

(No Model.)

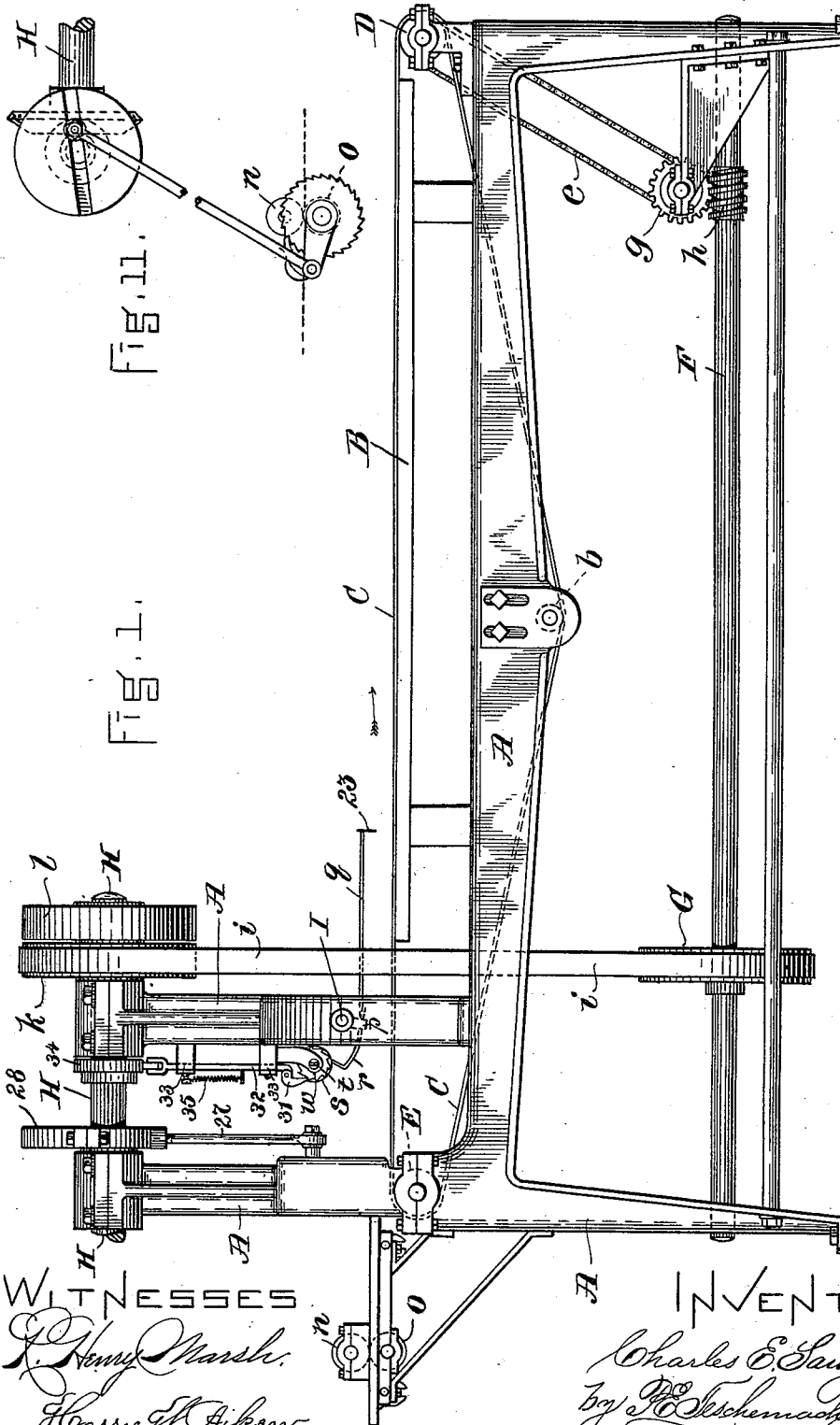
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C. E. SAWYER.

DEVICE FOR COUNTING AND SEPARATING TAGS, CARDS, &c.

No. 512,060.

Patented Jan. 2, 1894.



WITNESSES
L. Henry Marsh
Harry F. Aiken

INVENTOR.
Charles E. Sawyer
by J. C. Fitchmacher

(No Model.)

