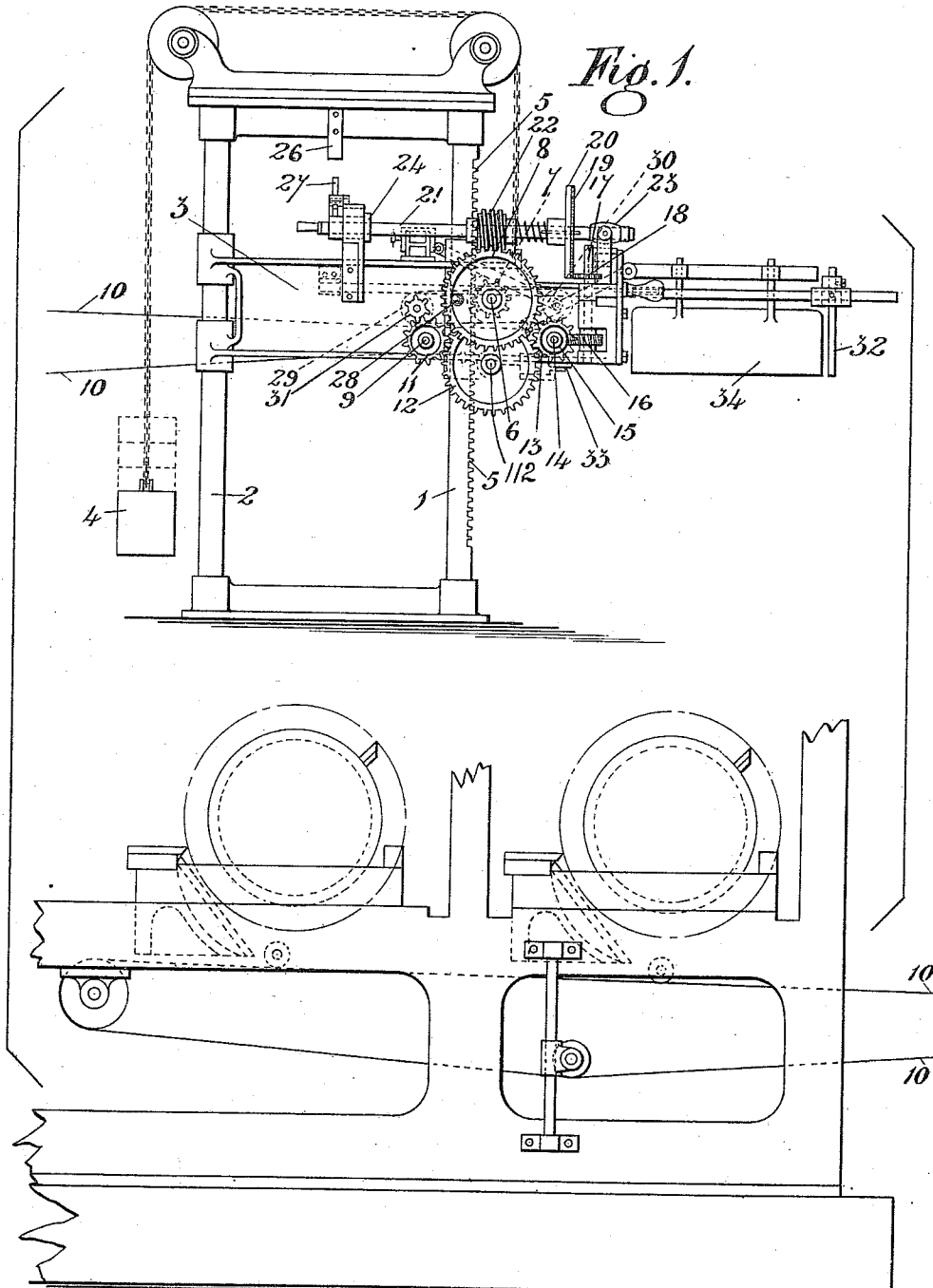


A. COLLIS.
SHEET DELIVERY APPARATUS.
APPLICATION FILED NOV. 18, 1909.

973,259.

Patented Oct. 18, 1910.

3 SHEETS—SHEET 1.



Witnesses:
W. K. K.
W. K. K.

