No. 845,837. PATENTED MAR. 5, 1907.

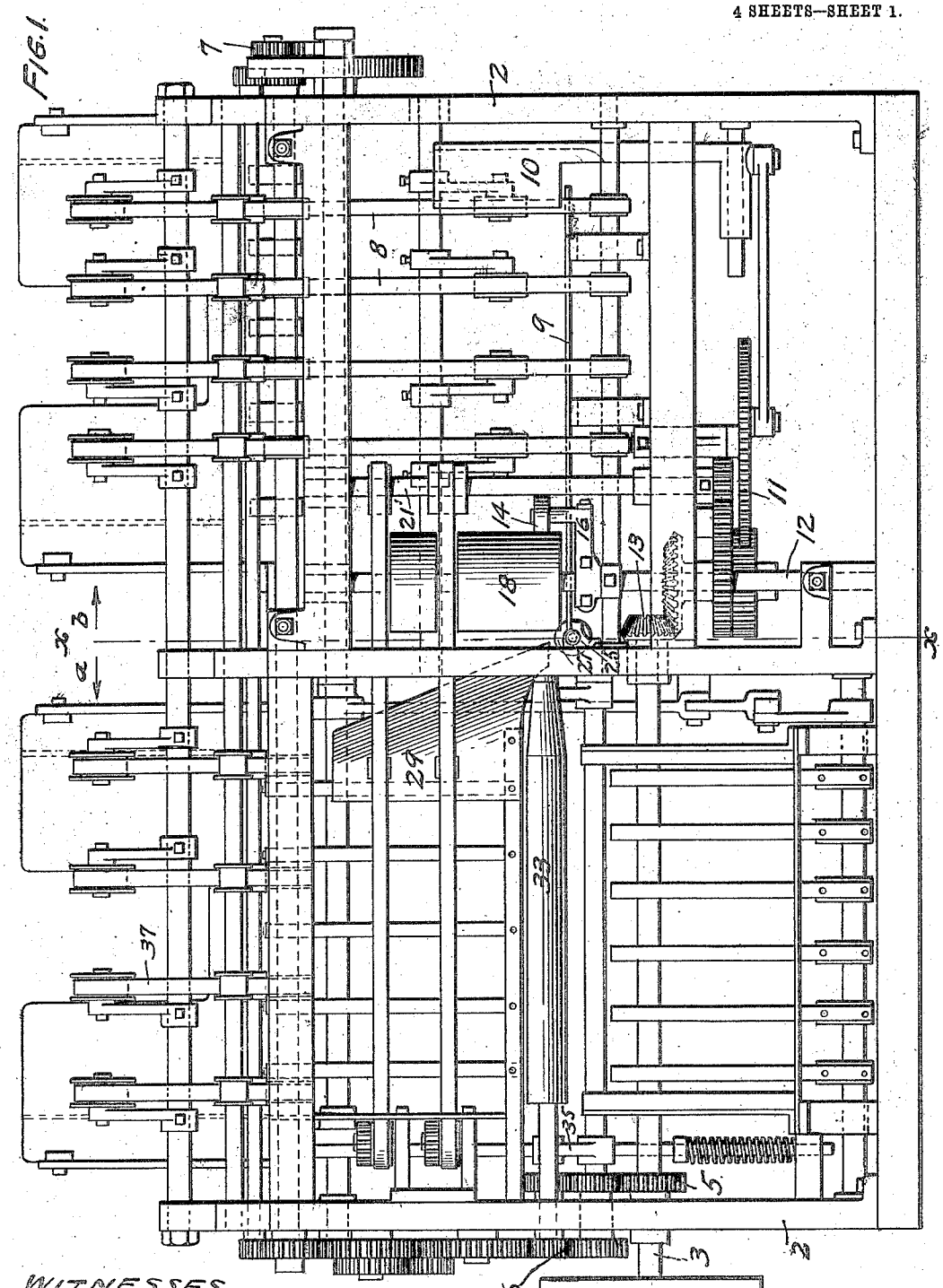
W. E. WINES.

NEWSPAPER ASSEMBLING MACHINE.

APPLICATION FILED JUNE 1, 1905.

4 SHEETS—SHEET 1.

FIG. 1.



