

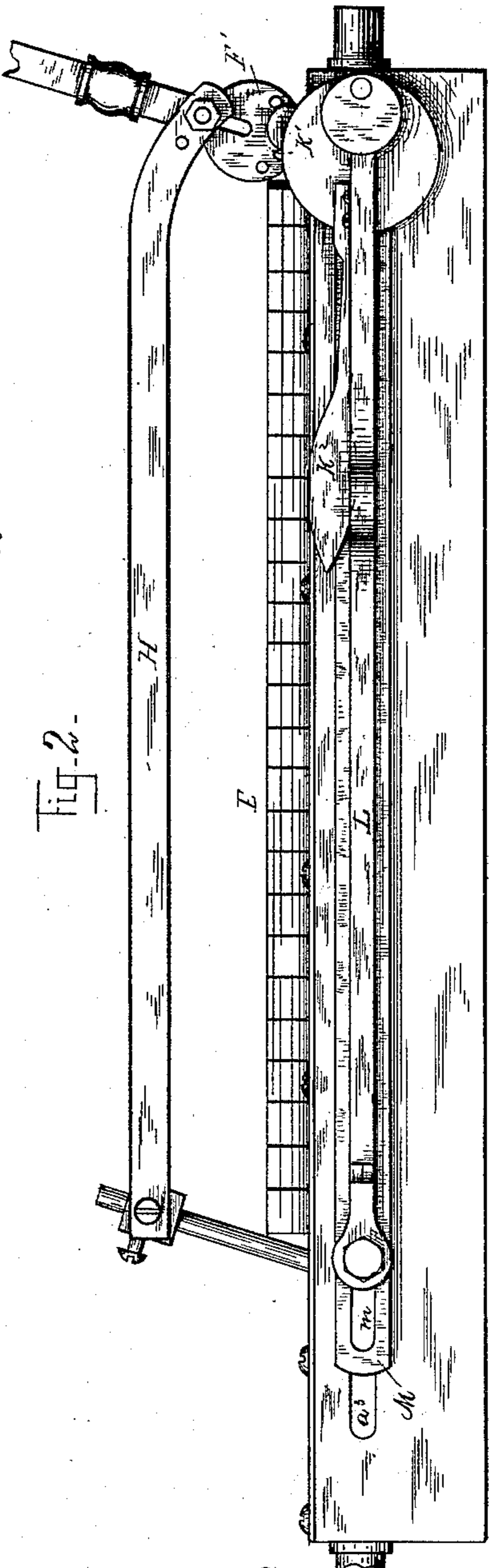
