

July 28, 1925.

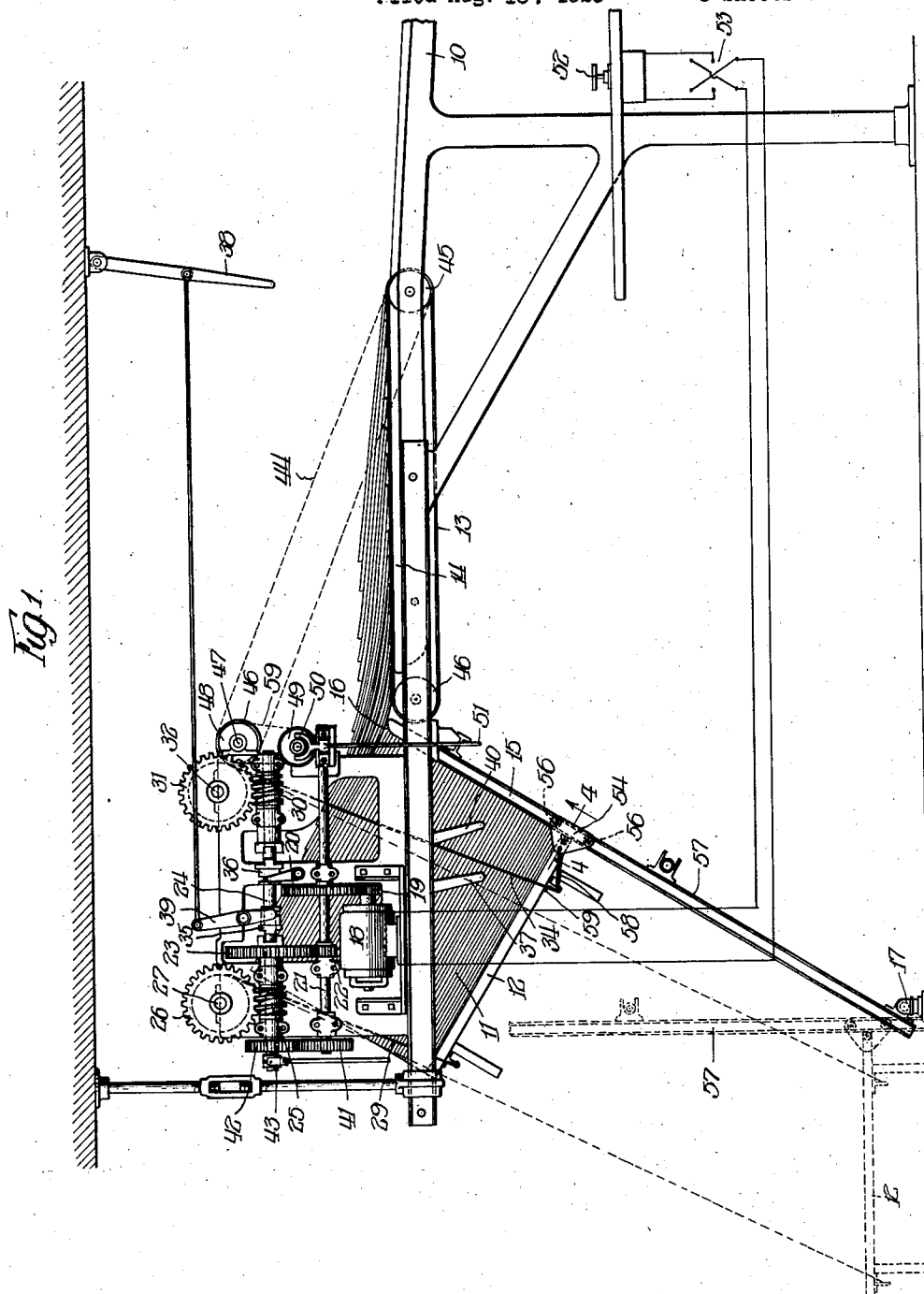
B. F. BERRY

1,547,724

FEED TABLE FOR PRINTING PRESSES AND THE LIKE

Filed Aug. 18, 1923

3 Sheets-Sheet 1



Witness:
G. Burkhardt

Inventor:
Benjamin F. Berry,
By Wilkinson, Husley, Byron & Knight
Attys

July 28, 1925.

