

(No Model.)

F. M. CLOUGH.
MATCH MAKING MACHINERY.

No. 548,959.

Patented Oct. 29, 1895.

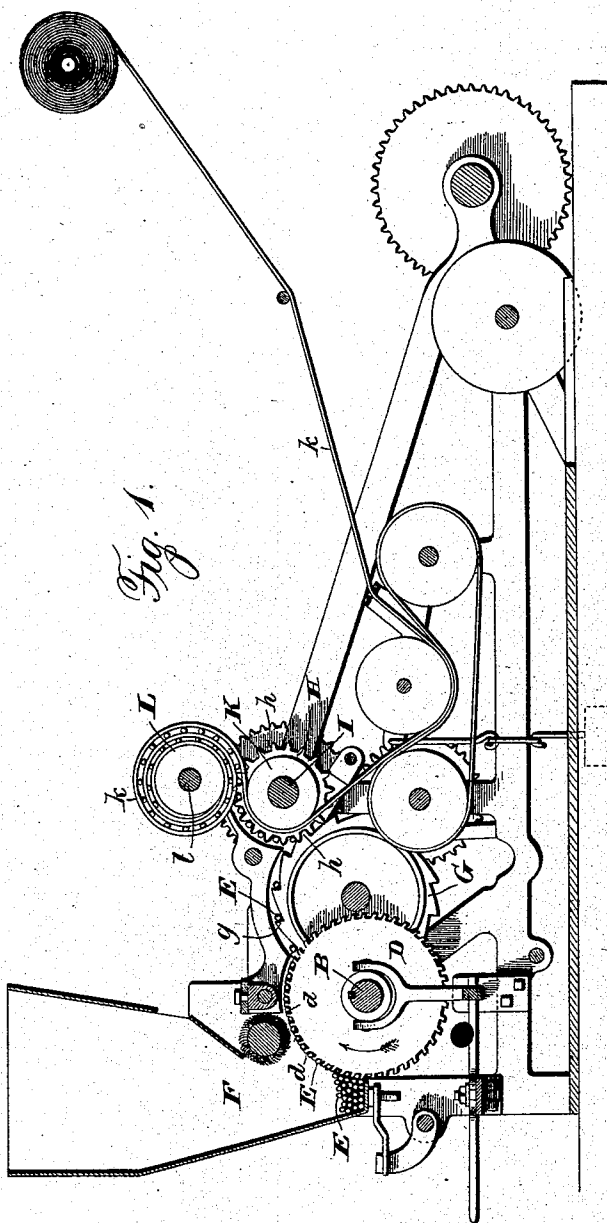


Fig. 1.

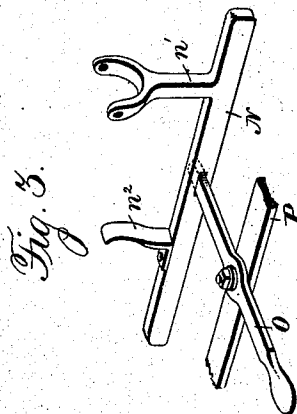


Fig. 3.

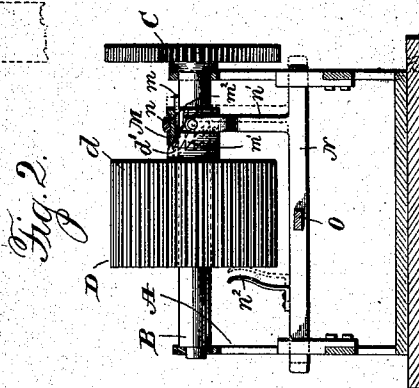


Fig. 2.

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UNITED STATES PATENT OFFICE.

FRED M. CLOUGH, OF LEBANON, PENNSYLVANIA.

MATCH-MAKING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 548,959, dated October 29, 1895.

Application filed March 10, 1894. Serial No. 503,165. (No model.)

To all whom it may concern:

Be it known that I, FRED M. CLOUGH, a citizen of the United States, residing at Lebanon, in the county of Lebanon, and in the State of Pennsylvania, have invented certain new and useful Improvements in Match-Making Machinery; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section of a machine containing my improvements; Fig. 2, an elevation of the feeding-cylinder and its driving-shaft, the full lines showing the position of the clutch mechanism when such cylinder is connected rotatively with its shaft, and the dotted lines the positions of the parts when said cylinder and shaft are disconnected from each other; and Fig. 3, a perspective view of the clutch-operating devices separated from the machine.

Letters of like name and kind refer to like parts in each of the figures.

In match-coiling machines as heretofore constructed it has been necessary to stop the entire machine or to place obstacles between the hopper and the splint-feeding wheel whenever it was desired to arrest the feeding of splints. Both of such methods are open to objections, which it is the object of my invention to obviate, to which end my said invention consists in a coiling-machine in which the feeding-cylinder is adapted to be rotatively connected with or disconnected from the driving mechanism without interference with the motion of the machine, substantially as and for the purpose hereinafter specified.

My invention is applicable to any form or construction of a coiling-machine; but for convenience I will show its application to the well-known "Beecher" machine, in which there is journaled within one end of a suitable frame A a shaft B, that is provided upon one end with a gear-wheel C, which is suitably connected with and driven by the power employed for operating the machine and upon its central portion has journaled a cylinder D, that peripherally is provided with longitudinal grooves d d , &c., which are parallel with each other and with the axis of such cylinder and have such transverse dimen-

sions as to enable each to receive and contain a match-splint E.

