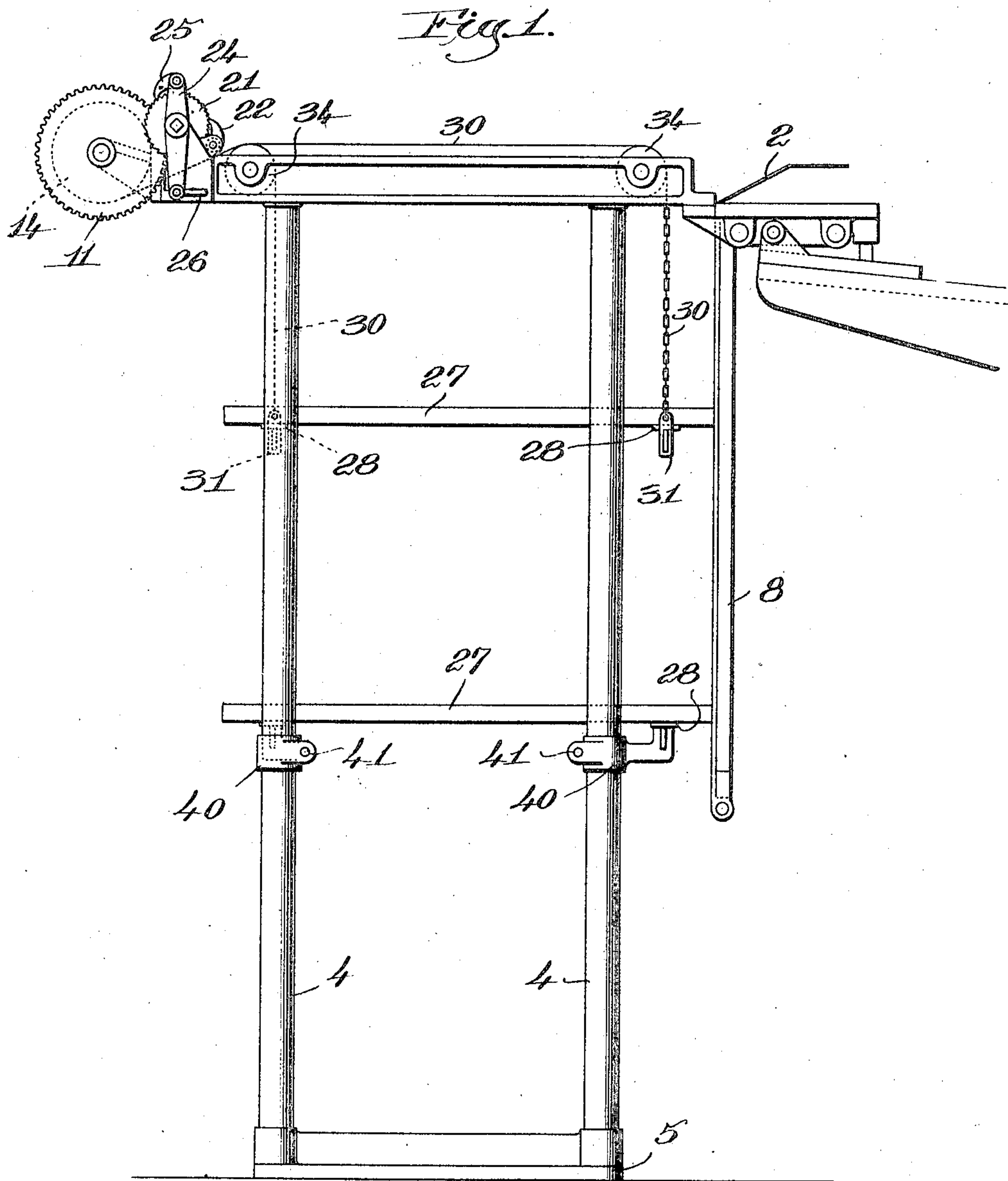


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2 SHEETS—SHEET 1.



Witnesses.  
 Thomas Drummond  
 Joseph M. Ward.