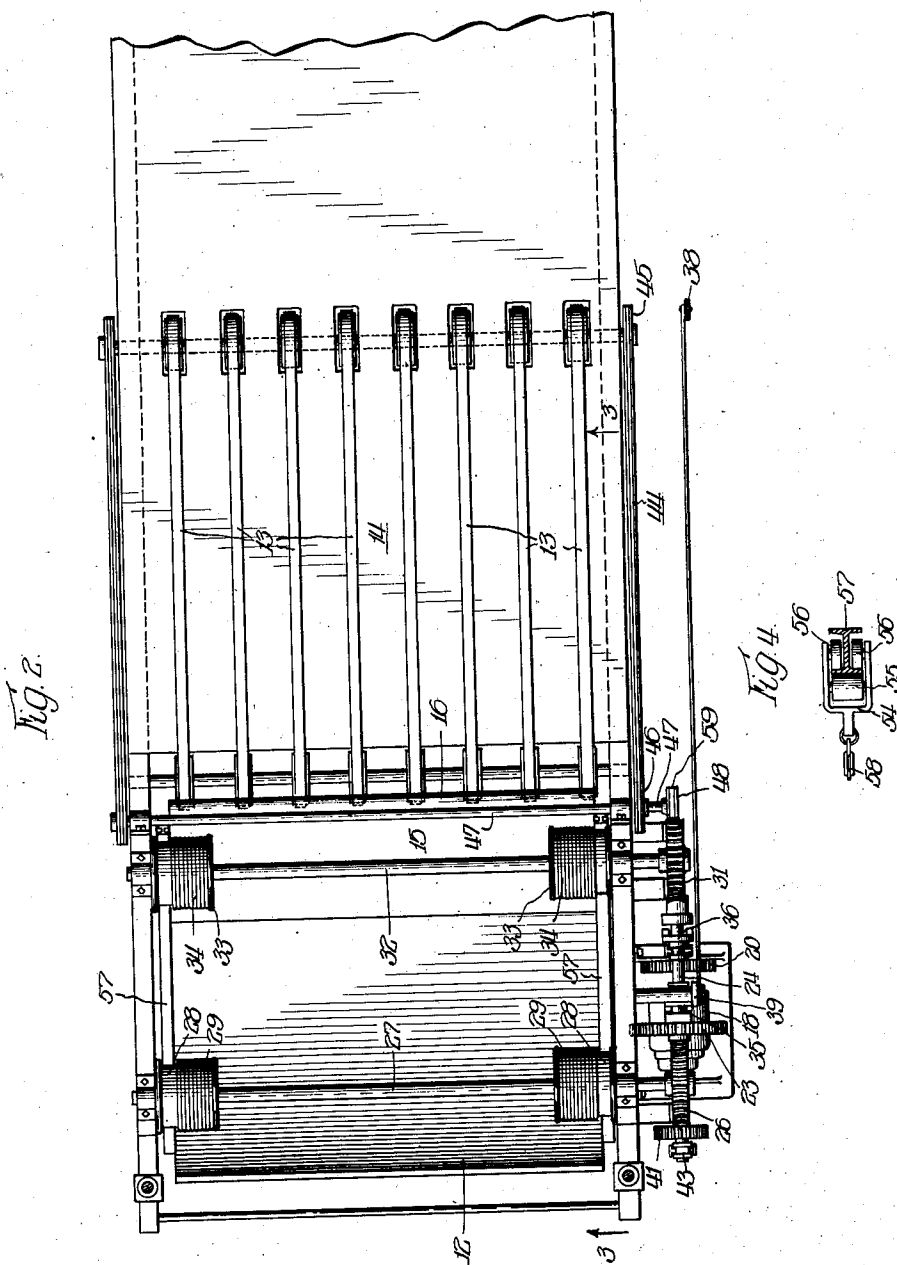
1,547,724

B. F. BERRY

FEED TABLE FOR PRINTING PRESSES AND THE LIKE

Filed Aug. 18, 1923

3 Sheets-Sheet 2



Witness:
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Inventor:
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July 28, 1925.

