(No Model.)

G. F. CRIPPEN.

BEAN PICKER.

2 Sheets—Sheet 1.

No. 578,861.

Patented Mar. 16, 1897.

Fig. 1.

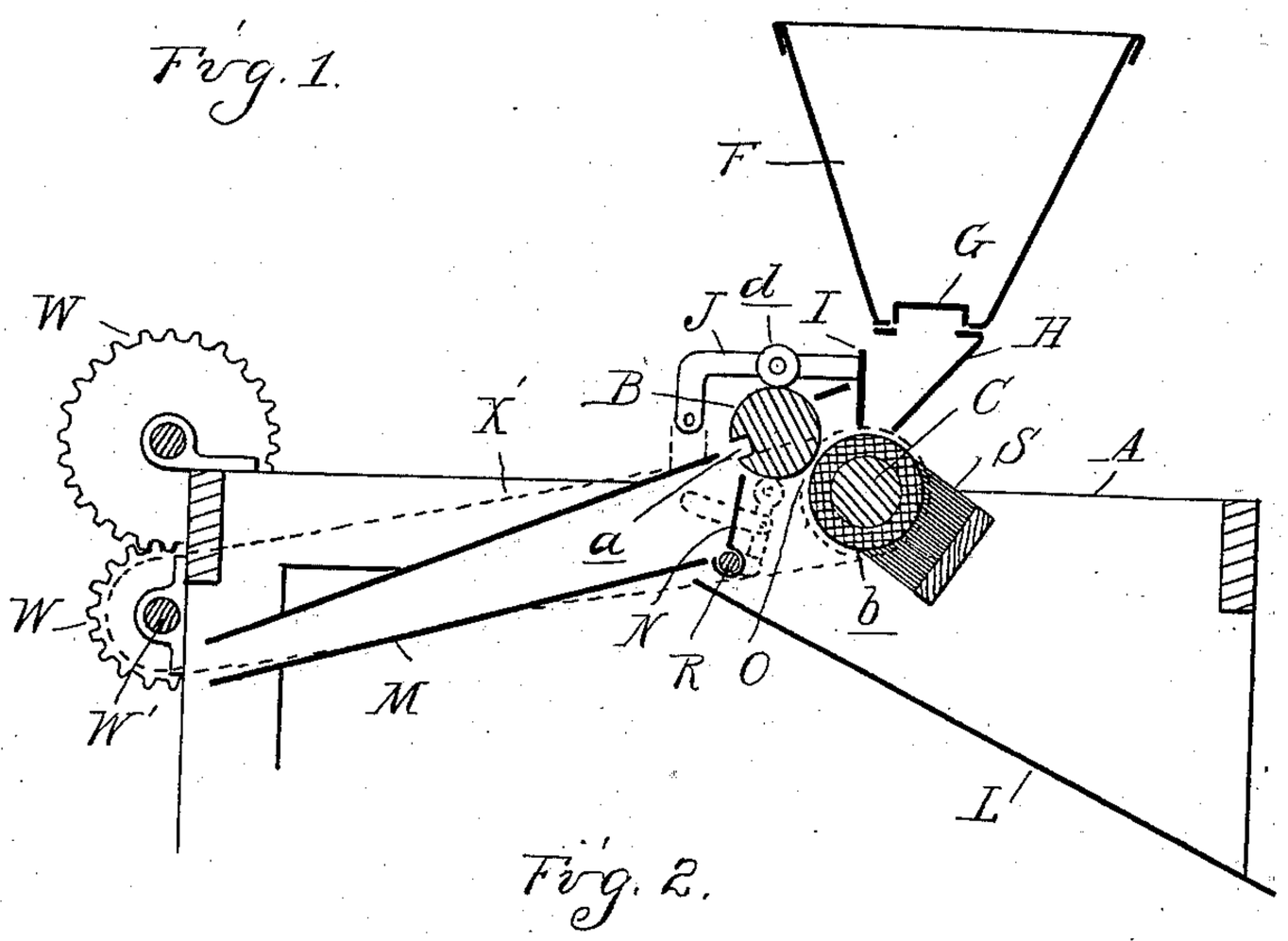
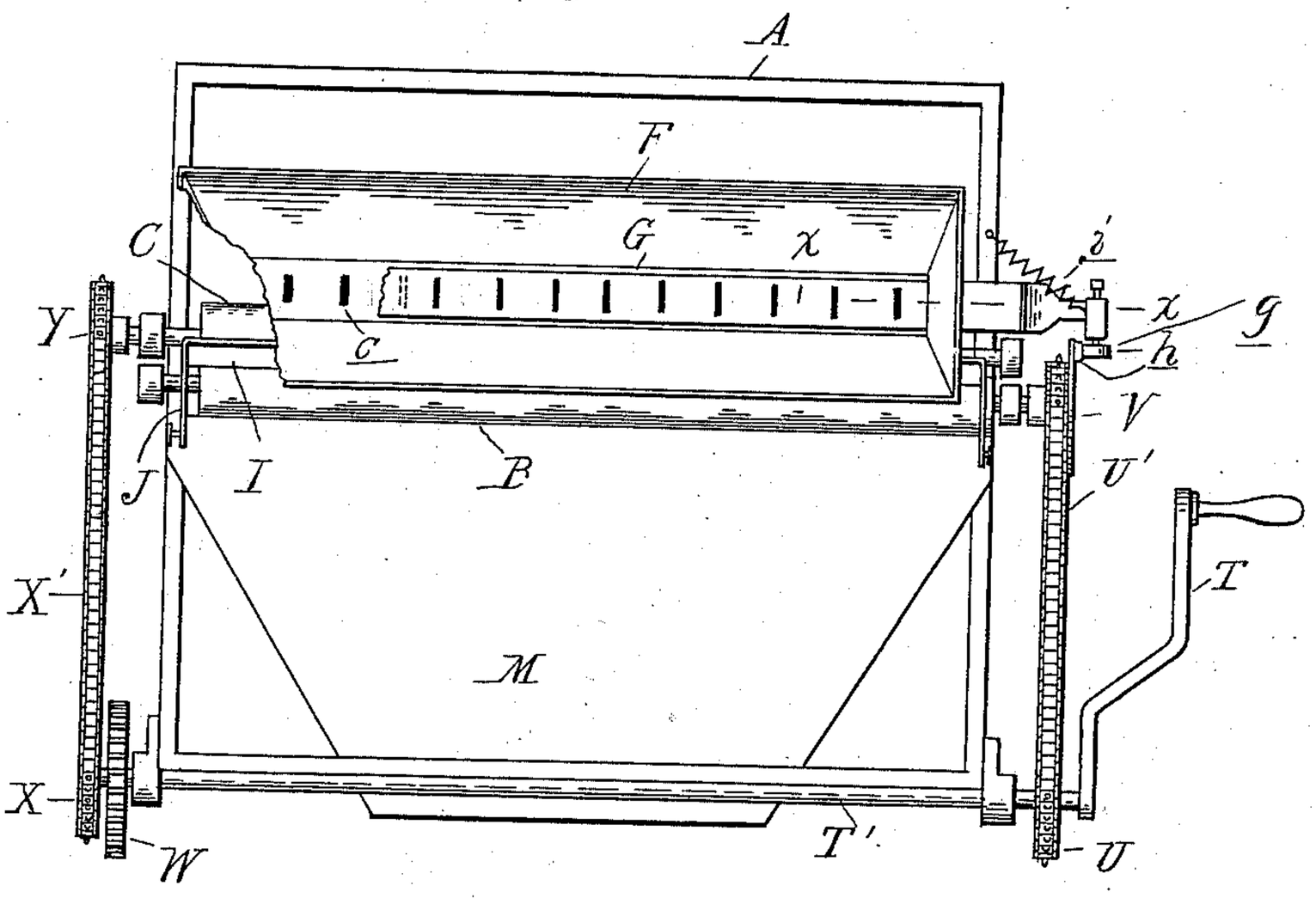


