(No Model.) 3 Sheets—Sheet 1.

S. WILE & H. LA CASSE.

CORK COMPRESSOR.

No. 520,625. Patented May 29, 1894.

Fig. 1.

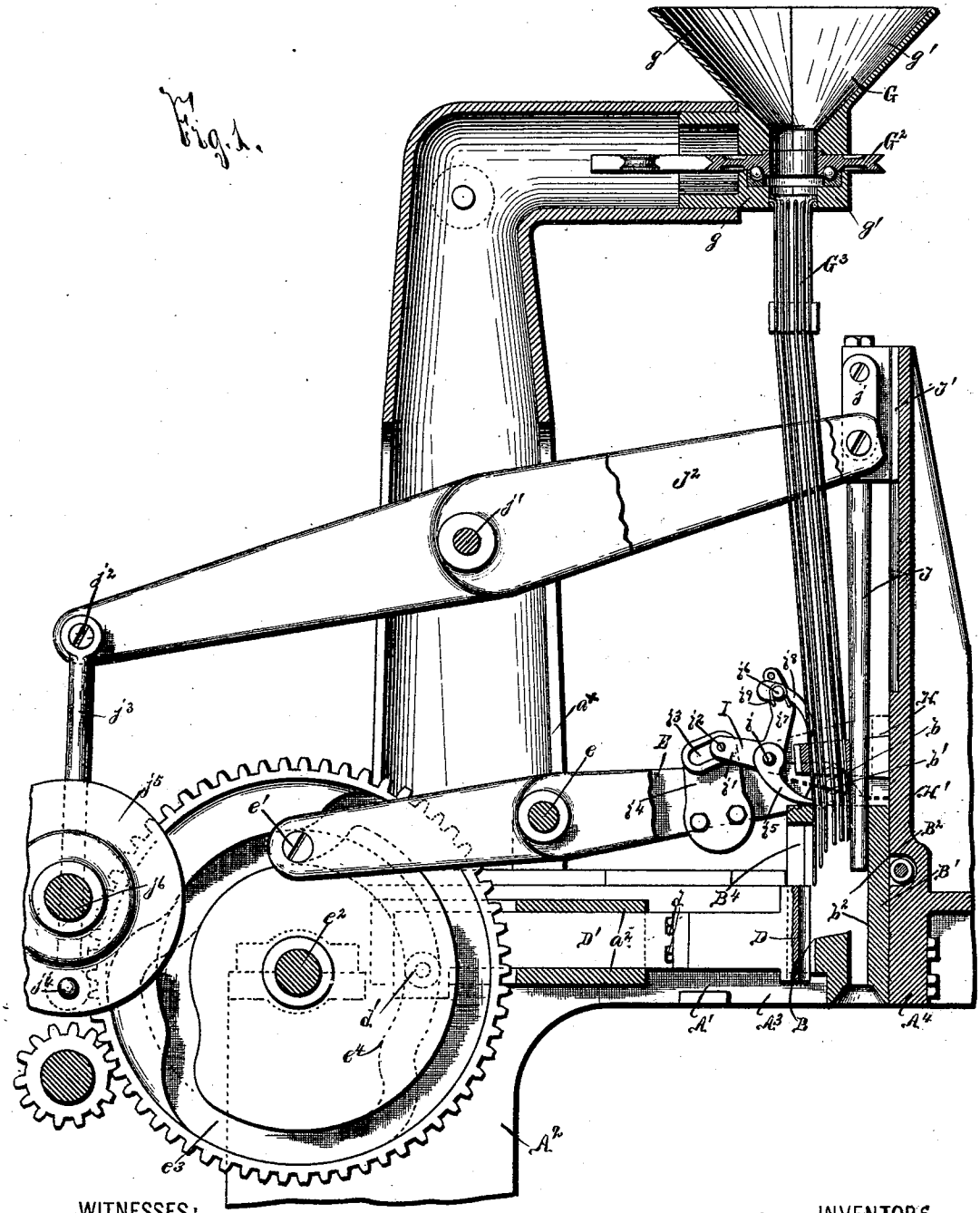

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Fig. 2.

