J. E. SMYTH.

STACKER MECHANISM.

APPLICATION FILED NOV. 7, 1914.

1,166,017. Patented Dec. 28, 1915.

Fig. 1.

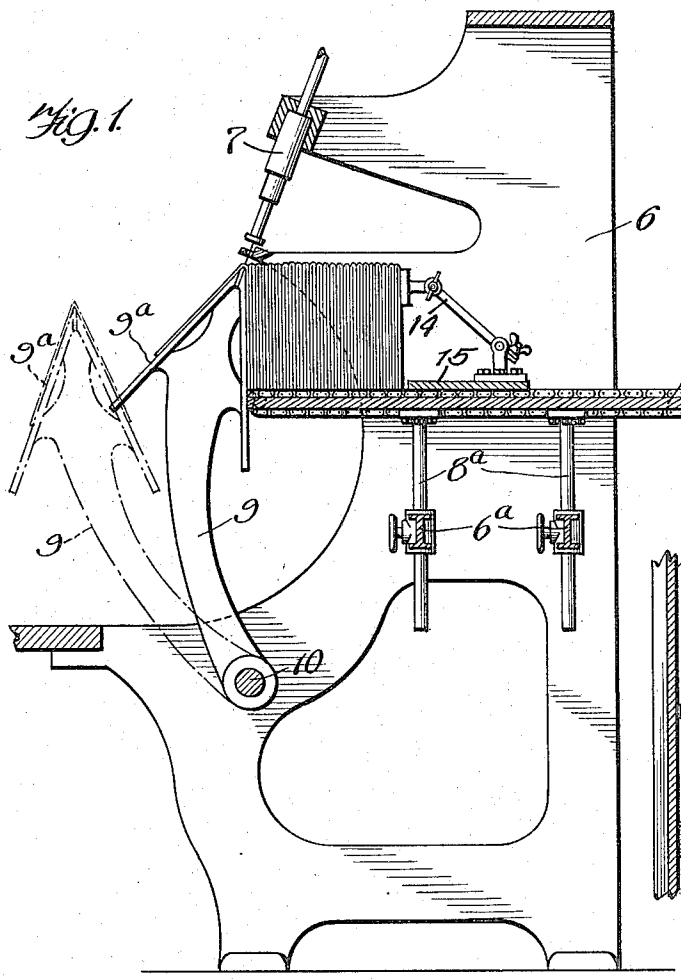


Fig. 3.

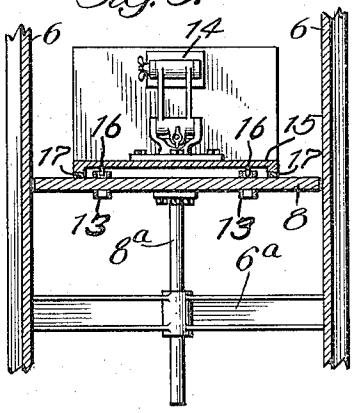
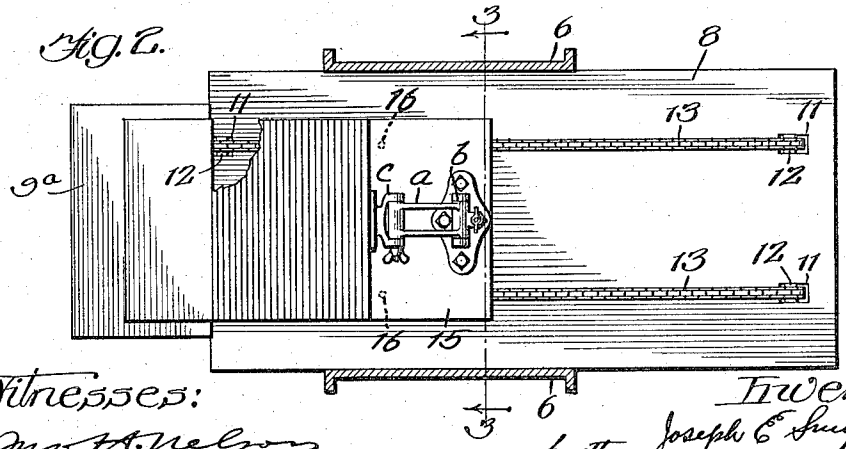


Fig. 2.



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STACKER MECHANISM.

1,166,017. Specification of Letters Patent. Patented Dec. 28, 1915.

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To all whom it may concern:

Be it known that I, JOSEPH E. SMYTH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Stacker Mechanism, of which the following is a full, clear, and exact specification, reference being had to the accompanying drawings, forming a part hereof.

My invention relates generally to stackers, and has reference more particularly to that type of stacker wherein flexible paper articles are successively delivered by a feeding device in a vertical position on a stacking table. One of the principal objects of this invention is the provision of a simple and efficient mechanism for supporting these paper articles on the table whereby the usual conveyer mechanism with its step by step actuating means may be eliminated. Another object of the invention is to produce a supporting mechanism of this character which can be easily and readily made and applied to a stacker with a minimum cost of manufacture and application. A still further object of my invention is to provide a stacker mechanism which is so constructed and arranged as to obviate the necessity for employing involved devices for adjusting the amount of travel with reference to the thickness of the articles to be stacked which have hitherto been employed in connection with an intermittent conveyer mechanism.