Fig. 2.



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(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

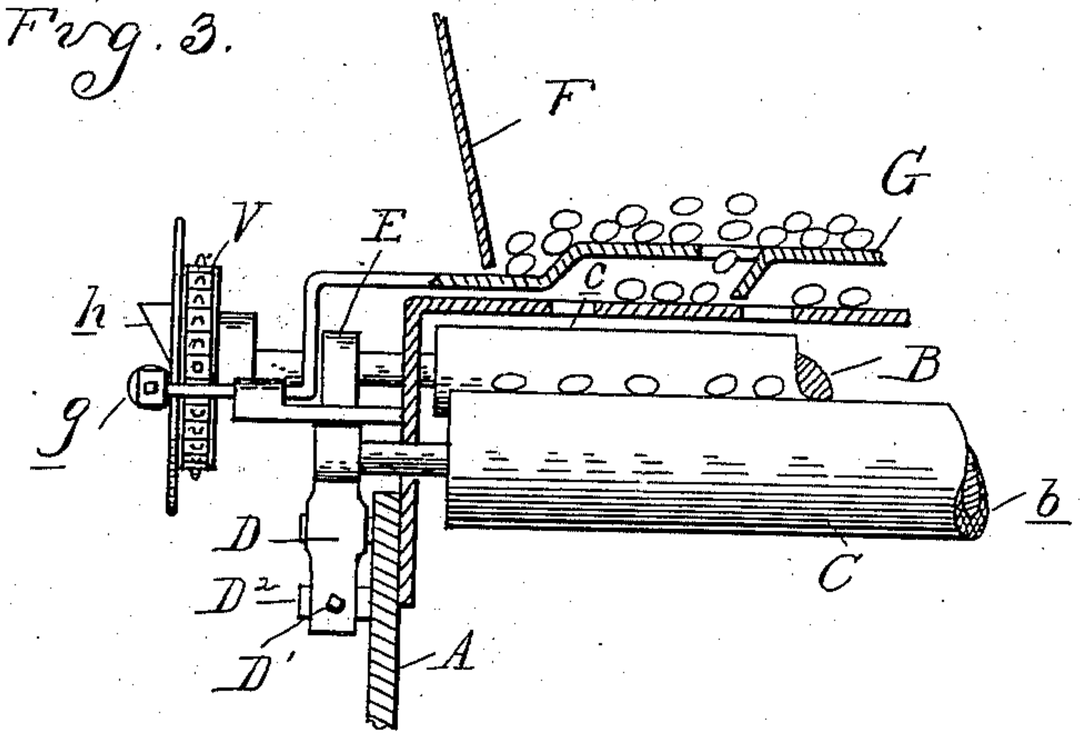


Fig. 4.

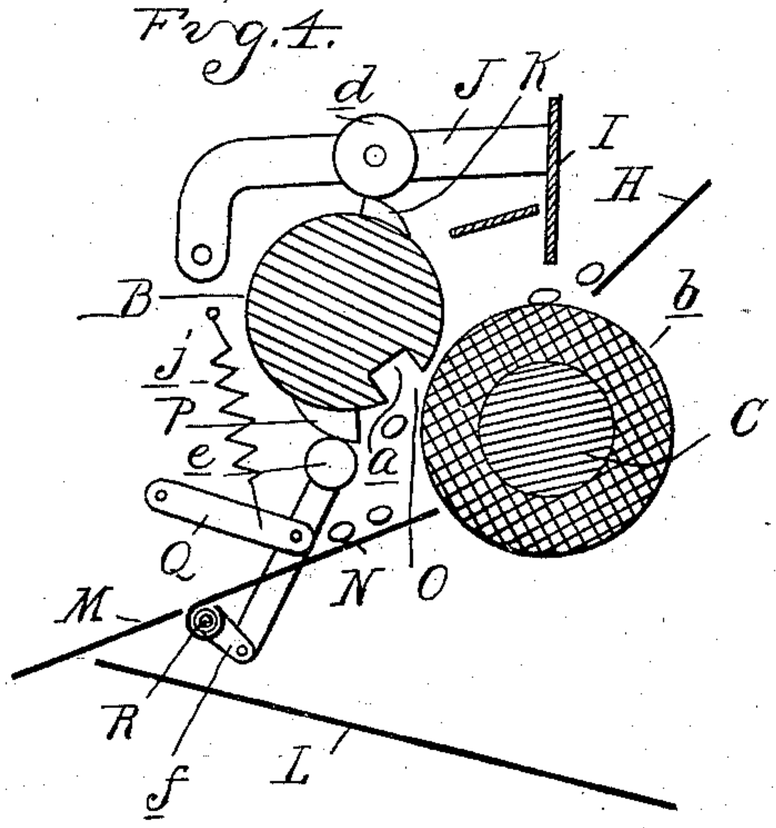
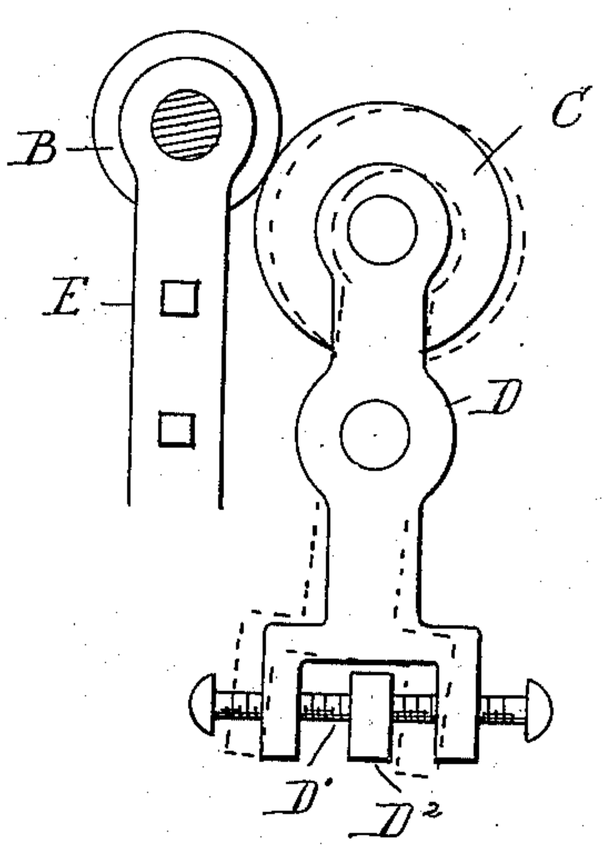


Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE F. CRIPPEN, OF YPSILANTI, MICHIGAN.

BEAN-PICKER.

SPECIFICATION forming part of Letters Patent No. 578,861, dated March 16, 1897.

Application filed June 1, 1896. Serial No. 593,775. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. CRIPPEN, a citizen of the United States, residing at Ypsilanti, in the county of Washtenaw and State of Michigan, have invented certain new and useful Improvements in Bean-Pickers, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in bean picker or separating machines in which the beans are fed into a throat between two revolving rolls, one having a yielding surface and the other a polished unyielding surface, the poor beans being drawn between the rolls by sinking into the yielding surface and the good ones remaining in the throat until discharged therefrom through a separate channel.

My invention consists in the means employed for feeding the beans into the throat between the rolls; further, in the means for discharging the good beans from the throat, and, further, in the peculiar construction, arrangement, and combination of parts, as more fully hereinafter described and claimed.

In the drawings, Figure 1 is a vertical longitudinal section through my machine. Fig. 2 is a plan view thereof. Fig. 3 is a cross-section substantially on line *x x*, Fig. 2, looking toward the front of the machine. Fig. 4 is a section similar to Fig. 1 with the parts in different positions; and Fig. 5 is an end elevation of the separating-rolls, showing the manner of adjusting the same.

A is the frame of the machine.

B and C are rolls extending transversely and journaled in suitable bearings upon the frame. The roll B is formed with a hard polished surface and is provided with the longitudinal groove *a*, extending its entire length. The roll C is provided with a yielding surface, preferably formed by a covering B, of rubber or similar elastic material, and is also preferably of greater diameter than the roll B.

The rolls are made adjustable toward or from each other, preferably by journaling the roll C in the pivoted arms D, which are bifurcated at their lower ends and provided with adjusting-screws D′, engaging with a lug D^2 on the frame. The roll B may be journaled in fixed bearings, such as E, secured to the frame, so as to bring said roll in front and above the center of the roll C.

F is a hopper above the roll C for receiving the beans to be picked over. The bottom of this hopper is provided with a series of slots *c*, which are covered by the slotted feed-bar G, adapted to be oscillated longitudinally to feed the beans through the slots *c*.

Below the hopper is the depending guide-flange H, extending into proximity to the roll C.

I is a gate in front of the flange H, supported at each end by the pivoted arms J and normally held in proximity to the roll C.

K are cams on the roll B, adapted at one point in the rotation of said roll to bear against the antifriction-rolls *d* on the arms J to lift the gate I.

Below the rolls B and C are arranged the discharge-chutes L and M, and between these chutes is secured the swinging wing N, adapted to connect the throat O between the rolls with either one of said chutes. This wing is preferably operated by the cam P on the roll B, which bears against the roll *e* on the levers Q, one end of said levers being pivotally secured to the frame and the other end to the rock-arm *f* on the rock-shaft R, to which the wing N is attached.

S is a brush in rear of the roll C and in contact with the surface thereof. The machine is provided with a suitable drive mechanism, which I have shown as comprising the crank T on the shaft T′, the sprocket U thereon, connected by the chain U′ to the sprocket V on the shaft of the roll B, the gears W, connecting the shaft T′ to the shaft W′, and the sprocket X on said shaft, connected by the chain X′ to the sprocket Y on the shaft of the roll C.

