

(No Model.)

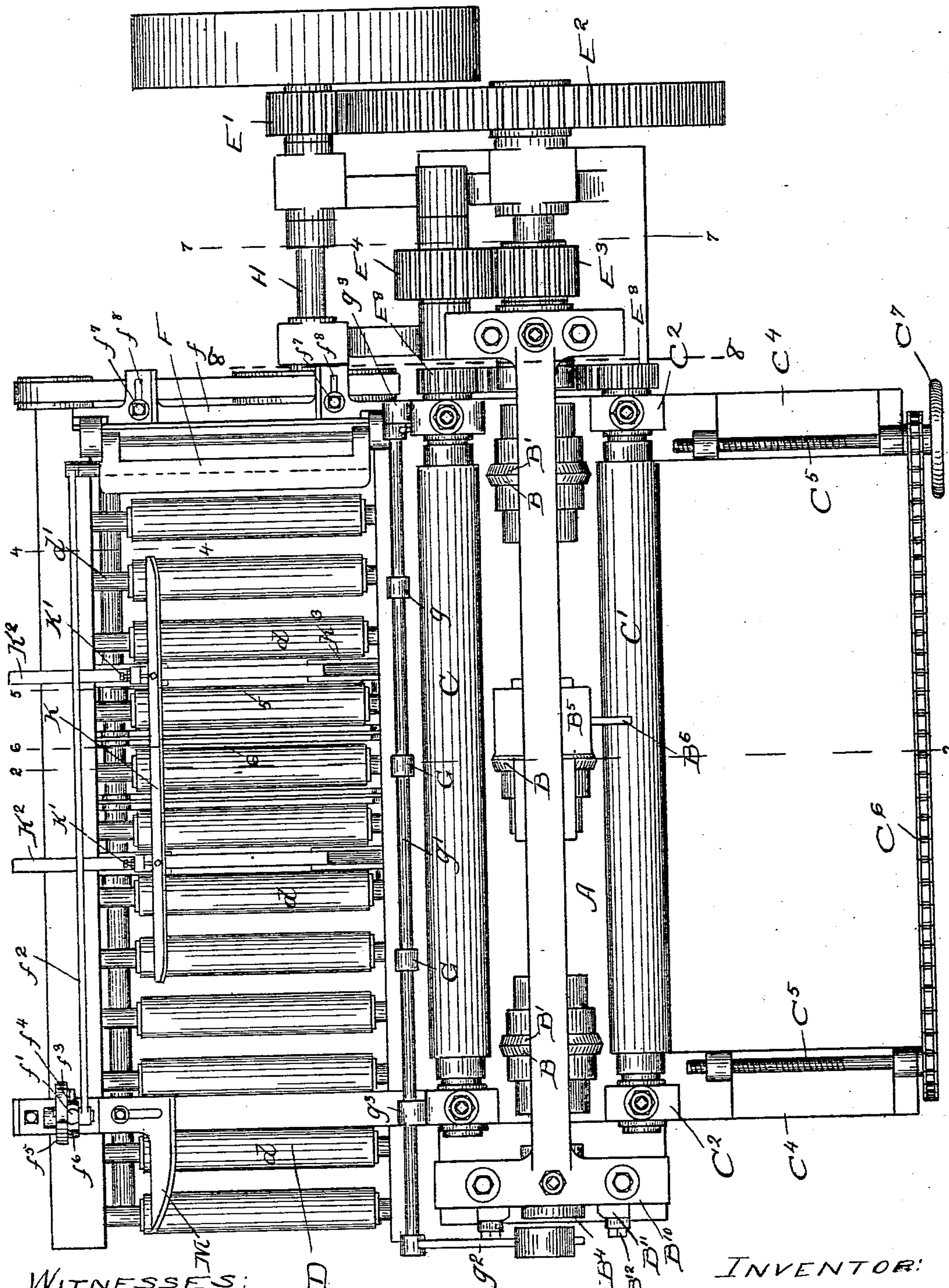
3 Sheets—Sheet 1.

J. G. HODGSON.

MACHINE FOR TRIMMING AND SLITTING PACKS OF METAL SHEETS.

No. 560,064.

Patented May 12, 1896.



WITNESSES:

Leurs C. Kurtz
H. M. Munday.

FIG. I.

INVENTOR:

JOHN G. HODGSON.

BY *Munday, Ewart & Adcock.*

HIS ATTORNEYS

(No Model.)

