Aug. 20, 1935. L. ARMANNI 2,011,991

MEANS FOR FEEDING SHEETS OF PAPER, ENVELOPES AND THE LIKE TO TYPEWRITING MACHINES

Filed May 6, 1933 2 Sheets-Sheet 1

Fig. 1.

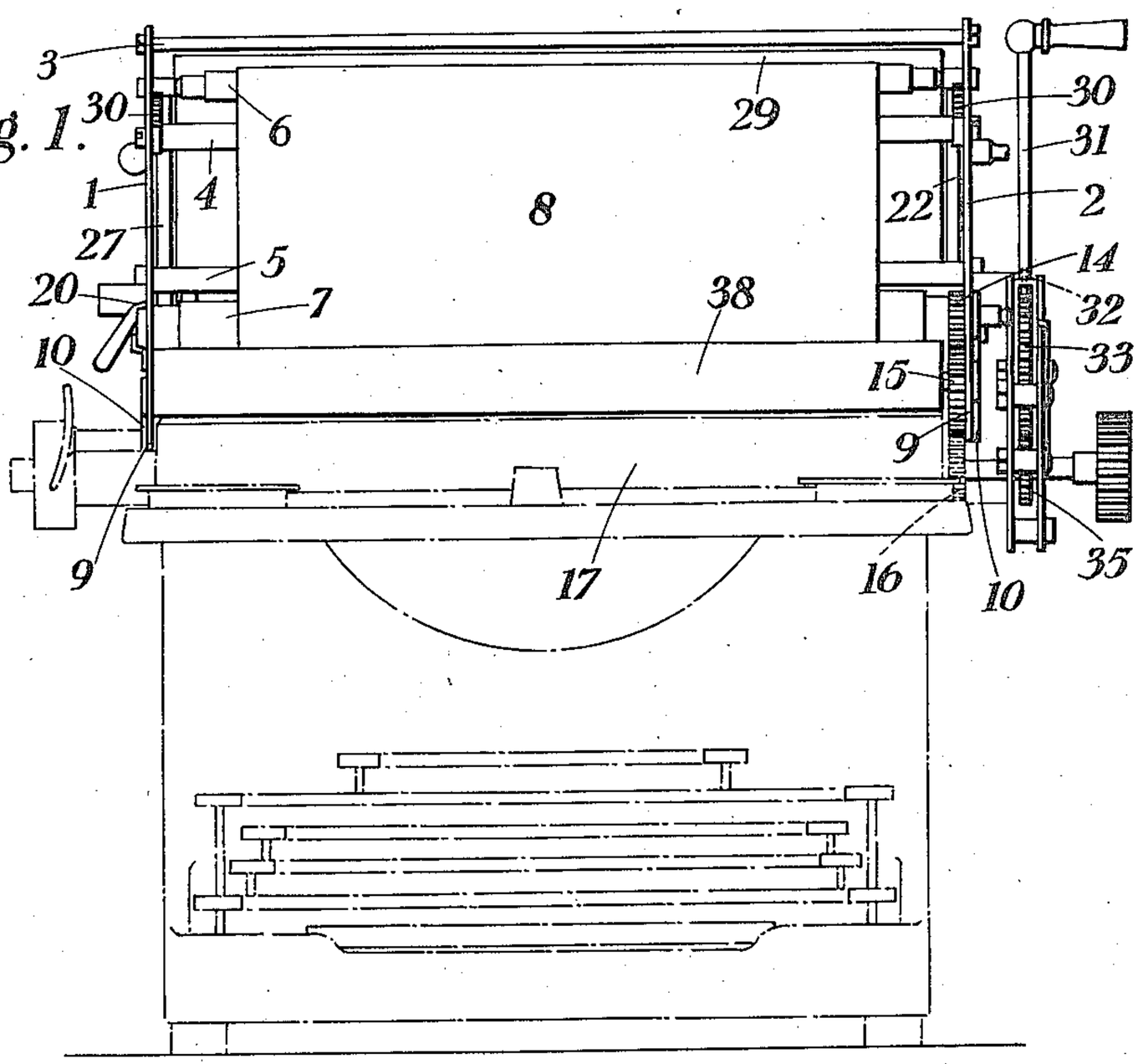

Fig. 2.

