No. 796,367. PATENTED AUG. 1, 1905.

L. C. STEELE.

EXPANDED METAL MACHINE.

APPLICATION FILED JAN. 3, 1905.

2 SHEETS—SHEET 1.

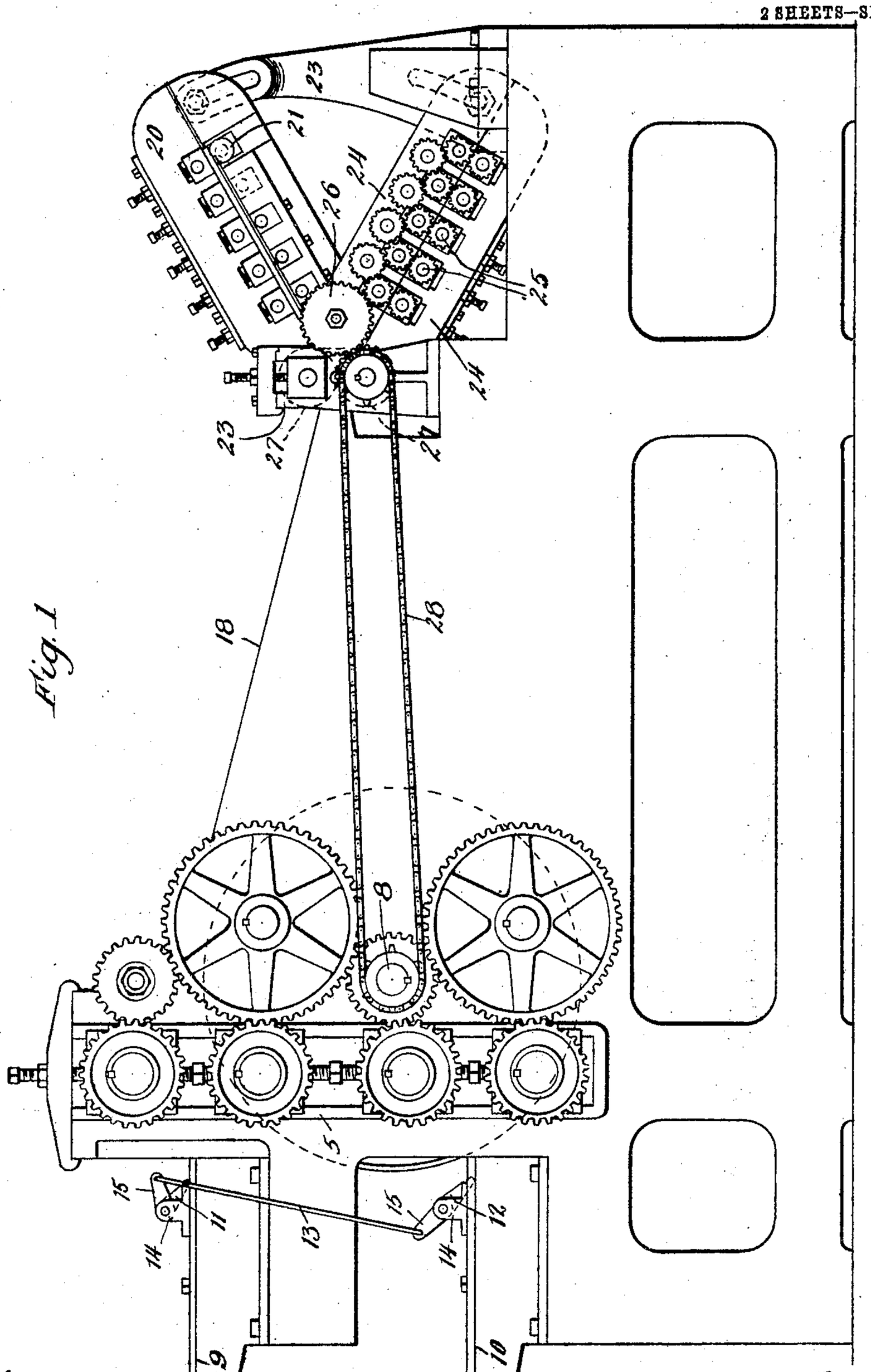

Fig. 1

Witnesses:

Wm. Geiger

A. D. Hundley

Inventor:

Lawrence C. Steele

By Hundley, Coats & Adcock.

Attorneys

ANDREW. B GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

No. 796,367. PATENTED AUG. 1, 1905.

L. C. STEELE.

EXPANDED METAL MACHINE.

APPLICATION FILED JAN. 3, 1905.

