Oct. 11, 1927. 1,644,695

K. SIEG

SHEET FEEDING MECHANISM

Filed July 22, 1926 2 Sheets-Sheet 1

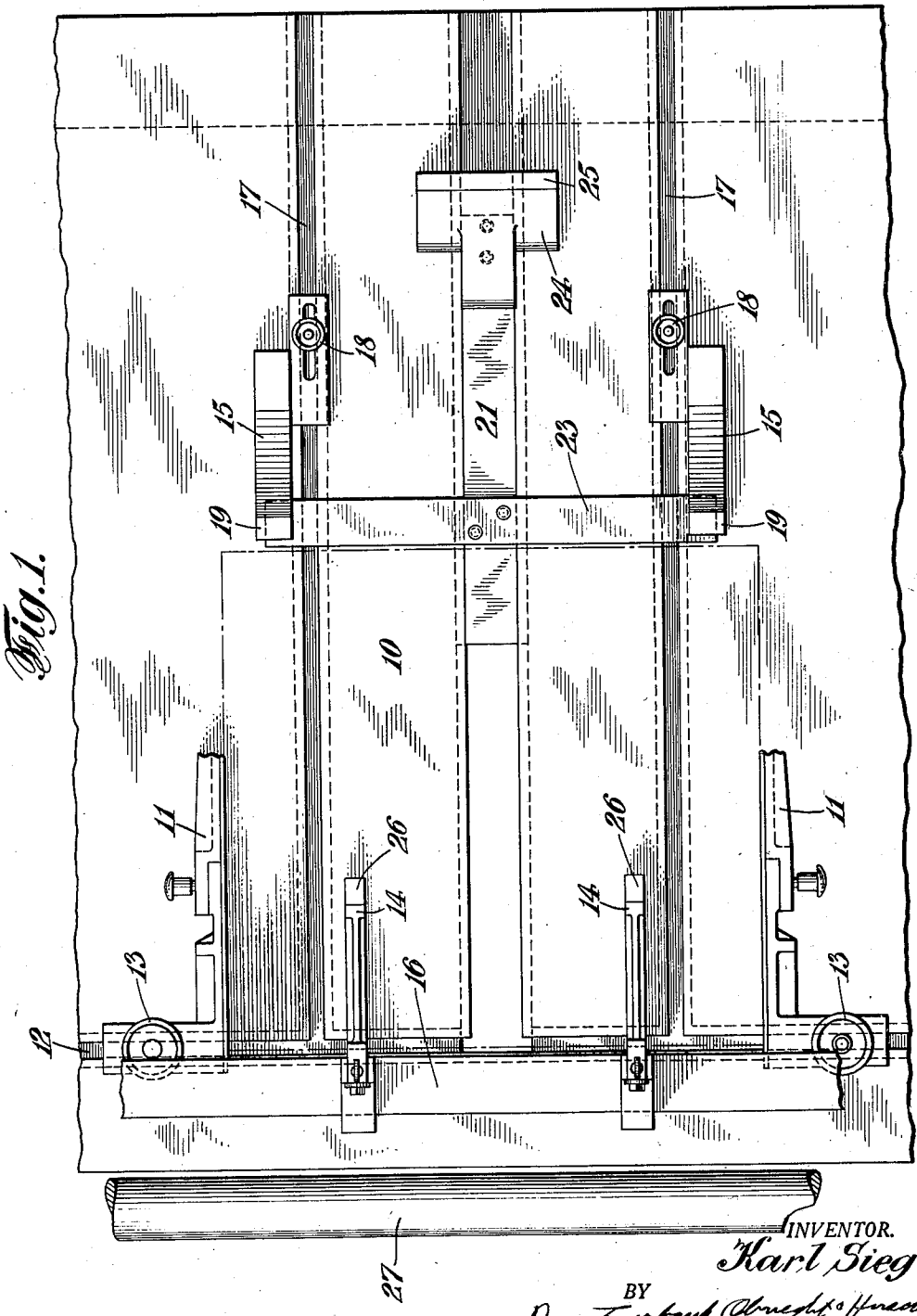


Fig. 1.

INVENTOR.
Karl Sieg
BY
Dean Fairbank Albright & Hirsch
ATTORNEYS.

