

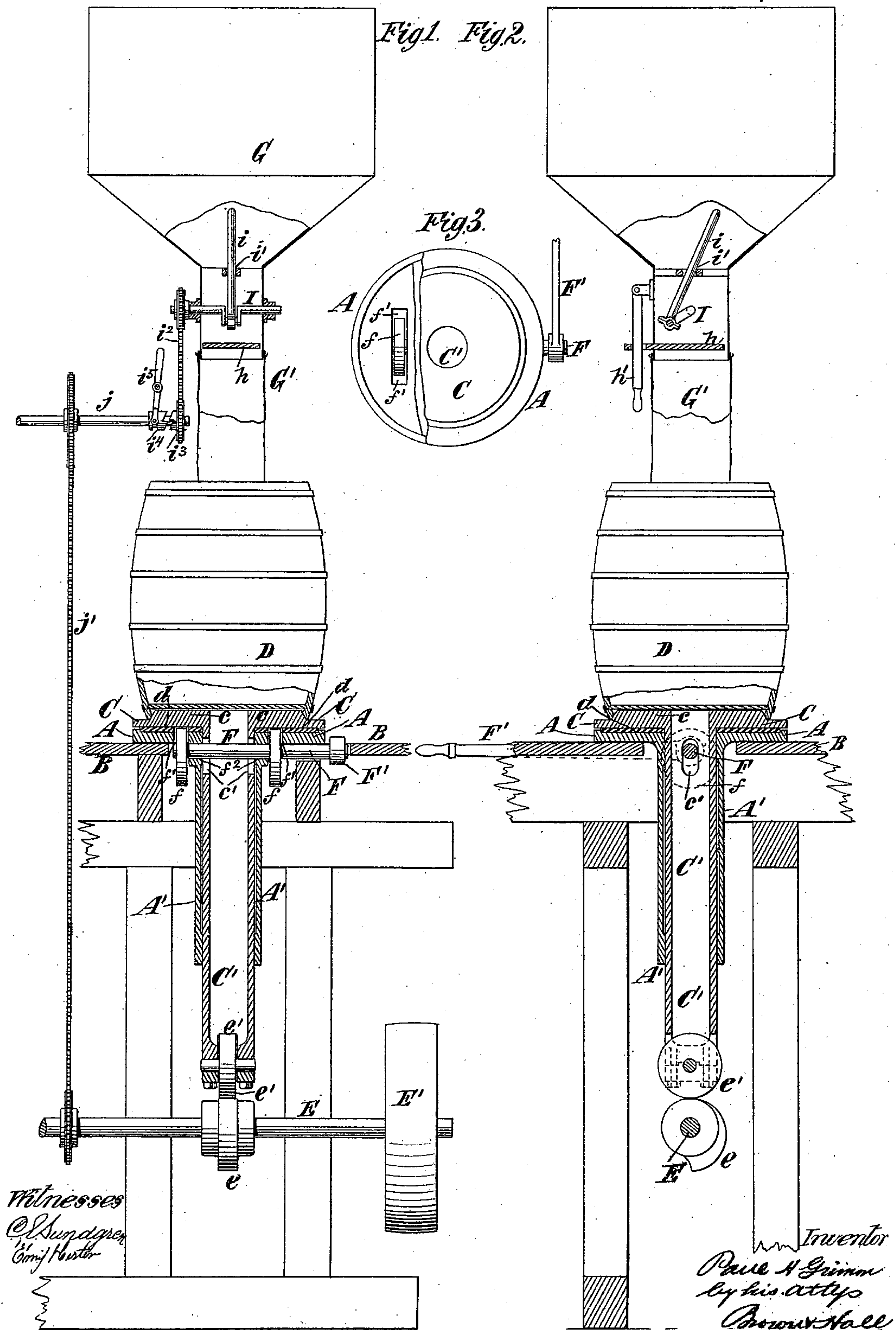
(No Model.)

P. H. GRIMM.

MACHINE FOR PACKING STARCH.

No. 354,634.

Patented Dec. 21, 1886.



UNITED STATES PATENT OFFICE.

PAUL H. GRIMM, OF GLEN COVE, NEW YORK, ASSIGNOR TO THE GLEN COVE MANUFACTURING COMPANY, OF SAME PLACE.

MACHINE FOR PACKING STARCH.

SPECIFICATION forming part of Letters Patent No. 354,634, dated December 21, 1886.

Application filed August 3, 1886. Serial No. 209,868. (No model.)

To all whom it may concern:

Be it known that I, PAUL H. GRIMM, of Glen Cove, in the county of Queens and State of New York, have invented a new and useful
5 Improvement in Machines for Packing Starch and other Substances in Barrels or Packages, of which the following is a specification.