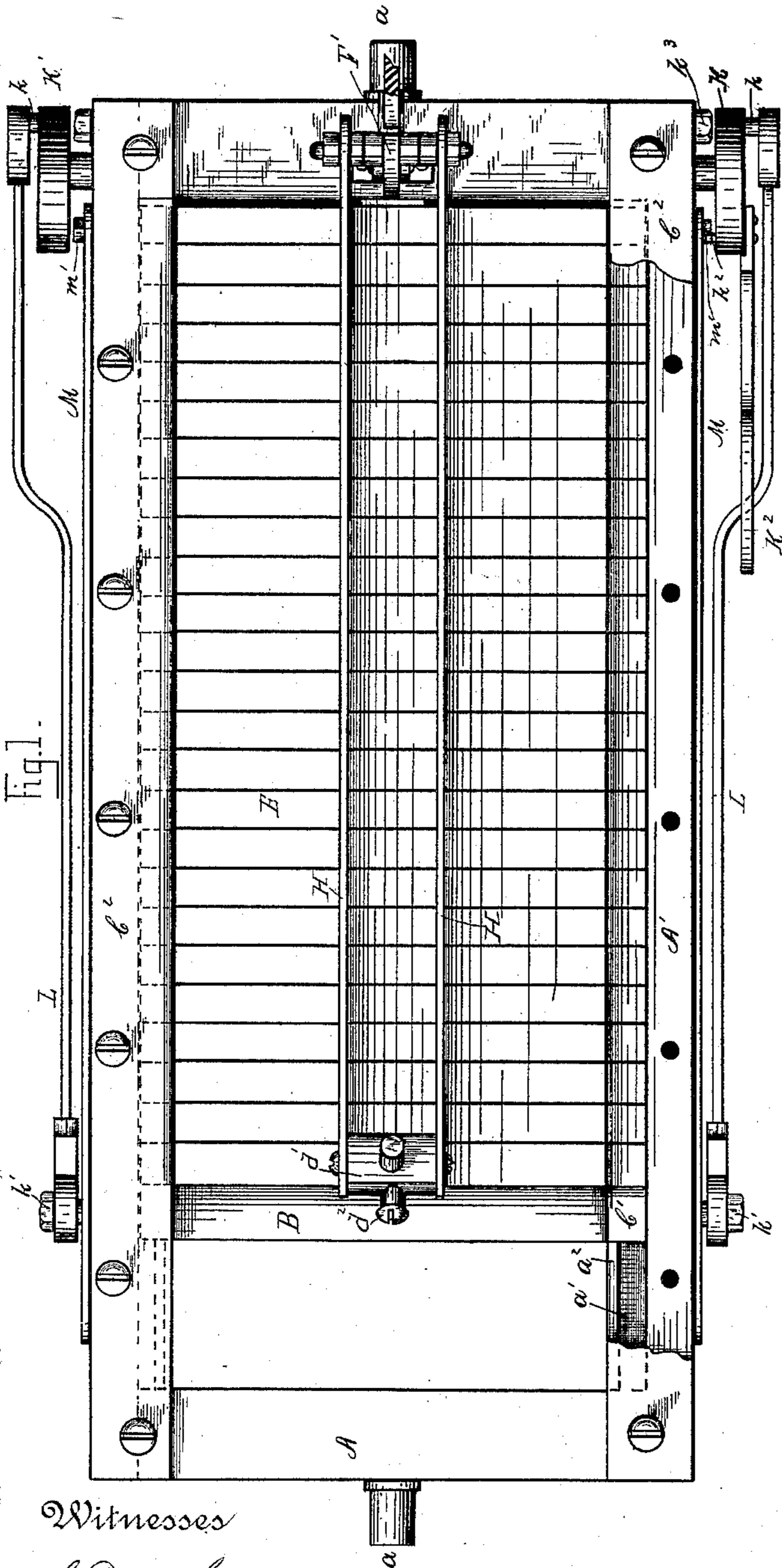
(No Model.)