In front of and above the cylinder D is a hopper F, which at its lower front portion is open and embraces said cylinder, so that match-splints E and E placed in such hopper will have contact with the grooved periphery of said cylinder, and, by the rotation of the latter in the direction indicated by the arrow in Fig. 1, will be successively caught within the grooves d and d and carried upward and forward, and when at a point slightly beyond the upper side of the cylinder each will have each of its projecting ends engaged by the teeth g and g of the transfer-wheel G and be lifted from out of its groove and carried forward to and deposited within the grooves h and h of a second transfer-wheel H, which is secured upon a shaft I in such position as to cause its toothed periphery to overlap the toothed periphery of said transfer-wheel.

The cylinder D and transfer-wheels G and H all rotate in the same direction, and around a roller K, which is journaled upon the shaft I adjacent to the wheel H, a tape k passes upward and forward and is coiled around a spool L upon a shaft l , located above said shaft I, which spool is caused to rotate, so as to draw said tape upward at a predetermined rate of speed with reference to the rotation of said transfer-wheel H, the arrangement being such as to cause the match-splints when they reach the upper center of such transfer-wheel to pass between the upper surface of said tape and the lower surface of the outer coil of said spool and be carried around and firmly held within the coils, as shown.

The cylinder D is held in position longitudinally upon the shaft B by any of the usual means and, rotatively, is connected therewith by means of a collar M, which is held in place rotatively by a key m , that permits free longitudinal movement upon the shaft and at one end is provided with a series of ratchet-teeth m' m' , &c., which are adapted to engage with a series of similar but oppositely-arranged teeth d' d' , &c., that are provided upon the adjacent ends of said cylinder, the arrangement being such that when said clutch-collar is moved toward said cylinder said teeth d' and m' will be engaged and the cylinder

caused to rotate with said shaft, while when said clutch is moved in an opposite direction said parts will be disconnected from each other and said cylinder cease its motion.

5 The clutch-collar M is moved into or out of engaging position by means of a ring *n*, which is journaled loosely within a peripheral groove *m*², a forked arm *n'*, which projects upward from a sliding bar N and has its ends pivoted
10 upon such ring, and a lever O, that is pivoted centrally upon a stationary support P and has one end loosely engaged with said bar, so that by moving the outer end of such lever in one direction, said clutch-collar will be moved
15 into engagement with the cylinder D, while an opposite movement of said lever will cause the disengagement of said parts.

As it is desirable that the rotation of the cylinder D should instantly cease when it is
20 disengaged from its shaft B, a spring arm *n*² projects upward from the bar N in such position as to cause its upper end to engage with the contiguous end of said cylinder at the instant when the clutch-teeth *d'* and *m'* are dis-
25 connected, and when it acts as a brake and arrests the further motion of said cylinder, while the re-engagement of said ratchet-teeth will cause said brake-arm to be moved away from said cylinder, so as to leave the latter
30 free to rotate again.

The feed-cylinder and transfer-wheels have certain relative circumferential positions in order that the match-splints may pass from one to the other with certainty, and such relations are preserved by causing the number
35 of clutch-teeth to bear a proper relation to the number of splint-grooves in said cylinder.

By the construction shown the action of the machine may be instantly arrested and
40 as quickly started without interference with the movements of any part, except the feeding-cylinder. If desired, instead of effecting such object by the disconnecting of the feeding-cylinder and its shaft, the same result
45 may be secured by connecting such shaft with its driving-gear by means of a separable clutch.

Having thus described my invention, what I claim is—

50 1. In a machine for coiling match splints, in combination with the coiling devices, and the feeding device from which the splints are transferred to a tape or such devices, means outside of the tape for driving the feed
55 vice, connections between such driving means and the feeding device, adapted to allow the feeding device to be stopped, without stopping the coiling devices, and means for so stopping the feeding device, substantially as
60 and for the purpose specified.

2. In a machine for coiling match splints,

in combination with the coiling devices having one or more tapes, a feeding device from which the splints are transferred to the coiling devices, a rotary part outside of the coiling devices, connections between such part
65 and the feeding device, whereby the latter is driven, and means for stopping the feeding device independently of the coiling devices, substantially as and for the purpose shown.
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3. In a machine for coiling match-splints, in combination with the feeding and coiling devices and means for driving the same, a clutch-mechanism interposed between the feeding device and the means for driving it,
75 whereby such feeding device may be thrown out of action independently of the coiling devices, and a brake to engage the feeding device, after it has been disconnected from the means for driving it, substantially as and for
80 the purpose specified.

4. In a machine for coiling match-splints, in combination with the coiling devices and means for driving the same, the grooved feed-cylinder, a rotating part from which the cyl-
85 der is driven, shiftable connections between such part and the cylinder, whereby the latter can be disconnected from the rotary part at will without stopping the coiling devices, and a source of supply from which the cylin-
90 der receives its splints, substantially as and for the purpose shown.

5. In a machine for coiling match-splints, in combination with a rotating grooved feed-cylinder, and a rotating shaft upon which it
95 is loosely mounted, clutch mechanism whereby the cylinder can be connected with and disconnected from the shaft, and the brake for the cylinder connected with the clutch-mechanism, so as to be thrown into operation,
100 when the cylinder has been disconnected from the shaft, substantially as and for the purpose set forth.

6. In a machine for coiling match splints, in combination with the coiling devices, a
105 source of supply of splints, a grooved feed cylinder taking the splints from such source of supply, a transfer device taking the splints from the cylinder and passing them on toward the tape of the coiler, means for driving
110 the cylinder and coiling devices, and a suitable clutch device for connecting the cylinder with or disconnecting it from the driving means without stopping the coiling devices, substantially as and for the purpose shown.
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In testimony that I claim the foregoing I have hereunto set my hand this 28th day of February, 1894.

FRED M. CLOUGH.

Witnesses:

HENRY C. HAZARD,
GEO. S. PRINDLE.