

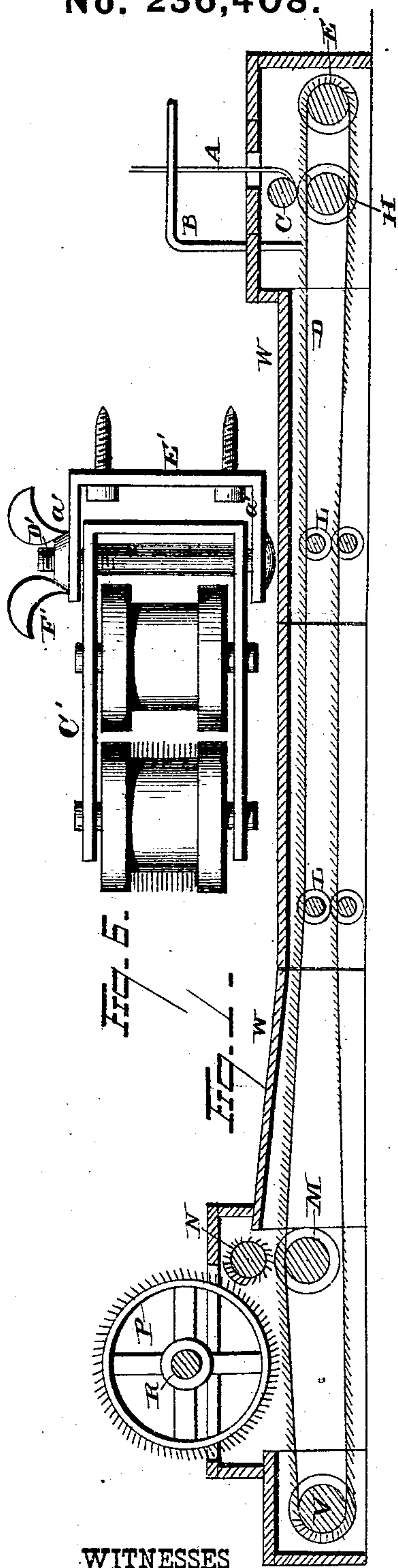
(No Model.)

