W. G. TRAUTMAN.

SHEET FEEDING MECHANISM.

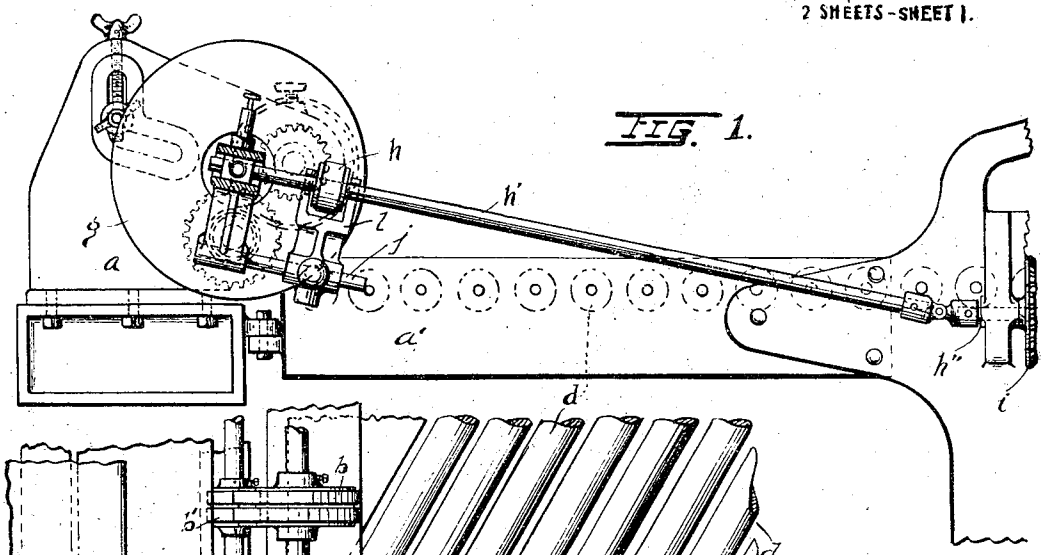
APPLICATION FILED JULY 3, 1920.

1,413,245.

Patented Apr. 18, 1922.

2 SHEETS-SHEET 1.

FIG. 1.



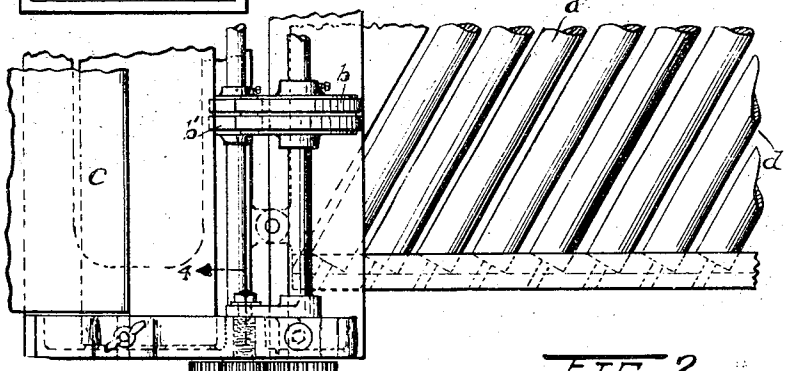


FIG. 2.

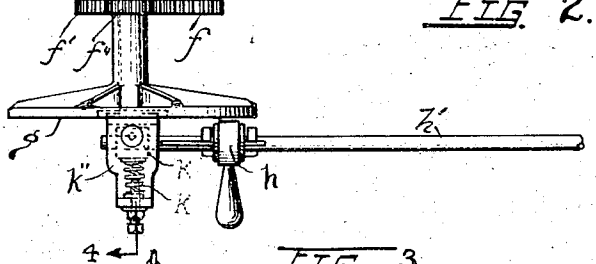


FIG. 3.

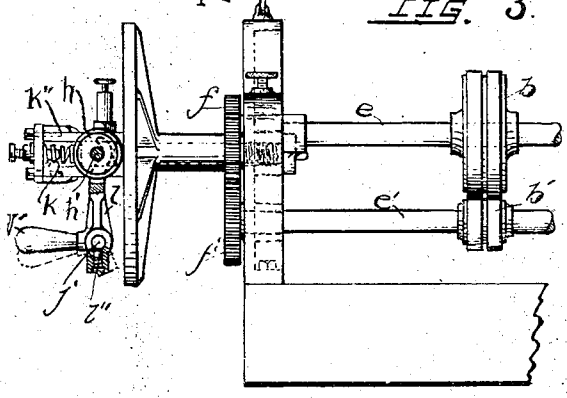
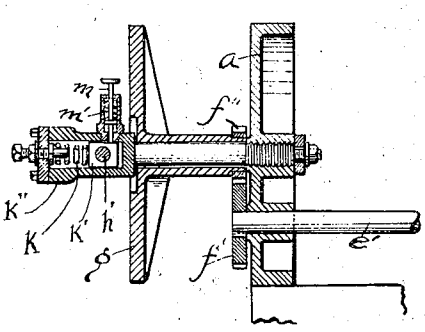


FIG. 4.



