

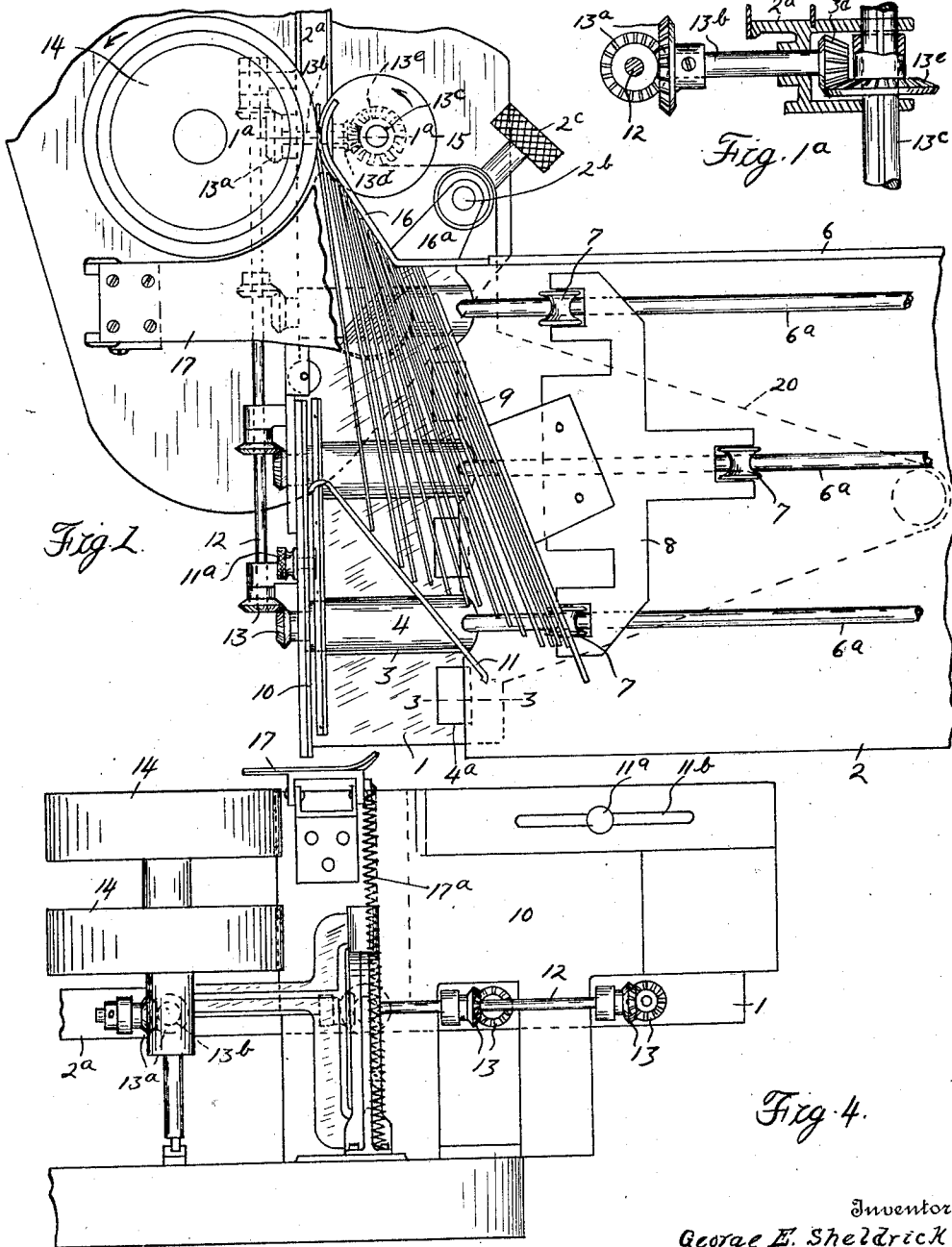
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ENVELOPE FEED MECHANISM

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ENVELOPE-FEED MECHANISM.

