

(No Model.)

2 Sheets—Sheet 1.

A. KALTENBRUNN.
FEED CUTTER.

No. 573,883.

Patented Dec. 29, 1896.

FIG. 1.

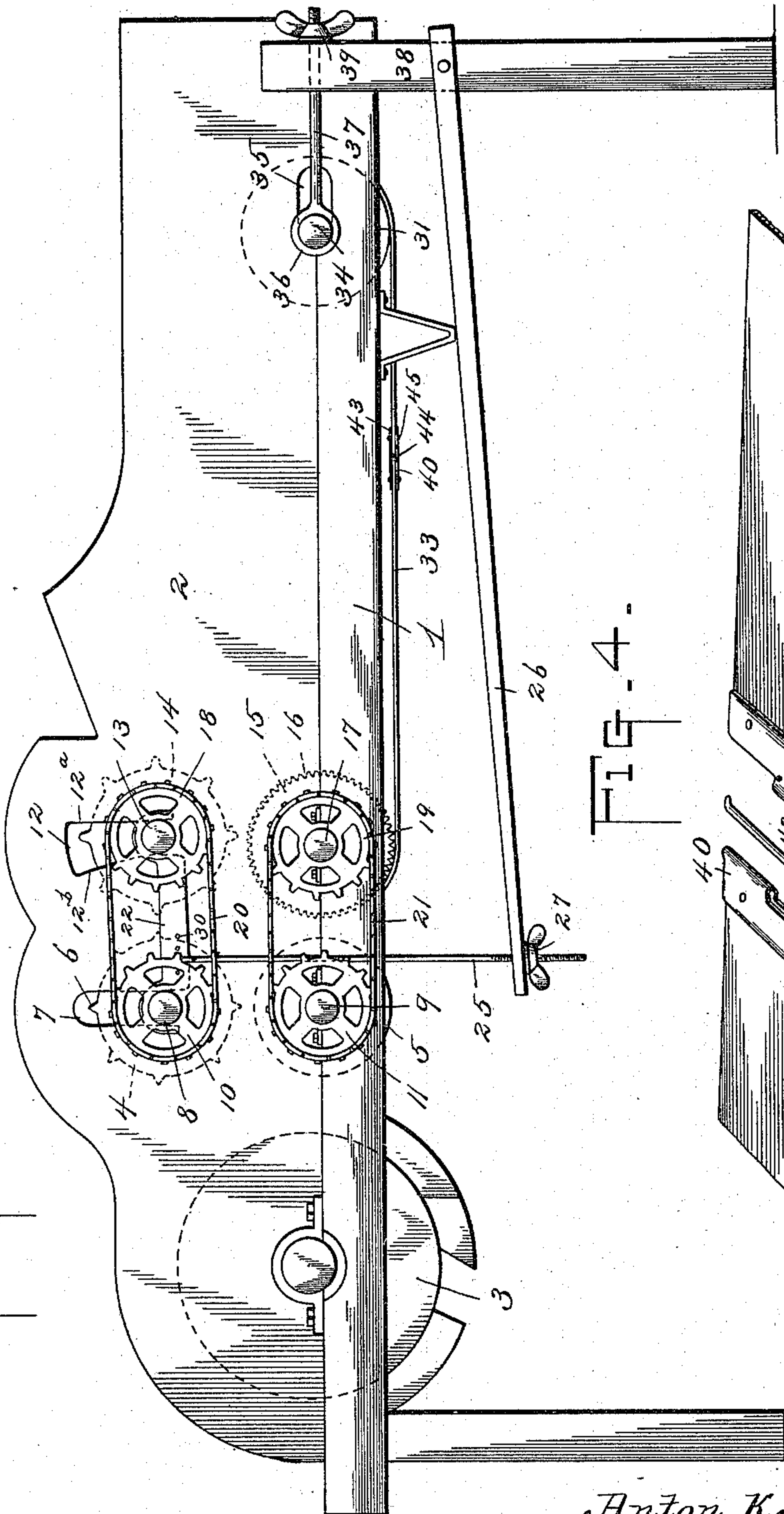
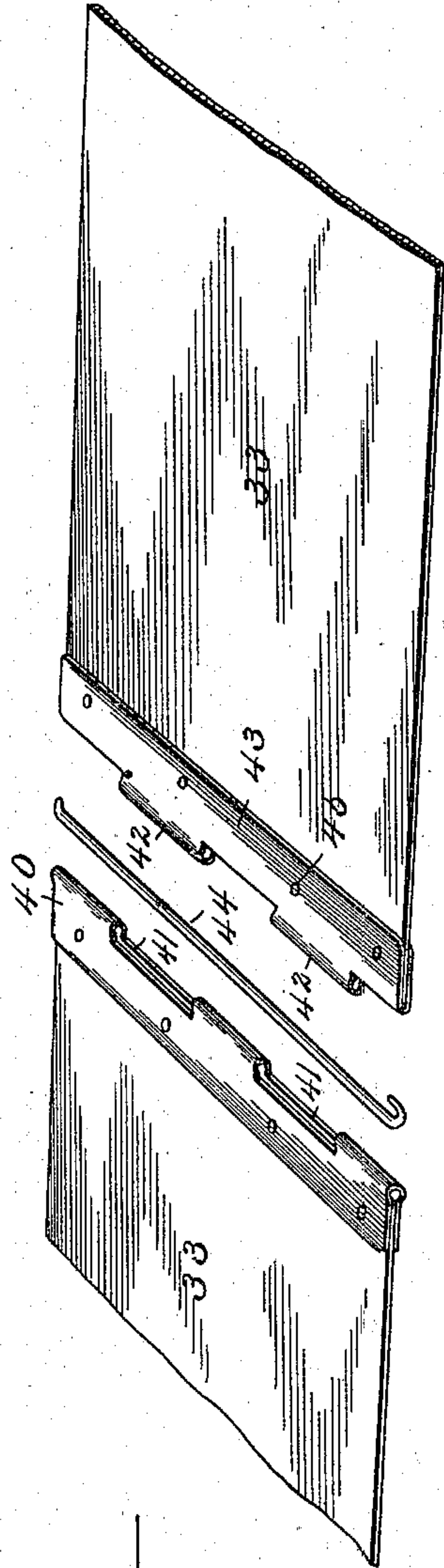