3 Sheets—Sheet 2.

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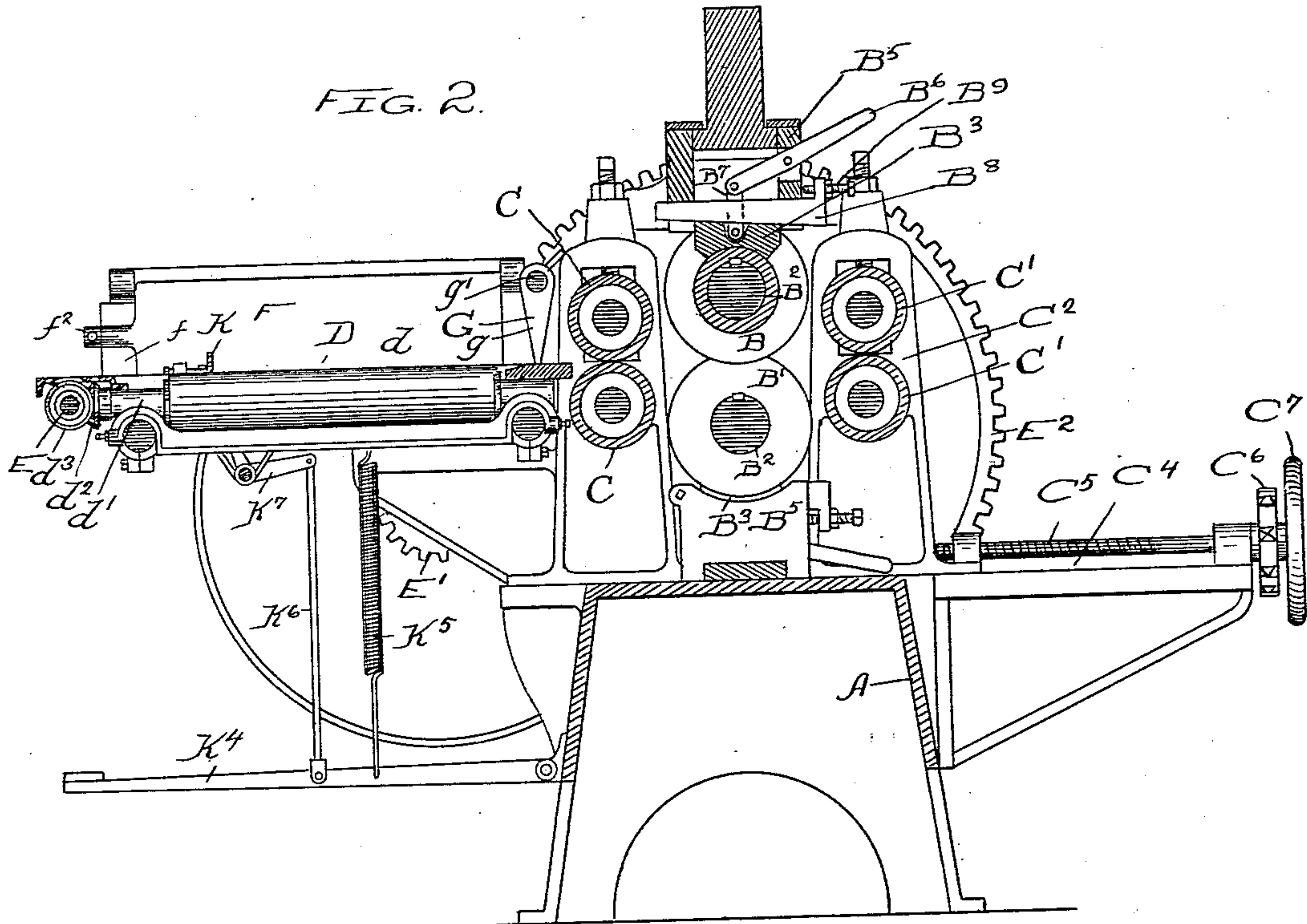
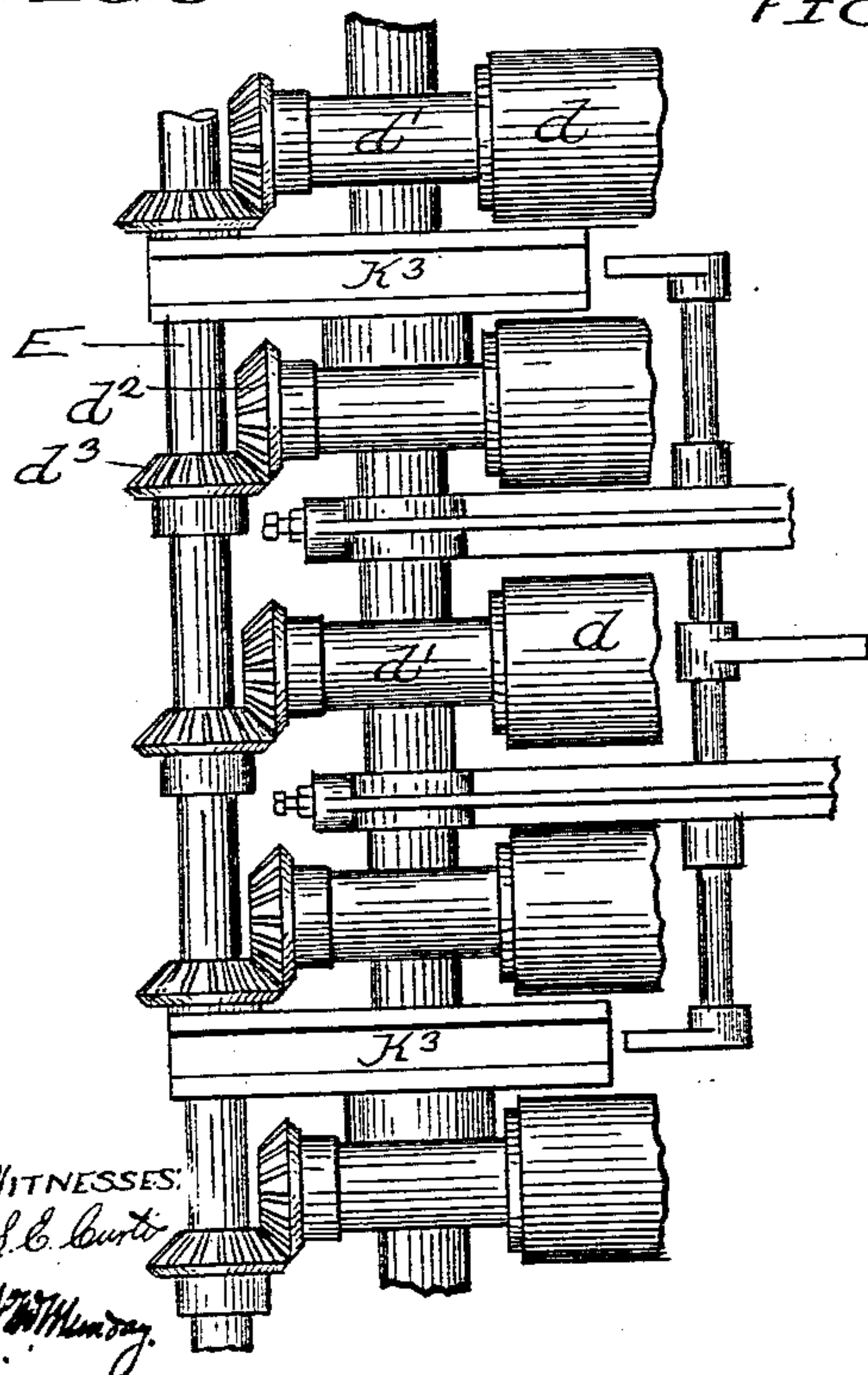


