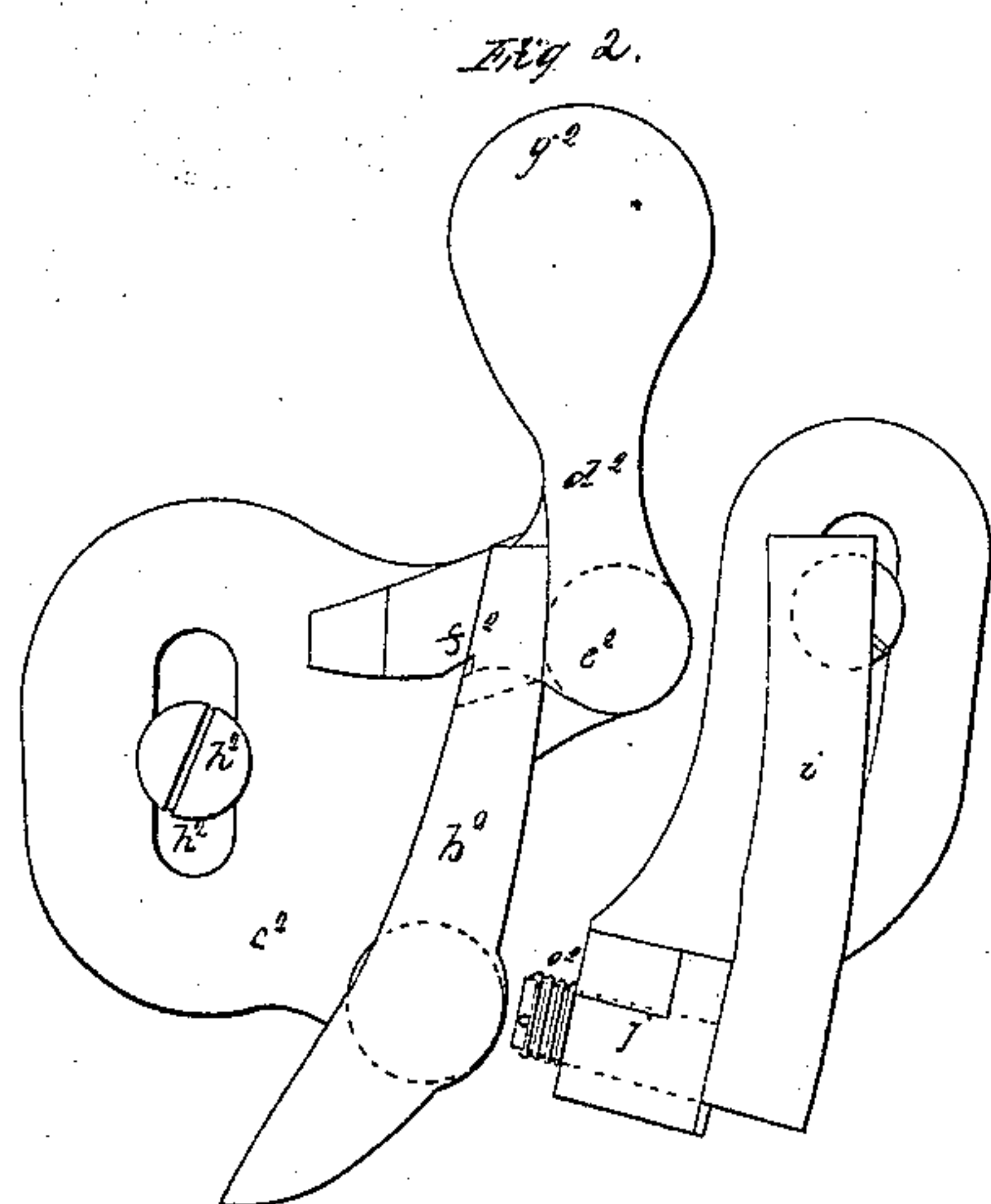