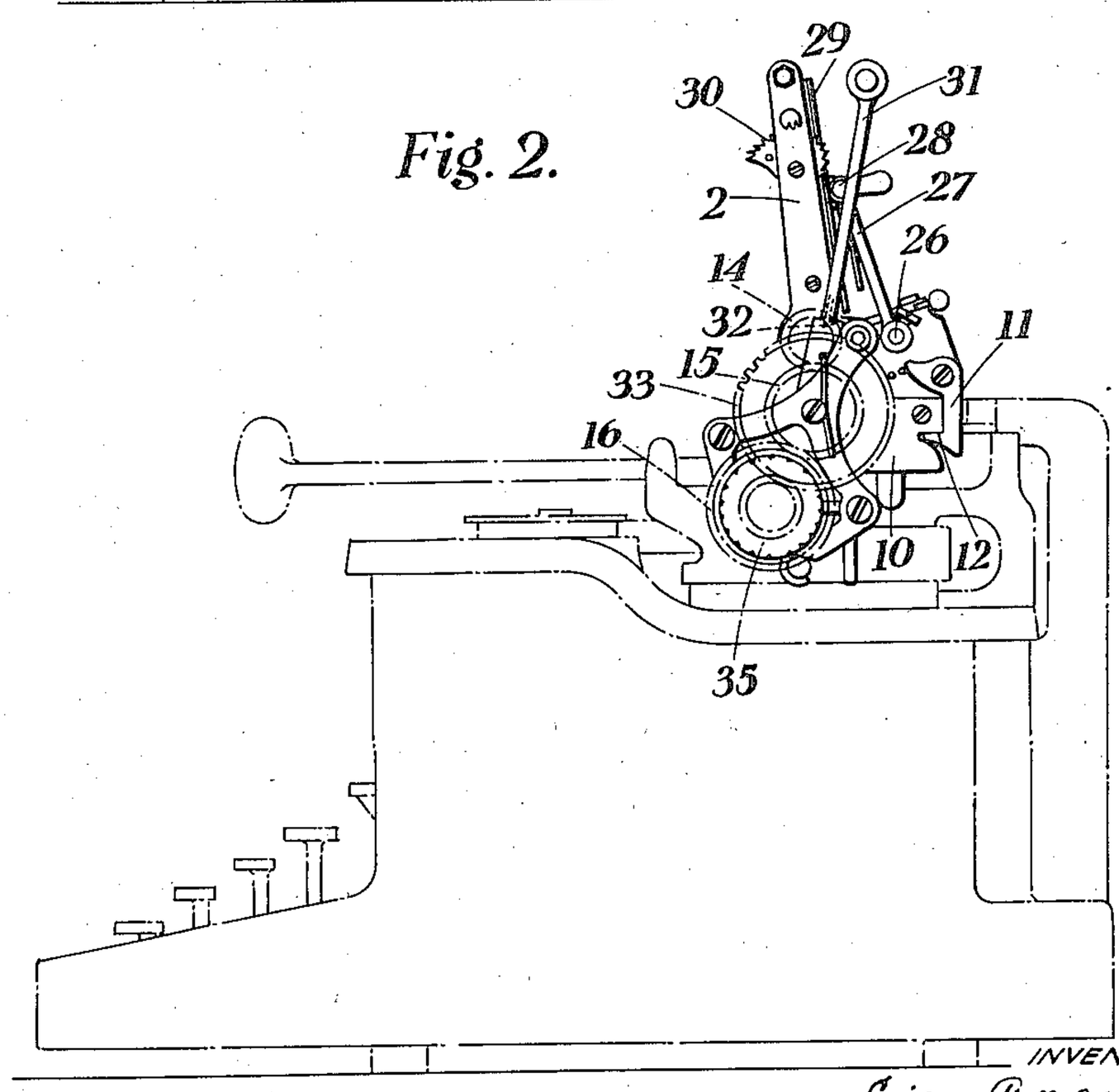

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Fig. 3.