FIG. 3.



WITNESSES:
S. C. Curtis
H. W. Munday.

FIG. 4.

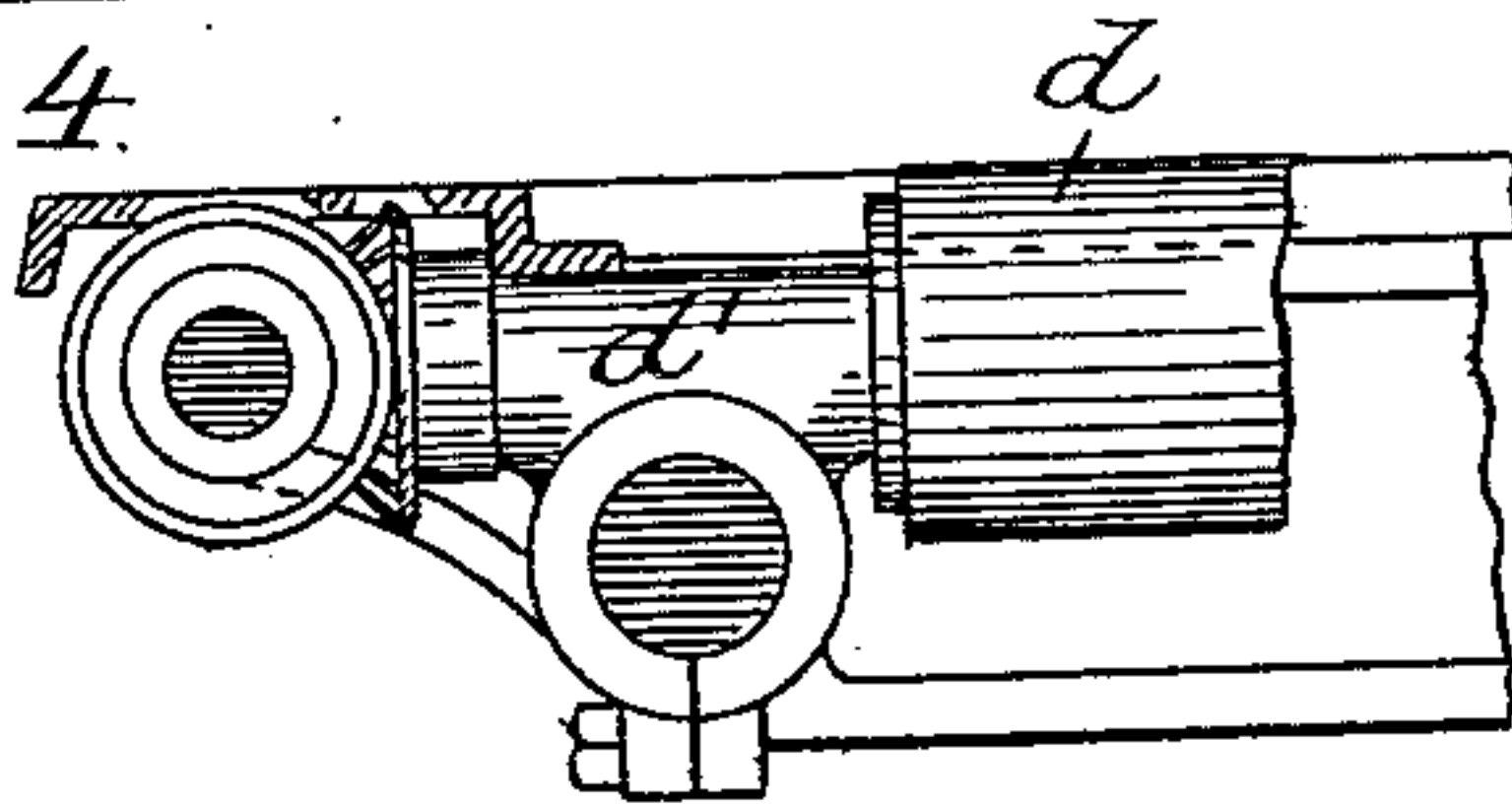


FIG. 5.

