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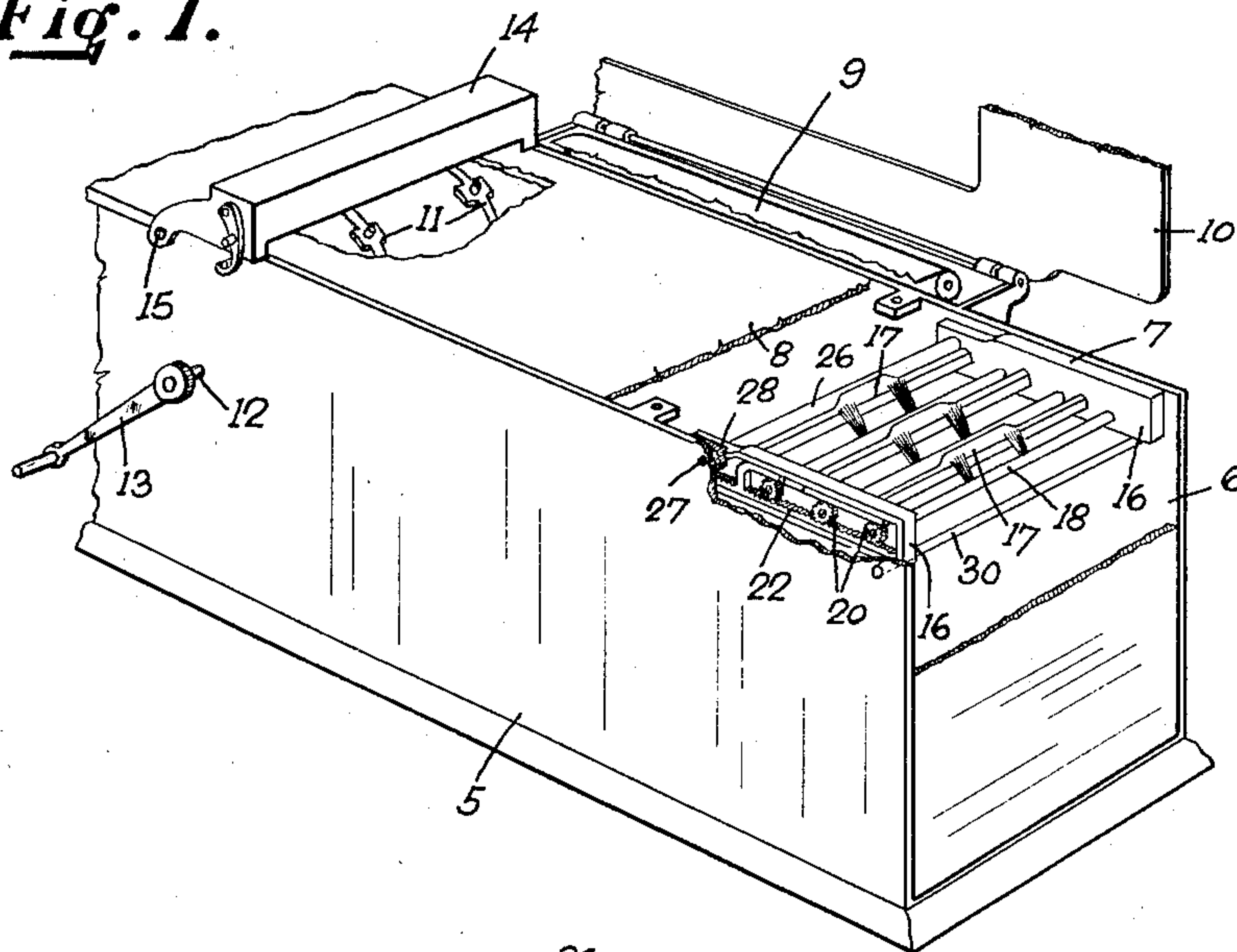