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 Bernhard Gustafson,  
 by Crosby & Gregory  
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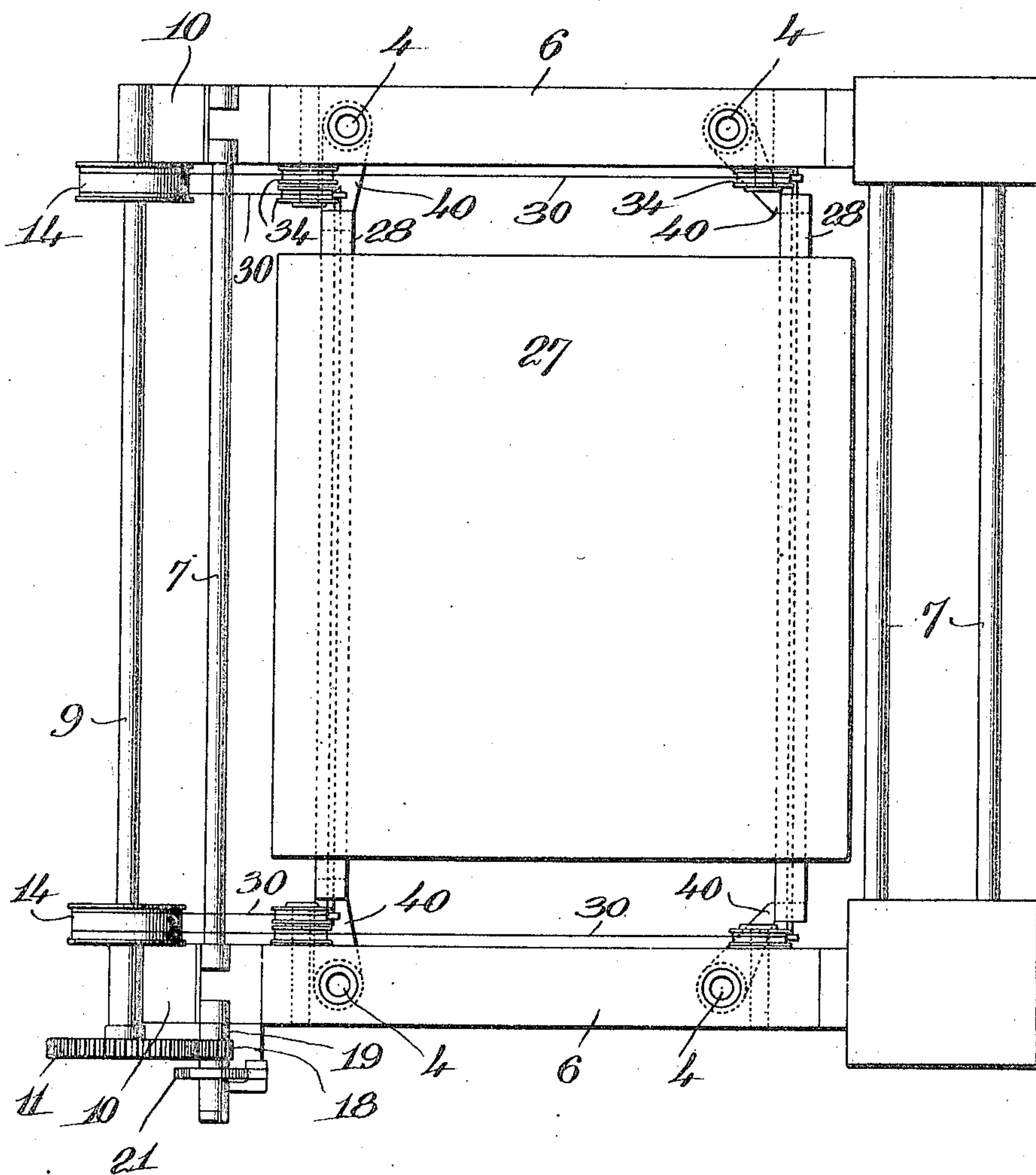
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2 SHEETS—SHEET 2.

Fig. 2.



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 Joseph M. Ward.

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# UNITED STATES PATENT OFFICE.

BERNHARD GUSTAFSON OF PLAINFIELD, NEW JERSEY.

FILE-ELEVATOR FOR SHEET-FEEDING MACHINES.

954,732.

Specification of Letters Patent.

Patented Apr. 12, 1910.

Application filed September 20, 1909. Serial No. 518,647.

