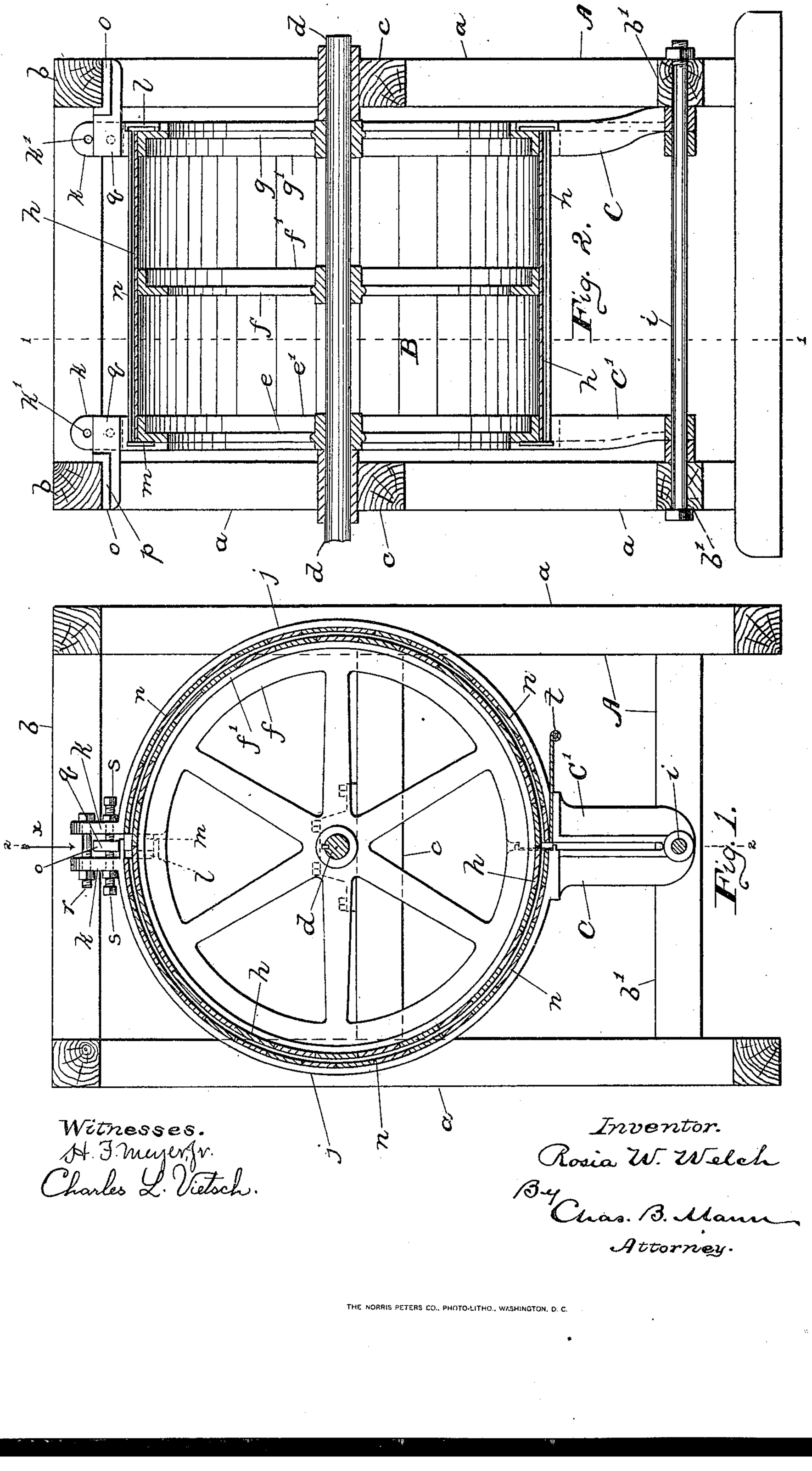
No. 670,216. Patented Mar. 19, 1901.

R. W. WELCH.

RICE DECORTICATING MACHINE.

(Application filed Oct. 19, 1900.)

(No Model.) 2 Sheets—Sheet 1.



Witnesses.
H. J. Meyer, Jr.
Charles L. Vietsch.