2 Sheets—Sheet 1.

G. BERNHART.
Carding Machine.

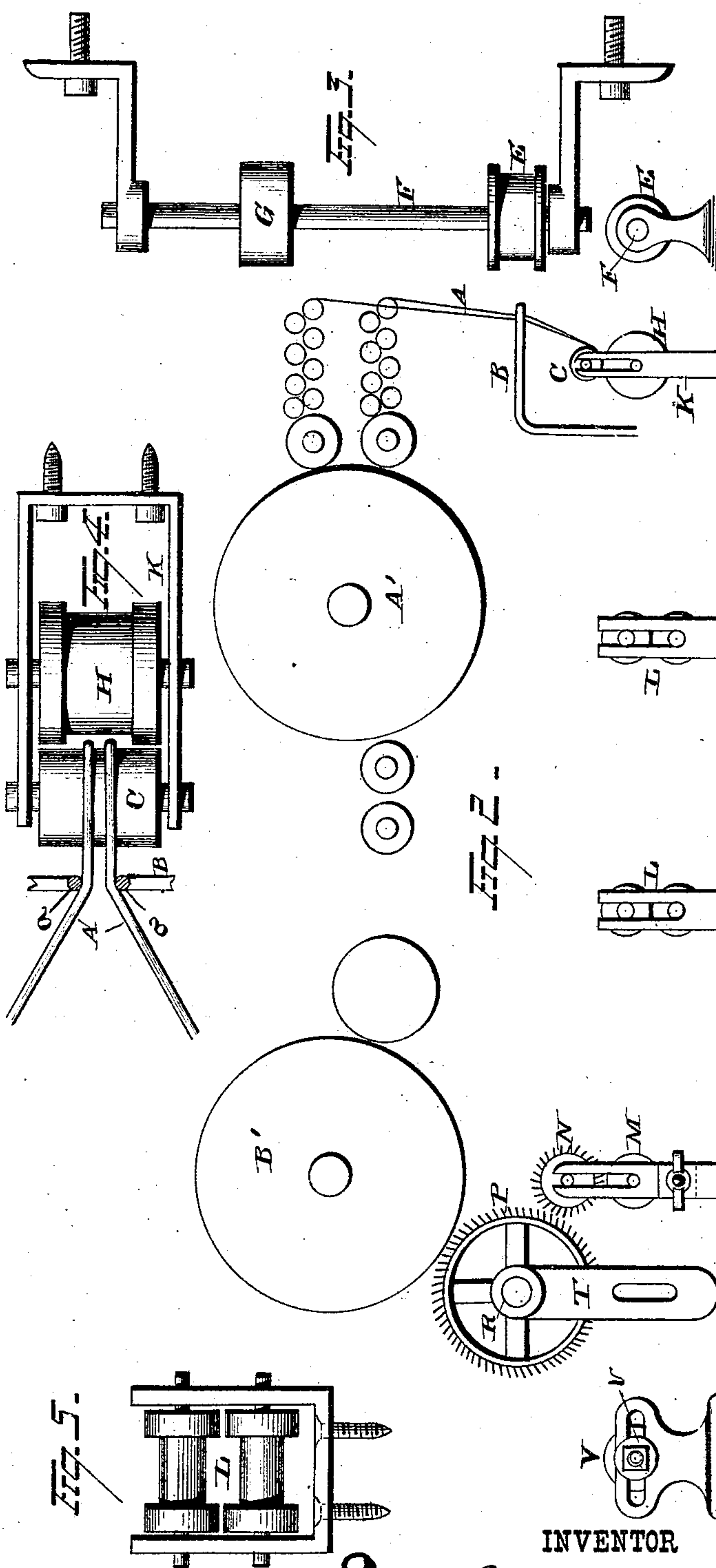
Patented Jan. 11, 1881.

No. 236,408.