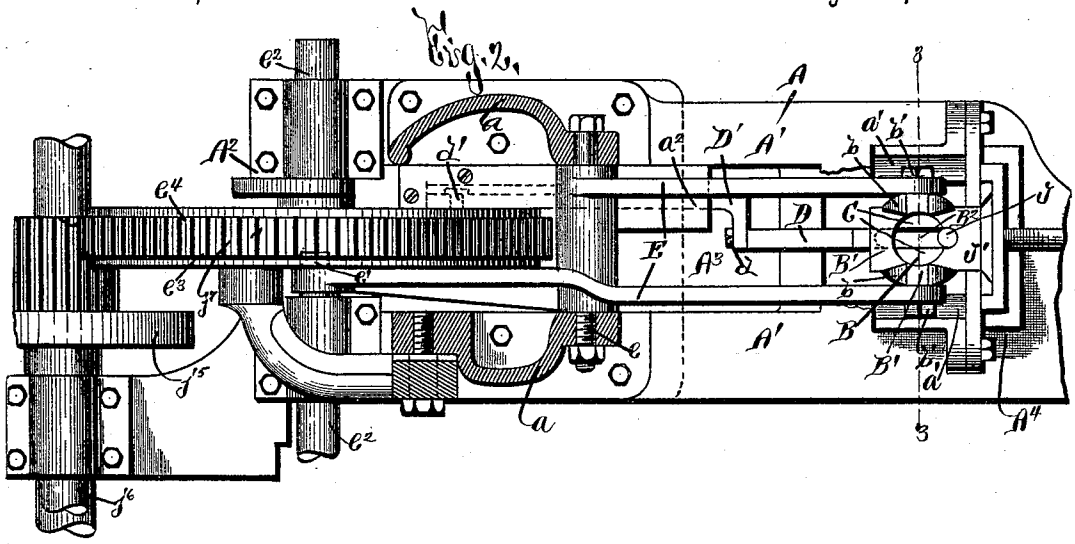

Fig. 3.

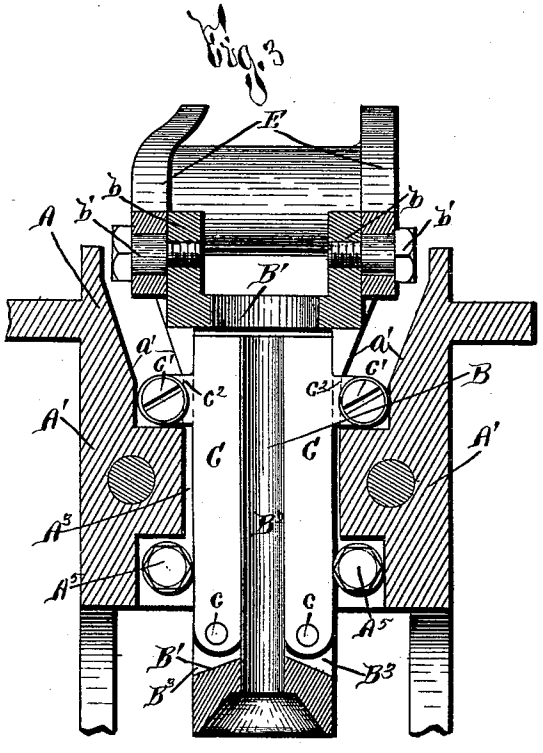

Fig. 4.

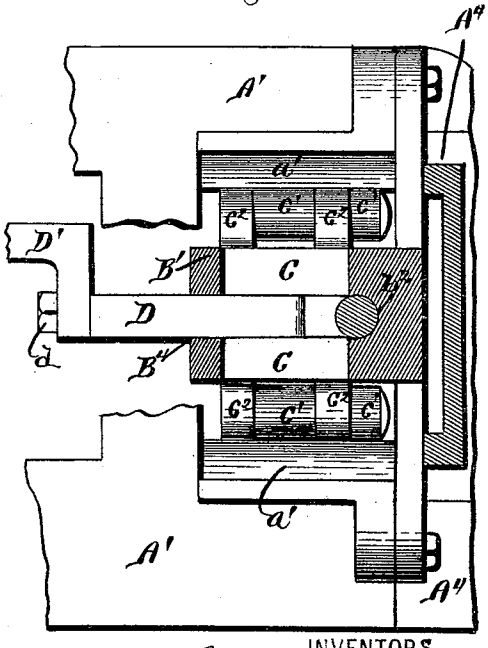

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Fig. 5.