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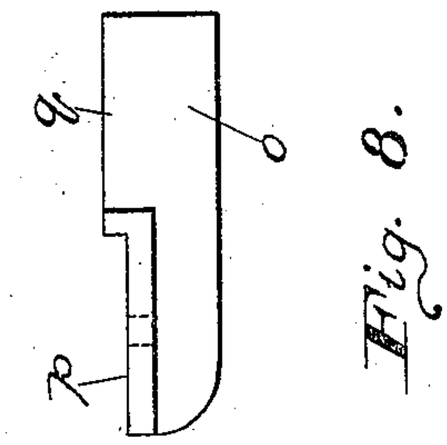

Fig. 8.

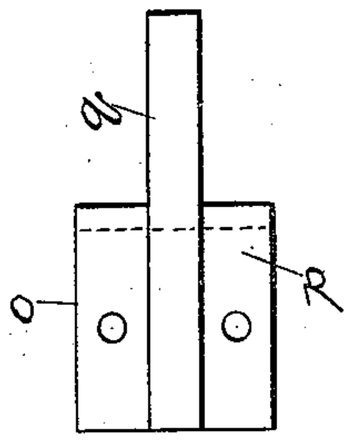

Fig. 7.

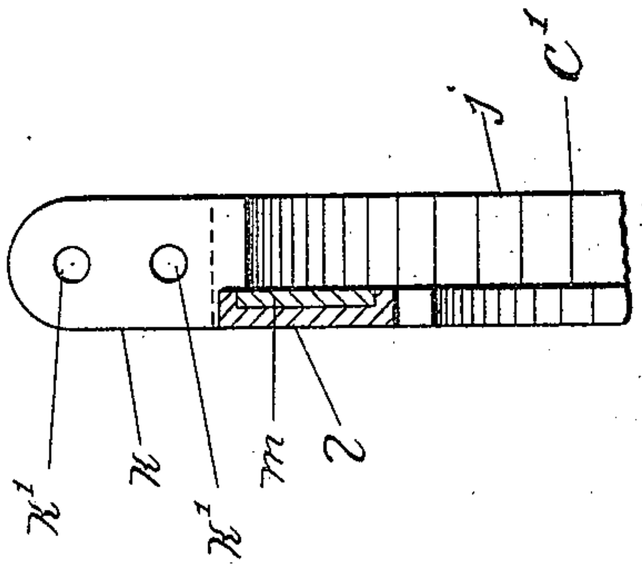

Fig. 6.

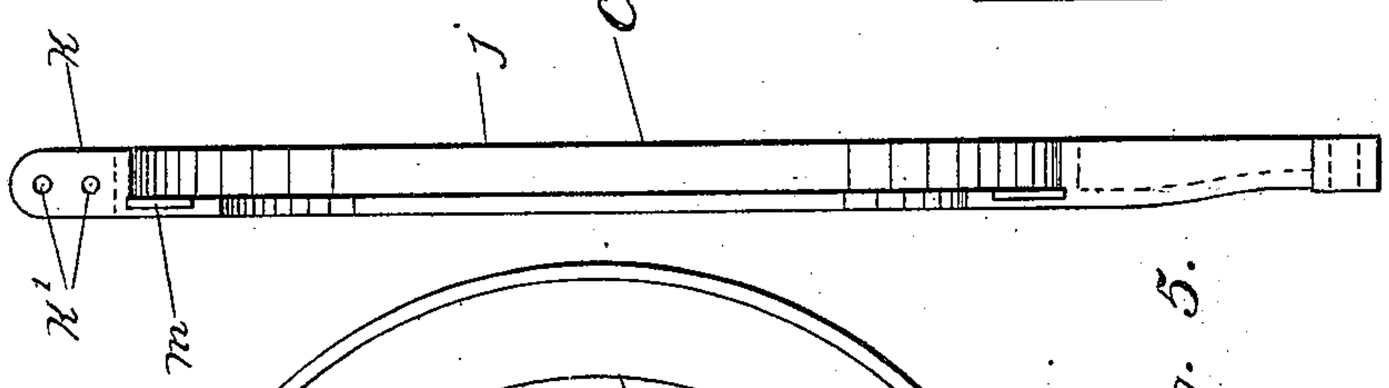

Fig. 5.