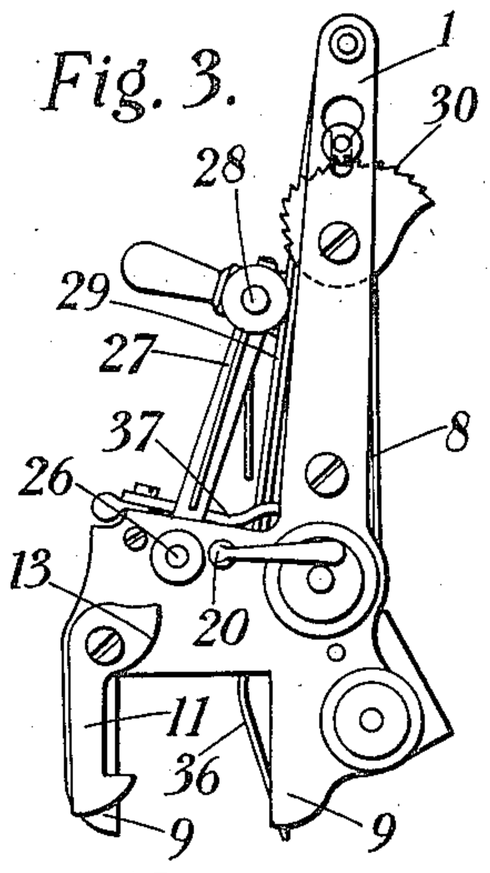

Fig. 4.

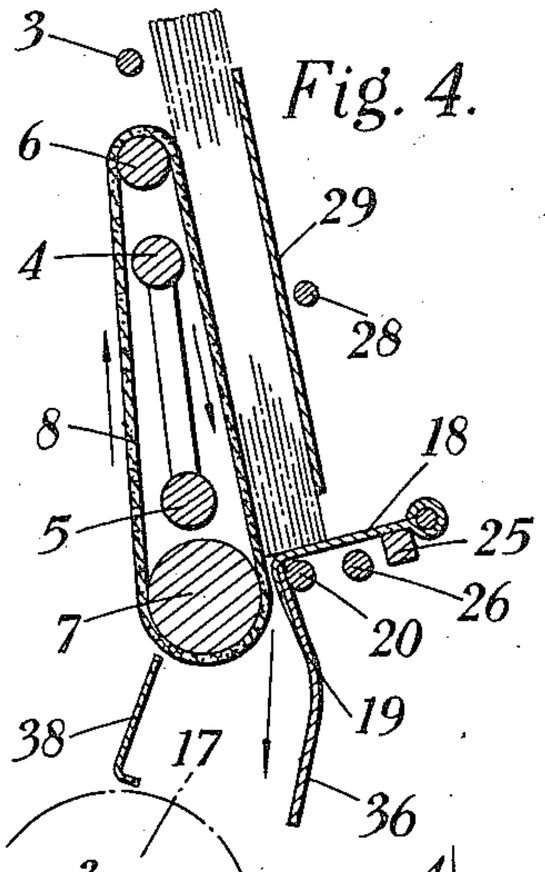

Fig. 5.

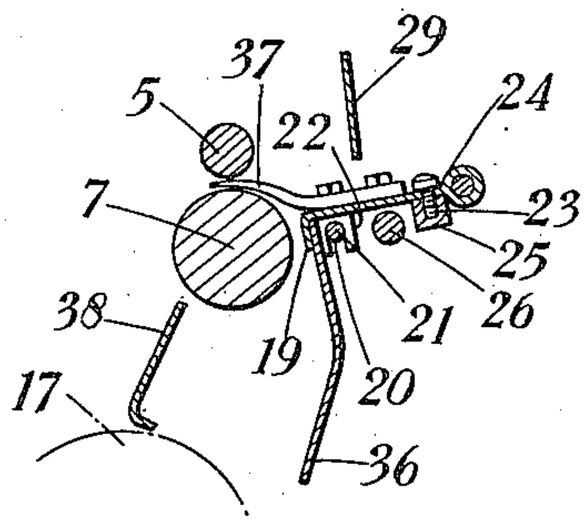

Fig. 6.