Oct. 11, 1927. 1,644,695

K. SIEG

SHEET FEEDING MECHANISM

Filed July 22, 1926 2 Sheets-Sheet 2

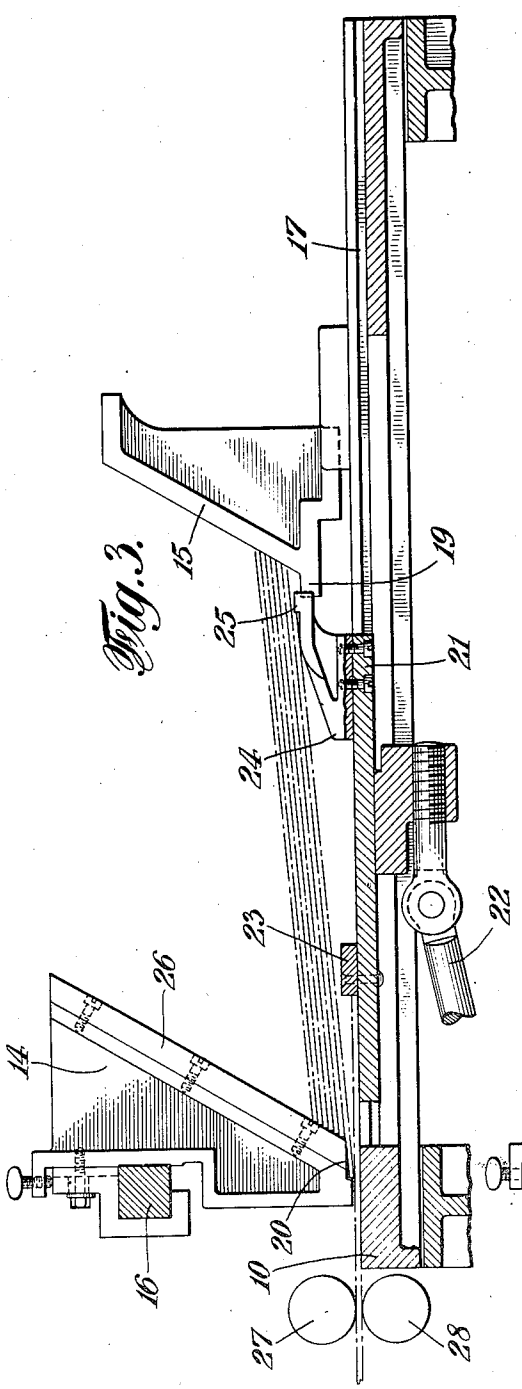


Fig. 3.

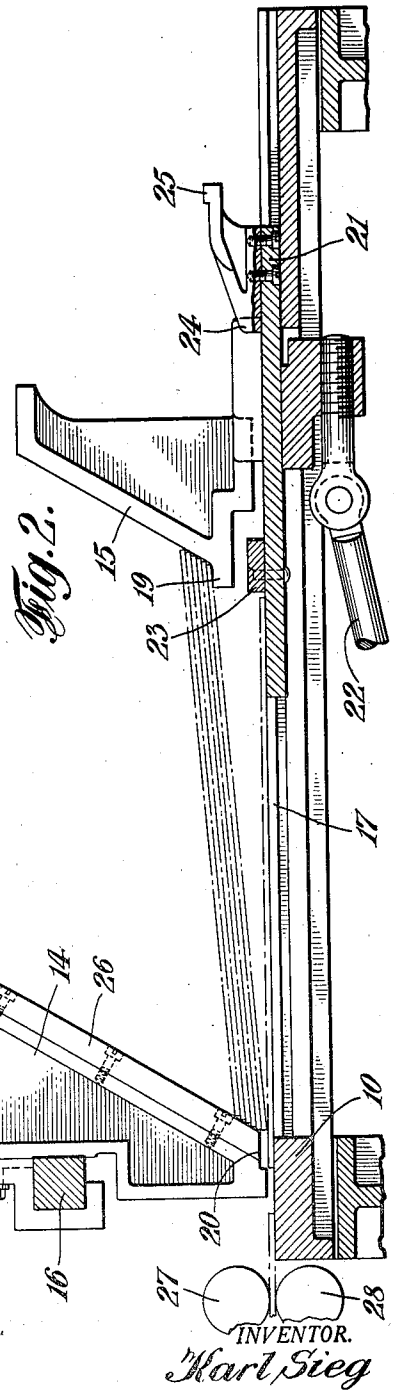


Fig. 2.