WITNESSES

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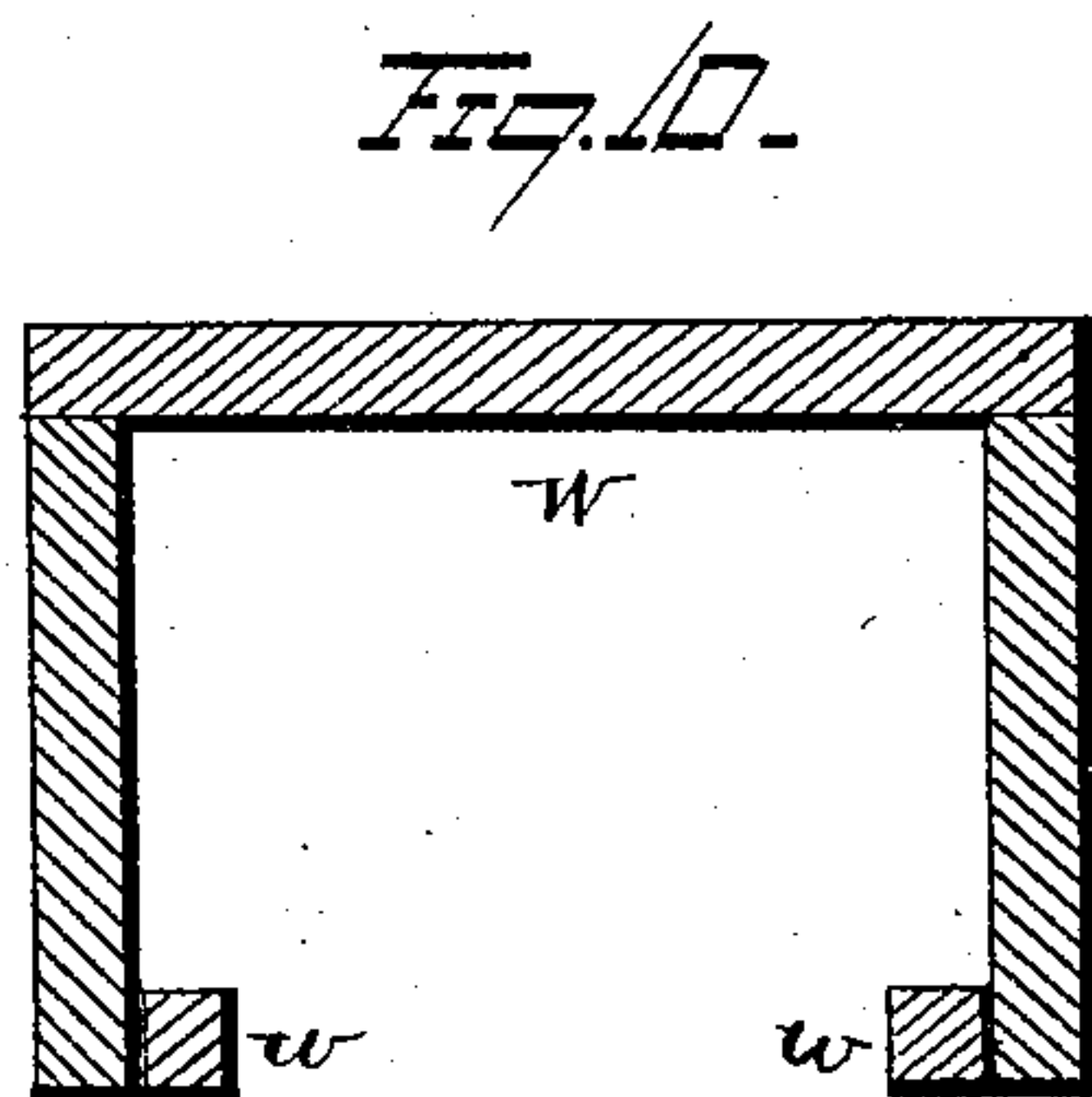
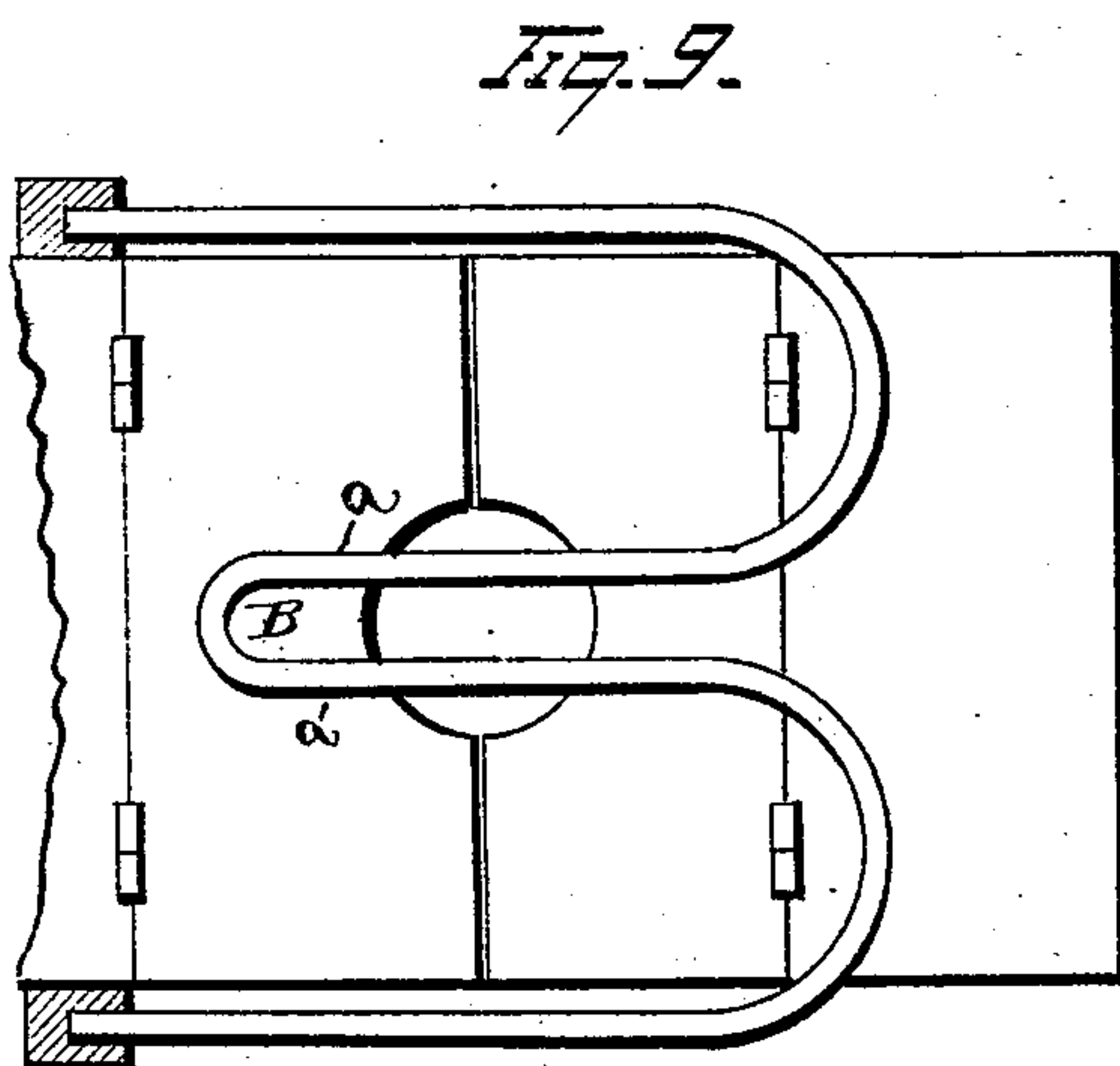