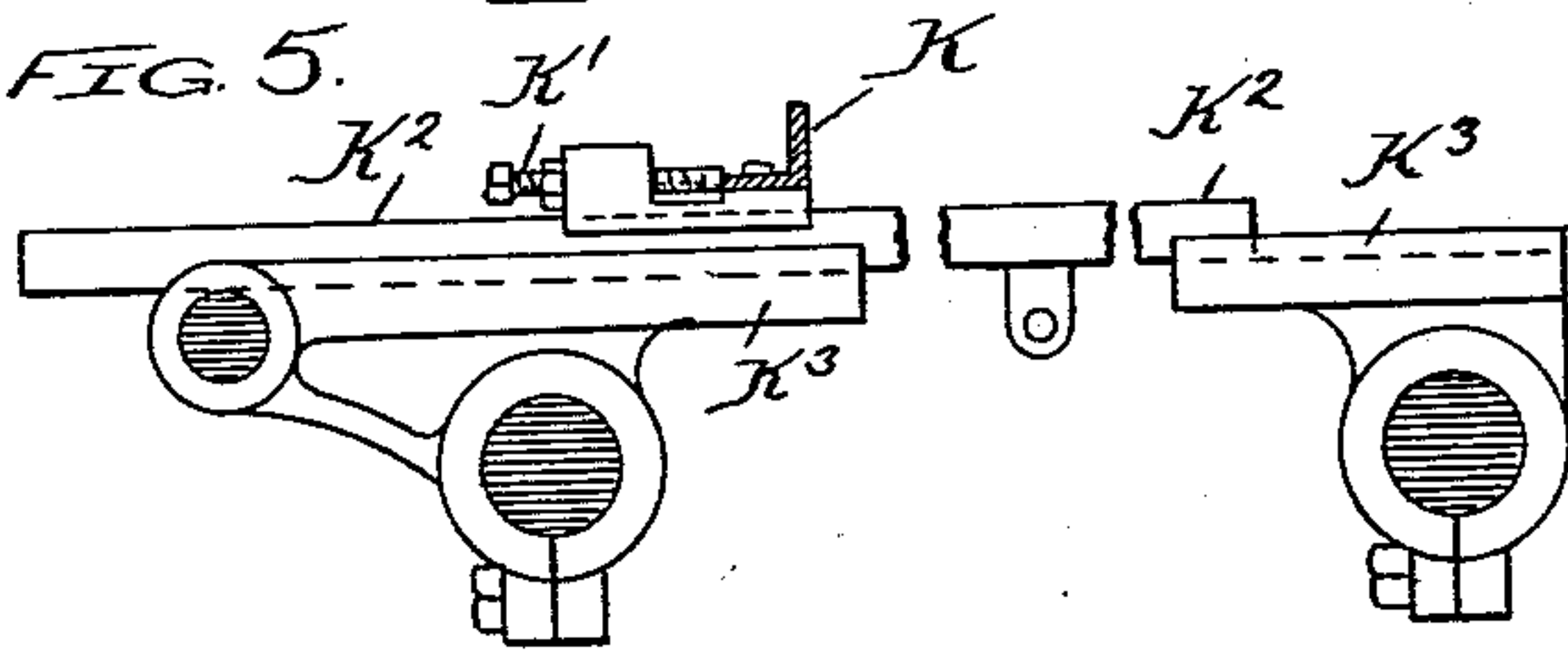
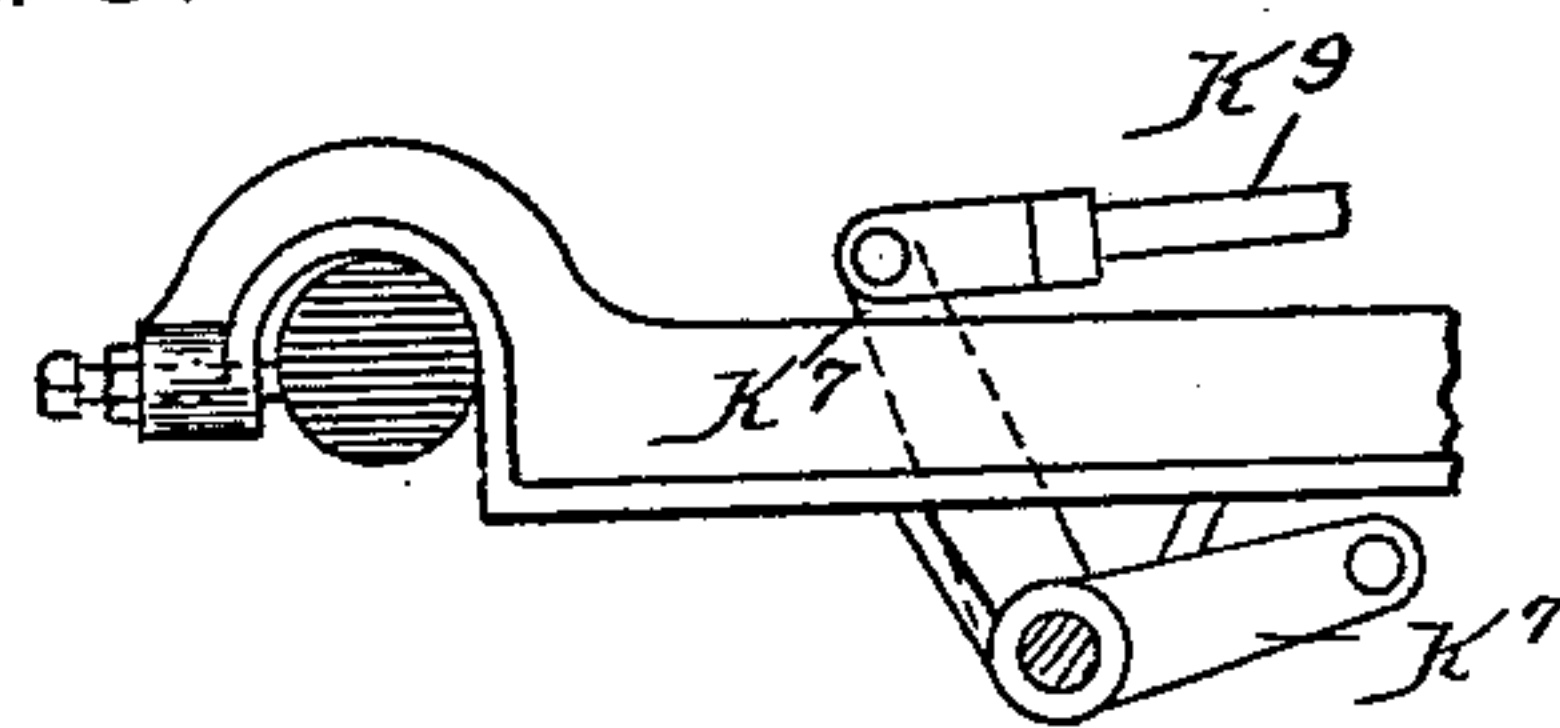


