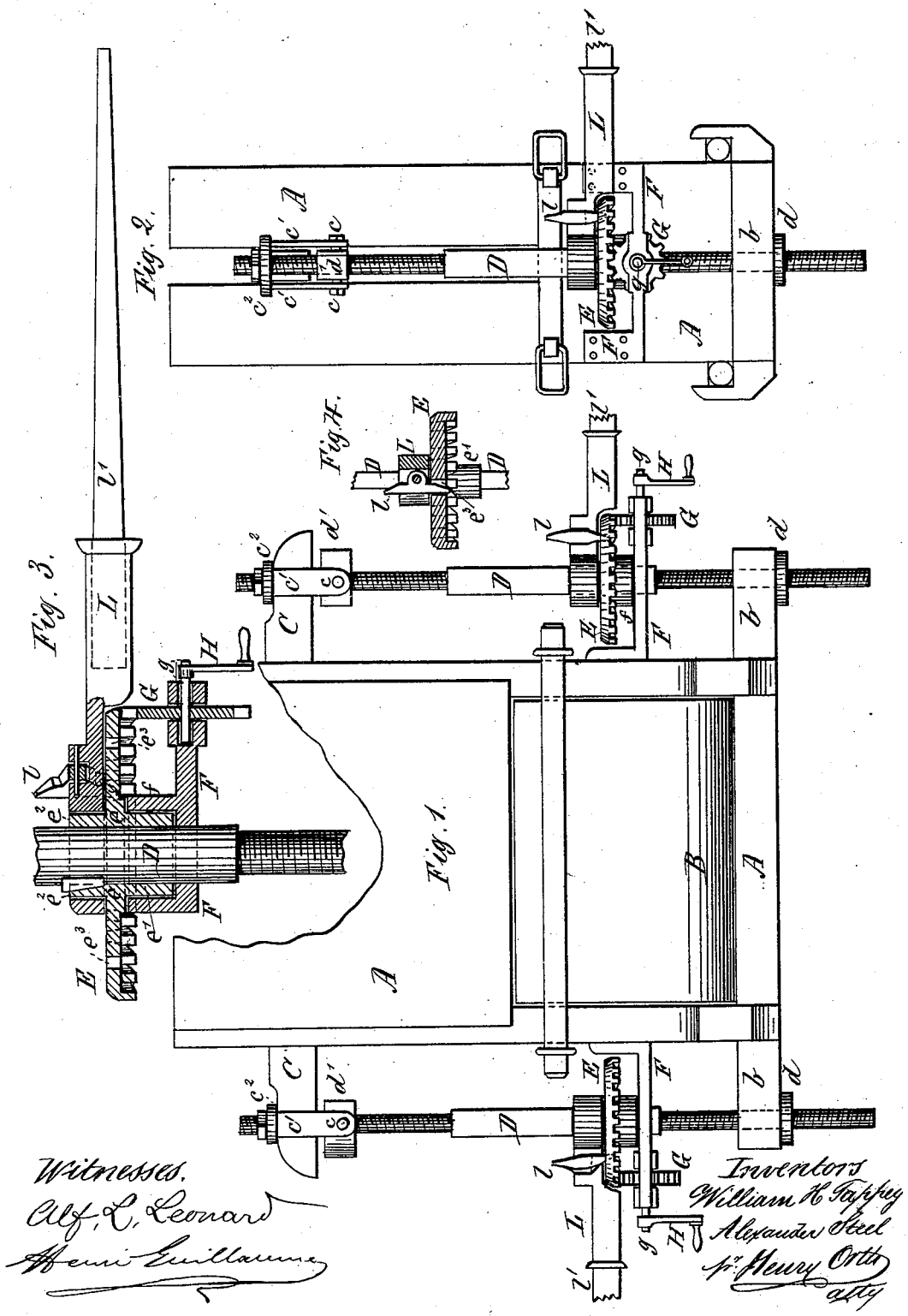
W. H. TAPPEY & A. STEEL.

Cotton and Hay Press.

No. 209,087. Patented Oct. 15, 1878.



Witnesses.
Alf. C. Leonard
Henri Guillaume

Inventors
William H. Tappey
Alexander Steel
per Henry Orth
atty

UNITED STATES PATENT OFFICE.

WILLIAM H. TAPPEY AND ALEXANDER STEEL, OF PETERSBURG, VIRGINIA.

IMPROVEMENT IN COTTON AND HAY PRESSES.

Specification forming part of Letters Patent No. **209,087**, dated October 15, 1878; application filed August 16, 1878.

To all whom it may concern:

Be it known that we, WILLIAM H. TAPPEY and ALEXANDER STEEL, both of the city of Petersburg, in the county of Dinwiddie and State of Virginia, have invented new and useful Improvements in Hay and Cotton Presses; and we do hereby declare that the following is a full, clear, and exact description of the same.

Our invention relates to improvements in means for operating the right and left hand screws of a hay or cotton press of the construction described and shown by Letters Patent granted to Richard Ball under date of June 28, 1870, No. 104,689, and reissued Letters Patent, dated July 23, 1872, No. 4,995.

