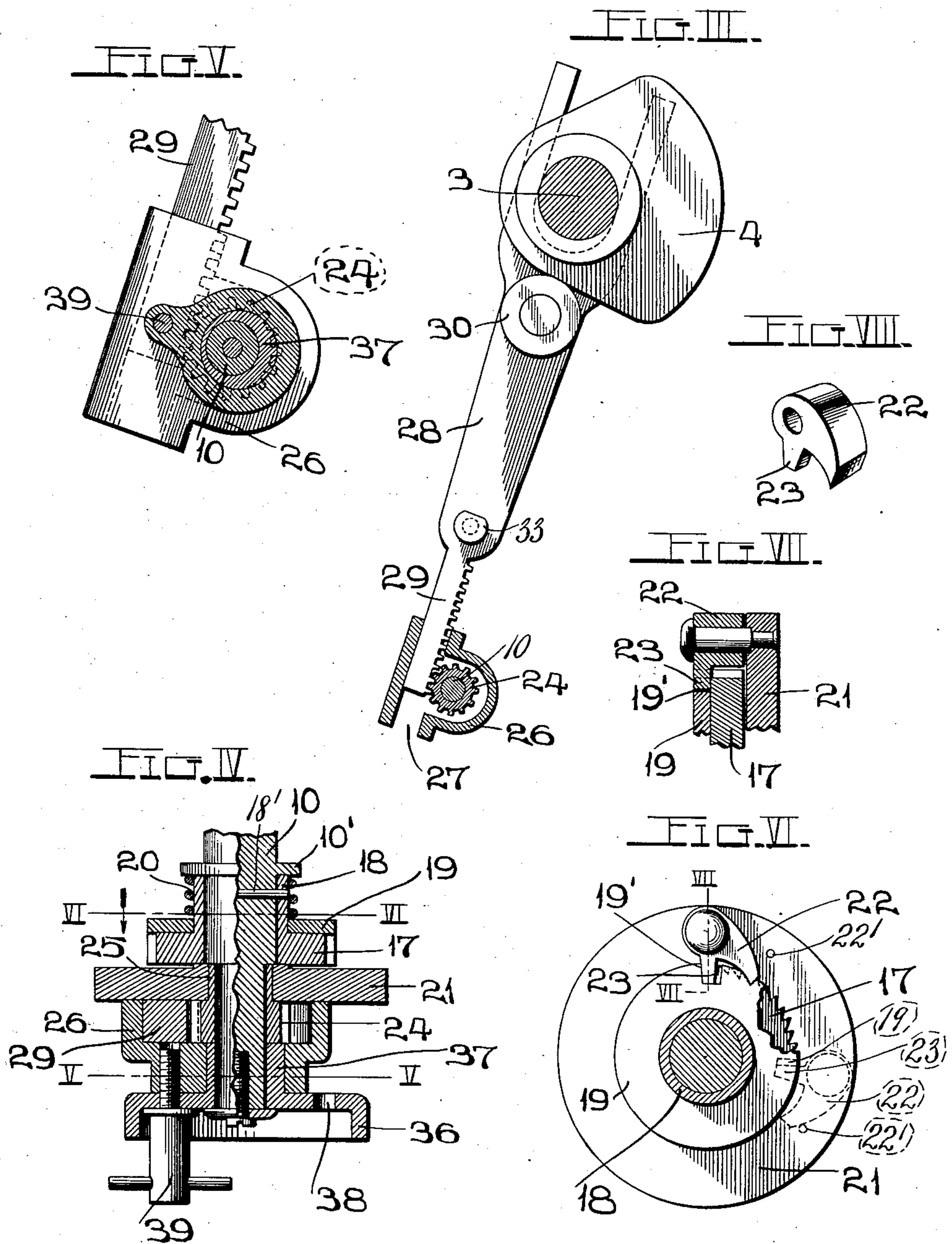


No. 884,337.

PATENTED APR. 7, 1908.

T. W. KIENAST.
FEEDING MECHANISM.
APPLICATION FILED JULY 22, 1907.

2 SHEETS—SHEET 2.



ATTEST.
L. J. Fletcher
Lily Root

INVENTOR.
T. W. KIENAST.
By *Geo. W. Knepper* ATT'Y.

UNITED STATES PATENT OFFICE.

