

Feb. 24, 1942.

A. B. COOKE

2,274,608

ATTACHMENT FOR TABULATING MACHINES

Filed March 29, 1940

4 Sheets-Sheet 1

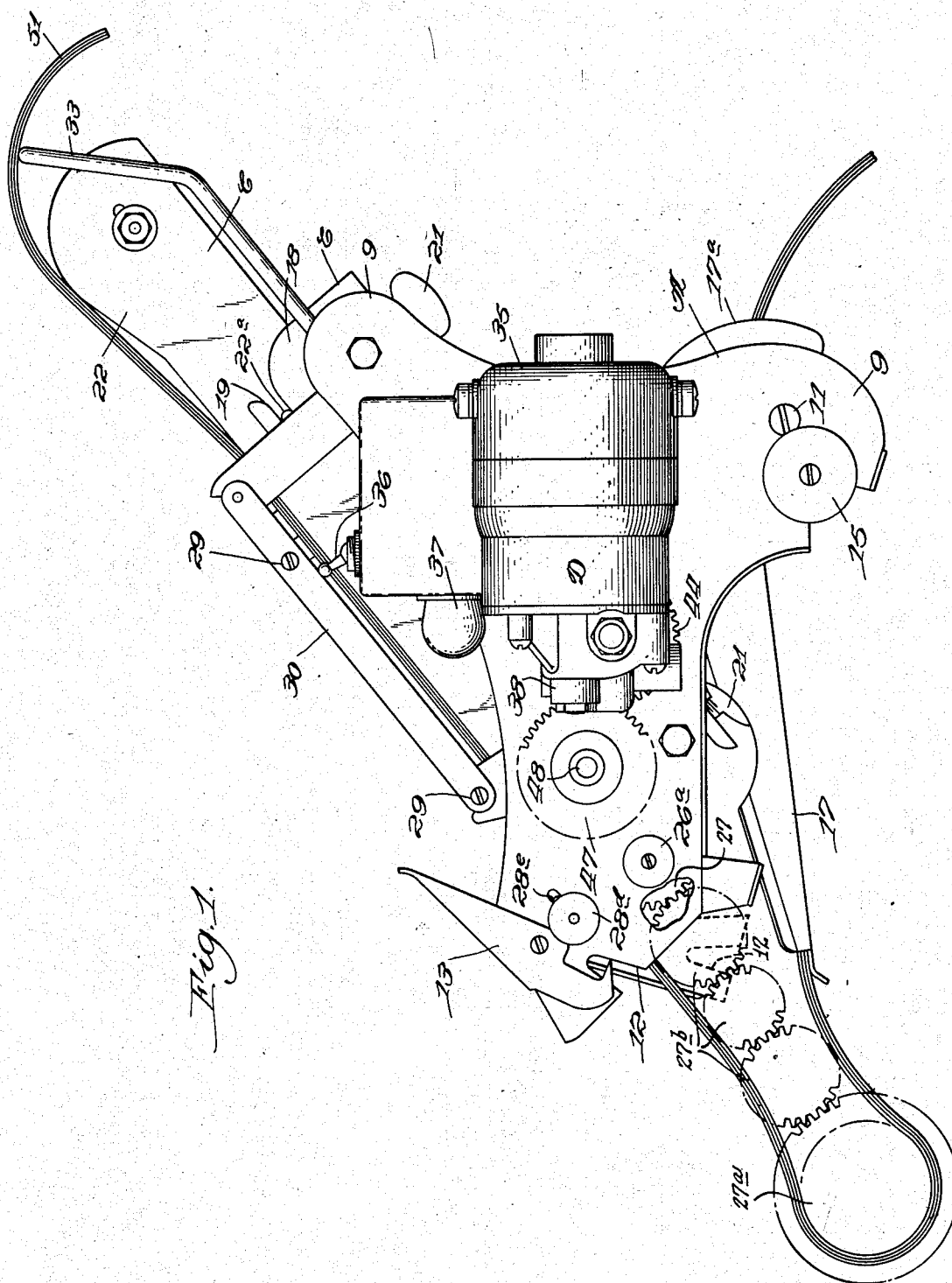


Fig. 1.