3 Sheets—Sheet 1.

C. H. LIEDKE.
CRAYON MACHINE.

No. 476,051.

Patented May 31, 1892.



Witnesses
C. B. Nash.
E. J. Climo.

Inventor
C. H. Liedke
By his Attorney
Thos. D. Hall

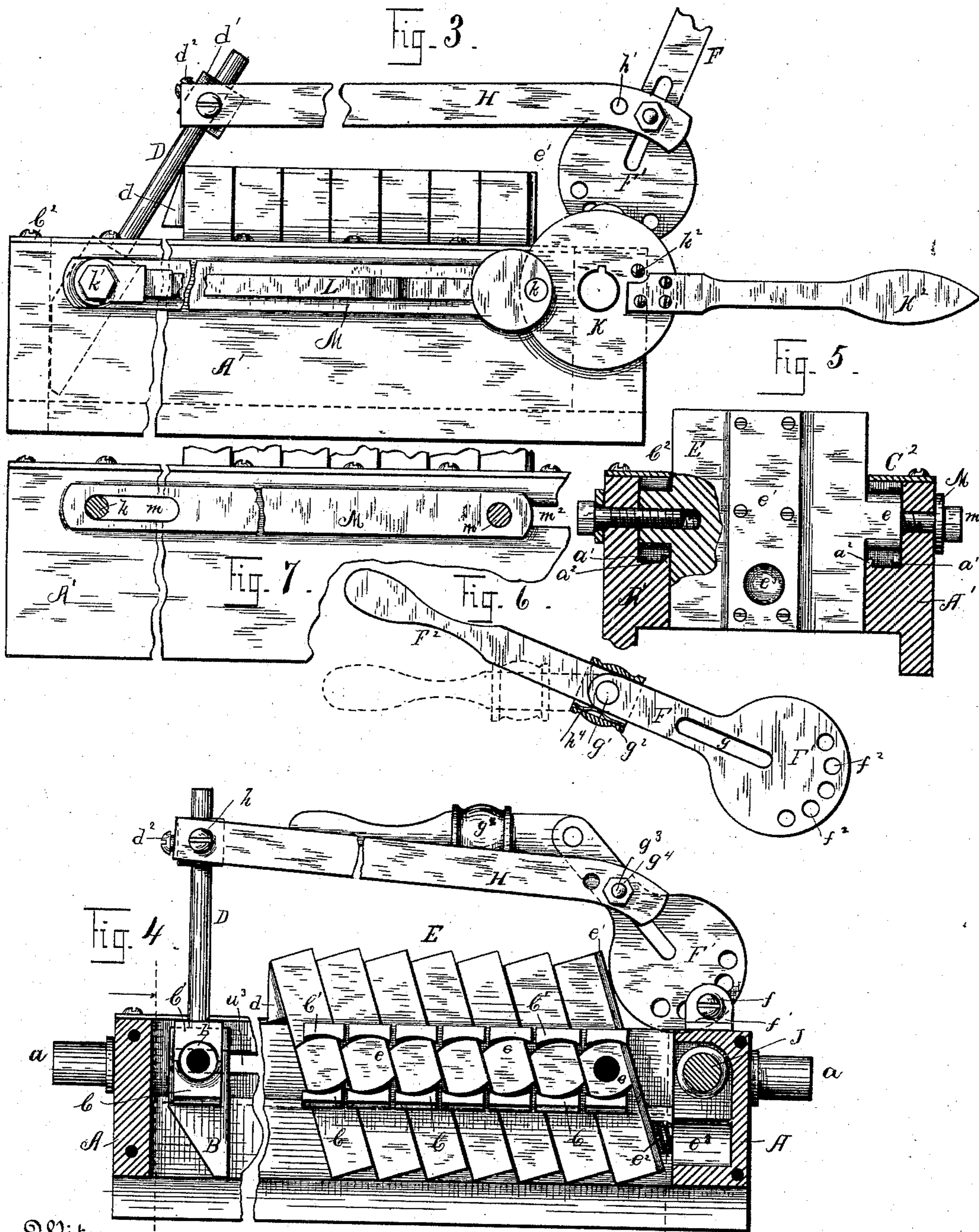
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By his Attorney
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UNITED STATES PATENT OFFICE.

CHARLES H. LIEDKE, OF SANDUSKY, OHIO, ASSIGNOR TO JOHN S. COWDERY,
OF SAME PLACE.

CRAYON-MACHINE.

SPECIFICATION forming part of Letters Patent No. 476,051, dated May 31, 1892.

Application filed October 3, 1887. Renewed December 3, 1888. Serial No. 292,536. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. LIEDKE, a citizen of the United States, residing at Sandusky, county of Erie, and State of Ohio, have invented certain new and useful Improvements in Crayon-Machines; and I do hereby declare the following to be a description of the same and of the manner of constructing and using the invention in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it appertains to construct and use the same, reference being had to the accompanying drawings, forming a part of the specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to crayon-machines.

It has for its object an improved form of mold-plates and mold-plate frames, the mold-plates being pivoted or axially journaled that they may be partially rotated and the crayons loosened or forced from the mold-plates.

Figure 1 is a reverse plan view of the mold-plate frame with the mold-plates in closed position. Fig. 2 is a side elevation of the same parts in closed position. Fig. 3 is a side elevation view of the mold-plate frame, mold-plates, and connecting parts, the actuating mechanism being shown in its first position of movement. Fig. 4 is a side elevation view of the mold-plates and the actuating mechanism, the follower, links, and lever-bar, the latter being shown in their second position of movement. Fig. 5 is a detail view, partly in elevation and partly in section, of the first half mold-plate, the spring-bearing plate, and manner of connecting the mold-plate with the links, the view being taken on the dotted line of Fig. 4. Fig. 6 is a detail view of lever, the dotted lines showing lever in folded position. Fig. 7 is a detail elevation view of the link. Fig. 8 is a detail view, partly in elevation and partly in section, of the follower and connecting parts, taken on the left-hand dotted line of Fig. 4 and in the direction of the arrow. Fig. 9 is a detail view, partly in section and partly in elevation, of the rock-shaft and con-

necting parts, taken on the right-hand dotted line of Fig. 4 and in the direction of the left-hand arrow. Fig. 10 is a plan view of mold-plate frame and mold-plates, the actuating parts being omitted. Fig. 11 is a vertical central longitudinal section of the mold-plates, follower, links, and lever, the mold-plates being in open or angular position.