THOMAS WILLIAM KIENAST, OF NEW YORK, N. Y., ASSIGNOR TO SAMUEL CUPPLES ENVELOPE COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION.

FEEDING MECHANISM.

No. 884,337.

Specification of Letters Patent.

Patented April 7, 1908.

Original application filed December 27, 1906, Serial No. 349,618. Divided and this application filed July 22, 1907
Serial No. 384,900.

To all whom it may concern:

Be it known that I, THOMAS WILLIAM KIENAST, a citizen of the United States of America, residing in New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Feeding Mechanisms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a feeding mechanism more particularly intended for use in feeding strips or sheets of paper, such as those from which envelopes are produced in envelop machines, the present application being a division from my application for Letters Patent of the United States filed December 27, 1906, No. 349,618.

Figure I is a view partly in elevation and partly in vertical section of my feeding mechanism. Fig. II is a view partly in vertical section taken on line II—II, Fig. I and partly in elevation with the parts illustrated as seen when viewed in the direction indicated by the arrow crossing said line. Fig. III is a vertical section taken on line III—III, Fig. I with parts adjacent to said line shown in elevation. Fig. IV is an enlarged longitudinal section taken on line IV—IV, Fig. I. Fig. V is a vertical cross section taken on line V—V, Fig. IV. Fig. VI is a vertical cross section taken on line VI—VI, Fig. IV. Fig. VII is a section taken on line VII—VII, Fig. VI. Fig. VIII is a perspective view of the pawl illustrated in Figs. I, VI and VII.

In the accompanying drawings: 1 designates part of a frame that serves as a support for my feeding mechanism and which is supplied with a journal box 2.

3 is a shaft mounted in the journal box 2 and to which is fixed a cam 4.

5 is a frame member that is supported by the frame part 1 and is provided with a spindle bearing 6. This frame member is also provided with a lug 7 and a stud 8 which have utility to be hereinafter particularly mentioned.

9 designates an upper feed roller having a spindle 10 which is journaled in the bearing 6 of the frame member 5 and which is driven by the mechanism to be presently set forth.

11 is a lower feed roller located beneath

and parallel with the upper feed roller and the spindles of which are mounted in supporting bars 12 (one only of said bars being illustrated in the drawing) which are provided with slots 13 so that the bar may move vertically with relation to the spindle of the upper feed roller passing therethrough. The supporting bars are attached to hanger rods 14 loosely and adjustably mounted in the lug 7 of the frame members 5 which are two in number although only one of such members is illustrated in the drawings. The hanger rods are equipped with adjustment nuts 15 and surrounded by lift springs 16 located between the nuts and the lugs 7 beneath it. The construction just described provides for the lower feed roller being adjustably and yieldingly upheld relative to the upper feed roller.

Upon the spindle 10 of the upper feed roller 9 is an annular rim 10', as seen in Figs. I and IV. 17 is a ratchet wheel fixed to said spindle and having a sleeve 18 that projects in a direction toward the annular rim 10'. The sleeve 18 of the ratchet wheel 17 is fixed on the spindle 10 by a radial pin 18'.

19 is a disk loosely mounted on the sleeve of the ratchet wheel and held in frictional contact with said ratchet wheel by a spring 20. This disk is provided at its edge with a notch 19', as seen in Figs. VI and VII.

21 is a pawl carrying disk located alongside of the ratchet wheel 17 and 22 is a pawl pivoted to said last named disk and the point of which is arranged in engagement with the teeth of said ratchet wheel. This pawl is provided with a finger 23 that is seated in the notch 19' in the disk 19 in order that the pawl may be actuated in a manner to be set forth.

22' is a stop pin inserted in the pawl carrying disk so as to restrict the outward movement of the pawl 22.

24 is a pinion loose on the spindle 10, see Figs. III to V inclusive, and which is provided with a hub extension 25 (see Fig. IV) on which the pawl carrying disk 21 is rigidly mounted.

26 is a housing surrounding the pinion 24 and in which is a runway 27 offset from the pinion as most clearly seen in Fig. III.

28 is a reciprocatory bar that is provided at its lower end with a rack 29 that is operable in the housing runway 27 and meshes

with the pinion 24 for the purpose of imparting rotation thereto during the operation of said reciprocatory bar. The bar 28 is bifurcated at its upper end and straddles the operating shaft 3, as seen in Figs. II and III, and upon one side of the bar is a roller 30 that is disposed in opposition to the cam 4 upon the shaft 3 and with which said cam engages for the purpose of imparting downward movement to the reciprocatory bar.