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This invention relates to feed mechanisms and more particularly to mechanisms for feeding envelopes and the like. The invention has a special application to machines for sealing and stamping mail matter or for printing mailing permits on the same.

It is the object of the invention to provide a mechanism that will automatically feed envelopes, one by one, to suitable feed rolls or the like from a stack or pile of any size.

In the drawings:—

Figure 1 is a plan view of the improved feed mechanism;

Figure 1^a is a detail sectional view of a portion of the drive mechanism for certain rollers which are mounted upon the envelope feed table, the section being taken on line 1^a—1^a of Figure 1;

Figure 2 is a perspective view of the invention;

Figure 3 is a view in elevation looking in the direction of feed;

Figure 4 is an elevation looking transversely to the direction of feed.

In these views, the reference character 1 designates a horizontal feed table having a marginal depending flange 1^a and 2 is a sheet metal stack carrier, forming a detachable extension of said table, inclining upwardly from the same. 2^a is a track rigidly connected with the table 1, provision being made for feeding envelopes successively from the table on to said track. The latter may guide the envelopes while they are being subjected to sealing or stamping or any desired operations. 2^b is a post mounting said table and track and 2^c a set screw by which the unit comprising said table and track may be held at various elevations. Said table is formed with slots 3 through which parallel rollers 4, journaled in the flanges 1^a, project slightly upward. A row of smaller slots 4^a in said table receive downturned tongues 4^b on the lower end of the stack carrier for holding said end in proper position. At its upper edge and along one side edge, the stack carrier 2 is formed with upstanding flanges 5 and 6 respectively, the latter forming an abutment for the envelope ends. Said stack carrier also carries rails 6^a corresponding respectively to the rollers 4, and extending in the direction of inclination, each preferably terminating above one of the rollers 4 (see

Figure 1). Said rails are engaged by the grooved wheels 7 of a carriage comprising a metallic frame 8 and a presser plate 9 upstanding thereupon, in a diagonal relation to the rails. The table 1 carries an upstanding plate 10 extending along its edge opposite to that engaged by the extension 2, and upon said plate there is mounted a deflector bracket 11 which projects above the table 1 to engage the rear ends of the envelopes and is inclined to the ultimate direction of travel of the envelopes at an angle somewhat greater than that of the presser plate. Said bracket is secured by a stud bolt 11^a and co-acting clamping nut, said bolt passing through a longitudinal slot 11^b in the plate 10 to provide for adjustment of said bracket in the direction of feed adapting it for use with envelopes of various lengths. The tendency of the deflector member 11 is to hold back the main stack of the envelopes from contact with that engaged by the rollers so as to minimize frictional resistance to advance of said engaged envelope. The envelopes, as soon as they feed from the stack carrier to the table 1 are urged in the direction of travel along the track 2^a by a drive applied to the rollers 4 from a shaft 12 through beveled gears 13. Said shaft is driven through gears 13^a from a short shaft 13^b transversely journaled in the track 2^a, and a vertical shaft 13^c drives said short shaft through gears 13^d and 13^e, the latter splined on said vertical shaft. At each side of the track 2^a there are vertically journaled coacting vertical rollers 14 and 15, the latter preferably fast upon the shaft 13^c. The rollers 14 are co-axial and slightly spaced and are driven, as indicated by the arrow, so as to frictionally urge in the direction of feed any envelope engaged between said rollers and the roller 15. The latter is relatively small and opposes the space intervening between the rollers 14, and is driven in the same direction as the latter rollers, consequently exercising a retractive effort upon engaged envelopes, as roll 15 has a less coefficient of friction than the rollers 14. 16 is a guide arm approximately parallel to the deflector 11, arranged adjacent the rollers 14 and 15, and tending to produce a stepped relation of the stack of envelopes as they approach the feed rolls so that the foremost envelope may more readily engage singly

between said rolls. Said arm is mounted upon the post 2^b by a lug 16^a. 17 is a presser plate pivotally mounted upon a bracket 17^a carried by the plate 10 and said plate 17 overhanging the table 1 for maintaining the envelopes in proper contact with the rollers 4. 17^b is a spring subjecting said presser plate to a slight downward pull.

