METHOD OF OPENING PACKS OF SHEET STEEL
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Fig. 2.

Fig. 1.

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This invention, relating, as indicated, to a method of opening sheet metal packs, has reference to a method of separating packs of sheet steel which have become superficially welded together during the rolling operation. As is well known to those familiar with the art of sheet metal manufacture, when sheet steel of a relatively thin gauge is rolled in a hot mill, such sheets are rolled in packs which are formed either by superimposing the "break-downs" to form such pack, or by doubling up of single or a plurality of sheets to form a pack which has from two to ten or more sheets in superimposed relation while being rolled, so that after the rolling operation, such sheets must be separated in order to be used. Considerable difficulty is experienced in maintaining the proper temperature in the furnace preparatory to the rolling operation, and in a number of instances in actual commercial practice, the packs become too hot, so that when they are subsequently rolled the pressure of the rolls causes the superimposed sheets to be slightly welded together or otherwise stuck, so that a separation thereof is extremely difficult.

The common method usually employed for the purpose of opening stickers is to attempt to pull apart such stickers by mechanically pulling apart separate sheets usually in opposite directions, and this method when employed with relatively thin gauge steel, in a great many instances, results in a tearing or breaking of the stuck sheets which necessitates scrapping the entire pack. Another crude method usually employed for the purpose of separating stickers in a pack is to force a knife or like tool between adjacent sheets in an endeavor to force apart the sheets which have been superficially welded. This method is likewise highly unsatisfactory both from the standpoint of the result accomplished and the cost of the manual labor necessary to carry on this tedious operation. It is among the objects of this invention to provide a method of separating the superficially welded sheets in a pack of sheet metal, which shall have none of the above named undesirable characteristics and further which will reduce to a minimum the amount of scrap material. Other objects of this invention will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, said invention, then, consists of the steps hereinafter fully described and particularly pointed out in the claims, the annexed drawing and the following description setting forth in detail one approved method of carrying out the invention, such disclosed method, however, constituting but one of various applications of the principle of my invention.

In said annexed drawing:--

Fig. 1 is a plan view of a pack of sheets showing associated therewith a diagrammatically illustrated apparatus for carrying on the method comprising this invention; and Fig. 2 is a side view of the elements illustrated in Fig. 1.

Referring more specifically to the drawing, the pack of sheets which is illustrated is in the form in which such pack is discharged from the hot mill and consists of a plurality of superimposed sheets 2 which for purposes of illustration will be considered as superficially welded together so as not to be capable of separation without the application of considerable force. The ends of the pack are gripped in relatively movable jaws 3 and 4, and of course the usual power means, either mechanical or hydraulic, will be provided for separating such jaws to produce an elongation of the pack.

After the pack has been discharged from the hot mill and it has been found that the superimposed sheets comprising such pack are superficially welded together, such pack then will be gripped preferably at opposite ends by the relatively movable jaws 3 and 4 and sufficient power applied to separate such jaws so that an elongation of the pack 1 and consequently the sheets 2 takes place. The elongation of the pack of sheets may be carried forward to such an extent that the metal is deformed beyond its elastic limit, although in a number of instances it has been found that the elongation necessary to separate the sheets in the pack is within the elastic limit of the metal. The elongation of the super-.
imposed sheets when gripped between separated jaws 3 and 4 is such that a slightly uneven elongation and deformation of the separate sheets takes place so that the greatest relative movement of the metal occurs in its weakest plane which is the plane between adjacent sheets. It is believed that the reduction of the separate sheets in both directions, i.e., transversely of the face of the sheets as well as a reduction in their width causes a relative movement of each of such sheets with respect to the next adjacent sheet in the pack, and such relative movement, although very slight, is sufficient to rupture the superficial welding which has secured such sheets together.

By employing the method of opening packs of sheet metal comprising this invention, the operation is exceedingly simplified, and further, the pack may be sprung open and the sheets thereof completely separated regardless of the thinness of such sheets, which has heretofore prevented the separation thereof by the well known methods previously employed, without any damage to such thin sheets. It is believed that a further description of the principles comprising this invention is unnecessary for those familiar with the art of sheet metal manufacture.

It should be noted, however, that instead of having the sheets elongated longitudinally by gripping the ends of the pack, the pack may be gripped along its sides and by a tension transversely thereof, the sheets may likewise be caused to separate.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the process herein disclosed, provided the step or steps stated by any of the following claims or the equivalent of such stated step or steps be employed.

I therefore particularly point out and distinctly claim as my invention:

1. The method of separating the sheets of a pack of sheet metal which comprises the steps of gripping the opposite edges of said pack, and then stretching the sheets of said pack to slightly elongate said sheets, said stretching step taking place in substantially one plane, whereby separation of adjacent sheets is produced.

2. The method of separating the sheets of a pack of sheet metal which comprises the steps of gripping the opposite edges of said pack, and stretching the same in substantially one plane, whereby separation of adjacent sheets is produced.

Signed by me, this 23rd day of June, 1931.

JAMES RUSSELL PAISLEY.