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SIGNATURE HANDLING DEVICE.

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Fig. 1.

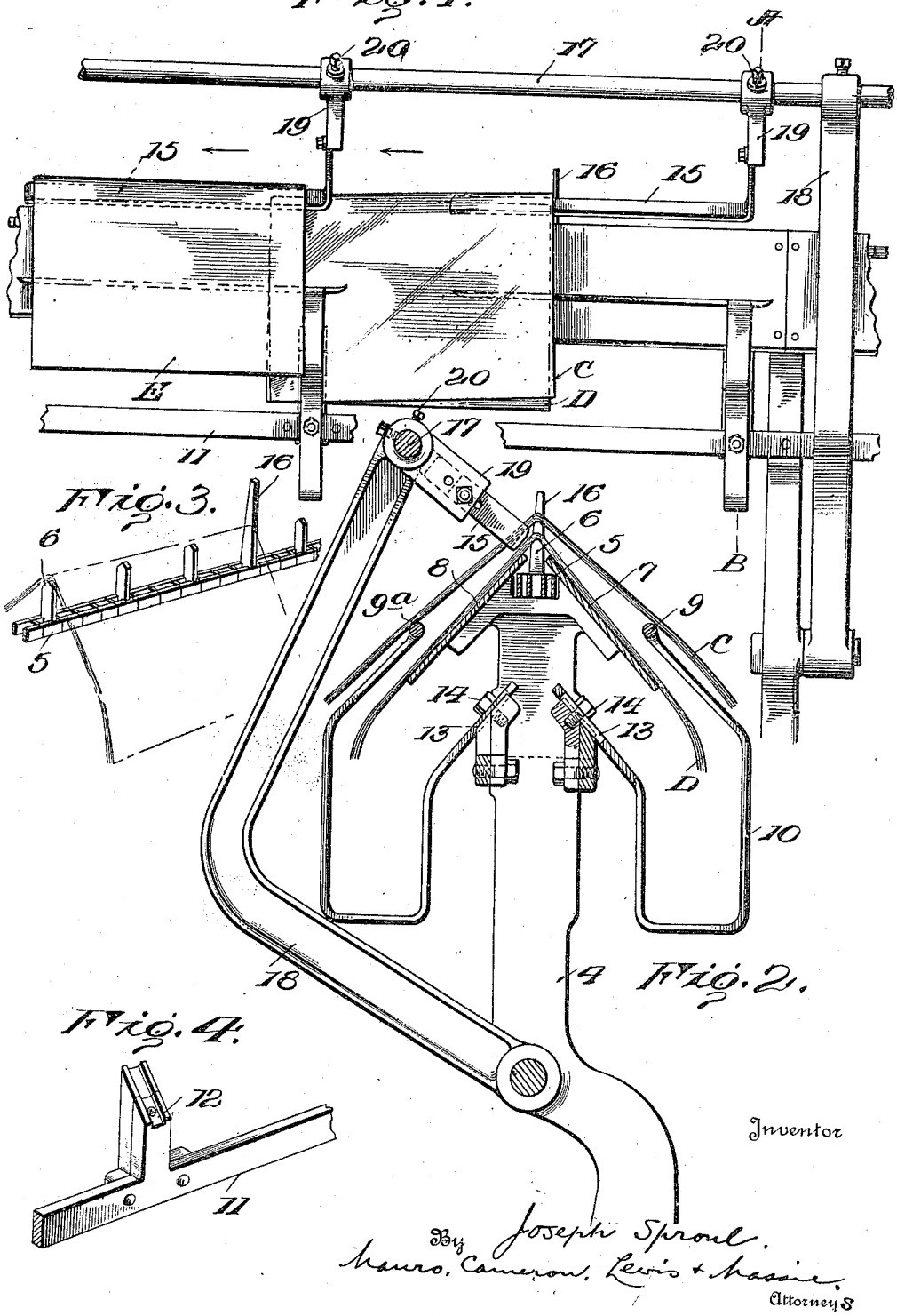


Fig. 3.

Fig. 2.

Fig. 4.

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SIGNATURE-HANDLING DEVICE.

1,294,559. Specification of Letters Patent. Patented Feb. 18, 1919.

Application filed October 24, 1917. Serial No. 198,307.

To all whom it may concern:

Be it known that I, JOSEPH SPROUL, a citizen of the United States of America, and a resident of Jersey City Heights, New Jersey, have invented a new and useful Improvement in Signature-Handling Devices, which invention is fully set forth in the following specification.

