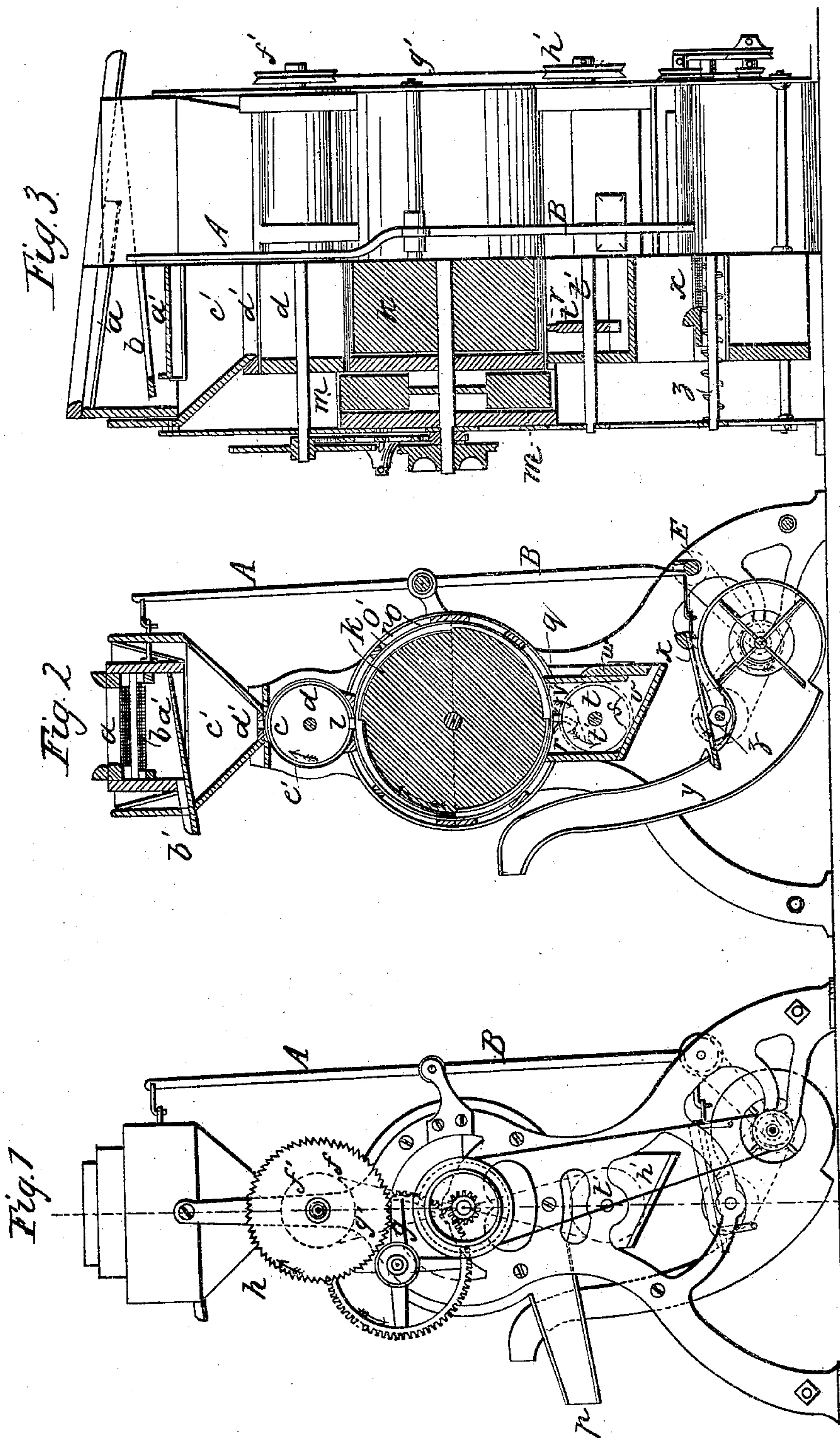


C. FRANK.

Smut Mill.

No. 22,720.

Patented Jan'y 25, 1859.



UNITED STATES PATENT OFFICE.

CARL FRANK, OF CLEVELAND, OHIO.

SMUT-MILL.

Specification of Letters Patent No. 22,720, dated January 25, 1859.