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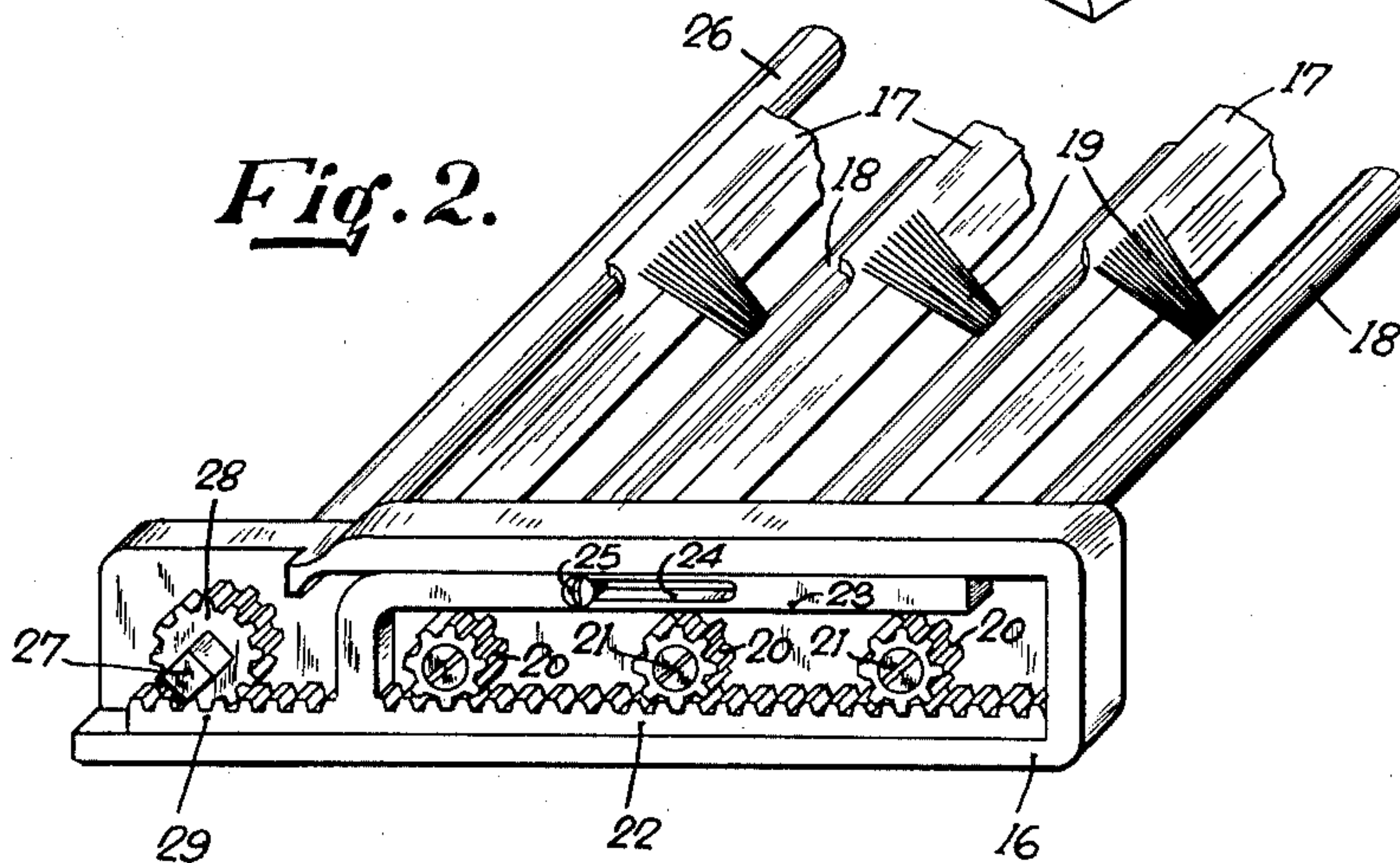
RECORD STRIP CONTROL