The present invention relates to signature-associating mechanism, and has for its object to provide means for effectively and expeditiously assembling signatures in inset relation, and preferably wire-stitching or otherwise securing together said inset signatures.

Machines of this character, such as heretofore used by me, have employed a plurality of members on which the signatures were held in open position (having been placed there either manually or mechanically), a support arranged below and longitudinally of said members, and a plurality of signature-engaging devices that acted to remove the several signatures endwise from said members astraddle said support, whereby one signature was inset within another. Heretofore trouble has been experienced due to the fact that the forward edge of a signature which was being progressed along the support to be inset within a signature suspended from one of said members, would contact with the rear edge of said suspended signature and would prematurely remove it from said member, would prevent the proper insetting action and would clog the machine.

The object of the present invention is to provide means whereby the leaves or plies of each signature thus suspended will be held or spaced away from the support along which the signatures are progressed; in other words, held out of the normal path of movement of the signatures on said conveyer so that the moving signatures will be certainly and accurately inset within the suspended signatures, the suspended signatures will not be accidentally knocked from said members by the moving signatures, but said suspended signatures will only be removed from said members by said signature-engaging devices—all of which insures increased production of perfect books with a minimum of work on the part of the operators.

The invention will be better understood by reference to the accompanying drawing, wherein—

Figure 1 is a side elevation of part of the device;

Fig. 2 is a cross-section on the line A—B of Fig. 1;

Figs. 3 and 4 are detail views.

Referring to said drawing, wherein like reference numerals indicate like parts, 4 is one of a plurality of standards on which is mounted a support on which signatures are straddled and along which they are progressed in open position. This support may consist solely of a conveyer chain 5 provided with inverted V-shaped supporting elements 6, or such a chain with the said elements projecting upwardly through inclined stationary plates 7 and 8. I prefer the latter construction. In either case, I provide, on either side of the support, suitable means for holding the leaves of the signatures away from the support and out of the normal path of movement of the signatures on said support. These means are preferably in the form of rods or bars 9 and 9^a arranged longitudinally of the support and below the line of support of the signature. These rods or bars are mounted on suitable carriers 10 which are mounted for vertical adjustment so that the rods 9 and 9^a may be moved nearer to or farther from the apex of the support, thus adapting the device for use with signatures of various sizes. As here shown, the carriers 10 are mounted on strips 11 extending longitudinally of the support and provided with a slot 12 in which slides the end of the carrier provided with a slot 13. An adjusting screw 14 holds the carrier in the desired position.

Above the support are arranged a plurality of members 15 on which the signatures are placed either manually or mechanically and from which they are suspended in position to be removed endwise from said members by signature-engaging elements or pins 16 carried by the conveyer 5. These members 15 are supported from a rod 17 carried by brackets 18; and each is carried by an arm 19 on which it is adjustable toward or from the support. Said arm is also adjustable around the bar 17 and is held in adjusted position by screw 20. The supporting

members 15 are preferably in the form of a thin blade from which the signatures may be readily removed by the pins 16; and said members are adjusted close to the path of said pins 16, so that the latter pass the same with little clearance.

Prior to the development of the present invention, the leaves of the signatures suspended from the members 15 would engage the stationary plates 7 and 8 along which the moving signatures were being progressed. This frequently resulted in difficulties, caused by the front edge of the moving signatures engaging the rear edge of the suspended signature and prematurely removing the latter from the member 15 and preventing the assembling of the signatures in inset relation. This difficulty is now eliminated for, as clearly shown in Fig. 2, the leaves or plies of the suspended signature are held by the rods or bars 9 and 9^a out of the normal path of travel of the signature D which is being progressed along the support. In Fig. 1, signature C is shown partially removed from its member 15 with signature D inset therein, and both signatures C and D moving into inset relation with signature E, the endwise movement of which has not yet started.

While, for the purpose of illustration, one expression of the inventive idea has been shown and described with great particularity, it is to be understood that the invention is not limited to the embodiment shown but that the inventive idea may receive various mechanical expressions within the limits of the claims annexed hereto.

What is claimed is:—

1. In a combination, a support on which signatures are held in open position, a member arranged above and longitudinally of said support on which signatures are held in open position, a traveling device which engages the open signatures on said member and removes them endwise therefrom onto said support, and rods arranged on either side of said support for holding the leaves of the signature on said member out of the normal path of movement of the signatures on said support.

