

(No Model.)

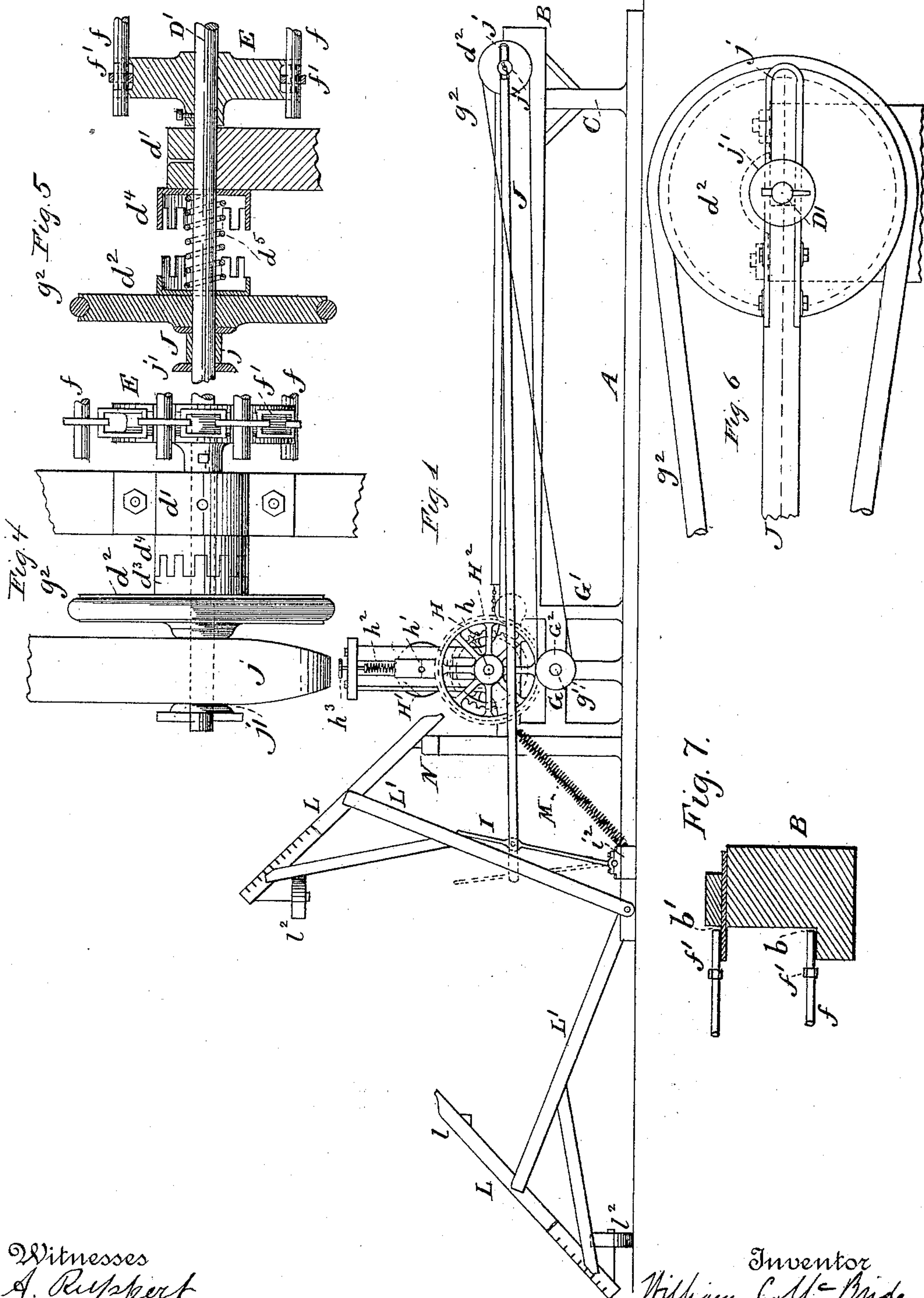
2 Sheets—Sheet 1.

W. C. McBRIDE.

MACHINE FOR BREAKING FIBROUS VEGETABLE SUBSTANCES.

No. 436,718.

Patented Sept. 16, 1890.



Witnesses  
A. Ruppert.  
E. Lause.

Inventor  
William C. McBride,  
By his Attorneys  
W. J. Howard.

(No Model.)