WITNESSES

J. Jessen

C. Mannamara

INVENTOR

WALTER E. WINES.

BY Paul & Paul ATTORNEYS

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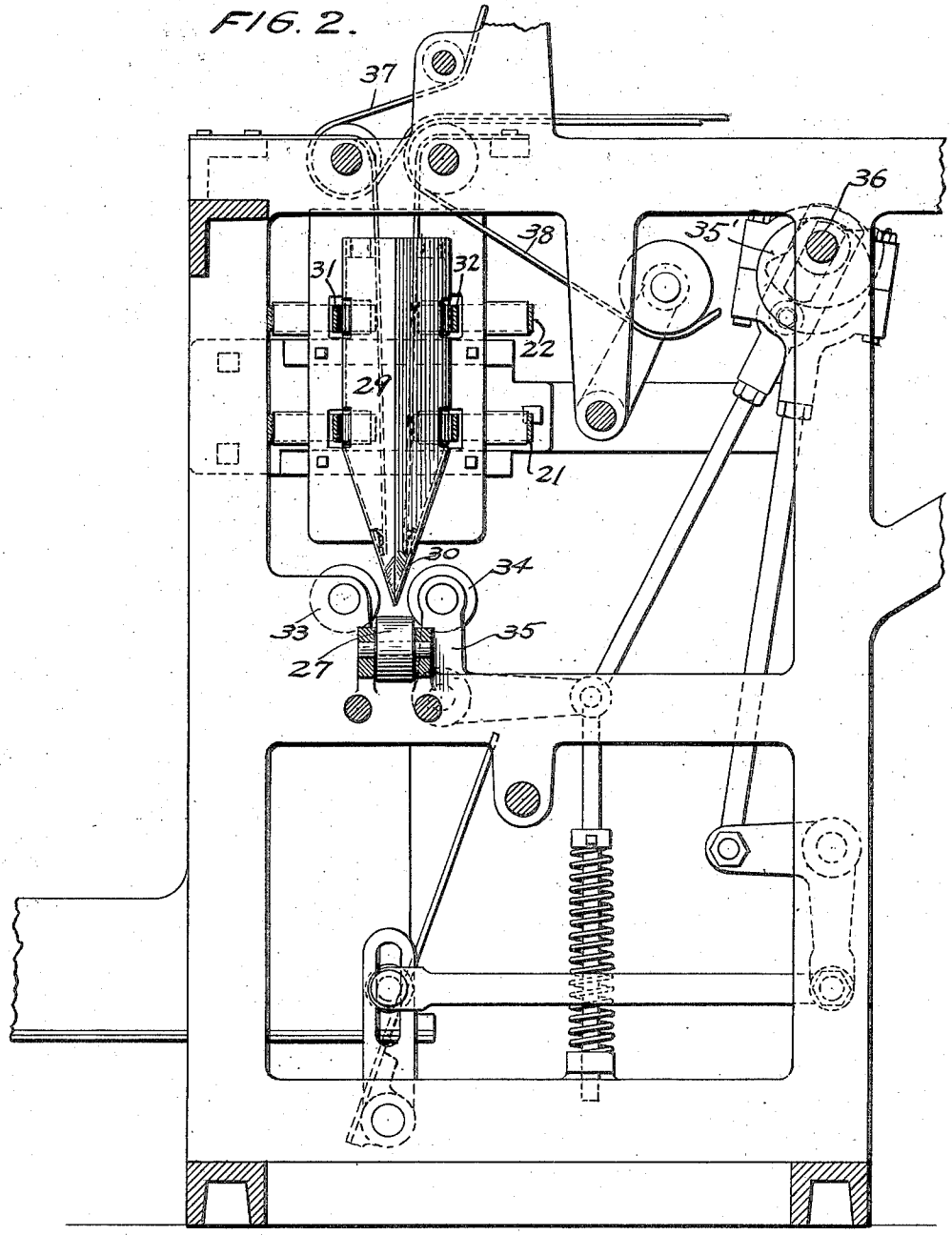
4 SHEETS—SHEET 2.

FIG. 2.



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4 SHEETS—SHEET 3.

FIG. 4.