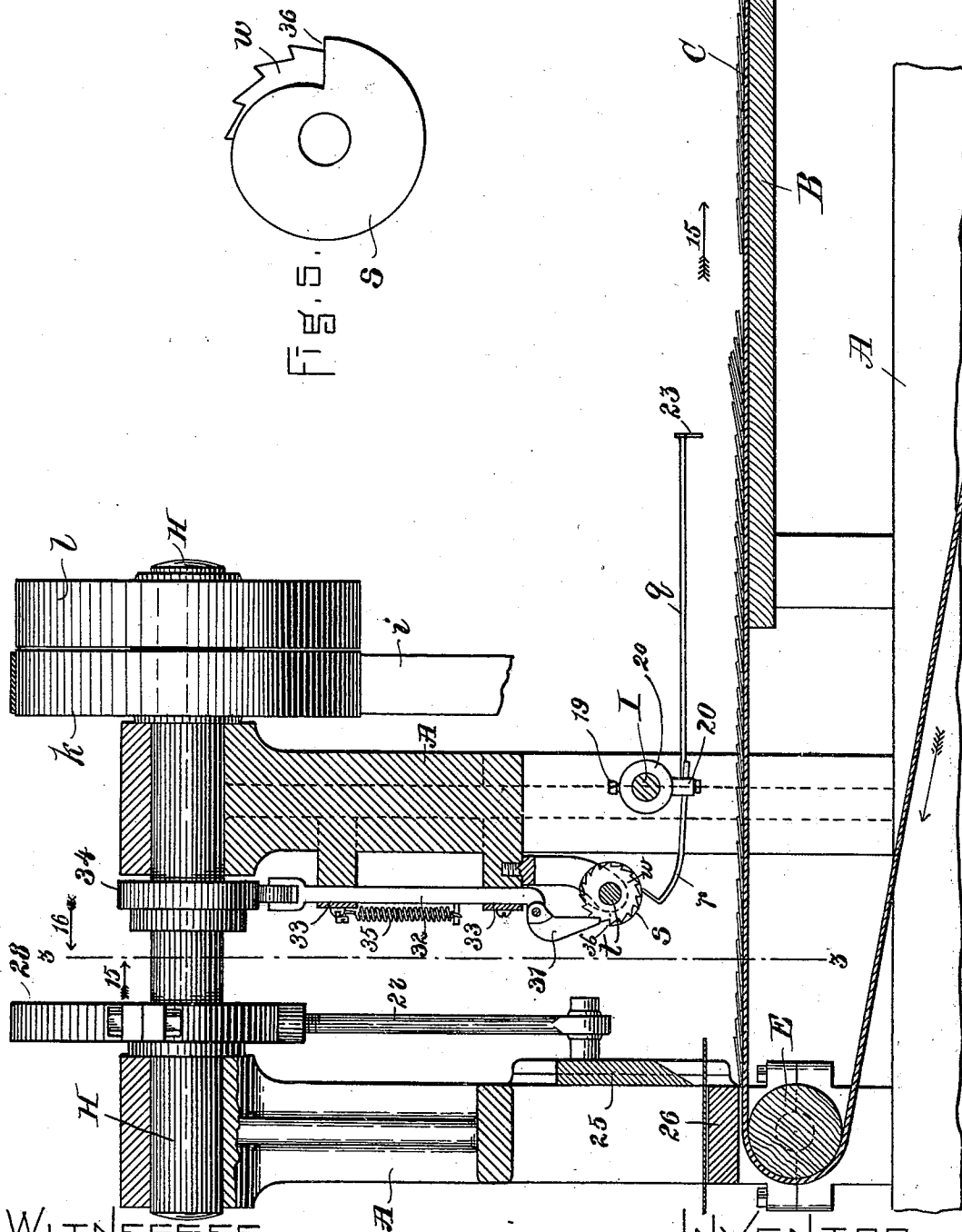
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WITNESSES.

Henry H. Marsh.
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FIG. 2.

INVENTOR.

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by H. E. Tschernach

(No Model.)