A is the mold-plate frame, provided at either end with the journals *a*, by which they may be journaled in arms of a crayon-machine similar to that described in application Serial No. 148,635, of J. S. Cowdery, filed November 23, 1884. Each of the side pieces *A'* of the frame *A* is provided with a longitudinal rabbet *a'*, having shoulder *a*², and with a slot *a*³ opening transversely through said side pieces.

A follower *B* is journaled at either extremity in the two-part journal-bearings *C C'*, the lower part *C* of which fits in and has sliding bearing in rabbet *a'* and is provided with shoulder *c*, which engages with shoulder *a*² of said rabbet, the upper portion *C'* resting on said extremities or journals *b* and having sliding bearing on their upper side against retaining-strips *C*², secured to the side pieces *A'*. Threaded into the central upper portion of said follower and rising therefrom is the rod *D*. Cross-bar *d'* fits on the upper part of said rod and is adjustably secured thereto by means of set-screw *d*². A series of half mold-plates *E*, each of which is provided at either end with journals *e*, is also journaled in the two-part journal-bearings *C C'*, the first half mold-plate of the series being provided on its forward plain surface with the bearing-plate *e'*, against which bears the spiral spring *e*², said spring in turn fitting and having bearing in the opening *e*³ in the mold-plate frame. The last half mold-plate of the series is provided on its rear surface with the triangular lug *d*, which engages with rod *D* at certain portions of its movement. Cam-lever *F* is pivoted by bolt *f* to the lugs *f'*, secured to the forward portion of the mold-plate frame, the lower cam portion *F'* of said lever being provided with a series of holes *f*², by means of which the throw of the cam may be varied. A slot *g* is also formed in said lever, while the upper handle portion *F*² is provided with a pivotal joint *g'*,

that may be held rigid by slipping over it sleeve g^2 , located thereon, the interior of said sleeve being provided with spring h^4 to hold the sleeve in place. Passing transversely
 5 through said slot and secured thereto by nuts g^4 is bolt g^3 . To this is secured on either side of said handle by said nuts the links H, the opposite ends of which are secured to cross-bar d' by screws h . The links at their forward ends are provided with a series of holes
 10 h' , through one of which the bolt g^3 passes, and by means thereof the throw of the links may be adjusted.

Rock-shaft J is journaled in the sides A' of the mold-plate frame, its extremities j, j' projecting on either side of the same. Keyed on either of said extremities are the cams K K', provided with pins k , on which are pivoted connecting-rods L, having their opposite ends
 20 pivoted on bolts k' , which are screwed into shaft B. Said bolts also pass through and have sliding bearing in longitudinal slots m of connecting-rods M and also in slots a^3 , said rods being secured at their opposite ends to the first half mold-plate abutting the rock-shaft by bolts m' , which have sliding bearing in longitudinal slots m^2 , formed in the sides
 25 A' of the mold-plate frame. Cam K is provided with lever-handle K^2 and also with stop-pin k^2 , which, engaging with bolt k^3 , limits the movement of said lever-handle.

The operation of the machine is as follows: Let it be understood that the mold-plates and actuating mechanism are in the position
 35 shown in Figs. 1 and 2, the lever-handle K^2 being parallel with and resting upon the connecting-rods L. It may also be understood that the mold-plates are filled with crayons. The lever-handle K^2 is raised to a vertical position and again depressed until it is again
 40 parallel with but removed from the connecting-rods L and stop-pin k^2 is in engagement with the bolt k^3 . This position is shown in Fig. 3. By this movement the connecting-rods L are thrown backward, carrying in their
 45 movement the follower B, to which they are secured by means of the bolts k' . Said bolts also pass through and have sliding bearing in the slots m of the connecting-bars M, and hence as said bolts are moved backward the
 50 connecting-bars M are caused also to move backward and draw with them the first half mold-plate of the series adjacent to the rock-shaft J. The mold-plates all being in close
 55 contact, the movement of said first mold-plate causes the entire series to be correspondingly moved. The operator then grasps the lever-handle F^2 , which is now in the position shown in Fig. 3, and moves it backward to
 60 ward the follower, causing the cam portion F' to engage with and tilt backward the said first half mold-plate, which causes a corresponding tilting of all the mold-plates of the series. The said mold-plates are pivoted
 65 eccentrically relative to one another, and this tilting or partial rotating causes the upper and lower faces of the mold-plates to be lo-