The feed-bar G projects from the end of the hopper F and carries at its end the roll *g*, in proximity to the side of the sprocket V, which is provided with a cam *h*, adapted to strike said roll and oscillate the feed-bar.

The parts being thus constructed and arranged, the operation of the machine is as follows: The hopper F being first filled with the beans to be picked over, motion is imparted to the machine from the crank T, which, through the connection described, revolves

the rolls B and C. With each revolution of the roll B the cam *h* on the sprocket V strikes the roll *g* on the feed-bar G, which is given a quick forward movement and is returned by a spring *i*. This will feed a certain quantity of beans through the slots *c*, which fall upon the flange H and are diverted thereby to the roll C behind the gate I. When the gate is raised by the cams K bearing against the rolls *d* on the arms J, the beans will be fed forward into the throat between the rolls B and C. Here the separation will take place. The poor and worthless beans (which are always shriveled or rough on the surface) will be drawn between the rolls, sinking in the elastic surface *b*, while the good beans (which are smooth on the surface) will remain in the throat. The wing N is normally in the position to connect the throat O between the rolls with the discharge-chute L, as shown in Fig. 1, so that the worthless beans passing between the rolls will be discharged into said chute. When in the revolution of the roll B the groove *a* comes opposite the roll C, the good beans, which have remained in the throat, will be gathered into said groove and carried between the rolls. In the meantime the wing N has been turned by the cam P and levers Q into the position shown in Fig. 4, and as the beans fall from the groove *a* they will be directed by said wing into the chute M.

The parts are so timed that the gate I will be raised to admit a new charge of beans into the throat just as the good beans of the former charge are being carried through in groove *a*. Thus each charge will remain in the throat during the period of revolution of the roll B. The swinging wing N is timed to be thrown into the position shown in Fig. 4 just as the groove *a* carries the beans between the rolls, and it is immediately returned after the discharge of said beans by a spring *j*. The drive mechanism for the rolls is also preferably timed so as to give the roll C either the same or a somewhat faster peripheral spiral than the roll B.

The object of the brush S is to keep the surface of the roll C clean to insure a uniform discriminating action upon the beans in the throat. By adjusting the screw D′ the rolls may be moved toward or from each other, according to the size and condition of the beans to be separated.

What I claim as my invention is—

1. The combination of two rolls, adapted to revolve in proximity to each other, one having a yielding surface and the other a hard polished surface with a longitudinal groove formed therein, means for feeding the beans to be separated into the throat between said rolls, (whereby the poor beans will first be drawn between said rolls by their frictional contact therewith, and the remainder will be carried through in the groove in the roll) and means for directing the beans discharged from the groove into a separate receptacle.

2. The combination with two rolls adapted to revolve in proximity to each other, one having a yielding surface and the other a hard polished surface with a longitudinal groove formed therein, of a hopper above said rolls for the beans to be separated, a mechanical feed therefor adapted to discharge the beans periodically into the throat between said rolls, and a vibrating wing below said rolls adapted to direct the separate discharges into different receptacles.

3. The combination with the rolls B and C in proximity to each other, the former provided with the longitudinal groove *a*, of a hopper above said rolls, a mechanical feed from said hopper to the throat between the rolls, the gate I above and the swinging wing N below said rolls, and mechanism timed to operate the parts substantially as and for the purpose described.

4. In a bean-picker, the combination of a roll having a hard polished surface and provided with a longitudinal groove, and a roll journaled in proximity thereto provided with a yielding surface, for the purpose described.

5. In a bean-picker, the combination with a hopper, two rolls below said hopper in proximity to each other, one being provided with a longitudinal groove, a movable gate between the hopper and the rolls, means moving with one roll for operating said gate, a plurality of chutes below the rolls, a movable wing adapted to direct the beans passing between the rolls into one of said chutes, and means operated by one of said rolls for shifting said wing.

6. In a bean-picker, the combination with a frame, a hopper, a reciprocating feed-bar in said hopper, two rolls, journaled in the frame in proximity to each other, one provided with a longitudinal groove, means for directing the beans from the hopper to the rolls, a movable gate, means operated by one of said rolls for moving said gate, a plurality of chutes below the rolls, a swinging wing adapted to direct the beans passing between the rolls into one of said chutes, means operated by one of said rolls for shifting said wing, mechanism for driving said rolls, and means for reciprocating said feed-bar.

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

GEORGE F. CRIPPEN.

Witnesses:

OTTO F. BARTHEL,

M. B. O'DOGHERTY.