G. D. COLTON & G. GEER.

PUNCHING AND SHEARING MACHINE.

No. 174,782. Patented March 14, 1876.

Fig. 3.

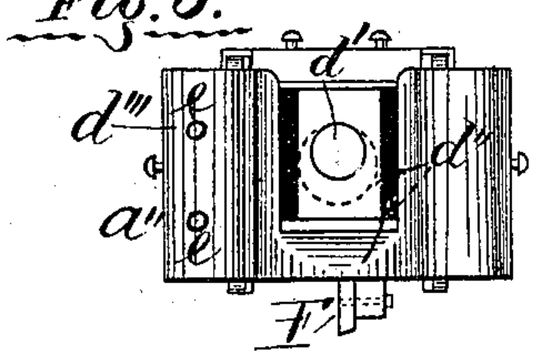


Fig. 4.

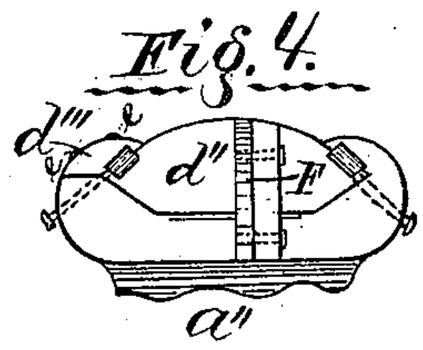


Fig. 2.