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SHEET FEEDING MECHANISM.

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2 SHEETS—SHEET 2.

FIG. 5.

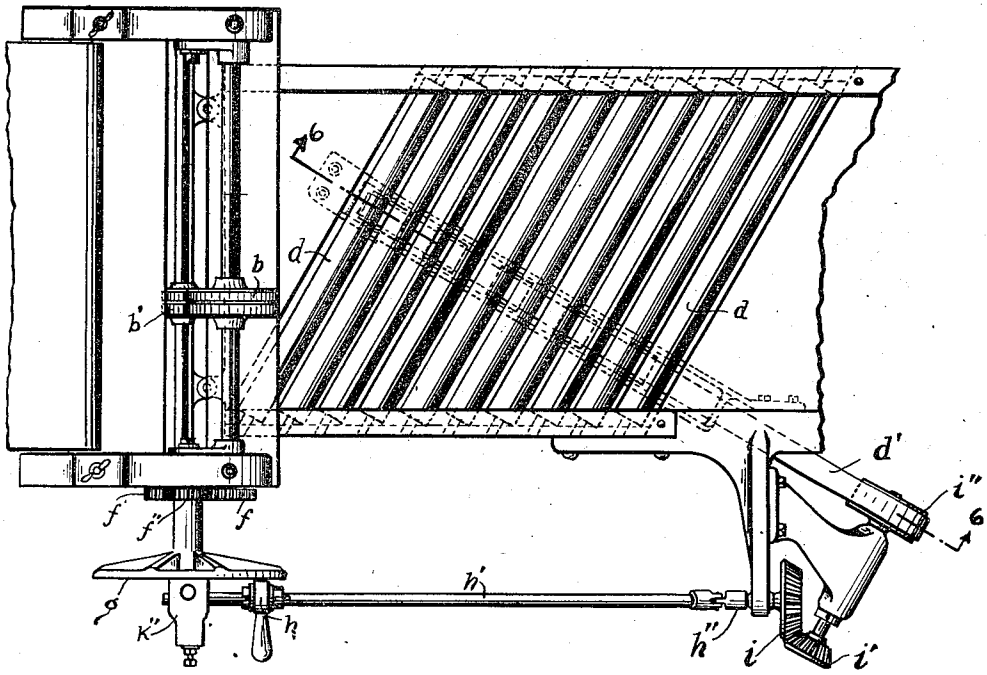
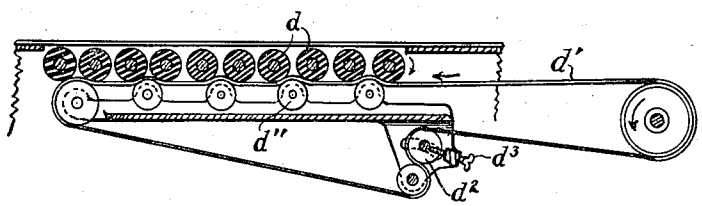


FIG. 6.



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UNITED STATES PATENT OFFICE.

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SHEET-FEEDING MECHANISM.

1,413,245. Specification of Letters Patent. Patented Apr. 18, 1922.

Application filed July 3, 1920. Serial No. 393,781.

To all whom it may concern:

Be it known that I, WALTER G. TRAUTMAN, a citizen of the German Republic, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Sheet-Feeding Mechanism, of which the following is a specification.

My invention relates to improvements in sheet-feeding mechanism and has for its object the provision of means for driving the feeding means thereof in unison with, but at varying rates of speed, as compared with the associated transfer or delivery mechanism thereof.

My invention further contemplates, preferably a friction-drive for said feeding means, which, among other advantages thereby attained, avoids damage to the mechanism and automatically stops the driven parts in case the feeding rolls become choked.

The improvements embodying my invention comprise coacting feeding rolls in association with a friction disc connected for driving said rolls, a friction drive adjustably engaging said disc, a delivery table, and a connecting shaft for actuating said delivery table and friction drive concurrently.

The details of my said improvements may best be explained by making reference to the accompanying drawings:

Fig. 1 of said drawings illustrates the sheet-feeding mechanism in fragmentary side elevation.

Fig. 2 shows the preferred embodiment of my improvements in fragmentary plan view.

Fig. 3 is a front fragmentary view of the friction drive and feeding rolls.

Fig. 4 shows the friction drive in vertical cross section.

Fig. 5 shows in plan view, partially broken away, means for effecting the concurrent drive of the feeding and conveying rolls, and

Fig. 6 is a fragmentary section on line 6—6, Fig. 5.

Throughout the several figures of said drawings I have employed the same character of reference to indicate similar parts.

Mounted within or upon the connected frame members a, a' are the rotatable feeding rollers b, b' which are adapted to feed the sheets from the supporting table c, upon the left, to the delivery table, comprising angularly positioned horizontal rolls d, in the present instance.