31, see Fig. I, is a lift spring the lower end of which is connected at 32 to the reciprocatory bar 28 while the upper end of the spring is connected to the stud 8 projecting from the frame member 5. This lift spring acts to exert an upward pull upon said bar whereby it is elevated after it has been moved downwardly under the influence of the cam 4.

33 is a stud carried by the bar 28 and 34 is a bracket secured to the frame 1 and in which is mounted an adjustable stop screw 35 that serves to govern the degree of upward movement of the reciprocatory bar, due to the engagement of the stud 33 with said screw.

When, in the use of my mechanism, the reciprocatory bar 28 is moved downwardly the rack 29 of said bar, by operating with the pinion 24, acts to impart rotation to said pinion and the pawl carrying disk 21 being fixed to this pinion is rotated therewith and the pawl 22 is caused to impart rotation to the ratchet wheel and turn the feed roller spindle 10. Upon the return movement of the reciprocatory bar the pawl carrying disk carries the pawl 22 backwardly in an inactive condition and the feed roller remains stationary during this period. During this time the point of the pawl is held out of engagement with the teeth of the ratchet wheel, due to the presence of the finger 23 of the pawl in the notch 19' of the disk 19 which is held under restraint by the spring 20 bearing thereagainst and holding the disk in frictional contact with the opposing face of the ratchet wheel. The object in controlling the pawl in the manner described is to prevent the wearing of the point of the pawl by unnecessary friction against the teeth of the ratchet wheel during each return movement of the pawl. The construction also renders the pawl and ratchet part of the mechanism practically noiseless.

36 designates an adjustment collar that is provided with an eccentric sleeve 37 which surrounds the feed roller spindle 10 and on which the housing 26 inclosing the pinion 24 is mounted. This collar and its eccentric sleeve have the utility of providing for the adjustment of said housing in order that its runway portion in which the rack of the reciprocatory bar 28 operates, may be moved relative to the pinion 24 in order that lost

motion between said rack and pinion may be overcome either initially or after the parts have become worn. It is obvious that when the collar 36 is rotated on the feed roller spindle its eccentric sleeve will act to shift the housing in the desired manner. In order that the adjustment collar may be held in a set position after it has been adjusted I produce in the head of the collar a curved slot 38, see Figs. II and IV, and insert a set screw 39 through said slot and into the housing 26, as seen most clearly in Fig. IV. The head of the screw is adapted to rest against the head of the collar and tightly clamp said collar to hold it from movement.

I claim:

1. A feeding mechanism of the character described, comprising a pair of feed rollers having spindles, means for operating one of said rollers comprising a ratchet wheel fixed to a spindle of said roller, a pawl carrying member, a pawl carried by said member engaging said ratchet wheel, means for driving said pawl carrying member, and a spring pressed disk loosely fitted to said ratchet wheel and engaging said pawl, substantially as set forth.

2. A feeding mechanism of the character described, comprising a pair of feed rollers having spindles, a ratchet mechanism carried by a spindle of one of said feed rollers and which includes a driving member, means for operating said ratchet mechanism driving member, an adjustable housing inclosing said last named means and means for adjusting said housing, substantially as set forth.

3. A feeding mechanism of the character described, comprising a pair of feed rollers having spindles, a ratchet mechanism carried by a spindle of one of said feed rollers and which includes a driving member, means for operating said ratchet mechanism driving member, a housing and means for adjusting said housing, comprising an adjustment collar, loosely fitted to said spindle and having an eccentric sleeve located within said housing, substantially as set forth.

4. A feeding mechanism of the character described, comprising a pair of feed rollers having spindles, a ratchet mechanism carried by a spindle of one of said feed rollers, and which includes a driving member, means for operating said ratchet mechanism driving member, a housing and means for adjusting said housing, comprising an adjustment collar loosely fitted to said spindle and having an eccentric sleeve located within said housing, and means for clamping said adjustment collar to said housing, substantially as set forth.

T. WILLIAM KIENAST.

In presence of—

HOWARD C. HOLDRIDGE,
HUBERT J. SNYDER.