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4 Sheets-Sheet 2

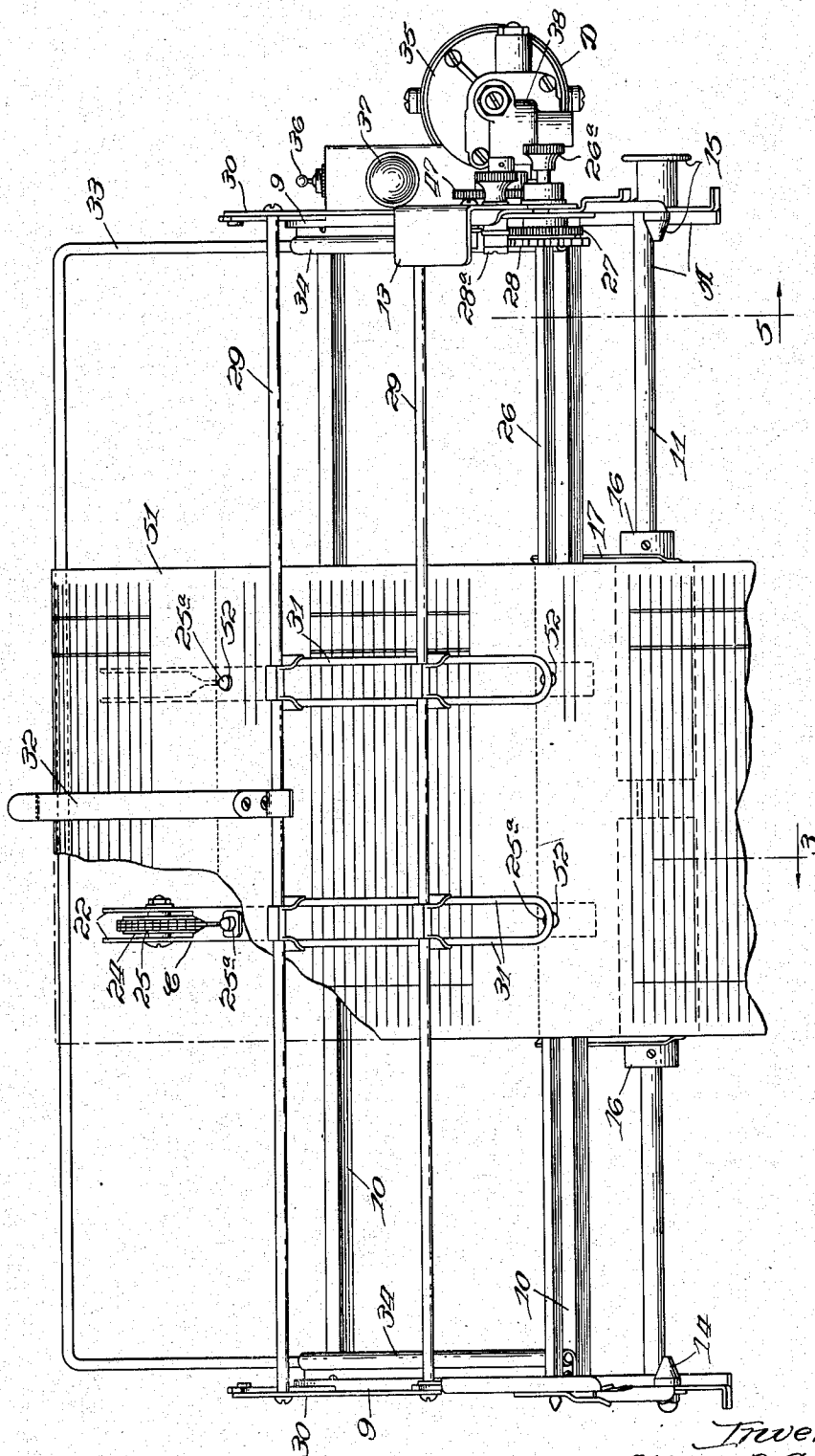


Fig. 2.