*To all whom it may concern:*

Be it known that I, BERNHARD GUSTAFSON, a citizen of the United States, residing at Plainfield, county of Union, State of New Jersey, have invented an Improvement in Pile-Elevators for Sheet-Feeding Machines, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to a mechanism for feeding a pile of superimposed sheets into position to be acted upon by suitable sheet-segregating devices of a sheet-feeding device, such as is used in connection with printing presses. My previous patent No. 912,563, granted February 16, 1909, discloses an invention for securing the same end.

The present invention presents a mechanism of a more simple and inexpensive construction but which will be found in many cases to answer the required purposes.

The mechanism of the present invention as in the case of the aforesaid patent occupies a minimum amount of space, allows access to three sides of the support for the pile of sheets and enables the supply of sheets in pile form to be maintained with sufficient continuity so as to require the stoppage of the sheet-feeding mechanism for but comparatively brief periods of time.

The present invention employs two separate pile-supporting means or tables and a single set of flexible elevating connections preferably in the form of chains, the depending ends of which are adapted to be connected to either of said pile-supporting means. The vertical framework within which the pile-supporting means are elevated to feed the pile of sheets into position is provided with a set of brackets preferably vertically adjustable on the frame, and these brackets serve to receive and hold that pile-supporting means or table which is in the lowermost position and which is being supplied with sheets while the other is being fed upwardly to carry the pile of sheets into position.

The flexible elevating connections or chains are wound up to elevate the pile-supporting means or table by a pair of winding pulleys, one at each side of the frame and carried by a single shaft, each winding pulley receiving the pair of chains at its side

of the frame. Suitable mechanism for operating the shaft, herein shown as an intermittently-operated pawl and ratchet mechanism, is provided.

It will thus be seen that a simple and inexpensive device is provided which while not as highly efficient as that made the subject of the aforesaid patent, will answer every purpose in the majority of cases and will secure the desired results of a substantial continuity of presentation of the pile of sheets to the sheet segregating devices.

The invention may more fully appear from the accompanying description and drawing and will be particularly pointed out in the claims.

The drawings show the preferred form of mechanism embodying the invention, only so much of the sheet feeding devices proper as is necessary for illustration being shown:

In the drawings, Figure 1 is a side elevation of the pile-elevating devices with portions of the sheet-feeding mechanism proper shown in relation thereto; Fig. 2 is a top plan view of the pile-elevating mechanism shown in Fig. 1.

It is unnecessary to show the sheet-feeding mechanism proper, that is, the devices which segregate the sheets at the top of the pile and deliver them one by one to the feed rolls and tapes by which they are conveyed to the printing press or other mechanism. I have, however, indicated at 2 an incline up which the sheets are passed by the usual combing wheel, not shown, to the feed rolls.

The pile-elevating mechanism is supported by a suitable vertical frame herein shown as of skeleton construction comprising four upright posts, a base 5, cross braces 6 connecting the posts at each side at the top, and suitable transverse braces 7. A common form of edge guide for the pile of sheets is indicated at 8 on the side of the frame from which the sheets are fed. This construction of frame is similar to that shown in the aforesaid patent.

The top of the frame is provided with a single transverse shaft 9 journaled in bearings formed in projections 10 from the cross bars 6. This shaft carries at one end a gear 11 and has mounted rigidly thereon two winding drums 14, one near each end.

A stub shaft 19 arranged parallel to the shaft 9 carries a pinion 18 intermeshing with a gear 11 and also carries a ratchet wheel 21. A detent pawl 22 pivoted on the



frame prevents backward rotation of the ratchet wheel. A lever 24 is pivoted on the shaft 19 and carries at its upper end a pawl 25 engaging the ratchet wheel 21 while its lower end has connected thereto a rod 26 by means of which it is oscillated from some moving part of the sheet-feeding mechanism or printing press. By this means a continuous intermittent rotary movement is given to the shaft 9 in time with the sheet-feeding mechanism or printing press. The end of the shaft 19 is given a polygonal form by means of which the shaft may be rotated manually when desired.

Two separate pile-supporting means are provided and each is herein shown as consisting of a board or table 27 and two cross bars 28 upon which the table rests preferably without being fastened thereto. These cross bars 28 are preferably formed of T-shape with the flange cut away at the ends to leave only the vertical web projecting.