To all whom it may concern:

Be it known that I, CARL FRANK, of Cleveland, in the county of Cuyahoga, in the State of Ohio, have invented a new and useful Improvement in Smut-Mills; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

10 Holding in view one of the fundamental principles of mechanics to wit: that every mechanical operation requires a certain time for its proper performance; I found that the passage of the grain through the usual smut-mills is too rapid and I conceived the idea of combining with a smut mill of the construction hereafter to be described, an apparatus for feeding the grain to the smut cylinder and removing it therefrom at certain intervals with mathematical precision, in order to let the grain be operated upon just as long as required (according to practical experience) for the proper performance of the operation.

25 If the grain passes too rapidly through the smut-mill, it will not be thoroughly cleaned and the flour will have that lead colored appearance peculiar to inferior qualities of flour.

30 If the grain passes too slowly through the smut-mill the grain itself will be affected in the smut-mill and the yield of flour of a certain quantity of grain will be less than what it ought to be.

35 In my machine the grain is first fed to the sieve *a* which lets the grain pass through its meshes and thereby separates it from the coarse dirt, stones, etc., which latter passes over the inclined sieve *a* out of the machine.

40 The grain falls through sieve *a* upon sieve *b* which is inclined in a direction opposite to the inclination of sieve *a*. The meshes of sieve *b* are such that the smaller particles of dirt and other impurities will pass through the sieve and falling upon the inclined board *a'* will pass out of the machine through spout *b'*, while the grain rolling down the sieve *b* finds its way through slot *c* into a trough *c'*. This trough has in its bottom a longitudinal slot *d'* which allows the grain to pass through and into the hollow revolving cylinder *d* as often as the slot *e* in the cylinder *d* comes to correspond with the slot *d'* in the bottom of the trough. The cylinder *d* re-

volves within a hollow cylinder *e'* which 55
latter has a slot on top to correspond with slot *d'* and has also a slot *l* at its bottom. As soon as the slot *e* during the revolution of cylinder *d*, has arrived over the slot *l*, the grain will pass out of cylinder *d* through 60
slots *e*, *l*, upon the smut cylinder *k* and will here be operated upon between the roughened surfaces of the cylinder *k* and of the inclosing cylinder or tube *n*. This tube *n* is provided with numerous holes all over its 65
surface, and is surrounded by another tube *o'*. The space *o* between the two tubes communicates with ventilator *m* by which means the dust created by the operation of the smut cylinder, is drawn through the holes 70
in the tubular surface *n* into space *o* and blown out through spout *p*. The cylinders *d* and *k* are geared together by means of cogwheels *i*, *h*, tooth *g*, and ratchet wheel *f* so as to feed the grain to the smut cylinder 75
at proper intervals. The cylinder *d* is connected with a shaft *t'* below the smut cylinder, by means of band and pulleys *f'*, *g'*, *h'*, in such a way that the shaft *t'* will make a revolution in the same time that cylinder *d* 80
makes one. The shaft *t'* carries two disks *t* each of them being provided with an indentation *s*, the two indentations corresponding with each other. At the bottom of tube *n* and extending its whole length there 85
is a hinged door *q* provided with two pins *r* which rest upon the surface of disks *t*. As long as the pins *r* rest upon the circular surface of the disks, the door will be kept closed, but as soon as the indentations *s* 90
arrive underneath the pins *r* the door *q* will be allowed to drop (see position in red in Fig. 2) and the grain will pass from between the smut cylinder and the tube *n* into trough *v'*. The slide *w* is to be opened suf- 95
ficiently to let the grain pass slowly over the inclined bottom *v* onto sieve *x*. Dust and screenings not yet removed pass through the sieve *x* and are carried out of the machine by means of an endless screw *z*. The grain 100
after having passed over sieve *x* enters the ventilator spout *y* to go through the last cleaning or separating process. The lever *A*, *B*, worked by eccentric *E* serves to vibrate the sieves *b* and *x*. 105

My machine as above described can easily be made suitable for barley, rice and other material by changing the gearing, so as to

allow the material to be operated upon during a sufficiently long time.

What I claim as my invention and desire to secure by Letters Patent is:

5 Arranging between the trough c' , containing the grain to be scoured, and the scouring cylinder k , a slotted hollow cylin-

der d , revolving within another hollow cylinder e' , as above described.

CARL FRANK. [L. s.]

Witnesses:

H. ANHÄUSSER,

E. HESSENMUELLE.