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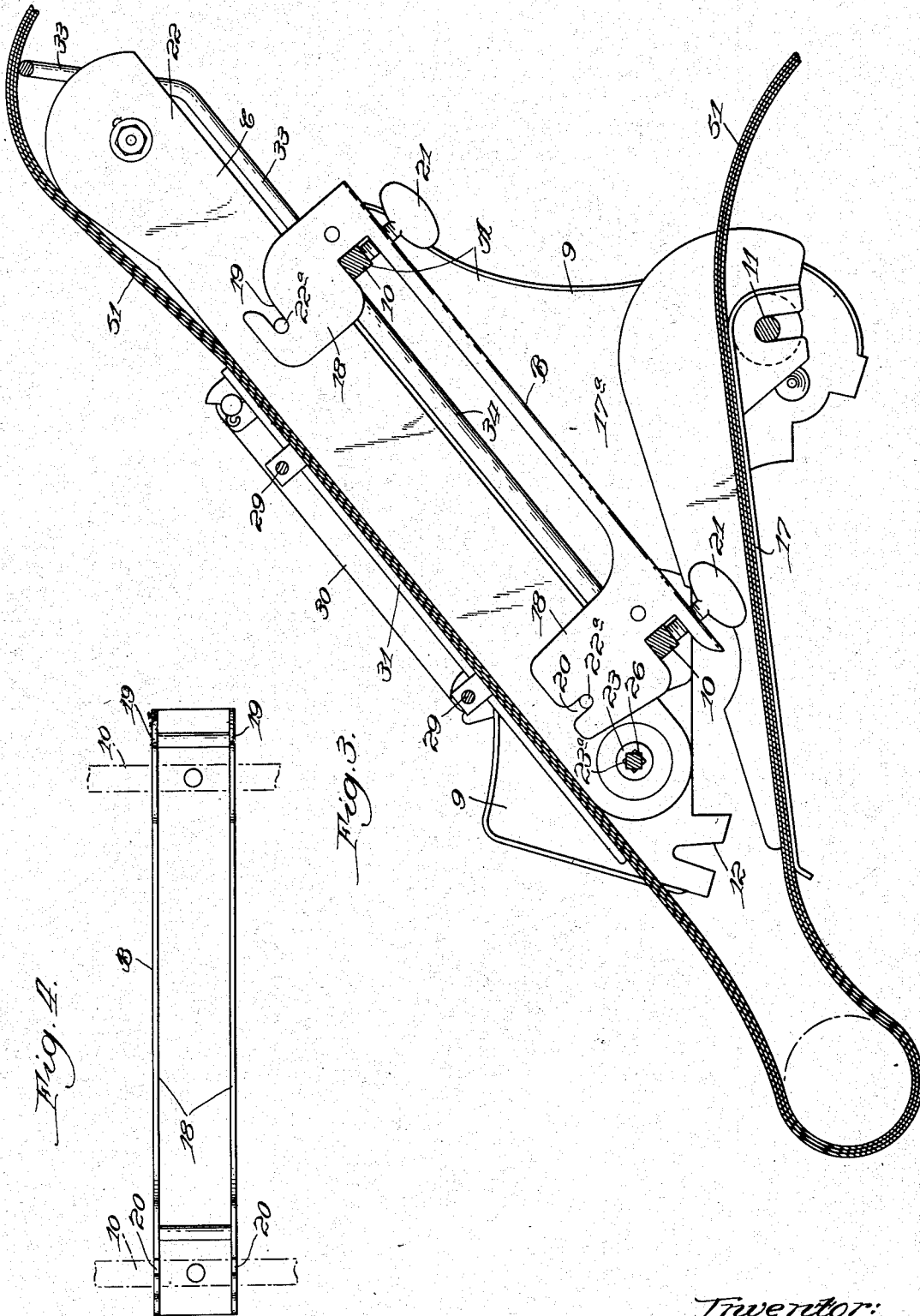
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ATTACHMENT FOR TABULATING MACHINES