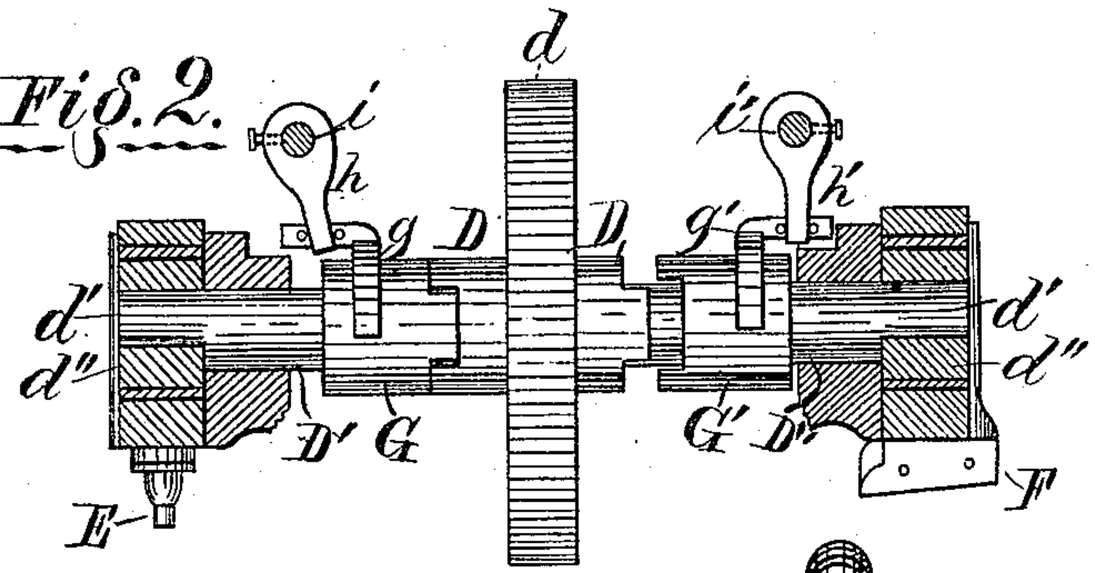
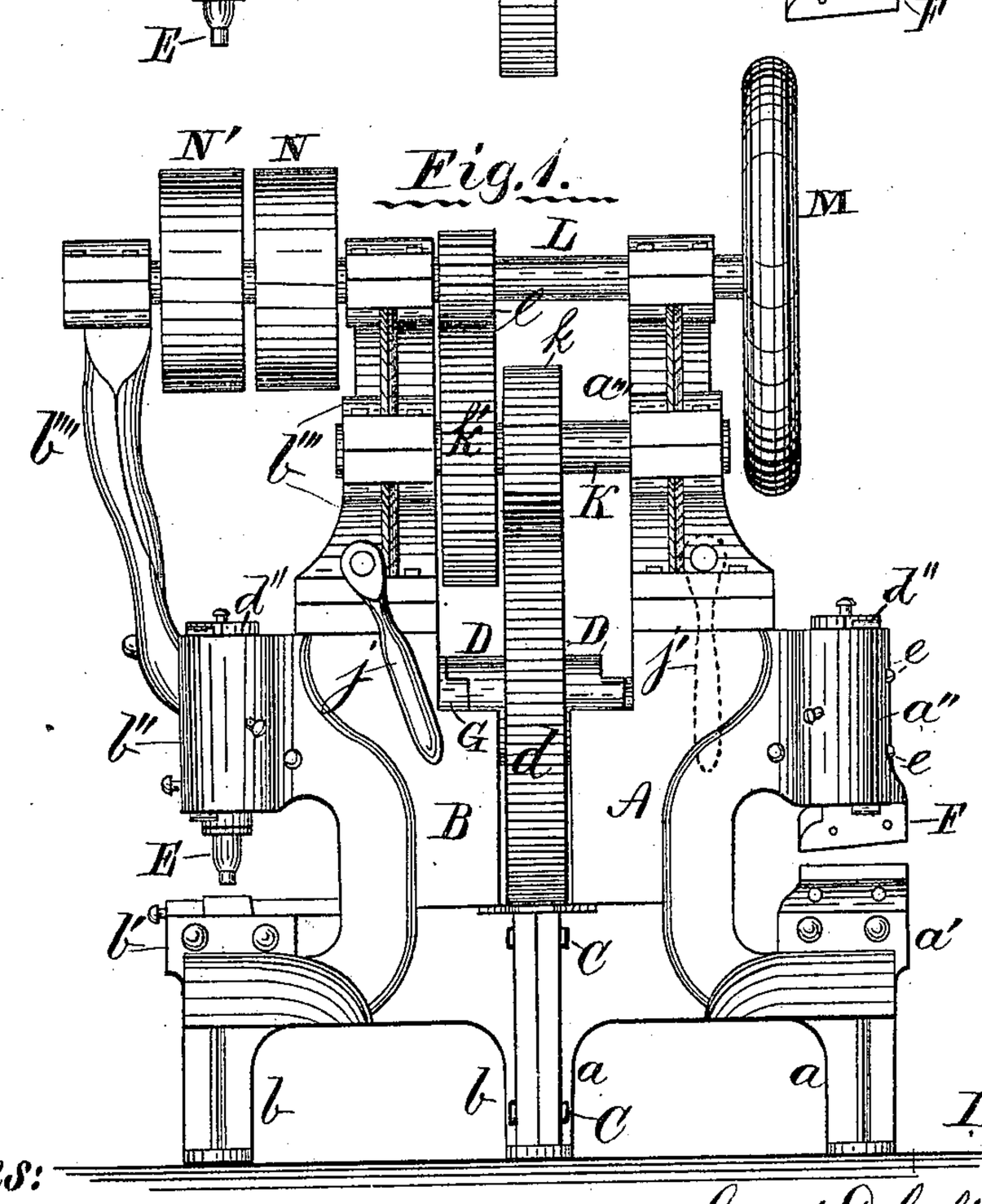


Fig. 1.



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Atty.

UNITED STATES PATENT OFFICE.

GAD D. COLTON, OF GALESBURG, ILL., AND GEORGE GEER, OF PLAINVILLE, CONN., ASSIGNORS, BY MESNE ASSIGNMENTS, TO G. D. COLTON & CO., OF GALESBURG, ILL.

IMPROVEMENT IN PUNCHING AND SHEARING MACHINES.