In the operation of the described invention, the stack of envelopes ready for sealing or stamping (or some other operation) are placed on edge on the stack carrier 2, the carriage 7, 8, 9 having first been raised to the upper portion of said carrier. It is preferred to mount a hook 18 upon the flange 5 for engagement with the carriage to hold the same in its uppermost position, while envelopes are being stacked upon the extension. When the envelopes are in place, the carriage is released, to act through the presser plate 9 upon the stack of envelopes, tending to constantly feed them downwardly to the table 1. The rails 6 in addition to forming guides for the carriage, provide anti-friction supports for the envelopes resting upon the stack carrier. Such of the envelopes as rest upon the table 1 are urged by the driven rollers 4 toward the feed rolls 14, 15. Because of the relatively large area of frictional contact of the rolls 14 with the foremost envelope as compared to the contact area of the roll 15, said envelope is advanced by the former rolls regardless of the retarding effect exerted by the latter roll. It is impossible, however, for more than one envelope at a time to advance between the rolls 14 and 15 because of the retractive effort exerted by the latter roll. This is for the reason that only the foremost envelope is subjected to the feeding effort of the rolls 14 and consequently any of the envelopes other than the foremost one are restrained by the roller 15 from advancing beyond the tangential line of said rolls. By suitably adjusting the bolts 11^a in the slot 11^b the deflector bracket 11 may be shifted to or from the rolls 14, 15 according to the length of the envelopes being fed. The table 1 and track 2^a, together with the stack carrier 2, rollers 4 and the drive mechanism comprised by the shafts 12 and 13^b and gears 13, 13^a and 13^d form a unit which is adjustable vertically to permit different sizes of envelopes to be properly presented to mechanism (not shown) upon the base plate 1^a. The gear 13^c because of its spline connection with the vertical shaft 13^c maintains a drive to said rollers in all positions of such vertical adjustment.

The described feed mechanism while particularly intended for handling envelopes is obviously adapted for accomplishing a unitary feed of stacked articles of any sort which in their general dimensions correspond to envelopes, as for example post-

cards. The device accomplishes an important labor saving since once the envelopes are stacked upon the carrier 2 and upon the feed table they are fed therefrom automatically without requiring attention.

It will be noted that the table 1 has a triangular projection 20 beneath the stack-carrier 2, said extension at its apex carrying a vertical rod 21 which is pivoted to said stack carrier and supports the same. A set collar 22 on said rod provides for adjusting the same vertically to adjust the stack carrier to the most efficient inclination.

What I claim as my invention is:—

1. In a feed mechanism for envelopes or the like, the combination with a movable support for the envelopes or the like, of means for driving said support, single-feed means toward which said support is driven, and a deflector extending above said support at an angle to the direction of drive for engaging the rear edges of the envelopes.

2. In a feed mechanism for envelopes or the like, the combination with a movable support for envelopes or the like, of drive means therefor, means for delivering envelopes under pressure to said support transversely to the direction of drive thereof, and an arm extending above said support at an angle to the direction of drive thereof for engaging the rear edges of the envelopes.

3. In a feed mechanism for envelopes or the like, the combination with a feed table and an inclined carrier for a stack of envelopes or the like, said table having an extension beneath said carrier, and the lower end of the carrier being supported upon said table; of another support for said carrier mounted on said extension and adjustable vertically upon the extension to vary the inclination of said carrier.

4. In a feed mechanism for envelopes or the like, an inclined stack carrier, a member movable down the incline of said carrier for exerting pressure upon the stack, and means for detachably securing said member upon the upper portion of said carrier.