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4 Sheets-Sheet 3



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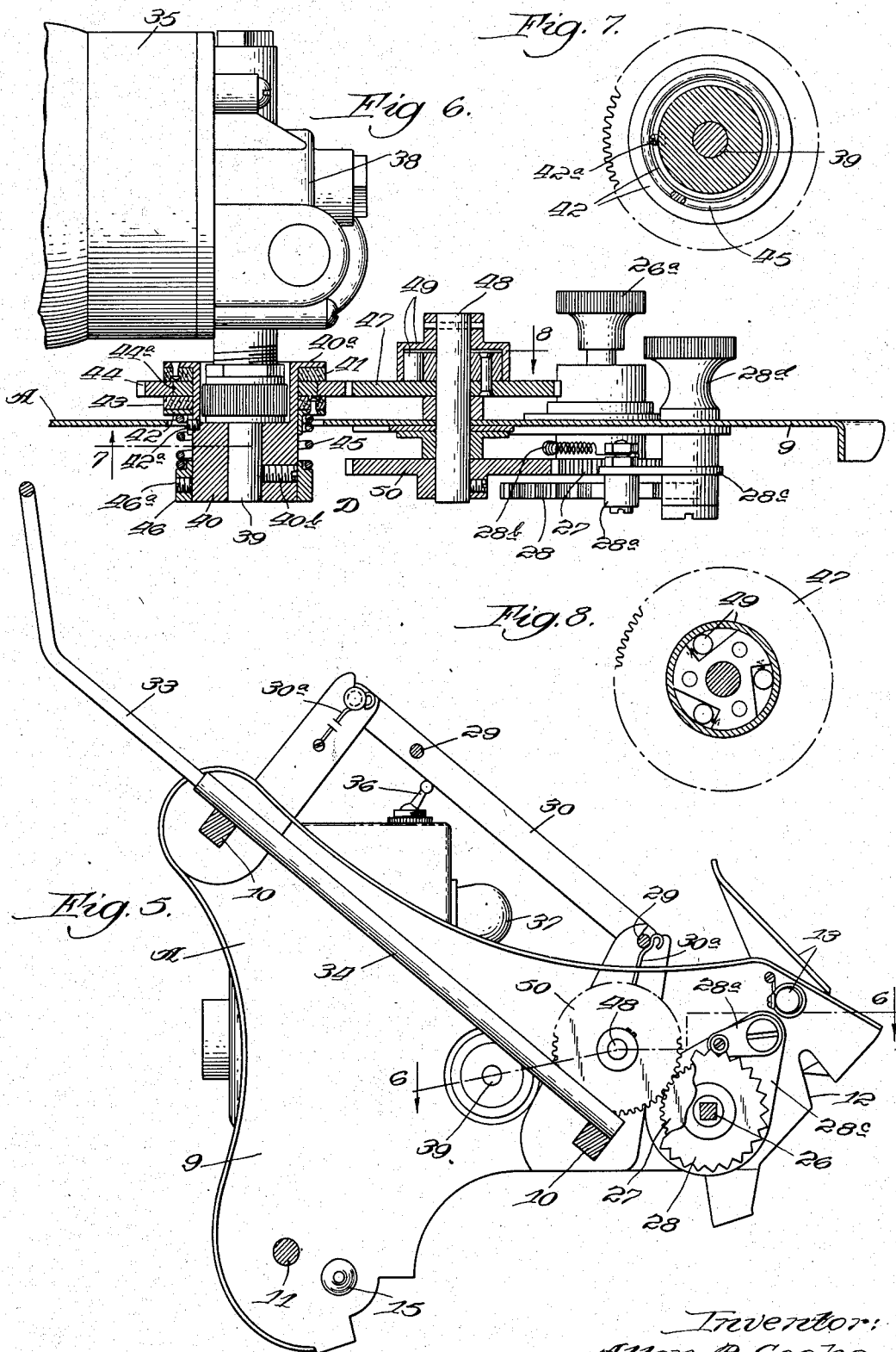
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ATTACHMENT FOR TABULATING MACHINES

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4 Sheets-Sheet 4



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## UNITED STATES PATENT OFFICE

2,274,608

## ATTACHMENT FOR TABULATING MACHINES

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Application March 29, 1940, Serial No. 326,737

5 Claims. (Cl. 197—133)

This invention relates to an attachment for a tabulating machine to adapt said machine to the use of continuous-form stationery strips which may be drawn around the power driven rotatable platen roll.

