

- [54] **PLATEN PRESS STRUCTURE**
 [75] Inventor: **Edwin Bolliger**, Morges, Switzerland
 [73] Assignee: **J. Bobst & Fils S.A.**
 [22] Filed: **Mar. 6, 1973**
 [21] Appl. No.: **338,634**

1,954,651	4/1934	Sherman	100/214
2,230,288	2/1941	Dinzel	100/214
2,257,294	9/1941	Ernst	100/214
3,405,937	10/1968	Schoch	100/215

Primary Examiner—C. W. Lanham
Assistant Examiner—Gene P. Crosby
Attorney, Agent, or Firm—Hill, Gross, Simpson, Van Santen, Steadman, Chiara & Simpson

- [30] **Foreign Application Priority Data**
 Mar. 7, 1972 Switzerland..... 3344/72

- [52] **U.S. Cl.**..... **100/215, 72/455**
 [51] **Int. Cl.**..... **B21j 13/04, B30b 15/30**
 [58] **Field of Search** 72/455, 451, 452, 450,
 72/453; 100/214, 215, 282, DIG. 15

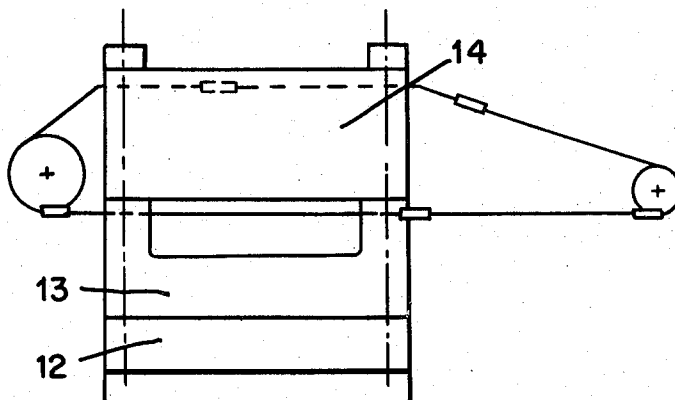
[56] **References Cited**
UNITED STATES PATENTS

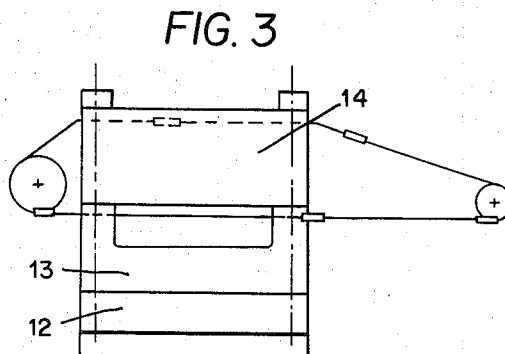
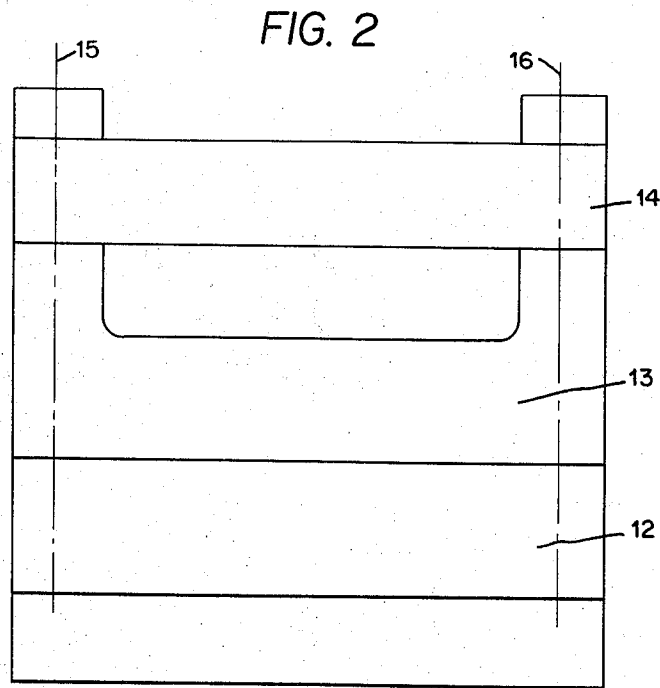
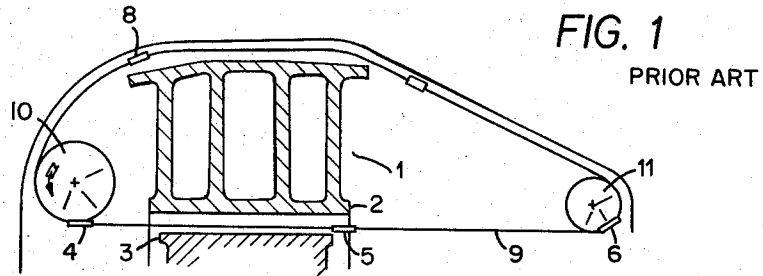
- | | | | |
|-----------|---------|-----------------|---------|
| 1,687,968 | 10/1928 | Bredenberg..... | 100/214 |
| 1,945,282 | 1/1934 | Lindgren..... | 100/214 |

