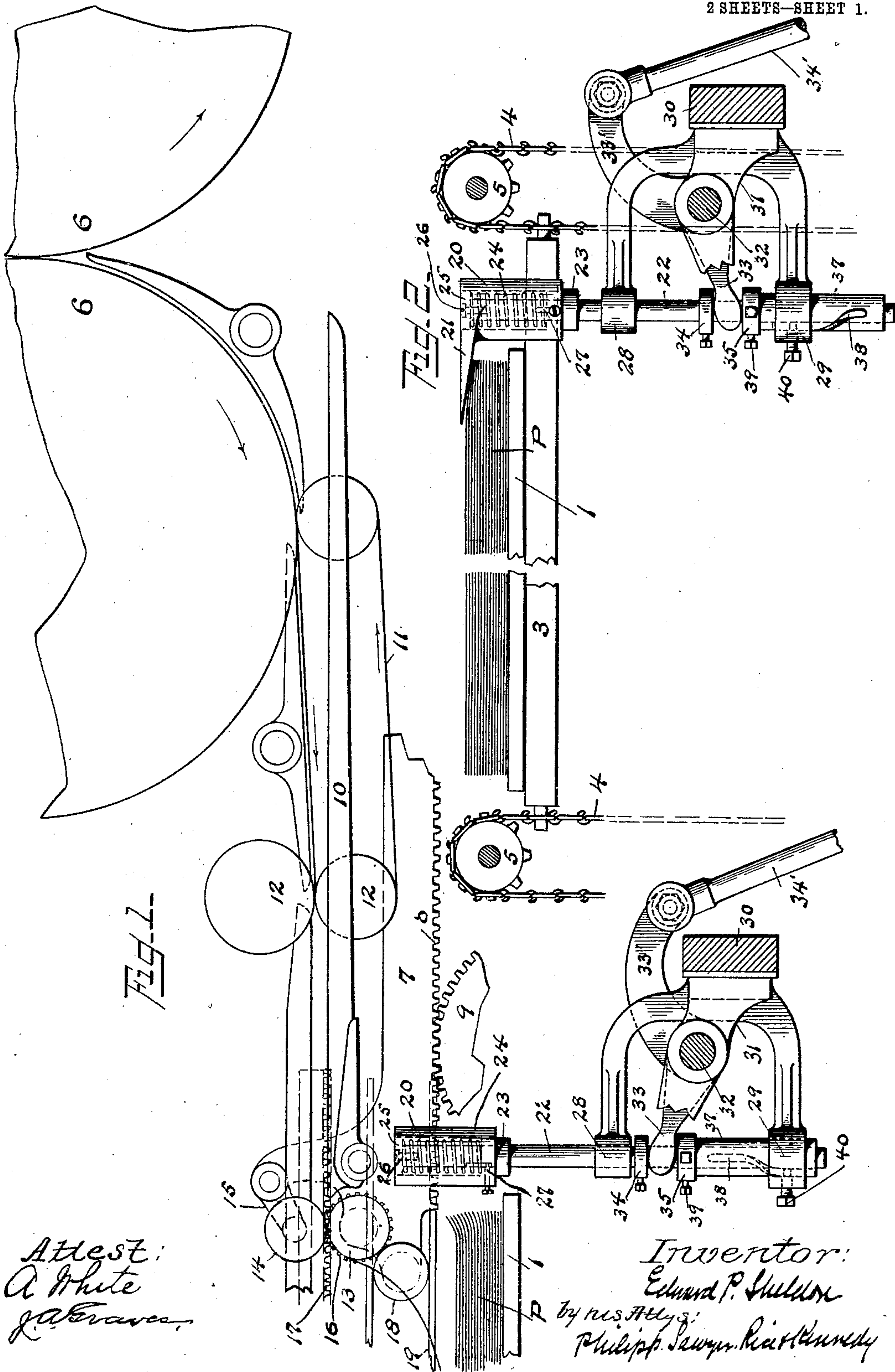


E. P. SHELDON.  
SHEET PILING DEVICE.  
APPLICATION FILED OCT. 15, 1907.

930,097.