The primary object of the invention is to provide an improved feed device for handling continuous-form stationery in a standard tabulating machine without providing additional load on the electric motor which automatically drives the platen roll.

A further object of the invention is to provide an improved attachment wherein endless belt conveyer members may be readily moved to accommodate various lateral spacings of perforations in the stationery.

Another object of the invention is to provide improved guide means for conducting the stationery from the platen roll about the continuous-form feed mechanism.

The attachment in the present invention is an improvement over the device shown in Jensen Patent No. 2,130,015, issued September 13, 1938.

The invention is illustrated in a preferred embodiment in the accompanying drawings, in which—

Figure 1 is a side elevational view of an attachment embodying the invention showing how the stationery passes through the bottom of the attachment, around the platen roll and over the device; Figure 2, a fragmentary front elevational view of the same; Figure 3, a sectional view, taken as indicated at line 3 of Figure 2; Figure 4, a front view of one of the cradle members which is adapted to support a conveyer member; Figure 5, a sectional view, taken as indicated at line 5 of Figure 2; Figure 6, a fragmentary sectional view, taken as indicated at line 6—6 of Figure 5; Figure 7, a sectional view, taken as indicated at line 7 of Figure 6; and Figure 8, a sectional view, taken as indicated at line 8 of Figure 6.

In the embodiment illustrated, A designates a main frame; B, cradle members; C, endless belt conveyers adapted to be supported in the cradle members B; and D, a power booster to assist the platen roll in driving the conveyers C.

In the embodiment illustrated the main frame A comprises side plates 9 which are held in spaced relation by means of a pair of square cross bars 10, and a cross rod 11. The side plates are provided with slots 12 adapted to fit onto parts of a standard tabulating machine and be held in position by spring clip 13. As shown in Figure 2, the attachment is provided with an inwardly extending fixed trunnion 14 and a spring held

trunnion 15 which fit into sockets on the tabulating machine and hold the device in proper position. The lower cross rod 11 is provided with some laterally adjustable collars 16 which support stationery guide members 17 provided with lateral flanges 17a.

The cradle members B, see Figures 3 and 4, are skeleton channel-like members whose sides 18 are provided with upwardly extending slots 19 and forwardly extending slots 20. The lower portions of the arms 18 are cut away so as to slip readily over the square rods 10 and are secured thereto by winged screws 21. A number of cradle members may be fixed to the bars 10 in suitable spaced relation and the conveyer members C may be transferred from one cradle member to another to accommodate the spacing in the particular stationery being used in the machine at any particular time. This makes it possible to change from one stationery to another very quickly and it is unnecessary to carefully measure and adjust the device each time a change is made.

One or more conveyer members may be employed and these devices each comprise a housing 22 equipped at its lower end with a sprocket wheel 23, having an eight-point star socket 23a, to receive a square drive shaft, and at its upper end with an idler wheel 24 to keep the chain 25 properly tensioned. The chain is similar to that shown in Jensen Patent No. 2,130,015 and is provided with outwardly extending studs or pins 25a to engage perforations in the stationery. The housing is provided with outwardly extending fixed studs 22a to fit into the slots of a cradle member.

The conveyer members are driven by means of a square drive shaft 26 which may be pulled out laterally by means of a knob 26a. This shaft is driven by a gear 27 which is geared to the platen roll 27a of the tabulating machine, by a train of gears 27b, as indicated in Figure 1. A star wheel 28 is provided for accurate line spacing. A roller detent 28a, urged inwardly by means of a spring 28b, is mounted on an arm 28c which is angularly adjustable by means of a finger screw 28d working in a slot 28e.

A front skeleton guide frame is provided, which is essentially rectangular, having cross bars 29 and standards 30. The skeleton frame is adapted to snap onto the front of the main frame of the attachment and is held by means of spring latches 30a. As shown in Figure 2 guide members 31 are secured to the bars 29 for lateral attachment and serve to direct the perforations in

the stationery into engagement with the pins 25a on the conveyer members. An additional guide finger 32 is secured to the upper cross rod to guide the stationery over the top of an inverted U-shaped guide 33 which is slidably mounted for vertical adjustment in socket members 34 secured to the cross bars 10.