INVENTOR.
Karl Sieg
BY
Dean, Fairbank, Albright & Hirsch
ATTORNEYS.

Patented Oct. 11, 1927 1,644,695

UNITED STATES PATENT OFFICE.

KARL SIEG, OF BROOKLAWN, NEW JERSEY, ASSIGNOR TO SAMUEL M. LANGSTON COMPANY, OF CAMDEN, NEW JERSEY, A CORPORATION OF NEW JERSEY.

SHEET-FEEDING MECHANISM.

Application filed July 22, 1926. Serial No. 124,138.

This invention relates to certain improvements in sheet feeding mechanism, and more particularly to that type which is adapted for advancing comparatively stiff sheets in succession from the bottom of a stack or pile.

The main object of the present invention is to avoid liability of crumpling or injuring the sheets during the advancing movement, and to accomplish this object there is provided means whereby the frictional resistance to sliding movement is materially decreased. In carrying out my invention I provide means whereby the rear edge of the stack is supported at a higher elevation than the front edge, and provide means whereby during the advancement of the bottom sheet the next sheet thereabove is advanced to a limited extent and permitted to drop down so as to come into the path of the main feeding mechanism during the next operation of the latter. More specifically I provide a pair of feeding members connected together, but in spaced relationship so that after one has advanced the bottom sheet a limited distance, the other will come into engagement with the superposed sheet to move its rear edge off the elevated support.

My improved construction may be embodied in an apparatus of a type commonly employed, and without necessitating any material alterations in the construction or design of the standard parts. It is merely necessary to add to the standard machine the additional parts employed in carrying out my invention.

In the accompanying drawings I have illustrated one embodiment of my invention. In these drawings:

Fig. 1 is a top plan view of a portion of a machine.

Fig. 2 is a central longitudinal section showing the feeding mechanism in rearward position, and

Fig. 3 is a view similar to Fig. 2, but showing the feeding parts in advanced position.

In the construction illustrated, there is provided a table or platform 10 which may be of any ordinary type of construction and adapted to support a stack of superposed sheets of double-faced corrugated board or other comparatively stiff sheet material. The side edges of the stack may be guided by side walls 11 which are adjustable toward and from each other along a transverse groove 12, and secured in adjusted position by clamping members 13. The stack is held between a pair of brackets 14 and 15, one disposed at the front end and the other at the rear.

The front brackets are carried by a transversely extending bar 16 and are vertically adjustable in respect thereto, as well as being adjustable along the bar. Preferably the rear edge of the front bracket 14, and the front edge of the rear bracket 15, are upwardly and rearwardly inclined and disposed substantially parallel to each other. The bracket 14 is normally disposed so that its lower end is spaced from the table 10 to a distance slightly in excess of the thickness of one sheet, but less than the thickness of two sheets. There may be as many of these front brackets 14 as may be desired, depending upon the width of the sheets being fed.

The rear brackets 15 are preferably two in number, and are adjustable lengthwise of the table 10, along grooves 17. They may be secured in adjusted position by any suitable form of clamping members 18.

As one feature of my improved construction the rear bracket 15 has a shoulder or ledge 19 at the lower end of the inclined surface, and serving to hold the rear end of the stack of sheets above the table and out of contact with the latter. The front bracket 14 has a recess 20 at its lower end below the inclined surface, and of a thickness substantially equal to the thickness of a sheet, so that while one sheet is passing beneath the bracket, another may enter the recess 20. The recess 20 is of such depth that when the front end of a sheet is advanced into the recess, the rear end may drop from the bracket 19 on to the table.

For advancing the sheets there is provided

a reciprocating bar 21 which is guided in a groove in the table so as to move back and forth in the direction in which the sheets are to be fed. This reciprocating feed bar may be actuated by any suitable means, as for instance a link 22 driven from a cam, eccentric, or other rotating part not shown.