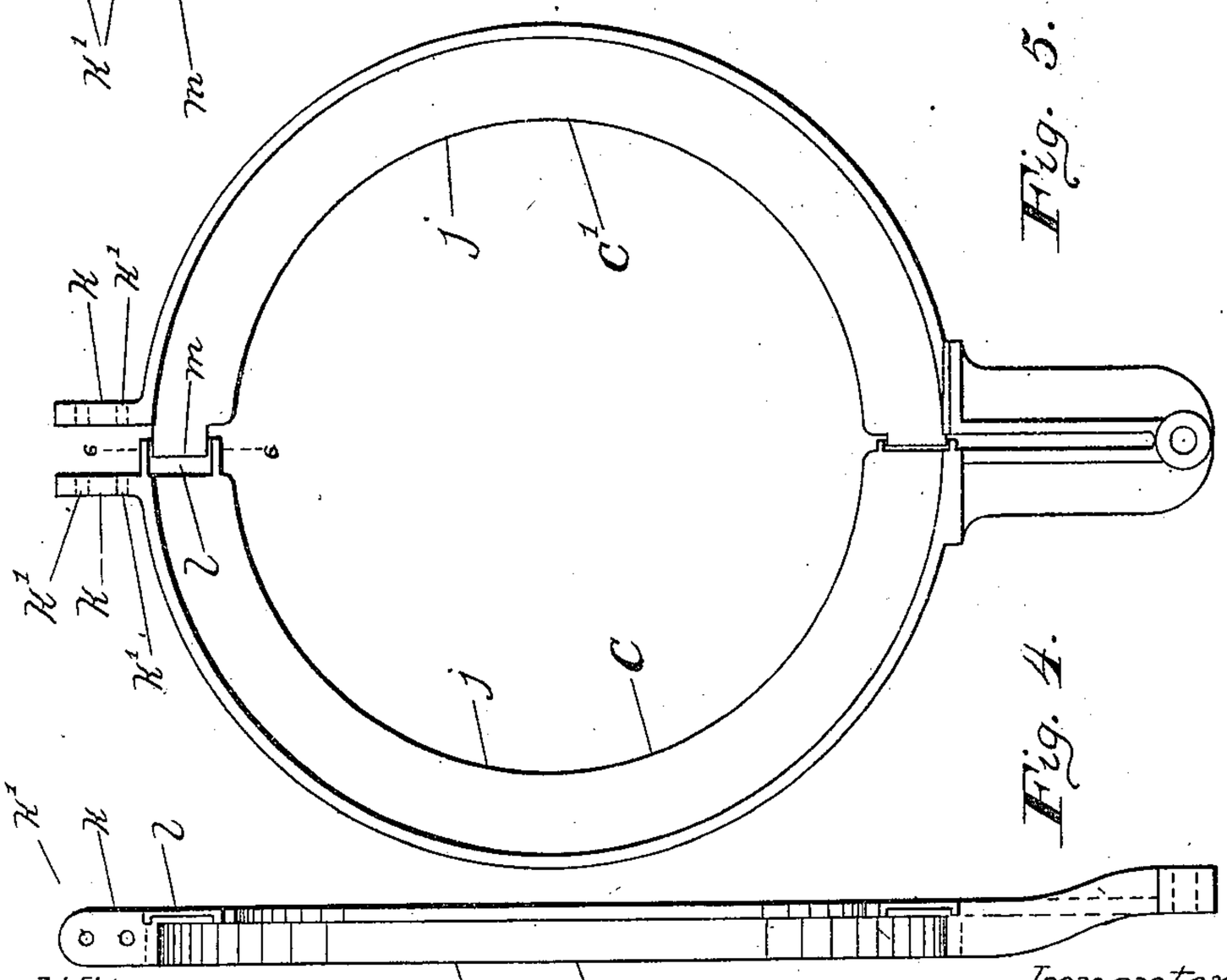

Fig. 4.

Fig. 3.

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UNITED STATES PATENT OFFICE.

ROSIA W. WELCH, OF BALTIMORE, MARYLAND, ASSIGNOR OF THREE-FOURTHS TO EDWARD A. DAUGHERTY AND ALFRED K. ROGERS, OF SAME PLACE.