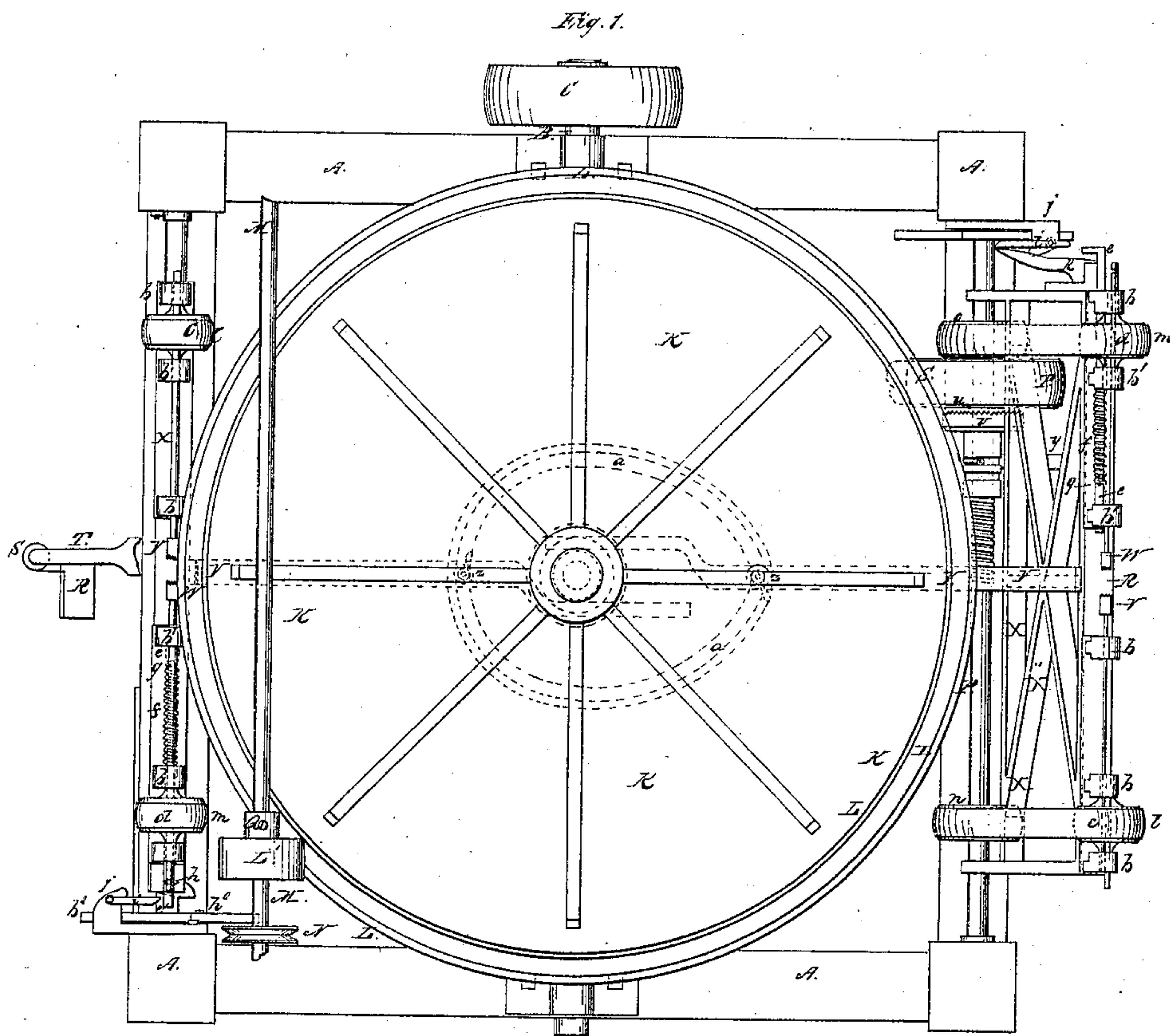