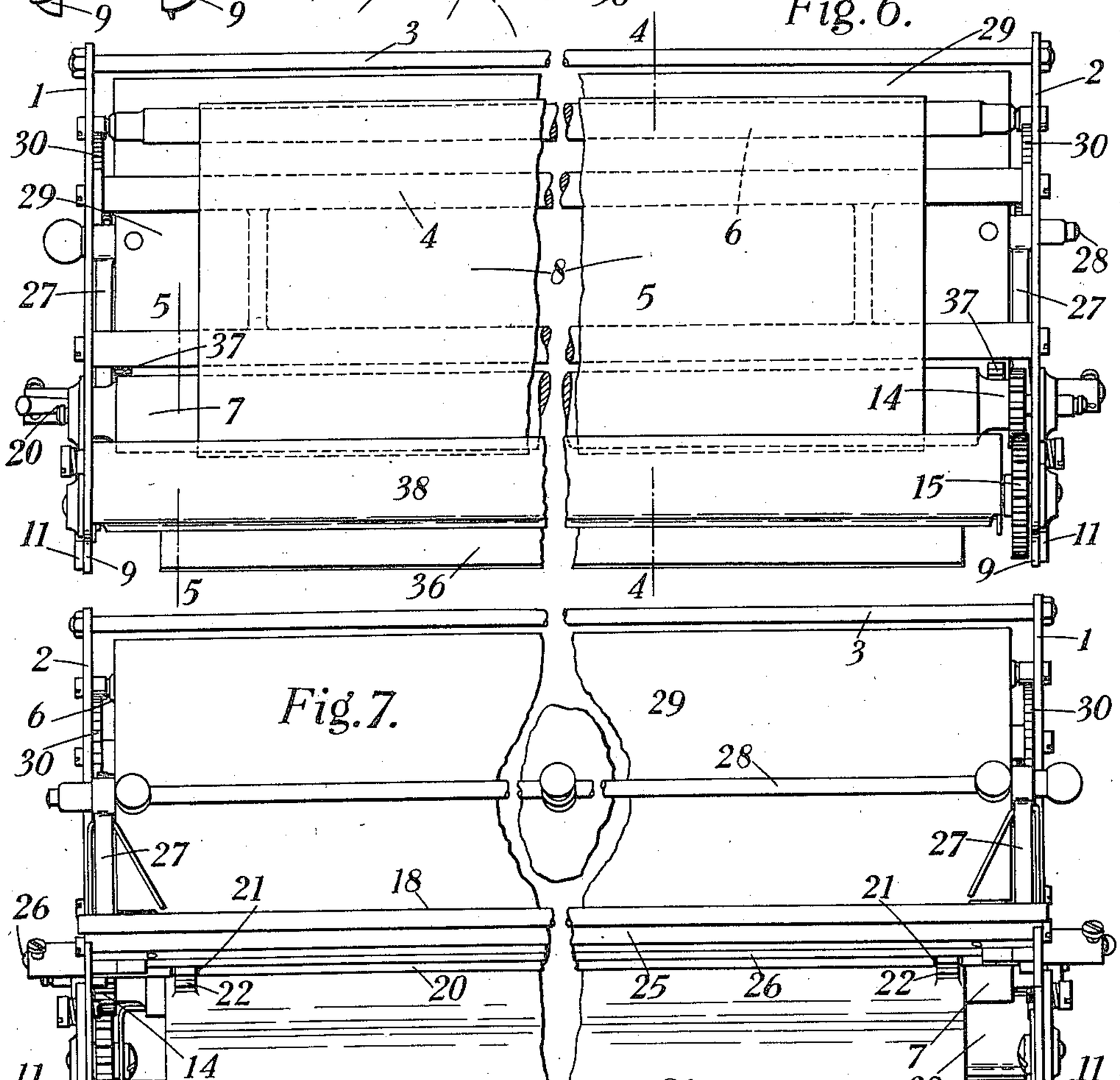

Fig. 7.