RICE-DECORTICATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 670,216, dated March 19, 1901.

Application filed October 19, 1900. Serial No. 33,604. (No model.)

To all whom it may concern:

Be it known that I, ROSIA W. WELCH, a citizen of the United States, residing at Baltimore, State of Maryland, have invented certain new and useful Improvements in Rice-Decorticating Machines, of which the following is a specification.

My invention relates to rice-decorticating machines, and one object is to provide a simple and cheap machine of this character, which will effectively take off or decorticate the inner skin of the grains of rice by attrition, leaving the grains in a pearly-white state.

A further object of the invention is to provide a rice-decorticating machine in which two concaves are used, either one of which is capable of being adjusted with nicety independently of the other, so as to properly space it from the decorticating-cylinder, and in which a slide extends across the discharge-opening between the lower ends of the concaves to regulate the flow of rice through the machine and keep the spaces between the decorticating-cylinder and concaves gorged with rice, so that the grains will repeatedly rub against one another to effect the desired result.

The invention consists of certain constructions, arrangements, and combinations of the parts hereinafter fully described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section of the machine on the line 1 1 of Fig. 2. Fig. 2 is a vertical section on the line 2 2 of Fig. 1. Fig. 3 is a detail side view of one pair of the hinged arms employed for supporting the concaves, so that they may be swung down away from the decorticating-cylinder. Fig. 4 is a detail edge view of one of said arms disconnected from the other. Fig. 5 is a similar view of the said other arm. Fig. 6 is a transverse section taken on the line 6 6 of Fig. 3. Figs. 7 and 8 are detail bottom and side views, respectively, of an abutment which assists in the adjustment of the concaves.

The framework A of my rice-decorticating machine is preferably composed of uprights *a*, connected together by upper and lower cross-beams *b b'* and intermediate cross-beams *c*. A rotary shaft *d* is mounted in suitable bearings on the said intermediate beams *c*, and on said shaft are secured three circular heads *e*, *f*, and *g*, provided with annular flanges *e'*, *f'*, and *g'*, respectively. The head *f* is located midway between the two heads *e* and *g*, and a plurality of decorticating-plates *h* extend across said heads and are secured to the said annular flanges, the said plates being arranged entirely around the heads with their side edges abutting and forming the decorticating-surface of the revoluble cylinder B.

As illustrated in Figs. 1 and 2, a rod *i* extends across the bottom of the framework A in line with the rotary shaft *d*, and two pairs of arms C C' are pivotally mounted at their lower ends on each end of said rod. The said pivoted arms C C', as shown in Figs. 3 to 6, inclusive, are provided a short distance above their lower ends with oppositely-curving semicircular portions *j*, L-shaped in cross-section, which together form a complete circle, and above their curved portions said arms are provided with upwardly-extending ends *k*, having two sets of apertures *k'*, one set being above the other. One arm C of each pair is provided on the vertical member of each L-shaped curved portion and at the end thereof with a mortise *l*, which receives a tenon *m* on the corresponding adjacent portion of the other arm, all for a purpose to be hereinafter described. The curved portion of each arm normally extends almost entirely around one-half the circumference of the decorticating-cylinder B, and to the inside of such curved portions are secured a plurality of plates *n*, extending from an arm of one pair to the corresponding opposite arm of the other pair, whereby to form concaves partially surrounding the revoluble decorticating-cylinder. A space is left between the concaves at the top and bottom for the admission and discharge of the rice, and a space is also left between the decorticating-surface of the revoluble cylinder B and the adjacent inner side of

each concave for the grain to pass from the top to the bottom of the machine, the grains being acted upon by the said cylinder and concaves during such passage.