[57] **ABSTRACT**

A platen press has an upper platen which is prestressed in compression, by tie bars which force the upper platen against cross pieces in a rigid condition, permitting the upper platen to be smaller in its physical thickness dimension, in order to minimize the length of the drive chains, and reduce the operating noise of the press.

6 Claims, 3 Drawing Figures





PLATEN PRESS STRUCTURE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a platen press and more particularly to such a press in which drive chains are employed to transport sheet material through the press.

2. The Prior Art

Conventionally in platen presses a plurality of gripper bars are mounted on endless chains and are pulled by the chains through the press. A sheet of material is gripped by each of the gripper bars, and by this means is transported through the platen press. The lower platen is typically positioned below the path of the sheet material and rises to press the sheet material against an upper platen when the sheet material has been correctly positioned therebetween.

It is desirable in such presses to maintain the length of the drive chains at a minimum, in order to facilitate control of the chains, and to minimize the noise produced as a result of the chains. The length of the chains affects the speed at which the chains are pulled through the press, and the noise produced by operation of the chains is directly related to their speed.

One characteristic of a platen press which affects the length of the chains is the structure of the upper platen. Conventional presses require a relatively large amount of space for the upper platen, and the drive chains must pass up and around the upper platen. Therefore the size and bulk of the upper platen adversely affects the length of these chains.

SUMMARY OF THE INVENTION

It is a principal object of the present invention to provide a mechanism which permits the effective use of relatively short chains.

Another object of the present invention is to provide a platen press structure in which the upper platen may be made relatively smaller.

A further object of the present invention is to provide a platen press structure which is less noisy than conventional presses.

These and other objects and advantages of the present invention will become manifest by an examination of the following description and the accompanying drawings.

In one embodiment of the present invention there is provided a platen press having an upper platen mounted in fixed position above a horizontal reach of the drive chains adapted for transporting sheet material through the press, and means for prestressing said upper platen in a vertical direction.

BRIEF DESCRIPTION OF THE DRAWINGS

Reference will now be made to the accompanying drawings in which:

FIG. 1 is a side elevation, partly in cross-section, of a conventional platen press;

FIG. 2 is a side elevation of apparatus for prestressing the upper platen constructed in accordance with an illustrative embodiment of the present invention; and

FIG. 3 is a side elevation of the operative portions of a press constructed in accordance with the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The construction of a conventional platen press is illustrated in FIG. 1. It incorporates a fixed upper platen 2, below which is located the lower platen 3, which is movable in a vertical direction toward and away from the upper platen 2. The sheets to be processed are pulled through the space between the upper platen 2 and the lower platen 3, by a plurality of gripper bars 4-8 having their ends connected to two endless chains 9, positioned on opposite sides of the press. The chains 9 surround sprockets 10 and 11, and the sprocket 11 for each chain is driven so as to pull the chain for movement in a closed circuit in a counterclockwise direction, as viewed in FIG. 1. The sprockets 11 are driven in synchronism with the operation of the lower platen 3, so that sheets are correctly positioned at the time the platen 3 is raised.