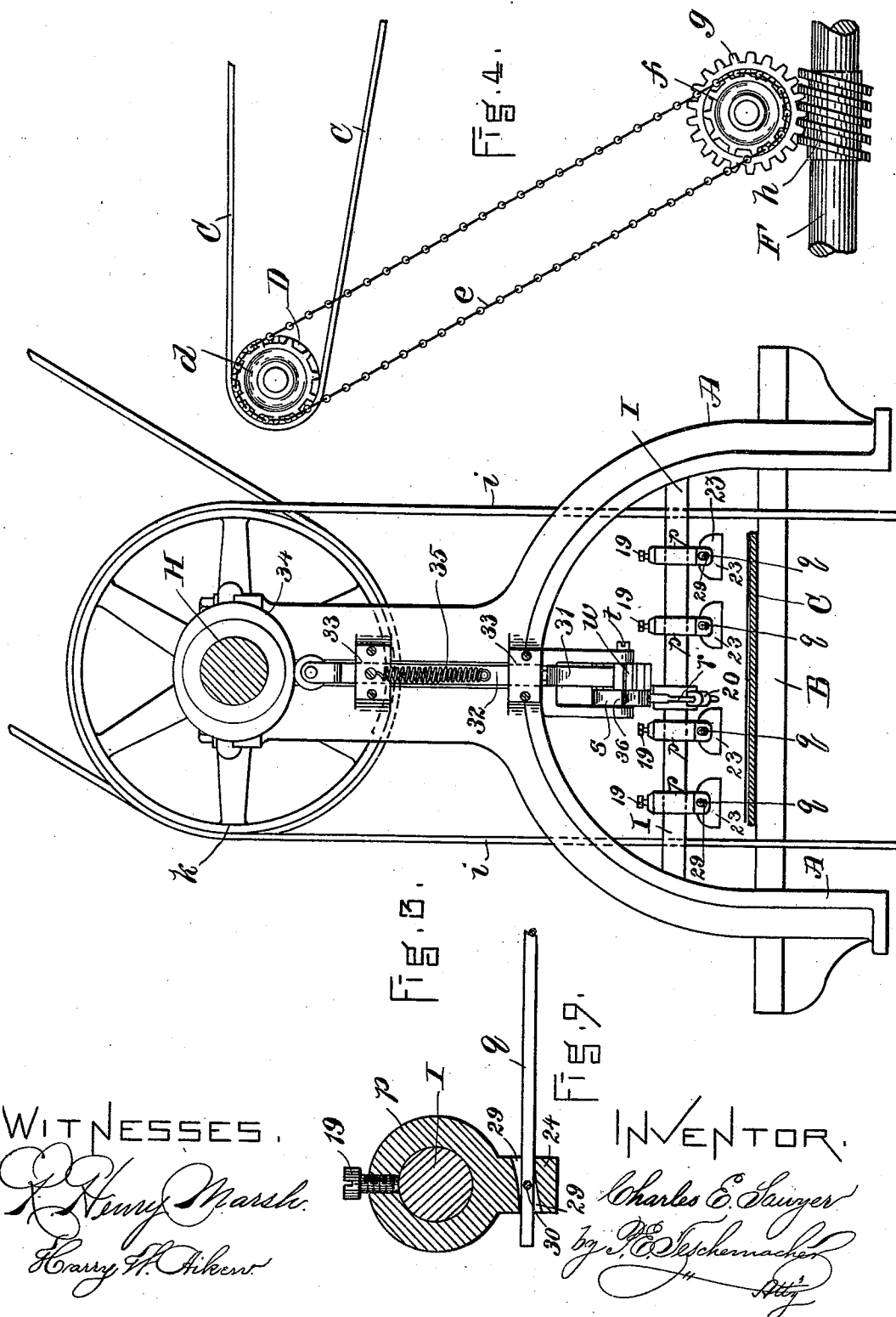
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Fig. 6.