We have found by experience that operating the right and left hand screws of a hay or cotton press such as described in above-mentioned Letters Patent, or of analogous presses, by means of a lever and pawl is a slow process, consuming much time, especially as the power required to compress the material when first placed in the press is comparatively small when compared with the power required when the material has arrived at a point proximate to its greatest compressibility, or to that point where the compression is sufficient to form the usual bale.

The object of our invention is to facilitate and expedite this first compression—that is to say, to facilitate and expedite the compression of the material until that point is reached where the greatest amount of power is required; and to that effect our invention consists in combining with the usual lever and reversible pawl a crank-movement by means of which the right and left handed screws may be operated to depress or elevate the follower independently of the lever and pawl, the arrangement being such that when the material has been compressed to such a degree as to require a power greater than that which can be exerted by the crank-movement the lever may then be brought into action for the further compression, and independently of the crank-motion, as fully described hereinafter, and shown in the accompanying drawings, in which—

Figure 1 represents a side elevation, and Fig. 2 an end elevation, of a press having our improved devices applied, and Fig. 3 is a section of the crank and lever movements on a larger scale. Fig. 4 is a detached view, partly in section, showing the pivoted pawl in side elevation.

Similar letters of reference are employed in the above-described figures of the drawings to indicate corresponding parts wherever such may occur.

A represents the frame of the press. B is the fixed bottom, and C the follower. The ends of the follower project through the sides of the press.

D D are two right and left handed screws, their lower parts working in nuts *d d*, which are firmly secured in the bed *b* of the press. The upper ends of the screws D pass through nuts *d'*, which latter are pivoted by means of pins *c* to the arms c^1, said arms being suspended from plates c^2 that rest upon the ends of the follower. The plates c^2 are perforated, and embrace the screws to be held in place by the same. When one screw is revolved it will work in both nuts *d d'* to raise or lower the follower, and if one screw should be revolved quicker than the other to set the follower into a somewhat inclined position, such derangement will not prove injurious to any of the parts, as the pivoted nuts will swing in accordance with the changed angle of the follower.

This mechanism is constructed and arranged substantially as and for the purposes described in Letters Patent and reissued Letters Patent above referred to, though the mechanism for rotating the right and left handed screws, hereinafter described, may be advantageously employed in other presses of a similar nature.

The central portion of each screw D, or that portion between the right and left hand screws, may be made of any desired angular shape in cross-section; or said portion may, if desired, be of cylindrical form, in which case the crown-wheel is rigidly keyed to the screw D. Upon this central portion of each screw D is mounted a crown-wheel, E, the inner periphery of the hub *e* of which is of a construction to correspond with that of the central portion of the right and left hand screws D.

The lower projecting end e^1 of the hub *e* of the crown-wheel E revolves freely in a tubular

bearing or socket, *f*, formed upon a bearing-plate, F, secured one on each side to the uprights of the frame A of the press. Each plate F is further provided with a bearing for the shaft *g* of pinions G, which latter mesh with the crown-wheels E, and by means of the cranks H said pinions are rotated to rotate the crown-wheels E and screws D.

The face of the crown-wheels E is provided with a series of square sockets or slots, e^3, with which the double pawls *l* of the levers L engage. These levers L are loosely mounted upon the upper projecting end e^2 of the hub *e* of the crown-wheels E.

It will be readily seen that by means of this construction and arrangement either the levers L or the cranks H may be employed for rotating the screws D, each performing its function independently of the other.

When the material is first placed in the press, and therefore at the time the least power is required to compress it to a certain degree, we employ the crank-movement for rotating the screws and depressing the follower, as by this means the screws may be rotated much faster than by the levers; but when the material has been compressed to such a degree as to require a power greater than that which could be applied through the cranks, we remove the latter from their respective shafts *g*, and employ the levers L to further compress the material to the required degree. By means of the pivoted double pawls *l* the motion of the screws may be reversed, as will be readily understood.

If desired, the handles *l'* of the levers L may be made detachable from said levers, though this is not imperative, as these levers may be pushed to one side when the crank is employed to rotate the screws, the pawls *l* being of the usual construction—that is to say, having their rear faces beveled so as to jump the recesses as they present themselves to the pawl-point during the rotation of the crown-wheel.

Having now described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a hay and cotton press, the combination, with a right and left hand screw, of a lever and pawl and an independent crank mechanism, arranged to rotate said screw either by said lever and pawl or by said crank mechanism, and independently of each other, to depress or elevate a follower, substantially as set forth.

2. In a hay or cotton press, the combination, with a right and left hand screw, of a crown-wheel, E, pinion G, and crank H, for operating said screw to depress or elevate a follower, substantially as described.

3. In a hay or cotton press, the combination, with a right and left hand screw, of a crown-wheel, E, pinion G, crank H, lever L, and double pawl *l*, for operating said screw by either lever or crank, all arranged and constructed substantially as described, for the purpose specified.

In witness that we claim the foregoing we have hereunto set our hands this 8th day of August, 1878.

WILLIAM H. TAPPEY.
ALEXANDER STEEL.

Witnesses:
W. C. LUMSDEN,
WM. ALEXANDER.