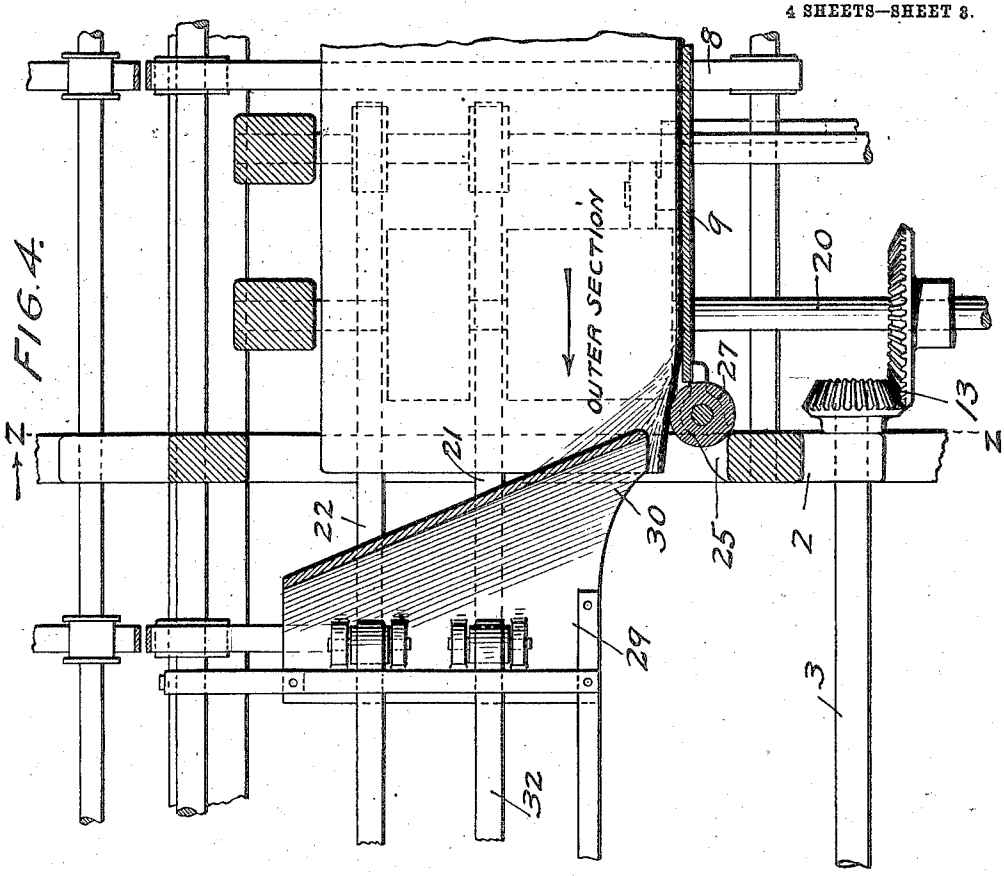
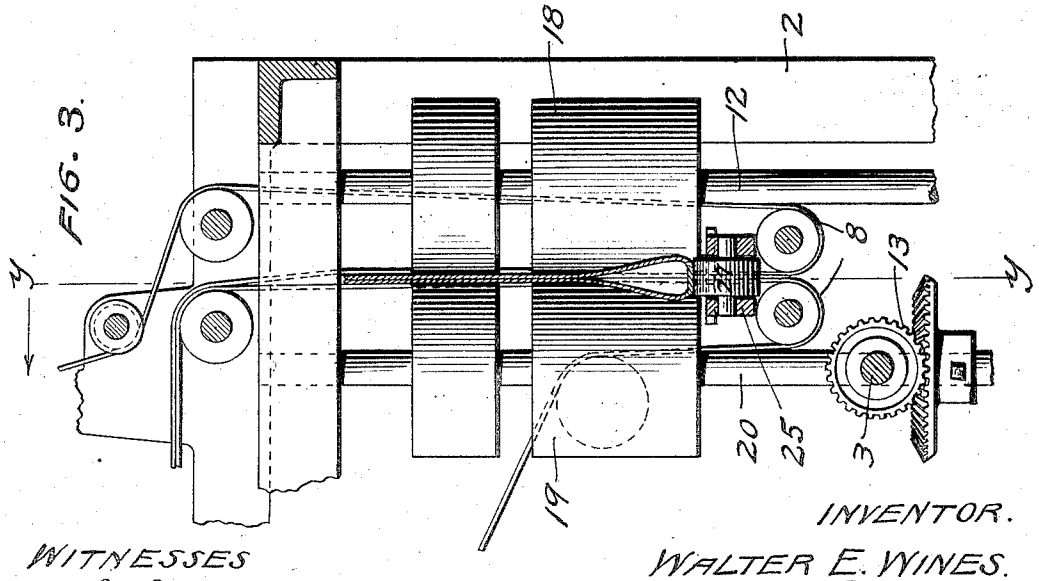


FIG. 3.