The upper platen 1 as shown in the press of FIG. 1 is a relatively large and bulky structure comprising, in addition to the horizontal lower surface 2, a plurality of upstanding ribs which are joined at their top ends by a top member. All of this structure is conventionally needed for strength and inertia, to withstand the large forces arising from the upward movement of the lower platen 3.

Relatively long chains 9 are required for the apparatus of FIG. 1 because of the bulk of the upper platen 1, and the need for the chains 9 to pass completely around the upper platen 1. The length of these chains is disadvantageous, and by the use of the present invention the chains 9 may be made shorter, as will now be described.

FIG. 2 illustrates a side elevation of apparatus adapted to pre-stress the upper platen of a platen press, so as to reduce its bulk and size, without affecting its ability to withstand operating forces. A lower support member 12 supports a cross piece 13 and the upper platen 14 rests on top of the cross piece 13. The cross-piece 13 is U-shaped, so that only the end portions of the cross-piece 13 bear upwardly on the upper platen 14. The upper platen 14, the cross piece 13, and the lower support member 12 are all connected together by means of tie bars or clamps which clamp the assembly firmly together along the axes 15 and 16. Machine screws or bolts may conveniently be used to maintain all of the parts of FIG. 2 in a rigid condition, with the bolts passing through aligned apertures in the upper platen 14 and the cross piece 13, and threadably engaging threads on the interiors of aligned apertures provided in the lower support member 12. All of these apertures are aligned with the lines 15 and 16 illustrated in FIG. 2.

FIG. 3 illustrates a platen press incorporating the present invention therein. The upper platen 14 is shown with its lower surface above the reach of the chains 9, with the cross piece 13 and the lower support member 12 mounted therebelow. A separate cross piece 13 is provided for each side of the upper platen 14, so that its center portion is maintained unobscured. The upper surface of the upper platen 14 is provided with a pair of grooves for receiving the chains 9, as they pass along their upper reach.

When the present invention is employed, the gripper bars 4-8 may be located much closer together on the chains 9 than in the conventional arrangement. The

3

chain is shorter because it does not require as much height during its upper reach over the upper platen. Accordingly the total length of the chain is shorter, with the result that the operating noise of the press is greatly reduced.

What is claimed is:

1. A platen press having a support member, an upper platen, a pair of cross pieces, said cross pieces being placed on opposite sides of said upper platen between the upper platen and said support member, and means tightly urging said cross pieces against the upper platen to pre-stress the upper platen.

2. Apparatus according to claim 1, wherein said cross pieces are U-shaped, whereby only the end portions of said cross pieces engage said upper platen.

3. Apparatus according to claim 1, including a chain surrounding said upper platen, said chain being adapted to convey material to be processed into position relative to said press, said pre-stressing permitting

4

said upper platen to be smaller in its physical dimensions and therefore allowing a shorter chain to surround said upper platen.

4. Apparatus according to claim 1, including a conveyor for conveying material to be processed to a position below said upper platen, said upper platen being adapted to engage the upper surface of said material during the processing of said material.

5. Apparatus according to claim 1, wherein said urging means comprises a pair of tie bars for each of said cross pieces, each of said tie bars compressing a portion of said upper platen against one of said cross pieces.

6. Apparatus according to claim 5, wherein said tie bars comprise bolts received in aligned apertures in said upper platen, said cross pieces and said support member.

* * * * *

20

25

30

35

40

45

50

55

60

65