FIG. 4.



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Witnesses

Harry L. Amer.
J. E. Dwyer

By his Attorneys,

C. A. Snow & Co.

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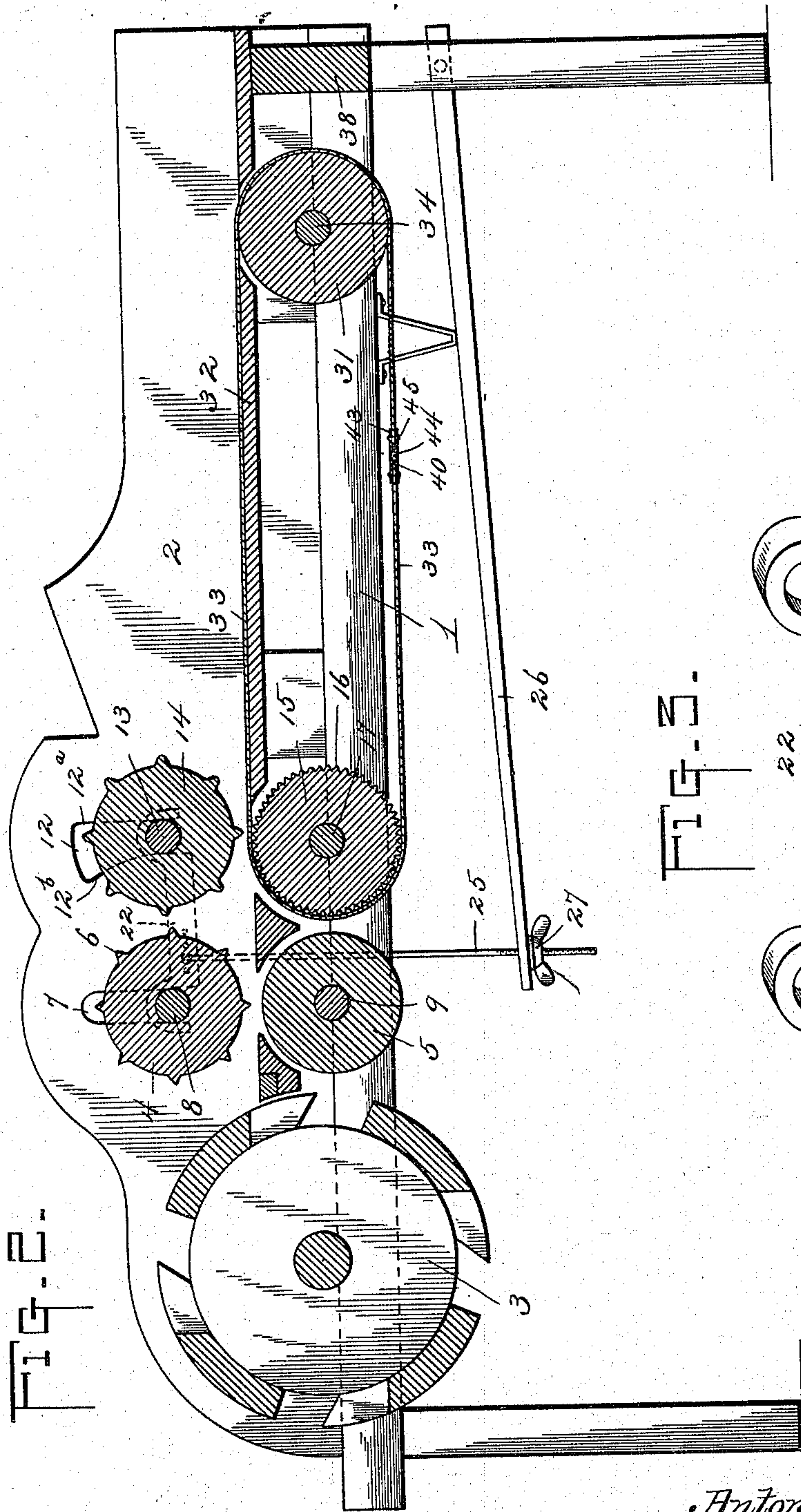
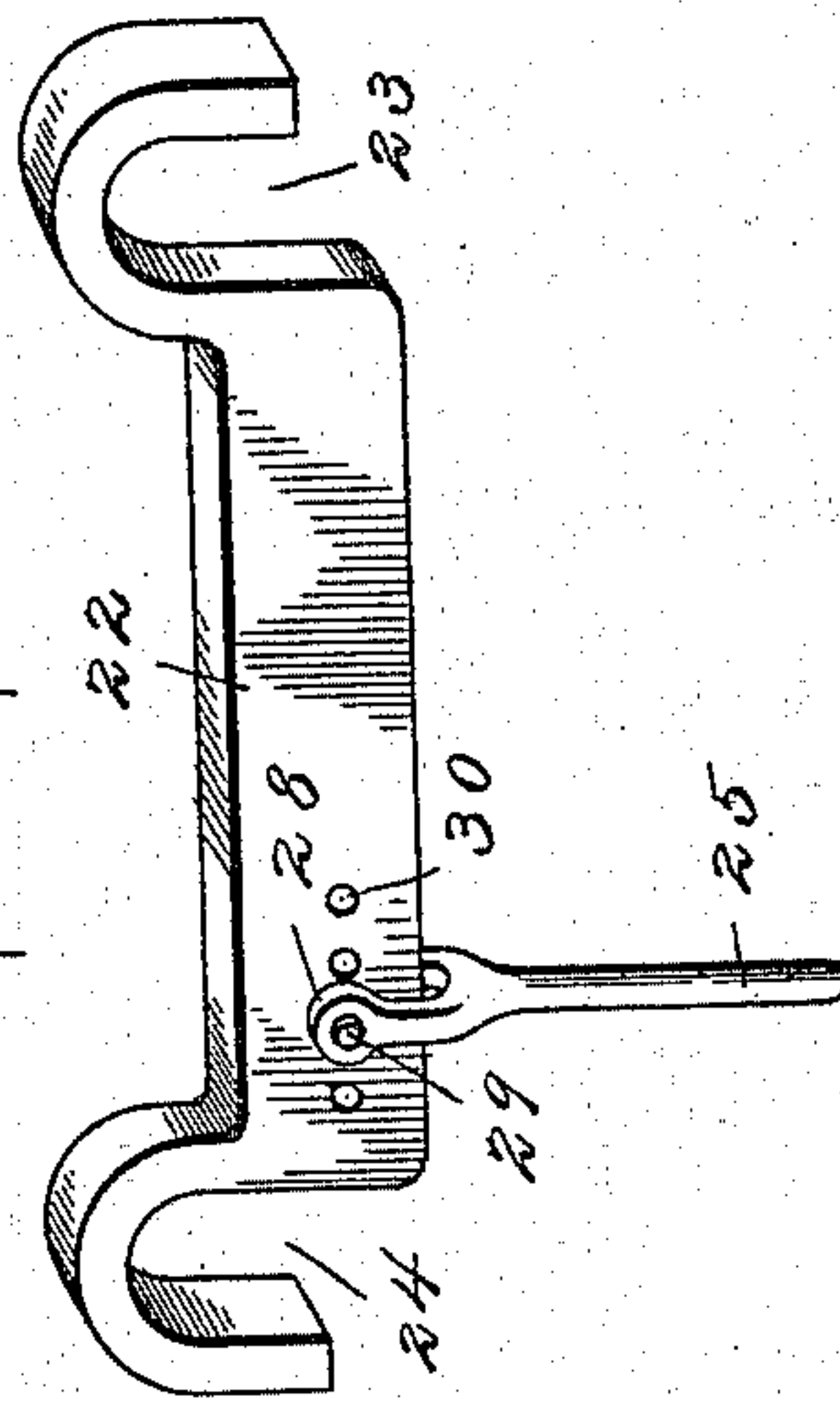


Fig. 1.

Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

ANTON KALTENBRUNN, OF ST. NAZIANZ, WISCONSIN.

FEED-CUTTER.

SPECIFICATION forming part of Letters Patent No. 573,883, dated December 29, 1896.

Application filed April 30, 1896. Serial No. 589,702. (No model.)

To all whom it may concern:

Be it known that I, ANTON KALTENBRUNN, a citizen of the United States, residing at St. Nazianz, in the county of Manitowoc and State of Wisconsin, have invented a new and useful Feed-Cutter, of which the following is a specification.

My invention relates to feed-cutters, and has for its object to provide means for increasing the accuracy and certainty of the feeding operation and at the same time protect the hands of the operator from the usual feeding or pressure rolls, and, furthermore, to provide simple and efficient means for adjustment of the parts.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a side view of a cutter constructed in accordance with my invention. Fig. 2 is a longitudinal section of the same. Fig. 3 is a detail view in perspective of the yoke for communicating pressure to the upper feed-rolls. Fig. 4 is a detail view in perspective of the coupling between the extremities of the apron.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

Secured to the frame 1 of the cutter is a casting 2, in which, contiguous to one end, is mounted the usual knife-roll 3, which may be of any preferred construction. Contiguous to the knife-roll are the main upper and lower feed-rolls 4 and 5, also of the usual construction, the former being preferably ribbed, as shown at 6, while the latter is smooth. The upper feed-roll 4 is mounted in vertical slots 7 in the casting to provide for vertical movement to suit the thickness of material passing between the rolls, and the shafts 8 and 9 of the rolls are provided with chain-wheels 10 and 11. Formed in the casting in rear of the vertical plane of the main feed-rolls 4 and 5 are guide-slots 12 for the shaft 13 of an auxiliary upper feed-roll 14, which coöperates with an auxiliary lower feed-roll 15. The roll 15 is preferably provided with a ribbed surface, the ribs being arranged, preferably, close together and longitudinally of the roll, while

the roll 14 is provided with spaced ribs 16, preferably spaced wide apart and rounded, whereby contact therewith will not result in injury to the hands of the operator. The shaft 13 of the auxiliary upper roll and the shaft 17 of the corresponding lower roll are provided with chain-wheels 18 and 19, which are respectively connected by means of chains 20 and 21 with the chain-wheels 10 and 11 on the main feed-rolls.

The slots 12, in which the shaft of the auxiliary upper roll is mounted, preferably have vertical front sides 12^a parallel with the slots 7, in which the shaft of the main upper roll is mounted, while the rear sides 12^b of said slots 12 are curved concentrically with the shaft of the main upper roll when the latter is seated in the lower ends of the slots 7. This construction of the slots 12 is adopted in order to provide for either a simultaneous vertical movement of the upper main and auxiliary rolls or an independent upward movement of the auxiliary roll. The latter movement is desirable in that it allows the auxiliary upper feed-roll to yield when the hand of the operator is accidentally caught between the same and the auxiliary lower feed-roll.

The means which I employ for holding the upper feed-rolls in operative position with the desired pressure upon the material include a yoke 22, provided at its front and rear ends with open-sided seats 23 and 24 to respectively engage the shafts of the auxiliary and main upper rolls, and a tension-rod 25, adjustably connected at its upper end to the yoke and at its lower end to a pressure-spring 26. The lower end of the tension-rod passes through an opening near the free end of the spring 26 and is engaged by a thumb-nut 27 or its equivalent, whereby the tension of said rod may be varied with facility. The upper extremity of the tension-rod is preferably bifurcated to form arms arranged upon opposite sides of the plane of the yoke, and said arms terminate in eyes 28, engaged by a transverse pin or bolt 29, which fits in one of a series of openings or perforations 30 in the yoke. These perforations 30 are arranged, preferably, near the rear end of the yoke or contiguous to the seat 24, which engages the shaft of the main upper feed-roll, whereby the greater portion of the pressure caused by

the tension device is applied to the rear or main roll, thus leaving the front or auxiliary roll free to yield without causing serious injury to the object, such as a hand, which is introduced between said front upper roll and the cooperating lower roll. The pressure applied to the front roll is sufficient to engage and carry straw, hay, or other material and present it to the main rolls, which hold it firmly in position for the knife-roll. It will be understood that the tension device above described is duplicated at the opposite side of the machine.