S. Sawyer,
Cork Machine.

2 Sheets-Sheet 1.

N^o 1,623.

Patented June 10, 1840.



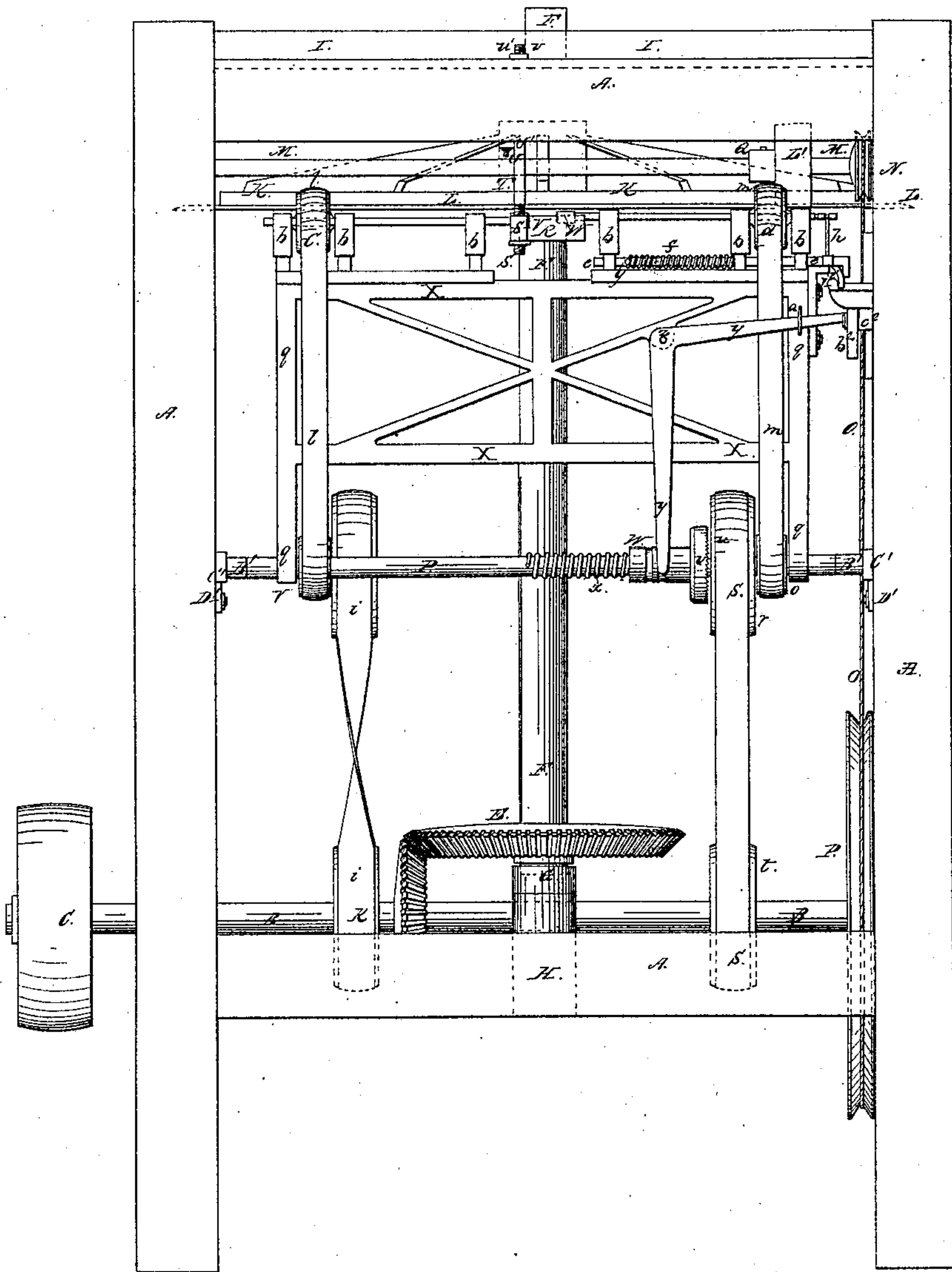
*S. Sawyer,
Cork Machine.*

2 Sheets-Sheet 2.

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Patented June 10, 1840.

Fig. 1.



UNITED STATES PATENT OFFICE.

SAMUEL SAWYER, OF BOSTON, MASSACHUSETTS.

MACHINE FOR CUTTING CORKS.

Specification of Letters Patent No. 1,623, dated June 10, 1840.

To all whom it may concern:

Be it known that I, SAMUEL SAWYER, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Machine for Cutting Corks; and I do hereby declare that the following is a full and exact description of the construction and operation of my machine, reference being had to the accompanying plates of drawings, the description in connection with said drawings composing my specification.

Figure 1, Plate 1, represents an elevation of one side of my machine. Fig. 1, Plate 2, is a horizontal section of the same just above what is termed the face-plate, Fig. 2, Plate 2, being a detailed view of some important parts.

The cork is prepared for the machine by being cut into longitudinal strips, these strips being again cut into blocks about the size of the stoppers to be formed. This is done by machinery now in use by means of circular knives suitably arranged for the purpose.

The frame A, A A A of the machinery may be arranged as seen in the drawings or in any other proper manner to support the various parts.

Across the bottom of the machine extends the horizontal shaft, B, B, having suitable bearings in the framework. On one end of this shaft is arranged the pulley C' to which is applied the power that propels the machine, motion being imparted to the various parts of the same, by means of several pulleys and wheels arranged on this shaft.