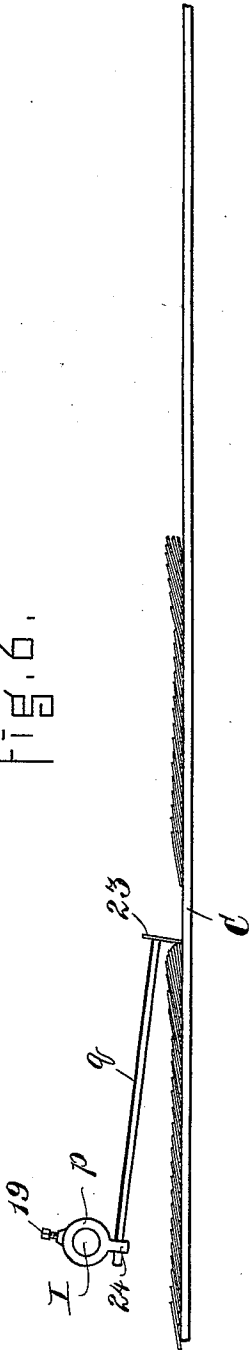
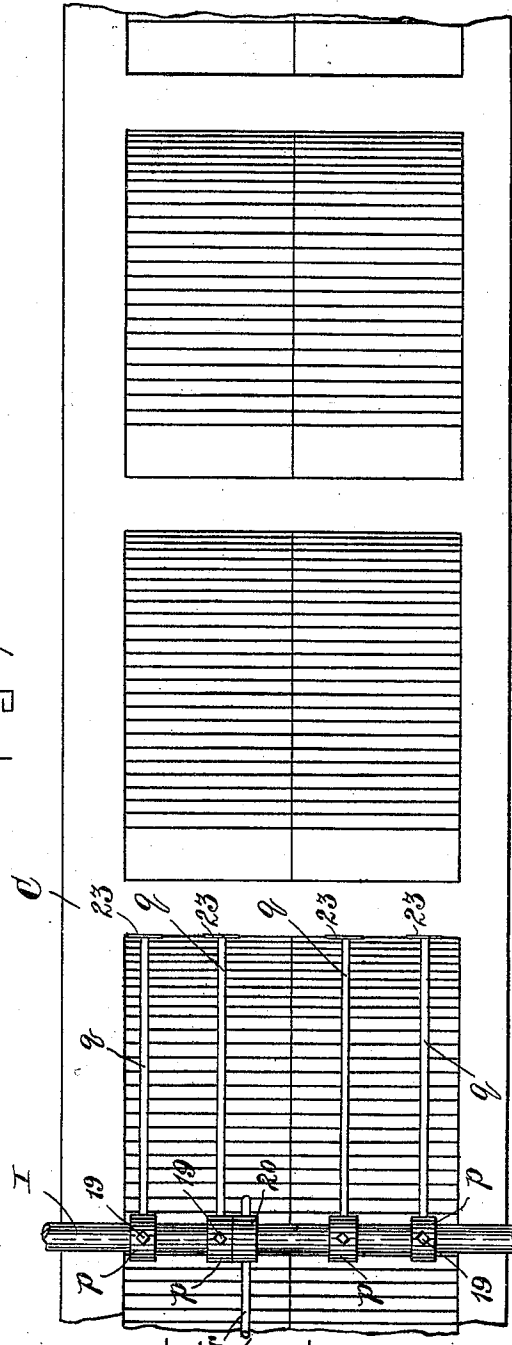


Fig. 7.



WITNESSES.

Wm. Henry Marsh.
Harry F. Aiken

INVENTOR.

Charles E. Sawyer
By A. E. Teschemacher Atty.

(No Model.)