My invention is applicable to machines for packing various pulverized, granulated, or
10 finely-divided substances, but is more particularly intended for packing ground or pulverized starch, or starch in a crystallized state.

The invention relates to a machine which comprises a vertically-movable platform on
15 which the barrel or package is placed, and mechanism whereby a jumping or jolting motion is imparted to the platform and the barrel supported thereon during the operation of packing or filling the barrel, whereby the substance delivered into the barrel will be condensed, or have its particles moved among
20 themselves, so as to enable a greater quantity to be packed within the barrel or package than would otherwise be possible. In its preferred form the machine or apparatus comprises a stationary base-piece or bed, which has a downwardly-extending central guide and a movable platform arranged upon the bed and supported by a vertical stem which is guided
25 within the guide of the bed. The platform has preferably upon its top surface a projection to fit the chine and head of the barrel, and a shaft provided with a cam is employed for raising the movable platform through its
30 vertical stem or support, and then suddenly dropping it and allowing it to fall upon the bed or base-piece. By the rotation of the shaft provided with a cam a rapid jumping, bouncing, or jolting motion is imparted to the platform and the barrel or package supported
35 thereon, and by such motion the starch or other substance is solidly packed, or has its particles so moved among themselves as to permit of the greatest possible quantity being
40 packed within the barrel or package. I also employ a shaft, which is arranged immediately below the stationary bed, and has upon it cams which work through slots in the bed, and by turning this shaft the platform may be raised
45 out of range of the cam whereby the jolting

motion is imparted to it, and will remain stationary while the barrel is headed and removed from the platform and an empty barrel placed in position thereon. Above the movable platform is a feeding-hopper having a spout which
55 extends downward, and in this spout are arranged a crank-shaft and a vibrating rod, to which the crank-shaft imparts motion, and which, by its to-and-fro movements in the starch or other substance in the feeding-outlet
60 of the hopper, prevents the substance from clogging therein.

In the accompanying drawings, Figures 1 and 2 are sectional elevations, in planes transverse to each other, of an apparatus embodying my invention; and Fig. 3 is a plan of the same, a portion of the movable platform being broken away in order to show the slotted portion of the bed through which the cams work for raising the movable platform when
65 desired.

Similar letters of reference designate corresponding parts in the several figures.

A designates a stationary bed, which may be supported upon the floor B, and which has a
75 downwardly-extending guide or trunk, A'. This guide A' is, as here represented, arranged centrally of the bed, and is circular in its transverse section. The bed A may be secured to the floor or floor-beams by bolts or other
80 suitable means.

C designates a movable platform, which is arranged above the bed A, and which may be of substantially the same size as the bed. This platform preferably has a projecting portion,
85 c, upon its upper surface of such size and profile as to approximately fit the head and chine of a barrel, D, which is arranged thereon. The movable platform C also has a downwardly-extending stem or support, C', which
90 is here represented as formed integral with the platform by casting, and which is fitted to the guide A', so as to be properly guided thereby in its rising and falling movements.

Arranged below the parts of the apparatus
95 described is a shaft, E, to which rotary motion may be imparted by a belt running upon a pulley, E', and which has upon it a cam, e, or other suitable projection, for raising the stem or support C' and the movable platform C. As
100

here represented, the stem or support C' has at its lower end a pivoted roller, *e'*, upon which the cam *e* bears, and which prevents wear of the stem or support by the cam to such an extent as would reduce the length of vertical movement imparted by the cam to the stem or support C' and to the movable platform C.

It will be understood that when a rotary motion is imparted to the shaft E the cam *e* will act upon the roller *e'* to lift the stem or support and movable platform C' C once during each revolution, and if the cam *e* be of proper profile, as shown in Fig. 2, it will, after raising the platform C to the full limit of its movement, drop the platform suddenly and allow it to fall upon the bed A, thereby imparting a sudden shock to the contents of the barrel D.

If desired, a packing, *d*, of india-rubber or other suitable material, may be introduced between the bed A and the movable platform C, as shown in Figs. 1 and 2, in order to reduce the blow which the platform exerts in falling upon the bed A.

When a barrel has been filled and it is desired to head and remove it from the movable platform, it is very advantageous to have the jumping motion of the platform stopped in a convenient and ready manner. To effect this result I employ a shaft, F, which extends across and beneath the bed A, and which has upon it cams *f*, working through slots *f'* in the bed A. This shaft F may be journaled in bearings *f²* at the sides of the upright guide A', and it may extend through slots *e'* in the vertically-movable stem or support C', so as to not interfere with the rising and falling movements of the platform C. The shaft F may be operated by the handle F'.