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MEANS FOR FEEDING SHEETS OF PAPER, ENVELOPES, AND THE LIKE TO TYPEWRITING MACHINES

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Application May 6, 1933, Serial No. 669,757
In Great Britain May 10, 1932

6 Claims. (Cl. 197—130)

This invention relates to magazine devices adapted to be applied to typewriting and similar machines for holding a supply of sheets of paper, sets of sheets, envelopes, cards or the like hereinafter called sheets and for delivering them automatically one at a time to the platen of the writing machine in order to obviate the need for inserting said sheets individually by hand. More particularly stated, the invention is concerned with such devices wherein the sheets rest by their lower edges on a support plate and are held between a roller or an endless band running over rollers adapted to be rotated with the machine platen and a follower member which advances gradually towards the endless band as the sheets become exhausted.

The present invention has for its object to provide an improved and compact construction of sheet feeding device which shall be positive in action and readily adaptable for operation with sheets of any particular thickness. It is also an object of this invention to provide a device of the kind indicated in the form of an attachment adapted with a minimum of effort to be mounted and fixed upon the machine with which it is to be used or removed therefrom when not required. A further object of this invention is to provide improved means for the actuation of a sheet feeding device of the nature specified.

With these and other objects in view, it is proposed according to this invention to utilize in the magazine a support plate for the sheets, which is adjustable towards and from the endless feed band. For effecting this adjustment, it is preferred to employ a rock shaft bearing at spaced intervals two or more eccentrics which operatively engage abutments projecting from the support plate. To enable the device as a whole to be detachably engaged with the paper carriage of the writing machine, the frame structure of the sheet feeding device is preferably formed with coupling members adapted for sliding connection with complementary parts on the paper carriage and pivoted latch members adapted to lock said connections are also formed with cam faces which when the latch members are unlocked operate to force apart the coupled members. One of the rollers with which the feed band is engaged is arranged to be positively coupled to the rotary platen of the writing machine through the intermediary of a single idle wheel meshing with other gear wheels on the platen spindle and on the roller driving the feed band, and to facilitate and expedite the operation of the machine as a whole, it is proposed according to this invention to actuate the machine platen and the sheet feeding attachment from a crank or hand lever which operates through a pawl and ratchet and movement multiplying gear in turning the feed and platen rollers through a relatively large arc for each stroke of the lever.

Another feature of this invention is the provision of means permitting adjustment of the tension in the endless feed band as and when required by moving apart more or less the axes of the rollers with which it is engaged. The invention may also provide means operating to hold against unintended movement the support plate on which rest the supply of sheets to be delivered to the writing machine. A further feature of improvement afforded by this invention is the provision of a deflector plate extending between the upper part of the platen roller and the upwardly moving run of the endless band, said plate serving to prevent the upper edges of the sheets after passing around the platen roller being projected under the lower roller bearing the feed band.

These and other features of my invention are hereinafter more fully described with the aid of the accompanying drawings, wherein:—

Fig. 1 is a front elevation showing the attachment as applied to a typewriting machine,

Fig. 2 is a side view of the same,

Fig. 3 is an end view of the attachment alone on a larger scale,

Fig. 4 is a transverse section of the attachment also on a larger scale taken on the line 4—4 of Figure 6,

Figure 5 is a transverse section on line 5—5 of Figure 6 showing the rocker shaft and its operative engagement with the adjustable support plate,

Fig. 6 is a front view of the attachment alone, and

Fig. 7 is a rear view of the same.

Referring to these drawings which show the improved device constructed as an attachment adapted to be fitted detachably to a typewriting machine, it will be seen that the device comprises a skeleton framework composed of two end plates 1, 2 connected together in parallel relationship by distance rods 3, 4 and 5 and providing bearings for upper and lower rollers 6 and 7 with which an endless band 8 of rubber or other suitable material is engaged.

To permit the device to be detachably coupled with the traversing carriage of a typewriting machine the end plates 1, 2 are forked at their lower

ends at 9 whereby they may by a vertical sliding movement be engaged with guide blocks 10 affixed to the paper carriage, while hooked latch members 11 pivoted on the end plates 1, 2 are adapted in one extreme position to engage notches 12 in the guide blocks 10 to retain the attachment device locked in position on the machine. These latch members 11 are also formed with snail cam faces 13 which when the latch members are moved to the unlocking position bear forcibly upon the tops of the guide blocks 10 and thus serve to force the sheet feeding attachment upward and free it from its coupled relation with the paper carriage.