5. In a feed mechanism for envelopes or the like, a vertically adjustable feed table, a plurality of transversely disposed rollers mounted upon said table, and means maintaining a drive to said rollers in any position of adjustment of said table.

6. In a feed mechanism for envelopes or the like, a feed table, rollers horizontally journaled upon said table for carrying the envelopes upright, a member mounted to extend above the envelopes, and means yieldably urging said member downwardly to exert pressure therefrom upon the top edges of the envelopes.

7. An envelope feeding mechanism comprising rollers for supporting envelopes or

the like, means for driving said rollers in a constant direction, means for advancing envelopes upon said rollers in a direction transverse to the actuation of the envelopes by the rollers, and a single-feed device delivering the envelopes from the rollers.

8. In an envelope feeding mechanism a table provided with means for forwarding envelopes longitudinally thereof; an inclined carrier beside the table having a series of anti-friction rails disposed transversely to the table with their lower ends projecting over the forwarding means; and means for moving envelopes facewise along the rails onto the forwarding means.

9. In mechanism as set forth in claim 8, means adjacent one end of the carrier for separating the envelopes and successively forwarding them from the feeding means.

10. In mechanism as set forth in claim 8, means for yieldingly pressing the envelopes downwardly upon the forwarding means.

11. In mechanism as set forth in claim 8, means for yieldingly pressing the envelopes downwardly upon the forwarding means; and means adjacent one end of the carrier for separating the envelopes and successively forwarding them from the feeding means.

12. In an envelope feeding mechanism, a table provided with rollers for forwarding envelopes longitudinally thereof; an inclined carrier beside the table having a series of anti-friction rails disposed transversely to the table and having their lower ends projecting over the forwarding rollers, the envelopes being movable facewise along the rails onto the rollers.

13. In mechanism as set forth in claim 12, means adjacent one end of the table for separating the envelopes and successively forwarding them from the rollers.

14. In mechanism as set forth in claim 12, means for yieldingly pressing the envelopes downwardly upon the carrier.

15. In mechanism as set forth in claim 12, means for yieldingly pressing the envelopes downwardly upon the rollers, and means adjacent one end of the table for separating the envelopes and successively forwarding them from the rollers.

16. In an envelope feeding mechanism, a table provided with rollers for forwarding

envelopes longitudinally thereof; an inclined carrier beside the table having a series of anti-friction rails disposed transversely to the table and projecting over the forwarding rollers; means for moving the envelopes facewise along the rails onto the rollers; and means adjacent one end of the table for separating the envelopes and successively forwarding them from the roller means.

17. An envelope feed mechanism comprising a hopper, a series of rollers thereon for supporting and forwarding envelopes or the like, means for driving said rollers, a member upwardly inclined from said rollers and adapted to carry a stack of envelopes or the like to direct same to said rollers, guide members extended longitudinally of said member and a carriage engaging said guides and adapted to press the envelopes or the like forward onto the rollers.

18. Envelope feeding mechanism, comprising a feed table, means adjacent one end of the table for separating the envelopes and successively forwarding them; a series of parallel rollers for forwarding envelopes longitudinally of the table; a stack supporting member beside the table having a series of guide rails extending longitudinally of the member toward the rollers; means on the member to move the stacked envelopes onto the rollers; and means for operating the rollers to move the envelopes edgewise towards the separating means.

19. Envelope feeding mechanism comprising a table; means adjacent one end of the table for separating the envelopes and successively forwarding them; a series of parallel rollers for forwarding envelopes longitudinally of the table, a member beside the table, rails disposed longitudinally of the member and projecting over the adjacent ends of the forwarding rollers to direct envelopes onto said rollers; means for moving the stack of envelopes along the rails towards the rollers; means for pressing the envelopes downwardly upon the rollers; and means for rotating the rollers to advance the envelopes successively to the separating devices.

In testimony whereof I affix my signature.

GEORGE E. SHELDRIK.