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*Fig. 1.*



*Fig. 2.*



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## UNITED STATES PATENT OFFICE

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## RECORD STRIP CONTROL

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7 Claims. (Cl. 271—2.1)

This invention relates to improvements in devices for controlling the movements of strips such as paper record strips and the like, and with reference to a more particular feature, it relates to an improved device for opening or releasing the grip or frictional control upon the strips whereby said strips may be easily and quickly threaded into operative position.

It is a general object of the invention to provide an improved mechanism for controlling the movements of the record or similar strips and for tensioning or smoothing them to keep them free of bulges, wrinkles, or other irregularities such as might interfere with the manifolding inscriptions or the production of clear legible copies.

Another object of the invention is to provide an improved mounting arrangement for the record strip control whereby the controlling elements may be readily moved from their normal operative position into a convenient and accessible position for initially threading the record strips into position with reference to the controlling elements to provide for free unobstructed entry of the record strips into operative position.

Other objects of the invention will be in part pointed out in the following detailed description of an illustrative but preferred embodiment of the invention and will be in part obvious in connection therewith.

The invention accordingly comprises the features of construction, combinations of elements, and arrangement of parts, which will be exemplified in the construction hereinafter set forth and the scope of the application of which will be indicated in the claims.

For a more complete disclosure and understanding of the nature and objects of the invention, reference is had to the following detailed description of the illustrative embodiment and to the accompanying drawing, of which:

Fig. 1 is a perspective view of a record or manifolding machine constructed in accordance with the invention, parts being broken away in order to reveal the construction and arrangement of parts, and

Fig. 2 is a fragmentary, enlarged, perspective view of the strip controlling element or frame.

The invention is herein disclosed as embodied in a record machine of the autographic register type such as disclosed in the Hagemann Patent No. 1,804,608, granted May 12, 1931. It will be understood, however, that the improved strip-controlling mechanism may be embodied in other types of machines. For illustrative purposes, the invention is disclosed as embodying strip-con-

trolling mechanism of the brush tension or frictional control type, as fully set forth in the Hagemann patent mentioned. It will be clear, however, to those skilled in the art that the strip-controlling elements need not be of the brush tension type, but may be of other known types.

Referring to the drawing, the machine shown includes a casing 5 which may be of any known type, such, for example, as is disclosed in the Hagemann patent, being provided with an interior compartment 6 in which the supply of record strips may be housed. The record strip-controlling element or frame is indicated generally at 7 and is attached to and positioned upon the frame above the storage compartment. Forwardly of the strip-controlling frame 7 is a flat writing plate or platen 8 upon which the record strip or strips are supported for reception of the inscriptions. Any appropriate support and housing may be provided for the one or more transfer strips 9 which may be interleaved with the record strips over the platen in the usual manner. A cover plate 10 is hinged to the casing outside of the transfer strip housing.

Any appropriate feeding mechanism for the record strips may be provided, that shown being of the type disclosed in the Hagemann patent and including feed discs 11 mounted upon a feed shaft 12 rotatably supported in the casing and having attached thereto an operating crank 13. An upper feed roll co-operates with the disc peripheries to grip the record strips between the discs and feed roll. The feed roll, as in the Hagemann patent, is mounted in a supporting casing and housing 14, pivotally mounted at 15 upon the machine. Other well known types of feeding mechanism may be substituted for that shown, or the strips may be pulled forwardly manually.

As shown, the strip controlling frame includes two longitudinally extending side frame members 16 connected together by transversely extending tie rods or plates 17, which also provide supports and guides for the record strips as they emerge from the supply compartment into writing position upon the platen. Spaced a short distance to the rearward of each guide plate 17 is a companion strip controlling element including a rod or shaft 18, rotatably supported in the side frame members of the controlling frame and carrying one or more frictional strip controlling elements 19, disclosed as bundles of fibres such as bristles, as fully disclosed in the Hagemann patent mentioned. The bristle or bundle arms 19 are thus positioned for co-operation with the respective guide plates 17 and are rotatably supported



by the shafts 18 for movement toward and away from the guide plates. The plates 17 and the bristle arms 19 thus provide opposing elements or jaws for frictional engagement of the record strips passing therebetween.