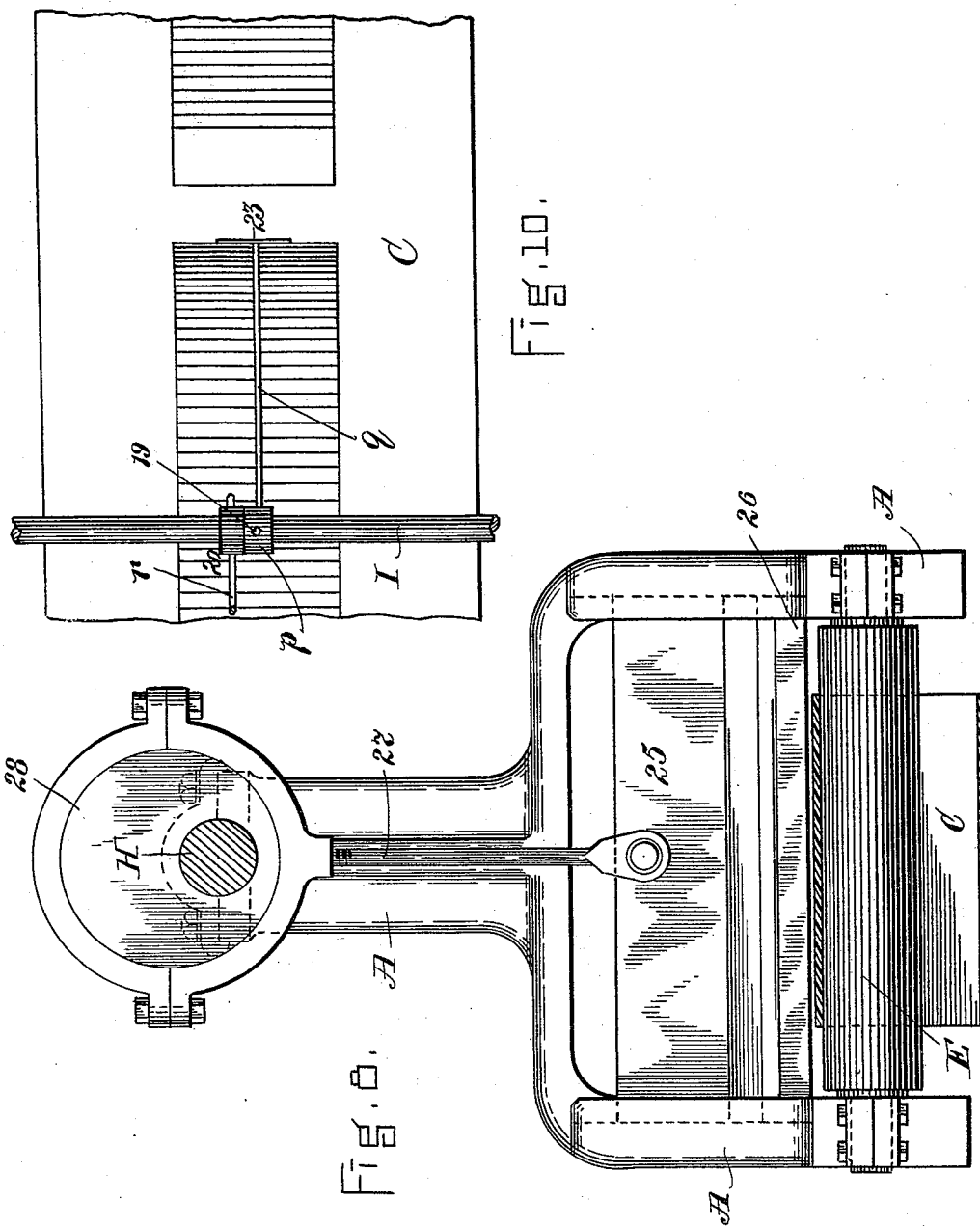
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WITNESSES.

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UNITED STATES PATENT OFFICE.

CHARLES E. SAWYER, OF BOSTON, MASSACHUSETTS.

DEVICE FOR COUNTING AND SEPARATING TAGS, CARDS, &c.

SPECIFICATION forming part of Letters Patent No. 512,060, dated January 2, 1894.

Application filed May 27, 1893. Serial No. 475,775. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. SAWYER, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Device for Counting and Separating Tags, Cards, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of my improved tag and card counting and separating machine. Fig. 2 is a longitudinal vertical section of a portion of the same. Fig. 3 is a transverse vertical section on the line 3, 3 of Fig. 2, looking in the direction of the arrow 15. Fig. 4 is a detail to be referred to. Fig. 5 is a detail of the finger-operating cam and ratchet wheel. Fig. 6 is a side elevation and Fig. 7 a plan of the carrier-belt and separating fingers. Fig. 8 is a transverse vertical section on the line 3, 3 of Fig. 2, looking in the direction of the arrow 16. Fig. 9 is an enlarged detail of the rock-shaft and one of the separating fingers. Fig. 10 is a detail showing a portion of the carrier belt and rock-shaft, showing the latter provided with a single separating finger only, for use with a single line or row of tags or cards. Fig. 11 is a detail showing the intermittent feed mechanism by means of which the feed rolls are actuated.

My invention has for its object to provide a simple and effective device for counting and separating into piles or parcels of any desired number, tags, cards, labels, &c., as they are carried along upon a traveling belt or carrier upon which they have been deposited, whereby the necessity of counting out the same by hand is avoided, and the operation of packing greatly facilitated.

To this end my invention consists in certain novel features and combinations of parts, as hereinafter set forth and specifically pointed out in the claims.