Shafts e, e' respectively mount the feeding rolls b, b' and are actuated in same counterclockwise direction by the gears f, f' which mesh with the intermediate driving gear f'' on shaft g'. These feeding rolls operate upon the sheets in the well known manner; the upper and larger roll b engaging and individually advancing the topmost sheet, while the lower roll b' acts upon the edges of the subjacent sheets to retard their advance and insure their individual feeding. The friction disc g affords the variable speed driving means for said rolls; this being adapted for engagement at different radial positions by the roller h which is splined on section h' of the driving shaft h'', which by means of the beveled gear i serves to drive the train of rollers d forming the delivery table. Suitable means, forming no part of my invention, for effecting the concurrent actuation of the feeding and conveying rolls are shown in Figs. 5 and 6, although any well known connecting means may be interposed therebetween. Therein the rolls d are adapted to be actuated by the belt d' running over the idler rolls d''. This belt is driven by the meshing, beveled gear i' and its connected pulley wheel i''; the former engaging said gear i mounted upon shaft h''. In order to adjust the driving belt d' and modify its action upon the rolls d, there is provided a tension roll d^2, which may be forced within a loop formed in the underside of said belt, by means of an adjusting screw d^3, as is well shown in Fig. 6.

The left hand end of shaft h' normally is pressed toward the friction disc g by means of the spring k which engages its bearing block k' within the slotted housing k''. This serves to maintain driving relation between the roller h and disc g at a speed proportioned to the radial engagement, the one with the other. The roller h is mounted in the bracket l which has longitudinal adjustment on the stud j, as well as a slight rocking movement whereby to free roller h from engagement with disc g, as shown in Fig. 2. When fully disengaged, the pin m is depressed by its spring m' and slips behind the bearing block k', thereby temporarily disabling the driving means for

the feeding rolls. A handle l' serves thus to rock the members out of their operative relation, while a screw l'' retains the bracket in its adjustable position along the stud j

From a consideration of the structure just explained, it will now be readily appreciated wherein the desired variable speed relation may be maintained as between the feeding rolls and the delivery table. This, obviously, is accomplished by moving roller h along the radius of the friction disc g by means of its adjustable bracket. Moreover, the friction drive prevents the feeding rolls from becoming seriously clogged or damaged in the event that a number of sheets of paper, or badly wrinkled or folded sheets shall enter between said rolls.

Having now described the preferred embodiment of my invention, I claim as new and desire to secure by Letters Patent, together with such modifications as may be made by one ordinarily skilled in the art, the following:

1. In sheet feeding mechanism, the combination with the rotatable feeding member, of a variable speed driving device therefor, comprising a friction disc operatively connected with said member, a friction roll for said disc, and means for rocking said roll into and out of engagement with the disc at different radially displaced positions thereon, whereby the disc is adapted to be actuated at variable speeds, substantially as set forth.

2. In a sheet-feeding mechansm, the combination with a series of diagonal conveying rolls, paired feeding rolls positioned to deliver the sheets individually thereto, a speed-varying friction drive for the paired rolls, and connected means for driving and timing the conveying and feeding rolls, substantially as set forth.

3. In a sheet-feeding mechanism, the combination with a series of coacting conveying rolls, of paired feeding rolls positioned to deliver the sheets individually thereto, a friction disc driving connection for said feeding rolls, a common power connection actuating the conveying rolls, a friction roll driven thereby and adapted to engage with the friction disc, and means for adjustably engaging and disengaging said friction roll with and from the disc at variable radial positions, substantially as set forth.

4. In a sheet-feeding mechanism, the combination with rotatable feeding means for individually advancing the sheets, of sheet delivery mechanism beyond said feeding means to which the sheets are fed, a common drive for the sheet-feeding means and delivery mechanism, and means for varying the speed of the sheet-feeding means independently, substantially as set forth.

5. In a sheet-feeding mechanism, the combination with rotatable feeding means for individually supplying said sheets, of sheet-transferring mechanism associated with said feeding means and to which the sheets are fed, a common drive for the sheet-feeding means and sheet-transferring mechanism, and an adjustable friction drive interposed therebetween and the feeding means, substantially as set forth.

6. In a sheet-feeding mechanism, the combination with paired feeding members, of a friction disc adapted to rotate one of said members, a driven friction roller normally bearing upon said disc, and means for adjusting its radial bearing position with respect to the disc, substantially as set forth.

7. In sheet-feeding mechanism, the combination with sheet-forwarding means, of a feeding roll positioned to deliver the sheets individually thereto, a friction disc drive for said roll, a common driving means actuating the sheet-forwarding means, a friction roll driven thereby and adapted to be engaged with said disc, and means for adjustably engaging and disengaging said friction roll with and from the disc at variable radial positions thereon, substantially as set forth.

In testimony whereof I do now affix my signature.

WALTER G. TRAUTMAN.