These, together with such other objects as may hereinafter appear or are incident to my invention, I attain by means of a construction illustrated in preferred form in the accompanying drawings, wherein—

Figure 1 is a sectional view illustrating the application of my supporting mechanism to a stitching machine;

Fig. 2 is a plan view of the same; and

Fig. 3 represents a sectional view taken along the line III—III of Fig. 2.

The construction and arrangement of supporting mechanism herein disclosed is applicable, with slight mechanical adaptation, to several types of machines that employ a stacking table or similar member adapted to have delivered to it the articles to be stacked; and while, for purposes of illustration, I have shown the application of my invention to the stacking table of a signature or book stitching machine, of a well known type, I do not intend to restrict myself in any way to this stated application.

Referring to the drawings, it will be seen that 6 indicates a side frame member of the stitching machine, 7 a suitable stitching device, 8 the stacking table, which may be adjustable vertically by means of the rods 8^a and frame struts 6^a, and 9 a reciprocating ram feed member pivotally mounted at 10 in the frame for movement in a direction to and from the feed or delivery end of the said table.

The above arrangement of parts in a stitching machine is old and well known, and the description of the mechanism for producing reciprocation of the feed member 9 and stitching needle in phase is not deemed necessary for the purposes of this present application, since the invention resides more particularly in the mechanism to be more fully described. It will be understood, however, in this type of machine, that with the feed member 9 in inoperative or normal position as shown in the dotted lines in Figure 1, a signature or other flexible paper article, is placed in semi-folded position upon the anvil 9^a, so that when the member 9 is advanced toward the feed end of the table the paper article is added in a vertical position to the stack already supported upon the table, there to be attached by means of the stitching device 7, as in a manner well known to those skilled in the art.

The table 8 is formed with slots 11 in which are mounted the idler rollers 12 that carry in spaced relation the supporting chains 13, 13. Preferably two of these chains are employed; the lowermost edges of the signatures rest upon a portion of the upper stretch of the chains so as to obviate the occurrence of any frictional contact whatever between the signatures and the upper face of the stacking table.

In order to support the stacked signatures against buckling or bulging and to insure the proper rate of travel of the chain, as additional signatures are added to the group, I provide a signature supporting standard 14 which is mounted on the base 15. The latter is provided with suitable means for engaging the chains, such as the pins 16, 16, each of which project downwardly from the under face of the base to engage in one of the chain links, as is best shown in Figure 3.

One or more friction strips 17, 17, are also desirably provided on the underface of this base, as for example, at or near the marginal side edges thereof, which serve to effectually prevent any movement of the conveying mechanism in excess of the thickness of the article to be delivered to the stack.

The standard 14 engages the front face of the stack preferably at a point adjacent its top line, and may further, if desired, be made extensible for its adaptation to varying heights of the paper articles, and with this end in view the support may comprise the intermediate arm —*a*— pivotally mounted at one end in the yoke base member —*b*— and at the other end in the supporting member —*c*—; though it will be understood that I do not intend to restrict myself to this construction.

It will be seen, therefore, that the chains constitute in effect a shiftable or traveling table or support for the stack, and that as the feed member 9 adds a signature to the stack, the feed member pushes the stack a distance equal to the thickness of the signature being added. By providing a support for the stack capable of movement with the stack, I am able to eliminate the conveyer mechanism which is commonly provided for positively advancing the stack with an intermittent movement. That form of apparatus is complicated as the conveyer is given an intermittent movement by intermediate ratchet and pawl mechanism which is provided with means to effect adjustment of the positive feed to correspond with the thickness of a signature.

I claim:

1. In a stacker, the combination of a stacking table having rollers journaled therein, a flexible stack receiving device upon which the bottom edge of the stack rests, said device being carried by the table and said rollers for stack supporting travel upon and along the upper face of the table intermediate the rollers, a feed means movable toward the feed end of the table for delivering additional paper articles substantially vertically against one face of the stack, and a stack end supporting member having a portion engaging the opposite face of the stack and a base operatively engaging the stack receiving device to be advanced thereby as additional paper articles are delivered to the stack, the extent of advance being determined by the thickness of the article added to the stack.

2. In a stacker, the combination of a stacking table, a relatively movable device carried thereby having a stack receiving portion upon which the bottom edge of the stack rests and interposed between said bottom edge and the upper face of the table for stack supporting travel upon said upper face, a feed means movable toward the feed end of the table for successively delivering additional flexible paper articles substantially vertically against one face of the stack, and a stack end supporting member having a substantially vertical portion engaging the opposite face of the stack and a base having engaging portions frictionally contacting with the upper face of the table and operatively engaging the stack receiving portion to be advanced thereby as additional paper articles are delivered to the stack, the extent of advance being determined by the thickness of the article added to the stack.

3. In a stacker, the combination of a stacking table, flexible stack receiving devices movably carried by said table to have their upper stretches disposed substantially in parallelism upon the upper face of the table to receive the stack, a feed means for feeding additional articles to the stack, and a stack end supporting member having a base provided with depending portions frictionally contacting with the table and operatively engaging with the said upper stretches, substantially as and for the purpose set forth.

In testimony whereof I have hereunto signed my name in the presence of the two subscribed witnesses.

JOSEPH E. SMYTH.

Witnesses:
W. HERBERT FOWKES,
MARGARET MOORE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."