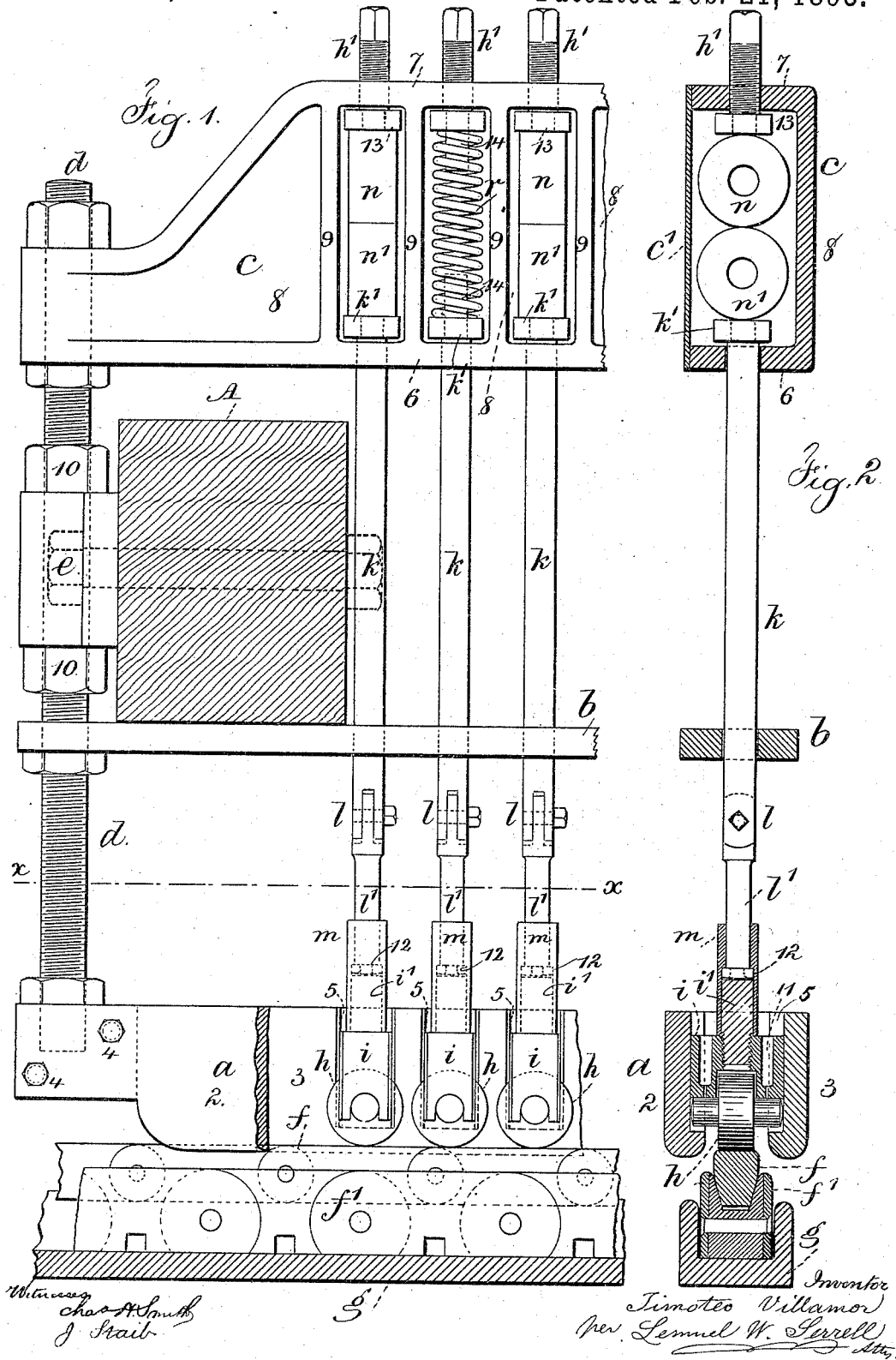


T. VILLAMOR.  
MACHINE FOR CLEANING VEGETABLE FIBER.

No. 492,173.

Patented Feb. 21, 1893.



(No Model.)