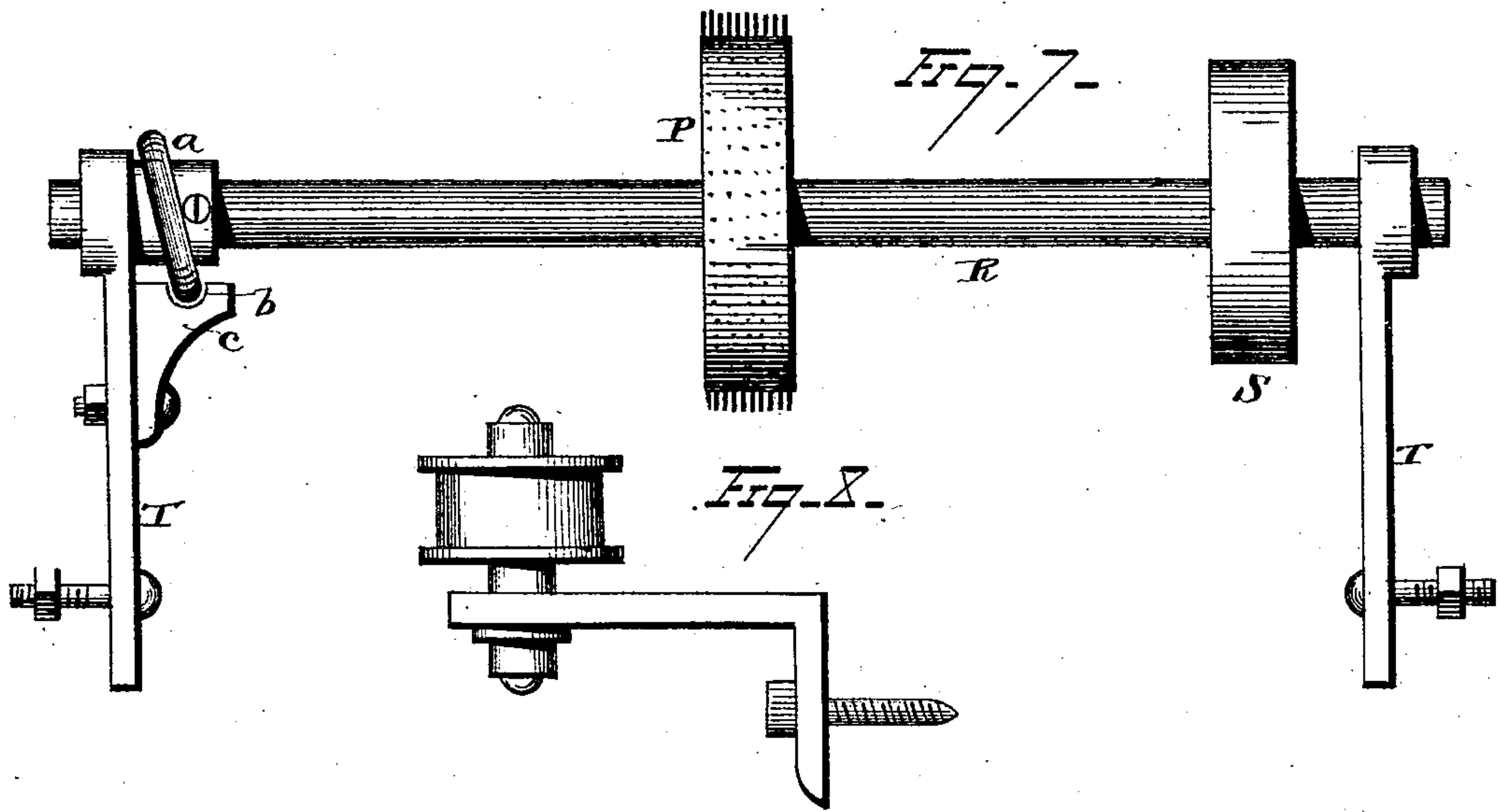
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2 Sheets—Sheet 2.