In the said drawings, A represents the framework of the machine, and B a table over and in contact with which passes an endless traveling belt or carrier C which is stretched over two rollers D, E, and kept tight by means of a small roll b, the shaft of the roller D by which the belt C is driven being provided with a sprocket wheel d which is in turn driven

by a chain e passing over a sprocket wheel f, Fig. 4, the shaft of which is provided with a worm-wheel g which is engaged by a worm h on a horizontal shaft F placed beneath the table B and provided with a pulley G driven by a belt i passing over a pulley k on the driving shaft H which runs in suitable bearings in the framework and carries the driving pulley l.

n, o, are a pair of feed-rolls by which the webs or strips of paper or cardboard are carried forward side by side to a pair of cutters 25, 26, which serve to sever the tags or cards from the webs or strips, said cutters being so placed that the tags or cards as they are severed will drop onto the belt C in such manner as to lie partly over each other, as shown in Figs. 6 and 7, with their longest dimensions in the direction of the width of the belt. The feed rolls n, o, are driven intermittently by suitable mechanism connected with the driving shaft, preferably a ratchet and pawl mechanism, as shown in Fig. 11; and the upper or movable cutter 25 is actuated by a pitman 27 connected with an eccentric 28 on the driving shaft H.

I is a horizontal rock-shaft having its bearings in the framework, and extending transversely across the belt C at a short distance above the same, said shaft being provided with a series of lugs or collars p made adjustable on said shaft in the direction of its length, and held in place by set screws 19.

Within an aperture 29 in the lower portion 24 of each of the lugs or collars p is loosely pivoted by means of a pin 30 shown in Fig. 9, or in any other preferred manner, a finger q, the opposite end of which consists of a small plate or scraper blade 23 of the form shown in Fig. 3, said blade being arranged substantially at right angles with the belt C so that when permitted to drop upon the line of tags or cards passing thereunder, it will catch the edge of the first one which is brought up to it by the movement of the belt in the direction of the arrow 15.

From a lug 20 secured to the rock shaft I at or near its center projects an arm r which rests against the surface of a cam-wheel s supported by and free to revolve on a stud or pin t mounted in a bracket projecting from the framework, said cam wheel having

secured to it a ratchet wheel *w* which is actuated by a pawl 31 pivoted to the lower end of a vertically reciprocating slide-bar 32 moving in guides 33 and actuated in one direction by a cam 34 on the driving shaft *H*, and in the opposite direction by a spring 35, whereby the cam-wheel *s* is intermittently rotated, and as soon as the point 36 of the cam-wheel *s* is carried past the end of the arm *r* the latter is released, thus permitting the fingers *q* to drop by their own gravity onto the two lines or rows of tags or cards upon the belt *C*, when the lower edges of the scraper blades 23 of said fingers will intercept the edges of the next tags brought into contact therewith, thus holding back the two advancing lines of tags or cards being carried forward, as shown in Figs. 6 and 7, and producing a separation between the same and those in front of the fingers which are being carried forward with the belt. As soon as a sufficient separation has been effected, say two or three inches, the cam-wheel *s* commences to depress the arm *r*, rocking the shaft *I* and raising the fingers *q* clear of the tags or cards which then advance with the belt until the fingers are again dropped, which takes place when a predetermined number of tags, for instance twenty-five, in each row or line have passed beneath the fingers, which on their descent intercept the next or twenty-sixth tag, holding back the line as before, and in this manner the tags or cards are scraped together by the fingers and separated on the upper surface of the belt into piles or parcels of the required number, which, as they are carried along by said belt, are removed by the attendant and packed away or otherwise disposed of, the necessity of counting them out by hand being thus avoided, and a considerable saving in time and labor thereby effected. By pivoting the fingers *q* loosely to the rock shaft *I* so that they can rise and fall independently thereof, they are enabled to accommodate themselves to the inequalities of the surface of the belt *C* to insure catching the edges of the tags at the exact time required at different portions of the width of the belt, which would not always be the case if they were rigidly attached to the shaft *I*, and consequently the liability of failure of anyone of the fingers to catch a tag or card at the proper time, which would result in a miscount, is entirely avoided.

When short tags or cards are being fed onto the carrier belt *C*, a single separating finger *q* for each row or line of tags or cards will answer well, but where the tags or cards are of considerable length, I prefer to employ two fingers for each line or row of tags or cards as shown in Fig. 7, in order to keep them squarely and evenly in place upon the belt as they are scraped into piles, and I regard two fingers, each having a narrow scraping blade, as preferable to a single finger with a wider scraping blade, for the reason that two

separate fingers loosely connected to the rock-shaft will accommodate themselves better to the inequalities of the surface of the belt.