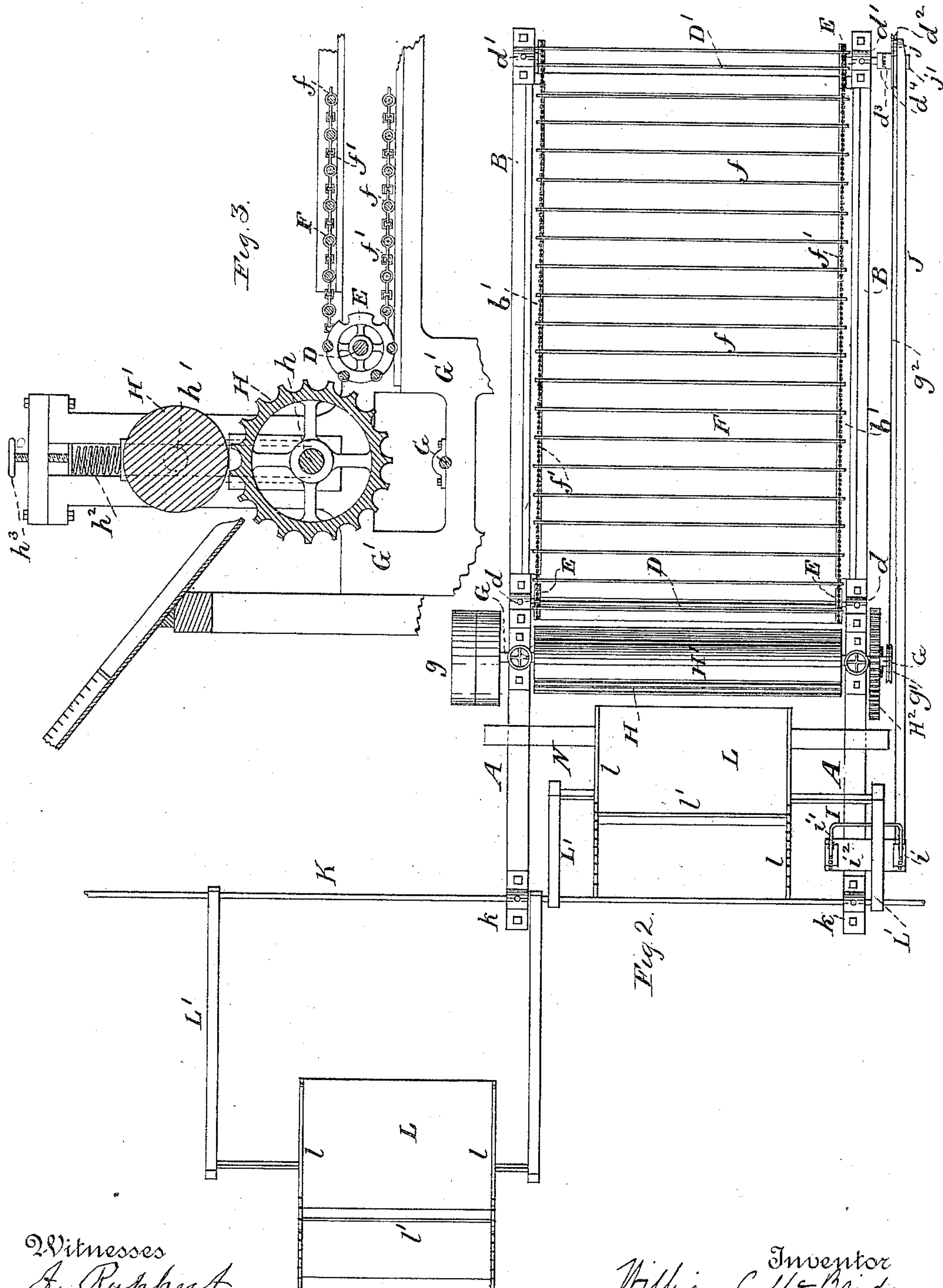
2 Sheets—Sheet 2.

W. C. McBRIDE.

MACHINE FOR BREAKING FIBROUS VEGETABLE SUBSTANCES.

No. 436,718.

Patented Sept. 16, 1890.



Witnesses  
A. Ruppert.  
E. Cruse.

Inventor  
William C. McBride,  
By his Attorneys  
H. W. Howard.