2 Sheets—Sheet 2.

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Fig. 3

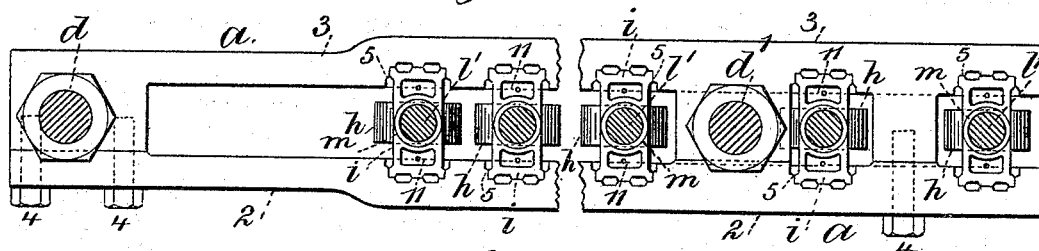
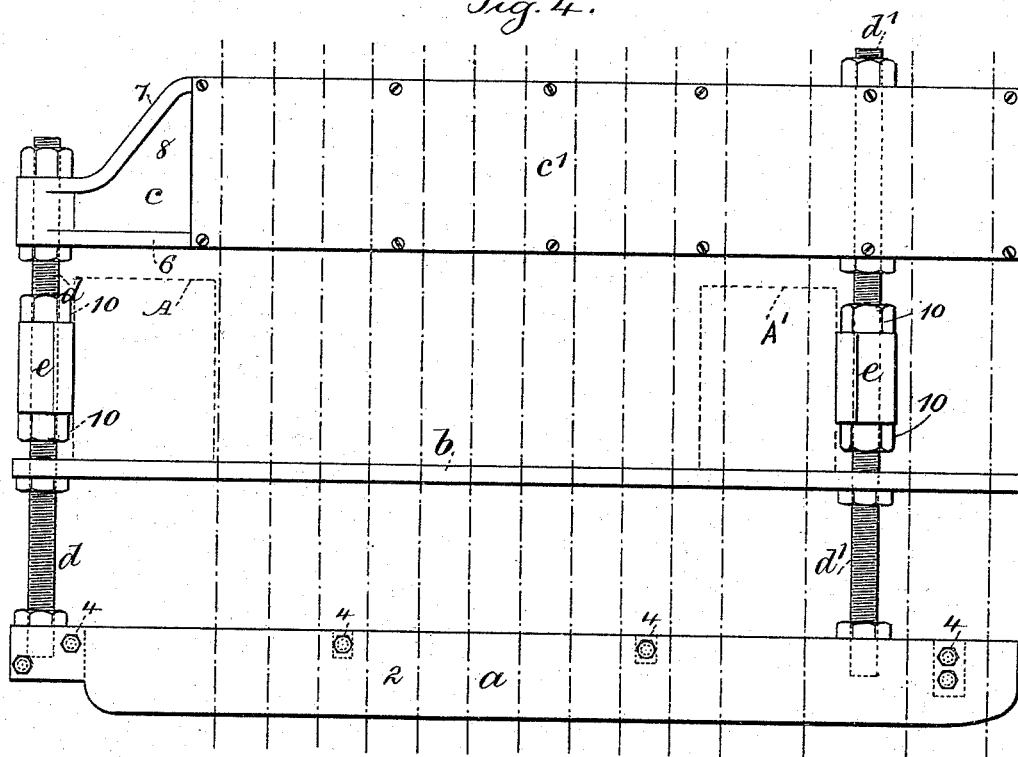


Fig. 4.



Witnesses

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# UNITED STATES PATENT OFFICE.

TIMOTEO VILLAMOR, OF MERIDA, MEXICO.

## MACHINE FOR CLEANING VEGETABLE FIBER.

SPECIFICATION forming part of Letters Patent No. 492,173, dated February 21, 1893.

Application filed July 11, 1892. Serial No. 439,685. (No model.)

*To all whom it may concern:*

Be it known that I, TIMOTEO VILLAMOR, of Merida, Yucatan, Republic of Mexico, have invented a new and useful Improvement in Machines for Cleaning Vegetable Fiber, of which the following is a specification.