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C. Macnamara

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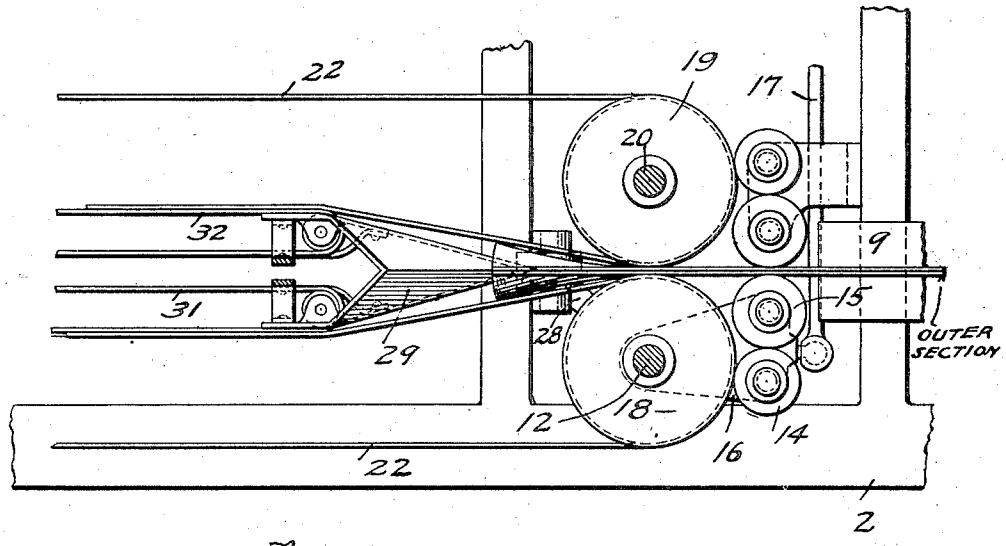
4 SHEETS—SHEET 4.

FIG. 5.



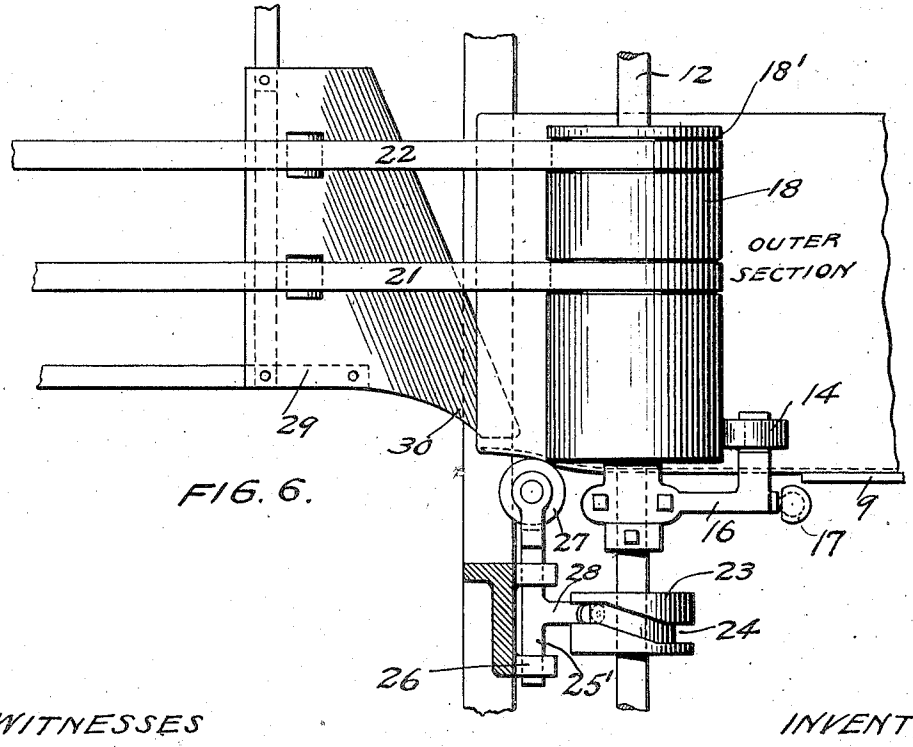


FIG. 6.