# UNITED STATES PATENT OFFICE.

WILLIAM C. McBRIDE, OF BROOKLYN, NEW YORK.

## MACHINE FOR BREAKING FIBROUS VEGETABLE SUBSTANCES.

SPECIFICATION forming part of Letters Patent No. 436,718, dated September 16, 1890.

Application filed December 9, 1889. Serial No. 333,109. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM C. McBRIDE, of Brooklyn, in the county of Kings and State of New York, have invented certain new and  
5 useful Improvements in Machines for Breaking Fibrous Vegetable Substances, of which the following is a specification, reference being had to the accompanying drawings and to the letters of reference marked thereon.

10 My invention consists of the several details of construction and arrangement hereinafter set forth in the specification and claims.

In the drawings, Figure 1 is a side elevation of the machine. Fig. 2 is a plan. Figs.  
15 3, 4, 5, 6, and 7 are enlarged views of detached details, Figs. 3, 5, and 7 being in section.

Similar letters of reference indicate similar parts in the respective figures.

The main frame of the machine consists of  
20 two longitudinal beams A A, suitably connected by cross-beams (not shown) forming the base, and two longitudinal beams B B, supported by the standards C C and frames G', extending upward from the base.

25 D D are shafts journaled in suitable bearings  $d d' d'' d'''$  on the beams B. Each of the shafts carries within the beams B two sprocket-wheels E E, around which the traveling sheet F moves. This sheet is composed of bars or  
30 slats  $f$ , carried by the chains  $f'$ , the bars being separated from each other by short spaces and their ends extending a short distance beyond the chains. Each beam B has two rabbets  $b b'$  formed on it for the purpose of supporting the ends of the bars  $f$  as they travel  
35 backward and forward over the sprocket-wheels E. This arrangement prevents the sheet from sagging or running out of a straight course.

40 G is a shaft journaled in suitable bearings in frames G', supported by the base of the machine. This shaft extends at each end beyond its bearings and carries at one end fast and loose belt pulleys  $g$  to impart motion to  
45 it, and at its other end a pulley  $g'$ , from which a belt  $g^2$  leads to another pulley  $d^2$ , loosely mounted on the shaft D' outside the beam B. The hub  $d^3$  of the pulley  $d^2$  forms one half of a clutch, the other half-clutch  $d^4$  being rigidly secured by keying or otherwise to the  
50 shaft D'. A spiral spring  $d^5$  surrounds the

shaft D' between the two halves of the clutch and tends to keep them normally separated. By the engagement and disengagement of the halves of the clutch the travel of the  
55 sheet is made intermittent.

H H' are the crushing-rollers, the shafts  $h h'$  of which are journaled in suitable bearings in the upper part of the frames G'. The bearings for the shaft  $h'$  are permitted a ver-  
60 tical movement by means of the spring  $h^2$ , the pressure of which is regulated by a set-screw  $h^3$ . In the drawings the roller H is shown corrugated and the roller H' smooth. I do not limit myself to the number of crushing-  
65 rollers or to their form, as both may vary under different circumstances. One end of the shaft  $h$  extends outwardly beyond its bearings and carries a gear-wheel H<sup>2</sup>, which engages with a gear-wheel G<sup>2</sup>, mounted on the  
70 shaft G between the pulley  $g$  and the frames G', thus transmitting motion to the rollers H and H'.

I is a U-shaped lever, the two arms  $i i'$  of which are hinged at their lower ends to a suit-  
75 able support  $i^2$ , attached to the base of the machine. To the arm  $i$  one end of a rod J is pivotally connected, its other end being provided with a loop or strap  $j$ , fitting over the shaft D' between the outer face of the pulley  
80  $d^2$  and a collar  $j'$  on the end of the shaft. The loop  $j$  is wedge-shaped, as shown, and by pushing the rod J forward the wedge-shaped loop will force the pulley  $d^2$  against the re-  
85 sistance of the spring  $d^5$  toward the half-clutch  $d^4$  and cause the two halves of the clutch to become engaged. When the rod J is drawn back, the narrow portion of the loop  
90  $j$  will permit the spring  $d^5$  to force the two halves of the clutch apart and thereby stop the travel of the sheet F.

K is a rod supported in the bearings  $k$  on the beams A and extending beyond them in both directions.