Each of the supporting shafts 18 is provided at one end thereof, mounted in the frame member 16, with a toothed pinion 20 which may be attached to the end of the shaft in any preferred manner, as, for example, by means of a screw 21. The screw 21 is arranged to secure the pinion firmly and non-rotatably to the respective shaft 18. The pinion may thus be secured frictionally to the end of the shaft, but co-operating lugs or serrated surfaces may be provided between each pinion and the end of the shaft so as to prevent relative rotation of the pinion with reference to the shaft.

Mounted upon the outer surface of one of the frame members 16 is a driving rack bar 22 having teeth meshing respectively with the pinions 20. This rack bar is mounted for longitudinal sliding movement upon the frame member 16 and preferably has a guiding extension 23 provided with an elongated longitudinally extending slot 24 for the reception of a retaining member or pin, such as the screw 25.

The controlling frame 7 is mounted for pivotal movement upon a pivot rod 26, positioned at the forward end of the controlling frame and anchored in the side walls of the casing by means of end extensions, one of which is shown at 27. These end extensions are anchored against rotation in the casing walls and may, for this purpose, be square or of other non-circular form. Rigidly and non-rotatably mounted upon the pivot rod or support 26 is a toothed driving pinion 28 meshing with a toothed rack bar 29 attached to or forming an extension of the rack bar 22.

It will now be seen that the frictional controlling elements, including the guide plates 17 and the bristle arms 19, will exert frictional smoothing tension upon the record strips individually as said strips pass forwardly from the supply compartment into writing position upon the platen. When the controlling frame 7 is in its normal operating position, this being the horizontal position in which it is shown in Fig. 1, the bristle elements are normally tensioned to exert the desired frictional restraint upon the strips. The controlling frame is supported at its rearward end in this position by means of any appropriate rest such as the supporting rod 30. When a new set of strips is to be threaded into position in the controlling element, the controlling frame 7 is swung upwardly upon its supporting rod 26 as a pivot. This brings the controlling element into position for convenient access for the strip threading operation.

As the frame 7 swings upwardly, the rack bar 22 moves longitudinally of the frame member 16 by virtue of engagement of the driving pinion 28 with the rack bar extension 29. This movement of the rack bar will be toward the left, as viewed in Fig. 2. In this manner, each of the shafts 18 is rotated slightly in a clockwise direction, as viewed in Fig. 2, thus opening the grip between the bristle elements 19 and the strip guiding plates 17. The parts are proportioned so that the brush elements will be spaced some distance from the respective guide plates when the controlling frame 7 reaches its final upward position. It will, therefore, be seen that the record strips may now be freely threaded between the guide plates and the com-

panion bristle elements. Therefore, the threading of the strips into position is greatly facilitated.

After completion of the threading of the strips into position, the controlling frame 7 is moved downwardly into its normal operative position, thus moving the brush tensioning elements back again into their normal strip-controlling positions. The brush elements are maintained in this position by the continued engagement of the pinions with the rack bar. If it is desired to vary the tension of any one of the frictional controlling elements, this may readily be done by angularly adjusting the respective pinion 20 upon its shaft 18. In this manner, one or more of the frictional bristle members may be adjusted independently of the others, or all of them may be adjusted as desired to vary the frictional control exerted upon the strips.

Since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

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

1. In an apparatus of the character described, in combination, a strip controlling frame for controlling strips in their passage from a supply, pivotal mounting means for said controlling frame whereby the latter is pivotally movable from its operative position into position for access for threading the strips into operative position thereon, at least one strip guide mounted upon said frame and extending transversely of the strip path, a strip controlling member carried by said frame and engaging the strip to press it against said strip guide to exert frictional restraint to advancement, means for mounting said strip controlling member for movement toward and away from strip engaging position, and operating connections including a rack and pinion connection mounted upon said controlling frame for automatically moving said strip controlling member into strip engaging and strip releasing positions upon pivotal movement of the controlling frame in opposite directions.