A further advantage of the auxiliary feed-rolls resides in the fact that being of a light tension they more readily engage the material by reason of the upper roll yielding to allow a large bunch to pass, and hence in practice I have found that by the use of the auxiliary rolls of light tension the feeding operation is materially facilitated in that the main rolls perform their usual function of holding and feeding the material after it has passed the auxiliary rolls; but the material of whatever thickness, or irrespective of the irregularity with which it may be presented, is positively engaged by the auxiliary rolls and is thus carried continuously through the machine.

The relative pressure applied by the tension device to the main and auxiliary upper rolls is regulated by the engagement of the pin 29 with different perforations 30 in the yoke, as it will be seen that in order to increase the pressure of the auxiliary in proportion to the main roll the pin should be engaged with a perforation more remote from the seat 24, and vice versa.

In connection with the above-described apparatus I employ a carrying-roll 31, mounted in a transverse slot in the table 32 near its front end and adapted to be traversed by an apron 33, which extends around the lower auxiliary feed-roll, said apron being mainly desirable in cutting short feed. The shaft 34 of the roll 31 is rounded at its extremities in elongated bearings 35 in the frame, and said extremities are engaged by eyes 36, formed at the rear ends of tension-bolts 37, which extend through a transverse end bar 38 of the frame and are engaged by thumb-nuts 39. By adjusting the thumb-nuts any desired tension of the apron may be secured. In this connection I also employ a simple and efficient form of coupling between the extremities of the webbing forming the apron and designed to facilitate the application and removal of the apron, inasmuch as it is unnecessary to employ the same under ordinary circumstances. This coupling comprises opposite members secured, respectively, to the extremities of the web, each being struck from sheet metal and folded upon itself to form opposite wings, between which the extremities of the web are fastened. The coupling member 40 is provided at its folded or looped side with a plurality of recesses 41 to receive the tongues or projections 42 on the member 43, and a

hinge-pin 44 is employed to extend through the registering looped sides of said members when interlocked. The extremities of the web may be secured between the wings of the coupling members by means of rivets 45 or equivalent devices.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. In a feed-cutter, the combination with a knife-roll, of cooperating upper and lower main and auxiliary feed-rolls, the upper rolls being connected for simultaneous rotation and being adapted to yield upwardly, said auxiliary upper roll being capable of upward yielding movement independently of the main upper roll, yielding tension devices for holding the movable main and auxiliary rolls in operative position, the tension upon the auxiliary roll being less than that upon the main roll, and means for connecting the main and auxiliary rolls to hold them permanently at a uniform distance apart, substantially as specified.

2. In a feed-cutter, the combination with a knife-roll and cooperating main feed-rolls, the upper roll being vertically movable, of cooperating auxiliary upper and lower feed-rolls arranged in advance of the main feed-rolls, the auxiliary upper feed-roll having its shaft arranged in guides having vertical front sides and rear sides concentric with the main upper feed-roll when the latter is in its normal position, and operating connections between the main and auxiliary feed-rolls whereby the main and auxiliary upper rolls are held at a uniform distance apart in all positions, substantially as specified.

3. In a feed-cutter, the combination with a knife-roll and cooperating main feed-rolls, of auxiliary feed-rolls arranged in advance of the main feed-rolls, the upper main and auxiliary rolls being capable of independent movement toward and from the cooperating lower rolls, and a tension device for the movable rolls including a yoke connected at its extremities respectively to the shafts of said rolls, and a spring-actuated tension-rod attached to the yoke at an intermediate point contiguous to the point of connection of the latter with the main movable roll, whereby the tension upon the main roll exceeds that upon the auxiliary roll, substantially as specified.

4. In a feed-cutter, the combination with a knife-roll and main upper and lower feed-rolls, the upper roll being movable, of auxiliary upper and lower feed-rolls, the upper roll being movable independently of or simultaneously with the movable main roll and operating in guide-slots which are vertical at their front sides and concentric at their rear sides with the main upper roll, a yoke having

seats engaging the shafts of the movable rolls,
and a spring-actuated tension-rod adjustably
connected to the yoke at a point contiguous
to the seat which engages the shaft of the
5 main movable roll, whereby greater pressure
is applied to the main roll than to the auxil-
iary roll, substantially as specified.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature in
the presence of two witnesses.

ANTON KALTENBRUNN.

Witnesses:

WILLIAM F. CHRISTEL,
JOSEPH CASPER.