2 SHEETS—SHEET 2.

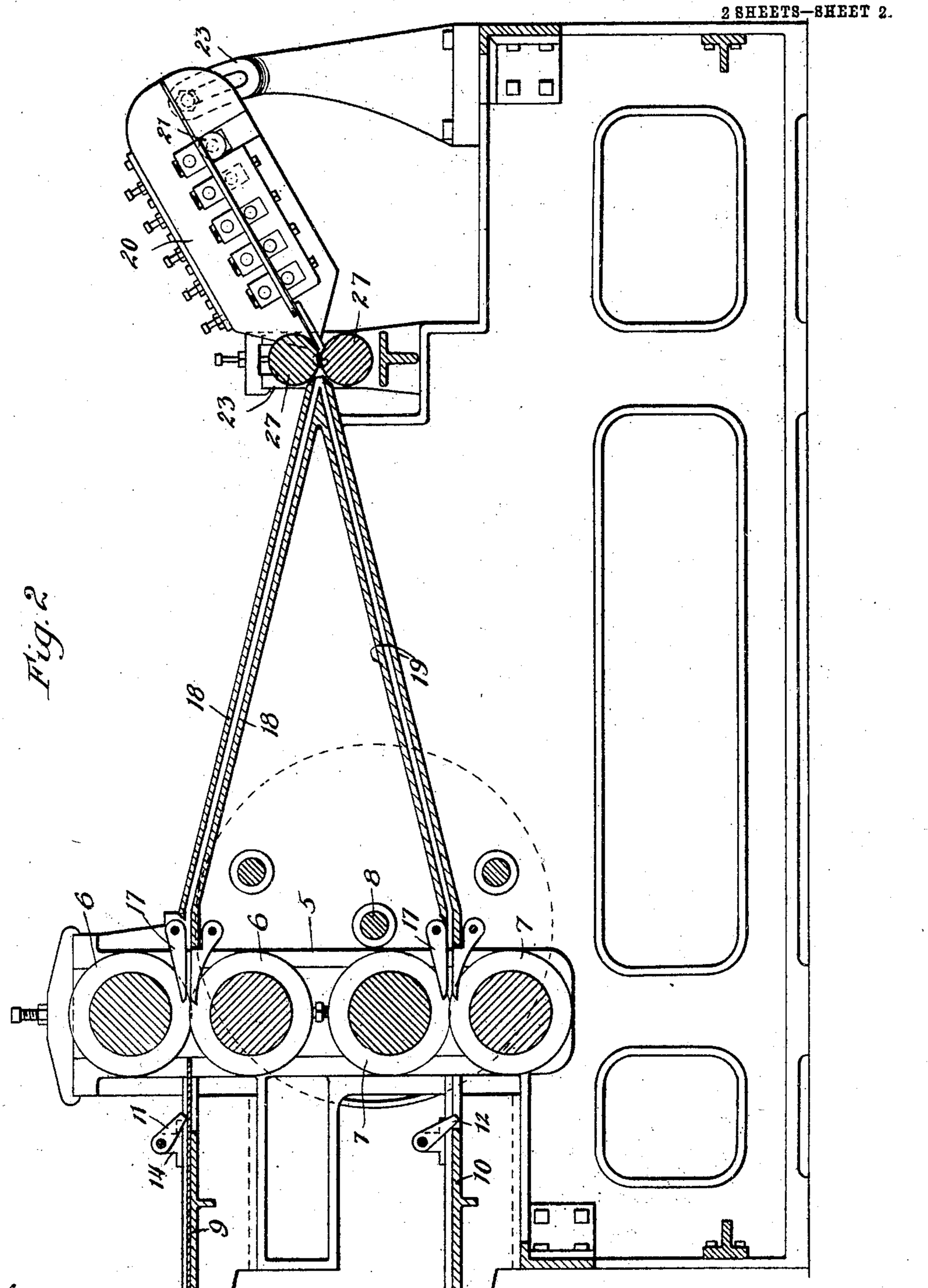

Fig. 2

Witnesses:
Wm. Geiger
A. W. Hunday.

Inventor:
Lawrence C. Steele

By Wm. Hunday, Coats & Adcock
Attorneys

UNITED STATES PATENT OFFICE.

LAWRENCE C. STEELE, OF WHEELING, WEST VIRGINIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO OSCAR BRADFORD, OF CHICAGO, ILLINOIS, AND WILLIAM L. CALDWELL, OF NEW YORK, N. Y.

EXPANDED-METAL MACHINE.

No. 796,367. Specification of Letters Patent. Patented Aug. 1, 1905.

Application filed January 3, 1905. Serial No. 239,286.

To all whom it may concern:

Be it known that I, LAWRENCE C. STEELE, a citizen of the United States, residing in Wheeling, in the county of Ohio and State of West Virginia, have invented a new and useful Improvement in Expanded-Metal Machines, of which the following is a specification.

Machines for manufacturing expanded metal from sheet metal and consisting of cutting-rolls for first completely slitting the sheets and expanding mechanism receiving the sheets from the cutting-rolls and serving to open the slits, and thereby to complete the article, are now in use. The best-known construction of cutting-rolls employed in these machines is that shown in the patent to Lewis E. Curtis, No. 671,915, of April 9, 1901. The work done by these cutting-rolls is very severe, and as a consequence the knives or cutting devices employed in them require to be sharpened quite frequently, and consequently the amount of work which the rolls are capable of doing without being sharpened is limited. There is no such limit, however, in the case of the expanding mechanism, and therefore the combined machine as organized at present does not utilize the full capacity of the expanding mechanism, because the rolls must be changed or stopped for sharpening, and during these operations the expander is necessarily idle.