WITNESSES

J. Jessen

C. Macnamara

INVENTOR.

WALTER E. WINES.

BY Paul & Paul

ATTORNEYS

UNITED STATES PATENT OFFICE.

WALTER E. WINES, OF MINNEAPOLIS, MINNESOTA.

NEWSPAPER-ASSEMBLING MACHINE.

No. 845,837. Specification of Letters Patent. Patented March 5, 1907.

Application filed June 1, 1905. Serial No. 263,283.

To all whom it may concern:

Be it known that I, WALTER E. WINES, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Newspaper-Assembling Machines, of which the following is a specification.

The object of my invention is to provide a machine wherein the several parts or sections of a Sunday or holiday edition of a newspaper can be easily and quickly assembled or put together; and the invention herein described is designed as a modification of the outer-section opening means shown and described in a certain pending application for Letters Patent of the United States filed by me May 2, 1905, Serial No. 258,495.

The invention consists generally in providing means for bending or buckling the lower folded edge of the outer section of the newspaper upwardly to separate the sides of the fold and allow the nose of the spreader to pass between them.

Further, the invention consists in various constructions and combinations, all as hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a rear elevation of a newspaper-assembling machine embodying my invention. Fig. 2 is a vertical sectional view on the line *x x* of Fig. 1 looking toward the left-hand end of the machine or in the direction of the arrow marked *a*. Fig. 3 is a detail view, partially in section, of the feed-rolls and the device for opening up the fold at the lower edge of the outer section. Fig. 4 is a sectional view on the line *y y* of Fig. 3 looking in the direction indicated by the arrow. Fig. 5 is a horizontal sectional view through the feed-roll shafts and the spreader device, showing the outer section between the feed-rolls and a modified means for opening its fold to receive the nose of the spreader. Fig. 6 is a detail view of Fig. 5, showing in side elevation the feed-rolls, the spreader device, and the striker in the act of engaging the folded edge of the section.

In the drawing, 2 represents a suitable frame wherein the operating mechanism of the assembling-machine is mounted. This machine, as fully described in the application heretofore referred to, is provided with a primary and secondary feed, one for the outer section or part of the paper and the other for an inner section or part. These feed devices have been described in detail in my application filed as stated above, and it is not necessary in this case to again refer to these parts of the machine specifically, and I will therefore simply designate them as the "primary" and "secondary" feed devices. 3 represents a driving-shaft having a pulley 4 and a pinion 5, connected through a train of gears 6 with the gear mechanism 7 at the opposite end of the machine from which the primary feed device is operated.

The outer newspaper part or section is fed from the hopper in the primary feed, and the sections or parts so fed are delivered to a series of tapes 8 and turned thereby from a horizontal to a vertical position and delivered to a stop-plate 9, with the folded edge of the section at the bottom. A pusher device 10 is operated through gears 11, shafts 12, and beveled gears 13 from the drive-shaft 3. The function of this pusher device is to engage one end of the newspaper-section and feed it forward on edge to a point where it will be engaged by the friction feed-wheels 14 and 15, arranged in pairs, one pair being mounted upon a pivoted plate 16 and moved toward and from the paper through a rod and eccentric connection 17 with a cam-shaft. The feed-wheels are driven through contact with the surfaces of feed-rolls 18 and 19, mounted on the shafts 12 and 20 and geared to the driving-shaft 3. The mechanism heretofore described is substantially the same as in my application above referred to. The feed-rolls differ from those shown and described in my former application in having no pneumatic or other devices arranged in their surfaces for attracting and opening the sides of the newspaper fold to allow it to receive the nose of the spreader. Feed-tapes 21 and 22, arranged in pairs, are operated through vertical shafts 21′, geared to the driving-shaft. Near the feed-rolls and projecting above the level of the plate 9 is an antifriction-wheel 27, supported in a bracket 25. This wheel is adapted to engage the folded lower edge of the newspaper-section at its forward end and cause the same to bend or buckle upwardly, as plainly shown in Figs. 3 and 4. The fold will be opened sufficiently to receive the nose 30 of a fixed spreader device 29, which is arranged near the feed-rolls, one side of the section passing one side of the spreader and the other side of the section on