Patented Aug. 3, 1909.

2 SHEETS—SHEET 1.



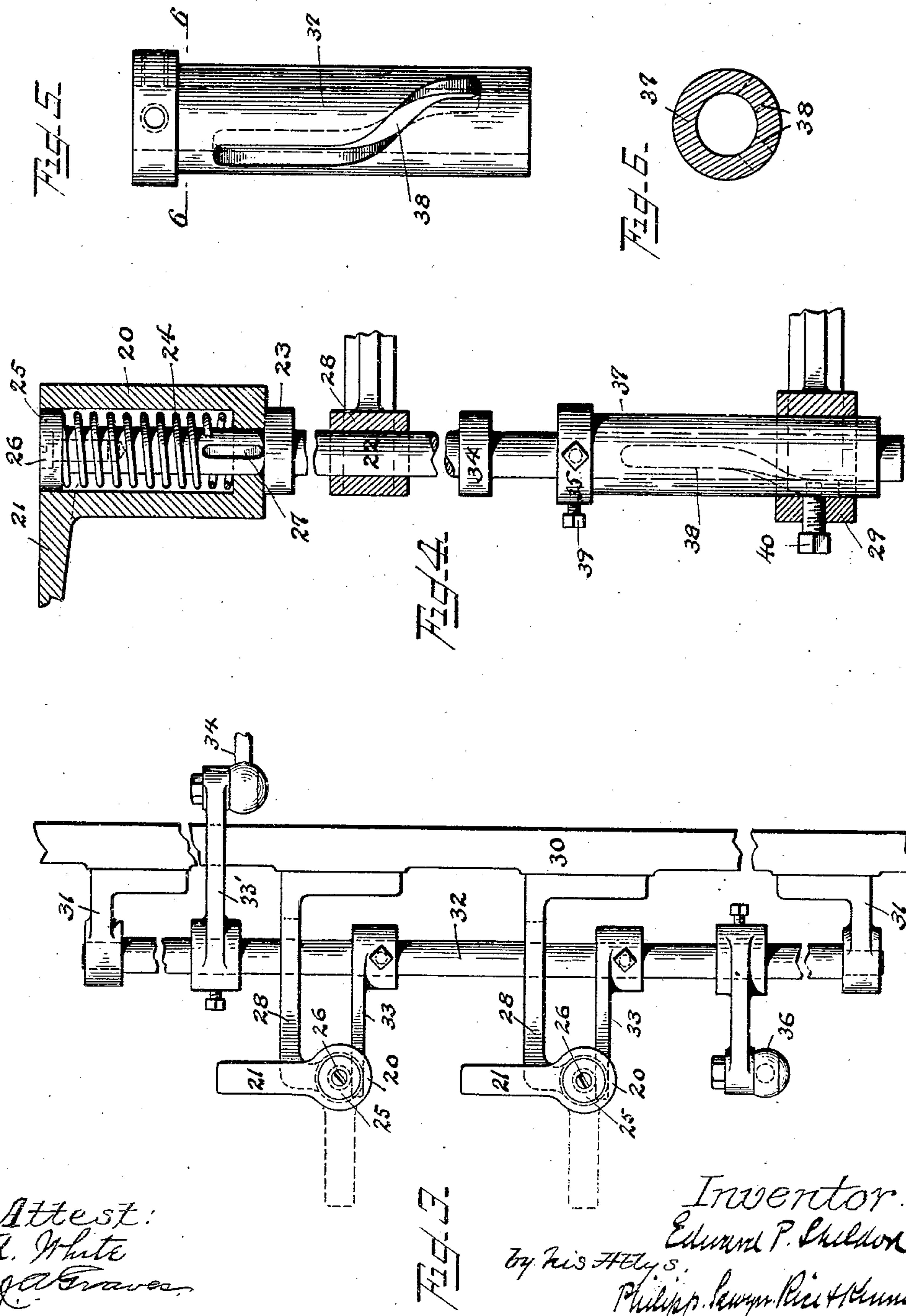
Attest:  
A. White  
J. A. Graves.