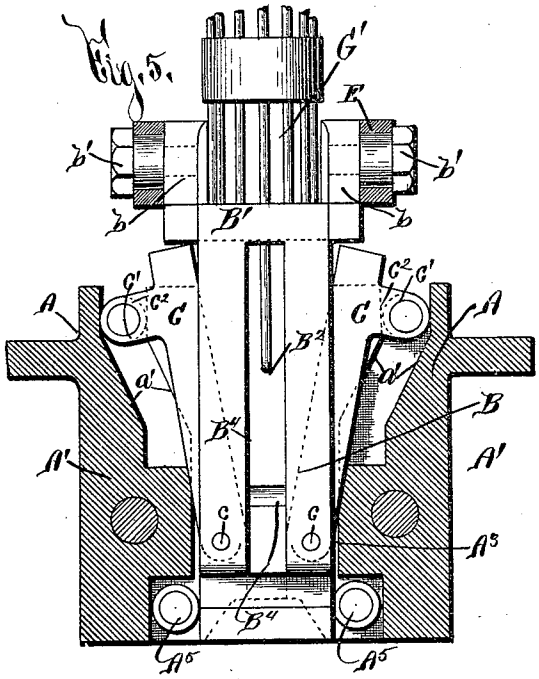


Fig. 6.

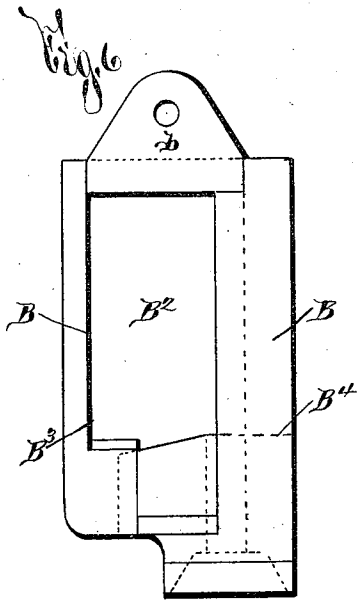


Fig. 7.

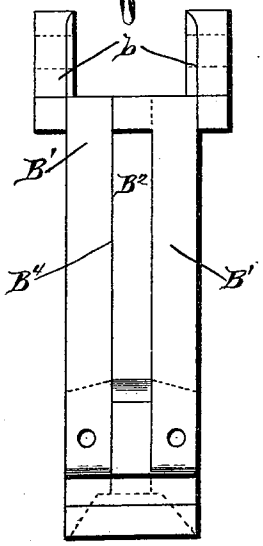


Fig. 8.

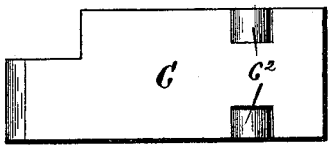
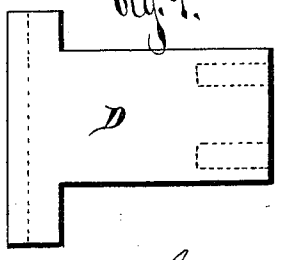


Fig. 9.



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UNITED STATES PATENT OFFICE.

SOL WILE AND HENRY LA CASSE, OF ROCHESTER, NEW YORK.

CORK-COMPRESSOR.

SPECIFICATION forming part of Letters Patent No. 520,625, dated May 29, 1894.

Application filed December 31, 1890. Serial No. 376,428. (No model.)