Now it is essential in order for the grains of rice to be decorticated by attrition that the space between the concaves and cylinder be kept adjusted properly, and to this end I have provided two abutments *o*, each of which is provided with a recessed base *p*, secured to the middle of one of the upper cross-beams *b* and provided with a horizontal lip *q*, which extends between the two juxtaposed ends *k* of each pair of the arms C C′ just below the upper set of apertures *k′*. A tie-bolt *r* is inserted through the upper set of apertures on each pair of arms, whereby to hold the upper ends of the arms and likewise the concaves together, and adjusting-screws *s* work in the lower sets of apertures *k′* and bear with their ends against each side of the lip *q*, whereby when the tie-bolt has been adjusted to draw the two upper ends of the pivoted arms together the adjusting-screws may be screwed up against the lips *q* to spring the arms out slightly, and thus adjust each concave with nicety independently of the other. A slide *t* works in slots in the lower end of one of the hinged arms of each pair at the ends of the machine and extends more or less across the discharge-opening of the machine between the two concaves, so as to govern the discharge-opening and keep the machine gorged with rice in order that the grains will repeatedly rub against one another and be discharged from the machine in a pearly-white condition entirely deprived from their skin.

The rice is fed to the top of the machine by a suitable hopper (not shown) at the point indicated by the arrow *x*, Fig. 1, and passes down between the decorticating-cylinder and concaves. It is kept from leaking out of the sides of the machine at the top and bottom by the mortise-and-tenon connection between the hinged arms C and C′.

When it is desired to clean the working surfaces of the decorticating-cylinder and concaves, the tie-bolts are unfastened and the arms C and C′ are swung down, so as to carry the concaves away from the cylinder.

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

1. A rice-decorticating machine, comprising a framework; a revoluble decorticating-cylinder mounted in said framework; two concaves partially surrounding said cylinder on opposite sides thereof; arms pivoted at one end and carrying said concaves, whereby they may be both swung away from said cylinder; an adjustable connection between the free ends of said arms; and an independent adjustable connection between each arm and the framework, as set forth.

2. A rice-decorticating machine, comprising a framework; a revoluble decorticating-cylinder mounted in said framework; two pairs of arms pivoted below said cylinder and extending upwardly on opposite sides of said cylinder; concaves carried by said arms and partially surrounding said cylinder; tie-bolts connecting the upper free ends of said arms; and an adjusting-screw in the upper end of each arm below the tie-bolts and adapted to adjust said arms and the concaves toward and from the said cylinder, as set forth.

3. In a rice-decorticating machine, the combination of a framework; a revoluble decorticating-cylinder mounted in said framework; a rod secured in the framework in line with the axis of said cylinder; two pairs of arms pivoted on said rod; concaves secured to said arms; abutments secured to said framework and provided with lips extending between the free ends of said arms; adjusting-screws working in the free ends of said arms and bearing against the sides of said lips; and a tie-bolt connecting the ends of said arms beyond said screws.

4. A rice-decorticating machine, comprising a framework; a revoluble decorticating-cylinder mounted in said framework; a rod extending across said framework below the said cylinder and in line with the axis thereof; two pairs of arms pivoted at their lower ends on said rod and provided with oppositely-curved portions whose ends have a sliding mortise-and-tenon connection, the upper ends of said arms being provided with two sets of apertures one set above the other; concaves secured to the curved portions of said arms and partially surrounding said cylinder; abutments secured to the framework and provided with lips extending between the apertured ends of said arms; tie-bolts working in the upper sets of apertures and connecting the upper ends of said arms above said lips; adjusting-screws working in the lower sets of said apertures and bearing against the sides of said lips; and a slide working in said pivoted arms across the space between the lower ends of said concaves.

5. In a rice-decorticating machine, the combination of a revoluble decorticating-cylinder; two concaves partially surrounding said cylinder on opposite sides and spaced from each other at their upper and lower ends; arms carrying said concaves and pivoted below said cylinder; a connection between the upper ends of said arms adapted to draw said ends together; independent means for slightly springing each arm away from said cylinder after the upper ends of the arms have been drawn together from said cylinder; and a slide working in said arms across the space between the lower ends of said concaves, as set forth.

6. A rice-decorticating machine, comprising a framework; a revoluble decorticating-cylinder mounted in said framework; concaves

partially surrounding said cylinder; pivoted arms carrying said concaves and having a sliding mortise-and-tenon connection at the ends of the concaves whereby to prevent the rice from leaking out of the sides of the machine; and an adjustable connection between said arms, as set forth.

In testimony whereof I affix my signature in the presence of two witnesses.

ROSIA W. WELCH.

Witnesses:
CHARLES B. MANN, Jr.,
CHARLES L. VIETSCH.