a drum.

Accordingly it is contemplated that the appended claims and not the aforesaid preferred embodiment be determinative of the scope of this invention.

What is claimed is:

1. A faller bar for gill boxes comprising a metal bar having a relatively narrow groove along one edge thereof, and a plurality of flat pins having bases disposed in spaced relation in said groove, with the major cross-sectional axes of said pins being parallel and canted relative to the axis of said groove, the bases of said pins being generally rectangular with diagonally opposite corners aligned by the walls of said groove, and solder bonded to the side and edge portions of the bases of said pins disposed in the groove and to the walls of the groove in the zones between the pins as well as in the zones adjacent the edges of the pins.

2. A faller bar for gill boxes comprising a metal bar having a relatively narrow groove along one edge thereof, and a plurality of flat pins having bases disposed in spaced relation in said groove, with the major cross-sectional axes of said pins being parallel and canted relative to the axis of said groove, the spacing of such pins being such that there is a substantial clearance between adjacent pins to provide unobstructed throats in a direction perpendicular to said bar, the bases of said pins being generally rectangular with diagonally opposite corners aligned by the walls of said groove, and solder bonded to the side and edge portions of the bases of said pins disposed in the groove and to the walls of the groove in the zones between the pins as well as in the zones adjacent the edges of the pins.

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