2. In an apparatus of the character described, in combination, a strip controlling frame for controlling strips in their passage from a supply, pivotal mounting means for said controlling frame whereby the latter is pivotally movable from its operative position into position for access for threading the strips into operative position thereon, at least one strip guide mounted upon said frame and extending transversely of the strip path, a strip controlling member carried by said frame and engaging the strip to press it against said strip guide to exert frictional restraint to advancement, means for mounting said strip controlling member for movement toward and away from strip engaging position, operating connections including a rack and pinion connection mounted upon said controlling frame for automatically moving said strip controlling member into strip engaging and strip releasing positions upon pivotal movement of the controlling frame in opposite directions, and means whereby said operative connections are effective to maintain said strip controlling member in operative strip controlling position when said controlling frame is in its operative position.

3. In an apparatus of the character described,



in combination, a strip controlling frame for controlling strips in their passage from a supply, pivotal mounting means for said controlling frame whereby the latter is pivotally movable from its operative position into position for access for threading the strips into operative position thereon, at least one strip guide mounted upon said frame and extending transversely of the strip path, a strip controlling member carried by said frame and engaging the strip to press it against said strip guide to exert frictional restraint to advancement, means for mounting said strip controlling member for movement toward and away from strip engaging position, operating connections including a rack and pinion connection mounted upon said controlling frame for automatically moving said strip controlling member into strip engaging and strip releasing positions upon pivotal movement of the controlling frame in opposite directions, a driving pinion mounted coincidentally of the pivot of said pivotal mounting, and a second rack bar operatively engaging said driving pinion.

4. In an apparatus of the character described, in combination, a strip controlling frame having one or more strip engaging elements and being mounted for movement from normal operative position upwardly above its mounting for access for the purpose of threading the strip into position thereon, one or more strip controlling elements carried by said controlling frame, each said controlling element including a rotary strip engaging frictional controlling member cooperating respectively with said strip engaging elements, a rack and pinion device for controlling each of said rotary controlling members, and automatic means for operating said rack to move each said controlling member to strip releasing position when said controlling frame is moved to strip threading position.

5. In an apparatus of the character described, in combination, a strip controlling frame having one or more strip engaging elements and being pivotally mounted for movement from normal operative position upwardly for access for threading the strip into position thereon, one or more strip controlling elements carried by said controlling frame, each said controlling element including a rotary strip engaging frictional controlling member cooperating respectively with said strip engaging elements, a rack and pinion device including a pinion for each of said rotary controlling members, a rack bar operatively connected to said rack and pinion device, and a driv-

ing pinion anchored to the frame of the apparatus meshing with said rack bar and mounted coincidentally with the pivotal mounting of said controlling frame for automatically moving each rotary controlling member to strip releasing position when said controlling frame is moved to strip threading position.

6. In an apparatus of the character described, in combination, a strip controlling frame having one or more strip engaging elements and being pivotally mounted for movement from normal operative position upwardly for access for threading the strip into position thereon, one or more strip controlling elements carried by said controlling frame, each said controlling element including a rotary strip engaging frictional controlling member cooperating respectively with said strip engaging elements, a rack and pinion device including a pinion for each of said rotary controlling members, a rack bar operatively connected to said rack and pinion device, said rack and rack bar being slidably mounted for sliding movement upon said controlling frame, and a driving pinion anchored to the frame of the apparatus meshing with said rack bar and mounted coincidentally with the pivotal mounting of said controlling frame for automatically moving each rotary controlling member to strip releasing position when said controlling frame is moved to strip threading position.

7. In an apparatus of the character described, in combination, a strip controlling frame having one or more strip engaging elements and being mounted for movement from normal operative position upwardly above its mounting for access for the purpose of threading the strip into position thereon, one or more strip controlling elements carried by said controlling frame, each said controlling element including a rotary strip engaging frictional controlling member cooperating respectively with said strip engaging elements, a rack and pinion device for controlling each of said rotary controlling members and including a pinion connected to each rotary member, and automatic means for operating said rack and pinion device to move each said controlling member to strip releasing position when said controlling frame is moved to strip threading position, said pinion for each controlling element being individually, angularly adjustable for individual adjustment of the rotary frictional controlling members.

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