As shown by dotted lines in Fig. 2, the cams *f* are represented as made in the form of simple eccentrics secured to the shaft F. Consequently when the handle F' is turned down to the position shown in Fig. 2 the cams *f* will be shielded by the bed A, and will be out of reach of the platform C. When, however, the handle F' is turned to a nearly-opposite position, the greatest projections of the cams *f* will be brought to the upper side of the shaft F, and by acting upon the platform C will raise said platform, so that the lower end of the stem of support C' will be lifted out of range of the cam *e*. The means described for lifting the platform and its stem or support out of range of the cam *e* are desirable, because then the shaft E may be rotated continuously by power, and the jumping or jolting motion of the platform C may be discontinued when desirable to head a full barrel.

The floor B may be slightly notched or grooved to permit the handle F' to be swung downward into nearly horizontal position; or the bed or base-piece A may be raised slightly above the floor, if desired.

I have here represented a hopper, G, provided with a feeding-spout, G', as arranged above the platform C, and in this feeding-

spout G' is a valve, *h*, which, by means of a lever, *h'*, may be moved to control the delivery of starch or other substance from the hopper downward into the barrel D. In packing starch or other finely-divided substance there is a liability of its clogging in the feeding-spout G' from the hopper G, and I have here represented a rod or bar, *i*, as arranged in the outlet from the hopper G, and to which motion is imparted by a crank-shaft, I, extending transversely across the delivery-spout G'. The bar or rod *i* projects through a bridge-piece or cross-bar, *i'*, at the outlet from the hopper, and when the shaft I is rotated a to-and-fro vibrating motion is imparted to the rod or bar *i*, which tends to loosen the substance in the delivery-outlet from the hopper and prevent its clogging therein. The shaft I may be operated by a chain belt or other connections, *i²*, from a shaft, *j*, which in turn receives motion by a chain belt or other connection, *j'*, from the shaft E. The wheel *i³* on the shaft *j*, and by which the chain or connection *i²* is driven, may be operated through the medium of a clutch, *i⁴*, controlled by a lever, *i⁵*. By means of this clutch the shaft I may be rotated whenever desired to operate the rod or bar *i* and prevent clogging of the substance in the hopper-outlet; or said parts may be left stationary and inoperative if there is no tendency of the starch or other substance to clog in the hopper-outlet.

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

1. The combination, with a vertically-movable platform to receive a barrel or package, and having a downwardly-projecting stem or support, of a guide for said stem or support, a shaft provided with a cam, whereby a jumping or jolting motion is imparted to the platform, and means, substantially as described, for raising the platform and its stem or support out of range of said cam, substantially as herein set forth.

2. The combination, with a platform mounted upon a vertically-movable stem or support, of a shaft provided with a cam for imparting a jumping or jolting motion to the platform, and a shaft and cams below the platform, whereby it may be raised out of range of the cam for jumping or jolting it, so as to remain stationary while a barrel is headed, substantially as herein described.

3. The combination, with a base or bed having a downwardly-extending guide, of a platform mounted upon a stem or support fitting said guide, and a shaft provided with a cam for imparting a jumping or jolting motion to the platform through said stem or support, substantially as herein described.

4. The combination, with the base-piece or bed having a downwardly-extending guide, and slotted on each side of the guide, of the platform having a stem or support working within the guide, a shaft provided with a cam for imparting a jumping or jolting motion to the platform, and a shaft journaled below the base-piece or bed and having cams working

through the slots in the base-piece or bed, for raising the platform out of range of the cam which imparts the jumping or jolting motion to the platform, substantially as herein described.

5 5. The combination, with the bed and a platform having a downwardly projecting stem or support working through the bed, of the shaft provided with a cam for imparting a jumping
10 or jolting motion through said stem or support to the platform, and a cushion interposed between the bed and platform, for lessening the shock produced by the falling platform, substantially as herein described.

15 6. The combination, with the bed A, provided with slots and having a central guide, A', of the platform C and its stem or support C', working in said guide, the shaft E, provided with a cam acting upon the lower end of the

stem or support, for imparting a jumping or
20 jolting motion to the platform, and the shaft F, fitting bearings in opposite sides of the said guide, and provided with cams working through the slots in the bed to lift the platform, substantially as herein described.

25 7. The combination, with the platform and the shaft provided with a cam for imparting a jumping or jolting motion thereto, of a feeding-hopper arranged above the platform, a shaft extending across the outlet-spout from
30 the hopper, and an arm or bar arranged in said spout, and to which a vibrating motion is imparted by the shaft therein, substantially as herein described.

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Witnesses:

C. HALL,

MINERT LINDEMAN.