cated angularly to one another, as shown in Fig. 4. The crayons are thus loosened from one half of the mold-plate walls. Lever-handle
 70 F^2 is then moved in a reverse direction to that just described, causing rod D to engage with the lug d , located on the last mold-plate of the series, causing the mold-plate to be partially
 75 rotated in the opposite direction, and thus force the crayons in positive movement from the mold-plates, as will appear from Fig. 11. Again the lever-handle F^2 is moved until it
 80 assumes a position practically vertical and by its engagement with the first half mold-plate causes the mold-plates to assume a vertical position, the spring e^2 exerting a pressure on said mold-plate below the point of
 85 journaling. The lever may now be reversed into the position shown in Figs. 1 and 2, the regulating movement of the follower causing the mold-plates again to be brought into close
 90 contact in a vertical position. The first movement of the mold-plate causes the crayon to be loosened or freed forcibly from one half of the mold as the half-mold in each mold-plate
 95 is depressed below the corresponding and adjacent half-mold in its abutting mold-plate. The reverse movement of the mold-plates causes a corresponding reversal and depression of the opposite side of each mold-plate,
 100 and by this movement the crayons are positively discharged and forced from their molds; but as the force exerted is applied in the direction of the crayons' length there is no probability of the crayons being broken.

I claim—

1. In a machine for the manufacture of crayons, carpenters' chalk, or other like articles, the combination of two mold-plates respectively provided with fractional molds conjointly forming a complete mold open at one end, one of said mold-plates adjustable in the longitudinal plane of the mold, substantially as set forth. 105

2. In a machine for the manufacture of crayons, carpenters' chalk, or other like articles, the combination of two sectional mold-plates together forming a complete mold, said mold being open at one end, said mold-plates adjustable relative to each other in line with the length of the mold, substantially as set forth. 110

3. In a machine for the manufacture of crayons, carpenters' chalk, or other like articles, the combination of two sectional mold-plates conjointly forming a complete mold, said mold-plates being respectively journaled eccentrically to one another and the sectional mold formed in each being open at one end, said mold-plates respectively having pivotal movement in the longitudinal plane of their molds, substantially as set forth. 120

4. In a machine for the manufacture of crayons, carpenters' chalk, or other like articles, the combination of two mold-plates respectively provided with fractional molds conjointly forming a complete mold open at one end, one of said molds adjustable in the lon- 130

itudinal plane of the mold, and an adjustable bearing in which said adjustable mold has bearing, substantially as set forth.

5. In a machine for the manufacture of
5 crayons, carpenters' chalk, or other like articles, the combination, with two mold-plates respectively provided with fractional molds, of bearings in which they are journaled, said
10 bearings adjustable in a plane at an angle to the longitudinal plane of the molds, substantially as set forth.

6. In a machine for the manufacture of
15 crayons, carpenters' chalk, or other like articles, the combination of a mold-plate, a mold-plate frame, and bearings in which said mold-plate is journaled at each extremity, said bearings having sliding movement longitudinally
20 of the mold-plate frame, substantially as set forth.

7. In a machine for the manufacture of
25 crayons, carpenters' chalk, or other like articles, the combination of a mold-plate, bearings in which it is pivoted, and a mold-plate frame, said frame provided with rabbets in
30 which said bearings have bearing, substantially as set forth.

8. In a machine for the manufacture of
35 crayons, carpenters' chalk, or other like articles, the combination of a mold-plate provided with end journals, bearings in which its respective journals have bearing, and a mold-plate frame provided with rabbets, said
40 rabbets and journal-bearings having shoulders engaging with each other, said bearings having adjustable bearing in said rabbets,
45 substantially as set forth.

9. In a machine for the manufacture of
45 crayons, carpenters' chalk, or other like articles, the combination of a mold-plate provided with end journals, two-part bearings in
50 which said journals respectively have bearing, and a mold-plate frame in which said two-part bearings have sliding movement, substantially as set forth.

10. In a machine for the manufacture of
55 crayons, carpenters' chalk, or other like articles, the combination of two rocking mold-plates respectively provided with fractional
60 openings conjointly forming a complete mold, said mold-plates respectively having their axes of rocking movement parallel with each other, substantially as set forth.

11. In a machine for the manufacture of
65 crayons, carpenters' chalk, or other like articles, the combination of rocking mold-plates, a pivotal follower adapted to engage with one of said mold-plates, a cam-lever, and link connecting mechanism connecting said cam-lever
70 and follower, said link mechanism engaging with said follower eccentrically to its pivotal point, substantially as set forth.