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No. 236,408.

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WITNESSES
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UNITED STATES PATENT OFFICE.

GEORGE BERNHART, OF AMANA, IOWA.

CARDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 236,408, dated January 11, 1881.

Application filed July 14, 1880. (No model.)

To all whom it may concern:

Be it known that I, GEORGE BERNHART, of Amana, in the county of Iowa and State of Iowa, have invented certain new and useful
5 Improvements in Carding-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference be-
10 ing had to the accompanying drawings, which form part of this specification.

The object of this invention is to provide improved mechanism for taking end or waste rovings from the finisher-card and delivering
15 them to the second breaker-card.

The several improvements will first be described in the specification, and definitely set forth in the claims.

In the drawings, Figure 1 is a longitudinal
20 vertical section of the conveyer and co-operating parts. Fig. 2 is a side elevation of all the parts except the conveyer and the bonnet. Fig. 3 is a plan view of the roll and shaft which drives the conveyer. Fig. 4 is a front elevation of
25 the rolls which deliver the end rovings to the conveyer, said figure also showing the rovings and the guide. Fig. 5 is a front elevation of one of the two pairs of supporting-rolls over which the conveyer passes, said pairs of rolls
30 being duplicate in form. Fig. 6 is a front elevation of a card-roll and its companion roll, said card-roll serving to take the rovings from the conveyer. Fig. 7 is a front elevation of the card-roll which delivers the rovings to the sec-
35 ond breaker-card, said view also showing the means for reciprocating the cylinder-shaft endwise. Fig. 8 is a front elevation of the roll about which the conveyer passes at its end adjacent to the second breaker-card. Fig. 9
40 is a detail plan view of the guide which brings the two end rovings together and that portion of the bonnet which is located below the guide. Fig. 10 is a vertical transverse section of the bonnet.

