

L. C. STEELE.
 METHOD OF OPENING SHEET METAL PACKS.
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907,193.

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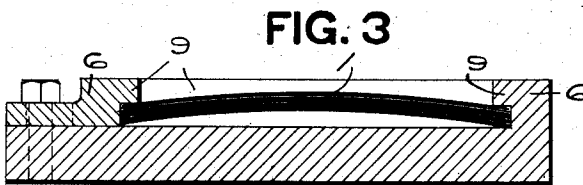
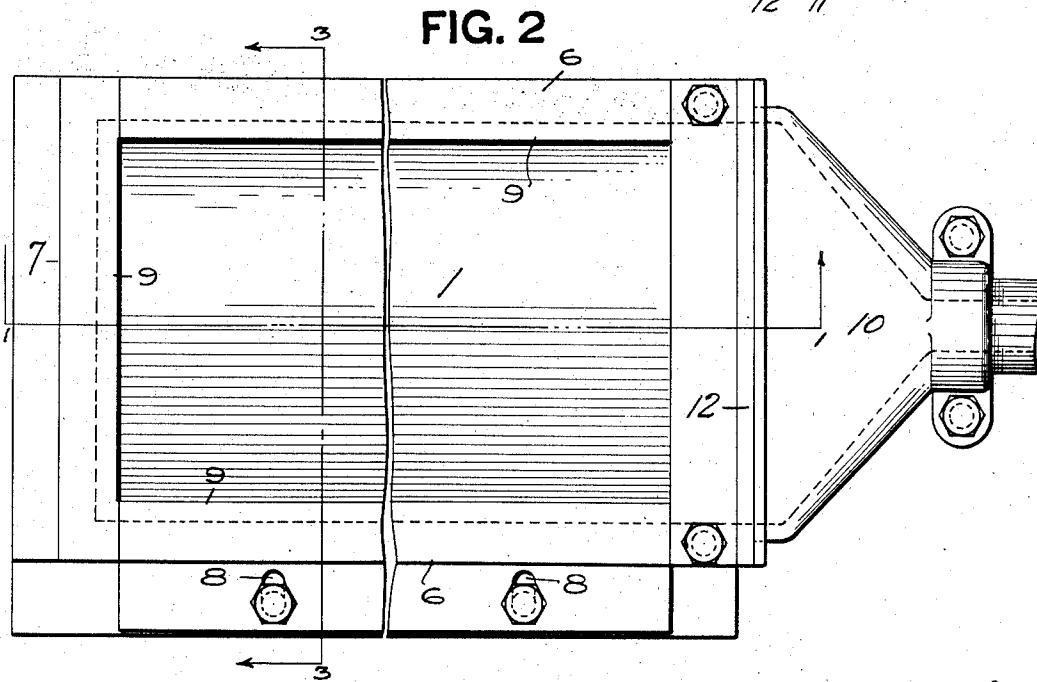
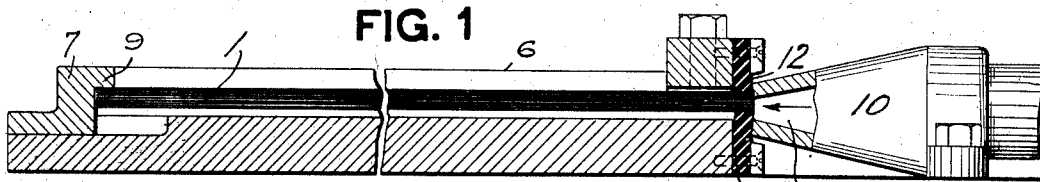


FIG. 4

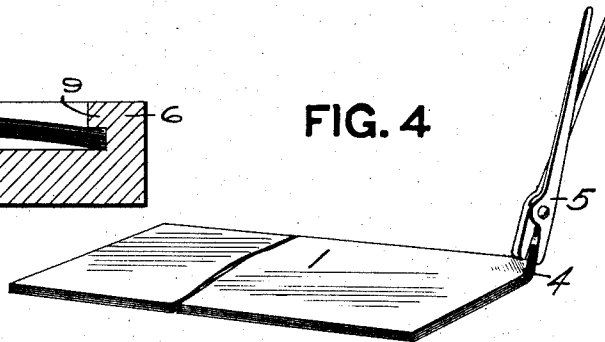
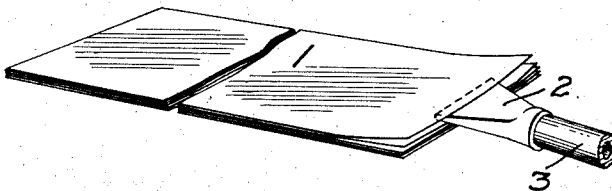


FIG. 5



WITNESSES.

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LAURENCE C. STEELE, OF PITTSBURG, PENNSYLVANIA.

METHOD OF OPENING SHEET-METAL PACKS.

No. 907,193.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, LAURENCE C. STEELE, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Methods of Opening Sheet-Metal Packs; and I do hereby declare the following to be a full, clear, and exact description thereof.

This invention relates to a method of opening sheet metal packs, and its object is to provide a method whereby the sheets can be quickly and cheaply separated and with minimum amount of injury to the sheets.