the opposite side of the spreader. Tapes 31 and 32, also arranged in pairs, are mounted on the spreader, one above the other, and cooperate with the tapes 21 and 22 to advance the paper-section.

Instead of providing the shafts 21′ I may provide annular grooves 18′ in the surfaces of the feed-rolls 18 to receive the tapes 21 and 22, as indicated in Figs. 5 and 6, and instead of mounting the wheel 27 in a fixed support I may provide a bracket 25′, carrying said wheel at its upper end and vertically movable in guides 26 and having an arm 28, that travels in a cam-groove 24, provided in the periphery of a hub 23, secured on the shaft 12. The movements of the parts will be properly timed so that the wheel 27, normally below the level of the plate 9, will be raised to a point above said plate into the path of the newspaper-section at the right moment to engage the lower edge of the section and open the fold therein when the end of the section passes out from between the feed-rolls. After leaving the spreader device the newspaper-section will pass between the rolls 33 and 34, both having a revolving movement and the latter an oscillating movement through its connection with the bell-crank 35 and the cam 35′ on the cam-shaft 36. During the time the outer section of the newspaper, with its fold opened, is held between the rolls 33 and 34 the inner section will be fed down between the tapes 37 and 38 in substantially the same manner as described in my pending application above referred to. When the two sections have been assembled, they will pass down between the rolls 33 and 34 to the packing mechanism beneath.

I claim as my invention—

1. The combination, with means for feeding a folded newspaper part or section in a vertical position with the fold at the bottom, of means for bending or buckling the fold upward to separate the sides thereof, substantially as described.

2. The combination, with means for feeding a newspaper part or section in a vertical position with its folded edge at the bottom, of an antifriction-wheel arranged to engage said fold and spread or separate the sides thereof, substantially as described.

3. The combination, with means for feeding a folded newspaper-section, of means arranged to engage said folded edge and bend or buckle the same to separate the sides of the fold, substantially as described.

4. The combination, with means for feeding a folded newspaper part or section, of an antifriction-wheel arranged to engage said folded edge and separate the sides of the fold, substantially as described.

5. The combination, with means for advancing a folded newspaper part or section on edge with its fold at the bottom, of feed-wheels, feed-rolls arranged to receive the paper from said wheels, and a bending or buckling means operating near said rolls to open the fold in the paper.

6. The combination, with the feed-rolls, of means arranged to engage the lower folded edge of a newspaper part or section passing between said rolls and separate the sides thereof, substantially as described.

7. The combination, with the feed-rolls, of means arranged to engage the lower folded edge of a newspaper part or section passing between said rolls and separate the sides of the fold, and a spreader device having a nose adapted to pass between said sides, substantially as described.

8. The combination, with the feed-rolls and a spreader device, of feed-tapes provided in connection with said rolls and spreader, and means operating between said rolls and spreader device to engage the folded edge of a newspaper part or section passing between said rolls and separate the sides of the fold, substantially as described.

9. The combination, with the feed-rolls, of means for advancing a folded newspaper part or section in a vertical position with the fold at the bottom, a stop-plate on which the section is supported, an antifriction-wheel mounted to project above the level of said plate and engage said lower folded edge of the section and open the same, substantially as described.

10. The combination, with the feed-rolls, of a stop-plate, means for pushing a folded newspaper part or section into said rolls over said plate, an antifriction-wheel mounted to project above said plate and contact with the lower folded edge of the paper to bend or buckle the same, and a spreader device having a nose to pass between the sides of the fold when opened by said buckling device, substantially as described.

In witness whereof I have hereunto set my hand this 24th day of May, 1905.

WALTER E. WINES.

Witnesses:
RICHARD PAUL,
C. MACNAMARA.