45 The two end or waste rovings A pass the rub-rolls of the finisher-card A' down to the guide B, the latter drawing the rovings together, so that they pass beneath the plain-face horizontal roll C in position to be laid on
50 the conveyer D. This guide is formed with two horizontal walls, a, adapted, respectively,

to provide lateral bearing for the two end rovings as the latter descend from the rub-rolls. The conveyer is an endless belt, provided on one face with card-clothing, and is driven by
55 a groove-faced roller, E, the latter being mounted upon a transverse rotary shaft, F, provided with pulley G, which is driven by a belt extending directly from the rub-rolls of the finisher-card. Roll C has a companion
60 roll, H, formed with a groove face, in which the conveyer fits, said two rolls being journaled in a vertically-slotted standard, K, the extremities of roll C resting upon the end collars of roll H. The conveyer extends beneath
65 and between the finisher-card and the second breaker-card. Its upper leaf passes over the upper roller of each of the two pairs of supporting-rollers L, and then passes over the supporting groove-roller M, which serves as a
70 companion to the card-roll N. The latter is a groove-roller having its groove provided with card-clothing, while its end collars are plain and bear upon the corresponding collars of roller M. This card-roll takes the rovings from
75 the conveyer, and the rovings are taken from said card-roll by a plain-face roll, P, provided with card-clothing.

It will be understood that roll P is made substantially of the width indicated in the
80 drawings to correspond with the requirements of its use. The end rovings are of small width, and do not require rolls which operate solely thereon to be of a width equal to that of the finisher-card and a second breaker-card. This
85 statement also applies to the card-roll N and the width of card-clothing with which it is provided. The end rovings being comparatively narrow, the width of the card-clothing, respectively, on both said rolls N and P is ap-
90 propriate to the work of the rolls.

This roll P is mounted upon a transverse rotary shaft, R, provided with pulley S, driven by a belt extending from the shaft of the main cylinder of the second breaker-card, B'. Shaft
95 R is journaled in standards T, in which it has free endwise movement. One extremity of the shaft is provided with an annular cam, a, which works in a groove, b, formed in bracket c, secured to the corresponding standard. As
100 the shaft is rotated this cam-and-groove device imparts a longitudinal reciprocation to

the shaft, thereby delivering the rovings to the main cylinder of the second breaker-card, and distributing the fibers evenly thereon.

The two card-rolls are located above the conveyer at different points in its length, the second card-roll, R, being larger than the first card-roll, N, and located rearward thereof. The first card-roll is intended to take all the wool from the conveyer and deliver it to the second card-roll; but the latter is maintained in such vertical position relative to the conveyer that it may strip the same perfectly clean in case the first card-roll does not do it. The appropriate end of the conveyer passes about roll V, and the lower leaf passes over the lower roller of each of the two pairs of supporting-rollers L. In passing from roll V to the adjacent roll, over which the lower leaf passes, the latter is given a half-twist, so that the card-clothing may be free from contact with both said lower rolls. The lower leaf is given a return half-twist in passing to roll E from the adjacent lower roll of the pairs of rolls L, so as to bring the card-clothing into position for passing over roll E. An adjusting device, *v*, maintains roll V at different distances relative to roll E, thereby adapting the conveyer to have a greater or less degree of tension imposed thereon for running.

Rolls M and N are journaled in a frame, C', mounted upon a horizontal bolt, D', which latter is supported in the upright arms *a'* of a stand, E'. The bolt is provided with a nut, F', by which the arms *a'* may be clamped against the frame C' and hold the latter in position.

By adjusting the frame C' the card-roll N may be maintained at different distances relative to card-roll P. This adjustment, it will be observed, is attained by securing the frame C' at different degrees of vertical inclination.

The bonnet W fits over the conveyer and its co-operating parts, and preserves them from the dirt and waste matter which drop below the cards. The bonnet is made of transverse sections, and any section may be removed for cleaning and lubricating the conveyer. The bonnet fits over longitudinal strips, *w*, secured to the floor, and is thereby held in position.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a finisher-card, a second breaker-card, and a conveyer extending between the two cards, of a roller about which the waste rovings pass as they are laid on the conveyer, and a guide located above the roller and adapted to bring the two end rovings near together in their passage to said roller, substantially as set forth.