FIG. 6.



INVENTOR:
JOHN G. HODGSON
BY Munday, Everts & Adcock
HIS ATTORNEYS.

(No Model.)

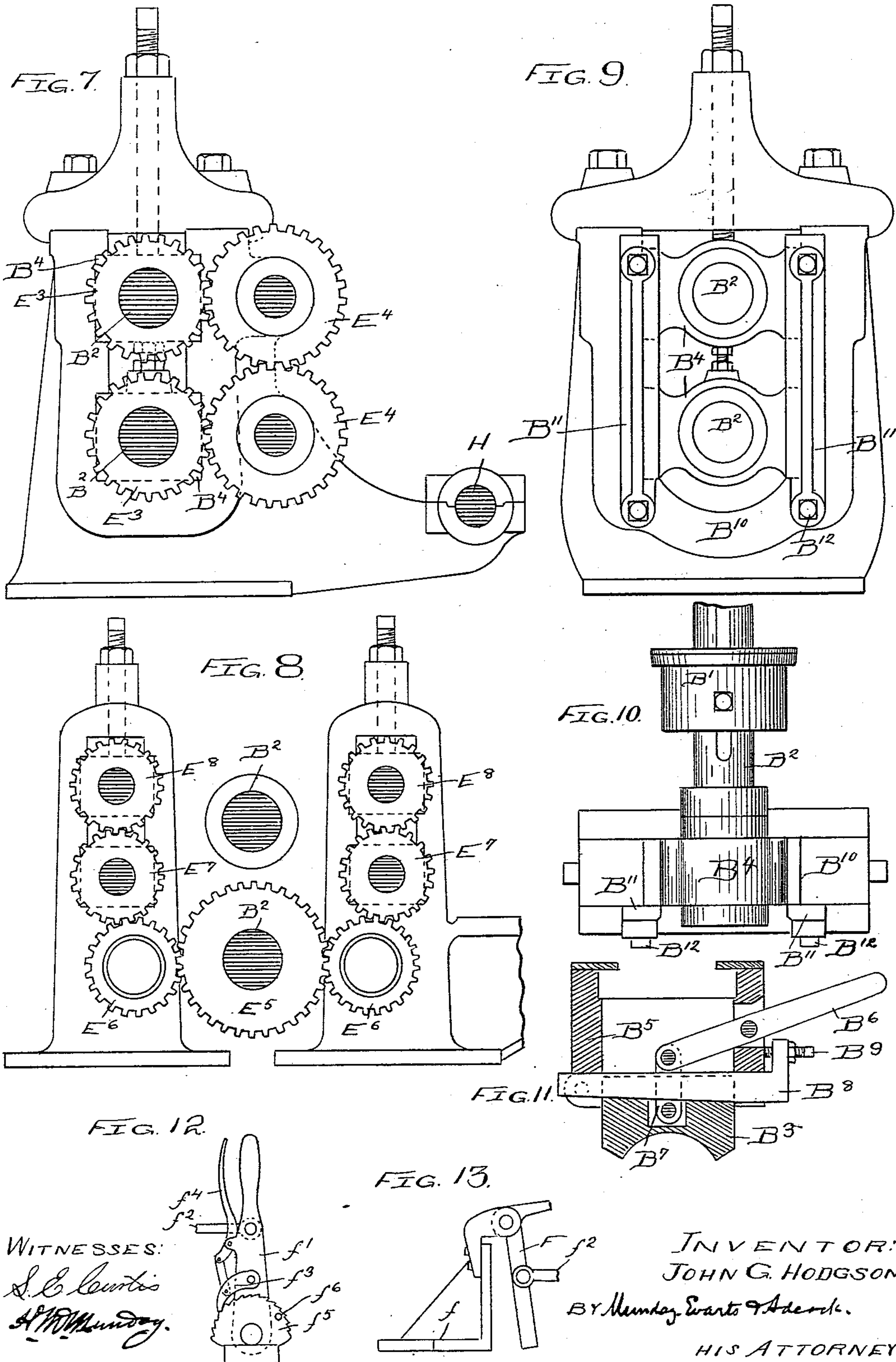
3 Sheets—Sheet 3.

