June 17, 1930. C. GÉGAUFF 1,763,926

CUSHIONING MEANS FOR THE FALLERS OF GILL BOXES AND INTERSECTING FRAMES

Filed Sept. 22, 1928

Fig. 1.

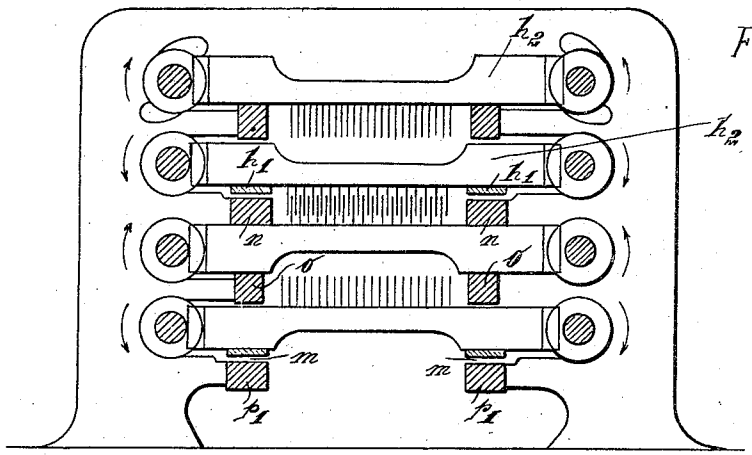


Fig. 2.

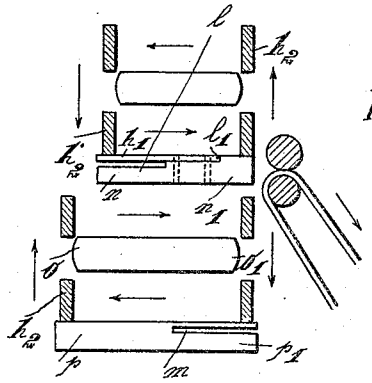


Fig. 3.

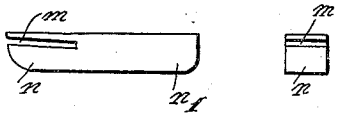
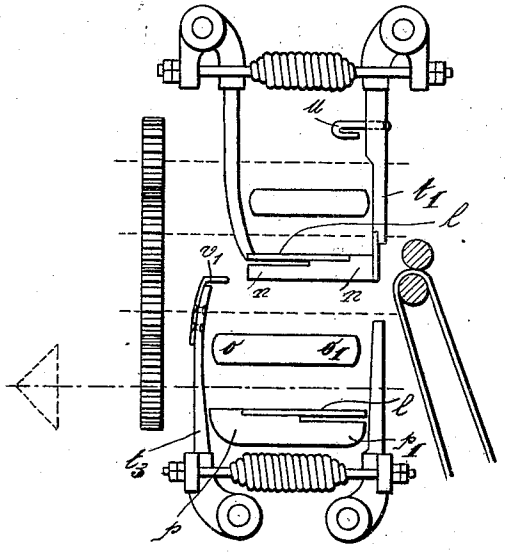


Fig. 4.



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UNITED STATES PATENT OFFICE

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CUSHIONING MEANS FOR THE FALLERS OF GILL BOXES AND INTERSECTING FRAMES

Application filed September 22, 1928, Serial No. 307,728, and in France October 1, 1927.

The present invention relates to gill frames or boxes with intersecting fallers.

The invention consists in a cushioning device to deaden the shock produced at the impact of the fallers upon their rigid slides, either at their sudden lift or their sudden fall, that is to say either at the moment they enter in the sliver or at the moment when arriving near the drawing rollers, they are suddenly dropped. This impact is a sudden occurrence with shock, which presents the drawback of relatively rapid wear and damage at the contact points.

This shock produced between nonelastic elements has for result a permanent deformation of the parts coming in contact, which rapidly causes wear and deterioration. It has been proposed, to lessen this important wear, to provide an elastic support for the guiding slides of the gill bars. But this proposition had no success because such disposition could not change the rigid slide in an elastic element and that on the other hand the permanent deformation takes place practically before the inert cushioning support can react; as a consequence the machine comes in vibration and this increases the wear still more, so that the drawback is greater than before.