2. The combination, with a finisher-card, a second breaker-card, and a conveyer extending between the two cards, of a horizontal roller beneath which the waste rovings pass as they are laid on the conveyer, and a guide located above the roller, said guide being formed

with two horizontal walls, against which the appropriate end rovings have bearing in their passage to the roller, substantially as set forth.

3. The combination, with a finisher-card, a second breaker-card, and a waste-roving conveyer extending between the two cards, of a roller having a grooved face in which the conveyer fits, a plain-faced roller having its extremities resting upon the end collars of the grooved roller, and a guide located above the plain roller and adapted to bring the two end rovings near together, substantially as set forth.

4. The combination, with a finisher-card, a second breaker-card, a waste-roving conveyer extending between the two cards, and a horizontal roller beneath which the waste rovings pass, of a guide located above said roller, end rolls about which the conveyer passes, vertical pairs of supporting-rollers having grooved faces, and an adjusting device for maintaining one of said end rolls at different distances relative to the opposite end roll, substantially as set forth.

5. The combination, with a finisher-card, a second breaker-card, and a waste-roving conveyer which extends between the two cards, of a grooved-face roll over which the conveyer passes, and a companion grooved-face card-roll, substantially as set forth.

6. The combination, with a finisher-card, a second breaker-card, and a waste-roving conveyer which extends between the two cards, of a card-roll located above the conveyer, and a second card-roll located above the conveyer rearward of the first card-roll, said first card-roll being adapted to take the rovings from off the conveyer and deliver them to the second card-roll, said second card-roll being adapted to deliver said rovings to the second breaker-card, and also to clean the conveyer of any roving fibers not taken up by the first card-roll, substantially as set forth.

7. The combination, with a finisher-card, a second breaker-card, and a waste-roving conveyer, which extends between the two cards, of a card-roll which takes the rovings from off the conveyer, a second card-roll which delivers the rovings to the second breaker-card, said card-rolls being located above the conveyer, respectively, at different points in its length, and mechanism for imparting to said second card-roll a compound rotary and endwise reciprocating movement, substantially as set forth.

8. The combination, with a finisher-card, a second breaker-card, and a waste-roving conveyer which extends between the two cards, of a card-roll which takes the rovings from off the conveyer, a second card-roll which delivers the rovings taken from the first card-roll to the second breaker-card, and also strips the conveyer of any fibers of the rovings accidentally passed over by the first card-roll, said card-rolls being located above the conveyer, respectively, at different points in its length, and an adjusting device which main-

tains the first card-roll at different distances relative to the second card-roll, substantially as set forth.

5 9. The combination, with a finisher-card, a second breaker-card, a waste-roving conveyer which extends between the two cards, and a supporting-roll over which the conveyer passes, of a card-roll located above the conveyer, a
10 second card-roll located rearward of and extending in a horizontal plane above the first card-roll, a frame in which the supporting-roll and the first card-roll are mounted, and an
15 adjusting device for maintaining said frame at different degrees of vertical inclination, substantially as set forth.

10 10. The combination, with a waste-roving conveyer, a supporting-roll over which it passes, a card-roll located above the conveyer, and a second card-roll located rearward of the
20 first card-roll, of a frame in which the supporting-roll and first card-roll are both journaled, a stand provided with upright arms between which the frame is fitted, and a bolt passing
25 through the frame and upright arms, substantially as set forth.

11. The combination, with a finisher-card, a second breaker-card, and a waste-roving conveyer which extends between the two cards, of a grooved-face supporting-roll over which the conveyer passes, a grooved-face card-roll
30 located above the supporting-roll, and a plain-faced card-roll located rearward of said grooved-face card-roll, substantially as set forth.

12. The combination, with a finisher-card, a
35 second breaker-card, and a waste-roving conveyer which extends between the two cards, of a roll beneath which the lower leaf of the conveyer passes face downward, and an adjacent roll over which the leaf passes face up-
40 ward, said leaf being given a half-twist between the two rolls, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand the 19th day of June, 1880.

GEORGE BERNHART.

Witnesses:

LEONHARD GRAF,
ABRAHAM NOÉ.