J. G. HODGSON.

MACHINE FOR TRIMMING AND SLITTING PACKS OF METAL SHEETS.

No. 560,064.

Patented May 12, 1896.



UNITED STATES PATENT OFFICE.

JOHN G. HODGSON, OF MAYWOOD, ILLINOIS, ASSIGNOR TO EDWIN NORTON,
OF SAME PLACE, AND OLIVER W. NORTON, OF CHICAGO, ILLINOIS.

MACHINE FOR TRIMMING AND SLITTING PACKS OF METAL SHEETS.

SPECIFICATION forming part of Letters Patent No. 560,064, dated May 12, 1896.

Application filed December 5, 1894. Serial No. 530,883. (No model.)

To all whom it may concern:

Be it known that I, JOHN G. HODGSON, a citizen of the United States, residing in Maywood, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Machines for Trimming and Slitting Packs of Metal Sheets, of which the following is a specification.

My invention relates to machines for trimming or cutting packs of metal sheets.

The object of my invention is to produce a machine of a simple and durable construction, by means of which the end edges of a pack of metal sheets may be trimmed and squared in respect to the already trimmed side edges of the pack and the pack of sheets simultaneously slitted into proper size for tinning or for use.

My invention consists in the novel construction of parts and devices and novel combinations of parts and devices herein shown and described, and particularly pointed out in the claims.

In the accompanying drawings, forming a part of this specification, and in which similar letters of reference indicate like parts in all the views, Figure 1 is a plan view of a machine embodying my invention. Fig. 2 is a vertical section on line 2 2 of Fig. 1. Fig. 3 is an enlarged detail plan view of parts hereinafter to be described. Figs. 4, 5, 6, 7, and 8 are vertical detail sections on lines 4 4, 5 5, 6 6, 7 7, and 8 8, respectively, of Fig. 1. Fig. 9 is an end elevation of the housing for the shafts of the rotary cutters. Fig. 10 is a plan view of one of the rotary cutters, its shaft, and the housing therefor. Fig. 11 is a vertical section of one of the middle bearing-blocks for the cutter-shaft. Figs. 12 and 13 are detail views of parts hereinafter to be described.

In the drawings, A represents the frame of the machine; B B', the rotary cutters; B², the shafts to which the cutters are secured; and C C and C' C' are the feed-rollers, one pair in front and one at the rear of the rotary cutters.

D is a movable feed-table, consisting, preferably, of a series of constantly-revolving rollers *d d*.

F is a movable gage or guide at one end of the revolving roller feed-table D, by means of which the operator is enabled to adjust the position of the pack of sheets on the feed-

table, so as to bring its end edge into proper position in respect to the trimming-cutters at that end of the machine.

The movable gage or guide F is pivoted to a bracket or plate *f*, secured to the frame, and it is operated by a hand-lever *f'* through the connecting-rod *f²*. The lever *f'* is provided with a pawl *f³*, operated by a lever *f⁴*, and which engages a stationary ratchet *f⁵*, by means of which the operator may fix the movable gage F in any position necessary to properly adjust the pack in respect to the rotary cutters. A pin or stop *f⁶*, fixed to the ratchet *f⁵*, limits the movement of the lever *f'*, so that the movable gage F cannot be moved too far. The movable gage F may also be adjusted in position by reason of the bracket or plate *f*, upon which it is pivotally mounted, being adjustably secured to the frame of the machine by bolts *f⁷*, passing through slots *f⁸* in the plate *f*.