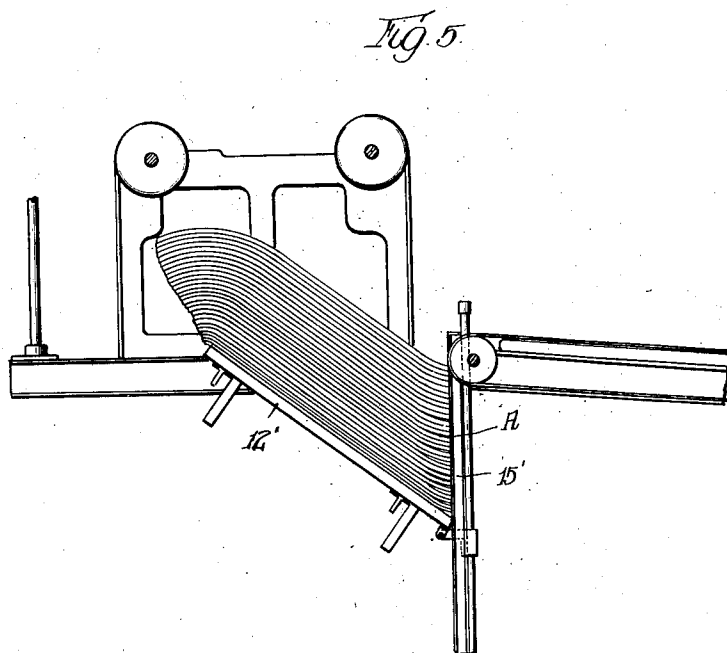
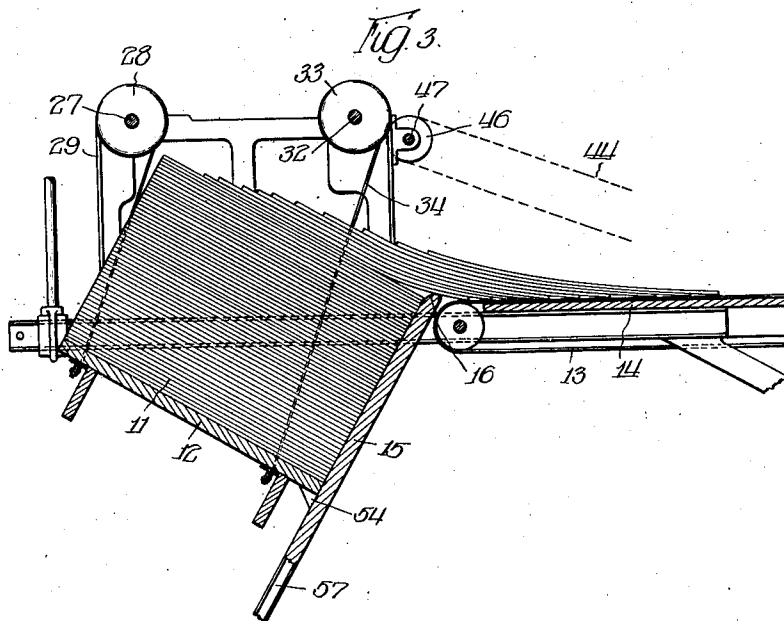
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B. F. BERRY

FEED TABLE FOR PRINTING PRESSES AND THE LIKE

Filed Aug. 18, 1923

3 Sheets-Sheet 3



Witness:
A. Burkhardt.

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UNITED STATES PATENT OFFICE.

BENJAMIN F. BERRY, OF ST. LOUIS, MISSOURI.

FEED TABLE FOR PRINTING PRESSES AND THE LIKE.

Application filed August 18, 1923. Serial No. 658,039.

To all whom it may concern:

Be it known that I, BENJAMIN F. BERRY, a citizen of the United States, residing at St. Louis, in the county of St. Louis and State of Missouri, have invented certain new and useful Improvements in Feed Tables for Printing Presses and the like, of which the following is a specification.

This invention relates to feed tables for printing presses and the like and embodies improvements over the arrangement disclosed in my Patent No. 1,444,776, granted February 13, 1923.