It is well known that in the rolling of sheet metal packs the sheets have a tendency to stick together and form an incipient weld, which generally extends only over a portion of the contacting surface. The ordinary method of opening the packs is by hand, the operator first turning up an end, preferably a corner of the pack, to initiate the separation, and then by means of tongs seizing a sheet and pulling the same from the pack while holding the latter down with his foot. In case the sheets stick very tightly this is slow and laborious, and frequently necessitates the application of blows between the sheets by a pointed or wedge shaped instrument to assist in the separation. If the sheets are stuck together badly in spots this method of separation has a tendency to rupture the sheets or injure their surfaces.

Numerous methods have been proposed for economically separating the sheets, such as by subjecting the pack to alternate bendings and straightening, or by crimping the same, but as far as I know none of such methods have been generally applied, but on the contrary the hand method of separation is still being generally used.

According to my method the separation of the sheets of the pack is secured by means of a blast of compressed air or other fluid pressure, applied to the edges of the pack or between the sheets, thereby separating the same.

The invention also involves the separation of all of the sheets of a pack simultaneously.

In the accompanying drawings Figure 1 is a longitudinal section on the line 1—1, Fig. 2, illustrating my invention for separating all of the packs of the sheets simultaneously; Fig. 2 is a plan view of the same; Fig. 3 is a transverse section on the line 3—3, Fig. 2; and Figs. 4 and 5 are perspective views illus-

trating one way of separating the sheets singly.

My method involves the principle of applying fluid pressure between the sheets of the pack, and is illustrated in Figs. 4 and 5 in its simplest and most generic form. In Fig. 5 the pack is illustrated by 1. 2 illustrates a nozzle having connected thereto a pipe 3 connected to any suitable source of fluid pressure, such as a reservoir of compressed air. This nozzle preferably has an exit opening in the form of a slit, and is presented between the edges of the sheets as indicated in Fig. 5 in order to separate a sheet from the pack. In order to initiate the separation, the edge, preferably a corner, of the pack may be turned up as indicated at 4 in Fig. 4, and this then straightened out as is the usual practice. This bending can be done by means of tongs 5, or other means, and causes the separation of the sheets at the corner, as will be obvious. The air blast is then applied between the sheets at the place where the separation has been initiated.

In carrying out the invention commercially it is desirable to separate all of the sheets of the pack simultaneously. In Figs. 1, 2 and 3 this method has been diagrammatically illustrated but without any attempt to show all of the necessary, or even the preferred forms, of apparatus for accomplishing the result. As here shown the pack 1 is held in a suitable frame having side members or bars 6 which engage the edges of the pack in order to confine the air, and a similar rear end member 7 for the same purpose. One or both of the side members are preferably movable, as indicated at 8, in order that the pack may be pinched edgewise and caused to buckle as shown in Fig. 3, thus initiating the separation of the sheets at the edges and producing the same effect as the bending illustrated in Fig. 4. The side and end pieces 6 and 7 are preferably provided with lips 9 to overhang the top of the pack and prevent the sheets from flying under the blast of the air. The blast is provided at the forward end by a suitable nozzle 10 having a long narrow opening 11 to project the fluid pressure against the entire end edges of the pack. To prevent the air from escaping suitable means are employed, such as the valves 12 preferably formed of strips or bars of rubber or other yielding substance, and preferably placed in an inclined position so that when subjected

to the action of the air pressure they tend to assume a vertical position, thus closing down tightly onto the top and bottom faces of the pack, even though the latter is bent or buckled as shown in Fig. 3. This nozzle 10 may have its opening 11 so narrow as not to supply air for the entire pack, in which case the nozzle is started at the top of the pack and gradually moved downwardly, thus separating the sheets in succession from the top to the bottom of the pack.

In the application of my method the compressed air enters between the sheets and lifts the upper sheets from the lower ones. The application of such air pressure is very simple and acts almost instantly to separate the sheets. Consequently the large labor cost due to the old hand method is largely reduced. Furthermore, the air pressure enters between the sheets along the points of least resistance and if any one spot is stuck tightly the air pressure practically surrounds the whole spot, thus lifting up on the sheet on all sides of the point of adhesion instead of only at one side as with the old hand method of pulling the sheets apart. The consequence is that the sheets are not subject to injury to the same extent as with the old hand method.

The preferable blast to employ is compressed air, but I do not confine myself thereto, as any fluid pressure medium will equally as well answer the purpose, such as water, steam, or various forms of gases.

What I claim is:

1. The method of opening sheet metal packs after having been rolled while hot, con-

sisting in applying fluid pressure against the edge of and between said sheets.

2. The method of opening sheet metal packs after having been rolled while hot, consisting in applying an air blast against the edge of and between the sheets.

3. The method of opening sheet metal packs after having been rolled while hot, consisting in applying fluid pressure simultaneously between all sheets of the pack.

4. The method of opening sheet metal packs after having been rolled while hot, consisting in applying an air blast simultaneously between all sheets of the pack.

5. The method of opening sheet metal packs, consisting in applying fluid pressure between the sheets of the pack and confining the air at the edges of the pack.

6. The method of opening sheet metal packs, consisting in bending the edge portion to initiate the separation and then applying a fluid pressure between the sheets at such point of initiation.

7. The method of opening sheet metal packs after having been rolled while hot, consisting in mechanically initiating the separation of the edges of the sheets, and then applying fluid pressure between the sheets at such point of initiation.

In testimony whereof, I the said LAURENCE C. STEELE have hereunto set my hand.

LAURENCE C. STEELE.

Witnesses:

ROBERT C. TOTTEN,
F. W. WINTER.