My present invention is an improvement in the devices set forth in Letters Patent granted to me March 19, 1889, No. 399,802, and May 10, 1887, No. 362,683. In these patents the leaves to be scraped and cleaned were grasped and held between chains and were carried along over scraping boards where they were acted upon by knives or scrapers upon the surfaces of wheels for the removal of the pulp. At the point where the leaves were scraped pressure was applied by spring actuated rollers running over the upper surface of the uppermost chain. These rollers were sufficiently close together to bear upon each and every link of the chain but were capable of yielding for leaves of varying thickness.

My present invention relates peculiarly to improvements in these spring actuated rollers, to the framing in which they and their attendant parts are held and move, and to devices providing for the removal of said rollers and their bearings for the purpose of cleaning.

In the drawings Figure 1 is an elevation at one end of the frame of rollers and part of the chains. Fig. 2 is a vertical cross section of the same. Fig. 3 is a sectional plan at the line *xx* Fig. 1 showing the ends of the frame with the central portion removed, and Fig. 4 is an elevation of the frames without the rollers. Figs. 1, 2 and 3 are on a larger scale than Fig. 4.

In the drawings *a* represents the lower frame; *b* the intermediate frame, and *c* the upper frame. These frames are connected together at the desired distances apart by screw-threaded tie rods *d d'* near their respective ends, the rods *d d'* screwing into the frame *a* and passing through the frames *b* and *c* and being secured in place by lock nuts as shown. The frame *a* is composed of two parts 2, 3 held together by screw bolts 4 at desired intervals passing through the part 2 into projecting portions of the part 3, so that there are openings between these parts 2 and

3 and the inner surfaces are provided with slide ways at 5. The frame *b* is simply a flat bar having openings at intervals. The frame *c* has upper and lower members or flanges 6, 7, with a connecting web 8 and cross webs 9 at intervals forming pockets, and I provide a removable plate *c'* to cover over said pockets. The main timbers of the machine described in my aforesaid patent are illustrated at *A A'*, and the aforesaid frames are connected to and supported by said frames or timbers *A A'* by plates having bosses *e* through which the rods *d d'* pass, and there are nuts 10 to adjust and clamp the parts.

The endless chains or conveyers such as set forth in my before named patents are illustrated at *f f'*, and the guide plate or support for the same is shown at *g*. This plate *g* extends along and affords a support to the chains at the places where pressure is exerted by spring actuated rollers to keep the two parts of the chain together.

The rollers *h* are received in boxes *i* in the slide ways 5 of the frame *a*, as shown in Figs. 1 and 2. These rollers rest on the upper flat surfaces of the top chain *f*, and oil holes are provided at 11 through the boxes *i* for oiling the roller shafts. Rods *k* pass through the lower member 6 of the frame *c* and extend down through the frame plate *b*, and at the upper ends of said rods *k* there are heads *k'* in the pockets of the frame *c*, and the lower ends of said rods *k* terminate in hinged joints *l*, to which the auxiliary rods *l'* are connected, and the lower ends of the rods *l'* have heads 12 formed therewith or secured thereto in any desired manner.

Connected to each of the boxes *i* is a central rod *i'*, and around these rods *i'* and the lower ends of the auxiliary rods *l'* and the heads 12 are sleeves *m*, which sleeves are capable of a vertical movement along the rods *l'* above the heads 12.

I provide through the upper member 7 of the frame *c* screw pressure rods *h'* with heads 13 on their lower ends, and in the pockets of this upper frame *c'* are rubber springs *n n'* which are in reality circular perforated rubber blocks which rest upon the heads *k'* of the rods *k*, and the heads 13 of the pressure rods *h'* bear upon the upper portions of said

rubber springs. As a substitute for these rubber springs  $n n'$ , I provide helical metal springs  $r$ , one of which is shown in Fig. 1. In this case the rod  $k$  and screw pressure rod  $h'$  are made with steady pins 14 that come in the center of said helical springs  $r$ . The object sought is accomplished with equal facility with either the rubber springs  $n n'$  or the helical springs  $r$ .