Each of the winding drums 14 is provided with two flexible elevating and suspending members herein shown as chains. These chains which extend from the winding drums 14 are indicated at 30 and are each provided with suitable means such as the slotted links 31 whereby they may be connected to the projecting ends of the cross bars of either of the pile supports. At suitable points idler pulleys 34 are provided mounted upon stub shafts, and the suspending chains pass over the idler pulleys to their connections with the pile supports.

The vertical frame is provided at a suitable distance from the base with four brackets 40. These brackets are preferably mounted one on each post 4 and vertically adjustable thereon and clamped thereto by means of the set screws 41. The brackets project inwardly, as shown in Fig. 2, and are formed at their ends to receive and support the projecting ends of the cross bars 28. In the form shown, the brackets are slotted to receive the vertical web of the cross bar.

In the operation of the pile elevator, the brackets 40 are adjusted to suitable height, and one of the pile-supporting means, such as the table 27, is placed thereon and piled with sheets in usual manner, the front edge of the pile resting against the guide 8. The pawl 25 and detent 22 are raised and the depending chains 30 drawn downwardly and the slotted links 31 placed over the projecting ends of the cross bars 28. The sheet-feeding mechanism is then set in motion, thus causing the movement of the rod 26, which acting through the intermediate mechanism described, intermittently rotates the shaft 9 and winds the chains upon the winding drums 14, thus elevating the pile of sheets and maintaining the upper surface of the pile in the position desired for the proper action of the segregating devices.

When the pile of sheets supported upon its table has been elevated sufficiently, the other pile-supporting means or table is placed in position upon the brackets 40 and supplied with a pile of sheets in the usual manner. When the first pile of sheets is nearly exhausted, the sheet-feeding mechanism is stopped and the elevated pile-supporting means or table with its cross bars removed from the chains, the chains are drawn down as before and connected to the lowermost pile-supporting means or table, the shaft 19 is rotated manually until the top of the pile of sheets is in position to continue the feeding, and then the sheet-feeding mechanism is again set into operation and the fresh supply of sheets fed up intermittently as before.

It will thus be seen that I have provided a mechanism which is of exceedingly simple construction and which can be built at a low cost, thus enabling it to be used in connection with a large variety of sheet-feeding machines for printing presses and other work. The period of time during which the sheet-feeding mechanism is stopped is not sufficiently great to delay materially the work of feeding the sheets and the mechanism can be readily operated and is not liable to get out of order.

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

1. A pile elevator for sheet-feeding machines comprising two separate pile-supporting means, a single set of flexible elevating connections having free depending ends, means to connect the depending ends of said connections to either of said pile-supporting means, and means located beneath and in the path of said elevating connections to receive and support one pile-supporting means while being loaded.

2. A pile elevator for sheet-feeding machines comprising two separate pile-supporting means, a single set of flexible elevating connections, a shaft, two winding pulleys fast to said shaft, one at each end thereof and each adapted to receive the flexible connections at one side, means for intermittently rotating said shaft to wind up the said flexible elevating connections, means to connect the depending ends of said flexible elevating connections to either of said pile-supporting means, and means located beneath and independent of said elevating connections to receive and support one pile-supporting means while being loaded.

3. A pile elevator for sheet-feeding machines comprising two separate pile-supporting means, a single set of flexible elevating connections, a vertical frame, brackets mounted on the frame to receive and hold one pile-supporting means, and means to connect the depending ends of said flexible



elevating connections to either of said pile-supporting means.

4. A pile elevator for sheet-feeding machines comprising two separate pile-supporting means, a single set of flexible elevating connections, a vertical frame, vertically-adjustable brackets mounted on the frame to receive and hold one pile-supporting means, and means to connect the depending ends of said flexible elevating connections to either of said pile-supporting means.

5. A pile elevator for sheet-feeding machines comprising a set of elevating chains, two similar pile-supporting tables, a pair of

cross bars for each table having their ends projecting beyond the table, a vertical frame, brackets mounted on the frame to receive and hold said cross bars when the table is in position to be elevated, and means to connect the depending ends of said chains to the projecting ends of the cross bars.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

BERNHARD GUSTAFSON.

Witnesses:

JOSEPH M. THELLABAYER,  
JOSEPH STEEN.