G is a yielding or movable stop or gage inserted between the roller feed-table D and the front pair of feed-rollers C C in front of the rotary cutters. This movable or yielding gage may be of any suitable construction, but consists, preferably, of a series of fingers *g*, adjustably secured to a rock-shaft *g'*, so that they may set closer together or farther apart to accommodate packs of different lengths, which rock-shaft is furnished with a weighted arm *g²*, by which the guide is normally in position in front of the side edge of the pack and permitted to yield or move automatically out of the way of the pack as it advances into the bite of the feed-rollers C C. This automatically-movable gage G serves to straighten the pack on the roller feed-table D, and, in connection with the feeder K, brings its front edge parallel to the axis of the feed-rollers C C and rotary cutters B B'. The shaft *g'* is journaled in suitable bearings *g³* on the frame of the machine. The feeder K, by which the pack of sheets is pushed or fed forward into the bite of the feed-rollers C C, may be of any suitable construction, but consists, preferably, of a pusher-bar adjustably fixed by adjusting-screws K' to sliding cross heads or bars K², which reciprocate upon suitable guides or ways K³ K³, secured to the frame between certain of the rollers *d d* of the roller feed-table D. The sliding bars or cross heads K² are operated by the attendant by

means of a treadle or lever K^4 , furnished with a spring K^5 and connected by a rod K^6 with a bent lever K^7 , which is connected by a link K^9 with the sliding bar or cross-head K^2 .

5 The individual rollers d of the roller feed-table D are journaled in suitable bearings d' on the frame of the machine, and are continually revolved by means of bevel-gears d^2 on their shafts meshing with bevel-gears d^3 on
10 the driving-shaft E.

There are three pairs of rotary cutters B B', the two extreme pairs for cutting or trimming the edges of the pack and the middle pair or one or more middle pairs for slitting the pack
15 into sheets of the desired size. To give proper support to the shafts B^2 of the rotary cutters at the middle and thus prevent the shafts from springing and to cause the middle pair of cutters to operate properly, I provide the shafts
20 with middle bearings B^3 B^3 as well as end bearings B^4 B^4 . Each of the middle bearings B^3 is mounted movably in a housing B^5 , so that it may be moved out of the way when it is desired to slip the rotary cutters off their
25 shafts for grinding or replacing. To facilitate this, each of the bearings B^3 is furnished with a lever B^6 , connected to the bearing by a link B^7 , by means of which the bearing can be conveniently withdrawn while the cutters
30 are being slipped by the same. To secure the bearing B^3 firmly and quickly in place in its housing B^5 , I provide a wedge or tapering key B^8 with an adjustable stop-screw B^9 , so that by pulling this tapering key out the
35 bearing B^3 is permitted to be lifted in its housing by its lever, while the stop-screw B^9 enables the tapering key to be again inserted in the same position as before, thus saving the necessity of adjusting the bearing-block
40 in position every time. To permit the rotary cutters B B' to be readily removed from their shafts B^2 , the housing B^{10} is provided with removable gibs B^{11} B^{11} , removably secured in place by bolts B^{12} , and the opening in the
45 housing B^{10} is made large enough to permit the rotary cutters to be slipped off the shafts B^2 when the gibs B^{11} are removed.

The rear pair of feed-rollers C' C' are journaled upon sliding bearings C^2 C^2 , which are
50 reciprocated on suitable guides C^4 C^4 on the frame of the machine by means of screws C^5 C^5 , geared together by a chain C^6 , one of the screws being furnished with a hand-wheel C^7 . By this means the feed or discharge rollers C'
55 C' may be removed or withdrawn from the rotary cutter-shafts B^2 B^2 when it is desired to remove the rotary cutters from their shafts, and this also enables the withdrawing-rollers C' C' to be accurately adjusted into position
60 to grasp the pack or sheet just as its rear edge leaves the rotary cutters.

From the driving-shaft H motion is communicated to one of the shafts B^2 by the gears E' E^2 . The two shafts B^2 are geared together
65 by gears E^4 E^4 , and the feed-roller shafts are driven by gears E^5 E^6 , and the shafts of the feed-rollers C' C' by the gears E^7 E^8 E^9 .

M is a stationary guard, adjustably fixed to the frame to guide the entrance of the pack onto the rotary feed-table D.

In operation the pack of metal sheets is, by the revolving movement of the rollers of the feed-table, carried against the movable gage F at the inner end of this roller feed-table. The operator then, by means of this
70 movable gage F, adjusts the position of the sheet longitudinally on the feed-table, so as to bring its end edges properly in line with the pairs of edge-trimming cutters B B' and B B' and at the same time, by operation of
80 the feeder K and movable gage G, brings the pack into parallelism with the feed-rollers C C. As the roller feed-table tends to carry the pack continuously against the movable gage F, and as the operator can move the pack back
85 in the opposite direction by this movable gage F, he is thus enabled to properly divide the surplus to be trimmed off at the two end edges of the pack and thus trim or true both end edges of all the sheets in the pack, if that be
90 possible. After the pack is thus properly adjusted in position to enter the feed-rollers C C the operator, by the further movement of the feeder K, forces the pack fairly and truly into the bite of the feed-rollers and through
95 the machine.

I do not herein claim the combination with rotary cutters removably mounted on shafts and a housing for the bearings of said shafts, provided with removable gibs to permit the
100 rotary cutters to be removed from the shafts through said housing, as such subject-matter is claimed in my companion application, Serial No. 530,882, filed of even date herewith.

I claim—

1. In a machine for trimming and slitting packs of metal sheets, the combination with the rotary cutters and feed-rollers of a roller feed-table, a movable gage at one end of the feed-table, a movable or yielding gage in front
110 of the feed-rollers between the same and the feed-table, and a reciprocating feeder to force the pack of sheets into the bite of the feed-rollers, substantially as specified.