It will be readily seen from Figs. 1 and 2 that when the stalks or fibers to be cleaned are between the chains  $f f'$  which support and grip them, as said chains pass along beneath the rollers  $h$ , said rollers with their boxes  $i$  will be elevated in the two part frame  $a$ . This will necessarily cause an upward movement of the rods  $i'$ ,  $l'$  and  $k$ , and a compression of the springs in the pockets of the frame  $c$ , and the extent to which the chains  $f f'$  grip the stalks or fibers being cleaned will be governed by the tension or pressure applied to the springs  $n n'$  or  $r$  by the pressure rods  $h'$  this gripping of the stalks or fibers by the chains being necessary to hold the same while being cleaned by the scraping wheel against the scraping board as shown and described in my aforesaid and former patents.

The plate  $c'$  is secured in any desired manner to the face of the frame  $c$  and can readily be removed to get at the springs  $n n'$  or  $r$  to replace those injured or worn out, and when it becomes necessary to clean the rollers  $h$ , their boxes  $i$  or the slide ways 5 of the two part frame  $a$  in which they move, it will be seen from Figs. 1 and 2, that it is only necessary to move the sleeves  $m$  upwardly on the rods  $l'$  so that their lower edges come above the upper ends of the short rods  $i'$ , when said sleeves and the rods  $l'$  can be swung on the hinged joints  $l$  to one side out of the way, and the boxes  $i$  with their rods  $i'$  can be lifted out of the frame  $a$  together with the rollers  $h$  and the parts cleaned and replaced.

The object of the heads 12 on the rods  $l'$  it will be seen from the cross section Fig. 2, is to prevent the sleeve  $m$  falling off the rods  $l'$ .

My invention constitutes a desirable addition and improvement to the devices and machine set forth in my aforesaid patents.

I claim as my invention—

1. In a machine for cleaning vegetable fiber, the combination with the feeding chains and pressure rollers, their rods and springs, of the two part frame  $a$  between which are the press-

ure rollers, guides for said rods and supports for the said springs, substantially as set forth.

2. In a machine for cleaning vegetable fiber, the combination with the main supporting frames  $A A'$ , of the frames  $a, b, c$ , the end tie rods  $d, d'$  connecting the frames  $a, b, c$ , near their respective ends, the plates connected to the frames  $A A'$  and having bosses  $e$  through which the tie rods pass, and the securing nuts 10, substantially as set forth.

3. In a machine for cleaning vegetable fiber, the combination with the chains  $f f'$  and main supporting frames, of the frames  $a b c$ , the rollers  $h$  and their boxes  $i$  vertically movable in slide ways in the frame  $a$ , the rods  $k$  passing through the frames  $b$  and  $c$  and bearing upon the boxes, the springs in pockets in the frame  $c$  and bearing upon the upper ends of the rods  $k$ , and separable joints at the lower ends of the rods  $k$  and connecting with the boxes  $i$  whereby the parts can be separated for cleaning, substantially as set forth.

4. In a machine for cleaning vegetable fiber, the combination with the chains  $f f'$  and the frame  $a$  having slide ways, of the rollers  $h$ , their boxes  $i$  moving vertically in said slide ways, rods  $i'$  screwed into said boxes, the rods  $k$  and  $l'$  connected by hinged joints  $l$ , movable sleeves  $m$  surrounding the rods  $l'$  and  $i'$  and connecting the same, substantially as set forth.

5. The combination with the rollers  $h$ , boxes  $i$ , rods  $i'$  and rods  $k$ , of the rods  $l'$  connected vertically by hinged joints  $l$ , heads 12 upon the lower ends of the rods  $l'$ , the sleeves  $m$  movable along the rods  $l'$  and over the heads 12 and adapted to pass over the rods  $l'$  whereby said sleeves are retained upon said rods when the parts are separated for cleaning, substantially as set forth.

6. In a machine for cleaning vegetable fiber, the combination with the frames  $a$  and  $b$  and spring actuated roller mechanism, of the frame  $c$  having an upper member 7 and lower member 6, a web 8 connecting said members, and cross webs 9 forming pockets for the springs of the roller mechanism, and a plate  $c'$  secured to said frame and closing the openings to said pockets, substantially as set forth.

Signed by me this 1st day of July, 1892.

TIMOTEO VILLAMOR.

Witnesses:

GEO. T. PINCKNEY,  
HAROLD SERRELL.