Feed tables such as shown in my earlier patent and in this present application, accommodate as much as two tons of paper at a time. It is apparent, therefore, that if the angle of inclination of the supply platform is substantially increased, all of the sheets in the pile with the exception of a few at the bottom thereof will be caused to be shifted rearwardly different amounts, increasing with the height of the pile, or the stack of paper will become wedged between the supply platform and the front paper guide. This wedging action will be more pronounced if the sheets in the pile have relatively rough surfaces as distinguished from smooth shiny surfaces. Such wedging of the sheets between the supply platform and the front guide, not only mars the advance edges of the sheets and accordingly makes the progressive feeding thereof difficult, but also causes the rear edges of the sheets to curve downwardly over the rear of the supply platform making in some instances, the progressive feeding of the sheets practically impossible.

Accordingly, one object of my present invention is to provide improved feeding mechanism for printing presses and the like adapted to overcome the above disadvantages and adapted to feed and separate sheets of material in a manner to meet the various requirements under actual service conditions.

Another object is to generally improve the mechanism and arrangement disclosed in my aforesaid patent whereby the parts cooperate in an improved manner to produce the most efficient results.

These and other objects are accomplished by means of the arrangement disclosed on the accompanying sheets of drawings, in which—

Figure 1 is a side elevation of feed table mechanism embodying my invention;

Figure 2 is a top plan view of the same arrangement;

Figure 3 is a fragmentary vertical sectional view taken in the plane of line 3—3 of Figure 2;

Figure 4 is a detail sectional view taken in the plane of line 4—4 of Figure 1; and

Figure 5 is a sectional view somewhat similar to Figure 3 and showing in effect what my present invention is designed to overcome.

The various novel features of the invention will be apparent from the following description and drawings and will be particularly pointed out in the appended claims.

Referring to the figures of the drawings, it will be noted that my invention is illustrated in connection with feed mechanism as applied to a printing press 10 or the like. The paper to be fed is in a pile 11 mounted upon a supply platform 12, which, as shown in Figures 1 and 3, is inclined, so that the top sheets, of their own weight, slide from the pile onto an adjacent endless conveyor 13 which assists in separating the sheets and feeds them progressively to an operator. Preferably the inclination of the supply platform 12 with respect to the work table 14 and the endless conveyor 13 is such that the sheets in sliding from the pile onto the conveyor 13 are caused to bend or buckle intermediate their lengths for causing a relative movement between adjacent sheets for facilitating the separation thereof. Also the supply platform 12 normally is given an inclination which most generally is needed for causing the top sheets of material to slide from the pile in the proper manner. It will be appreciated, of course, that if the sheets in the pile have relatively rough engaging surfaces and thereby greater frictional engagement, the inclination will have to be increased and, on the other hand, that if the sheet material is relatively smooth and shiny it may be necessary to

decrease the angle of inclination of the supply platform 12. As shown in Figures 1 and 3, it will be noted that the front edges of the sheets in the pile 11 engage a front guide member 15 and that the upper end of said guide member 15 is tapered or curved at 16 to prevent proper feeding of the sheets from the pile onto the conveyor 13.

Preferably, in loading the supply platform 12, it is given a horizontal position, such as shown in dotted lines in Figure 1. While the front guide means 15 remains fixed in an inclined position, two I beams 57, one at each side of guide means 15 and which also act as front guide means, are pivotally connected to any suitable supports 17 for permitting the front guides 57 to take a vertical position when the supply platform is in a horizontal position.

As mentioned above, as much as two tons of sheet material at one time is placed on the supply platform 12, whereupon the front guide means 57 and the supply platform may be given their normal inclined positions.

Mechanism is provided not only for giving the supply platform 12 an upward feeding movement, but also for varying the inclination of said supply platform and for giving the latter a quick return lowering movement for reloading. This actuating mechanism includes a properly supported motor 18 having a pinion 19 meshing with a relatively large gear 20 mounted upon a supported shaft 21 carrying a small gear 22 meshing with a relatively large gear 23 loosely mounted upon one section of a divided shaft 24, having a worm 25 for driving a gear 26 and shaft 27 upon which are mounted two drums 28 around which cables 29 are wound, the ends of which cables are secured at opposite sides near the rear of the supply platform 12. The other section of the shaft 24 carries a worm 30 which meshes with and drives a gear 31 and shaft 32 upon which are mounted two other drums 33 around which cables 34 are wound, the free ends of said cables 34 being secured to opposite sides of the supply platform 12 near the front thereof. It is apparent, therefore, that when both of the worms 25 and 30 are actuated in one direction, the supply platform will be elevated. The actuation of the worms 25 and 30 is controlled by a plurality of clutches 35 and 36 both splined to the sectional shaft 24, the sections of the shaft abutting at the clutch member 26. When both clutches 35 and 36 are thrown in and the motor 18 is operating in one direction, it will be appreciated that the supply platform will be elevated for feeding the sheets, and that the inclination of said platform will remain constant. If it is desired to vary the inclination of the supply platform 12 such will be done