The present invention has for its object to eliminate said drawback by transforming the shock of the faller upon the slide, in an elastic shock, owing to the special arrangement of the slide.

The accompanying drawing illustrates diagrammatically by way of example, certain forms of embodiment of the invention.

Fig. 1 front elevation partly in section of a gill box with intersecting fallers.

Fig. 2 side elevation partly in section of same, the arrows showing the direction of movement of the fallers h_2.

Fig. 3 side and end elevation of a guide piece for the gill bars.

Fig. 4 side elevation of a further application of the invention in a gill box.

The slide $n\ n_1$, receiving the shock of the fallers is not simply formed, as up to now, with a massive prismatic element fixed to the machine frame, but it is provided at the point l, receiving the shock of the fallers h_2 with a light and flexible blade h_1, for instance a steel blade of about 1 to 2 millimeters thick, fixed at its end l_1 to the slide $n\ n_1$ itself. Instead of a blade, any other elastic material can be used and applied at the spot l.

In this way the shock of the fallers will be absorbed and will no more produce a bruising of the contacting surfaces, owing to the bending of the blade and as the mass of the flexible blade end is very small, its inertia will not be sufficient to produce the bruising of the contacting surfaces, which would be unavoidable if said mass was more considerable and which is generally the case in the systems actually in use.

The same cushioning device can be applied advantageously at the spot p_1 of the slide $p\ p_1$.

It is also possible to use, but in a less efficient manner, the old prismatic massive slider, made in one piece, and in which a saw cut m of sufficient depth has been provided to communicate a relative flexibility at the point of impact; this flexible part must however be of reduced mass, this and its flexibility being two conditions to be observed.

Fig. 4 illustrates a somewhat different application of the invention. The shock of the fallers at their sudden impact is considerably greater when they are falling than when they ascend, because their own weight enters in consideration and accelerates the speed of the fall, whereas in the ascending movement the speed is lessened. For this reason it will be sufficient, to cushion the shock upwards, to provide a device of more simple construction and consisting, as illustrated in Fig. 4, in small flat springs v_1 and u respectively fixed to the vertical faller-guides t_3 and t_1, said springs absorbing the final shock of the fallers and absorbing same. Up to now the vertical guide element t_3 ended simply in a rigid hook, to suddenly stop the fallers without interposition of any elastic part.

I claim:

1. In gill boxes with intersecting fallers

and upper and lower guide rails for both sets of fallers, longitudinal saw cuts in both lower guide rails of sufficient depth to form a flexible part of very small mass for taking the impact of the fallers at the end of their fall, the arrangement being such that the space occupied by the guide rails is not increased at all.

2. In gill boxes with intersecting fallers, upper and lower horizontal and lateral vertical guide rails for both sets of fallers, longitudinal saw cuts in both lower guide rails of sufficient depth to form a flexible part of very small mass for taking the impact of the fallers at the end of their fall, the arrangement being such that the space occupied by the guide rails is not increased at all, and flexible blades of small mass secured to two vertical guide rails and adapted to take the thrust of the fallers at the end of their ascending stroke.

3. In gill boxes with intersecting fallers, two sets of fallers, upper and lower guide rails for both sets of fallers, and flexible blades of very small mass secured to both lower guide rails at the ends of same upon which the fallers hit at the end of their fall, so that the impact of the fallers is taken by said blades, the connection of the blade to the guide rail being such that the space occupied by the blade and guide rail is not substantially greater than that which the guide rail would occupy alone when it receives the impact of the fallers itself.

4. In gill boxes with intersecting fallers, two sets of fallers, upper and lower horizontal and lateral vertical guide rails for both sets of fallers, flexible blades of very small mass secured to both lower guide rails at the ends of same upon which the fallers hit at the end of their fall, so that the impact of the fallers at the end of their descending stroke is taken by said blades, the connection of the blade to the guide rail being such that the space occupied by the blade and guide rail is not substantially greater than that which the guide rail would occupy alone when it receives the impact of the fallers itself, and flexible blades of small mass secured to two vertical guide rails and adapted to take the thrust of the fallers at the end of their ascending stroke.

In testimony whereof I signed hereunto my name.

CHARLES GÉGAUFF.