12. In a machine for the manufacture of
75 crayons, carpenters' chalk, or other like articles, the combination of a series of pivotal mold-plates, a pivotal follower adapted to en-
80 gage with one of said mold-plates, a cam-lever also adapted to engage with one of said

mold-plates, and a link connection connect-
85 ing said cam-lever and follower, substantially as set forth.

13. In a machine for the manufacture of
90 crayons, carpenters' chalk, or other like articles, the combination of a series of pivotal mold-plates, a pivotal follower adapted to en-
95 gage with one of said mold-plates above its pivotal point, a cam-lever also adapted to en-
100 gage with one of said mold-plates above its pivotal point, and link connection connect-
105 ing said lever and follower, substantially as set forth.

14. In a machine for the manufacture of
110 crayons, carpenters' chalk, or other like articles, the combination of a series of pivotal mold-plates, a pivotal follower adapted to en-
115 gage with one of said mold-plates both above and below the pivotal point of the mold-plate, a cam-lever also adapted to engage with one
120 of said mold-plates above its pivotal point, and link connection connecting said lever and follower, substantially as set forth.

15. In a machine for the manufacture of
125 crayons, carpenters' chalk, or other like articles, the combination of a series of pivotal mold-plates, a follower adapted to engage
130 with one of said mold-plates both above and below the latter's pivotal point, a primary cam-lever adapted to engage with one mold-
135 plate of the series above said mold-plate's pivotal point, primary link connection connecting said follower and primary cam-le-
140 ver, a secondary cam-lever, and secondary link connection connecting this latter lever with said follower, substantially as set forth.

16. In a machine for the manufacture of
145 crayons, carpenters' chalk, or other like articles, the combination of a series of pivotal mold-plates, a follower adapted to engage
150 with one of said mold-plates, a cam-lever, a primary link connection connecting said lever and follower, and a secondary link con-
155 nection connecting said follower and the opposite mold-plate of the series, substantially as set forth.

17. In a machine for the manufacture of
160 crayons, carpenters' chalk, or other like articles, the combination of a series of pivotal mold-plates, a follower adapted to engage
165 with one of said mold-plates both above and below the latter's pivotal point, a primary cam-lever adapted to engage with one mold-plate of the
170 series above said mold-plate's pivotal point, primary link connection connecting said fol-
175 lower and primary cam-lever, a secondary cam-lever and secondary link connection connect-
180 ing this latter lever with said follower, and a tertiary link connection connecting said fol-
185 lower and the opposite mold-plate of the series, substantially as set forth.

18. In a machine for the manufacture of
190 crayons, carpenters' chalk, or other like articles, the combination of a series of pivotal mold-plates, a follower adapted to engage
195 with one of the end mold-plates of the series, and a spring having bearing against the opposite

mold-plate of the series, substantially as set forth.

19. In a machine for the manufacture of crayons, carpenters' chalk, or other like articles, the combination of a series of pivotal mold-plates, a follower adapted to engage therewith, a cam-lever, primary link connection connecting said lever and follower, and secondary link connection connecting said follower and the opposite mold-plate of the series, said secondary link connection provided with a slotted opening through which passes the connection between said primary link connection and said follower, substantially as set forth.

20. In a machine for the manufacture of crayons, carpenters' chalk, or other like articles, the combination of a follower having a standard rising therefrom, a cam-lever, and link connection connecting the two, said link connection adjustable vertically on said standard and lever, substantially as set forth.

21. In a machine for the manufacture of crayons, carpenters' chalk, or other like articles, the combination of a follower having a

standard rising therefrom, a cam-lever, and link connection connecting the two, said link connection adjustable vertically and horizontally relative to said standard and lever, substantially as set forth.

22. In a machine for the manufacture of crayons, carpenters' chalk, or other like articles, the combination of a series of pivotal mold-plates, a follower having a standard rising therefrom, a cam-lever, and link connection intermediate of said standard and lever, the mold-plate adjacent to said standard, provided with a bearing-plate with which said standard is adapted to engage, the opposite mold-plate of the series also provided with a bearing-plate, and a spring bearing against the latter, substantially as set forth.

In testimony that I claim the foregoing to be my invention I have hereunto set my hand this 19th day of September, A. D. 1887.

CHARLES H. LIEDKE.

Witnesses:

J. B. FAY,

E. J. CLIMO.