The bar 21 has two feeding members or knockers rigidly connected thereto but preferably adjustable along the length thereof. One of these feeding members or knockers 23 is so positioned that it may move rearwardly beneath the ledge 14 and may engage with the rear edge of the bottom sheet of the stack when the latter has been dropped into engagement with the table. This member 23 serves as the main sheet feeding member. The second sheet feeder or knocker member 24 extends upwardly from the bar 21 to a greater height than the member 23, and it has a shoulder 25 so positioned that it will engage with the rear edge of the lower sheet on the ledge 19 and advance this sheet.

The two feeder members 23 and 24 are so so spaced and positioned in respect to the size of the sheets, the location of the brackets, etc., that the rear or auxiliary feeding member 24 does not come into operation until the main member 23 has nearly reached the front limiting position of its stroke. Thus the rear member 24 advances the next to the bottom sheet through only a comparatively short distance, which is sufficient to move the front end of this sheet into the recess 20, and the rear end beyond the edge of the ledge 19. The two feed members 23, 24 then go back together, and during this movement the sheet which has now become the bottom sheet will be lowered gradually to the table as the inclined surface of the member 24 moves from beneath said sheet. When the member 23 reaches a position beneath the ledge 19 the rear edge of the sheet may drop into contact with the table, ready to be advanced by the next forward movement of the member 23.

It will be noted that during the advancing of the bottom sheet the latter is not called upon to support the weight of the stack, except possibly at the front edge of the latter, and thus the frictional resistance to the sliding of the bottom sheet is comparatively small.

In adapting a standard machine to embody my invention it is only necessary to provide the brackets 15 with the proper ledges 19, and to provide the auxiliary feeder or knocker member 24. The recess 20 may be formed in any suitable manner. For instance, a bar 26 may be clamped to the inclined surface of the body of the bracket, and with its lower end spaced at the proper distance above the table to form the recess 20, without necessitating the replacing or re-constructing of the body portion of the bracket. When the sheet has been fed to the desired distance by the feeder member 23, the balance of the feeding movement may be accomplished in any suitable manner, depending upon the character of the sheet and the machine to which it is to be fed. Merely as an example, I have shown a pair of feed rolls 27, 28, positioned at the delivery end of the table, and adapted to receive the advanced sheet therebetween, and continue the feeding movement after the bar 21 with its knockers 23 and 24 has started in the reverse direction.

Of course the brackets 14 which I have illustrated and which are of the type shown in the Langston Patent 1,150,210, may be removed and replaced by new ones properly designed to provide the recesses 20, instead of attaching the bars 24 to the old type of brackets.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In combination, a table adapted to support a stack of sheets, a front bracket spaced above the table to permit the movement of a single sheet therebeneath, and having a recess adapted to permit the limited forward movement of the next to the bottom sheet, a pair of rear brackets having ledges for holding the rear edge of the stack spaced above the table, a reciprocatory bar, a main feeder secured thereto and movable back and forth beneath said ledges, and an auxiliary feeder secured to said reciprocating bar in the rear of said main feeder, and adapted to engage with the next to the bottom sheet of the stack and advance it a sufficient distance to permit it to drop from said ledges.

2. A sheet feeding mechanism, including a table, a pair of brackets adjustable along the table and each having a downwardly and forwardly inclined surface and a ledge at the lower edge of said surface, said ledges being adapted to support the rear edge of a stack of sheets and being spaced above the table, a bar below the upper surface of the table and movable back and forth along the latter, a feeder bar secured to the first mentioned bar and extending transversely of said table on the upper surface of the latter and adapted to move beneath said ledges, and a second feeder secured to said first mentioned bar in the rear of and spaced from said feeder bar and having an inclined surface and a shoulder projecting upwardly from the rear thereof to a height to engage the bottom sheet resting on said ledge.

3. A sheet feeding mechanism, including a table, a front bracket spaced above the table to permit the movement of a single sheet therebeneath and having a recess adapted to permit the limited forward movement of the next to the bottom sheet, a pair of brackets adjustable lengthwise of said

table and having ledges for holding the rear edge of the stack above the table, a reciprocatory bar disposed below the upper surface of the table, a main feeder secured thereto and movable back and forth on the upper surface of said table, and an auxiliary feeder secured to said bar in the rear of said main feeder and adapted to engage with the next to the bottom sheet of the stack to advance its front edge into said recess and its rear edge beyond said ledges.

Signed at Camden, in the county of Camden and State of New Jersey, this 1st day of July, A. D. 1926.

KARL SIEG.