by throwing in only clutch 35, the associated clutch 36 being thrown out. Increasing or decreasing the angle of inclination of the supply platform 12 will then depend upon the direction in which the motor 18 is controlled to operate. The clutch 35 may be controlled through either of two levers 37 or 38 which are operatively connected to a lever 39 directly associated with the clutch 35. The clutch 36 is controlled through a lever 40.

The supply platform 12 normally is arranged at an inclination for properly feeding and delivering sheets of the average character from the top of the pile, so that only the minimum adjustment of the inclination of the supply platform 12 will be occasioned by the use of sheet material differing widely in character. In other words, if sheet material having surfaces rougher than the general run of sheet material is used, the inclination of the platform 12 must be increased. On the other hand, if sheet material having smoother and shinier surfaces is used, less inclination of the platform is required. By thus initially adjusting the inclination of the platform 12 for elevating sheet material of the average character, only a minimum variation in inclination of the platform becomes necessary. It is important that such should be the case in order to overcome the wedging and marring of sheets and causing same to take a curved position which not only hinders separation and successive feeding of the sheets but in some cases actually prevents such separation and feeding, as, for example, as shown in Figure 5 wherein, in the use of a vertically movable tiltably mounted platform 12', it becomes necessary to increase the inclination of the platform 12' a substantial amount. It is apparent, under such circumstances, that a wedging action of the pile occurs between the platform 12' and the front guide means 15'. This wedging action results in an unsuccessful attempt to thrust rearwardly the pile throughout almost its whole height and causes an upward curving effect, as at A, at the front ends of the sheets and a marring of said sheets, which alone would tend to prevent a separation and successive feeding of said sheets. But in addition to this the rear ends of said sheets, under the circumstances mentioned, curve downwardly at the rear of the pile which in some instances actually prevents progressive feeding of sheets from the pile to say nothing of the separation of the sheets.

However, by giving the inclined tiltably mounted platform 12 a movement inclined to the vertical, as shown in Figures 1 and 3, the objectional features mentioned in connection with the arrangement shown in Figure 5 are overcome.

In giving the supply platform 12 a quick

return lowering movement, there is used a relatively large gear 41 which is secured to one end of shaft 21 and meshes with a gear 42 of the same size loosely mounted upon the section of shaft 24 on which the worm 25 is mounted. A lever controlled clutch 43 splined to the shaft section on which worm 25 is mounted, when thrown into operative association with gear 42, causes a quick lowering movement of the platform 12, it being understood that clutch 35 is thrown out and clutch 36 in and motor 18 reversed through the switch 53.

The endless conveyor 13 is driven by a chain 44 passing around sprocket wheels 45 and 46, the latter of which is mounted upon a shaft 47 carrying a second sprocket wheel 48. Another chain 59 passes around sprocket wheel 48 and another sprocket wheel 49 operatively connected to shaft 21 through a clutch 50, controlled through a lever 51. Normally the clutch 50 is in and the speed of the progressive movement of the conveyor 13 and the supply platform 12 bears a constant relationship. By depressing the control member 52 the motor is set into operation normally for elevating the supply platform 12 and progressively driving the endless conveyor 13 for progressively feeding and separating the sheet material. However, if it is desired to temporarily vary the progressive feeding relationship of the supply platform 12 and the conveyor 13 for thinning out the sheets on the endless conveyor, such may be done by having clutch 50 in and clutches 35, 36 and 43 out. If, on the other hand, it is desired to elevate the supply platform 12 without driving the conveyor 13, such may be done by having clutches 35 and 36 in and clutches 50 and 43 out. If it is desired to vary the inclination of the supply platform, same may be done by throwing clutch 35 in, with the other clutches out, the inclination being increased or decreased in accordance with the position of the switch 53, that is, whether it is forward or reverse. For giving the supply platform a quick return lowering movement the switch 53 is reversed and control member 52 depressed for completing the motor circuit 18, clutch 43 being thrown in and clutches 35, 36 and 50 thrown out.