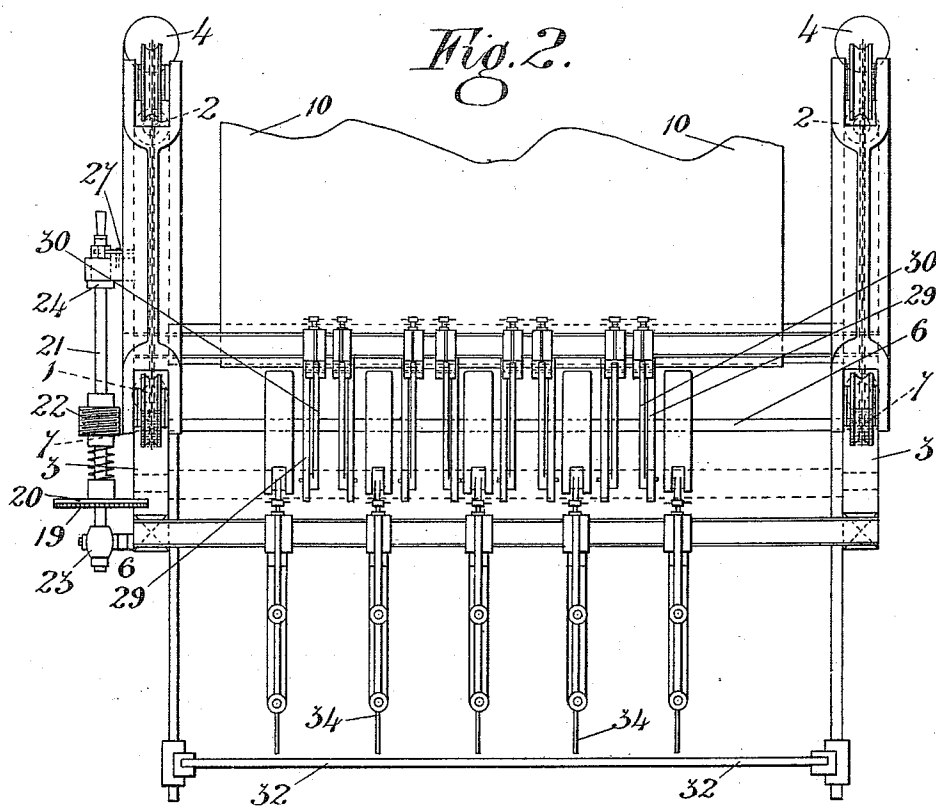
Inventor
Alfred Collis
By *James L. Norris*
Att'y

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3 SHEETS—SHEET 2.



Witnesses:

[Signature]

[Signature]

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[Signature]

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3 SHEETS—SHEET 3.