Inventor:  
Edward P. Sheldon  
by his Attys:  
Philip P. Sawyer, Richard H. Kennedy

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Attest:  
A. White  
J. A. Brown

Inventor:  
Edmund P. Sheldon  
by his Attys.  
Philip P. Lewis, Rice & Kennedy



# UNITED STATES PATENT OFFICE.

EDWARD P. SHELDON, OF NEW YORK, N. Y., ASSIGNOR TO ROBERT HOE, OF NEW YORK, N. Y.

## SHEET-PILING DEVICE.

No. 930,097.

Specification of Letters Patent.

Patented Aug. 3, 1909.

Application filed October 15, 1907. Serial No. 397,518.

*To all whom it may concern:*

Be it known that I, EDWARD P. SHELDON, a citizen of the United States, residing at New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Sheet-Piling Devices, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

10 This invention relates to certain improvements in sheet piling devices.

In printing machines which deliver their product in the form of flat unfolded sheets, difficulty is experienced in keeping the pile level, that is, in causing each sheet to lie flat on the pile. There may be a tendency for each sheet of the pile to curl at an edge or edges, so that the pile is higher at the edges than it is in the center, and it may also happen, especially when the sheets are cut by a serrated knife that the serrations tend to get out of alinement with the body of the sheet, thus causing the pile to be thicker at its edges than at the center. This curling or thickening is particularly objectionable at what may be termed the rear edge of the pile of sheets, and especially in that class of machines in which the sheet is delivered by a carriage delivery moving over the pile, for the reason that the pile at its rear edge may become high enough so that the top sheet or sheets may be caught by the carriage mechanism as it moves over the pile.

35 It is the object of this invention to provide an improved sheet piling device operating upon an edge of the sheets, whereby the sheets are caused to lie flat upon the piling table.

40 With this and other objects in view, the invention consists in certain constructions, and in certain parts, improvements and combinations as will be hereinafter fully described and then specifically pointed out.

In the accompanying drawings—Figure 1 is a side elevation, partly in section, of a construction embodying the invention. Fig. 2 is a detail view illustrating more particularly the pressing mechanism and showing the same in a different position from that in which it is illustrated in Fig. 1. Fig. 3 is a plan view of the construction shown in Fig. 2. Fig. 4 is an enlarged view of one of the pressing members, the pressing head being shown in section. Fig. 5 is a detail view. 55 Fig. 6 is a section on the line 6—6 of Fig. 5.

Constructions embodying the invention

will include a support on which the sheets are piled, such support being ordinarily known in the art as a piling table. In the particular construction illustrated, a piling table is indicated at 1. Such piling tables as are referred to are usually constructed to be vertically movable. When the piling table is made vertically movable, the construction by which this is effected may be varied within wide limits. In the particular construction illustrated, the table is mounted on a pair of bars, one of which is indicated at 3, these bars being supported by pairs of sprocket chains indicated at 4, these chains running over sprocket wheels 5, the construction being such that the piling table is gradually lowered as the sheets are piled thereon. The particular construction by which the table is lowered is not material to the invention and will not, therefore, be fully illustrated and described. Reference is, however, made to Patent No. 782,924, granted Feb. 21, 1905, to Robert Hoe, as assignee of Oscar Roesen, for a full disclosure of a suitable mechanism for giving the table its vertical movement.