When only a single line or row of tags or cards are to be fed onto the belt *C*, the rock-shaft may be provided with a single separating finger only, as shown in Fig. 10, or two fingers may be employed if preferred, but where two lines or rows of tags are being fed onto the belt as shown in Fig. 7, one or more fingers will be required for each line or row in order to keep the tags or cards in their proper positions while being scraped together. The adjustment of the collars *p* on the shaft *I* in the direction of its length, enables the fingers *q* to be arranged at proper distances apart to adapt them for tags or cards of different widths, and causes them to be scraped together into piles or parcels squarely and evenly as required. By the employment of a cam-wheel *s* having more than one projection, or by varying the number of teeth on the ratchet wheel *w*, the descent of the fingers *q* may be timed for separating the tags or cards into parcels of any desired number.

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

1. In a tag and card counting and separating machine, the combination, with a traveling belt or carrier, upon which the tags, cards, &c. are deposited, of a finger adapted to periodically descend upon the line of tags or cards after the passage of a predetermined number, said finger being arranged to catch the front edge of the foremost tag or card brought into contact therewith by the movement of the carrier belt, whereby the line of tags or cards in the rear of said finger is held back until separated by the movement of the carrier belt from the line of tags or cards upon said belt in advance of said finger, and means for operating said finger, substantially as set forth.

2. In a tag and card counting and separating machine, the combination, with a traveling belt or carrier upon which the tags, cards, &c., are deposited, of one or more fingers, each provided at its outer end with a scraper blade arranged substantially at right angles with the belt or carrier, and adapted to periodically descend upon the line of tags or cards after the passage of a predetermined number, said scraper blade being arranged to catch the front edge of the foremost tag or card brought into contact therewith by the movement of the carrier belt, whereby the line of tags or cards in the rear of said scraper blade is held back until separated by the movement of the carrier belt from the line of tags or cards upon said belt in advance of said scraper blade, and means for operating said finger, substantially as set forth.

3. In a tag and card counting and separating machine, the combination, with a traveling belt or carrier upon which the tags, cards, &c.,

are deposited, of one or more fingers, each provided at its outer end with a scraper blade arranged substantially at right angles with the belt or carrier, and adapted to periodically descend upon the line of tags or cards after the passage of a predetermined number, said scraper blade being arranged to catch the front edge of the foremost tag or card brought into contact therewith by the movement of the carrier belt, whereby the line of tags or cards in the rear of said scraper blade is held back until separated by the movement of the carrier belt from the line of tags or cards upon said belt in advance of said scraper blade, a cam wheel adapted to operate said finger or fingers at suitable intervals, and a ratchet and pawl mechanism for operating said cam wheel, substantially as described.

4. In a tag and card counting and separating machine, the combination of a traveling belt or carrier upon which the tags, cards, &c., are deposited, one or more fingers adapted to be periodically brought down upon the line of tags or cards after the passage of a predetermined number, said finger or fingers being arranged to catch the front edge of the foremost tag or card brought into contact therewith by the movement of the carrier belt, whereby the line of tags or cards in the rear of said finger or fingers is held back until separated by the movement of the carrier belt from the line of tags or cards upon said belt in advance of said finger or fingers, means substantially as described for operating said finger or fingers, a feeding device for the tags, cards, &c., and a cutter for severing the same from a strip or web, said cutter being arranged directly above said traveling belt or carrier whereby the tags or cards are dropped directly

thereupon after being severed by said cutter, substantially as set forth.

5. In a tag and card counting and separating machine, the combination of the shaft H, the endless traveling belt or carrier C driven by suitable connections from the shaft H, the rock-shaft I provided with fingers *q* loosely connected therewith, the cam-wheel *s* adapted to actuate the fingers *q*, the ratchet wheel *w* and the slide bar 32 with its pawl 31 and means for actuating the same, all operating substantially as described.

6. In a tag and card counting and separating machine the combination, with the traveling belt or carrier C, of the rock-shaft I provided with fingers *q* loosely connected therewith whereby said fingers when dropped are enabled to conform to the inequalities of the surface of the belt to insure catching the edges of the tags or cards at the proper time, and means substantially as described for intermittingly actuating said fingers, substantially as set forth.

7. In a tag and card counting and separating machine, the combination, with the traveling belt C and the rock-shaft I provided with lugs or collars made adjustable on said shaft in the direction of its length, of the fingers *q* loosely connected to said lugs or collars to enable them when dropped to conform to the inequalities of the surface of the belt, and a cam-wheel and ratchet mechanism for intermittingly actuating said fingers, all operating substantially as set forth.

Witness my hand this 24th day of May, A. D. 1893.

CHARLES E. SAWYER.

In presence of—

P. E. TESCHEMACHER,
HENRY H. LEE.