Formed on or rigidly attached to the lower roller 7 bearing the endless band is a toothed wheel 14 meshing permanently with an idle wheel 15 also mounted rotatably upon the frame of the attachment. This idle wheel 15 is adapted when the attachment is coupled to the writing machine to mesh with a toothed feed wheel 16 on the spindle of the platen roller 17 thereby ensuring that the roller 7 bearing the endless band 8 is rotated positively with the platen cylinder and at the same peripheral velocity.

Mounted immediately behind the feed band 8 is a substantially horizontal sheet supporting plate 18 having a downturned lip 19 at its front edge held in proximity to the feed band at the point where it travels on to the lower roller 7. This plate 18 on which the supply of sheets, envelopes, cards or the like rest by their lower edges is made adjustable towards and from the feed band in order that the space between the lip 19 and the band 8 may be made adaptable to the thickness of the particular materials with which it is required to work.

Adjustment for this purpose is effected uniformly throughout the whole length of the plate by the operation of a rocking shaft 20 arranged beneath the support plate 18 in bearings in the end plates 1, 2, said shaft having at intervals cams or eccentrics 21 engaging in guide forks 22 depending from the underside of the support plate 18. The plate 18 is held in position on the attachment in a manner permitting the aforesaid adjustments by large headed screws 23 which pass through slots 24 in the plate 18 and are secured in a distance rod 25 connecting the end plates 1, 2.

A further shaft 26 pivoted in the end plates 1, 2 and urged in one direction by a concealed torsion spring carries at its ends rigidly attached radial arms 27 bearing between them a spindle 28 on which is hung a follower plate 29 whose purpose is to press forwardly towards the feed band 8, the whole supply of sheets carried in the magazine.

The distance rod 4 beneath the upper roller 6 of the attachment bears at its ends rotatable snail cams 30 under the bearings of the upper roller 6, which bearings are arranged to slide in guide-ways in the end plates 1, 2. Thus by turning these cams more or less in one direction the tension in the feed band may be regulated to any required degree. The operative faces of these snail cams 30 may be notched or ratchet toothed and may co-act with a detent upon each bearing bush for the purpose of preventing unintended displacement of the cams after adjustment has been effected.

In order to facilitate and expedite operation of the sheet feeding attachment it is preferred to arrange for the actuation of the feeding attachment and the platen roller by the angular movement of a hand lever 31 which is urged by spring means to a rearwardly directed position but is adapted to be drawn forwardly and downwardly against the spring action to actuate the feeding attachment and the platen roller. For this purpose a pawl 32 pivoted on the lever 31 is arranged to engage the teeth on the periphery of a drive wheel 33 which is rotatably mounted on the machine carriage and positively coupled to the platen roller by a movement multiplying gear wheel 35. Although in the example illustrated this drive mechanism is mounted upon the paper carriage and acts on the platen spindle it should be understood that it may if preferred be mounted upon and form a part of the sheet feeding attachment in which case said mechanism would act upon one of the rollers with which the feed band 8 is engaged. Furthermore the angular sweep or stroke of the hand lever 31 may be determined by stops, one or both of which may be adjustable to enable the extent of movement at each stroke to be varied.

Reverting to the support plate 18 it should be mentioned that the lip 19 formed at its forward edge is extended downwardly toward the platen roller to form a guide apron 36 for directing the sheets as they descend to the point where they are engaged between the platen roller and the rear feed rolls associated therewith. Furthermore in order to afford additional stability to the support plate without adversely affecting its ability for adjustment, two transversely directed holding down bars 37 are secured to its ends by screws and these project forwardly and engage with the distance rod 5 forming part of the frame.

Between the lower part of the upwardly moving straight run of the feed band and the upper forward part of the platen roller there is arranged a rearwardly inclined deflector plate 38 whose purpose is to prevent the sheets on emerging from the paper carriage from catching under the lower roller 7 bearing the feed band, as they might otherwise be apt to do owing to the curvature imparted to the sheet by its passage around the platen.