At D is a beveled wheel of suitable dimensions fixed on and revolving with the shaft, B, B. This wheel works into a similar wheel at E, arranged on and having for its axes the upright shaft F F, which rests and revolves on the top of the box G, of the shaft B B, said box being in the cross bar, H. The upper part of this shaft has a bearing in the cross bar I, I, in which it turns loosely. Near the top of the shaft F, F, is attached the iron circular framework or face-plate K K K, Fig. 1, Plate 2, to which is affixed in any proper manner the metallic circular knife L L L, the whole moving around horizontally with the shaft F F, in the direction indicated by the arrows in Fig. 1, Plate 2. This knife may be formed in one entire piece as shown in the drawing, or made in sectional parts suit-

ably attached to the face-plate K K. As it is essential that the knife L L L should be constantly sharp, there is arranged on the shaft M M (which has suitable bearings attached to the framework) a circular whetstone L, or wheel covered with emery, the periphery of which is accommodated to the beveled edge of the knife. This wheel is caused to revolve by means of the pulley N on the shaft M M, connected by means of the band O, (which may be crossed or straight as occasion may require), passing around the pulley P, on the driving shaft, B, B. The grinding wheel L' may be removed at pleasure from the edge of the knife by means of the adjusting screw Q, which, when loosened allows said wheel to slip on the axes M M.

The manner in which the raw material is fed to the cutter or knife may be thus described. The blocks of cork before mentioned are arranged one by one upon a shelf shown at R. This shelf may be raised or lowered, (in order to accommodate it to the formation of different sized stoppers) by means of the nut S, and screw S', on the projecting arm T, which supports the shelf; the arm T being so attached to the underside of the upper rail of the frame A A A A (by means of a nut, slot, and screw, shown at U, and U') as to be moved from or toward the frame as the size of the cork may require.

The block is taken from the shelf, R, by the holders V, W, connected with the feeding frame, X, X, X, which may be formed as seen in the drawings or in any other proper manner. This frame is carried to and from the knife or cutter by means of the arm Y, Y, connected with the feeding frame as seen in Fig. 1, Plate 2, and having a loose roller, Z near its other end working with the eccentric groove or camwork a, a, a, arranged beneath the face plate K K K on the upright shaft, F, F, with a set screw in the usual manner for adjustment. This operation will be readily understood by an inspection of Fig. 1, Plate 2, where the parts above mentioned are represented by dotted lines.

The frame X X, etc., rest and turn on the projecting pins or pivots B' B' fixed in the pins C' C', which are attached to the sides of the frame, A A, by a nut, slot and screws at D', so that the feeding frame may be

raised or lowered as the different sized stoppers may require.

The operation of the holders V, W, may be thus described. The ends which hold the cork are circular and are notched or arranged with proper teeth as seen in the different figures which teeth entering into the ends of the cork prevent the same from turning excepting with the holder V W, while in the process of formation. The axes of the holders V W are in a straight line, which straight line is slightly inclined to the plane of the knife L L L. The block of cork therefore being inclined with the said holders to the horizontal cutter and knife L L L the knife would cut deeper into the block of cork at one end than the other and thereby give the cork its proper tapering shape. The holders V, W, rest and turn in bearings in the upright pieces $b\ b$, $b'\ b'$, passing through the pulleys c , d , with which they turn. The holder W, passes and moves easily through the hollow arbors of the pulley d , but having a dog engaging with a longitudinal groove in said hollow arbor, it revolves with the pulley.

Immediately under the holder, W, is the cylindrical rod $e\ e$ which passes through holes in the upright pieces b' , b' , between which is arranged the spiral spring f ; one end pressing against a pin g on the rod $e\ e$. On the outside of the upright pieces b' , b' , there is firmly fixed, on the rod $e\ e$ the fork h , (Fig. 1, Plate 1), which engages loosely with a groove on the holder W, so that when the rod moves horizontally the holder moves with it. The end of the rod $e\ e$ is bent nearly at a right angle (as seen in the drawings), and rests in the exterior of a wedge or movable inclined plane, i , arranged with a spiral spring o'' , as seen in Fig. 2, Plate 2 (to keep it in place) in the projecting piece j , (as seen in Fig. 2, Plate 2), the piece j being suitably attached to the framework.

It will readily be seen that when the feeding frame X X, is moved backward the operation of the bent rod $e\ e$, on the inclined plane i , will serve to withdraw the holder W, thereby opening the holders and disengaging the cork which may have been formed; but when the rod $e\ e$ passes the back of the plane i , the spring $f\ f$, on the rod $e\ e$ and fork h which passes from the rod $e\ e$ and works with the holder W as described will serve to restore the holder to its original position, and the holders take a new block from the shelf and carry it forward for formation. This operation is assisted by the cam or projection k , attached to the side of the frame X, X, which, when the frame is thrown back, presses against the movable inclined plane i , and expedites the motion of the holder by inclining the plane in an opposite direction as it were,

the spiral spring o (Fig. 2, Plate 2) serving to restore the plane to its original position after the rod $e\ e$ has passed the back of the same.