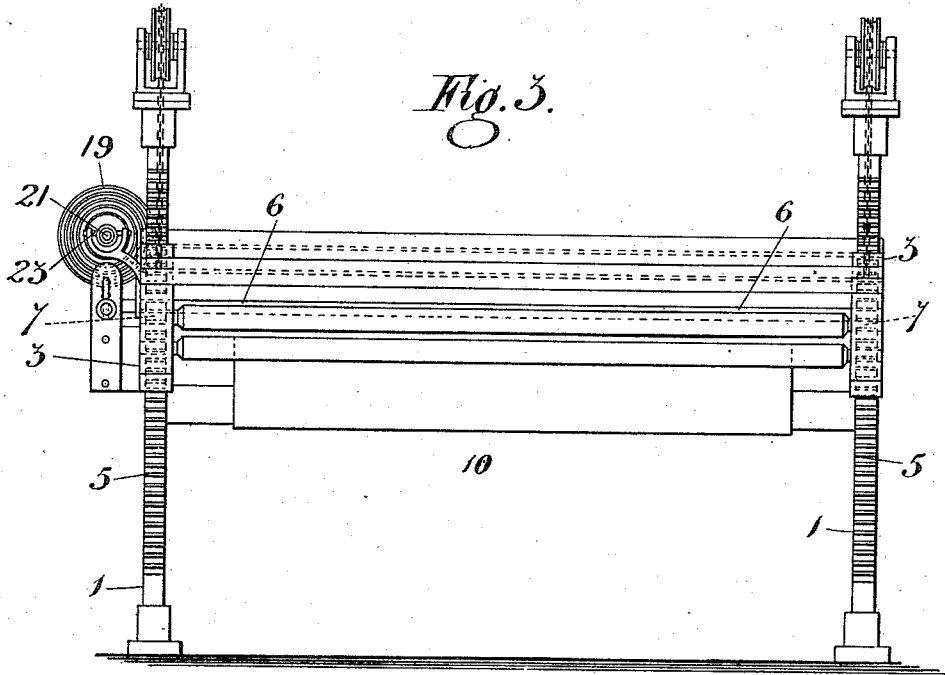


Fig. 4.

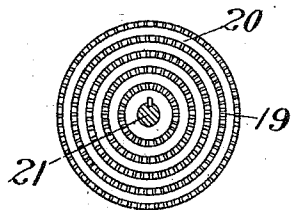


Fig. 5.

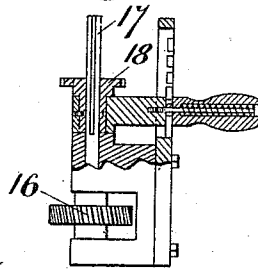


Fig. 6.

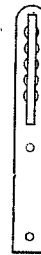


Fig. 7.

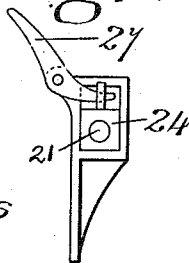
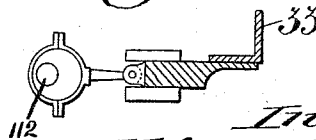


Fig. 8.



Witnesses

Carl Heller

Inventor
Alfred Collis

James L. Norris
Atty

UNITED STATES PATENT OFFICE.

ALFRED COLLIS, OF LONDON, ENGLAND.

SHEET-DELIVERING APPARATUS.

973,259.

Specification of Letters Patent.

Patented Oct. 18, 1910.

Application filed November 18, 1909. Serial No. 528,798.

To all whom it may concern:

Be it known that I, ALFRED COLLIS, a subject of the King of Great Britain, residing at London, England, have invented certain new and useful Improvements in Sheet-Delivering Apparatus, of which the following is a specification.

This invention relates to mechanism by means of which sheets of paper or the like are deposited upon trucks or barrows, instead of upon the usual receiving tables, and as the pile or piles of paper increases so the frame of the machine bodily rises, carrying up the delivering devices with it. When all the paper, or sufficient paper, is laid upon the trucks, the frame may be raised still higher, so as to permit the loaded trucks to be run out and empty trucks run in in their places.

In the accompanying drawings, illustrating the invention, Figure 1 is a side view of the improved delivering apparatus arranged in connection with a paper cutting machine, which latter is depicted beneath said delivering apparatus. Fig. 2 is a plan view and Fig. 3 a front elevation of the delivering apparatus, parts being removed for the sake of clearness. Fig. 4 is a detail view of the face-toothed gear for varying the speed of movement of the frame. Fig. 5 is a detail view showing the device for changing the position of the sliding pinion with regard to the face toothed wheel, and the retaining means associated therewith. Fig. 6 is a face view of one element of the aforementioned retaining means. Fig. 7 is a detail view of the lifting lever for raising the worm shaft out of gear. Fig. 8 is a detail sectional view of the reciprocating bar for knocking up the paper.

For the purposes of the invention, vertical columns 1, 1, 2, 2 are employed, up and down which columns side frames 3, 3 slide, these side frames 3 being suitably counterbalanced by weights 4. The two front columns 1, 1 are cut on one side to provide racks 5, which are engaged by pinions 7, 7 carried by a transverse shaft 6 extending across the machine and journaled in said frames, one end of the shaft having fixed thereto a gear 8. The arrangement is such, therefore, that rotation of this shaft will effect a vertical movement of the frames by reason of the engagement of the racks 5 by the pinions 7. It is preferable, moreover, to provide means

for varying the speed at which said shaft is driven so as to control the rapidity of movement of the frames, since it will be understood that if thick paper is being cut, the frame will naturally need to rise quicker than with thin paper.