The attachment when placed in position upon a typewriting machine may be loaded with a supply of sheets, envelopes or cards according to requirements these being inserted between the feed band 8 and the spring influenced follower plate 29. The sheets so held in the device may be fed one at a time to the paper carriage of the machine as required by operation of the hand lever 31 provided for rotating the platen.

I claim:—

1. A sheet feeding attachment for typewriting machines including a supporting frame, guide blocks attachable to the paper carriage of the typewriting machine, each guide block having a vertical edge face and an opposed notched edge face, the supporting frame having forked feet adapted to embrace the forward and rear edges of the guide blocks, and latch members pivoted on the forked feet and having angular extremities adapted to fit into the notches on the blocks.

2. A sheet feeding attachment for typewriting machines including a supporting frame, guide blocks attachable to the paper carriage of the typewriting machine, each guide block having a vertical edge face and an opposed notched edge face, the supporting frame having forked feet adapted to embrace the forward and rear edges of the guide blocks, and latch members pivoted on the forked feet and having angular extremities adapted to fit into the notches on the blocks, each

of the latches having an angularly disposed cam-like extension engageable when the latches are shifted to disengage them from the blocks to engage the upper edge faces of the blocks and positively lift the frame from engagement with the typewriter.

3. In a sheet feeding attachment for typewriting machines, a supporting frame adapted to engage with the paper carriage of a typewriting machine, an endless band mounted on the frame, spaced rollers on the frame over which said band passes, means for rotating said rollers with the platen roller of the typewriting machine, a supporting plate mounted in proximity to the rear face of the endless band, a follower plate disposed above the supporting plate and adapted to urge a package of sheets resting on the supporting plate toward the endless band, and means for adjusting the supporting plate toward or from the endless band including a shaft extending beneath the supporting plate and having eccentric portions, the shaft being manually rotatable, and yokes carried by the supporting plate and engaging said eccentric portions of the shaft, the yokes being disposed adjacent the ends of the supporting plate.

4. A sheet feeding attachment for typewriting machines comprising a skeleton frame adapted to be coupled to the paper carriage of the typewriting machine, a rotatable feeding means carried by the frame and adapted to be rotated with the typewriting machine platen, a support plate mounted in proximity to the feeding means and opposed thereto, means engaging the support plate substantially throughout its length and movable to adjust the support plate uniformly throughout its whole length in relation to the feeding means, and a spring pressed follower plate adapted to urge toward the feeding means a pack of sheets held on the support plate.

5. A sheet feeding attachment for typewriting machines including a skeleton frame adapted to be coupled to the paper carriage of the typewriting machine, a rotatable feeding means carried by the frame and adapted to be rotated with the typewriting machine platen, a support plate mounted in proximity to the feeding means and opposed thereto, means extending parallel to the support plate and behind the same whereby to adjust the support plate uniformly throughout its whole length toward or from the feeding means, said adjusting means engaging the support plate substantially throughout the length of the support plate and extending laterally beyond the frame, and a spring pressed follower plate disposed parallel to but behind the feeding means and above the support plate and adapted to urge toward the feeding means, a pack of sheets carried on the support plate.

6. In a sheet feeding attachment for typewriting machines, a supporting frame adapted to engage with the paper carriage of a typewriting machine, an endless band mounted on the frame, spaced rollers on the frame over which said band passes, means for rotating said rollers with the platen roller of the typewriting machine, a supporting plate mounted in proximity to the rear face of the endless band, a follower plate disposed above the supporting plate and adapted to urge a package of sheets resting on the supporting plate toward the endless band, and means for adjusting the supporting plate toward or from the endless band including a shaft extending beneath the supporting plate and having eccentric portions, the shaft being manually rotatable, and yokes carried by the supporting plate and engaging said eccentric portions of the shaft, the yokes being disposed adjacent the ends of the supporting plate, the supporting plate having slots, a supporting bar extending beneath the supporting plate and mounted upon said frame, and set screws extending through the slots of the plate and into said bar.

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