L L are tipping tables, angularly attached  
95 to the frames L' L', the latter being pivoted on the rod K, as shown, and free to move thereon transversely of the machine. The tables L L have permanent sides  $l$  and a movable tail-board  $l'$ , adapted to be secured to  
100 the table at different points, so as to suit different lengths of fiber. The tables are



each provided with a wheel or caster <sup>72</sup> to enable them to be easily pushed along the floor when it is necessary to change their position on the rod K. By arranging the tables L L  
 5 on the rod K in the manner shown they may be used alternately to feed the fiber to the crushing-rolls. When one table is elevated to feed the fiber the attendant can be arranging the fiber in the other, and when all the  
 10 fiber has been discharged from the elevated table said table can be turned back and it, with the other, pushed in the necessary direction in order to bring said other table opposite the rollers, when it in turn will be elevated and its contained fiber fed to the rolls.  
 15 When either of the tables is elevated its frame L' will engage the lever I and push the rod J forward, thereby throwing the two halves <sup>d<sup>3</sup></sup> <sup>d<sup>4</sup></sup> of the clutch into engagement and so cause  
 20 the sheet F to travel. When the table is turned down, the lever I and rod J will be retracted by means of the tension-spring M, one end of which is secured to the rod J and the other to the support <sup>i<sup>2</sup></sup>, on which the lever I is hinged. The two halves of the clutch  
 25 will then become disengaged and the travel of the sheet F cease. The front open end of the table, when feeding, rests on the bar N, supported upon standards immediately in  
 30 front of the crushing-rolls.

The general operation is as follows: Motion having been imparted to the shaft G, the crushing-rolls will be caused to revolve, and one of the tables containing fiber being elevated its frame will engage the lever I and  
 35 thereby throw the two halves of the clutch into engagement and so cause the sheet to travel. The fiber in the meantime will begin to enter between the crushing-rolls and will  
 40 pass through them onto the sheet, which will carry the crushed fiber forward, and this operation will continue until all the fiber has been discharged from the table. The empty table must now be turned down, when the  
 45 lever I and rod J will be retracted by the spring M and the travel of the sheet will cease, as before explained. An attendant can now gather and remove the mass of crushed fiber from the sheet. The other table will then be pushed  
 50 opposite the rollers and elevated and the operation be repeated.

Having described my invention, I claim—

1. In a machine for crushing fiber, the combination, with the main frame of the machine  
 55 and the crushing-rolls, of a rod supported on

the main frame, and a series of tipping tables pivoted on the said rod and movable thereon transversely of the machine, substantially as specified.

2. In a machine for crushing fiber, the combination, with the main frame of the machine and the crushing-rolls, of a rod supported on the main frame, a series of tipping tables pivoted on said rod and movable thereon transversely of the machine, and wheels or casters  
 60 on the under side of the tables, substantially as and for the purpose specified.

3. In a machine for crushing fiber, the combination, with a series of crushing-rolls and means for revolving them, of a traveling sheet  
 70 moving around sprocket-wheels, shafts carrying said sprocket-wheels, a half-clutch rigidly secured to one of said shafts, a pulley the hub of which forms a half-clutch loosely mounted on said shaft, intermediate gearing and a belt  
 75 to transmit motion from the crushing-rolls to the said pulley, and means, substantially as described, to force the two halves of the clutch into engagement, as specified.

4. In a fiber-crushing machine, the combination of a series of revolving rolls, a traveling sheet, a shaft carrying sprocket-wheels to impart movement to said sheet, a pulley  
 80 loosely mounted on said shaft, the hub of said pulley forming half a clutch, another half-clutch rigidly secured to said shaft, a spiral spring surrounding the shaft between the two halves of the clutch, a collar on the shaft, a rod having a wedge-shaped loop fitting over  
 85 said shaft between the collar and pulley and intermediate gearing, and a belt to transmit movement from the revolving rolls to the said pulley, substantially as specified.

5. The combination, with two halves of a clutch, the rod J, and lever I, of the pivoted  
 90 tipping table, said table, when elevated, engaging the lever and causing the two halves of the clutch to engage, substantially as described.

6. In a machine for crushing fiber, the combination, with the crushing-rolls, of a tipping table and an intermittent traveling sheet, substantially as specified.

In testimony whereof I hereunto set my hand and seal.

WILLIAM C. McBRIDE. [L. S.]

Witnesses:

JOSEPH H. PORTER,  
 WM. E. MILLARD.