In order to effect this necessary variation in the rate of feed, the following arrangement of gearing, as illustrated, is preferred.

On the roller 9 around which one end of the belt 10 passes is mounted a pinion 11 in mesh with an idler gear 12 secured to a transverse shaft 112, said idler meshing with a pinion 13 secured to a shaft 14, which carries a worm 15 meshing with a pinion 16 on a vertical shaft 17. On this shaft 17, is a sliding pinion 18 which may be caused to gear with any one of the rings of teeth 19 on the face of a gear 20 slidable along a shaft 21 provided with a worm 22 which meshes with gear 8. Shaft 21 has at one end a swivel bearing 23 and at the other end a movable bearing 24, such arrangement allowing the shaft and its worm to be raised, whereby the worm will be disengaged from said gear 8.

Across the machine extends a girder carrying adjustable side gages or cheeks 34, and on the frames 3 are arranged horizontal spindles carrying a back gage 32, which gage can be slid in or out according to the length of the sheets.

The sliding bearing 24 is designed for operation by a lifting lever 27, with which there is associated a stop 26 located in such a position upon the apparatus that as soon as it is struck by said lever, the above mentioned bearing will be raised, carrying with it shaft 21 and thereby disengaging worm 22 from gear 8, whereupon the movement of the frames will be terminated. A handle 28 may be attached to gear 8, enabling the frames 3, 3 to be raised or lowered quickly during such disengagement. The paper is fed from the cutting mechanism, shown in the lower portion of Fig. 1, along the belt 10 that passes around roller 9, whence it is advanced by means of tapes 29 running around rollers on the ends of arms 30. These tapes are operated by pinions 31 in gear with pinions 11. The paper is finally passed over the shaft 14 and thence onto the trucks. The delivery side of the machine, which is at the right with respect to Fig. 1, is perfectly clear, thereby permitting free movement of the trucks.

As the sheets leave the apparatus, they are delivered upon the truck between the cheeks 34, and their front edges are brought evenly into contact with the back gage 32 by means of a reciprocatory bar 33 operatively connected to a pair of eccentrics secured to shaft 112. When the full load is taken on the truck, the entire mechanism can be raised so as to lift the side cheeks 34 from between the piles of paper. This mechanism in rising also raises the back board 32, whereupon the trucks can then be run out. I can also throw out my raising gearing from the pile of sheets in any well-known manner.

What I do claim as my invention and desire to secure by Letters Patent is:—

1. In a sheet delivering apparatus, the combination of a vertically movable delivery frame, and a support therefor; elevating mechanism carried by said frame and associated operatively with said support; a conveyer having its discharge end mounted in said frame; and connections between said end and said elevating mechanism for automatically actuating the latter when said conveyer is actuated.

2. In a sheet delivering apparatus, the combination of a vertically movable delivery frame, and a support therefor; elevating mechanism carried by said frame and movable therewith; means for actuating said mechanism, to elevate said frame and movable therewith; and means for automatically terminating such actuation when said frame reaches a predetermined height.

3. In a sheet delivering apparatus, the combination of a vertically movable delivery frame, and a support therefor; elevating mechanism carried by said frame; means for actuating said mechanism, to elevate said frame; and means carried by said support and adapted to cooperate with one element of said mechanism for automatically terminating such actuation when said frame reaches a predetermined height.

4. In a sheet delivering apparatus, the combination of a vertically movable delivery frame, and a support therefor; elevating mechanism carried by said frame and movable therewith; said mechanism including a movable operating element; means for actuating said element, to elevate said frame; and means for shifting said element into inoperative position, to terminate such actuation.

5. In a sheet delivering apparatus, the combination of a vertically movable delivery frame, and a support therefor; elevating mechanism carried by said frame and including a movable operating element; means for actuating said element, to elevate said frame; and means carried by said support for automatically shifting said element into inoperative position when the frame

reaches a predetermined height, to terminate such actuation.

6. In a sheet delivering apparatus, the combination of a vertically movable delivery frame, and a support therefor; elevating mechanism carried by said frame and including a movably mounted drive shaft, a driven shaft, and gear connections between said shafts; means for actuating the drive shaft; and means for automatically raising said drive shaft when said frame reaches a predetermined height, to disengage said gear connections.