To all whom it may concern:

Be it known that we, SOL WILE and HENRY LA CASSE, of Rochester, in the county of Monroe, in the State of New York, have invented new and useful Improvements in Compressors, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

Our invention relates to improvements in cork compressors, especially adapted for use in corking machines, and particularly the machine set forth in our pending application, Serial No. 376,429, filed December 31, 1890, and has for its object the production of a simple and effective device for quickly and efficiently compressing the cork to the desired size without the slightest liability of the formation of creases in its periphery; and to this end it consists, essentially, in a cork support having an internal cavity for receiving the cork, a slot in the wall of the support, a compressor jaw pivoted at its lower extremity and movable in said slot for compressing the cork, a slot at substantially right angles to the former slot, and a sliding jaw movable rectilinearly in the latter slot.

The invention also consists in a pair of hinged side compressor jaws on opposite sides of the rear rectilinearly moving jaw, and diverging guides in the compressor supporting bracket for varying the altitude of the side compressor jaws; and the invention still furthermore consists of the detail construction and arrangement of the parts, all as hereinafter more particularly described and pointed out in the claims.

In describing this invention, reference is had to the accompanying drawings, forming a part of the specification, in which, like letters indicate corresponding parts in all the views.

Figure 1 represents a vertical sectional view of our improved mechanism, shown as operatively connected to a cork feeder, a cork conveying tube, a cut off for permitting the passage of but one cork at a time to the compressor, and an inserter for forcing the corks through the compressor. Fig. 2 is a horizontal sectional view of the compressor mechanism, taken on line —2—2—, Fig. 1. Fig. 3 is a transverse vertical sectional view of the compressor, taken on line —3—3—, Fig. 2, illustrating the same as in its closed position. Fig. 4 is a top plan view of the parts as illustrated in Fig. 3 with the compressor shown in section and its actuating lever removed. Fig. 5 is an elevation of the compressor shown as in its open position and with its supporting bracket in section. Figs. 6 and 7 are respectively side and rear elevations of the cork support or compressor frame, and Figs. 8 and 9 are respectively side elevations of the side and rear compressor jaws.

It is well known that at present great demand exists for a compressor mechanism, which compresses only one cork at a time and brings the same quickly and positively to the desired size without the slightest liability of the formation of creases in the periphery of the cork. It is also well known that an advantage is gained by compressing the cork from the bottom upward by side jaws hinged at their lower ends and standing in alignment with the length of the cork; and we have found that with such jaws a sliding rear jaw more desirable than a pivoted or hinged is rear jaw, for the reason that the sliding rear jaw co-operates to better advantage with such hinged side jaws and produces less creases in the periphery of the compressed cork which is to be driven into the bottle. Our invention is designed to effect these desirable results, and is of simple construction, positive action and perfect operation.

—A— represents the compressor supporting bracket, which may be of any desirable form, size and construction, being here illustrated as formed of a pair of arms or bars —A′— mounted on a suitable bracket —A^2—, with a central cavity —A^3— between the adjacent faces of said bars and at the rear of the front bar —A^4— secured to the side bars —A′—

The cork compressor —B— consists of a frame —B′—, side compressor jaws —C—, and a rear compressor jaw —D—. The frame —B′— which preferably bears against rollers A^5 in the cavity A^3 is formed with an inner cavity —B^2— adapted to receive the cork, and is provided with ears —*b*— to which is pivoted at —*b*′— one extremity of a lever —E— pivoted at —*e*— to an upwardly extending bracket $a^\times$ of the standard —A^2—, and provided at its opposite extremity with

a stud —e'—. Journaled on a shaft —e^2— supported on the bracket —A^2— is a suitable cam —e^3— adapted to receive the stud —e'—, and thus raise or lower the rear end of the lever —E— and elevate or depress the compressor for opening the same to receive a cork or compressing it against one previously inserted.