2. In combination, a support on which signatures are held in open position, a member arranged above and longitudinally of said support on which signatures are held in open position, a traveling device which engages the open signatures on said member and removes them endwise therefrom onto said support, and means arranged on either side of said support for holding the leaves of the signature on said member out of the normal path of movement of the signatures on said support.

3. In combination, a support on which signatures are held in open position, a member arranged above and longitudinally of said support on which signatures are held in open position, a traveling device which engages the open signatures on said member and removes them endwise therefrom onto said support, and adjustable means arranged on either side of said support for holding the leaves of the signature on said member out of the normal path of movement of the signatures on said support.

4. In combination, a plurality of members on which signatures are held in open position, a support on which the signatures are held open arranged below and longitudinally of said members, said support including stationary parts and a movable part arranged between said stationary parts and projecting above the same, and a plurality of signature-engaging devices traveling with said movable part and acting to remove the signatures endwise from said members into engagement with said support whereby one signature is inset within another, and means arranged on either side of said support for holding the leaves of the signature on said member out of the normal path of movement of the signatures on said support.

5. In combination, a plurality of members on which signatures are held in open position, a support on which the signatures are held open arranged below and longitudinally of said members, said support including stationary parts and a movable part arranged between said stationary parts and projecting above the same, and a plurality of signature-engaging devices traveling with said movable part and acting to remove the signatures endwise from said members into engagement with said support whereby one signature is inset within another, and rods arranged on either side of said support for holding the leaves of the signature on said member out of the normal path of movement of the signatures on said support.

6. In combination, a support on which signatures are held in open position, a member arranged above and longitudinally of said support on which signatures are held in open position, a traveling device which engages the open signatures on said member and removes them endwise therefrom onto said support, and rods or bars arranged longitudinally of said support on each side thereof and below the line of support of the signatures for spacing the leaves of the signatures away from said support.

7. In combination, a support on which signatures are held in open position, a member arranged above and longitudinally of said support on which signatures are held in open position, a traveling device which engages the open signatures on said member and removes them endwise therefrom onto said support, and means arranged longitudinally of said support on each side thereof

and below the line of support of the signatures for spacing the leaves of the signatures away from said support.

8. In combination, a member on which signatures are held in open position, a support on which the signatures are held open arranged below said member, said support including stationary and movable parts, and a traveling signature-engaging device that removes the signatures endwise from said member into engagement with said support, and means arranged longitudinally of said support on each side thereof and below the line of support of the signatures for spacing the leaves of the signatures away from said support.

9. In combination, a member on which signatures are held in open position, a support on which the signatures are held open arranged below said member, said support including stationary parts and a movable part arranged between said stationary parts and projecting above the same, and a signature-engaging device traveling with said movable part and acting to remove the signatures endwise from said member into engagement with said support, and means arranged longitudinally of said support on each side thereof and below the line of support of the signatures for spacing the leaves of the signatures away from said support.

10. In combination, a plurality of members on which signatures are held in open position, a support arranged below said members on which the signatures are held open, said support including stationary and movable parts, and a plurality of traveling signature-engaging devices that remove the signatures endwise from said members into engagement with said support, whereby one signature is inset within another, and means arranged longitudinally of said support on each side thereof and below the line of support of the signatures for spacing the leaves of the signatures away from said support.

11. In combination, a plurality of members on which signatures are held in open position, a support on which the signatures are held open arranged below and longitudinally of said members, said support including stationary parts and a movable part arranged between said stationary parts and projecting above the same, and a plurality of signature-engaging devices traveling with said movable part and acting to remove the signature endwise from said members into engagement with said support whereby one signature is inset within another, and means arranged longitudinally of said support on each side thereof and below the line of support of the signatures for spacing the leaves of the signatures away from said support.

12. In combination, a linked conveyer for groups of signatures, supporting elements for said groups carried by said conveyer and projecting upwardly, said elements being of inverted V-shape in cross-section and one being carried by each link, a member arranged above and longitudinally of said conveyer on which signatures are held in open position, signature-engaging means associated with said elements and removing said signatures from said member onto said elements, and means arranged longitudinally of said support on each side thereof and below the line of support of the signatures for spacing the leaves of the signatures away from said support.

In testimony whereof I have signed this specification.

JOSEPH SPROUL.

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