The sheets may be delivered to the piling table in any suitable manner. In the particular construction illustrated, the sheets pass from a pair of collecting cylinders, indicated at 6, to a sheet delivery mechanism. The sheet delivery mechanism illustrated includes a carriage, as 7, this carriage having a rack 8 formed thereon which is driven by a gear wheel 9. This carriage supports a set of sheet receiving fingers 10 and a set of forwarding tapes 11 which run around sheet advancing rollers 12, these tapes and rollers serving to advance the sheet into the bite of a delivery roll 13 and a set of propeller rolls 14 mounted on arms 15. The delivery roll 13 has a gear 16 thereon which is, by the movement of the carriage, brought into mesh with a stationary rack 17. The carriage may be mounted on suitable rolls, one of which is indicated at 18, these rollers running on suitable tracks, one of which is indicated at 19. In the operation of this delivery mechanism, the carriage moves forward over the pile, the sheet being supported thereby and advanced by the tapes 11 and rolls 12 into the bite of the rolls 13, 14. The carriage comes to a stop when its forward end is about over the forward end of the pile. The rolls 13, 14 are not driven during the advancing movement of the carriage but



as the carriage returns they are driven and deliver the sheet to the pile. The particular construction of this sheet delivery mechanism has no reference to the invention, and, as to some aspects of the invention, any other form of sheet delivery mechanism may be substituted therefor although the invention will usually be employed with delivering mechanism moving over the pile. For a full description of the delivery mechanism which is herein partially illustrated, reference is made to the Patent No. 782,924 heretofore referred to.

It has been found in practice that as the sheets are delivered, that end of the sheets which is last delivered tends to bend or curl up slightly, as indicated in Fig. 1, the pile of sheets being marked P. As the pile increases in height, the rear edge of the pile is liable to become so much higher than the center as to interfere with the proper working of the delivery mechanism. In order to prevent this, suitable flattening means are employed. The particular construction of these flattening means may be varied widely. In the particular construction illustrated, a presser is employed, this presser consisting of a plurality of presser heads 20 each of which has a projecting presser finger 21. Each presser head, in the particular construction illustrated, is supported on a carrier which consists, as shown, of a vertical rod 22, this rod being provided with a supporting collar, as 23. For reasons hereinafter stated, each presser head may be chambered out, as illustrated in Fig. 4, to provide for the interposition of a spring, as 24, located in the chamber of the head and held in position by a washer 25 secured to the carrier by means of a screw 26, or in any other suitable manner. The head may be feathered to the carrier, as indicated at 27.

The presser may be given movements to cause it to operate on the edge of the pile to flatten the sheets in various ways, and the construction will, of course, vary according to the particular construction of presser employed. As shown, each of the carriers 22 is supported in upper and lower brackets 28, 29, these brackets being mounted on a cross bar 30 forming a part of the frame of the machine, the construction being such that the carrier rods are free to move through the brackets. The bar 30, in the particular construction illustrated, is provided with brackets 31 which support a rock-shaft 32. This rock-shaft 32 is provided with a plurality of arms 33, two arms being shown. The ends of these arms 33 take between collars 34, 35 screwed or otherwise secured to the carrier rod. It is apparent that by rocking the shaft 32 the carrier rods will be raised and lowered. The shaft 32 may be rocked in any suitable manner, as, for instance, by providing it with an

arm 33' to which is connected a link 34', this link extending to a cam mounted on any suitable shaft in the machine. If desired, the shaft may be moved in one direction by the arm 33' referred to, and in the other direction by a spring rod of ordinary construction, such a rod being indicated at 36, in Fig. 3.