As best seen in Figs. 3, 5 and 6, the compressor frame —B'— is provided in its sides with slots —B^3— opening to the inner cavity —B^2—, and movable in said slots are the side compressor jaws —C— having their lower extremities pivoted at —c— to the frame —B'—, and their upper extremities normally diverging from each other to receive the inserted cork. Provided at the forward extremity of the compressor bracket bars —A'— are diverging guides —a'— adapted to receive studs or rollers —c'— formed upon the side jaws —C—, and preferably journaled in ears —c^2— at the rear of the jaw. As the compressor is depressed or elevated by its actuating lever —E— the jaws —C—, by the engagement of the studs —c'— with the diverging guides —a'—, are approximated and separated.

As best seen in Figs. 1, 2, 4, and 7, the compressor frame —B'— is provided in its rear face with a cut out —B^4— in which the rear compressor jaw —D— is adapted to slide and thus compress the cork in a plane at substantially right angles to the plane of compression effected by the side jaws —C—. This compressor jaw, as best seen in Fig. 1, is normally withdrawn out of the cut out —B^4—, and is secured at —d— to a support —D'—, which slides in guide-ways —a^2— in the compressor bracket —A—. Provided upon the rear extremity of the support —D'— is a stud —d'— adapted to engage a camway —e^4— mounted on the shaft —e^2— and timed with the cam —e^3—. These cams —e^3— and —e^4— are so arranged in relation to each other that when the compressor is in its elevated position the rear jaw is withdrawn therefrom, as previously described, and after the compressor has been depressed and the side compressor jaws have compressed the cork sidewise the rear jaw is then forced rectilinearly through the cut out or guide —B^4—, and caused to compress the cork from its rear in a plane at substantially right angles to its former plane of compression during which compression the cork is supported by the forward face —b^2— of the frame —B'— and the side compressor jaws —C—. The operating face of the jaw —D— is preferably concaving and its sides are brought to sharp edges in order that they may shear along the side jaws and absolutely prevent any portion of the cork from wedging between the side and rear compressor jaws; for the purpose of obviating the formation of creases in the periphery of the cork, which are especially detrimental since they permit the escape of gas from the bottle when the cork is inserted thereinto.

—G— represents a hopper composed of opposite sections —g—g'— for receiving the corks; —G^2— a wheel for driving a suitable cork conveyer or agitator not illustrated, and —G^3— a conveying tube for conducting the corks from the hopper —G— to the compressor. This tube is preferably composed of wire in order that the corks may be readily perceived as they pass downwardly.

—H— represents an arm formed upon an upwardly extending bracket —H'— rising from the compressor supporting bracket —A—. Pivoted at —i— to this arm —H— is a lever —I— having one extremity —i'— provided with a stud —i^2—, which is movable in a slot —i^3— formed in an upwardly extending arm —i^4— upon the lever —E—. Provided on the lever —I— is the downwardly extending arm —i^5—, which is adapted to enter the feeding tube, and pivoted at —i^6— to an upwardly extending arm —i^7— of the lever is the upper lever —i^8— of the cut off, which is also adapted to enter the feeding tube, and is forced away from the arm —i^7— by a spring —i^9—. The arm —i^5— and lever —i^8— are so arranged in relation to each other that when the lever —E— is in its elevated position, and the compressor is open to receive the cork the lever —i^8— is forced into the feeder to prevent all downward feeding of the corks, with the exception of the one beneath said arm, and the arm —i^5— is drawn from the tube to permit the downward feeding of one cork into the compressor. As the compressor is closed by the downward movement of the lever —E— the arm —i^5— is forced into the tube —G'— to prevent downward feeding of the corks, and the lever —i^8— is withdrawn from the tube to permit a single cork to feed to the arm —i^5—, whereupon, as the lever —E— is elevated, said cork is permitted to feed into the compressor, and the superimposed corks are prevented from further movement until the depression of the lever.

The cork inserter —J— consists of a sliding rod having its lower extremity movable through the compressor —B— and its upper extremity supported in a sliding cross head —J'—, which is connected by a link —j— to one end of a lever —J^2— pivoted at —j'— to the bracket —$a^\times$—, and pivoted at —j^2— at its opposite end to a link —j^3— eccentrically connected at —j^4— to a disk —j^5— mounted on a shaft —j^6—, which is suitably connected by mechanism, not herein illustrated, to a gear —j^7—, that carries the cams —e^3— and —e^4—, and thus times the operation of the cork inserter in relation to the compressor.