Specification forming part of Letters Patent No. **174,782**, dated March 14, 1876; application filed February 1, 1876.

To all whom it may concern:

Be it known that we, GAD D. COLTON, of Galesburg, Illinois, and GEORGE GEER, of Plainville, Connecticut, have invented certain Improvements in Combined Power Punching and Shearing Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

Our invention relates to a combined power punching and shearing machine; and the invention consists in a certain new and improved arrangement and combination of devices, all as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a side elevation of a machine embodying our invention. Fig. 2 is a detail sectional view through the parts adjacent to the crank-shaft. Fig. 3 is a side elevation of the shear slide and head, and Fig. 4 is a bottom view of Fig. 3.

Referring to the parts by letters, letter A represents the shearing-machine frame, supported on legs *a*, and provided with a suitable bed, *a'*, head-block *a''*, and upwardly-projecting standard *a'''*, for bearings for shafts hereinafter referred to. B is the frame of the punching-machine, constructed similar to the frame A, with an additional standard, *b''''*.

The similar parts represented by *a*, *a'*, *a''*, and *a'''* in A are shown by *b*, *b'*, *b''*, and *b'''* in frame B. The frames A and B may be constructed in two pieces or separate parts, and bolted together by suitable bolts C, as shown by Fig. 1 of the drawings.

D' D'' is the crank-shaft, provided with bearings in the heavy main part of the frames A and B, and carries centrally of its length a large gear-wheel, *d*, having a clutch-hub, D. The shaft is divided into two parts. Each end, D' D'', is provided with a crank or eccentric, *d'*, which communicates motion to the slides *d''*, the one of which carries the punch E, and the other the shearing-blade F. The blade F is somewhat longer than the slide *d''* is thick, as shown at Figs. 1, 2, and 4; and, to facilitate the insertion and removal of the slide in its ways, one of the ledges *d'''* of the head-block *a''* is made removable, and is secured by bolts *e e*. (See Figs. 3 and 4.) G G' are clutches, surmounted by yokes *g g'*, cranks *h h'*, crank-shafts *i i'*, and hand-levers *j j'*, respectively. The clutch G connects the end D' with the hub D, and the clutch G' connects the end D'' with the same.

The clutches G G' are operated by their respective devices—the hand-lever *j* being on one side of the machine, and the lever *j'* on the other side—the far side—and shown by dotted lines in Fig. 1.

K is a counter-shaft, journaled in the standards *a''' b'''*, and carries a spur-pinion, *k*, which gears with the pinion *d*. L is the main driving-shaft, journaled above the counter-shaft, and also in the standards *a''' b'''*, and carries a spur-pinion, *l*, which gears with a pinion, *k'*, on the shaft K. A balance-wheel, M, is hung on an extended end of the shaft L, and a fast and loose pulley, N N', respectively, are hung on the other end of the same shaft.

Motion is received from any suitable power by means of a band on the pulley N. The relative sizes of the gears *l*, *k'*, *k*, and *d* are such that great force is given the shaft D' D'' by rapid movement of the shaft L, and the sizes are also such as to preserve a compactness of general form, and also to bring the heavier gears, which receive the greatest strain, nearest the base and heavier parts of the frames A and B.

The lever *j* may be used to connect the shaft D' with the hub D, and thus put in operation the punch E, in the obvious manner, and by reversing the position of the lever *j* the clutch G will be disengaged, and thus the motion of the punch E may be stopped at any desired position in its stroke.

The shear F may be thrown into gear and released in the same manner by means of lever *j'* and clutch *g'*.

We claim—

The frame A B, having heads *a'' b''*, beds *a' b'*, and standards *a''' b'''*, in combination with shafts D', D'', L, and K, with their gear-wheels, clutches G G', and their respective actuating mechanism, for operating the shears F and punch E, substantially in the manner and for the purpose set forth.

In testimony that we claim the foregoing as our invention, we have hereunto set our hands this 19th day of November, 1875.

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