7. In a sheet delivering apparatus, the combination of a vertically movable delivery frame and a support therefor; elevating mechanism carried by said frame and including a pivotally mounted operating element; means for actuating said element, to elevate said frame; and a lifting device associated with said element for raising the same into inoperative position, to terminate such actuation.

8. In a sheet delivering apparatus, the combination of a vertically movable delivery frame and a support therefor; elevating mechanism carried by said frame and including a pivotally mounted operating element; means for actuating said element, to elevate said frame; a lifting device associated with said element for raising the same into inoperative position; and a member connected to said support and adapted to contact with said lifting device when the frame reaches a predetermined height, to operate said device.

9. In a sheet delivering apparatus, the combination of a vertically movable delivery frame, and a support therefor; elevating mechanism carried by said frame and including a movably mounted drive shaft, a driven shaft, and gear connections between said shafts; means for actuating the drive shaft; a lifting lever associated with said drive shaft for raising the same, to disengage said gear connections; and a stop connected to said support and adapted to operate said lever when said frame reaches a predetermined height.

10. In a sheet delivering apparatus, the combination of a movable delivery frame, and a support therefor; mechanism carried by said frame and associated operatively with said support, for effecting the movement of the frame; means connected to said frame for actuating said mechanism; and means for automatically terminating such actuation when said frame reaches a predetermined point in its movement.

11. In a sheet delivering apparatus, the combination of a movable delivery frame, and a support therefor; mechanism carried by said frame and associated operatively with said support for effecting the movement of the frame; a conveyer leading to said

frame; connections between said conveyer and said mechanism for actuating the latter when the former is actuated; and means for automatically terminating the actuation of said mechanism when said frame reaches a predetermined point in its movement.

12. In a sheet delivering apparatus, the combination of a movable delivery frame, and a plurality of supports therefor, certain of said supports being provided with racks; mechanism carried by said frame for effecting the movement thereof, said mechanism including a shaft, pinions fixed thereto in mesh with said racks and means for varying the speed at which said shaft is rotated; and means for actuating said mechanism.

13. In a sheet delivering apparatus, the combination of a movable delivery frame, and a support therefor; mechanism carried by said frame for effecting the movement thereof, said mechanism including a driven shaft provided with means arranged to engage said support, a gear fixed to the driven shaft, a drive shaft, a gear fixed to the drive shaft in mesh with the first named gear, and a variable speed gear carried by said drive shaft; and means for rotating said drive shaft.

14. In a sheet delivering apparatus, the combination of a movable delivery frame, and a support therefor; mechanism carried by said frame for effecting the movement thereof, said mechanism including a drive shaft provided with means arranged to engage said support, a gear fixed to the driven shaft, a movably mounted drive shaft, and a gear fixed to the drive shaft in mesh with the first-named gear; means for rotating said drive shaft; and mechanism for automatically shifting said drive shaft bodily at a predetermined point in the movement of said frame, to unmesh said gears.

15. In a sheet delivering apparatus, the combination of a movable delivery frame, and a support therefor; mechanism carried by said frame for effecting the movement thereof, said mechanism including a driven shaft provided with means arranged to engage said support, a gear fixed to the driven shaft, a movably mounted drive shaft, and a gear fixed to the drive shaft in mesh with the first named gear; means for rotating said drive shaft; and a device connected with said drive shaft for shifting the same bodily in one direction, to unmesh said gears.

16. In a sheet delivering apparatus, the combination of a series of uprights; a vertically movable delivery frame disposed between said uprights and slidably engaged with the same; elevating mechanism carried by said frame and associated operatively with certain of said uprights; a conveyer attached to said frame; and driving connections between said conveyer and said elevating mechanism for automatically actuating the latter when the former is actuated.

17. In a sheet delivering apparatus, the combination of a series of uprights, certain of which are provided with racks; a vertically movable delivery frame slidably engaged with said uprights; pinions carried by said frame and engaged with said racks; driving means for said pinions including worm gearing and a variable speed gear associated therewith; and a counterweight device connected to said frame.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ALFRED COLLIS.

Witnesses:

WM. O. BROWN,
F. C. SMITH.