The presser should, of course, be so constructed as to be out of the way when the sheets are laid upon the pile. The construction by which the presser is caused to be in and out of operative position may be varied widely and will vary according to the particular construction of presser employed. As shown, the presser heads are given an oscillating movement, this being effected by turning the carrier rods 32. In the particular construction illustrated, this is effected by providing each carrier rod with a sleeve 37, this sleeve having cut therein a spiral or cam groove 38, the sleeve being connected to the carrier by means of screws 39, or in any other suitable manner. This sleeve is movable through the lower bracket 29 which, as shown, is provided with a pin, as 40, screwed into it. It will be noted that the upper part of the groove 38 is straight. It will be readily understood that as the carriers are raised and lowered, they will be turned around their vertical axes, thus swinging the presser heads into and out of operative position. The position which the presser heads occupy when the sheets are being accumulated is illustrated in Fig. 1, and the operative position of these heads is illustrated in Fig. 2.

In the operation of the mechanism, after one, or, if desired, several sheets have been accumulated, the presser is brought down onto the edge of the pile, strongly compressing and flattening the ends of the sheets already accumulated. If desired, the operating mechanism, for the presser, may be such as to cause it to be given more than one pressing movement between the accumulation of successive sheets or sets of sheets.

It may happen that either because the table is not lowered with sufficient rapidity, or because of the varying thicknesses of the sheets of paper, the piling table is not always in such position as to permit a full stroke of the presser operating mechanism. By interposing the spring 24 between the carrier and the presser head in the manner described, any breakage of the parts is prevented should this occur.

Changes and variations may be made in the construction by which this invention is carried into effect. The invention is not, therefore, to be limited to the particular construction herein described and illustrated in the accompanying drawings.

What is claimed is:—

1. The combination with a piling table, of



means moving over the piling table for delivering the sheets thereto, and means for flattening an edge of the piled sheets over which edge the delivering means passes.

5 2. The combination with a piling table, of means moving over the piling table for delivering sheets thereto, a presser acting on an edge of the pile over which edge the delivering means passes to flatten the sheets, and  
10 means for moving the presser out of operative position to permit the piling of the sheets.

3. The combination with a vertically movable piling table, of means moving over the  
15 piling table for delivering sheets thereto, a yielding presser acting upon an edge of the pile over which edge the delivering means passes to flatten the sheets, and means for moving the presser into and out of opera-  
20 tive position to permit the piling of the sheets.

4. The combination with a piling table, of means moving over the piling table for delivering sheets thereto, a presser for acting  
25 upon an edge of the pile over which the delivering means passes, said presser comprising a plurality of members, means for giving each member of the presser a swinging movement to bring it into or out of opera-  
30 tive position with respect to the edge of the pile, and means for giving it a pressing movement.

5. The combination with a vertically movable piling table, of means for delivering  
35 sheets thereto, a plurality of presser heads, a carrier for each head, a yielding connection between each carrier and its head, and means for giving each head a movement to bring it into or out of operative position and a pressing movement.

6. The combination with a piling table, of

means for delivering sheets thereto, a plurality of presser heads, a carrier for each head, means for moving the carriers to move the presser heads against an edge of the  
45 paper, and means for giving each carrier an axial movement to swing the heads into and out of position.

7. The combination with a piling table, of means for delivering sheets thereto, a plu-  
50 rality of presser heads, a carrier for each head, a yielding connection between each head and the carrier, means for moving the carriers to move the presser heads against an edge of the paper, and means for giving  
55 each carrier an axial movement to swing the heads into and out of position.

8. The combination with a vertically movable piling table, of means for delivering sheets thereto, a plurality of vertically ar-  
60 ranged carrier rods, a presser head mounted on each rod, means for giving the carrier rods and heads a vertical movement to flatten an edge of the paper, and means for  
65 turning the carrier rods to cause the heads to be in and out of operative position.

9. The combination with a piling table, of a plurality of presser heads, a vertically movable carrier for each head, a rock-shaft, arms on the shaft for moving the carrier,  
70 and means including a cam and a member co-operating therewith for turning the carriers to cause the heads to be in and out of operative position.

In testimony whereof, I have hereunto set  
75 my hand, in the presence of two subscribing witnesses.

EDWARD P. SHELDON.

Witnesses:

F. W. H. CRANE,  
GEO. M. BROWN.