In order that the motor on the standard tabulating machine which drives the platen roll will not be overloaded, a power booster D is provided. This device comprises a continuously operating motor 35 which makes a frictional driving connection with the drive shaft 26 and thereby with the platen roll. The motor may be turned off when the device is out of service by means of a toggle switch 36 and preferably a red signal light 37 is connected in series with the motor circuit so that the operator may be reminded that the motor is running.

The motor 35 through a suitable gear reduction 38 drives a shaft 39 which is disposed parallel to the axis of the platen. A sleeve 40 having a flange 40a is secured to shaft 39 by means of a set screw 40b. A facing of frictional material 41 is secured to the flange 40a. A flanged sleeve 42, also provided with a frictional face 43, is splined to the sleeve 40 by means of a set screw 42a. A gear 44 having a bronze bushing 44a is journaled on the sleeve 40 and is frictionally engaged by the faces 41 and 43 by the compression spring 45 pressing against the member 42 and a ring 46 secured to the sleeve 40 by a set screw 46a. The gear 44 is in mesh with a gear 47 which is journaled on a shaft 48 and is adapted to drive the same, in one direction, through a roller-wedge type clutch 49, best shown in Figures 6 and 8. The other end of the shaft 48 is provided with a fixed gear 50 which is in mesh with gear 27 on the square drive shaft 26.

Thus it will be understood that when the motor 35 is running, it tends to drive the shaft 26 in a direction to advance the stationery and is restrained by the platen 27a of the tabulating machine. Except for the intermittent feed permitted by the platen roll, the gear 44 does not move but is pressed for movement with the rotating disks 41 and 43 of the friction clutch. The amount of driving force thus exerted on the gear 44 may be regulated by adjusting the pressure on the spring 45 by means of the ring 46. The roller-wedge clutch 49 facilitates moving the conveyer members forwardly by rotation of the hand knob 26a but movement in the opposite direction is much more difficult as the clutch grips the gear 47 and drives the gear 44 therewith opposed by the friction disks 41 and 43.

After the attachment has been secured to a tabulating machine, continuous-form stationery strips 51, having feed perforations 52, are threaded through the lower part of the device, over

guide plates 17, around the platen roll of the tabulating machine, and up over the conveyer members beneath the guide bars 29. The perforations are slipped over the feed pins 25a and the lines on the forms are adjusted with respect to the typing mechanism of the tabulating machine by movement of the star wheel detent knob 28d. The switch 36 may then be thrown on and the first form turned up into writing position by means of the knob 26a. The device is then ready to operate automatically in cooperation with the movement of the platen of the machine.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom for some modifications will be obvious to those skilled in the art.

I claim:

1. In a duplicating machine having a power driven platen roll and paper feed means geared to said platen roll for drawing continuous strips of stationery through writing position, a power booster for the paper feed means, comprising: an electric motor adapted to run continuously; and a frictional slip driving connection between said motor and platen roll adjusted to urge rotation constantly in the direction to advance the stationery, and means for controlling said rotation independently of the motor.

2. A device as specified in claim 1, in which the frictional slip driving connection includes a gear embraced by a pair of friction disks on a shaft driven by the motor.

3. A device as specified in claim 1, in which the frictional slip driving connection includes a gear embraced by a pair of friction disks, one of said disks being fixed to a shaft driven by the motor and the other disk being splined to said shaft and being urged by a spring into contact with said gear.

4. A device as specified in claim 1, in which the frictional slip driving connection includes a train of gears driven by a pair of friction disks provided on a shaft driven by the motor, and a roller clutch is provided in said train of gears so that the platen roll may be moved forwardly without moving the gear between the friction disks but which will drive the entire train when rotated rearwardly.

5. A continuous-form stationery attachment for a tabulating machine having a power driven platen roll, comprising: a frame provided with a drive shaft adapted to be geared to the platen, paper feed means having a lower drive wheel splined to said shaft, and a power booster for the paper feed means comprising a continuously operating motor having a frictional slip driving connection with the drive shaft.

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