The cork and holders are made to revolve by means of the pulleys c , d , before mentioned, connected by the bands $l\ l$, $m\ m$, with the pulleys n , o , on the shaft p , which shaft rests and revolves in bearings in the lower ends of the side pieces $q\ q$, $q\ q$, of the frame $x\ x$, and being revolved by means of the pulley r , connected by the band $s\ s$, with the pulley D, on the driving shaft, B B. But it is essential that the cork should not be revolved until it comes in contact with the knife or cutter, otherwise the stoppers would not be smoothly formed on its exterior. This object is attained by means of the following arrangements of machinery: The pulley r , before mentioned, turns loosely on the shaft p and has a dog or projection u , on one side, which at times engages with the teeth of the wheel v , Fig. 1, Plate 1, this wheel being fixed so as to slide on the shaft p , but turning with the shaft by means of a feather and groove suitably arranged. Attached to the wheel v is the ground pulley w , one side of which presses against the spiral spring x , properly arranged with a pin on the shaft p . In the groove of the pulley w , rests one arm of the bent lever $y\ y$, which has a fulcrum on the feeding frame at z , the other passing through the guide a^2 , on said frame, and pressing against the under side of the movable inclined plane or latch h^2 , attached by a screw on which it turns loosely to a cleat c^2 , on the frame A A.

It will readily be perceived by an inspection of Fig. 1, Plate 1, and Fig. 2, Plate 2, that when the feeding frame is thrown back, as before described, that the action of the movable, (which turns freely on a proper pin or screw) inclined plane b^2 and bent lever y, y , will serve to disengage the teeth of the wheel v from the dog u , on the pulley r , and allow said pulley to turn loosely on its axis as before suggested. The machinery is kept in this position while the frame $x\ x$ is back by means of the catch d^2 , Fig. 2, Plate 2, attached by a screw e^2 , (on which it turns loosely) to the cleat c^2 , and having a notch, f , or ledge f^2 engaging with the underside of the inclined plane b^2 so that when the lever y, y , is at the back part of the plane b^2 , pressing it up, it is prevented from turning farther by the ledge f^2 in front the end g^2 being weighted in order to bring the catch d^2 into proper position when the frame is back. When the frame $x\ x$ is brought toward the knife, the bent lever springs the latch b^2 from the notch f^2 in the catch d^2 and turning in the fulcrum z , causes the wheel v (with the assistance of the spring x) to engage with the dog on the pulley r ,—and to revolve with said pulley, pro-

duces the revolution of the cork and holders as before described.

The parts of the above machine, with the Fig. 2, Plate 2, may be adjusted, to different sized corks like other parts before described by means of nuts, screws, and slots, shown at h^2 , h^2 .

It will be perceived that in the above I have described only one feeding frame whereas two or represented in the drawings, the proper motion being imparted to the machinery in the other frame by means of the cross band $i' i'$ passing from a pulley k' , on the driving shaft B B, the similar parts in the two frames being similarly lettered.

The parts of the above machine, with the exception of the framework and pulleys, are mostly constructed of metal. The proportions may be obtained from the drawings which are in size about one third of the working machine.

Having thus described my improved machinery, I shall now specifically point out those parts I wish to claim in the same.

1. I claim rounding or forming the cork by means of the revolving circular knife, in combination with a movable feeding frame, operated by means of the arm $y y$, and roller Z, working with the eccentric groove or camwork $a-a-a$, arranged on the shaft F F; the whole constructed and

operating substantially in the manner and on the principles above described.

2. I claim sharpening the revolving knife, while in operation, by means of a revolving whetstone, operated as above described.

3. I claim revolving both holders by means of the system of bands and pulleys above described, thereby effectually preventing the liability to twist the cork while in the process of formation.

4. I claim the combination of the inclined plane i , bent rod $e e$, fork h and spiral spring $f f$, operating together as above described, to withdraw the holder W, for the purpose above set forth.

5. I claim the combination of the movable inclined plane or latch b^2 , and catch d^2 , with the bent lever $y' y'$, operating with the pulleys w, v , wheel v , and spring x , on the axis $p p$, in the manner, and for the purpose above described.

In testimony that the above is a true description of my said invention, I have hereto affixed my signature, this twenty-fourth day of June, in the year of our Lord eighteen hundred and thirty-nine.

SAMUEL SAWYER.

Witnesses:

JOHN B. ADAN,
EZRA LINCOLN, Jr.