The operation of our invention will be readily perceived from the foregoing description and upon reference to the drawings, and it is evident that its parts are simple in construction, are quickly and readily operated, positive in action and extremely durable and

strong. It is evident, however, that our invention may be somewhat changed from that shown and described without departing from the spirit thereof.

In our pending application, Serial No. 437,247, filed June 20, 1892, we have shown our improved compressor as combined with a cork feeder, a conveyer for conducting the corks from the feeder, a cut-off for feeding the corks one by one from the conveyer, a plunger for forcing the corks through the compressor, and actuating mechanism for the feeder, the cut-off, and the plunger; but it will be understood that we make no claim herein which is not limited to the construction and arrangement of our compressor for which construction and arrangement we have made no claim in the aforesaid application for feeding devices.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a cork compressor, a frame having a rigid cork cavity at the front, and a horizontally reciprocating rear compressor jaw opposite said cavity; in combination with side compressor jaws pivoted at their lower ends to the frame and standing in alignment with the length thereof and of the cork, means for swinging these side jaws into the frame, devices for feeding one cork at a time into the upper end of the frame, and a cork inserter standing vertically above the frame, substantially as set forth.

2. In a cork compressor, a frame having a rigid cork cavity at the front, and a horizontally reciprocating rear compressor jaw opposite said cavity; in combination with side compressor jaws pivoted at one end to the frame and standing in alignment with the length of the cork, means for swinging the free ends of these jaws into the frame and against the sides of said reciprocating jaw, devices for feeding one cork at a time into the space between said jaws and cavity, and a cork inserter adapted for movement through the cork-opening, as and for the purpose set forth.

3. In a cork compressor, a vertically sliding frame having a rigid cork cavity at one side, and a horizontally reciprocating compressor jaw opposite said cavity; in combination with swinging compressor jaws pivoted at their lower ends to the frame and standing in upright positions opposite each other and quartering to said cavity and reciprocating jaw, means for swinging these jaws into the frame as the latter descends, and devices for feeding one cork at a time into the upper end of the frame, as and for the purpose set forth.

4. In a cork compressor, the combination with supports for the cork arranged at right angles with each other; of a movable jaw standing in alignment with the cork and hinged to one of said supports for compressing the cork in one plane from one extremity thereof toward the other, a second jaw arranged at right angles to the former jaw for compressing the cork in a plane at right angles to its former plane of compression, and means for reciprocating the latter jaw toward and away from the former, as and for the purpose set forth.

5. The combination with a supporting bracket formed with an internal cavity and anti friction rollers mounted in said cavity, of a support movable in the cavity and adapted to bear against the rollers, a cork compressor jaw pivoted to said support and disposed normally in an inclined plane, a guide on the bracket, a projection on the jaw for riding in the guide and varying the plane of the jaw, and a support oppositely arranged to said jaw for supporting the cork during compression, substantially as and for the purpose set forth.

6. The combination with a supporting bracket having an internal cavity and anti-friction rollers located in said cavity; of a support movable in the cavity and adapted to rest against the rollers, a pair of jaws pivoted to the support with their faces inclined from a perpendicular, a pair of diverging guides on the bracket and projections on the jaws for varying the position of the jaws, substantially as and for the purpose specified.

7. In a cork compressor, the combination of a bracket having an internal cavity, a support having a central cavity for receiving the cork, a pair of jaws hinged to said support with their extremities diverging, means, substantially as described, for turning said jaws on their pivots, and another jaw having a vertical face and moving in a plane at substantially right angles to the former jaws, substantially as and for the purpose set forth.

In testimony whereof we have hereunto signed our names, in the presence of two attesting witnesses, at Rochester, in the county of Monroe, in the State of New York, this 17th day of May, 1890.

SOL WILE.
HENRY LA CASSE.

Witnesses:
F. W. WHIPPLE,
FRANK M. GOFF.