2. The combination in a sheet-metal trimming or shearing machine with two or more pairs of opposing rotary cutters and a pair of feed-rollers parallel to the axes of the rotary cutters and between which the sheets pass, of a roller feed-table consisting of rollers
120 transverse to the feed-rollers and rotary cutters substantially as specified.

3. The combination in a sheet-metal shearing or trimming machine, with rotary cutters and a pair of feed-rollers in front of said rotary
125 cutters and between which the sheets pass, of a roller feed-table consisting of rollers transverse to the feed-rollers and rotary cutters, a movable gage F near one end of the roller feed-table, and means for moving said gage
130 to move and adjust the position of the sheets in respect to the rotary cutters, substantially as specified.

4. The combination with rotary cutters and

feed-rollers, of a feed-table, a movable gage at one end of the table, means for moving the sheets against said gage, and a movable or yielding gage between the feed-table and the feed-rollers, substantially as specified.

5. The combination with two or more pairs of opposing rotary cutters of a feeder, means for moving the sheets to and fro longitudinally in front of said pairs of rotary cutters to divide the surplus to be trimmed off at each end, said means comprising a mechanism for moving the pack in one direction and a movable gage and a hand-lever and connections for moving the pack in the opposite direction at the will of the operator, and a movable stop or gage between the feeder and cutters, substantially as specified.

6. The combination with rotary cutters of a feeder, and a movable stop or gage between the feeder and cutters, and a movable gage F extending transversely to the rotary cutters, a hand-lever and connections for operating said movable gage, and means for moving the sheets against said movable gage F, substantially as specified.

7. The combination with rotary cutters of a roller feed-table, the individual rollers of which extend at right angles to the axes of the cutters, and a movable gage at the end of the roller feed-table, and a hand-lever and connections for operating said movable gage whereby the sheets may be moved and adjusted longitudinally in front of the cutters in both directions, substantially as specified.

8. The combination with two pairs of opposing rotary cutters of means for adjusting the pack into position parallel to the rotary cutters, and means for moving and adjusting the pack longitudinally in both directions to divide the surplus to be trimmed off at the two edges of the pack, said means comprising a mechanism for moving the pack in one direction and a movable gage and hand-lever for moving the pack in the opposite direction at the will of the operator, substantially as specified.

9. The combination with two pairs of opposing rotary cutters of means for adjusting the pack into position parallel to the rotary cutters, and means for moving and adjusting the pack longitudinally in both directions to divide the surplus to be trimmed off at the two end edges of the pack, said means comprising a mechanism for moving the pack in one direction and a movable gage and a hand-lever for moving the pack in the opposite direction at the will of the operator, substantially as specified.

10. The combination with rotary cutters and a pair of feed-rollers in front of said rotary cutters, of a roller feed-table, a reciprocating feeder, sliding bars or cross-heads extending between the individual rollers of the roller feed-table upon which the feeder is mounted, substantially as specified.

11. The combination with rotary cutters and a pair of feed-rollers in front of said ro-

tary cutters, of a roller feed-table, a reciprocating feeder, sliding bars or cross-heads extending between the individual rollers of the roller feed-table upon which the feeder is mounted, and means for adjusting the feeder upon said sliding bars, substantially as specified.

12. The combination with two pairs of opposing rotary cutters and a pair of feed-rollers parallel to the axes of the cutters, of a roller feed-table consisting of rollers transverse to the feed-rollers and rotary cutters for moving the pack longitudinally in one direction, a movable gage F near one end of the roller feed-table, and a hand-lever and connections for operating said movable gage F for moving the pack longitudinally in the other direction and thus dividing the surplus to be trimmed off at the two end edges of the pack, substantially as specified.

13. In a machine for trimming and slitting packs of metal sheets the combination of a frame with cutter-shafts $B^2 B^2$, two or more pairs of rotary cutters secured to said shafts, said shafts being furnished with intermediate bearings $B^3 B^3$ having an open space between them to permit the sheets to pass between said bearings, one of said bearings being connected to said frame above one of said shafts and the other being connected to said frame below the other shaft, substantially as specified.

14. The combination with shafts $B^2 B^2$ furnished with removable cutters $B B'$ and intermediate bearings B^3 , of a housing B^5 for said bearing B^3 and a tapering key or wedge for holding said movable bearing in place in its housing, substantially as specified.

15. The combination with shafts $B^2 B^2$ furnished with removable cutters $B B'$ and intermediate bearings B^3 , of a housing B^5 for said bearing B^3 and a tapering key or wedge for holding said movable bearing in place in its housing, said tapering key or wedge being provided with an adjustable stop, substantially as specified.

16. The combination with shafts $B^2 B^2$ furnished with removable cutters $B B'$ and intermediate bearings B^3 , of a housing B^5 for said bearing B^3 and a tapering key or wedge for holding said movable bearing in place in its housing, said tapering key or wedge being provided with an adjustable stop, and a lever for moving said bearing B^3 , substantially as specified.

17. The combination with rotary cutter-shafts $B^2 B^2$ furnished with removable rotary cutters $B B'$, bearings for said shafts $B^2 B^2$ near the ends thereof, and an intermediate removable bearing B^3 , the bearings B^4 at one end of said shafts being secured in a housing B^{10} provided with removable gibs $B^{11} B^{11}$, substantially as specified.

JOHN G. HODGSON.

Witnesses:

H. M. MUNDAY,
L. E. CURTIS.