My object in this invention is to increase the capacity of the cutting mechanism, so as to obtain the benefit of the full capacity of the expander and at the same time to reduce the amount of work required from the knives, so that they will remain sharp for longer periods of time, notwithstanding the increase in the output of the machine. I accomplish this object or result by duplicating the cutting-rolls, so that while the sheets may be fed as rapidly as they can be expanded, yet each set of rolls will be called upon to slit only one-half the sheets, the two sets of rolls acting on alternate sheets and both delivering the slitted sheets to the same expander.

The nature of my invention is fully set forth below and also illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my improved machine, and Fig. 2 is a longitudinal vertical section.

In suitable standards 5 are mounted two pairs of cutting-rolls 6 6 and 7 7, driven by trains of gears (plainly shown at Fig. 1) and receiving their power from the shaft 8. Feed-tables 9 and 10 are provided, from which the sheets are fed into the rolls. In order to properly time the sheets from these tables so that they may not interfere with one another when they reach the expander, I provide the tables with automatically-operating latches or intercepting devices 11 and 12, connected together by a rod 13. These latches are pivotally supported in standards 14 at each side of the table and are provided with crank-arms 15, by which they are connected to said rod 13. As shown, one of these latches is down in position to intercept any sheet which may be fed on the lower table, while the upper one is raised, so as to permit the sheet 16 (shown at Fig. 2) to enter the rolls. As soon as sheet 16 has passed the upper latch the lower one may be raised by the sheet entering from the lower table, and at the same time the upper latch will be lowered, so as to prevent any further feeding upon the upper table until the lower table is clear. These latches thus insure the feeding of the sheets on the two tables alternately, so that they cannot come together in the expander.

17 represents the strippers for stripping the metal from the knives, and 18 18 are the guides between which the slitted sheets from the upper rolls are conducted to the expander, and 19 19 are similar guides for conducting the sheets from the lower rolls to the expander. As shown, the entering point of the expander is located in a horizontal plane between the pairs of cutting-rolls, so that the guides by which the slitted sheets are conducted to the expander are inclined in different directions. This is a desirable arrangement, but not essential.

The expanding mechanism which I show is known as the "Lewis E. Curtis" mechanism and is like that shown in his application, Serial No. 109,421, filed May 29, 1902, and it consists of two supports, one for each longitudinal half of the sheet, said supports diverging from each other in both horizontal and vertical directions and being provided with feeding devices taking hold of the unexpanded portions of the sheet on said supports. The upper inclined one of these supports is clearly shown at 20 in Fig. 2, and the frame in which it and

its feed-rolls 21 are mounted is shown at 23, and the frame of the downwardly-inclined support is shown at 24 and its feed-rolls at 25. Both these supports are preferably adjustable at their outer ends, as is plainly indicated in the drawings in Fig. 1. The rolls of the downwardly-inclined support are driven from the pinion 26 by the train of gearing, (plainly indicated at Fig. 1,) and the rolls of the upwardly-inclined support are driven in a similar manner by gearing at the farther side of the machine. The sheets are received from the conducting-guides 18 and 19 by a pair of driven feed-rolls 27 and are delivered by said feed-rolls to the expanding mechanism. Power may be carried from the cutting-roll gearing to these feed-rolls by belt 28.

While my improvements have been devised with special reference to use with the Curtis cutting-rolls and the Curtis expander, it will be understood that I do not wish to be limited in my claims to either.

By the use of my invention I am enabled to greatly reduce the cutting speed of the rolls, and thereby reduce the excessive wear and tear due to high speed and at the same time increase the capacity of the machine. The rolls acting only on alternate sheets are given intervals of rest and do not become heated as in cases where they operate continuously.

I claim—

1. The combination with an expanding mechanism, of two pairs of slitting-rolls acting on alternate sheets and delivering them alternately to the expanding mechanism.

2. The combination with an expanding mechanism, of two pairs of slitting-rolls acting on alternate sheets and delivering them alternately to the expanding mechanism, and guides for guiding the slitted sheets to the expanding mechanism.

3. The combination with an expanding mechanism, of two pairs of slitting-rolls arranged one above the other and acting on alternate sheets, and guides for conducting the slitted sheets from both pairs to the expanding mechanism.

4. The combination with an expanding mechanism, of two pairs of slitting-rolls acting on alternate sheets and delivering them alternately to the expanding mechanism, and means for regulating the feed of the sheets to the rolls.

5. The combination with an expanding mechanism, of two pairs of slitting-rolls acting on alternate sheets and delivering them alternately to the expanding mechanism and automatic means for regulating the feed of the sheets to the rolls.

6. The combination with an expanding mechanism, of two pairs of slitting-rolls acting on alternate sheets and delivering them alternately to the expanding mechanism, and means whereby the sheet being slitted in one pair of rolls may during the operation upon it prevent the feeding of another sheet into the other pair of rolls.

December 29, 1904.

LAWRENCE C. STEELE.

Witnesses:

W. H. ZIMMERMAN, Jr.,

A. H. WIEDEBUSCH.