To prevent the inclined platform 12 from swinging outwardly away from the front guide means 15, same are operatively connected through trolley mechanism including a plurality of U-shaped frames 54, each one carrying a roller 55 for engaging one surface and rollers 56 for engaging the opposite surface of a flange, of the I beam 57, the yoke member 54 in each instance being connected by a chain 58 to a T shape bar 59 located under the platform 12 near the front edge thereof. This trolley arrangement permits the platform to freely move upwardly

and downwardly and at the same time prevents the supply platform 12 from moving away from the guide means 15.

It is my intention to cover all modifications of the invention falling within the spirit and scope of the following claims.

I claim:

1. In mechanism of the character described, the combination of a tiltably mounted supply platform movable in a direction inclined with respect to the vertical whereby the tilting adjustment required for feeding sheet material of varying character may be reduced to a minimum to prevent wedging and marring of the sheet material, the degree of inclination of said tiltably mounted platform normally being constant as it is being raised for sheet feeding purposes.

2. In mechanism of the character described, the combination of a tiltably mounted supply platform having an inclined sheet supporting surface and movable in a direction inclined with respect to the vertical whereby the tilting adjustment required for feeding sheet material of varying character may be reduced to a minimum to prevent wedging and marring of the sheet material.

3. In mechanism of the character described, the combination of a tiltably mounted supply platform movable in a direction inclined with respect to the vertical whereby the tilting adjustment required for feeding sheet material of varying character may be reduced to a minimum to prevent wedging and marring of the sheet material, and means for varying the degree of tilting of said platform.

4. In mechanism of the character described, the combination of a tiltably mounted supply platform movable in a direction inclined with respect to the vertical whereby sheet material carried thereby may have its inclination changed without causing said sheet material in the pile to take a curved position, the degree of inclination of said tiltably mounted platform normally being constant as it is being raised for sheet feeding purposes.

5. In mechanism of the character described, the combination of a tiltably mounted and upwardly and downwardly movable supply platform, and means whereby said platform may be elevated at one speed and lowered at a greater speed.

6. In mechanism of the character described, the combination of a tiltably mounted and upwardly and downwardly rectilinearly movable supply platform, and means whereby said platform may be elevated at one speed and lowered at a different speed.

7. In mechanism of the character described, the combination of a tiltably mounted supply platform capable of upward and downward movement in a straight line, and gearing mechanism whereby said platform

may have its angle of inclination changed and whereby said platform may be raised at one speed and lowered at another speed.

8. In mechanism of the character described, 5 the combination of a supply platform, an associated conveyor onto which sheet material is fed from said platform, means whereby said supply platform and endless conveyor are driven in a given speed relationship, and means for varying said rela- 10 tive speed relationship for facilitating feeding of the sheet material.

9. In mechanism of the character described, 15 the combination of a tiltably mounted supply table capable of upward and downward movement, an associated conveyor onto which sheet material is fed from said platform, control mechanism whereby the speed of operation of said platform and conveyor 20 may be constant and whereby said speed relationship may be changed, and control mechanism whereby the degree of tilt of said platform may be varied.

10. In mechanism of the character described, 25 the combination of a tiltably mounted supply table capable of upward and downward movement, an associated convey-

or onto which sheet material is fed from said platform, control mechanism whereby the speed of operation of said platform and 30 conveyor may be constant and whereby said speed relationship may be changed, control mechanism whereby the degree of tilt of said platform may be varied, and control means whereby the upward movement of 35 said platform may have a given speed and the downward movement of said platform have a different speed.

11. In mechanism of the character described, the combination of a supply plat- 40 form movable in a direction inclined to the vertical, a guide against which sheet material on said platform rests, and a connection between said platform and guide for preventing a separating movement of said plat- 45 form and guide, said connection including a frame member pivotally connected to said platform and carrying rollers for engaging opposite sides of said guide for permitting a controlled relative movement in a given 50 direction between said platform and guide.

Signed at St. Louis, Missouri, this 15 day of August, 1923.

BENJAMIN F. BERRY.