UPSETTING FOLDING MACHINES WHICH HAVE A FOLDING POCKET

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ABSTRACT OF THE DISCLOSURE

An upsetting folding machine having a folding pocket in which means are provided for varying the size of the folding space angularly positioned. Thus, the pocket of different grades of paper as well as enabling stoppages to be cleared rapidly and easily without an excessive dismantling of the machine.

The invention relates to an upsetting folding machine with a folding pocket.

It is an object of the present invention to provide an upsetting folding machine with a folding pocket which renders it possible, in the simplest manner, to enlarge or reduce what is referred to as the folding space, in accordance with the paper quality. The present folding pocket also makes it possible to vary the angle of entry of the paper into the pocket between about 40 and 60°. A further advantage of the invention is that blockages can be cleared rapidly and easily, without dismantling the folding pocket, and that this does not interfere with an economical operation. The invention also makes it possible, without dismantling the pocket, to provide the mouth of the folding pocket with a deflector wedge so that the particular pocket is bypassed.

The invention resides in the fact that a folding pocket allocated to a group of rolling rolls is adjustably and pivotally arranged in relation to the folding space so that not only can the inclination of the folding pocket be adjusted but also the size of the folding space. If, for example, in one embodiment of the invention, three folding rolls are provided, then the folding pocket associated with these rolls can be arranged to be pivotable about one of the rolls. In a preferred embodiment, the folding pocket is arranged to be pivotable about the upper of the three folding rolls. The point of pivot of the folding pocket can, in this context, either coincide or not coincide with one of the central axes of the folding rolls. The invention also extends to the means which make possible the adjustment of the folding pocket to different angular positions. Thus, the folding pocket can have its freely pivotable end guided in a slot in the frame and made adjustable to different angular positions. The angular position can also be set by means of spring clips which embrace a bar and a profiled deflector is also provided, which can be slid into the mouth of the folding pocket. The angle of entry of the sheet of paper is adjustable, and more particularly within the range of 40 to 60°.

The invention will now be described in relation to the attached drawings which illustrate an embodiment of the invention but in no restrictive sense.

FIGURE 1 illustrates the folding rolls and pocket position when creating a large folding space;

FIGURE 2 illustrates the position which a medium folding space requires;

FIGURE 3 illustrates a small folding space with an obtuse entry angle;

FIGURE 4 illustrates the folding pocket in the high position in which it is placed in order to clear a stoppage;

FIGURE 5 illustrates the folding pocket with the sheet deflector;

FIGURE 6 illustrates a section through the pocket mounting arrangement.

The illustrations in FIGURES 1 to 3 depict the process of folding and the manner in which this process is affected by the position of the pocket, with the latter having different angular positions in each of the three figures. While FIGURES 1 and 2 show the process taking place in the upper folding space, FIGURE 3 also indicates the entry of the sheet which is to be folded, into folding rolls 2 and 3. As this latter figure indicates, a sheet which is to be folded is driven through the folding rolls 2 and 3 into a first folding pocket. The first crease is made when the sheet passes between folding rolls 2 and 5. After entry into a folding pocket 6, the sheet receives a second crease on its passage between rolls 5 and 7. Each pocket is defined by spaced upper and lower plates. A so-called folding space 8 is constituted by the folding rolls 2, 5, 7 and an arcuate entry aperture 9 of the folding pocket. The folding pocket is pivotally mounted by lugs 10 on bearing stubs 11 at both ends of the folding roll 7. In side plates or walls 12, elongated slots 13 are provided for enabling the desired pocket angle to be set are provided. The guide slot 13 is arranged coaxially with respect to the axis of the roller 7. The pocket position of FIGURE 1 is suitable for thick papers, while FIGURE 3 illustrates the position for thin papers. A jammed sheet 14 can be removed with the mechanism in the position illustrated in FIGURE 4. In FIGURE 5, a deflector wedge 15 has been introduced into the mouth of the folding pocket, so that an entering sheet 16 is deflected and not folded. In FIGURE 5, another pocket fixing design is illustrated, with a half-open spring clip 17 being clipped around a fixed bar or rod 18 for this purpose. To pivot the folding pocket, the same is merely necessary to lift it, whereupon arms 19 of the clip 17 will deflect and release from the bar.

The invention has been described in relation to an upsetting folding machine provided with three rolling rolls which effect a folding function. However, it goes without saying that the invention is equally applicable to upsetting folding machines which have a larger number of rolling rolls in order to produce two or even more creases. In any event, each folding pocket is associated with a specific folding space and to form the latter at least three folding rolls are required in each situation.

I claim:

1. An upsetting folding machine including a plurality of folding rolls coacting to provide a folding chamber, one of said rollers being disposed above the other rollers, spaced upper and lower plates constituting a folding pocket operably associated with the folding chamber, means pivotally mounting the upper and lower plates for movement about the axis of said one roller, said upper plate of the folding pocket facing and resting tangentially on the surface of said one roller, and said lower plate being shaped to define an arcuate entry aperture for the folding pocket.

2. The upsetting folding machine as claimed in claim 1 including a side wall, said side wall having a guide slot arranged coaxially with respect to the axis of said one roller, and means for guiding said upper and lower
plates in proximity to the free end thereof in said guide slot whereby the angular position of the folding pocket can be adjusted.

3. The upsetting folding machine as claimed in claim 1 including a resilient clip having arms carried by the lower side of said folding pocket, and a positioning rod adapted to be embraced by the arms of said clip throughout a major portion of its periphery in the operating position with the arms being detachable from the rod to enable the folding pocket to be moved about the axis of said one roller.

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